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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Real Case

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence	3 °
Day step for calculation	1 days
Time step for calculation	1 minutes

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

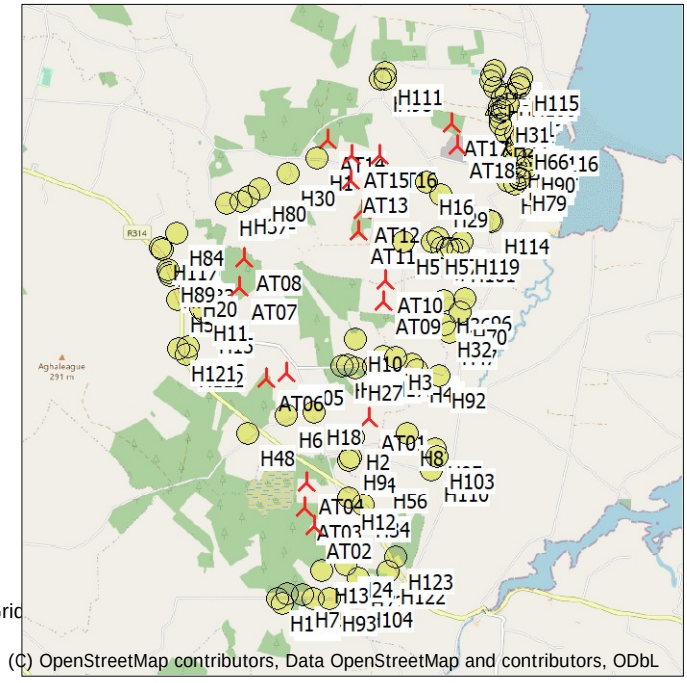
Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
263	305	173	263	215	192	359	1,103	1,091	912	892	828

W	WNW	NW	NNW	Sum
483	620	606	455	8,760

Monthly aggregation of real case reduction
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Elevation Grid Data Object: 6289 Tirawley WF_EMDGrid
Receptor grid resolution: 1.0 m

All coordinates are in
Irish ITM-IRENET95 (IE), geocentric, GRS80



Scale 1:100,000

New WTG Shadow receptor

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Shadow data Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
1	515,725	834,020	42.8	AT01	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
2	514,978	832,589	53.5	AT02	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
3	514,857	832,846	58.2	AT03	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
4	514,889	833,179	55.7	AT04	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
5	514,649	834,627	78.2	AT05	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
6	514,381	834,572	78.6	AT06	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
7	514,033	835,779	108.5	AT07	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
8	514,109	836,162	91.6	AT08	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
9	515,958	835,555	102.6	AT09	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
10	515,991	835,837	96.2	AT10	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
11	515,645	836,489	110.2	AT11	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
12	515,700	836,763	110.8	AT12	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
13	515,557	837,162	116.7	AT13	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
14	515,244	837,695	148.5	AT14	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
15	515,574	837,498	128.3	AT15	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
16	515,940	837,488	115.9	AT16	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
17	516,909	837,891	112.8	AT17	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
18	516,972	837,587	118.1	AT18	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Degrees from south cw	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]	[°]		[m]
A	H1	515,110	837,466	144.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
B	H2	515,526	833,767	46.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
C	H3	516,107	834,819	61.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
D	H4	515,947	834,836	64.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
E	H5	516,227	836,339	87.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
F	H6	514,628	834,072	64.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
G	H7	513,577	835,455	95.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
H	H8	516,241	833,804	41.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
I	H9	515,489	833,504	47.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5

To be continued on next page...

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SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Real Case

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Degrees from south cw	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]	[°]		[m]
J	H10	515,575	835,060	97.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
K	H11	513,526	835,513	85.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
L	H12	515,450	832,962	46.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
M	H13	515,080	831,996	53.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
N	H14	515,456	833,467	47.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
O	H15	513,601	835,338	94.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
P	H16	516,561	837,118	97.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
Q	H17	515,886	834,729	56.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
R	H18	515,019	834,112	57.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
S	H19	517,530	838,028	85.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
T	H20	513,391	835,822	67.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
U	H21	517,553	837,950	79.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
V	H22	517,556	837,865	77.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
W	H23	516,320	834,718	54.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
X	H24	515,390	832,068	38.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
Y	H25	517,622	837,746	68.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
Z	H26	517,552	838,096	83.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AA	H27	515,559	834,678	65.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AB	H28	515,805	834,702	58.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AC	H29	516,744	836,946	80.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AD	H30	514,721	837,259	133.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AE	H31	517,581	838,054	80.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AF	H32	516,774	835,227	58.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AG	H33	513,365	835,996	66.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AH	H34	515,641	832,856	42.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AI	H35	517,606	838,071	77.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AJ	H36	516,764	835,557	63.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AK	H37	514,091	836,904	134.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AL	H38	517,490	838,353	90.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AM	H39	515,462	834,716	69.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AN	H40	516,384	834,641	46.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AO	H41	513,902	836,884	135.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AP	H42	517,583	838,226	81.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AQ	H43	515,398	834,709	70.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AR	H44	517,725	837,501	50.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AS	H45	517,434	838,443	92.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AT	H46	517,697	837,346	48.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AU	H47	516,822	835,130	50.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AV	H48	514,129	833,845	67.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AW	H49	517,741	837,449	48.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AX	H50	517,762	837,602	51.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AY	H51	517,663	838,130	72.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AZ	H52	517,766	837,561	51.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BA	H53	517,762	837,501	49.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BB	H54	517,767	837,579	51.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BC	H55	517,742	837,383	46.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BD	H56	515,873	833,236	33.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BE	H57	516,625	836,322	65.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BF	H58	517,758	837,737	54.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BG	H59	513,235	835,631	60.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BH	H60	517,632	838,261	76.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BI	H61	517,638	837,109	52.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BJ	H62	514,190	836,978	133.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BK	H63	517,742	837,283	46.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BL	H64	517,457	838,516	91.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BM	H65	516,738	836,261	61.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BN	H66	517,836	837,697	46.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BO	H67	517,806	837,295	42.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BP	H68	516,697	836,380	64.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BQ	H69	517,489	838,569	90.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BR	H70	516,975	835,388	52.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BS	H71	517,798	837,225	45.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BT	H72	515,557	831,893	28.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BU	H73	517,792	837,189	45.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5

To be continued on next page...

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SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Real Case

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Degrees from south cw	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]	[°]		[m]
BV	H74	517,729	837,077	47.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BW	H75	514,818	831,687	50.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BX	H76	513,130	835,959	59.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BY	H77	516,817	836,244	59.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BZ	H78	517,748	838,272	65.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CA	H79	517,791	837,155	45.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CB	H80	514,340	837,065	127.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CC	H81	513,118	835,991	59.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CD	H82	517,804	837,142	44.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CE	H83	514,941	831,643	48.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CF	H84	513,221	836,506	57.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CG	H85	513,108	836,017	58.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CH	H87	517,884	837,289	39.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CI	H88	514,595	831,709	50.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CJ	H89	513,105	836,024	58.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CK	H90	517,910	837,382	36.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CL	H91	516,865	836,247	57.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CM	H92	516,678	834,560	29.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CN	H93	515,173	831,629	39.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CO	H94	517,945	837,469	31.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CP	H95	516,609	833,595	26.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CQ	H96	517,041	835,575	49.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CR	H97	515,971	838,486	119.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CS	H98	516,040	838,493	120.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CT	H99	517,816	838,358	65.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CU	H100	517,798	838,402	68.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CV	H101	516,953	836,216	54.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CW	H102	513,352	834,999	71.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CX	H103	516,624	833,488	21.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CY	H104	515,505	831,678	28.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CZ	H105	514,472	831,653	49.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DA	H106	517,382	836,605	25.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DB	H109	513,032	836,295	56.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DC	H110	516,551	833,308	21.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DD	H111	516,041	838,580	118.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DE	H112	513,331	834,901	73.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DF	H113	514,539	831,580	45.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DG	H114	517,409	836,575	22.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DH	H115	517,850	838,466	66.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DI	H116	518,085	837,658	18.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DJ	H117	513,005	836,321	56.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DK	H119	517,007	836,317	51.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DL	H121	513,228	834,982	68.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DM	H122	515,945	831,977	21.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DN	H123	516,052	832,172	22.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DO	H284	517,503	837,983	86.1	1.0	1.0	1.0	0.0	90.0	Fixed direction	2.0

Calculation Results

Shadow receptor

No.	Name	Shadow, worst case Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow, expected values Shadow hours per year [h/year]
A	H1	109:11	211	0:59	16:33
B	H2	55:32	155	0:34	6:48
C	H3	3:38	20	0:17	0:32
D	H4	4:54	23	0:20	0:42
E	H5	110:08	177	0:54	15:30
F	H6	4:42	24	0:18	0:43
G	H7	34:02	126	0:35	4:36
H	H8	85:01	161	0:52	15:12
I	H9	57:21	140	0:41	6:45
J	H10	11:04	53	0:25	1:39

To be continued on next page...

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SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Real Case

...continued from previous page

		Shadow, worst case			Shadow, expected values
No.	Name	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
K	H11	55:07	77	0:51	8:58
L	H12	142:45	250	0:48	22:34
M	H13	0:00	0	0:00	0:00
N	H14	64:39	147	0:44	7:42
O	H15	14:44	68	0:24	1:49
P	H16	101:23	227	0:41	17:06
Q	H17	6:57	30	0:22	1:02
R	H18	41:26	99	0:37	6:41
S	H19	63:38	131	0:43	8:42
T	H20	78:47	148	0:42	13:34
U	H21	61:26	114	0:42	9:05
V	H22	61:25	112	0:42	9:47
W	H23	30:13	82	0:32	2:58
X	H24	0:00	0	0:00	0:00
Y	H25	56:07	112	0:41	9:18
Z	H26	57:37	127	0:41	7:36
AA	H27	14:23	43	0:30	2:13
AB	H28	8:26	33	0:24	1:16
AC	H29	69:29	210	0:31	11:26
AD	H30	40:06	148	0:31	6:23
AE	H31	51:26	104	0:39	7:00
AF	H32	40:42	128	0:33	7:06
AG	H33	52:12	107	0:39	8:36
AH	H34	73:12	165	0:39	12:18
AI	H35	47:39	101	0:38	6:28
AJ	H36	48:17	118	0:35	8:57
AK	H37	17:27	107	0:19	2:46
AL	H38	58:39	122	0:38	6:24
AM	H39	16:56	46	0:34	2:31
AN	H40	20:56	64	0:32	2:21
AO	H41	9:08	59	0:17	1:32
AP	H42	52:03	118	0:37	6:23
AQ	H43	20:15	49	0:36	3:02
AR	H44	64:07	139	0:36	11:34
AS	H45	53:07	100	0:38	5:34
AT	H46	50:22	107	0:37	9:09
AU	H47	40:07	124	0:31	6:54
AV	H48	22:02	89	0:27	2:24
AW	H49	60:03	130	0:36	10:45
AX	H50	44:14	104	0:34	8:14
AY	H51	40:10	94	0:35	5:21
AZ	H52	46:55	113	0:34	8:52
BA	H53	58:45	140	0:35	10:41
BB	H54	44:59	107	0:35	8:28
BC	H55	52:31	120	0:36	9:25
BD	H56	33:48	109	0:28	4:37
BE	H57	99:27	259	0:37	14:20
BF	H58	38:48	92	0:34	6:26
BG	H59	59:20	170	0:35	9:32
BH	H60	44:35	109	0:34	5:30
BI	H61	0:00	0	0:00	0:00
BJ	H62	22:01	118	0:22	3:31
BK	H63	47:55	96	0:35	8:36
BL	H64	45:58	88	0:37	4:36
BM	H65	74:00	222	0:33	11:29
BN	H66	32:58	84	0:31	5:37
BO	H67	43:06	106	0:32	7:50
BP	H68	93:13	257	0:35	13:36
BQ	H69	38:54	82	0:33	3:51
BR	H70	32:44	105	0:27	6:13
BS	H71	41:41	90	0:32	7:28
BT	H72	0:00	0	0:00	0:00
BU	H73	37:51	81	0:32	6:42

To be continued on next page...

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SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Real Case

...continued from previous page

No.	Name	Shadow, worst case Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow, expected values Shadow hours per year [h/year]
BV	H74	9:20	33	0:21	1:30
BW	H75	0:00	0	0:00	0:00
BX	H76	29:10	78	0:30	4:47
BY	H77	66:36	209	0:30	10:27
BZ	H78	32:06	88	0:30	4:04
CA	H79	33:45	72	0:32	5:53
CB	H80	29:43	148	0:23	4:50
CC	H81	27:58	77	0:29	4:33
CD	H82	32:27	70	0:32	5:38
CE	H83	0:00	0	0:00	0:00
CF	H84	28:40	80	0:29	3:53
CG	H85	26:58	74	0:29	4:24
CH	H87	42:36	111	0:30	7:41
CI	H88	0:00	0	0:00	0:00
CJ	H89	26:43	75	0:28	4:21
CK	H90	45:29	125	0:29	8:13
CL	H91	63:15	208	0:29	10:00
CM	H92	9:50	35	0:26	1:16
CN	H93	0:00	0	0:00	0:00
CO	H94	32:03	92	0:28	6:03
CP	H95	21:00	61	0:30	4:07
CQ	H96	39:09	135	0:26	6:52
CR	H97	39:35	114	0:39	4:25
CS	H98	34:44	92	0:46	4:07
CT	H99	27:55	84	0:27	3:29
CU	H100	29:58	91	0:28	3:39
CV	H101	56:19	198	0:27	9:01
CW	H102	12:15	43	0:26	1:43
CX	H103	30:00	81	0:29	5:21
CY	H104	0:00	0	0:00	0:00
CZ	H105	0:00	0	0:00	0:00
DA	H106	25:42	110	0:18	4:18
DB	H109	20:51	65	0:25	3:04
DC	H110	6:13	43	0:15	0:52
DD	H111	40:11	100	0:44	4:21
DE	H112	11:45	40	0:29	1:39
DF	H113	0:00	0	0:00	0:00
DG	H114	25:01	110	0:18	4:10
DH	H115	27:27	89	0:26	3:17
DI	H116	20:09	65	0:24	3:32
DJ	H117	19:44	64	0:25	2:54
DK	H119	46:24	174	0:25	7:32
DL	H121	9:35	38	0:24	1:20
DM	H122	30:23	71	0:36	5:16
DN	H123	25:12	83	0:25	4:52
DO	H284	68:19	131	0:45	9:45

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
1	AT01	183:04	28:38
2	AT02	107:27	15:46
3	AT03	140:00	18:32
4	AT04	154:04	23:58
5	AT05	47:14	6:48
6	AT06	72:32	10:21
7	AT07	189:40	30:25
8	AT08	132:07	21:46
9	AT09	159:51	24:04
10	AT10	183:38	25:35
11	AT11	107:54	18:12
12	AT12	104:12	16:16

To be continued on next page...

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SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Real Case

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
13	AT13	106:05	17:10
14	AT14	67:17	9:21
15	AT15	99:07	18:13
16	AT16	75:20	12:55
17	AT17	353:22	53:38
18	AT18	371:04	55:18

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: A - H1

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May			June
1	08:59		09:33 (12)	08:27		08:56 (13)	07:29			07:13		07:36 (16)	06:02		07:19 (15)	05:12
	16:24	19	09:52 (12)	17:16	20	09:16 (13)	18:13			20:12	29	08:05 (15)	21:09	28	07:47 (15)	22:00
2	08:58		09:33 (12)	08:26		08:54 (13)	07:26			07:10		07:34 (16)	06:00		07:21 (15)	05:11
	16:25	20	09:53 (12)	17:18	23	09:17 (13)	18:15			20:14	32	08:06 (15)	21:11	24	07:45 (15)	22:01
3	08:58		09:33 (12)	08:24		08:52 (13)	07:24			07:08		07:32 (16)	05:58		07:24 (15)	05:10
	16:26	20	09:53 (12)	17:20	25	09:17 (13)	18:17			20:16	36	08:08 (15)	21:13	17	07:41 (15)	22:02
4	08:58		09:32 (12)	08:22		08:50 (13)	07:22			07:05		07:29 (16)	05:56		07:30 (15)	05:09
	16:27	21	09:53 (12)	17:22	28	09:18 (13)	18:19			20:18	38	08:07 (15)	21:14	5	07:35 (15)	22:04
5	08:57		09:32 (12)	08:20		08:48 (13)	07:19			07:03		07:27 (16)	05:54			05:08
	16:29	22	09:54 (12)	17:24	30	09:18 (13)	18:21			20:20	41	08:08 (15)	21:16			22:05
6	08:57		09:31 (12)	08:18		08:46 (13)	07:17			07:00		07:24 (15)	05:52			05:07
	16:30	23	09:54 (12)	17:26	33	09:19 (13)	18:23			20:22	44	08:08 (15)	21:18			22:06
7	08:57		09:30 (12)	08:16		08:44 (13)	07:14			06:58		07:22 (15)	05:50			05:07
	16:31	24	09:54 (12)	17:28	35	09:19 (13)	18:25			20:24	47	08:09 (15)	21:20			22:07
8	08:56		09:30 (12)	08:14		08:42 (13)	07:12			06:55		07:19 (15)	05:48			05:06
	16:33	25	09:55 (12)	17:30	37	09:19 (13)	18:27			20:26	49	08:08 (15)	21:22			22:08
9	08:55		09:29 (12)	08:12		08:40 (13)	07:10			06:53		07:17 (15)	05:46			05:05
	16:34	25	09:54 (12)	17:32	40	09:20 (13)	18:29			20:28	51	08:08 (15)	21:24			22:09
10	08:55		09:28 (12)	08:10		08:37 (13)	07:07			06:50		07:15 (15)	05:44			05:05
	16:36	26	09:54 (12)	17:34	42	09:19 (13)	18:30			20:29	54	08:09 (15)	21:25			22:10
11	08:54		09:27 (12)	08:08		08:35 (13)	07:05			06:48		07:12 (15)	05:42			05:04
	16:37	27	09:54 (12)	17:36	44	09:19 (13)	18:32			20:31	56	08:08 (15)	21:27			22:10
12	08:53		09:28 (12)	08:06		08:33 (13)	07:02			06:46		07:10 (15)	05:40			05:04
	16:39	26	09:54 (12)	17:38	46	09:19 (13)	18:34			20:33	58	08:08 (15)	21:29			22:11
13	08:52		09:29 (12)	08:04		08:31 (13)	07:00			06:43		07:09 (15)	05:39			05:04
	16:40	25	09:54 (12)	17:41	48	09:19 (13)	18:36			20:35	59	08:08 (15)	21:31			22:12
14	08:52		09:30 (12)	08:02		08:29 (13)	06:57			06:41		07:08 (15)	05:37			05:03
	16:42	24	09:54 (12)	17:43	50	09:19 (13)	18:38			20:37	59	08:07 (15)	21:32			22:13
15	08:51		09:31 (12)	08:00		08:29 (13)	06:55			06:38		07:08 (15)	05:35			05:03
	16:44	23	09:54 (12)	17:45	50	09:19 (13)	18:40			20:39	59	08:07 (15)	21:34			22:13
16	08:50		09:32 (12)	07:58		08:28 (13)	06:52			06:36		07:09 (15)	05:33			05:03
	16:46	20	09:52 (12)	17:47	50	09:18 (13)	18:42			20:41	58	08:07 (15)	21:36			22:14
17	08:49		09:33 (12)	07:56		08:29 (13)	06:50			06:34		07:08 (15)	05:32			05:03
	16:47	19	09:52 (12)	17:49	48	09:17 (13)	18:44			20:43	57	08:05 (15)	21:38			22:14
18	08:47		09:35 (12)	07:54		08:30 (13)	06:47			06:31		07:08 (15)	05:30			05:03
	16:49	16	09:51 (12)	17:51	47	09:17 (13)	18:46			20:45	57	08:05 (15)	21:39			22:15
19	08:46		09:37 (12)	07:52		08:30 (13)	06:45			06:29		07:09 (15)	05:29			05:03
	16:51	12	09:49 (12)	17:53	45	09:15 (13)	18:48			20:46	55	08:04 (15)	21:41			22:15
20	08:45		09:41 (12)	07:49		08:31 (13)	06:42			06:27		07:09 (15)	05:27			05:03
	16:53	5	09:46 (12)	17:55	44	09:15 (13)	18:50			20:48	55	08:04 (15)	21:43			22:15
21	08:44			07:47		08:33 (13)	06:40			06:24		07:09 (15)	05:25			05:03
	16:55			17:57	41	09:14 (13)	18:52			20:50	53	08:02 (15)	21:44			22:16
22	08:43			07:45		08:33 (13)	06:37			06:22		07:10 (15)	05:24			05:03
	16:56			17:59	39	09:12 (13)	18:53			20:52	51	08:01 (15)	21:46			22:16
23	08:41			07:43		08:35 (13)	06:35			06:20		07:10 (15)	05:23			05:03
	16:58			18:01	35	09:10 (13)	18:55			20:54	51	08:01 (15)	21:47			22:16
24	08:40			07:40		08:37 (13)	06:32			06:18		07:11 (15)	05:21			05:04
	17:00			18:03	32	09:09 (13)	18:57			20:56	49	08:00 (15)	21:49			22:16
25	08:38		09:08 (13)	07:38		08:38 (13)	06:30		06:54 (16)	06:15		07:12 (15)	05:20			05:04
	17:02	1	09:09 (13)	18:05	28	09:06 (13)	18:59	2	06:56 (16)	20:58	46	07:58 (15)	21:50			22:16
26	08:37		09:07 (13)	07:36		08:41 (13)	06:27		06:51 (16)	06:13		07:13 (15)	05:18			05:05
	17:04	4	09:11 (13)	18:07	22	09:03 (13)	19:01	5	06:56 (16)	21:00	44	07:57 (15)	21:52			22:16
27	08:35		09:05 (13)	07:33		08:45 (13)	06:25		06:49 (16)	06:11		07:13 (15)	05:17			05:05
	17:06	6	09:11 (13)	18:09	15	09:00 (13)	19:03	10	06:59 (15)	21:01	42	07:55 (15)	21:53			22:16
28	08:34		09:03 (13)	07:31			06:22		06:46 (16)	06:09		07:14 (15)	05:16			05:06
	17:08	9	09:12 (13)	18:11			19:05	15	07:01 (15)	21:03	39	07:53 (15)	21:55			22:16
29	08:32		09:01 (13)				07:20		07:44 (16)	06:06		07:16 (15)	05:15			05:06
	17:10	12	09:13 (13)				20:07	19	08:03 (15)	21:05	35	07:51 (15)	21:56			22:16
30	08:31		08:59 (13)				07:17		07:41 (16)	06:04		07:17 (15)	05:14			05:07
	17:12	15	09:14 (13)				20:09	22	08:03 (15)	21:07	33	07:50 (15)	21:57			22:15
31	08:29		08:58 (13)				07:15		07:39 (16)				05:13			
	17:14	17	09:15 (13)				20:11	26	08:05 (15)				21:59			
Potential sun hours	248			272			367			421			496			513
Total, worst case		486			997			99			1437			74		
Sun reduction		0.17			0.22			0.22			0.34			0.36		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.66			0.63			0.58			0.58			0.58		
Total reduction		0.11			0.14			0.13			0.20			0.21		
Total, real		54			139			13			287			16		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: A - H1

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August			September			October			November			December		
1	05:07		05:48			06:44		07:11 (15)	07:38			07:38		08:07 (13)	08:34		09:09 (12)
	22:15		21:39			20:31	56	08:07 (15)	19:16			17:04	42	08:49 (13)	16:19	27	09:36 (12)
2	05:08		05:50			06:46		07:13 (15)	07:40			07:39		08:09 (13)	08:35		09:11 (12)
	22:15		21:37			20:29	54	08:07 (15)	19:14			17:02	39	08:48 (13)	16:18	27	09:38 (12)
3	05:09		05:52			06:47		07:15 (15)	07:42			07:41		08:12 (13)	08:37		09:12 (12)
	22:14		21:35			20:26	51	08:06 (15)	19:11			17:00	37	08:49 (13)	16:18	26	09:38 (12)
4	05:10		05:53			06:49		07:17 (15)	07:44			07:43		08:14 (13)	08:38		09:14 (12)
	22:14		21:33			20:24	49	08:06 (15)	19:09			16:58	35	08:49 (13)	16:17	25	09:39 (12)
5	05:11		05:55			06:51		07:18 (15)	07:46			07:45		08:16 (13)	08:40		09:15 (12)
	22:13		21:31			20:21	47	08:05 (15)	19:06			16:57	32	08:48 (13)	16:16	24	09:39 (12)
6	05:12		05:57			06:53		07:20 (15)	07:47			07:47		08:18 (13)	08:41		09:17 (12)
	22:12		21:29			20:19	44	08:04 (15)	19:04			16:55	30	08:48 (13)	16:16	23	09:40 (12)
7	05:13		05:59			06:55		07:22 (16)	07:49			07:49		08:20 (13)	08:42		09:18 (12)
	22:12		21:27			20:16	41	08:03 (15)	19:01			16:53	28	08:48 (13)	16:15	22	09:40 (12)
8	05:14		06:00			06:56		07:24 (16)	07:51			07:51		08:22 (13)	08:44		09:20 (12)
	22:11		21:25			20:14	39	08:03 (15)	18:59			16:51	25	08:47 (13)	16:15	21	09:41 (12)
9	05:15		06:02		07:37 (15)	06:58		07:25 (16)	07:53			07:53		08:25 (13)	08:45		09:21 (12)
	22:10		21:23	10	07:47 (15)	20:11	36	08:01 (15)	18:56			16:49	22	08:47 (13)	16:14	20	09:41 (12)
10	05:16		06:04		07:33 (15)	07:00		07:27 (16)	07:55			07:55		08:27 (13)	08:46		09:22 (12)
	22:09		21:21	19	07:52 (15)	20:09	33	08:00 (15)	18:54			16:47	20	08:47 (13)	16:14	20	09:42 (12)
11	05:17		06:06		07:30 (15)	07:02		07:29 (16)	07:57			07:57		08:29 (13)	08:47		09:24 (12)
	22:08		21:19	25	07:55 (15)	20:06	30	07:59 (15)	18:52			16:45	17	08:46 (13)	16:14	19	09:43 (12)
12	05:18		06:08		07:27 (15)	07:04		07:30 (16)	07:59			07:59		08:31 (13)	08:48		09:25 (12)
	22:08		21:17	29	07:56 (15)	20:04	26	07:56 (15)	18:49			16:44	15	08:46 (13)	16:14	18	09:43 (12)
13	05:19		06:09		07:25 (15)	07:05		07:32 (16)	08:01			08:01		08:33 (13)	08:49		09:26 (12)
	22:06		21:15	34	07:59 (15)	20:01	23	07:55 (15)	18:47			16:42	12	08:45 (13)	16:14	18	09:44 (12)
14	05:21		06:11		07:24 (15)	07:07		07:34 (16)	08:02		09:21 (13)	08:03		08:35 (13)	08:50		09:27 (12)
	22:05		21:13	36	08:00 (15)	19:59	19	07:53 (15)	18:44	7	09:28 (13)	16:40	9	08:44 (13)	16:14	17	09:44 (12)
15	05:22		06:13		07:21 (15)	07:09		07:36 (16)	08:04		09:15 (13)	08:05		08:37 (13)	08:51		09:28 (12)
	22:04		21:10	40	08:01 (15)	19:56	15	07:51 (15)	18:42	18	09:33 (13)	16:39	6	08:43 (13)	16:14	17	09:45 (12)
16	05:23		06:15		07:20 (15)	07:11		07:38 (16)	08:06		09:12 (13)	08:07		08:40 (13)	08:52		09:29 (12)
	22:03		21:08	43	08:03 (15)	19:54	11	07:49 (15)	18:40	25	09:37 (13)	16:37	3	08:43 (13)	16:14	16	09:45 (12)
17	05:25		06:17		07:19 (15)	07:13		07:39 (16)	08:08		09:09 (13)	08:09		08:42 (13)	08:53		09:30 (12)
	22:02		21:06	45	08:04 (15)	19:51	7	07:46 (15)	18:37	30	09:39 (13)	16:36	1	08:43 (13)	16:14	16	09:46 (12)
18	05:26		06:18		07:17 (15)	07:14		07:41 (16)	08:10		09:07 (13)	08:11			08:54		09:30 (12)
	22:01		21:04	47	08:04 (15)	19:49	3	07:44 (16)	18:35	34	09:41 (13)	16:34			16:14	16	09:46 (12)
19	05:28		06:20		07:17 (15)	07:16			08:12		09:05 (13)	08:13			08:55		09:31 (12)
	21:59		21:02	48	08:05 (15)	19:46			18:33	37	09:42 (13)	16:33			16:14	15	09:46 (12)
20	05:29		06:22		07:16 (15)	07:18			08:14		09:04 (13)	08:14			08:55		09:32 (12)
	21:58		20:59	50	08:06 (15)	19:44			18:30	39	09:43 (13)	16:31			16:15	15	09:47 (12)
21	05:31		06:24		07:14 (15)	07:20			08:16		09:03 (13)	08:16			08:56		09:32 (12)
	21:57		20:57	52	08:06 (15)	19:41			18:28	41	09:44 (13)	16:30			16:15	15	09:47 (12)
22	05:32		06:26		07:14 (15)	07:22			08:18		09:01 (13)	08:18		09:17 (12)	08:57		09:33 (12)
	21:55		20:55	53	08:07 (15)	19:39			18:26	44	09:45 (13)	16:29	5	09:22 (12)	16:15	15	09:48 (12)
23	05:34		06:27		07:13 (15)	07:23			08:20		09:00 (13)	08:20		09:14 (12)	08:57		09:33 (12)
	21:54		20:52	55	08:08 (15)	19:36			18:24	46	09:46 (13)	16:27	12	09:26 (12)	16:16	15	09:48 (12)
24	05:35		06:29		07:12 (15)	07:25			08:22		08:59 (13)	08:22		09:12 (12)	08:57		09:34 (12)
	21:52		20:50	56	08:08 (15)	19:34			18:21	47	09:46 (13)	16:26	16	09:28 (12)	16:17	15	09:49 (12)
25	05:37		06:31		07:11 (15)	07:27			07:24		07:58 (13)	08:24		09:11 (12)	08:58		09:34 (12)
	21:51		20:48	57	08:08 (15)	19:31			17:19	49	08:47 (13)	16:25	19	09:30 (12)	16:17	15	09:49 (12)
26	05:38		06:33		07:11 (15)	07:29			07:26		07:58 (13)	08:25		09:11 (12)	08:58		09:34 (12)
	21:49		20:45	57	08:08 (15)	19:29			17:17	49	08:47 (13)	16:24	20	09:31 (12)	16:18	16	09:50 (12)
27	05:40		06:35		07:10 (15)	07:31			07:28		07:58 (13)	08:27		09:10 (12)	08:58		09:34 (12)
	21:47		20:43	59	08:09 (15)	19:26			17:15	50	08:48 (13)	16:23	23	09:33 (12)	16:19	16	09:50 (12)
28	05:42		06:36		07:09 (15)	07:33			07:30		07:59 (13)	08:29		09:10 (12)	08:58		09:34 (12)
	21:46		20:41	59	08:08 (15)	19:24			17:13	50	08:49 (13)	16:22	24	09:34 (12)	16:20	16	09:50 (12)
29	05:43		06:38		07:09 (15)	07:34			07:32		08:01 (13)	08:30		09:09 (12)	08:59		09:34 (12)
	21:44		20:38	59	08:08 (15)	19:21			17:11	48	08:49 (13)	16:21	25	09:34 (12)	16:20	17	09:51 (12)
30	05:45		06:40		07:09 (15)	07:36			07:34		08:03 (13)	08:32		09:09 (12)	08:59		09:34 (12)
	21:42		20:36	59	08:08 (15)	19:19			17:09	46	08:49 (13)	16:20	26	09:35 (12)	16:21	17	09:51 (12)
31	05:47		06:42		07:10 (15)				07:36		08:05 (13)				08:59		09:34 (12)
	21:41		20:33	58	08:08 (15)				17:07	44	08:49 (13)				16:22	18	09:52 (12)
Potential sun hours	515		461			383			327			257			230		
Total, worst case				1050			584			704			543			577	
Sun reduction				0.27			0.29			0.23			0.20			0.12	
Oper. time red.				1.00			1.00			1.00			1.00			1.00	
Wind dir. red.				0.58			0.58			0.63			0.64			0.66	
Total reduction				0.16			0.17			0.15			0.13			0.08	
Total, real				167			99			104			69			46	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Finisklin Business Park
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: B - H2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May			June		
1	08:58		15:04 (3)	08:27		15:53 (4)	07:29	07:13	06:02			05:12		21:09 (6)
	16:24	22	15:26 (3)	17:16	30	16:23 (4)	18:13	20:12	21:09			22:00	16	21:25 (6)
2	08:58		15:05 (3)	08:25		15:54 (4)	07:26	07:10	06:00			05:11		21:09 (6)
	16:25	22	15:27 (3)	17:18	28	16:22 (4)	18:15	20:14	21:11			22:01	17	21:26 (6)
3	08:58		15:05 (3)	08:24		15:55 (4)	07:24	07:08	05:58			05:10		21:09 (6)
	16:26	21	15:26 (3)	17:20	26	16:21 (4)	18:17	20:16	21:12			22:02	17	21:26 (6)
4	08:58		15:06 (3)	08:22		15:56 (4)	07:22	07:05	05:56			05:09		21:10 (6)
	16:27	21	15:27 (3)	17:22	25	16:21 (4)	18:19	20:18	21:14			22:03	18	21:28 (6)
5	08:57		15:07 (3)	08:20		15:58 (4)	07:19	07:03	05:54			05:08		21:09 (6)
	16:29	20	15:27 (3)	17:24	21	16:19 (4)	18:21	20:20	21:16			22:04	20	21:29 (6)
6	08:57		15:08 (3)	08:18		16:00 (4)	07:17	07:00	05:52			05:08		21:10 (6)
	16:30	19	15:27 (3)	17:26	18	16:18 (4)	18:23	20:22	21:18			22:06	20	21:30 (6)
7	08:56		15:09 (3)	08:16		16:02 (4)	07:14	06:58	05:50			05:07		21:10 (6)
	16:31	20	15:54 (4)	17:28	14	16:16 (4)	18:25	20:24	21:20			22:07	21	21:31 (6)
8	08:56		15:10 (3)	08:14		16:07 (4)	07:12	06:55	05:48			05:06		21:09 (6)
	16:33	20	15:55 (4)	17:30	4	16:11 (4)	18:27	20:26	21:22			22:08	22	21:31 (6)
9	08:55		15:11 (3)	08:12			07:09	06:53	05:46			05:06		21:10 (6)
	16:34	21	15:57 (4)	17:32			18:29	20:27	21:23			22:08	21	21:31 (6)
10	08:55		15:13 (3)	08:10			07:07	06:50	05:44			05:05		21:11 (6)
	16:36	21	15:59 (4)	17:34			18:30	20:29	21:25			22:09	21	21:32 (6)
11	08:54		15:15 (3)	08:08			07:05	06:48	05:42			05:05		21:10 (6)
	16:37	20	16:01 (4)	17:36			18:32	20:31	21:27			22:10	21	21:31 (6)
12	08:53		15:17 (3)	08:06			07:02	06:46	05:41			05:04		21:11 (6)
	16:39	19	16:03 (4)	17:39			18:34	20:33	21:29			22:11	21	21:32 (6)
13	08:52		15:50 (4)	08:04			07:00	06:43	05:39			05:04		21:11 (6)
	16:41	14	16:04 (4)	17:41			18:36	20:35	21:31			22:12	21	21:32 (6)
14	08:51		15:49 (4)	08:02			06:57	06:41	05:37			05:04		21:12 (6)
	16:42	16	16:05 (4)	17:43			18:38	20:37	21:32			22:12	21	21:33 (6)
15	08:50		15:49 (4)	08:00			06:55	06:38	05:35			05:03		21:11 (6)
	16:44	18	16:07 (4)	17:45			18:40	20:39	21:34			22:13	21	21:32 (6)
16	08:49		15:49 (4)	07:58			06:52	06:36	05:34			05:03		21:11 (6)
	16:46	21	16:10 (4)	17:47			18:42	20:41	21:36			22:13	21	21:32 (6)
17	08:48		15:49 (4)	07:56			06:50	06:34	05:32			05:03		21:12 (6)
	16:47	23	16:12 (4)	17:49			18:44	20:43	21:37			22:14	20	21:32 (6)
18	08:47		15:50 (4)	07:54			06:47	06:31	05:30			05:03		21:12 (6)
	16:49	24	16:14 (4)	17:51			18:46	20:44	21:39			22:14	21	21:33 (6)
19	08:46		15:49 (4)	07:51			06:45	06:29	05:29			05:03		21:12 (6)
	16:51	27	16:16 (4)	17:53			18:48	20:46	21:41			22:15	21	21:33 (6)
20	08:45		15:49 (4)	07:49			06:42	06:27	05:27			05:03		21:13 (6)
	16:53	29	16:18 (4)	17:55			18:50	20:48	21:42			22:15	21	21:34 (6)
21	08:44		15:49 (4)	07:47			06:40	06:24	05:26			05:03		21:13 (6)
	16:55	31	16:20 (4)	17:57			18:52	20:50	21:44			22:15	21	21:34 (6)
22	08:42		15:49 (4)	07:45			06:37	06:22	05:24			05:03		21:13 (6)
	16:57	33	16:22 (4)	17:59			18:53	20:52	21:46			22:16	21	21:34 (6)
23	08:41		15:49 (4)	07:43			06:35	06:20	05:23			05:04		21:13 (6)
	16:58	33	16:22 (4)	18:01			18:55	20:54	21:47			22:16	21	21:34 (6)
24	08:40		15:50 (4)	07:40			06:32	06:18	05:21		21:13 (6)	05:04		21:14 (6)
	17:00	33	16:23 (4)	18:03			18:57	20:56	21:49	2	21:15 (6)	22:16	21	21:35 (6)
25	08:38		15:50 (4)	07:38			06:30	06:15	05:20		21:12 (6)	05:04		21:14 (6)
	17:02	33	16:23 (4)	18:05			18:59	20:58	21:50	4	21:16 (6)	22:16	20	21:34 (6)
26	08:37		15:49 (4)	07:36			06:27	06:13	05:19		21:11 (6)	05:05		21:13 (6)
	17:04	34	16:23 (4)	18:07			19:01	20:59	21:52	7	21:18 (6)	22:16	21	21:34 (6)
27	08:35		15:50 (4)	07:33			06:25	06:11	05:17		21:11 (6)	05:05		21:14 (6)
	17:06	34	16:24 (4)	18:09			19:03	21:01	21:53	8	21:19 (6)	22:16	21	21:35 (6)
28	08:34		15:51 (4)	07:31			06:22	06:09	05:16		21:11 (6)	05:06		21:14 (6)
	17:08	32	16:23 (4)	18:11			19:05	21:03	21:54	9	21:20 (6)	22:16	21	21:35 (6)
29	08:32		15:51 (4)				07:20	06:07	05:15		21:10 (6)	05:06		21:14 (6)
	17:10	32	16:23 (4)				20:07	21:05	21:56	11	21:21 (6)	22:15	21	21:35 (6)
30	08:30		15:51 (4)				07:17	06:04	05:14		21:10 (6)	05:07		21:15 (6)
	17:12	32	16:23 (4)				20:09	21:07	21:57	13	21:23 (6)	22:15	21	21:36 (6)
31	08:29		15:52 (4)				07:15		05:13		21:10 (6)			
	17:14	30	16:22 (4)				20:10		21:59	14	21:24 (6)			
Potential sun hours	248			272			367	421	496			513		
Total, worst case		775			166					68			611	
Sun reduction		0.17			0.22					0.36			0.26	
Oper. time red.		1.00			1.00					1.00			1.00	
Wind dir. red.		0.62			0.61					0.63			0.63	
Total reduction		0.11			0.14					0.23			0.16	
Total, real		82			23					15			99	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: B - H2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August		September		October		November			December		
1	05:08		21:14 (6)	05:48		06:44		07:38		07:37			08:33		14:57 (3)
	22:15	22	21:36 (6)	21:39		20:31		19:16		17:05			16:19	20	15:43 (4)
2	05:08		21:15 (6)	05:50		06:46		07:40		07:39			08:35		14:55 (3)
	22:14	21	21:36 (6)	21:37		20:28		19:14		17:02			16:18	21	15:41 (4)
3	05:09		21:15 (6)	05:52		06:47		07:42		07:41		15:35 (4)	08:36		14:55 (3)
	22:14	22	21:37 (6)	21:35		20:26		19:11		17:01	6	15:41 (4)	16:18	21	15:41 (4)
4	05:10		21:16 (6)	05:54		06:49		07:44		07:43		15:32 (4)	08:38		14:55 (3)
	22:13	21	21:37 (6)	21:33		20:24		19:09		16:59	14	15:46 (4)	16:17	20	15:40 (4)
5	05:11		21:15 (6)	05:55		06:51		07:45		07:45		15:29 (4)	08:39		14:54 (3)
	22:13	21	21:36 (6)	21:31		20:21		19:06		16:57	19	15:48 (4)	16:16	20	15:39 (4)
6	05:12		21:15 (6)	05:57		06:53		07:47		07:47		15:27 (4)	08:41		14:54 (3)
	22:12	21	21:36 (6)	21:29		20:19		19:04		16:55	22	15:49 (4)	16:16	19	15:13 (3)
7	05:13		21:16 (6)	05:59		06:55		07:49		07:49		15:26 (4)	08:42		14:54 (3)
	22:12	19	21:35 (6)	21:27		20:16		19:01		16:53	24	15:50 (4)	16:15	20	15:14 (3)
8	05:14		21:16 (6)	06:01		06:56		07:51		07:51		15:25 (4)	08:43		14:53 (3)
	22:11	19	21:35 (6)	21:25		20:14		18:59		16:51	26	15:51 (4)	16:15	21	15:14 (3)
9	05:15		21:16 (6)	06:02		06:58		07:53		07:53		15:24 (4)	08:45		14:54 (3)
	22:10	18	21:34 (6)	21:23		20:11		18:56		16:49	28	15:52 (4)	16:15	21	15:15 (3)
10	05:16		21:16 (6)	06:04		07:00		07:55		07:55		15:24 (4)	08:46		14:54 (3)
	22:09	17	21:33 (6)	21:21		20:09		18:54		16:47	30	15:54 (4)	16:14	22	15:16 (3)
11	05:17		21:17 (6)	06:06		07:02		07:57		07:57		15:24 (4)	08:47		14:54 (3)
	22:08	16	21:33 (6)	21:19		20:06		18:52		16:46	30	15:54 (4)	16:14	22	15:16 (3)
12	05:18		21:17 (6)	06:08		07:04		07:59		07:59		15:23 (4)	08:48		14:55 (3)
	22:07	15	21:32 (6)	21:17		20:04		18:49		16:44	32	15:55 (4)	16:14	23	15:18 (3)
13	05:20		21:18 (6)	06:09		07:05		08:00		08:01		15:23 (4)	08:49		14:55 (3)
	22:06	14	21:32 (6)	21:15		20:01		18:47		16:42	32	15:55 (4)	16:14	23	15:18 (3)
14	05:21		21:19 (6)	06:11		07:07		08:02		08:03		15:23 (4)	08:50		14:55 (3)
	22:05	12	21:31 (6)	21:13		19:59		18:45		16:41	32	15:55 (4)	16:14	24	15:19 (3)
15	05:22		21:19 (6)	06:13		07:09		08:04		08:05		15:22 (4)	08:51		14:56 (3)
	22:04	10	21:29 (6)	21:10		19:56		18:42		16:39	33	15:55 (4)	16:14	23	15:19 (3)
16	05:24		21:19 (6)	06:15		07:11		08:06		08:07		15:22 (4)	08:52		14:56 (3)
	22:03	9	21:28 (6)	21:08		19:54		18:40		16:37	34	15:56 (4)	16:14	24	15:20 (3)
17	05:25		21:21 (6)	06:17		07:13		08:08		08:09		15:22 (4)	08:53		14:56 (3)
	22:02	7	21:28 (6)	21:06		19:51		18:37		16:36	34	15:56 (4)	16:14	24	15:20 (3)
18	05:26		21:21 (6)	06:18		07:14		08:10		08:11		15:24 (4)	08:54		14:56 (3)
	22:00	5	21:26 (6)	21:04		19:49		18:35		16:34	33	15:57 (4)	16:14	24	15:20 (3)
19	05:28		21:22 (6)	06:20		07:16		08:12		08:12		15:24 (4)	08:54		14:57 (3)
	21:59	3	21:25 (6)	21:01		19:46		18:33		16:33	33	15:57 (4)	16:14	24	15:21 (3)
20	05:29			06:22		07:18		08:14		08:14		15:24 (4)	08:55		14:57 (3)
	21:58			20:59		19:44		18:31		16:31	33	15:57 (4)	16:15	24	15:21 (3)
21	05:31			06:24		07:20		08:16		08:16		15:25 (4)	08:56		14:58 (3)
	21:56			20:57		19:41		18:28		16:30	31	15:56 (4)	16:15	24	15:22 (3)
22	05:32			06:26		07:22		08:18		08:18		15:25 (4)	08:56		14:59 (3)
	21:55			20:55		19:39		18:26		16:29	29	15:54 (4)	16:16	24	15:23 (3)
23	05:34			06:27		07:23		08:20		08:20		15:26 (4)	08:57		14:59 (3)
	21:54			20:52		19:36		18:24		16:28	27	15:53 (4)	16:16	24	15:23 (3)
24	05:35			06:29		07:25		08:22		08:22		15:27 (4)	08:57		14:59 (3)
	21:52			20:50		19:34		18:22		16:26	24	15:51 (4)	16:17	24	15:23 (3)
25	05:37			06:31		07:27		07:24		08:23		15:27 (4)	08:58		15:00 (3)
	21:50			20:48		19:31		17:19		16:25	23	15:50 (4)	16:17	24	15:24 (3)
26	05:38			06:33		07:29		07:26		08:25		15:28 (4)	08:58		15:01 (3)
	21:49			20:45		19:29		17:17		16:24	21	15:49 (4)	16:18	24	15:25 (3)
27	05:40			06:35		07:31		07:28		08:27		15:28 (4)	08:58		15:01 (3)
	21:47			20:43		19:26		17:15		16:23	19	15:47 (4)	16:19	24	15:25 (3)
28	05:42			06:37		07:33		07:29		08:28		15:29 (4)	08:58		15:02 (3)
	21:46			20:41		19:24		17:13		16:22	17	15:46 (4)	16:20	23	15:25 (3)
29	05:43			06:38		07:34		07:31		08:30		15:30 (4)	08:58		15:02 (3)
	21:44			20:38		19:21		17:11		16:21	15	15:45 (4)	16:21	24	15:26 (3)
30	05:45			06:40		07:36		07:33		08:32		14:59 (3)	08:58		15:03 (3)
	21:42			20:36		19:19		17:09		16:20	18	15:44 (4)	16:22	23	15:26 (3)
31	05:47			06:42				07:35					08:58		15:04 (3)
	21:40			20:33				17:07					16:23	23	15:27 (3)
Potential sun hours	515			461		382		328		257			231		
Total, worst case		292									719			701	
Sun reduction		0.27									0.20			0.12	
Oper. time red.		1.00									1.00			1.00	
Wind dir. red.		0.63									0.61			0.63	
Total reduction		0.17									0.12			0.08	
Total, real		49									88			53	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Finisklin Business Park
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: C - H3

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April	May	June	July	August	September		October		November	December
1	08:58	08:27	07:29		07:12	06:02	05:12	05:08	05:48	06:44		07:38		07:37	08:33
	16:24	17:16	18:13		20:12	21:09	22:00	22:15	21:39	20:31		19:16	6	17:04	16:19
2	08:58	08:25	07:26		07:10	06:00	05:11	05:08	05:50	06:46		07:40		07:39	08:35
	16:25	17:18	18:15		20:14	21:11	22:01	22:14	21:37	20:28		19:14	2	17:02	16:18
3	08:58	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:47		07:42		07:41	08:36
	16:26	17:20	18:17		20:16	21:12	22:02	22:14	21:35	20:26		19:11		17:00	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:53	06:49		07:44		07:43	08:38
	16:27	17:22	18:19		20:18	21:14	22:03	22:13	21:33	20:24		19:09		16:58	16:17
5	08:57	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51		07:45		07:45	08:39
	16:29	17:24	18:21		20:20	21:16	22:04	22:13	21:31	20:21		19:06		16:57	16:16
6	08:57	08:18	07:17		07:00	05:52	05:07	05:12	05:57	06:53		07:47		07:47	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19		19:04		16:55	16:16
7	08:56	08:16	07:14		06:58	05:50	05:07	05:13	05:59	06:55		07:49		07:49	08:42
	16:31	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16		19:01		16:53	16:15
8	08:56	08:14	07:12		06:55	05:48	05:06	05:14	06:00	06:56		07:51		07:51	08:43
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14		18:59		16:51	16:15
9	08:55	08:12	07:09		06:53	05:46	05:06	05:15	06:02	06:58		07:53		07:53	08:45
	16:34	17:32	18:28		20:27	21:23	22:08	22:10	21:23	20:11		18:56		16:49	16:15
10	08:55	08:10	07:07		06:50	05:44	05:05	05:16	06:04	07:00		07:55		07:55	08:46
	16:36	17:34	18:30		20:29	21:25	22:09	22:09	21:21	20:09		18:54		16:47	16:14
11	08:54	08:08	07:05		06:48	05:42	05:05	05:17	06:06	07:02		07:57		07:57	08:47
	16:37	17:36	18:32		20:31	21:27	22:10	22:08	21:19	20:06		18:52		16:46	16:14
12	08:53	08:06	07:02		18:03 (5)	06:46	05:40	05:04	05:18	06:08		07:04		07:59	08:48
	16:39	17:38	18:34	4	18:07 (5)	20:33	21:29	22:11	22:07	21:17		20:04		18:49	16:44	16:14
13	08:52	08:04	07:00		18:02 (5)	06:43	05:39	05:04	05:20	06:09		07:05		08:00	08:01	08:49
	16:41	17:41	18:36	7	18:09 (5)	20:35	21:31	22:12	22:06	21:15		20:01		18:47	16:42	16:14
14	08:51	08:02	06:57		18:01 (5)	06:41	05:37	05:04	05:21	06:11		07:07		08:02	08:03	08:50
	16:42	17:43	18:38	10	18:11 (5)	20:37	21:32	22:12	22:05	21:13		19:59		18:44	16:40	16:14
15	08:50	08:00	06:55		18:01 (5)	06:38	05:35	05:03	05:22	06:13		07:09		08:04	08:05	08:51
	16:44	17:45	18:40	12	18:13 (5)	20:39	21:34	22:13	22:04	21:10		19:56		18:42	16:39	16:14
16	08:49	07:58	06:52		18:00 (5)	06:36	05:33	05:03	05:23	06:15		07:11		08:06	08:07	08:52
	16:46	17:47	18:42	15	18:15 (5)	20:41	21:36	22:13	22:03	21:08		19:54		18:40	16:37	16:14
17	08:48	07:56	06:50		18:01 (5)	06:34	05:32	05:03	05:25	06:17		07:13		08:08	08:09	08:53
	16:47	17:49	18:44	16	18:17 (5)	20:43	21:37	22:14	22:02	21:06		19:51		18:37	16:36	16:14
18	08:47	07:54	06:47		18:01 (5)	06:31	05:30	05:03	05:26	06:18		07:14		08:10	08:11	08:54
	16:49	17:51	18:46	16	18:17 (5)	20:44	21:39	22:14	22:00	21:04		19:49		18:35	16:34	16:14
19	08:46	07:51	06:45		18:02 (5)	06:29	05:29	05:03	05:28	06:20		07:16		08:12	08:12	08:54
	16:51	17:53	18:48	14	18:16 (5)	20:46	21:41	22:15	21:59	21:01		19:46		18:33	16:33	16:14
20	08:45	07:49	06:42		18:03 (5)	06:27	05:27	05:03	05:29	06:22		07:18		08:14	08:14	08:55
	16:53	17:55	18:50	11	18:14 (5)	20:48	21:42	22:15	21:58	20:59		19:44		18:30	16:31	16:15
21	08:44	07:47	06:40		18:07 (5)	06:24	05:25	05:03	05:31	06:24		07:20		08:16	08:16	08:56
	16:55	17:57	18:52	3	18:10 (5)	20:50	21:44	22:15	21:56	20:57		19:41		18:28	16:30	16:15
22	08:42	07:45	06:37			06:22	05:24	05:03	05:32	06:26		07:22		08:18	08:18	08:56
	16:56	17:59	18:53			20:52	21:46	22:16	21:55	20:55		19:39		18:26	16:29	16:16
23	08:41	07:43	06:35			06:20	05:23	05:04	05:34	06:27		07:23		18:49 (5)	08:20	08:20	08:57
	16:58	18:01	18:55			20:54	21:47	22:16	21:54	20:52		19:36	9	18:58 (5)	18:24	16:27	16:16
24	08:40	07:40	06:32			06:18	05:21	05:04	05:35	06:29		07:25		18:46 (5)	08:22	08:22	08:57
	17:00	18:03	18:57			20:56	21:49	22:16	21:52	20:50		19:34	13	18:59 (5)	18:21	16:26	16:17
25	08:38	07:38	06:30			06:15	05:20	05:04	05:37	06:31		07:27		18:45 (5)	07:24	08:23	08:58
	17:02	18:05	18:59			20:58	21:50	22:16	21:50	20:48		19:31	16	19:01 (5)	17:19	16:25	16:17
26	08:37	07:36	06:27			06:13	05:19	05:05	05:38	06:33		07:29		18:43 (5)	07:26	08:25	08:58
	17:04	18:07	19:01			20:59	21:52	22:16	21:49	20:45		19:29	17	19:00 (5)	17:17	16:24	16:18
27	08:35	07:33	06:25			06:11	05:17	05:05	05:40	06:35		07:31		18:42 (5)	07:27	08:27	08:58
	17:06	18:09	19:03			21:01	21:53	22:16	21:47	20:43		19:26	15	18:57 (5)	17:15	16:23	16:19
28	08:34	07:31	06:22			06:09	05:16	05:06	05:42	06:36		07:33		18:42 (5)	07:29	08:28	08:58
	17:08	18:11	19:05			21:03	21:54	22:16	21:46	20:40		19:24	13	18:55 (5)	17:13	16:22	16:20
29	08:32		07:20			06:06	05:15	05:06	05:43	06:38		07:34		18:42 (5)	07:31	08:30	08:58
	17:10		20:07			21:05	21:56	22:15	21:44	20:38		19:21	11	18:53 (5)	17:11	16:21	16:21
30	08:30		07:17			06:04	05:14	05:07	05:45	06:40		07:36		18:42 (5)	07:33	08:32	08:58
	17:12		20:09			21:07	21:57	22:15	21:42	20:36		19:19	8	18:50 (5)	17:09	16:20	16:21
31	08:29		07:15				05:13		05:47	06:42					07:35		08:58
	17:14		20:10				21:59		21:40	20:33					17:07		16:22
Potential sun hours	248	272	367		421	496	513	515	461	382		328		257	231
Total, worst case				108							102		8		
Sun reduction				0.22							0.29		0.23		
Oper. time red.				1.00							1.00		1.00		
Wind dir. red.				0.57							0.57		0.57		
Total reduction				0.13							0.17		0.13		
Total, real				14							17		1		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: D - H4

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:08	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:00	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:58	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:57	16:16
6	08:57	08:18	07:17	07:00	05:52	05:07	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:31	17:28	18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	17:58 (6)	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	3 18:01 (6)	20:27	21:23	22:08	22:10	21:23	20:11	18:56	16:49	16:15
10	08:55	08:10	07:07	17:56 (5)	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	7 18:03 (6)	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	17:56 (5)	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	9 18:05 (6)	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	17:54 (5)	06:46	05:40	05:04	05:18	06:08	07:04	07:59	07:59	08:48
	16:39	17:38	18:34	13 18:07 (6)	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	17:54 (5)	06:43	05:39	05:04	05:20	06:09	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	15 18:09 (6)	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	17:54 (5)	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	17 18:11 (6)	20:37	21:32	22:12	22:05	21:13	19:59	18:44	16:40	16:14
15	08:50	08:00	06:55	17:54 (5)	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	19 18:13 (5)	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	17:54 (5)	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	19 18:13 (5)	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	17:55 (5)	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:47	17:49	18:44	17 18:12 (5)	20:43	21:37	22:14	22:02	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	17:56 (5)	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	14 18:10 (5)	20:44	21:39	22:14	22:01	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	17:58 (5)	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	11 18:09 (5)	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	16:15
21	08:44	07:47	06:40	06:24	05:25	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:03	05:32	06:26	07:22	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	18:43 (5)	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	8 18:51 (5)	18:21	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	18:40 (5)	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	13 18:53 (5)	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	05:05	05:38	06:33	07:29	18:37 (5)	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17 18:54 (5)	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	18:36 (5)	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	19 18:55 (5)	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:36	07:33	18:35 (5)	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:16	21:46	20:41	19:24	20 18:55 (5)	17:13	16:22	16:20
29	08:32		07:20	06:06	05:15	05:06	05:43	06:38	07:34	18:35 (5)	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	18 18:53 (5)	17:11	16:21	16:21
30	08:31		07:17	06:04	05:14	05:07	05:45	06:40	07:36	18:34 (5)	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	16 18:50 (6)	17:09	16:20	16:21
31	08:29		07:15		05:13		05:47	06:42			07:35		08:58
	17:14		20:10		21:59		21:40	20:33			17:07		16:22
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case			144						111	39		
Sun reduction			0.22						0.29	0.23		
Oper. time red.			1.00						1.00	1.00		
Wind dir. red.			0.57						0.57	0.57		
Total reduction			0.13						0.17	0.13		
Total, real			18						18	5		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: E - H5

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February	March	April		May		June		
1	08:58		13:58 (10)	08:27	07:29		07:12		06:02		19:32 (11)	05:12	
	16:24	53	14:51 (10)	17:16	18:13		20:12		21:09	47	20:19 (11)	22:00	
2	08:58		13:59 (10)	08:25	07:26		07:10		06:00		19:32 (11)	05:11	
	16:25	52	14:51 (10)	17:18	18:15		20:14		21:11	46	20:18 (11)	22:01	
3	08:58		14:00 (10)	08:24	07:24		07:08		05:58		19:32 (11)	05:10	
	16:26	52	14:52 (10)	17:20	18:17		20:16		21:13	46	20:18 (11)	22:02	
4	08:58		14:00 (10)	08:22	07:22		07:05		05:56		19:32 (11)	05:09	
	16:27	52	14:52 (10)	17:22	18:19		20:18		21:14	46	20:18 (11)	22:03	
5	08:57		14:00 (10)	08:20	07:19		07:03		05:54		19:33 (11)	05:08	
	16:29	52	14:52 (10)	17:24	18:21		20:20		21:16	46	20:19 (11)	22:05	
6	08:57		14:01 (10)	08:18	07:17		07:00		05:52		19:33 (11)	05:07	
	16:30	52	14:53 (10)	17:26	18:23		20:22		21:18	45	20:18 (11)	22:06	
7	08:56		14:01 (10)	08:16	07:14		06:58		05:50		19:33 (11)	05:07	
	16:31	52	14:53 (10)	17:28	18:25		20:24		21:20	45	20:18 (11)	22:07	
8	08:56		14:02 (10)	08:14	07:12		06:55		05:48		19:33 (11)	05:06	
	16:33	51	14:53 (10)	17:30	18:27		20:26		21:22	44	20:17 (11)	22:08	
9	08:55		14:03 (10)	08:12	07:09		06:53		05:46		19:33 (11)	05:05	
	16:34	51	14:54 (10)	17:32	18:28		20:27		21:23	43	20:16 (11)	22:09	
10	08:55		14:04 (10)	08:10	07:07		06:50		05:44		19:34 (11)	05:05	
	16:36	50	14:54 (10)	17:34	18:30		20:29		21:25	43	20:17 (11)	22:09	
11	08:54		14:04 (10)	08:08	07:05		06:48		05:42		19:34 (11)	05:04	
	16:37	50	14:54 (10)	17:36	18:32		20:31		21:27	42	20:16 (11)	22:10	
12	08:53		14:05 (10)	08:06	07:02		06:46		05:40		19:35 (11)	05:04	21:23 (12)
	16:39	49	14:54 (10)	17:38	18:34		20:33		21:29	40	20:15 (11)	22:11	7	21:30 (12)
13	08:52		14:06 (10)	08:04	07:00		06:43		05:39		19:36 (11)	05:04		21:22 (12)
	16:40	48	14:54 (10)	17:40	18:36		20:35		21:31	39	20:15 (11)	22:12	9	21:31 (12)
14	08:51		14:07 (10)	08:02	06:57		06:41		05:37		19:36 (11)	05:03		21:20 (12)
	16:42	47	14:54 (10)	17:43	18:38		20:37		21:32	38	20:14 (11)	22:12	12	21:32 (12)
15	08:51		14:06 (10)	08:00	06:55		06:38		19:56 (11)	05:35		19:37 (11)	05:03		21:20 (12)
	16:44	47	14:53 (10)	17:45	18:40		20:39	6	20:02 (11)	21:34	35	20:12 (11)	22:13	13	21:33 (12)
16	08:50		14:08 (10)	07:58	06:52		06:36		19:50 (11)	05:33		19:38 (11)	05:03		21:20 (12)
	16:46	45	14:53 (10)	17:47	18:42		20:41	17	20:07 (11)	21:36	34	20:12 (11)	22:14	14	21:34 (12)
17	08:48		14:09 (10)	07:56	06:50		06:34		19:46 (11)	05:32		19:39 (11)	05:03		21:19 (12)
	16:47	45	14:54 (10)	17:49	18:44		20:43	23	20:09 (11)	21:37	32	20:11 (11)	22:14	15	21:34 (12)
18	08:47		14:10 (10)	07:54	06:47		06:31		19:44 (11)	05:30		19:40 (11)	05:03		21:19 (12)
	16:49	44	14:54 (10)	17:51	18:46		20:44	28	20:12 (11)	21:39	30	20:10 (11)	22:15	16	21:35 (12)
19	08:46		14:10 (10)	07:51	06:45		06:29		19:42 (11)	05:28		19:41 (11)	05:03		21:19 (12)
	16:51	43	14:53 (10)	17:53	18:48		20:46	31	20:13 (11)	21:41	28	20:09 (11)	22:15	16	21:35 (12)
20	08:45		14:12 (10)	07:49	06:42		06:27		19:40 (11)	05:27		19:43 (11)	05:03		21:19 (12)
	16:53	41	14:53 (10)	17:55	18:50		20:48	34	20:14 (11)	21:42	25	20:08 (11)	22:15	16	21:35 (12)
21	08:44		14:13 (10)	07:47	06:40		06:24		19:39 (11)	05:25		19:45 (11)	05:03		21:20 (12)
	16:55	39	14:52 (10)	17:57	18:52		20:50	36	20:15 (11)	21:44	22	20:07 (11)	22:15	16	21:36 (12)
22	08:42		14:14 (10)	07:45	06:37		06:22		19:38 (11)	05:24		19:46 (11)	05:03		21:20 (12)
	16:56	38	14:52 (10)	17:59	18:53		20:52	38	20:16 (11)	21:46	19	20:05 (11)	22:16	16	21:36 (12)
23	08:41		14:15 (10)	07:43	06:35		06:20		19:37 (11)	05:22		19:48 (11)	05:03		21:20 (12)
	16:58	35	14:50 (10)	18:01	18:55		20:54	40	20:17 (11)	21:47	15	20:03 (11)	22:16	16	21:36 (12)
24	08:40		14:18 (10)	07:40	06:32		06:17		19:36 (11)	05:21		19:51 (11)	05:04		21:20 (12)
	17:00	32	14:50 (10)	18:03	18:57		20:56	42	20:18 (11)	21:49	10	20:01 (11)	22:16	16	21:36 (12)
25	08:38		14:19 (10)	07:38	06:30		06:15		19:35 (11)	05:20			05:04		21:21 (12)
	17:02	29	14:48 (10)	18:05	18:59		20:58	43	20:18 (11)	21:50			22:16	16	21:37 (12)
26	08:37		14:21 (10)	07:36	06:27		06:13		19:34 (11)	05:18			05:05		21:22 (12)
	17:04	26	14:47 (10)	18:07	19:01		20:59	44	20:18 (11)	21:52			22:16	14	21:36 (12)
27	08:35		14:24 (10)	07:33	06:25		06:11		19:33 (11)	05:17			05:05		21:23 (12)
	17:06	21	14:45 (10)	18:09	19:03		21:01	45	20:18 (11)	21:53			22:16	13	21:36 (12)
28	08:34		14:28 (10)	07:31	06:22		06:09		19:33 (11)	05:16			05:06		21:23 (12)
	17:08	14	14:42 (10)	18:11	19:05		21:03	45	20:18 (11)	21:55			22:16	12	21:35 (12)
29	08:32				07:20		06:06		19:33 (11)	05:15			05:06		21:25 (12)
	17:10				20:07		21:05	46	20:19 (11)	21:56			22:15	10	21:35 (12)
30	08:31				07:17		06:04		19:32 (11)	05:14			05:07		21:26 (12)
	17:12				20:09		21:07	47	20:19 (11)	21:57			22:15	8	21:34 (12)
31	08:29				07:15					05:13					
	17:14				20:10					21:59					
Potential sun hours	248			272	367		421			496			513		
Total, worst case		1210						565			860			255	
Sun reduction		0.17						0.34			0.36			0.26	
Oper. time red.		1.00						1.00			1.00			1.00	
Wind dir. red.		0.67						0.60			0.60			0.64	
Total reduction		0.11						0.20			0.22			0.17	
Total, real		137						116			185			42	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: E - H5

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November			December		
1	05:07		21:28 (12)	05:48		19:45 (11)	06:44	07:38	07:37			08:33		13:46 (10)
	22:15	4	21:32 (12)	21:39	40	20:25 (11)	20:31	19:16	17:04			16:19	50	14:36 (10)
2	05:08			05:50		19:45 (11)	06:45	07:40	07:39			08:35		13:46 (10)
	22:14			21:37	41	20:26 (11)	20:28	19:14	17:02			16:18	50	14:36 (10)
3	05:09			05:52		19:43 (11)	06:47	07:42	07:41			08:36		13:46 (10)
	22:14			21:35	43	20:26 (11)	20:26	19:11	17:00			16:18	51	14:37 (10)
4	05:10			05:53		19:43 (11)	06:49	07:44	07:43			08:38		13:47 (10)
	22:13			21:33	44	20:27 (11)	20:24	19:09	16:58			16:17	51	14:38 (10)
5	05:11			05:55		19:43 (11)	06:51	07:45	07:45			08:39		13:46 (10)
	22:13			21:31	45	20:28 (11)	20:21	19:06	16:56			16:16	52	14:38 (10)
6	05:12			05:57		19:42 (11)	06:53	07:47	07:47			08:41		13:47 (10)
	22:12			21:29	45	20:27 (11)	20:19	19:04	16:55			16:16	52	14:39 (10)
7	05:13			05:59		19:42 (11)	06:55	07:49	07:49			08:42		13:47 (10)
	22:12			21:27	46	20:28 (11)	20:16	19:01	16:53			16:15	52	14:39 (10)
8	05:14			06:00		19:42 (11)	06:56	07:51	07:51			08:43		13:48 (10)
	22:11			21:25	46	20:28 (11)	20:14	18:59	16:51			16:15	52	14:40 (10)
9	05:15			06:02		19:41 (11)	06:58	07:53	07:53			08:45		13:48 (10)
	22:10			21:23	46	20:27 (11)	20:11	18:56	16:49			16:14	52	14:40 (10)
10	05:16			06:04		19:41 (11)	07:00	07:55	07:55			08:46		13:48 (10)
	22:09			21:21	47	20:28 (11)	20:09	18:54	16:47			16:14	52	14:40 (10)
11	05:17			06:06		19:41 (11)	07:02	07:57	07:57			08:47		13:48 (10)
	22:08			21:19	47	20:28 (11)	20:06	18:52	16:45			16:14	53	14:41 (10)
12	05:18			06:08		19:41 (11)	07:04	07:59	07:59			08:48		13:49 (10)
	22:07			21:17	46	20:27 (11)	20:04	18:49	16:44			16:14	53	14:42 (10)
13	05:19			06:09		19:41 (11)	07:05	08:00	08:01			08:49		13:49 (10)
	22:06			21:15	46	20:27 (11)	20:01	18:47	16:42			16:14	53	14:42 (10)
14	05:21			06:11		19:41 (11)	07:07	08:02	08:03		14:00 (10)	08:50		13:50 (10)
	22:05			21:13	46	20:27 (11)	19:59	18:44	16:40	14	14:14 (10)	16:14	53	14:43 (10)
15	05:22			06:13		19:40 (11)	07:09	08:04	08:05		13:56 (10)	08:51		13:50 (10)
	22:04			21:10	46	20:26 (11)	19:56	18:42	16:39	21	14:17 (10)	16:14	53	14:43 (10)
16	05:23			06:15		19:41 (11)	07:11	08:06	08:07		13:54 (10)	08:52		13:51 (10)
	22:03			21:08	45	20:26 (11)	19:54	18:40	16:37	26	14:20 (10)	16:14	53	14:44 (10)
17	05:25			06:17		19:41 (11)	07:13	08:08	08:09		13:53 (10)	08:53		13:51 (10)
	22:02			21:06	44	20:25 (11)	19:51	18:37	16:36	29	14:22 (10)	16:14	54	14:45 (10)
18	05:26			06:18		19:41 (11)	07:14	08:10	08:11		13:52 (10)	08:54		13:51 (10)
	22:01			21:04	43	20:24 (11)	19:49	18:35	16:34	32	14:24 (10)	16:14	53	14:44 (10)
19	05:28		20:04 (11)	06:20		19:42 (11)	07:16	08:12	08:12		13:50 (10)	08:55		13:52 (10)
	21:59	4	20:08 (11)	21:01	41	20:23 (11)	19:46	18:33	16:33	35	14:25 (10)	16:14	53	14:45 (10)
20	05:29		19:59 (11)	06:22		19:43 (11)	07:18	08:14	08:14		13:49 (10)	08:55		13:53 (10)
	21:58	12	20:11 (11)	20:59	40	20:23 (11)	19:44	18:30	16:31	38	14:27 (10)	16:15	53	14:46 (10)
21	05:31		19:57 (11)	06:24		19:43 (11)	07:20	08:16	08:16		13:49 (10)	08:56		13:53 (10)
	21:57	17	20:14 (11)	20:57	38	20:21 (11)	19:41	18:28	16:30	39	14:28 (10)	16:15	53	14:46 (10)
22	05:32		19:55 (11)	06:26		19:44 (11)	07:22	08:18	08:18		13:48 (10)	08:56		13:54 (10)
	21:55	21	20:16 (11)	20:55	36	20:20 (11)	19:39	18:26	16:29	41	14:29 (10)	16:15	53	14:47 (10)
23	05:34		19:54 (11)	06:27		19:45 (11)	07:23	08:20	08:20		13:47 (10)	08:57		13:54 (10)
	21:54	24	20:18 (11)	20:52	33	20:18 (11)	19:36	18:24	16:27	43	14:30 (10)	16:16	53	14:47 (10)
24	05:35		19:52 (11)	06:29		19:46 (11)	07:25	08:22	08:22		13:47 (10)	08:57		13:54 (10)
	21:52	27	20:19 (11)	20:50	31	20:17 (11)	19:34	18:21	16:26	44	14:31 (10)	16:17	53	14:47 (10)
25	05:37		19:51 (11)	06:31		19:47 (11)	07:27	07:24	08:23		13:47 (10)	08:58		13:55 (10)
	21:51	29	20:20 (11)	20:48	27	20:14 (11)	19:31	17:19	16:25	45	14:32 (10)	16:17	53	14:48 (10)
26	05:38		19:50 (11)	06:33		19:49 (11)	07:29	07:26	08:25		13:47 (10)	08:58		13:55 (10)
	21:49	31	20:21 (11)	20:45	23	20:12 (11)	19:29	17:17	16:24	46	14:33 (10)	16:18	53	14:48 (10)
27	05:40		19:49 (11)	06:35		19:52 (11)	07:31	07:28	08:27		13:47 (10)	08:58		13:56 (10)
	21:47	33	20:22 (11)	20:43	17	20:09 (11)	19:26	17:15	16:23	46	14:33 (10)	16:19	53	14:49 (10)
28	05:42		19:48 (11)	06:36		19:57 (11)	07:33	07:29	08:29		13:46 (10)	08:58		13:56 (10)
	21:46	35	20:23 (11)	20:41	5	20:02 (11)	19:24	17:13	16:22	47	14:33 (10)	16:20	53	14:49 (10)
29	05:43		19:48 (11)	06:38			07:34	07:31	08:30		13:46 (10)	08:58		13:57 (10)
	21:44	36	20:24 (11)	20:38			19:21	17:11	16:21	48	14:34 (10)	16:20	53	14:50 (10)
30	05:45		19:46 (11)	06:40			07:36	07:33	08:32		13:46 (10)	08:59		13:57 (10)
	21:42	38	20:24 (11)	20:36			19:19	17:09	16:20	49	14:35 (10)	16:21	53	14:50 (10)
31	05:47		19:46 (11)	06:42				07:35				08:58		13:58 (10)
	21:40	39	20:25 (11)	20:33				17:06				16:22	53	14:51 (10)
Potential sun hours	515			461			382	328	257			231		
Total, worst case		350			1097					643			1628	
Sun reduction		0.27			0.27					0.20			0.12	
Oper. time red.		1.00			1.00					1.00			1.00	
Wind dir. red.		0.60			0.60					0.67			0.67	
Total reduction		0.16			0.16					0.13			0.08	
Total, real		56			179					85			130	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: F - H6

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April	May	June	July	August	September		October	November	December
1	08:58	08:27	07:29		07:13	06:02	05:12	05:08	05:48	06:44		07:38	07:37	08:33
	16:24	17:16	18:13		20:12	21:09	22:00	22:15	21:39	20:31		19:16	17:05	16:19
2	08:58	08:25	07:26		07:10	06:00	05:11	05:08	05:50	06:46		07:40	07:39	08:35
	16:25	17:18	18:15		20:14	21:11	22:01	22:14	21:37	20:29		19:14	17:03	16:19
3	08:58	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:47		07:42	07:41	08:36
	16:26	17:20	18:17		20:16	21:13	22:02	22:14	21:35	20:26		19:11	17:01	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:54	06:49		07:44	07:43	08:38
	16:28	17:22	18:19		20:18	21:14	22:03	22:13	21:33	20:24		19:09	16:59	16:17
5	08:57	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51		07:46	07:45	08:39
	16:29	17:24	18:21		20:20	21:16	22:05	22:13	21:31	20:21		19:06	16:57	16:17
6	08:57	08:18	07:17		07:00	05:52	05:08	05:12	05:57	06:53		07:47	07:47	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19		19:04	16:55	16:16
7	08:56	08:16	07:14		06:58	05:50	05:07	05:13	05:59	06:55		07:49	07:49	08:42
	16:32	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16		19:01	16:53	16:15
8	08:56	08:14	07:12		06:55	05:48	05:06	05:14	06:01	06:56		07:51	07:51	08:43
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14		18:59	16:51	16:15
9	08:55	08:12	07:10		06:53	05:46	05:06	05:15	06:02	06:58		07:53	07:53	08:45
	16:34	17:32	18:29		20:28	21:24	22:09	22:10	21:23	20:11		18:57	16:49	16:15
10	08:55	08:10	07:07		06:50	05:44	05:05	05:16	06:04	07:00		07:55	07:55	08:46
	16:36	17:34	18:31		20:29	21:25	22:09	22:09	21:21	20:09		18:54	16:47	16:14
11	08:54	08:08	07:05		06:48	05:42	05:05	05:17	06:06	07:02		07:57	07:57	08:47
	16:37	17:37	18:32		20:31	21:27	22:10	22:08	21:19	20:06		18:52	16:46	16:14
12	08:53	08:06	07:02		06:46	05:41	05:04	05:18	06:08	07:04	07:41 (1)	07:59	07:59	08:48
	16:39	17:39	18:34		20:33	21:29	22:11	22:07	21:17	20:04	9 07:50 (1)	18:49	16:44	16:14
13	08:52	08:04	07:00		06:43	05:39	05:04	05:20	06:10	07:05	07:37 (1)	08:01	08:01	08:49
	16:41	17:41	18:36		20:35	21:31	22:12	22:06	21:15	20:01	14 07:51 (1)	18:47	16:42	16:14
14	08:51	08:02	06:57		06:41	05:37	05:04	05:21	06:11	07:07	07:35 (1)	08:02	08:03	08:50
	16:42	17:43	18:38		20:37	21:32	22:12	22:05	21:13	19:59	18 07:53 (1)	18:45	16:41	16:14
15	08:50	08:00	06:55		06:38	05:35	05:03	05:22	06:13	07:09	07:36 (1)	08:04	08:05	08:51
	16:44	17:45	18:40		20:39	21:34	22:13	22:04	21:10	19:56	18 07:54 (1)	18:42	16:39	16:14
16	08:50	07:58	06:52		06:36	05:34	05:03	05:24	06:15	07:11	07:38 (1)	08:06	08:07	08:52
	16:46	17:47	18:42		20:41	21:36	22:14	22:03	21:08	19:54	17 07:55 (1)	18:40	16:37	16:14
17	08:48	07:56	06:50		06:34	05:32	05:03	05:25	06:17	07:13	07:39 (1)	08:08	08:09	08:53
	16:47	17:49	18:44		20:43	21:37	22:14	22:02	21:06	19:51	16 07:55 (1)	18:38	16:36	16:14
18	08:47	07:54	06:47		06:31	05:30	05:03	05:26	06:19	07:14	07:41 (1)	08:10	08:11	08:54
	16:49	17:51	18:46		20:44	21:39	22:14	22:01	21:04	19:49	14 07:55 (1)	18:35	16:34	16:14
19	08:46	07:52	06:45		06:29	05:29	05:03	05:28	06:20	07:16	07:43 (1)	08:12	08:12	08:55
	16:51	17:53	18:48		20:46	21:41	22:15	21:59	21:02	19:46	12 07:55 (1)	18:33	16:33	16:14
20	08:45	07:49	06:42	07:06 (1)	06:27	05:27	05:03	05:29	06:22	07:18	07:45 (1)	08:14	08:14	08:55
	16:53	17:55	18:50	1 07:07 (1)	20:48	21:42	22:15	21:58	20:59	19:44	10 07:55 (1)	18:31	16:32	16:15
21	08:44	07:47	06:40	07:04 (1)	06:24	05:26	05:03	05:31	06:24	07:20	07:46 (1)	08:16	08:16	08:56
	16:55	17:57	18:52	4 07:08 (1)	20:50	21:44	22:15	21:57	20:57	19:41	8 07:54 (1)	18:28	16:30	16:15
22	08:42	07:45	06:37	07:01 (1)	06:22	05:24	05:03	05:32	06:26	07:22	07:48 (1)	08:18	08:18	08:56
	16:57	17:59	18:54	7 07:08 (1)	20:52	21:46	22:16	21:55	20:55	19:39	5 07:53 (1)	18:26	16:29	16:16
23	08:41	07:43	06:35	06:59 (1)	06:20	05:23	05:04	05:34	06:28	07:23	07:50 (1)	08:20	08:20	08:57
	16:58	18:01	18:55	9 07:08 (1)	20:54	21:47	22:16	21:54	20:52	19:36	2 07:52 (1)	18:24	16:28	16:16
24	08:40	07:40	06:32	06:56 (1)	06:18	05:21	05:04	05:35	06:29	07:25		08:22	08:22	08:57
	17:00	18:03	18:57	12 07:08 (1)	20:56	21:49	22:16	21:52	20:50	19:34		18:22	16:26	16:17
25	08:38	07:38	06:30	06:54 (1)	06:15	05:20	05:04	05:37	06:31	07:27		07:24	08:23	08:58
	17:02	18:05	18:59	14 07:08 (1)	20:58	21:50	22:16	21:51	20:48	19:31		17:19	16:25	16:17
26	08:37	07:36	06:27	06:51 (1)	06:13	05:19	05:05	05:38	06:33	07:29		07:26	08:25	08:58
	17:04	18:07	19:01	15 07:06 (1)	21:00	21:52	22:16	21:49	20:45	19:29		17:17	16:24	16:18
27	08:35	07:33	06:25	06:49 (1)	06:11	05:17	05:05	05:40	06:35	07:31		07:28	08:27	08:58
	17:06	18:09	19:03	17 07:06 (1)	21:01	21:53	22:16	21:47	20:43	19:26		17:15	16:23	16:19
28	08:34	07:31	06:23	06:46 (1)	06:09	05:16	05:06	05:42	06:37	07:33		07:30	08:29	08:58
	17:08	18:11	19:05	18 07:04 (1)	21:03	21:55	22:16	21:46	20:41	19:24		17:13	16:22	16:20
29	08:32		07:20	07:45 (1)	06:07	05:15	05:06	05:43	06:38	07:34		07:32	08:30	08:58
	17:10		20:07	18 08:03 (1)	21:05	21:56	22:15	21:44	20:38	19:21		17:11	16:21	16:21
30	08:31		07:18	07:46 (1)	06:04	05:14	05:07	05:45	06:40	07:36		07:33	08:32	08:58
	17:12		20:09	14 08:00 (1)	21:07	21:57	22:15	21:42	20:36	19:19		17:09	16:20	16:22
31	08:29		07:15	07:48 (1)		05:13		05:47	06:42			07:35		08:58
	17:14		20:11	10 07:58 (1)		21:59		21:40	20:33			17:07		16:23
Potential sun hours	248	272	367		421	496	513	515	461	382		328	257	231
Total, worst case				139							143			
Sun reduction				0.22							0.29			
Oper. time red.				1.00							1.00			
Wind dir. red.				0.59							0.59			
Total reduction				0.13							0.17			
Total, real				18							25			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: G - H7

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June	
1	08:59		09:33 (6)	08:27	08:56 (5)	07:29	07:13	06:02	05:12		05:46 (7)
	16:24	7	09:40 (6)	17:16	13	09:09 (5)	18:13	20:12	21:09	22:00	10	05:56 (7)
2	08:58		09:33 (6)	08:26	08:54 (5)	07:26	07:10	06:00	05:11		05:43 (7)
	16:25	7	09:40 (6)	17:18	15	09:09 (5)	18:15	20:14	21:11	22:01	15	05:58 (7)
3	08:58		09:33 (6)	08:24	08:52 (5)	07:24	07:08	05:58	05:10		05:43 (7)
	16:26	8	09:41 (6)	17:20	16	09:08 (5)	18:17	20:16	21:13	22:02	18	06:01 (7)
4	08:58		09:32 (6)	08:22	08:54 (5)	07:22	07:05	05:56	05:09		05:41 (7)
	16:28	9	09:41 (6)	17:22	12	09:06 (5)	18:19	20:18	21:15	22:04	21	06:02 (7)
5	08:57		09:32 (6)	08:20	08:56 (5)	07:19	07:03	05:54	05:08		05:40 (7)
	16:29	10	09:42 (6)	17:24	8	09:04 (5)	18:21	20:20	21:16	22:05	23	06:03 (7)
6	08:57		09:31 (6)	08:18			07:17	07:00	05:52	05:08		05:40 (7)
	16:30	11	09:42 (6)	17:26			18:23	20:22	21:18	22:06	24	06:04 (7)
7	08:57		09:30 (6)	08:16			07:14	06:58	05:50	05:07		05:39 (7)
	16:32	12	09:42 (6)	17:28			18:25	20:24	21:20	22:07	26	06:05 (7)
8	08:56		09:30 (6)	08:14			07:12	06:55	05:48	05:06		05:39 (7)
	16:33	13	09:43 (6)	17:30			18:27	20:26	21:22	22:08	27	06:06 (7)
9	08:55		09:29 (6)	08:13			07:10	06:53	05:46	05:06		05:38 (7)
	16:34	15	09:44 (6)	17:32			18:29	20:28	21:24	22:09	29	06:07 (7)
10	08:55		09:28 (6)	08:11			07:07	06:51	05:44	05:05		05:38 (7)
	16:36	16	09:44 (6)	17:35			18:31	20:29	21:25	22:10	30	06:08 (7)
11	08:54		09:27 (6)	08:09			07:05	06:48	05:42	05:05		05:37 (7)
	16:37	17	09:44 (6)	17:37			18:33	20:31	21:27	22:10	31	06:08 (7)
12	08:53		09:26 (6)	08:06			07:02	06:46	05:41	05:04		05:37 (7)
	16:39	18	09:44 (6)	17:39			18:34	20:33	21:29	22:11	32	06:09 (7)
13	08:52		09:25 (6)	08:04			07:00	06:43	05:39	05:04		05:37 (7)
	16:41	19	09:44 (6)	17:41			18:36	20:35	21:31	22:12	32	06:09 (7)
14	08:52		09:24 (6)	08:02			06:57	06:41	05:37	05:04		05:37 (7)
	16:42	20	09:44 (6)	17:43			18:38	20:37	21:32	22:13	33	06:10 (7)
15	08:51		09:23 (6)	08:00			06:55	06:39	05:35	05:03		05:36 (7)
	16:44	21	09:44 (6)	17:45			18:40	20:39	21:34	22:13	34	06:10 (7)
16	08:50		09:23 (6)	07:58			06:52	06:36	05:34	05:03		05:36 (7)
	16:46	20	09:43 (6)	17:47			18:42	20:41	21:36	22:14	34	06:10 (7)
17	08:49		09:25 (6)	07:56			06:50	06:34	05:32	05:03		05:36 (7)
	16:47	18	09:43 (6)	17:49			18:44	20:43	21:38	22:14	35	06:11 (7)
18	08:47		09:26 (6)	07:54			06:47	06:31	05:30	05:03		05:36 (7)
	16:49	17	09:43 (6)	17:51			18:46	20:45	21:39	22:15	35	06:11 (7)
19	08:46		09:27 (6)	07:52			06:45	06:29	05:29	05:03		05:36 (7)
	16:51	15	09:42 (6)	17:53			18:48	20:46	21:41	22:15	35	06:11 (7)
20	08:45		09:29 (6)	07:49			06:42	06:27	05:27	05:03		05:37 (7)
	16:53	12	09:41 (6)	17:55			18:50	20:48	21:43	22:15	35	06:12 (7)
21	08:44		09:31 (6)	07:47			06:40	06:24	05:26	05:03		05:37 (7)
	16:55	8	09:39 (6)	17:57			18:52	20:50	21:44	22:16	35	06:12 (7)
22	08:43			07:45			06:38	06:22	05:24	05:03		05:37 (7)
	16:57			17:59			18:54	20:52	21:46	22:16	35	06:12 (7)
23	08:41			07:43			06:35	06:20	05:23	05:04		05:37 (7)
	16:58			18:01			18:55	20:54	21:47	22:16	35	06:12 (7)
24	08:40			07:40			06:33	06:18	05:21	05:04		05:38 (7)
	17:00			18:03			18:57	20:56	21:49	22:16	35	06:13 (7)
25	08:38			07:38			06:30	06:15	05:20	05:04		05:38 (7)
	17:02			18:05			18:59	20:58	21:50	22:16	35	06:13 (7)
26	08:37		09:06 (5)	07:36			06:28	06:13	05:19	05:05		05:38 (7)
	17:04	2	09:08 (5)	18:07			19:01	21:00	21:52	22:16	34	06:12 (7)
27	08:35		09:05 (5)	07:33			06:25	06:11	05:17	05:05		05:39 (7)
	17:06	4	09:09 (5)	18:09			19:03	21:01	21:53	22:16	34	06:13 (7)
28	08:34		09:03 (5)	07:31			06:23	06:09	05:16	05:06		05:40 (7)
	17:08	6	09:09 (5)	18:11			19:05	21:03	21:55	22:16	33	06:13 (7)
29	08:32		09:01 (5)				07:20	06:07	05:15	05:06		05:40 (7)
	17:10	8	09:09 (5)				20:07	21:05	21:56	22:16	33	06:13 (7)
30	08:31		08:59 (5)				07:18	06:04	05:14	05:07		05:41 (7)
	17:12	10	09:09 (5)				20:09	21:07	21:57	22:15	32	06:13 (7)
31	08:29		08:58 (5)				07:15		05:13			
	17:14	12	09:10 (5)				20:11		21:59			
Potential sun hours	248			272		367	421	496	513		
Total, worst case		335			64					900	
Sun reduction		0.17			0.22					0.26	
Oper. time red.		1.00			1.00					1.00	
Wind dir. red.		0.66			0.64					0.59	
Total reduction		0.11			0.14					0.15	
Total, real		37			9					136	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: G - H7

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August		September		October		November			December		
1	05:08		05:41 (7)	05:48		06:44		07:38		07:38			08:34		09:09 (6)
	22:15	31	06:12 (7)	21:39		20:31		19:16		17:05			16:19	17	09:26 (6)
2	05:08		05:42 (7)	05:50		06:46		07:40		07:40			08:35		09:11 (6)
	22:15	30	06:12 (7)	21:37		20:29		19:14		17:03			16:19	16	09:27 (6)
3	05:09		05:43 (7)	05:52		06:47		07:42		07:42			08:37		09:12 (6)
	22:14	29	06:12 (7)	21:35		20:26		19:11		17:01			16:18	15	09:27 (6)
4	05:10		05:44 (7)	05:54		06:49		07:44		07:43			08:38		09:14 (6)
	22:14	28	06:12 (7)	21:33		20:24		19:09		16:59			16:17	14	09:28 (6)
5	05:11		05:45 (7)	05:55		06:51		07:46		07:45			08:40		09:15 (6)
	22:13	27	06:12 (7)	21:31		20:21		19:06		16:57			16:17	12	09:27 (6)
6	05:12		05:45 (7)	05:57		06:53		07:47		07:47		08:25 (5)	08:41		09:17 (6)
	22:12	25	06:10 (7)	21:29		20:19		19:04		16:55	9	08:34 (5)	16:16	11	09:28 (6)
7	05:13		05:46 (7)	05:59		06:55		07:49		07:49		08:23 (5)	08:42		09:18 (6)
	22:12	24	06:10 (7)	21:27		20:16		19:01		16:53	13	08:36 (5)	16:15	10	09:28 (6)
8	05:14		05:47 (7)	06:01		06:56		07:51		07:51		08:22 (5)	08:44		09:20 (6)
	22:11	22	06:09 (7)	21:25		20:14		18:59		16:51	16	08:38 (5)	16:15	9	09:29 (6)
9	05:15		05:48 (7)	06:02		06:58		07:53		07:53		08:25 (5)	08:45		09:21 (6)
	22:10	20	06:08 (7)	21:23		20:11		18:57		16:49	14	08:39 (5)	16:15	8	09:29 (6)
10	05:16		05:50 (7)	06:04		07:00		07:55		07:55		08:27 (5)	08:46		09:22 (6)
	22:09	16	06:06 (7)	21:21		20:09		18:54		16:47	13	08:40 (5)	16:14	8	09:30 (6)
11	05:17		05:52 (7)	06:06		07:02		07:57		07:57		08:29 (5)	08:47		09:24 (6)
	22:08	12	06:04 (7)	21:19		20:06		18:52		16:46	12	08:41 (5)	16:14	7	09:31 (6)
12	05:18		05:56 (7)	06:08		07:04		07:59		07:59		08:31 (5)	08:48		09:25 (6)
	22:07	6	06:02 (7)	21:17		20:04		18:49		16:44	10	08:41 (5)	16:14	6	09:31 (6)
13	05:20			06:10		07:06		08:01		08:01		08:33 (5)	08:49		09:26 (6)
	22:06			21:15		20:01		18:47		16:42	8	08:41 (5)	16:14	5	09:31 (6)
14	05:21			06:11		07:07		08:02		08:03		08:35 (5)	08:50		09:27 (6)
	22:05			21:13		19:59		18:45		16:41	6	08:41 (5)	16:14	5	09:32 (6)
15	05:22			06:13		07:09		08:04		08:05		08:37 (5)	08:51		09:28 (6)
	22:04			21:11		19:56		18:42		16:39	4	08:41 (5)	16:14	4	09:32 (6)
16	05:24			06:15		07:11		08:06		08:07		08:40 (5)	08:52		09:29 (6)
	22:03			21:08		19:54		18:40		16:37	2	08:42 (5)	16:14	3	09:32 (6)
17	05:25			06:17		07:13		08:08		08:09			08:53		09:30 (6)
	22:02			21:06		19:51		18:38		16:36			16:14	3	09:33 (6)
18	05:26			06:19		07:15		08:10		08:11			08:54		09:30 (6)
	22:01			21:04		19:49		18:35		16:34			16:14	3	09:33 (6)
19	05:28			06:20		07:16		08:12		08:13			08:55		09:31 (6)
	21:59			21:02		19:46		18:33		16:33			16:14	2	09:33 (6)
20	05:29			06:22		07:18		08:14		08:14			08:55		09:32 (6)
	21:58			20:59		19:44		18:31		16:32			16:15	2	09:34 (6)
21	05:31			06:24		07:20		08:16		08:16		09:07 (6)	08:56		09:32 (6)
	21:57			20:57		19:41		18:28		16:30	8	09:15 (6)	16:15	2	09:34 (6)
22	05:32			06:26		07:22		08:18		08:18		09:05 (6)	08:56		09:33 (6)
	21:55			20:55		19:39		18:26		16:29	12	09:17 (6)	16:16	2	09:35 (6)
23	05:34			06:28		07:24		08:20		08:20		09:04 (6)	08:57		09:33 (6)
	21:54			20:52		19:36		18:24		16:28	15	09:19 (6)	16:16	2	09:35 (6)
24	05:35			06:29		07:25		08:22		08:22		09:03 (6)	08:57		09:33 (6)
	21:52			20:50		19:34		18:22		16:26	17	09:20 (6)	16:17	2	09:35 (6)
25	05:37			06:31		07:27		07:24		08:24		09:03 (6)	08:58		09:34 (6)
	21:51			20:48		19:31		17:19		16:25	18	09:21 (6)	16:17	3	09:37 (6)
26	05:38			06:33		07:29		07:26		08:25		09:02 (6)	08:58		09:34 (6)
	21:49			20:45		19:29		17:17		16:24	21	09:23 (6)	16:18	3	09:37 (6)
27	05:40			06:35		07:31		07:28		08:27		09:02 (6)	08:58		09:34 (6)
	21:47			20:43		19:26		17:15		16:23	22	09:24 (6)	16:19	3	09:37 (6)
28	05:42			06:37		07:33		07:30		08:29		09:04 (6)	08:58		09:34 (6)
	21:46			20:41		19:24		17:13		16:22	20	09:24 (6)	16:20	4	09:38 (6)
29	05:43			06:38		07:35		07:32		08:30		09:05 (6)	08:59		09:34 (6)
	21:44			20:38		19:21		17:11		16:21	19	09:24 (6)	16:21	4	09:38 (6)
30	05:45			06:40		07:36		07:34		08:32		09:07 (6)	08:59		09:34 (6)
	21:42			20:36		19:19		17:09		16:20	18	09:25 (6)	16:22	5	09:39 (6)
31	05:47			06:42				07:36					08:59		09:34 (6)
	21:41			20:33				17:07					16:23	6	09:40 (6)
Potential sun hours	515			461		382		328		257			231		
Total, worst case		270									277			196	
Sun reduction		0.27									0.20			0.12	
Oper. time red.		1.00									1.00			1.00	
Wind dir. red.		0.59									0.65			0.66	
Total reduction		0.16									0.13			0.08	
Total, real		42									36			15	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: H - H8

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April			May		June	
1	08:58		08:27		16:33 (3)	07:29	07:12			06:02	20:07 (1)	05:12	20:06 (1)
	16:24		17:16	10	16:43 (3)	18:13	20:12			21:09	20:38 (1)	22:00	43 20:49 (1)
2	08:58		08:25		16:34 (3)	07:26	07:10			06:00	20:06 (1)	05:11	20:06 (1)
	16:25		17:18	12	16:46 (3)	18:15	20:14			21:11	34 20:40 (1)	22:01	43 20:49 (1)
3	08:58		08:24		16:35 (3)	07:24	07:08			05:58	20:05 (1)	05:10	20:07 (1)
	16:26		17:20	14	16:49 (3)	18:17	20:16			21:12	36 20:41 (1)	22:02	41 20:48 (1)
4	08:58		08:22		16:36 (3)	07:21	07:05			05:56	20:04 (1)	05:09	20:08 (1)
	16:27		17:22	14	16:50 (3)	18:19	20:18			21:14	39 20:43 (1)	22:03	41 20:49 (1)
5	08:57		08:20		16:37 (3)	07:19	07:03			05:54	20:04 (1)	05:08	20:08 (1)
	16:29		17:24	12	16:49 (3)	18:21	20:20			21:16	42 20:46 (1)	22:04	40 20:48 (1)
6	08:57		08:18		16:38 (3)	07:17	07:00			05:52	20:03 (1)	05:07	20:08 (1)
	16:30		17:26	10	16:48 (3)	18:23	20:22			21:18	44 20:47 (1)	22:05	40 20:48 (1)
7	08:56		08:16		16:41 (3)	07:14	06:58			05:50	20:02 (1)	05:07	20:09 (1)
	16:31		17:28	5	16:46 (3)	18:25	20:24			21:20	47 20:49 (1)	22:07	39 20:48 (1)
8	08:56		08:14			07:12	06:55			05:48	20:02 (1)	05:06	20:10 (1)
	16:33		17:30			18:27	20:26			21:22	48 20:50 (1)	22:07	38 20:48 (1)
9	08:55		08:12			07:09	06:53			05:46	20:01 (1)	05:06	20:11 (1)
	16:34		17:32			18:28	20:27			21:23	50 20:51 (1)	22:08	37 20:48 (1)
10	08:55		08:10			07:07	06:50			05:44	20:02 (1)	05:05	20:11 (1)
	16:36		17:34			18:30	20:29			21:25	50 20:52 (1)	22:09	37 20:48 (1)
11	08:54		08:08			07:05	06:48			05:42	20:01 (1)	05:05	20:11 (1)
	16:37		17:36			18:32	20:31			21:27	51 20:52 (1)	22:10	37 20:48 (1)
12	08:53		08:06			07:02	06:46			05:41	20:00 (1)	05:04	20:12 (1)
	16:39		17:38			18:34	20:33			21:29	51 20:51 (1)	22:11	36 20:48 (1)
13	08:52		08:04			07:00	06:43			05:39	20:01 (1)	05:04	20:13 (1)
	16:41		17:41			18:36	20:35			21:30	51 20:52 (1)	22:12	35 20:48 (1)
14	08:51		08:02		17:10 (4)	06:57	06:41			05:37	20:01 (1)	05:04	20:14 (1)
	16:42		17:43	3	17:13 (4)	18:38	20:37			21:32	51 20:52 (1)	22:12	34 20:48 (1)
15	08:50		08:00		17:08 (4)	06:55	06:38			05:35	20:00 (1)	05:03	20:13 (1)
	16:44		17:45	7	17:15 (4)	18:40	20:39			21:34	51 20:51 (1)	22:13	34 20:47 (1)
16	08:49		07:58		17:08 (4)	06:52	06:36			05:33	20:01 (1)	05:03	20:14 (1)
	16:46		17:47	9	17:17 (4)	18:42	20:41			21:36	51 20:52 (1)	22:13	33 20:47 (1)
17	08:48		07:56		17:08 (4)	06:50	06:34			05:32	20:00 (1)	05:03	20:14 (1)
	16:47		17:49	12	17:20 (4)	18:44	20:42			21:37	51 20:51 (1)	22:14	33 20:47 (1)
18	08:47		07:54		17:08 (4)	06:47	06:31			05:30	20:01 (1)	05:03	20:14 (1)
	16:49		17:51	14	17:22 (4)	18:46	20:44			21:39	51 20:52 (1)	22:14	33 20:47 (1)
19	08:46		07:51		17:08 (4)	06:45	06:29			05:29	20:01 (1)	05:03	20:15 (1)
	16:51		17:53	16	17:24 (4)	18:48	20:46			21:41	51 20:52 (1)	22:15	33 20:48 (1)
20	08:45		07:49		17:09 (4)	06:42	06:27			05:27	20:01 (1)	05:03	20:16 (1)
	16:53		17:55	17	17:26 (4)	18:50	20:48			21:42	50 20:51 (1)	22:15	33 20:49 (1)
21	08:44		07:47		17:10 (4)	06:40	06:24			05:26	20:02 (1)	05:03	20:16 (1)
	16:55		17:57	15	17:25 (4)	18:52	20:50			21:44	50 20:52 (1)	22:15	33 20:49 (1)
22	08:42		07:45		17:11 (4)	06:37	06:22			05:24	20:02 (1)	05:03	20:16 (1)
	16:56		17:59	12	17:23 (4)	18:53	20:52			21:45	50 20:52 (1)	22:16	33 20:49 (1)
23	08:41		07:42		17:13 (4)	06:35	06:20			05:23	20:02 (1)	05:04	20:16 (1)
	16:58		18:01	8	17:21 (4)	18:55	20:54			21:47	49 20:51 (1)	22:16	33 20:49 (1)
24	08:40		07:40			06:32	06:18		20:24 (1)	05:21	20:02 (1)	05:04	20:16 (1)
	17:00		18:03			18:57	20:56	3	20:27 (1)	21:49	49 20:51 (1)	22:16	33 20:49 (1)
25	08:38		07:38			06:30	06:15		20:19 (1)	05:20	20:03 (1)	05:04	20:16 (1)
	17:02		18:05			18:59	20:58	9	20:28 (1)	21:50	48 20:51 (1)	22:16	33 20:49 (1)
26	08:37		07:36			06:27	06:13		20:16 (1)	05:19	20:03 (1)	05:05	20:16 (1)
	17:04		18:07			19:01	20:59	14	20:30 (1)	21:52	48 20:51 (1)	22:16	33 20:49 (1)
27	08:35		07:33			06:25	06:11		20:13 (1)	05:17	20:04 (1)	05:05	20:16 (1)
	17:06		18:09			19:03	21:01	18	20:31 (1)	21:53	47 20:51 (1)	22:16	34 20:50 (1)
28	08:34		16:34 (3)	07:31		06:22	06:09		20:11 (1)	05:16	20:04 (1)	05:06	20:16 (1)
	17:08	1	16:35 (3)	18:11		19:05	21:03	22	20:33 (1)	21:54	47 20:51 (1)	22:16	34 20:50 (1)
29	08:32		16:34 (3)			07:20	06:07		20:09 (1)	05:15	20:05 (1)	05:06	20:16 (1)
	17:10	3	16:37 (3)			20:07	21:05	26	20:35 (1)	21:56	45 20:50 (1)	22:15	35 20:51 (1)
30	08:30		16:33 (3)			07:17	06:04		20:08 (1)	05:14	20:05 (1)	05:07	20:16 (1)
	17:12	6	16:39 (3)			20:09	21:07	28	20:36 (1)	21:57	45 20:50 (1)	22:15	36 20:52 (1)
31	08:29		16:33 (3)			07:15				05:13	20:06 (1)		
	17:14	8	16:41 (3)			20:10				21:58	44 20:50 (1)		
Potential sun hours	248			272		367	421			496		513	
Total, worst case		18			190			120			1452		1077
Sun reduction		0.17			0.22			0.34			0.36		0.26
Oper. time red.		1.00			1.00			1.00			1.00		1.00
Wind dir. red.		0.58			0.58			0.62			0.62		0.62
Total reduction		0.10			0.13			0.21			0.22		0.16
Total, real		2			25			25			325		172

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: H - H8

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October			November			December
1	05:08		20:16 (1)	05:48		20:11 (1)	06:44	07:38			07:37			08:33
	22:15	36	20:52 (1)	21:39	51	21:02 (1)	20:31	19:16			17:04			16:19
2	05:08		20:16 (1)	05:50		20:11 (1)	06:46	07:40			07:39			08:35
	22:14	36	20:52 (1)	21:37	51	21:02 (1)	20:28	19:14			17:02			16:18
3	05:09		20:16 (1)	05:52		20:11 (1)	06:47	07:42			07:41			08:36
	22:14	37	20:53 (1)	21:35	50	21:01 (1)	20:26	19:11			17:00			16:18
4	05:10		20:16 (1)	05:54		20:12 (1)	06:49	07:44			07:43		16:10 (3)	08:38
	22:13	38	20:54 (1)	21:33	49	21:01 (1)	20:24	19:09			16:58	6	16:16 (3)	16:17
5	05:11		20:15 (1)	05:55		20:12 (1)	06:51	07:45			07:45		16:08 (3)	08:39
	22:13	38	20:53 (1)	21:31	48	21:00 (1)	20:21	19:06			16:57	10	16:18 (3)	16:16
6	05:12		20:15 (1)	05:57		20:12 (1)	06:53	07:47			07:47		16:06 (3)	08:41
	22:12	39	20:54 (1)	21:29	45	20:57 (1)	20:19	19:04			16:55	13	16:19 (3)	16:16
7	05:13		20:15 (1)	05:59		20:13 (1)	06:55	07:49			07:49		16:05 (3)	08:42
	22:11	40	20:55 (1)	21:27	43	20:56 (1)	20:16	19:01			16:53	15	16:20 (3)	16:15
8	05:14		20:15 (1)	06:01		20:14 (1)	06:56	07:51			07:51		16:05 (3)	08:43
	22:11	40	20:55 (1)	21:25	41	20:55 (1)	20:14	18:59			16:51	13	16:18 (3)	16:15
9	05:15		20:14 (1)	06:02		20:13 (1)	06:58	07:53			07:53		16:04 (3)	08:45
	22:10	42	20:56 (1)	21:23	39	20:52 (1)	20:11	18:56			16:49	12	16:16 (3)	16:15
10	05:16		20:14 (1)	06:04		20:14 (1)	07:00	07:55			07:55		16:05 (3)	08:46
	22:09	42	20:56 (1)	21:21	36	20:50 (1)	20:09	18:54			16:47	10	16:15 (3)	16:14
11	05:17		20:14 (1)	06:06		20:16 (1)	07:02	07:57			07:57		16:05 (3)	08:47
	22:08	43	20:57 (1)	21:19	33	20:49 (1)	20:06	18:52			16:46	8	16:13 (3)	16:14
12	05:18		20:13 (1)	06:08		20:16 (1)	07:04	07:59			07:59		16:05 (3)	08:48
	22:07	44	20:57 (1)	21:17	30	20:46 (1)	20:04	18:49			16:44	6	16:11 (3)	16:14
13	05:20		20:14 (1)	06:09		20:17 (1)	07:05	08:00			08:01		16:05 (3)	08:49
	22:06	44	20:58 (1)	21:15	27	20:44 (1)	20:01	18:47			16:42	4	16:09 (3)	16:14
14	05:21		20:14 (1)	06:11		20:18 (1)	07:07	08:02			08:03		16:06 (3)	08:50
	22:05	45	20:59 (1)	21:12	25	20:43 (1)	19:59	18:44			16:40	1	16:07 (3)	16:14
15	05:22		20:13 (1)	06:13		20:19 (1)	07:09	08:04			08:05			08:51
	22:04	46	20:59 (1)	21:10	21	20:40 (1)	19:56	18:42			16:39			16:14
16	05:23		20:13 (1)	06:15		20:21 (1)	07:11	08:06			08:07			08:52
	22:03	46	20:59 (1)	21:08	17	20:38 (1)	19:54	18:40			16:37			16:14
17	05:25		20:13 (1)	06:17		20:23 (1)	07:13	08:08			08:09			08:53
	22:02	47	21:00 (1)	21:06	13	20:36 (1)	19:51	18:37			16:36			16:14
18	05:26		20:13 (1)	06:18		20:25 (1)	07:14	08:10		17:48 (4)	08:11			08:54
	22:00	47	21:00 (1)	21:04	9	20:34 (1)	19:49	18:35	1	17:49 (4)	16:34			16:14
19	05:28		20:12 (1)	06:20		20:31 (1)	07:16	08:12		17:43 (4)	08:12			08:54
	21:59	48	21:00 (1)	21:01	1	20:32 (1)	19:46	18:33	10	17:53 (4)	16:33			16:14
20	05:29		20:12 (1)	06:22			07:18	08:14		17:41 (4)	08:14			08:55
	21:58	48	21:00 (1)	20:59			19:44	18:30	14	17:55 (4)	16:31			16:15
21	05:31		20:12 (1)	06:24			07:20	08:16		17:40 (4)	08:16			08:56
	21:56	49	21:01 (1)	20:57			19:41	18:28	16	17:56 (4)	16:30			16:15
22	05:32		20:11 (1)	06:26			07:22	08:18		17:39 (4)	08:18			08:56
	21:55	50	21:01 (1)	20:55			19:39	18:26	17	17:56 (4)	16:29			16:16
23	05:34		20:12 (1)	06:27			07:23	08:20		17:38 (4)	08:20			08:57
	21:53	50	21:02 (1)	20:52			19:36	18:24	15	17:53 (4)	16:28			16:16
24	05:35		20:11 (1)	06:29			07:25	08:22		17:38 (4)	08:22			08:57
	21:52	51	21:02 (1)	20:50			19:34	18:21	13	17:51 (4)	16:26			16:17
25	05:37		20:12 (1)	06:31			07:27	07:24		16:38 (4)	08:23			08:58
	21:50	51	21:03 (1)	20:48			19:31	17:19	10	16:48 (4)	16:25			16:17
26	05:38		20:11 (1)	06:33			07:29	07:26		16:38 (4)	08:25			08:58
	21:49	51	21:02 (1)	20:45			19:29	17:17	8	16:46 (4)	16:24			16:18
27	05:40		20:12 (1)	06:35			07:31	07:27		16:38 (4)	08:27			08:58
	21:47	51	21:03 (1)	20:43			19:26	17:15	6	16:44 (4)	16:23			16:19
28	05:42		20:11 (1)	06:36			07:33	07:29		16:39 (4)	08:28			08:58
	21:46	51	21:02 (1)	20:40			19:24	17:13	3	16:42 (4)	16:22			16:20
29	05:43		20:11 (1)	06:38			07:34	07:31			08:30			08:58
	21:44	52	21:03 (1)	20:38			19:21	17:11			16:21			16:21
30	05:45		20:11 (1)	06:40			07:36	07:33			08:32			08:58
	21:42	51	21:02 (1)	20:36			19:19	17:09			16:20			16:22
31	05:47		20:11 (1)	06:42				07:35						08:58
	21:40	51	21:02 (1)	20:33				17:07						16:23
Potential sun hours	515			461			382	328			257			231
Total, worst case		1404			629				113			98		
Sun reduction		0.27			0.27				0.23			0.20		
Oper. time red.		1.00			1.00				1.00			1.00		
Wind dir. red.		0.62			0.62				0.58			0.58		
Total reduction		0.16			0.17				0.14			0.12		
Total, real		231			106				15			11		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: I - H9

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April	May	June
1	08:58	15:32 (3)	08:27	15:49 (3)	07:29	16:41 (4)	07:13	06:02	05:12
	16:24	13 15:45 (3)	17:16	11 16:00 (3)	18:13	31 17:12 (4)	20:12	21:09	22:00
2	08:58	15:33 (3)	08:25		07:26	16:42 (4)	07:10	06:00	05:11
	16:25	14 15:47 (3)	17:18		18:15	28 17:10 (4)	20:14	21:11	22:01
3	08:58	15:32 (3)	08:24		07:24	16:45 (4)	07:08	05:58	05:10
	16:26	16 15:48 (3)	17:20		18:17	23 17:08 (4)	20:16	21:12	22:02
4	08:58	15:33 (3)	08:22		07:22	16:46 (4)	07:05	05:56	05:09
	16:28	17 15:50 (3)	17:22		18:19	19 17:05 (4)	20:18	21:14	22:03
5	08:57	15:33 (3)	08:20		07:19	16:51 (4)	07:03	05:54	05:08
	16:29	18 15:51 (3)	17:24		18:21	10 17:01 (4)	20:20	21:16	22:04
6	08:57	15:33 (3)	08:18	16:52 (4)	07:17		07:00	05:52	05:08
	16:30	20 15:53 (3)	17:26	3 16:55 (4)	18:23		20:22	21:18	22:06
7	08:56	15:33 (3)	08:16	16:49 (4)	07:14		06:58	05:50	05:07
	16:32	21 15:54 (3)	17:28	9 16:58 (4)	18:25		20:24	21:20	22:07
8	08:56	15:33 (3)	08:14	16:46 (4)	07:12		06:55	05:48	05:06
	16:33	22 15:55 (3)	17:30	14 17:00 (4)	18:27		20:26	21:22	22:08
9	08:55	15:33 (3)	08:12	16:44 (4)	07:09		06:53	05:46	05:06
	16:34	24 15:57 (3)	17:32	17 17:01 (4)	18:29		20:27	21:23	22:08
10	08:55	15:34 (3)	08:10	16:43 (4)	07:07		06:50	05:44	05:05
	16:36	25 15:59 (3)	17:34	21 17:04 (4)	18:30		20:29	21:25	22:09
11	08:54	15:34 (3)	08:08	16:42 (4)	07:05		06:48	05:42	05:05
	16:37	27 16:01 (3)	17:36	24 17:06 (4)	18:32		20:31	21:27	22:10
12	08:53	15:34 (3)	08:06	16:41 (4)	07:02		06:46	05:41	05:04
	16:39	29 16:03 (3)	17:39	27 17:08 (4)	18:34		20:33	21:29	22:11
13	08:52	15:35 (3)	08:04	16:40 (4)	07:00		06:43	05:39	05:04
	16:41	29 16:04 (3)	17:41	31 17:11 (4)	18:36		20:35	21:31	22:12
14	08:51	15:34 (3)	08:02	16:40 (4)	06:57		06:41	05:37	05:04
	16:42	31 16:05 (3)	17:43	33 17:13 (4)	18:38		20:37	21:32	22:12
15	08:50	15:34 (3)	08:00	16:38 (4)	06:55		06:38	05:35	05:03
	16:44	32 16:06 (3)	17:45	37 17:15 (4)	18:40		20:39	21:34	22:13
16	08:49	15:35 (3)	07:58	16:38 (4)	06:52		06:36	05:34	05:03
	16:46	32 16:07 (3)	17:47	39 17:17 (4)	18:42		20:41	21:36	22:13
17	08:48	15:35 (3)	07:56	16:38 (4)	06:50		06:34	05:32	05:03
	16:47	32 16:07 (3)	17:49	39 17:17 (4)	18:44		20:43	21:37	22:14
18	08:47	15:35 (3)	07:54	16:38 (4)	06:47		06:31	05:30	05:03
	16:49	32 16:07 (3)	17:51	40 17:18 (4)	18:46		20:44	21:39	22:14
19	08:46	15:36 (3)	07:51	16:37 (4)	06:45		06:29	05:29	05:03
	16:51	32 16:08 (3)	17:53	40 17:17 (4)	18:48		20:46	21:41	22:15
20	08:45	15:36 (3)	07:49	16:37 (4)	06:42		06:27	05:27	05:03
	16:53	32 16:08 (3)	17:55	41 17:18 (4)	18:50		20:48	21:42	22:15
21	08:44	15:36 (3)	07:47	16:37 (4)	06:40		06:24	05:26	05:03
	16:55	32 16:08 (3)	17:57	41 17:18 (4)	18:52		20:50	21:44	22:15
22	08:42	15:37 (3)	07:45	16:37 (4)	06:37		06:22	05:24	05:03
	16:57	31 16:08 (3)	17:59	40 17:17 (4)	18:53		20:52	21:46	22:16
23	08:41	15:38 (3)	07:43	16:37 (4)	06:35		06:20	05:23	05:04
	16:58	30 16:08 (3)	18:01	40 17:17 (4)	18:55		20:54	21:47	22:16
24	08:40	15:39 (3)	07:40	16:38 (4)	06:32		06:18	05:21	05:04
	17:00	29 16:08 (3)	18:03	39 17:17 (4)	18:57		20:56	21:49	22:16
25	08:38	15:39 (3)	07:38	16:38 (4)	06:30		06:15	05:20	05:04
	17:02	29 16:08 (3)	18:05	37 17:15 (4)	18:59		20:58	21:50	22:16
26	08:37	15:40 (3)	07:36	16:39 (4)	06:27		06:13	05:19	05:05
	17:04	27 16:07 (3)	18:07	36 17:15 (4)	19:01		20:59	21:52	22:16
27	08:35	15:41 (3)	07:33	16:39 (4)	06:25		06:11	05:17	05:05
	17:06	26 16:07 (3)	18:09	34 17:13 (4)	19:03		21:01	21:53	22:16
28	08:34	15:42 (3)	07:31	16:40 (4)	06:22		06:09	05:16	05:06
	17:08	25 16:07 (3)	18:11	33 17:13 (4)	19:05		21:03	21:54	22:16
29	08:32	15:43 (3)			07:20		06:07	05:15	05:06
	17:10	23 16:06 (3)			20:07		21:05	21:56	22:15
30	08:30	15:45 (3)			07:17		06:04	05:14	05:07
	17:12	19 16:04 (3)			20:09		21:07	21:57	22:15
31	08:29	15:46 (3)			07:15			05:13	
	17:14	17 16:03 (3)			20:10			21:58	
Potential sun hours	248		272		367		421	496	513
Total, worst case		786		726		111			
Sun reduction		0.17		0.22		0.22			
Oper. time red.		1.00		1.00		1.00			
Wind dir. red.		0.62		0.58		0.58			
Total reduction		0.11		0.13		0.13			
Total, real		83		94		14			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: I - H9

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October			November			December		
1	05:08		05:48		06:44		07:38			07:37		16:12 (4)	08:33		15:16 (3)
	22:15		21:39		20:31		19:16			17:05	21	16:33 (4)	16:19	27	15:43 (3)
2	05:08		05:50		06:46		07:40			07:39		16:14 (4)	08:35		15:16 (3)
	22:14		21:37		20:28		19:14			17:03	17	16:31 (4)	16:19	25	15:41 (3)
3	05:09		05:52		06:47		07:42			07:41		16:15 (4)	08:36		15:17 (3)
	22:14		21:35		20:26		19:11			17:01	13	16:28 (4)	16:18	24	15:41 (3)
4	05:10		05:54		06:49		07:44			07:43		16:19 (4)	08:38		15:18 (3)
	22:13		21:33		20:24		19:09			16:59	8	16:27 (4)	16:17	22	15:40 (3)
5	05:11		05:55		06:51		07:45			07:45		16:22 (4)	08:39		15:18 (3)
	22:13		21:31		20:21		19:06			16:57	3	16:25 (4)	16:16	21	15:39 (3)
6	05:12		05:57		06:53		07:47			07:47			08:41		15:19 (3)
	22:12		21:29		20:19		19:04			16:55			16:16	20	15:39 (3)
7	05:13		05:59		06:55		07:49			07:49			08:42		15:20 (3)
	22:11		21:27		20:16		19:01			16:53			16:15	18	15:38 (3)
8	05:14		06:01		06:56		07:51			07:51			08:43		15:20 (3)
	22:11		21:25		20:14		18:59			16:51			16:15	17	15:37 (3)
9	05:15		06:02		06:58		07:53		17:23 (4)	07:53			08:45		15:21 (3)
	22:10		21:23		20:11		18:56	15	17:38 (4)	16:49			16:15	16	15:37 (3)
10	05:16		06:04		07:00		07:55		17:20 (4)	07:55		15:21 (3)	08:46		15:22 (3)
	22:09		21:21		20:09		18:54	21	17:41 (4)	16:47	11	15:32 (3)	16:14	14	15:36 (3)
11	05:17		06:06		07:02		07:57		17:18 (4)	07:57		15:18 (3)	08:47		15:22 (3)
	22:08		21:19		20:06		18:52	25	17:43 (4)	16:46	17	15:35 (3)	16:14	14	15:36 (3)
12	05:18		06:08		07:04		07:59		17:16 (4)	07:59		15:16 (3)	08:48		15:24 (3)
	22:07		21:17		20:04		18:49	28	17:44 (4)	16:44	20	15:36 (3)	16:14	12	15:36 (3)
13	05:20		06:09		07:05		08:00		17:14 (4)	08:01		15:15 (3)	08:49		15:24 (3)
	22:06		21:15		20:01		18:47	31	17:45 (4)	16:42	23	15:38 (3)	16:14	12	15:36 (3)
14	05:21		06:11		07:07		08:02		17:13 (4)	08:03		15:14 (3)	08:50		15:25 (3)
	22:05		21:12		19:59		18:45	33	17:46 (4)	16:41	25	15:39 (3)	16:14	11	15:36 (3)
15	05:22		06:13		07:09		08:04		17:11 (4)	08:05		15:13 (3)	08:51		15:26 (3)
	22:04		21:10		19:56		18:42	36	17:47 (4)	16:39	26	15:39 (3)	16:14	10	15:36 (3)
16	05:24		06:15		07:11		08:06		17:10 (4)	08:07		15:13 (3)	08:52		15:27 (3)
	22:03		21:08		19:54		18:40	37	17:47 (4)	16:37	27	15:40 (3)	16:14	9	15:36 (3)
17	05:25		06:17		07:13		08:08		17:10 (4)	08:09		15:12 (3)	08:53		15:26 (3)
	22:02		21:06		19:51		18:37	38	17:48 (4)	16:36	29	15:41 (3)	16:14	9	15:35 (3)
18	05:26		06:18		07:14		08:10		17:09 (4)	08:11		15:13 (3)	08:54		15:27 (3)
	22:00		21:04		19:49		18:35	39	17:48 (4)	16:34	29	15:42 (3)	16:14	8	15:35 (3)
19	05:28		06:20		07:16		08:12		17:08 (4)	08:12		15:13 (3)	08:54		15:28 (3)
	21:59		21:01		19:46		18:33	40	17:48 (4)	16:33	30	15:43 (3)	16:14	8	15:36 (3)
20	05:29		06:22		07:18		08:14		17:08 (4)	08:14		15:12 (3)	08:55		15:28 (3)
	21:58		20:59		19:44		18:31	40	17:48 (4)	16:32	31	15:43 (3)	16:15	7	15:35 (3)
21	05:31		06:24		07:20		08:16		17:07 (4)	08:16		15:12 (3)	08:56		15:29 (3)
	21:56		20:57		19:41		18:28	41	17:48 (4)	16:30	32	15:44 (3)	16:15	7	15:36 (3)
22	05:32		06:26		07:22		08:18		17:07 (4)	08:18		15:12 (3)	08:56		15:29 (3)
	21:55		20:55		19:39		18:26	41	17:48 (4)	16:29	32	15:44 (3)	16:16	7	15:36 (3)
23	05:34		06:28		07:23		08:20		17:07 (4)	08:20		15:13 (3)	08:57		15:30 (3)
	21:54		20:52		19:36		18:24	41	17:48 (4)	16:28	32	15:45 (3)	16:16	7	15:37 (3)
24	05:35		06:29		07:25		08:22		17:07 (4)	08:22		15:13 (3)	08:57		15:30 (3)
	21:52		20:50		19:34		18:22	40	17:47 (4)	16:26	32	15:45 (3)	16:17	8	15:38 (3)
25	05:37		06:31		07:27		07:24		16:07 (4)	08:23		15:13 (3)	08:58		15:30 (3)
	21:50		20:48		19:31		17:19	40	16:47 (4)	16:25	32	15:45 (3)	16:17	8	15:38 (3)
26	05:38		06:33		07:29		07:26		16:07 (4)	08:25		15:14 (3)	08:58		15:31 (3)
	21:49		20:45		19:29		17:17	39	16:46 (4)	16:24	32	15:46 (3)	16:18	9	15:40 (3)
27	05:40		06:35		07:31		07:28		16:08 (4)	08:27		15:13 (3)	08:58		15:32 (3)
	21:47		20:43		19:26		17:15	36	16:44 (4)	16:23	32	15:45 (3)	16:19	8	15:40 (3)
28	05:42		06:37		07:33		07:29		16:09 (4)	08:28		15:14 (3)	08:58		15:32 (3)
	21:46		20:41		19:24		17:13	33	16:42 (4)	16:22	31	15:45 (3)	16:20	9	15:41 (3)
29	05:43		06:38		07:34		07:31		16:10 (4)	08:30		15:15 (3)	08:58		15:32 (3)
	21:44		20:38		19:21		17:11	30	16:40 (4)	16:21	30	15:45 (3)	16:21	10	15:42 (3)
30	05:45		06:40		07:36		07:33		16:11 (4)	08:32		15:15 (3)	08:58		15:32 (3)
	21:42		20:36		19:19		17:09	26	16:37 (4)	16:20	29	15:44 (3)	16:22	11	15:43 (3)
31	05:47		06:42				07:35		16:11 (4)				08:58		15:32 (3)
	21:40		20:33				17:07	24	16:35 (4)				16:23	12	15:44 (3)
Potential sun hours	515		461		382		328			257			231		
Total, worst case								774			644			400	
Sun reduction								0.23			0.20			0.12	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.58			0.62			0.62	
Total reduction								0.14			0.12			0.07	
Total, real								105			79			30	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: J - H10

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	20:53 (7)	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39 5	20:58 (7)	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00 20:38 (7)	05:11	05:08	05:50	20:51 (7)	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11 2 20:40 (7)	22:01	22:14	21:37 10	21:01 (7)	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:08	05:58 20:38 (7)	05:10	05:09	05:52	20:49 (7)	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:13 4 20:42 (7)	22:02	22:14	21:35 12	21:01 (7)	20:26	19:11	17:00	16:18
4	08:58	08:22	07:22	07:05	05:56 20:38 (7)	05:09	05:10	05:53	20:49 (7)	06:49	07:44	07:43	08:38
	16:27	17:22	18:19	20:18	21:14 6 20:44 (7)	22:03	22:13	21:33 12	21:01 (7)	20:24	19:09	16:58	16:17
5	08:57	08:20	07:19	07:03	05:54 20:38 (7)	05:08	05:11	05:55	20:48 (7)	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16 8 20:46 (7)	22:05	22:13	21:31 12	21:00 (7)	20:21	19:06	16:57	16:16
6	08:57	08:18	07:17	07:00	05:52 20:38 (7)	05:07	05:12	05:57	20:47 (7)	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18 9 20:47 (7)	22:06	22:12	21:29 11	20:58 (7)	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50 20:38 (7)	05:07	05:13	05:59	20:47 (7)	06:55	07:49	07:49	08:42
	16:31	17:28	18:25	20:24	21:20 11 20:49 (7)	22:07	22:12	21:27 9	20:56 (7)	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48 20:38 (7)	05:06	05:14	06:01	20:47 (7)	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22 12 20:50 (7)	22:08	22:11	21:25 8	20:55 (7)	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46 20:39 (7)	05:06	05:15	06:02	20:47 (7)	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23 13 20:52 (7)	22:09	22:10	21:23 5	20:52 (7)	20:11	18:56	16:49	16:15
10	08:55	08:10	07:07	06:50	05:44 20:40 (7)	05:05	05:16	06:04	20:47 (7)	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25 12 20:52 (7)	22:09	22:09	21:21 3	20:50 (7)	20:09	18:54	16:47	16:14
11	08:54	08:08 17:05 (5)	07:05	06:48	05:42 20:41 (7)	05:05	05:17	06:06	20:48 (7)	07:02	07:57	07:57	08:47
	16:37	17:36 1 17:06 (5)	18:32	20:31	21:27 9 20:50 (7)	22:10	22:08	21:19 1	20:49 (7)	20:06	18:52	16:46	16:14
12	08:53	08:06 17:05 (5)	07:02	06:46	05:40 20:44 (7)	05:04	05:18	06:08		07:04	07:59	07:59	08:48
	16:39	17:38 3 17:08 (5)	18:34	20:33	21:29 2 20:46 (7)	22:11	22:07	21:17		20:04	18:49	16:44	16:14
13	08:52	08:04 17:04 (5)	07:00	06:43	05:39	05:04	05:20	06:09		07:05	08:00	08:01	08:49
	16:41	17:41 7 17:11 (5)	18:36	20:35	21:31	22:12	22:06	21:15		20:01	18:47	16:42	16:14
14	08:51	08:02 17:04 (5)	06:57	06:41	05:37	05:04	05:21	06:11		07:07	08:02	08:03	08:50
	16:42	17:43 9 17:13 (5)	18:38	20:37	21:32	22:12	22:05	21:13		19:59	18:44	16:40	16:14
15	08:50	08:00 17:03 (5)	06:55	06:38	05:35	05:03	05:22	06:13		07:09	08:04	08:05	08:51
	16:44	17:45 12 17:15 (5)	18:40	20:39	21:34	22:13	22:04	21:10		19:56	18:42	16:39	16:14
16	08:49	07:58 17:03 (5)	06:52	06:36	05:33	05:03	05:23	06:15		07:11	08:06 17:55 (6)	08:07	08:52
	16:46	17:47 14 17:17 (5)	18:42	20:41	21:36	22:14	22:03	21:08		19:54	18:40 9 18:04 (6)	16:37	16:14
17	08:48	07:56 17:04 (5)	06:50	06:34	05:32	05:03	05:25	06:17		07:13	08:08 17:43 (5)	08:09	08:53
	16:47	17:49 15 17:19 (6)	18:44	20:43	21:37	22:14	22:02	21:06		19:51	18:37 23 18:06 (6)	16:36	16:14
18	08:47	07:54 17:04 (5)	06:47	06:31	05:30	05:03	05:26	06:18		07:14	08:10 17:40 (5)	08:11	08:54
	16:49	17:51 18 17:22 (6)	18:46	20:44	21:39	22:14	22:01	21:04		19:49	18:35 25 18:05 (6)	16:34	16:14
19	08:46	07:51 17:04 (5)	06:45	06:29	05:29	05:03	05:28	06:20		07:16	08:12 17:38 (5)	08:12	08:55
	16:51	17:53 19 17:23 (6)	18:48	20:46	21:41	22:15	21:59	21:01		19:46	18:33 25 18:03 (6)	16:33	16:14
20	08:45	07:49 17:04 (5)	06:42	06:27	05:27	05:03	05:29	06:22		07:18	08:14 17:37 (5)	08:14	08:55
	16:53	17:55 22 17:26 (6)	18:50	20:48	21:42	22:15	21:58	20:59		19:44	18:31 23 18:00 (6)	16:31	16:15
21	08:44	07:47 17:05 (5)	06:40	06:24	05:26	05:03	05:31	06:24		07:20	08:16 17:35 (5)	08:16	08:56
	16:55	17:57 23 17:28 (6)	18:52	20:50	21:44	22:15	21:57	20:57		19:41	18:28 23 17:58 (6)	16:30	16:15
22	08:42	07:45 17:06 (5)	06:37	06:22	05:24	05:03	05:32	06:26		07:22	08:18 17:35 (5)	08:18	08:56
	16:56	17:59 24 17:30 (6)	18:53	20:52	21:46	22:16	21:55	20:55		19:39	18:26 21 17:56 (6)	16:29	16:16
23	08:41	07:43 17:07 (5)	06:35	06:20	05:23	05:04	05:34	06:27		07:23	08:20 17:34 (5)	08:20	08:57
	16:58	18:01 25 17:32 (6)	18:55	20:54	21:47	22:16	21:54	20:52		19:36	18:24 19 17:53 (6)	16:28	16:16
24	08:40	07:40 17:10 (5)	06:32	06:18	05:21	05:04	05:35	06:29		07:25	08:22 17:33 (5)	08:22	08:57
	17:00	18:03 25 17:35 (6)	18:57	20:56	21:49	22:16	21:52	20:50		19:34	18:22 18 17:51 (6)	16:26	16:17
25	08:38	07:38 17:12 (5)	06:30	06:15	05:20	05:04	05:37	06:31		07:27	07:24 16:33 (5)	08:23	08:58
	17:02	18:05 22 17:34 (6)	18:59	20:58	21:50	22:16	21:51	20:48		19:31	17:19 15 16:48 (6)	16:25	16:17
26	08:37	07:36 17:24 (6)	06:27	06:13	05:19	05:05	05:38	06:33		07:29	07:26 16:33 (5)	08:25	08:58
	17:04	18:07 7 17:31 (6)	19:01	20:59	21:52	22:16	21:49	20:45		19:29	17:17 13 16:46 (5)	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35		07:31	07:28 16:34 (5)	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43		19:26	17:15 11 16:45 (5)	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37		07:33	07:30 16:34 (5)	08:29	08:58
	17:08	18:11	19:05	21:03	21:55	22:16	21:46	20:41		19:24	17:13 8 16:42 (5)	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38		07:34	07:31 16:34 (5)	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38		19:21	17:11 6 16:40 (5)	16:21	16:21
30	08:31		07:17	06:04	05:14	05:07	05:45	06:40		07:36	07:33 16:34 (5)	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36		19:19	17:09 3 16:37 (5)	16:20	16:21
31	08:29		07:15		05:13		05:47	06:42			07:35		08:58
	17:14		20:10		21:59		21:40	20:33			17:07		16:22
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case		246			88			88		242		
Sun reduction		0.22			0.36			0.27		0.23		
Oper. time red.		1.00			1.00			1.00		1.00		
Wind dir. red.		0.58			0.62			0.62		0.58		
Total reduction		0.13			0.22			0.17		0.14		
Total, real		32			20			15		33		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: K - H11

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:59	08:27	07:29	07:13	06:02		05:12		05:08		05:48	06:44	07:38	07:38	08:34
	16:24	17:16	18:13	20:12	21:09		22:00	47	06:44 (7)	22:15	51	06:52 (7)	21:39	20:31	19:16	17:05	16:19
2	08:58	08:26	07:26	07:10	06:00		05:11		05:57 (7)	05:08		06:02 (7)	05:50	06:46	07:40	07:40	08:35
	16:25	17:18	18:15	20:14	21:11		22:01	47	06:44 (7)	22:15	50	06:52 (7)	21:37	20:29	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58		05:10		05:58 (7)	05:09		06:02 (7)	05:52	06:47	07:42	07:42	08:37
	16:26	17:20	18:17	20:16	21:13		22:02	48	06:46 (7)	22:14	50	06:52 (7)	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56		05:09		05:57 (7)	05:10		06:03 (7)	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:15		22:04	49	06:46 (7)	22:14	50	06:53 (7)	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54		05:08		05:57 (7)	05:11		06:03 (7)	05:55	06:51	07:46	07:45	08:40
	16:29	17:24	18:21	20:20	21:16		22:05	49	06:46 (7)	22:13	50	06:53 (7)	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52		05:08		05:58 (7)	05:12		06:03 (7)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18		22:06	49	06:47 (7)	22:12	49	06:52 (7)	21:29	20:19	19:04	16:55	16:16
7	08:57	08:16	07:14	06:58	05:50		05:07		05:57 (7)	05:13		06:03 (7)	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20		22:07	49	06:46 (7)	22:12	49	06:52 (7)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48		05:06		05:58 (7)	05:14		06:04 (7)	06:01	06:57	07:51	07:51	08:44
	16:33	17:30	18:27	20:26	21:22		22:08	49	06:47 (7)	22:11	48	06:52 (7)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:13	07:10	06:53	05:46		05:06		05:57 (7)	05:15		06:04 (7)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:28	21:24		22:09	50	06:47 (7)	22:10	48	06:52 (7)	21:23	20:11	18:57	16:49	16:15
10	08:55	08:11	07:07	06:51	05:44		05:05		05:58 (7)	05:16		06:04 (7)	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25		22:10	50	06:48 (7)	22:09	48	06:52 (7)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:09	07:05	06:48	05:42		05:05		05:57 (7)	05:17		06:05 (7)	06:06	07:02	07:57	07:57	08:47
	16:37	17:37	18:33	20:31	21:27		22:10	50	06:47 (7)	22:08	47	06:52 (7)	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41		05:04		05:58 (7)	05:18		06:06 (7)	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29		22:11	50	06:48 (7)	22:07	47	06:53 (7)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39		05:04		05:58 (7)	05:20		06:06 (7)	06:10	07:06	08:01	08:01	08:49
	16:41	17:41	18:36	20:35	21:31		22:12	50	06:48 (7)	22:06	46	06:52 (7)	21:15	20:01	18:47	16:42	16:14
14	08:52	08:02	06:57	06:41	05:37		06:15 (7)		05:58 (7)	05:21		06:06 (7)	06:11	07:07	08:03	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	9	06:24 (7)		22:13	51	06:49 (7)	22:05	46	06:52 (7)	21:13	19:59	18:45	16:41	16:14
15	08:51	08:00	06:55	06:39	05:35		06:12 (7)		05:58 (7)	05:22		06:07 (7)	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	16	06:28 (7)		22:13	50	06:48 (7)	22:04	44	06:51 (7)	21:11	19:56	18:42	16:39	16:14
16	08:50	07:58	06:52	06:36	05:34		06:09 (7)		05:03		05:58 (7)	05:24		06:07 (7)	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	21	06:30 (7)		22:14	51	06:49 (7)	22:03	44	06:51 (7)	21:08	19:54	18:40	16:37	16:14
17	08:49	07:56	06:50	06:34	05:32		06:08 (7)		05:03		05:58 (7)	05:25		06:08 (7)	06:17	07:13	08:08	08:09	08:53
	16:47	17:49	18:44	20:43	21:38	25	06:33 (7)		22:14	51	06:49 (7)	22:02	43	06:51 (7)	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30		06:06 (7)		05:03		05:58 (7)	05:26		06:09 (7)	06:19	07:15	08:10	08:11	08:54
	16:49	17:51	18:46	20:45	21:39	28	06:34 (7)		22:15	51	06:49 (7)	22:01	41	06:50 (7)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:52	06:45	06:29	05:29		06:05 (7)		05:03		05:58 (7)	05:28		06:09 (7)	06:20	07:16	08:12	08:13	08:55
	16:51	17:53	18:48	20:46	21:41	30	06:35 (7)		22:15	51	06:49 (7)	21:59	41	06:50 (7)	21:02	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27		06:03 (7)		05:03		05:59 (7)	05:29		06:10 (7)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:43	33	06:36 (7)		22:15	51	06:50 (7)	21:58	40	06:50 (7)	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26		06:02 (7)		05:03		05:59 (7)	05:31		06:11 (7)	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	35	06:37 (7)		22:16	51	06:50 (7)	21:57	38	06:49 (7)	20:57	19:41	18:28	16:30	16:15
22	08:43	07:45	06:38	06:22	05:24		06:02 (7)		05:03		05:59 (7)	05:32		06:11 (7)	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:54	20:52	21:46	37	06:39 (7)		22:16	51	06:50 (7)	21:55	37	06:48 (7)	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23		06:00 (7)		05:04		05:59 (7)	05:34		06:13 (7)	06:28	07:24	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	39	06:39 (7)		22:16	51	06:50 (7)	21:54	34	06:47 (7)	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:33	06:18	05:21		06:00 (7)		05:04		06:00 (7)	05:35		06:14 (7)	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	40	06:40 (7)		22:16	51	06:51 (7)	21:52	32	06:46 (7)	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20		05:59 (7)		05:04		06:00 (7)	05:37		06:16 (7)	06:31	07:27	07:24	08:24	08:58
	17:02	18:05	18:59	20:58	21:50	42	06:41 (7)		22:16	51	06:51 (7)	21:51	29	06:45 (7)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:28	06:13	05:19		05:59 (7)		05:05		06:00 (7)	05:38		06:17 (7)	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	21:00	21:52	42	06:41 (7)		22:16	51	06:51 (7)	21:49	26	06:43 (7)	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17		05:59 (7)		05:05		06:01 (7)	05:40		06:19 (7)	06:35	07:31	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	43	06:42 (7)		22:16	50	06:51 (7)	21:47	23	06:42 (7)	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16		05:58 (7)		05:06		06:01 (7)	05:42		06:20 (7)	06:37	07:33	07:30	08:29	08:58
	17:08	18:11	19:05	21:03	21:55	45	06:43 (7)		22:16	51	06:52 (7)	21:46	20	06:40 (7)	20:41	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15		05:58 (7)		05:06		06:01 (7)	05:43		06:24 (7)	06:38	07:35	07:32	08:30	08:59
	17:10		20:07	21:05	21:56	45	06:43 (7)		22:16	51	06:52 (7)	21:44	13	06:37 (7)	20:38	19:21	17:11	16:21	16:21
30	08:31		07:18	06:04	05:14		05:58 (7)		05:07		06:02 (7)	05:45			06:40	07:36	07:34	08:32	08:59
	17:12		20:09	21:07	21:57	46	06:44 (7)		22:15	50	06:52 (7)	21:42			20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:58 (7)					05:47			06:42		07:36		08:59
	17:14		20:11		21:59	46	06:44 (7)					21:41			20:33		17:07		16:23
Potential sun hours	248	272	367	421	496			513		515		461	382	328	257	231	
Total, worst case						622			1501		1184						
Sun reduction						0.36			0.26		0.27						
Oper. time red.						1.00			1.00		1.00						
Wind dir. red.						0.58			0.58		0.58						
Total reduction						0.21			0.15		0.15						
Total, real						131			225		183						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: L - H12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27	15:58 (2)	07:29		07:13	18:32 (3)	06:02	20:01 (4)	05:12	20:05 (4)
	16:24		17:16 43	16:41 (2)	18:13		20:12 21	18:53 (3)	21:09 37	20:38 (4)	22:00 34	20:39 (4)
2	08:58		08:25	15:58 (2)	07:26		07:10	18:36 (3)	06:00	20:00 (4)	05:11	20:05 (4)
	16:25		17:18 44	16:42 (2)	18:15		20:14 14	18:50 (3)	21:11 40	20:40 (4)	22:01 33	20:38 (4)
3	08:58		08:24	15:58 (2)	07:24		07:08		05:58	19:59 (4)	05:10	20:07 (4)
	16:26		17:20 45	16:43 (2)	18:17		20:16		21:12 42	20:41 (4)	22:02 32	20:39 (4)
4	08:58		08:22	15:58 (2)	07:22		07:05		05:56	19:59 (4)	05:09	20:07 (4)
	16:28		17:22 45	16:43 (2)	18:19		20:18		21:14 44	20:43 (4)	22:03 31	20:38 (4)
5	08:57		08:20	15:57 (2)	07:19		07:03		05:54	19:59 (4)	05:08	20:08 (4)
	16:29		17:24 47	16:44 (2)	18:21		20:20		21:16 44	20:43 (4)	22:04 29	20:37 (4)
6	08:57		08:18	15:57 (2)	07:17		17:43 (3) 07:00		05:52	19:58 (4)	05:08	20:09 (4)
	16:30		17:26 47	16:44 (2)	18:23	12	17:55 (3) 20:22		21:18 45	20:43 (4)	22:05 28	20:37 (4)
7	08:56		08:16	15:57 (2)	07:14		17:40 (3) 06:58		05:50	19:57 (4)	05:07	20:10 (4)
	16:32		17:28 47	16:44 (2)	18:25	18	17:58 (3) 20:24		21:20 46	20:43 (4)	22:07 26	20:36 (4)
8	08:56		08:14	15:57 (2)	07:12		17:36 (3) 06:55		05:48	19:57 (4)	05:06	20:11 (4)
	16:33		17:30 46	16:43 (2)	18:27	23	17:59 (3) 20:26		21:22 46	20:43 (4)	22:07 26	20:37 (4)
9	08:55		08:12	15:57 (2)	07:09		17:35 (3) 06:53		05:46	19:56 (4)	05:06	20:11 (4)
	16:34		17:32 46	16:43 (2)	18:29	27	18:02 (3) 20:27		21:23 47	20:43 (4)	22:08 25	20:36 (4)
10	08:55		08:10	15:57 (2)	07:07		17:32 (3) 06:50		05:44	19:57 (4)	05:05	20:12 (4)
	16:36		17:34 47	16:44 (2)	18:30	31	18:03 (3) 20:29		21:25 47	20:44 (4)	22:09 24	20:36 (4)
11	08:54		08:08	15:58 (2)	07:05		17:31 (3) 06:48		05:42	19:57 (4)	05:05	20:12 (4)
	16:37		17:37 46	16:44 (2)	18:32	34	18:05 (3) 20:31		21:27 47	20:44 (4)	22:10 23	20:35 (4)
12	08:53		08:06	15:58 (2)	07:02		17:29 (3) 06:46		05:41	19:56 (4)	05:04	20:13 (4)
	16:39		17:39 45	16:43 (2)	18:34	38	18:07 (3) 20:33		21:29 48	20:44 (4)	22:11 22	20:35 (4)
13	08:52		08:04	15:59 (2)	07:00		17:29 (3) 06:43		05:39	19:57 (4)	05:04	20:14 (4)
	16:41		17:41 44	16:43 (2)	18:36	39	18:08 (3) 20:35		21:31 47	20:44 (4)	22:12 21	20:35 (4)
14	08:51		08:02	15:59 (2)	06:57		17:27 (3) 06:41		05:37	19:56 (4)	05:04	20:15 (4)
	16:42		17:43 44	16:43 (2)	18:38	41	18:08 (3) 20:37		21:32 48	20:44 (4)	22:12 19	20:34 (4)
15	08:50		08:00	15:59 (2)	06:55		17:27 (3) 06:38		05:35	19:56 (4)	05:03	20:15 (4)
	16:44		17:45 43	16:42 (2)	18:40	42	18:09 (3) 20:39		21:34 47	20:43 (4)	22:13 18	20:33 (4)
16	08:49		07:58	16:00 (2)	06:52		17:26 (3) 06:36		05:34	19:57 (4)	05:03	20:16 (4)
	16:46		17:47 41	16:41 (2)	18:42	43	18:09 (3) 20:41		21:36 47	20:44 (4)	22:13 17	20:33 (4)
17	08:48		07:56	16:01 (2)	06:50		17:25 (3) 06:34		05:32	19:56 (4)	05:03	20:16 (4)
	16:47		17:49 40	16:41 (2)	18:44	45	18:10 (3) 20:43		21:37 47	20:43 (4)	22:14 17	20:33 (4)
18	08:47		07:54	16:03 (2)	06:47		17:24 (3) 06:31		05:30	19:57 (4)	05:03	20:17 (4)
	16:49		17:51 37	16:40 (2)	18:46	45	18:09 (3) 20:44		21:39 46	20:43 (4)	22:14 16	20:33 (4)
19	08:46	16:10 (2)	07:51	16:03 (2)	06:45		17:25 (3) 06:29		05:29	19:58 (4)	05:03	20:17 (4)
	16:51 6	16:16 (2)	17:53 35	16:38 (2)	18:48	44	18:09 (3) 20:46		21:41 45	20:43 (4)	22:15 16	20:33 (4)
20	08:45	16:08 (2)	07:49	16:05 (2)	06:42		17:24 (3) 06:27		05:27	19:58 (4)	05:03	20:19 (4)
	16:53 10	16:18 (2)	17:55 32	16:37 (2)	18:50	45	18:09 (3) 20:48		21:42 45	20:43 (4)	22:15 15	20:34 (4)
21	08:44	16:06 (2)	07:47	16:07 (2)	06:40		17:24 (3) 06:24		05:26	19:58 (4)	05:03	20:19 (4)
	16:55 14	16:20 (2)	17:57 29	16:36 (2)	18:52	45	18:09 (3) 20:50		21:44 45	20:43 (4)	22:15 15	20:34 (4)
22	08:42	16:05 (2)	07:45	16:08 (2)	06:37		17:24 (3) 06:22		05:24	19:59 (4)	05:03	20:19 (4)
	16:57 17	16:22 (2)	17:59 25	16:33 (2)	18:53	44	18:08 (3) 20:52		21:45 44	20:43 (4)	22:16 15	20:34 (4)
23	08:41	16:03 (2)	07:43	16:12 (2)	06:35		17:24 (3) 06:20	20:21 (4)	05:23	19:59 (4)	05:04	20:18 (4)
	16:58 21	16:24 (2)	18:01 18	16:30 (2)	18:55	44	18:08 (3) 20:54 2	20:23 (4)	21:47 43	20:42 (4)	22:16 16	20:34 (4)
24	08:40	16:03 (2)	07:40	16:17 (2)	06:32		17:24 (3) 06:18	20:14 (4)	05:21	20:00 (4)	05:04	20:19 (4)
	17:00 24	16:27 (2)	18:03 9	16:26 (2)	18:57	42	18:06 (3) 20:56 12	20:26 (4)	21:49 42	20:42 (4)	22:16 16	20:35 (4)
25	08:38	16:02 (2)	07:38		06:30		17:25 (3) 06:15	20:11 (4)	05:20	20:00 (4)	05:04	20:19 (4)
	17:02 26	16:28 (2)	18:05		18:59	41	18:06 (3) 20:58 17	20:28 (4)	21:50 41	20:41 (4)	22:16 16	20:35 (4)
26	08:37	16:01 (2)	07:36		06:27		17:25 (3) 06:13	20:09 (4)	05:19	20:01 (4)	05:05	20:18 (4)
	17:04 29	16:30 (2)	18:07		19:01	39	18:04 (3) 20:59 21	20:30 (4)	21:52 40	20:41 (4)	22:16 17	20:35 (4)
27	08:35	16:01 (2)	07:33		06:25		17:26 (3) 06:11	20:07 (4)	05:17	20:02 (4)	05:05	20:18 (4)
	17:06 32	16:33 (2)	18:09		19:03	38	18:04 (3) 21:01 25	20:32 (4)	21:53 39	20:41 (4)	22:16 18	20:36 (4)
28	08:34	16:00 (2)	07:31		06:22		17:26 (3) 06:09	20:05 (4)	05:16	20:02 (4)	05:06	20:19 (4)
	17:08 35	16:35 (2)	18:11		19:05	36	18:02 (3) 21:03 28	20:33 (4)	21:54 39	20:41 (4)	22:16 18	20:37 (4)
29	08:32	15:59 (2)			07:20		18:28 (3) 06:07	20:03 (4)	05:15	20:03 (4)	05:06	20:18 (4)
	17:10 38	16:37 (2)			20:07	33	19:01 (3) 21:05 32	20:35 (4)	21:56 37	20:40 (4)	22:15 19	20:37 (4)
30	08:30	15:59 (2)			07:17		18:28 (3) 06:04	20:02 (4)	05:14	20:04 (4)	05:07	20:18 (4)
	17:12 40	16:39 (2)			20:09	30	18:58 (3) 21:07 34	20:36 (4)	21:57 36	20:40 (4)	22:15 21	20:39 (4)
31	08:29	15:58 (2)			07:15		18:31 (3)		05:13	20:04 (4)		
	17:14 42	16:40 (2)			20:10	26	18:57 (3)		21:58 35	20:39 (4)		
Potential sun hours	248		272		367		421		496		513	
Total, worst case		334		945		945		206		1346		643
Sun reduction		0.17		0.22		0.22		0.34		0.36		0.26
Oper. time red.		1.00		1.00		1.00		1.00		1.00		1.00
Wind dir. red.		0.60		0.60		0.57		0.61		0.61		0.61
Total reduction		0.10		0.13		0.13		0.21		0.22		0.16
Total, real		34		126		120		43		299		102

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: L - H12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December	
1	05:08		20:17 (4)	05:48		20:06 (4)	06:44			07:38		18:09 (3)	07:37		15:27 (2)	08:33	
	22:15	22	20:39 (4)	21:39	48	20:54 (4)	20:31			19:16	39	18:48 (3)	17:05	46	16:13 (2)	16:19	
2	05:08		20:17 (4)	05:50		20:07 (4)	06:46			07:40		18:10 (3)	07:39		15:26 (2)	08:35	
	22:14	23	20:40 (4)	21:37	47	20:54 (4)	20:28			19:14	35	18:45 (3)	17:03	47	16:13 (2)	16:19	
3	05:09		20:17 (4)	05:52		20:07 (4)	06:47			07:42		18:10 (3)	07:41		15:26 (2)	08:36	
	22:14	24	20:41 (4)	21:35	47	20:54 (4)	20:26			19:11	32	18:42 (3)	17:01	47	16:13 (2)	16:18	
4	05:10		20:16 (4)	05:54		20:07 (4)	06:49			07:44		18:11 (3)	07:43		15:27 (2)	08:38	
	22:13	26	20:42 (4)	21:33	47	20:54 (4)	20:24			19:09	29	18:40 (3)	16:59	47	16:14 (2)	16:17	
5	05:11		20:16 (4)	05:55		20:07 (4)	06:51			07:45		18:12 (3)	07:45		15:27 (2)	08:39	
	22:13	26	20:42 (4)	21:31	47	20:54 (4)	20:21			19:06	25	18:37 (3)	16:57	47	16:14 (2)	16:17	
6	05:12		20:15 (4)	05:57		20:07 (4)	06:53			07:47		18:14 (3)	07:47		15:27 (2)	08:41	
	22:12	27	20:42 (4)	21:29	46	20:53 (4)	20:19			19:04	21	18:35 (3)	16:55	46	16:13 (2)	16:16	
7	05:13		20:15 (4)	05:59		20:08 (4)	06:55			07:49		18:17 (3)	07:49		15:27 (2)	08:42	
	22:11	28	20:43 (4)	21:27	45	20:53 (4)	20:16			19:01	15	18:32 (3)	16:53	46	16:13 (2)	16:15	
8	05:14		20:14 (4)	06:01		20:08 (4)	06:56			07:51		18:22 (3)	07:51		15:28 (2)	08:43	
	22:11	30	20:44 (4)	21:25	44	20:52 (4)	20:14			18:59	8	18:30 (3)	16:51	45	16:13 (2)	16:15	
9	05:15		20:14 (4)	06:02		20:08 (4)	06:58			07:53			07:53		15:28 (2)	08:45	
	22:10	31	20:45 (4)	21:23	43	20:51 (4)	20:11			18:57			16:49	44	16:12 (2)	16:15	
10	05:16		20:13 (4)	06:04		20:09 (4)	07:00		18:30 (3)	07:55			07:55		15:29 (2)	08:46	
	22:09	32	20:45 (4)	21:21	41	20:50 (4)	20:09	13	18:43 (3)	18:54			16:47	44	16:13 (2)	16:14	
11	05:17		20:13 (4)	06:06		20:10 (4)	07:02		18:26 (3)	07:57			07:57		15:30 (2)	08:47	
	22:08	33	20:46 (4)	21:19	39	20:49 (4)	20:06	20	18:46 (3)	18:52			16:46	42	16:12 (2)	16:14	
12	05:18		20:13 (4)	06:08		20:10 (4)	07:04		18:22 (3)	07:59			07:59		15:30 (2)	08:48	
	22:07	35	20:48 (4)	21:17	36	20:46 (4)	20:04	26	18:48 (3)	18:49			16:44	41	16:11 (2)	16:14	
13	05:20		20:12 (4)	06:09		20:11 (4)	07:05		18:20 (3)	08:00			08:01		15:31 (2)	08:49	
	22:06	36	20:48 (4)	21:15	33	20:44 (4)	20:01	29	18:49 (3)	18:47			16:42	38	16:09 (2)	16:14	
14	05:21		20:12 (4)	06:11		20:12 (4)	07:07		18:18 (3)	08:02			08:03		15:32 (2)	08:50	
	22:05	36	20:48 (4)	21:12	31	20:43 (4)	19:59	33	18:51 (3)	18:45			16:41	35	16:07 (2)	16:14	
15	05:22		20:11 (4)	06:13		20:12 (4)	07:09		18:17 (3)	08:04			08:05		15:33 (2)	08:51	
	22:04	38	20:49 (4)	21:10	28	20:40 (4)	19:56	35	18:52 (3)	18:42			16:39	32	16:05 (2)	16:14	
16	05:24		20:10 (4)	06:15		20:14 (4)	07:11		18:15 (3)	08:06			08:07		15:34 (2)	08:52	
	22:03	39	20:49 (4)	21:08	24	20:38 (4)	19:54	38	18:53 (3)	18:40			16:37	29	16:03 (2)	16:14	
17	05:25		20:11 (4)	06:17		20:16 (4)	07:13		18:13 (3)	08:08			08:09		15:35 (2)	08:53	
	22:02	40	20:51 (4)	21:06	20	20:36 (4)	19:51	40	18:53 (3)	18:37			16:36	26	16:01 (2)	16:14	
18	05:26		20:10 (4)	06:18		20:17 (4)	07:14		18:12 (3)	08:10		16:46 (2)	08:11		15:37 (2)	08:54	
	22:00	41	20:51 (4)	21:04	17	20:34 (4)	19:49	41	18:53 (3)	18:35	13	16:59 (2)	16:34	24	16:01 (2)	16:14	
19	05:28		20:09 (4)	06:20		20:21 (4)	07:16		18:11 (3)	08:12		16:42 (2)	08:12		15:38 (2)	08:54	
	21:59	42	20:51 (4)	21:01	11	20:32 (4)	19:46	43	18:54 (3)	18:33	21	17:03 (2)	16:33	21	15:59 (2)	16:14	
20	05:29		20:10 (4)	06:22			07:18		18:11 (3)	08:14		16:39 (2)	08:14		15:40 (2)	08:55	
	21:58	42	20:52 (4)	20:59			19:44	43	18:54 (3)	18:31	26	17:05 (2)	16:32	17	15:57 (2)	16:15	
21	05:31		20:09 (4)	06:24			07:20		18:09 (3)	08:16		16:37 (2)	08:16		15:42 (2)	08:56	
	21:56	43	20:52 (4)	20:57			19:41	44	18:53 (3)	18:28	29	17:06 (2)	16:30	14	15:56 (2)	16:15	
22	05:32		20:08 (4)	06:26			07:22		18:09 (3)	08:18		16:35 (2)	08:18		15:44 (2)	08:56	
	21:55	44	20:52 (4)	20:55			19:39	44	18:53 (3)	18:26	33	17:08 (2)	16:29	10	15:54 (2)	16:16	
23	05:34		20:09 (4)	06:28			07:23		18:08 (3)	08:20		16:33 (2)	08:20		15:47 (2)	08:57	
	21:54	44	20:53 (4)	20:52			19:36	45	18:53 (3)	18:24	36	17:09 (2)	16:28	6	15:53 (2)	16:16	
24	05:35		20:08 (4)	06:29			07:25		18:08 (3)	08:22		16:32 (2)	08:22			08:57	
	21:52	45	20:53 (4)	20:50			19:34	45	18:53 (3)	18:22	38	17:10 (2)	16:26			16:17	
25	05:37		20:08 (4)	06:31			07:27		18:08 (3)	07:24		15:30 (2)	08:23			08:58	
	21:50	46	20:54 (4)	20:48			19:31	45	18:53 (3)	17:19	40	16:10 (2)	16:25			16:17	
26	05:38		20:07 (4)	06:33			07:29		18:07 (3)	07:26		15:29 (2)	08:25			08:58	
	21:49	47	20:54 (4)	20:45			19:29	44	18:51 (3)	17:17	42	16:11 (2)	16:24			16:18	
27	05:40		20:08 (4)	06:35			07:31		18:07 (3)	07:27		15:29 (2)	08:27			08:58	
	21:47	46	20:54 (4)	20:43			19:26	44	18:51 (3)	17:15	42	16:11 (2)	16:23			16:19	
28	05:42		20:07 (4)	06:37			07:33		18:07 (3)	07:29		15:29 (2)	08:28			08:58	
	21:46	47	20:54 (4)	20:40			19:24	43	18:50 (3)	17:13	44	16:13 (2)	16:22			16:20	
29	05:43		20:07 (4)	06:38			07:34		18:08 (3)	07:31		15:28 (2)	08:30			08:58	
	21:44	48	20:55 (4)	20:38			19:21	42	18:50 (3)	17:11	45	16:13 (2)	16:21			16:21	
30	05:45		20:07 (4)	06:40			07:36		18:08 (3)	07:33		15:28 (2)	08:32			08:58	
	21:42	47	20:54 (4)	20:36			19:19	41	18:49 (3)	17:09	45	16:13 (2)	16:20			16:22	
31	05:47		20:07 (4)	06:42						07:35		15:27 (2)				08:58	
	21:40	48	20:55 (4)	20:33						17:07	46	16:13 (2)				16:23	
Potential sun hours	515			461			382			328			257			231	
Total, worst case		1156			694			798			704			794			
Sun reduction		0.27			0.27			0.29			0.23			0.20			
Oper. time red.		1.00			1.00			1.00			1.00			1.00			
Wind dir. red.		0.61			0.61			0.57			0.59			0.60			
Total reduction		0.16			0.17			0.17			0.14			0.12			
Total, real		189			117			132			97			95			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: M - H13

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: N - H14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April		May	June
1	08:58		15:32 (3)	08:27		15:44 (3)	07:29		16:41 (4)	07:13		06:02	05:12
	16:24	13	15:45 (3)	17:16	21	16:05 (3)	18:13	40	17:21 (4)	20:12		21:09	22:00
2	08:58		15:33 (3)	08:25		15:47 (3)	07:26		16:41 (4)	07:10		06:00	05:11
	16:25	14	15:47 (3)	17:18	17	16:04 (3)	18:15	38	17:19 (4)	20:14		21:11	22:01
3	08:58		15:32 (3)	08:24		15:50 (3)	07:24		16:42 (4)	07:08		05:58	05:10
	16:26	16	15:48 (3)	17:20	11	16:01 (3)	18:17	36	17:18 (4)	20:16		21:12	22:02
4	08:58		15:33 (3)	08:22			07:22		16:42 (4)	07:05		05:56	05:09
	16:28	17	15:50 (3)	17:22			18:19	35	17:17 (4)	20:18		21:14	22:03
5	08:57		15:32 (3)	08:20			07:19		16:44 (4)	07:03		05:54	05:08
	16:29	19	15:51 (3)	17:24			18:21	32	17:16 (4)	20:20		21:16	22:04
6	08:57		15:33 (3)	08:18			07:17		16:45 (4)	07:00		05:52	05:08
	16:30	20	15:53 (3)	17:26			18:23	28	17:13 (4)	20:22		21:18	22:06
7	08:56		15:33 (3)	08:16			07:14		16:47 (4)	06:58		05:50	05:07
	16:32	21	15:54 (3)	17:28			18:25	25	17:12 (4)	20:24		21:20	22:07
8	08:56		15:33 (3)	08:14			07:12		16:49 (4)	06:55		05:48	05:06
	16:33	22	15:55 (3)	17:30			18:27	20	17:09 (4)	20:26		21:22	22:08
9	08:55		15:33 (3)	08:12		16:54 (4)	07:09		16:53 (4)	06:53		05:46	05:06
	16:34	24	15:57 (3)	17:32	7	17:01 (4)	18:29	12	17:05 (4)	20:27		21:23	22:08
10	08:55		15:34 (3)	08:10		16:51 (4)	07:07			06:50		05:44	05:05
	16:36	25	15:59 (3)	17:34	13	17:04 (4)	18:30			20:29		21:25	22:09
11	08:54		15:34 (3)	08:08		16:49 (4)	07:05			06:48		05:42	05:05
	16:37	27	16:01 (3)	17:37	17	17:06 (4)	18:32			20:31		21:27	22:10
12	08:53		15:34 (3)	08:06		16:48 (4)	07:02			06:46		05:41	05:04
	16:39	29	16:03 (3)	17:39	20	17:08 (4)	18:34			20:33		21:29	22:11
13	08:52		15:34 (3)	08:04		16:46 (4)	07:00			06:43		05:39	05:04
	16:41	31	16:05 (3)	17:41	25	17:11 (4)	18:36			20:35		21:31	22:12
14	08:51		15:33 (3)	08:02		16:45 (4)	06:57			06:41		05:37	05:04
	16:42	32	16:05 (3)	17:43	28	17:13 (4)	18:38			20:37		21:32	22:12
15	08:50		15:33 (3)	08:00		16:43 (4)	06:55			06:38		05:35	05:03
	16:44	33	16:06 (3)	17:45	32	17:15 (4)	18:40			20:39		21:34	22:13
16	08:49		15:34 (3)	07:58		16:43 (4)	06:52			06:36		05:34	05:03
	16:46	33	16:07 (3)	17:47	34	17:17 (4)	18:42			20:41		21:36	22:13
17	08:48		15:34 (3)	07:56		16:42 (4)	06:50			06:34		05:32	05:03
	16:47	34	16:08 (3)	17:49	38	17:20 (4)	18:44			20:43		21:37	22:14
18	08:47		15:34 (3)	07:54		16:42 (4)	06:47			06:31		05:30	05:03
	16:49	34	16:08 (3)	17:51	40	17:22 (4)	18:46			20:44		21:39	22:14
19	08:46		15:35 (3)	07:51		16:40 (4)	06:45			06:29		05:29	05:03
	16:51	33	16:08 (3)	17:53	42	17:22 (4)	18:48			20:46		21:41	22:15
20	08:45		15:35 (3)	07:49		16:40 (4)	06:42			06:27		05:27	05:03
	16:53	34	16:09 (3)	17:55	42	17:22 (4)	18:50			20:48		21:42	22:15
21	08:44		15:35 (3)	07:47		16:40 (4)	06:40			06:24		05:26	05:03
	16:55	34	16:09 (3)	17:57	43	17:23 (4)	18:52			20:50		21:44	22:15
22	08:42		15:36 (3)	07:45		16:39 (4)	06:37			06:22		05:24	05:03
	16:57	33	16:09 (3)	17:59	43	17:22 (4)	18:53			20:52		21:46	22:16
23	08:41		15:36 (3)	07:43		16:39 (4)	06:35			06:20		05:23	05:04
	16:58	33	16:09 (3)	18:01	44	17:23 (4)	18:55			20:54		21:47	22:16
24	08:40		15:37 (3)	07:40		16:40 (4)	06:32			06:18		05:21	05:04
	17:00	33	16:10 (3)	18:03	43	17:23 (4)	18:57			20:56		21:49	22:16
25	08:38		15:37 (3)	07:38		16:39 (4)	06:30			06:15		05:20	05:04
	17:02	32	16:09 (3)	18:05	43	17:22 (4)	18:59			20:58		21:50	22:16
26	08:37		15:38 (3)	07:36		16:39 (4)	06:27			06:13		05:19	05:05
	17:04	31	16:09 (3)	18:07	43	17:22 (4)	19:01			20:59		21:52	22:16
27	08:35		15:39 (3)	07:33		16:39 (4)	06:25			06:11		05:17	05:05
	17:06	30	16:09 (3)	18:09	42	17:21 (4)	19:03			21:01		21:53	22:16
28	08:34		15:40 (3)	07:31		16:40 (4)	06:22			06:09		05:16	05:06
	17:08	29	16:09 (3)	18:11	41	17:21 (4)	19:05			21:03		21:54	22:16
29	08:32		15:41 (3)				07:20			06:07		05:15	05:06
	17:10	27	16:08 (3)				20:07			21:05		21:56	22:15
30	08:30		15:42 (3)				07:17			06:04		05:14	05:07
	17:12	25	16:07 (3)				20:09			21:07		21:57	22:15
31	08:29		15:43 (3)				07:15					05:13	
	17:14	23	16:06 (3)				20:10					21:58	
Potential sun hours	248			272			367			421		496	513
Total, worst case		841			729			266					
Sun reduction		0.17			0.22			0.22					
Oper. time red.		1.00			1.00			1.00					
Wind dir. red.		0.62			0.58			0.58					
Total reduction		0.11			0.13			0.13					
Total, real		89			95			35					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: N - H14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October		November		December	
1	05:08	05:48	06:44	07:38		07:37		08:33	
	22:15	21:39	20:31	19:16		17:05	12	16:19	27
2	05:08	05:50	06:46	07:40		07:39		08:35	
	22:14	21:37	20:28	19:14		17:03	6	16:19	25
3	05:09	05:52	06:47	07:42		07:41		08:36	
	22:14	21:35	20:26	19:11		17:01		16:18	24
4	05:10	05:54	06:49	07:44		17:34 (4)		07:43	
	22:13	21:33	20:24	19:09	5	17:39 (4)		16:59	
5	05:11	05:55	06:51	07:45		17:28 (4)		07:45	
	22:13	21:31	20:21	19:06	16	17:44 (4)		16:57	
6	05:12	05:57	06:53	07:47		17:24 (4)		07:47	
	22:12	21:29	20:19	19:04	23	17:47 (4)		16:55	
7	05:13	05:59	06:55	07:49		17:22 (4)		07:49	
	22:11	21:27	20:16	19:01	27	17:49 (4)		16:53	
8	05:14	06:01	06:56	07:51		17:20 (4)		07:51	
	22:11	21:25	20:14	18:59	30	17:50 (4)		16:51	12
9	05:15	06:02	06:58	07:53		17:18 (4)		07:53	
	22:10	21:23	20:11	18:56	33	17:51 (4)		16:49	17
10	05:16	06:04	07:00	07:55		17:17 (4)		07:55	
	22:09	21:21	20:09	18:54	35	17:52 (4)		16:47	21
11	05:17	06:06	07:02	07:57		17:15 (4)		07:57	
	22:08	21:19	20:06	18:52	38	17:53 (4)		16:46	23
12	05:18	06:08	07:04	07:59		17:14 (4)		07:59	
	22:07	21:17	20:04	18:49	39	17:53 (4)		16:44	26
13	05:20	06:09	07:05	08:00		17:13 (4)		08:01	
	22:06	21:15	20:01	18:47	41	17:54 (4)		16:42	28
14	05:21	06:11	07:07	08:02		17:13 (4)		08:03	
	22:05	21:12	19:59	18:45	41	17:54 (4)		16:41	28
15	05:22	06:13	07:09	08:04		17:12 (4)		08:05	
	22:04	21:10	19:56	18:42	42	17:54 (4)		16:39	30
16	05:24	06:15	07:11	08:06		17:11 (4)		08:07	
	22:03	21:08	19:54	18:40	43	17:54 (4)		16:37	31
17	05:25	06:17	07:13	08:08		17:11 (4)		08:09	
	22:02	21:06	19:51	18:37	43	17:54 (4)		16:36	32
18	05:26	06:18	07:14	08:10		17:11 (4)		08:11	
	22:00	21:04	19:49	18:35	43	17:54 (4)		16:34	33
19	05:28	06:20	07:16	08:12		17:11 (4)		08:12	
	21:59	21:01	19:46	18:33	43	17:54 (4)		16:33	33
20	05:29	06:22	07:18	08:14		17:11 (4)		08:14	
	21:58	20:59	19:44	18:31	43	17:54 (4)		16:32	33
21	05:31	06:24	07:20	08:16		17:11 (4)		08:16	
	21:56	20:57	19:41	18:28	42	17:53 (4)		16:30	34
22	05:32	06:26	07:22	08:18		17:11 (4)		08:18	
	21:55	20:55	19:39	18:26	42	17:53 (4)		16:29	34
23	05:34	06:28	07:23	08:20		17:11 (4)		08:20	
	21:54	20:52	19:36	18:24	41	17:52 (4)		16:28	33
24	05:35	06:29	07:25	08:22		17:11 (4)		08:22	
	21:52	20:50	19:34	18:22	40	17:51 (4)		16:26	34
25	05:37	06:31	07:27	07:24		16:12 (4)		08:23	
	21:50	20:48	19:31	17:19	36	16:48 (4)		16:25	34
26	05:38	06:33	07:29	07:26		16:12 (4)		08:25	
	21:49	20:45	19:29	17:17	34	16:46 (4)		16:24	33
27	05:40	06:35	07:31	07:28		16:13 (4)		08:27	
	21:47	20:43	19:26	17:15	31	16:44 (4)		16:23	32
28	05:42	06:37	07:33	07:29		16:15 (4)		08:28	
	21:46	20:41	19:24	17:13	27	16:42 (4)		16:22	33
29	05:43	06:38	07:34	07:31		16:16 (4)		08:30	
	21:44	20:38	19:21	17:11	24	16:40 (4)		16:21	31
30	05:45	06:40	07:36	07:33		16:17 (4)		08:32	
	21:42	20:36	19:19	17:09	20	16:37 (4)		16:20	29
31	05:47	06:42		07:35		16:19 (4)			
	21:40	20:33		17:07	16	16:35 (4)			
Potential sun hours	515	461	382	328			257		231
Total, worst case					938				692			413
Sun reduction					0.23				0.20			0.12
Oper. time red.					1.00				1.00			1.00
Wind dir. red.					0.58				0.62			0.62
Total reduction					0.14				0.12			0.07
Total, real					128				86			31

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: O - H15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June	July	August	September	October	November	December
1	08:59		08:27	08:56 (5)	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:38	08:34
	16:24		17:16 2	08:58 (5)	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	08:09 (5) 17:05 16	08:09 (5) 16:19 6 09:09 (6) 09:15 (6)
2	08:58		08:26	08:54 (5)	07:26	07:10	06:00	05:11	05:08	05:50	06:46	07:40	07:40	08:35
	16:25		17:18 5	08:59 (5)	18:15	20:14	21:11	22:01	22:15	21:37	20:29	19:14	08:09 (5) 17:03 17	08:09 (5) 16:19 5 09:11 (6) 09:16 (6)
3	08:58		08:24	08:52 (5)	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:42	08:37
	16:26		17:20 7	08:59 (5)	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	08:12 (5) 17:01 16	08:12 (5) 16:18 3 09:12 (6) 09:15 (6)
4	08:58		08:22	08:50 (5)	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28		17:22 9	08:59 (5)	18:19	20:18	21:15	22:04	22:14	21:33	20:24	19:09	08:14 (5) 16:59 14	08:14 (5) 16:17 2 09:14 (6) 09:16 (6)
5	08:57		08:20	08:48 (5)	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:46	07:45	08:40
	16:29		17:24 11	08:59 (5)	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	08:16 (5) 16:57 13	08:16 (5) 16:17
6	08:57		08:18	08:46 (5)	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30		17:26 13	08:59 (5)	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	08:18 (5) 16:55 11	08:18 (5) 16:16
7	08:57		08:16	08:44 (5)	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32		17:28 15	08:59 (5)	18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01	08:20 (5) 16:53 9	08:20 (5) 16:15
8	08:56	09:30 (6)	08:14	08:42 (5)	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:44
	16:33 2	09:32 (6)	17:30 16	08:58 (5)	18:27	20:26	21:22	22:08	22:11	21:25	20:14	18:59	08:22 (5) 16:51 7	08:22 (5) 16:15
9	08:55	09:29 (6)	08:13	08:40 (5)	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34 3	09:32 (6)	17:32 17	08:57 (5)	18:29	20:28	21:24	22:09	22:10	21:23	20:11	18:57	08:25 (5) 16:49 4	08:25 (5) 16:15
10	08:55	09:28 (6)	08:11	08:40 (5)	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36 5	09:33 (6)	17:35 15	08:55 (5)	18:31	20:29	21:25	22:10	22:09	21:21	20:09	18:54	08:27 (5) 16:47 2	08:27 (5) 16:14
11	08:54	09:27 (6)	08:09	08:42 (5)	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:37 6	09:33 (6)	17:37 12	08:54 (5)	18:33	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	09:26 (6)	08:06	08:45 (5)	07:02	06:46	05:41	05:04	05:18	06:08	07:04	07:59	07:59	08:48
	16:39 8	09:34 (6)	17:39 6	08:51 (5)	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	09:25 (6)	08:04		07:00	06:43	05:39	05:04	05:20	06:10	07:06	08:01	08:01	08:53 (6) 08:49
	16:41 9	09:34 (6)	17:41		18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42 8	09:01 (6) 16:14
14	08:52	09:24 (6)	08:02		06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50 (6) 08:50
	16:42 11	09:35 (6)	17:43		18:38	20:37	21:32	22:13	22:05	21:13	19:59	18:45	16:41 14	09:04 (6) 16:14
15	08:51	09:23 (6)	08:00		06:55	06:39	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:49 (6) 08:51
	16:44 13	09:36 (6)	17:45		18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39 17	09:06 (6) 16:14
16	08:50	09:21 (6)	07:58		06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:49 (6) 08:52
	16:46 14	09:35 (6)	17:47		18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37 19	09:08 (6) 16:14
17	08:49	09:20 (6)	07:56		06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:48 (6) 08:53
	16:47 16	09:36 (6)	17:49		18:44	20:43	21:38	22:14	22:02	21:06	19:51	18:38	16:36 21	09:09 (6) 16:14
18	08:47	09:19 (6)	07:54		06:47	06:31	05:30	05:03	05:26	06:19	07:15	08:10	08:11	08:47 (6) 08:54
	16:49 17	09:36 (6)	17:51		18:46	20:45	21:39	22:15	22:01	21:04	19:49	18:35	16:34 23	09:10 (6) 16:14
19	08:46	09:17 (6)	07:52		06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:13	08:47 (6) 08:55
	16:51 19	09:36 (6)	17:53		18:48	20:46	21:41	22:15	21:59	21:02	19:46	18:33	16:33 24	09:11 (6) 16:14
20	08:45	09:16 (6)	07:49		06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:48 (6) 08:55
	16:53 20	09:36 (6)	17:55		18:50	20:48	21:43	22:15	21:58	20:59	19:44	18:31	16:32 23	09:11 (6) 16:15
21	08:44	09:14 (6)	07:47		06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:50 (6) 08:56
	16:55 22	09:36 (6)	17:57		18:52	20:50	21:44	22:16	21:57	20:57	19:41	18:28	16:30 22	09:12 (6) 16:15
22	08:43	09:13 (6)	07:45		06:38	06:22	05:24	05:03	05:32	06:26	07:22	08:18	08:18	08:52 (6) 08:56
	16:57 23	09:36 (6)	17:59		18:54	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29 20	09:12 (6) 16:16
23	08:41	09:12 (6)	07:43		06:35	06:20	05:23	05:04	05:34	06:28	07:24	08:20	08:20	08:54 (6) 08:57
	16:58 24	09:36 (6)	18:01		18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:28 19	09:13 (6) 16:16
24	08:40	09:13 (6)	07:40		06:33	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:56 (6) 08:57
	17:00 23	09:36 (6)	18:03		18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26 17	09:13 (6) 16:17
25	08:38	09:14 (6)	07:38		06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:24	08:58 (6) 08:58
	17:02 21	09:35 (6)	18:05		18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19	16:25 16	09:14 (6) 16:17
26	08:37	09:15 (6)	07:36		06:28	06:13	05:19	05:05	05:38	06:33	07:29	07:26	08:25	09:00 (6) 08:58
	17:04 19	09:34 (6)	18:07		19:01	21:00	21:52	22:16	21:49	20:45	19:29	17:17	16:24 14	09:14 (6) 16:18
27	08:35	09:17 (6)	07:33		06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28	08:27	09:02 (6) 08:58
	17:06 17	09:34 (6)	18:09		19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23 13	09:15 (6) 16:19
28	08:34	09:19 (6)	07:31		06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:30	08:29	09:04 (6) 08:58
	17:08 13	09:32 (6)	18:11		19:05	21:03	21:55	22:16	21:46	20:41	19:24	17:13	16:22 11	09:15 (6) 16:20
29	08:32	09:21 (6)			07:20	06:07	05:15	05:06	05:43	06:38	07:35	07:32	08:30	09:05 (6) 08:59
	17:10 8	09:29 (6)			20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11	16:21 9	09:14 (6) 16:21
30	08:31				07:18	06:04	05:14	05:07	05:45	06:40	07:36	07:34 08:14 (5)	08:32	09:07 (6) 08:59
	17:12				20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09 7	08:21 (5) 16:20 8	09:15 (6) 16:22
31	08:29				07:15		05:13		05:47	06:42		07:36	08:11 (5)	08:59
	17:14				20:11		21:59		21:41	20:33		17:07 13	08:24 (5)	16:23
Potential sun hours	248		272		367	421	496	513	515	461	382	328	257	231
Total, worst case		313		128								20	407	16
Sun reduction		0.17		0.22								0.23	0.20	0.12
Oper. time red.		1.00		1.00								1.00	1.00	1.00
Wind dir. red.		0.66		0.63								0.63	0.65	0.66
Total reduction		0.11		0.14								0.15	0.13	0.08
Total, real		35		18								3	53	1

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: P - H16

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27		16:29 (11)	07:29		17:06 (12)	07:12		19:19 (13)	06:02		20:14 (15)	05:12		20:37 (16)
	16:24		17:16	15	16:44 (11)	18:13	28	17:34 (12)	20:12	26	19:45 (13)	21:09	24	20:38 (14)	22:00	40	21:17 (16)
2	08:58		08:25		16:28 (11)	07:26		17:06 (12)	07:10		19:19 (13)	06:00		20:13 (15)	05:11		20:37 (16)
	16:25		17:18	18	16:46 (11)	18:15	27	17:33 (12)	20:14	28	19:47 (13)	21:11	27	20:40 (14)	22:01	40	21:17 (16)
3	08:58		08:24		16:28 (11)	07:24		17:08 (12)	07:07		19:18 (13)	05:58		20:12 (15)	05:10		20:37 (16)
	16:26		17:20	20	16:48 (11)	18:17	24	17:32 (12)	20:16	28	19:46 (13)	21:13	30	20:42 (14)	22:02	40	21:17 (16)
4	08:58		08:22		16:28 (11)	07:22		17:08 (12)	07:05		19:19 (13)	05:56		20:12 (15)	05:09		20:37 (16)
	16:27		17:22	22	16:50 (11)	18:19	22	17:30 (12)	20:18	27	19:46 (13)	21:14	31	20:43 (14)	22:03	41	21:18 (16)
5	08:57		08:20		16:28 (11)	07:19		17:10 (12)	07:03		19:19 (13)	05:54		20:12 (15)	05:08		20:37 (16)
	16:29		17:24	25	16:53 (11)	18:21	19	17:29 (12)	20:20	27	19:46 (13)	21:16	33	20:45 (14)	22:05	41	21:18 (16)
6	08:57		08:18		16:28 (11)	07:17		17:12 (12)	07:00		19:19 (13)	05:52		20:13 (15)	05:07		20:37 (16)
	16:30		17:26	26	16:54 (11)	18:23	14	17:26 (12)	20:22	25	19:44 (13)	21:18	33	20:46 (14)	22:06	40	21:17 (16)
7	08:56		08:16		16:28 (11)	07:14		17:16 (12)	06:58		19:20 (13)	05:50		20:12 (15)	05:07		20:37 (16)
	16:31		17:28	26	16:54 (11)	18:25	6	17:22 (12)	20:24	24	19:44 (13)	21:20	34	20:46 (14)	22:07	41	21:18 (16)
8	08:56		08:14		16:29 (11)	07:12			06:55		19:20 (13)	05:48		20:12 (15)	05:06		20:37 (16)
	16:33		17:30	24	16:53 (11)	18:27			20:26	22	19:42 (13)	21:22	34	20:46 (14)	22:08	41	21:18 (16)
9	08:55		08:12		16:29 (11)	07:09			06:53		19:21 (13)	05:46		20:13 (15)	05:05		20:38 (16)
	16:34		17:32	23	16:52 (11)	18:28			20:27	20	19:41 (13)	21:24	33	20:46 (14)	22:09	41	21:19 (16)
10	08:55		08:10		16:30 (11)	07:07			06:50		19:23 (13)	05:44		20:13 (15)	05:05		20:37 (16)
	16:36		17:34	22	16:52 (11)	18:30			20:29	16	19:39 (13)	21:25	32	20:45 (14)	22:09	41	21:18 (16)
11	08:54		08:08		16:31 (11)	07:05			06:48		19:25 (13)	05:42		20:14 (15)	05:04		20:38 (16)
	16:37		17:36	20	16:51 (11)	18:32			20:31	11	19:36 (13)	21:27	32	20:46 (14)	22:10	41	21:19 (16)
12	08:53		08:06		16:32 (11)	07:02			06:45			05:40		20:14 (15)	05:04		20:38 (16)
	16:39		17:38	18	16:50 (11)	18:34			20:33			21:29	31	20:45 (14)	22:11	41	21:19 (16)
13	08:52		08:04		16:34 (11)	07:00			06:43			05:39		20:15 (15)	05:04		20:39 (16)
	16:40		17:40	14	16:48 (11)	18:36			20:35			21:31	32	20:56 (16)	22:12	41	21:20 (16)
14	08:51		08:02		16:37 (11)	06:57			06:41			05:37		20:16 (15)	05:03		20:38 (16)
	16:42		17:42	9	16:46 (11)	18:38			20:37			21:32	39	21:00 (16)	22:12	41	21:19 (16)
15	08:51		08:00			06:55			06:38			05:35		20:17 (15)	05:03		20:39 (16)
	16:44		17:45			18:40			20:39			21:34	40	21:01 (16)	22:13	40	21:19 (16)
16	08:50		07:58		17:16 (12)	06:52			06:36			05:33		20:19 (15)	05:03		20:39 (16)
	16:45		17:47	1	17:17 (12)	18:42			20:41			21:36	41	21:03 (16)	22:14	41	21:20 (16)
17	08:48		07:56		17:13 (12)	06:50			06:34			05:32		20:21 (15)	05:03		20:39 (16)
	16:47		17:49	6	17:19 (12)	18:44			20:43			21:37	37	21:04 (16)	22:14	41	21:20 (16)
18	08:47		07:54		17:12 (12)	06:47			06:31			05:30		20:42 (16)	05:03		20:39 (16)
	16:49		17:51	10	17:22 (12)	18:46			20:44			21:39	24	21:06 (16)	22:15	41	21:20 (16)
19	08:46		07:51		17:10 (12)	06:45			06:29			05:28		20:41 (16)	05:03		20:39 (16)
	16:51		17:53	13	17:23 (12)	18:48			20:46			21:41	26	21:07 (16)	22:15	41	21:20 (16)
20	08:45		07:49		17:09 (12)	06:42			06:27			05:27		20:40 (16)	05:03		20:40 (16)
	16:53		17:55	17	17:26 (12)	18:50			20:48			21:42	29	21:09 (16)	22:15	40	21:20 (16)
21	08:44		07:47		17:08 (12)	06:40			06:24			05:25		20:40 (16)	05:03		20:41 (16)
	16:54		17:57	20	17:28 (12)	18:52			20:50			21:44	31	21:11 (16)	22:16	40	21:21 (16)
22	08:42		07:45		17:07 (12)	06:37			06:22			05:24		20:39 (16)	05:03		20:41 (16)
	16:56		17:59	23	17:30 (12)	18:53			20:52			21:46	33	21:12 (16)	22:16	40	21:21 (16)
23	08:41		07:43		17:06 (12)	06:35			06:20			05:22		20:38 (16)	05:03		20:40 (16)
	16:58		18:01	26	17:32 (12)	18:55			20:54			21:47	35	21:13 (16)	22:16	41	21:21 (16)
24	08:40		07:40		17:06 (12)	06:32			06:17			05:21		20:38 (16)	05:04		20:40 (16)
	17:00		18:03	29	17:35 (12)	18:57			20:56			21:49	35	21:13 (16)	22:16	41	21:21 (16)
25	08:38		07:38		17:05 (12)	06:30			06:15		20:24 (15)	05:20		20:38 (16)	05:04		20:41 (16)
	17:02		18:05	30	17:35 (12)	18:59			20:58	5	20:29 (15)	21:50	36	21:14 (16)	22:16	41	21:22 (16)
26	08:37		07:36		17:06 (12)	06:27		18:29 (13)	06:13		20:20 (15)	05:18		20:38 (16)	05:04		20:41 (16)
	17:04		18:07	29	17:35 (12)	19:01	5	18:34 (13)	20:59	9	20:29 (15)	21:52	37	21:15 (16)	22:16	41	21:22 (16)
27	08:35		16:32 (11)		07:33	17:05 (12)	06:25	18:26 (13)	06:11		20:18 (15)	05:17		20:38 (16)	05:05		20:42 (16)
	17:06	1	16:33 (11)		18:09	29	17:34 (12)	19:03	10	18:36 (13)	21:01	13	20:31 (15)	21:53	37	21:15 (16)	22:16	41	21:23 (16)
28	08:34		16:31 (11)		07:31		17:06 (12)	06:22		18:24 (13)	06:09		20:16 (15)	05:16		20:36 (16)	05:05		20:41 (16)
	17:08	4	16:35 (11)		18:11	28	17:34 (12)	19:05	13	18:37 (13)	21:03	17	20:33 (15)	21:55	39	21:15 (16)	22:16	41	21:22 (16)
29	08:32		16:30 (11)					07:20		19:23 (13)	06:06		20:15 (15)	05:15		20:37 (16)	05:06		20:42 (16)
	17:10	7	16:37 (11)					20:07	17	19:40 (13)	21:05	20	20:35 (15)	21:56	39	21:16 (16)	22:15	41	21:23 (16)
30	08:31		16:29 (11)					07:17		19:21 (13)	06:04		20:14 (15)	05:14		20:37 (16)	05:07		20:42 (16)
	17:12	10	16:39 (11)					20:09	20	19:41 (13)	21:07	23	20:37 (15)	21:57	39	21:16 (16)	22:15	40	21:22 (16)
31	08:29		16:28 (11)					07:15		19:21 (13)				05:13		20:37 (16)			
	17:14	13	16:41 (11)					20:10	22	19:43 (13)				21:59	40	21:17 (16)			
Potential sun hours	248			272		367			421			496			513			
Total, worst case		35			543		227			341			1043			1221		
Sun reduction		0.17			0.22		0.22			0.34			0.36			0.26		
Oper. time red.		1.00			1.00		1.00			1.00			1.00			1.00		
Wind dir. red.		0.58			0.58		0.58			0.60			0.62			0.63		
Total reduction		0.10			0.13		0.13			0.20			0.22			0.16		
Total, real		3			70		30			70			235			197		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: P - H16

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December
1	05:07		20:42 (16)	05:48		20:24 (15)	06:44		19:23 (13)	07:38			15:59 (11)	08:33
	22:15	41	21:23 (16)	21:39	31	20:55 (14)	20:31	12	19:35 (13)	19:16		17:04	22	16:21 (11)	16:19
2	05:08		20:43 (16)	05:50		20:24 (15)	06:45		19:21 (13)	07:40		07:39		15:58 (11)	08:35
	22:14	40	21:23 (16)	21:37	32	20:56 (14)	20:28	16	19:37 (13)	19:14		17:02	24	16:22 (11)	16:18
3	05:09		20:43 (16)	05:52		20:23 (15)	06:47		19:19 (13)	07:42		07:41		15:59 (11)	08:36
	22:14	41	21:24 (16)	21:35	33	20:56 (14)	20:26	20	19:39 (13)	19:11		17:00	24	16:23 (11)	16:18
4	05:10		20:42 (16)	05:53		20:23 (15)	06:49		19:17 (13)	07:44		07:43		15:58 (11)	08:38
	22:14	41	21:23 (16)	21:33	33	20:56 (14)	20:24	22	19:39 (13)	19:09		16:58	25	16:23 (11)	16:17
5	05:11		20:43 (16)	05:55		20:23 (15)	06:51		19:16 (13)	07:45		07:45		15:58 (11)	08:39
	22:13	41	21:24 (16)	21:31	33	20:56 (14)	20:21	24	19:40 (13)	19:06		16:56	25	16:23 (11)	16:16
6	05:12		20:43 (16)	05:57		20:22 (15)	06:53		19:15 (13)	07:47		07:47		15:58 (11)	08:41
	22:12	41	21:24 (16)	21:29	33	20:55 (14)	20:19	25	19:40 (13)	19:04		16:55	24	16:22 (11)	16:16
7	05:13		20:43 (16)	05:59		20:22 (15)	06:54		19:14 (13)	07:49		17:49 (12)	07:49	15:58 (11)	08:42
	22:12	41	21:24 (16)	21:27	33	20:55 (14)	20:16	27	19:41 (13)	19:01	11	18:00 (12)	16:53	22	16:20 (11)	16:15
8	05:14		20:44 (16)	06:00		20:22 (15)	06:56		19:13 (13)	07:51		17:46 (12)	07:51		15:58 (11)	08:43
	22:11	40	21:24 (16)	21:25	33	20:55 (14)	20:14	27	19:40 (13)	18:59	17	18:03 (12)	16:51	20	16:18 (11)	16:15
9	05:15		20:44 (16)	06:02		20:22 (15)	06:58		19:13 (13)	07:53		17:44 (12)	07:53		15:59 (11)	08:45
	22:10	40	21:24 (16)	21:23	30	20:52 (14)	20:11	27	19:40 (13)	18:56	20	18:04 (12)	16:49	18	16:17 (11)	16:14
10	05:16		20:44 (16)	06:04		20:22 (15)	07:00		19:13 (13)	07:55		17:42 (12)	07:55		15:59 (11)	08:46
	22:09	40	21:24 (16)	21:21	29	20:51 (14)	20:09	27	19:40 (13)	18:54	24	18:06 (12)	16:47	16	16:15 (11)	16:14
11	05:17		20:44 (16)	06:06		20:21 (15)	07:02		19:13 (13)	07:57		17:41 (12)	07:57		16:00 (11)	08:47
	22:08	40	21:24 (16)	21:19	27	20:48 (14)	20:06	25	19:38 (13)	18:52	25	18:06 (12)	16:45	12	16:12 (11)	16:14
12	05:18		20:44 (16)	06:08		20:22 (15)	07:04		19:12 (13)	07:59		17:40 (12)	07:59		16:01 (11)	08:48
	22:07	40	21:24 (16)	21:17	24	20:46 (14)	20:04	23	19:35 (13)	18:49	27	18:07 (12)	16:44	9	16:10 (11)	16:14
13	05:19		20:45 (16)	06:09		20:23 (15)	07:05		19:12 (13)	08:00		17:39 (12)	08:01		16:02 (11)	08:49
	22:06	39	21:24 (16)	21:15	22	20:45 (15)	20:01	21	19:33 (13)	18:47	28	18:07 (12)	16:42	6	16:08 (11)	16:14
14	05:21		20:46 (16)	06:11		20:24 (15)	07:07		19:13 (13)	08:02		17:39 (12)	08:03		16:03 (11)	08:50
	22:05	39	21:25 (16)	21:13	19	20:43 (15)	19:59	18	19:31 (13)	18:44	29	18:08 (12)	16:40	4	16:07 (11)	16:13
15	05:22		20:46 (16)	06:13		20:24 (15)	07:09		19:14 (13)	08:04		17:38 (12)	08:05		16:04 (11)	08:51
	22:04	38	21:24 (16)	21:10	16	20:40 (15)	19:56	14	19:28 (13)	18:42	30	18:08 (12)	16:39	1	16:05 (11)	16:13
16	05:23		20:46 (16)	06:15		20:26 (15)	07:11		19:15 (13)	08:06		17:38 (12)	08:07			08:52
	22:03	38	21:24 (16)	21:08	12	20:38 (15)	19:54	10	19:25 (13)	18:40	29	18:07 (12)	16:37			16:14
17	05:25		20:46 (16)	06:16		20:28 (15)	07:13		19:17 (13)	08:08		17:38 (12)	08:09			08:53
	22:02	37	21:23 (16)	21:06	9	20:37 (15)	19:51	6	19:23 (13)	18:37	29	18:07 (12)	16:36			16:14
18	05:26		20:47 (16)	06:18		20:30 (15)	07:14			08:10		17:38 (12)	08:11			08:54
	22:01	37	21:24 (16)	21:04	4	20:34 (15)	19:49			18:35	27	18:05 (12)	16:34			16:14
19	05:28		20:48 (16)	06:20			07:16			08:12		17:38 (12)	08:13			08:55
	21:59	35	21:23 (16)	21:01			19:46			18:33	25	18:03 (12)	16:33			16:14
20	05:29		20:48 (16)	06:22			07:18			08:14		17:38 (12)	08:14			08:55
	21:58	35	21:23 (16)	20:59			19:44			18:30	22	18:00 (12)	16:31			16:14
21	05:30		20:49 (16)	06:24			07:20			08:16		17:39 (12)	08:16			08:56
	21:57	34	21:23 (16)	20:57			19:41			18:28	19	17:58 (12)	16:30			16:15
22	05:32		20:49 (16)	06:26			07:22			08:18		17:39 (12)	08:18			08:56
	21:55	32	21:21 (16)	20:55			19:39			18:26	16	17:55 (12)	16:29			16:15
23	05:33		20:51 (16)	06:27			07:23			08:20		17:40 (12)	08:20			08:57
	21:54	30	21:21 (16)	20:52			19:36			18:24	13	17:53 (12)	16:27			16:16
24	05:35		20:51 (16)	06:29			07:25			08:22		17:42 (12)	08:22			08:57
	21:52	28	21:19 (16)	20:50			19:34			18:21	9	17:51 (12)	16:26			16:16
25	05:37		20:51 (16)	06:31			07:27			07:24		16:43 (12)	08:23			08:58
	21:51	26	21:17 (16)	20:48			19:31			17:19	5	16:48 (12)	16:25			16:17
26	05:38		20:34 (15)	06:33			07:29			07:26			08:25			08:58
	21:49	32	21:16 (16)	20:45			19:29			17:17			16:24			16:18
27	05:40		20:30 (15)	06:35			07:31			07:28			08:27			08:58
	21:47	41	21:14 (16)	20:43			19:26			17:15			16:23			16:19
28	05:41		20:29 (15)	06:36			07:32			07:29		16:06 (11)	08:29			08:58
	21:46	41	21:13 (16)	20:41			19:24			17:13	10	16:16 (11)	16:22			16:19
29	05:43		20:27 (15)	06:38			07:34			07:31		16:03 (11)	08:30			08:58
	21:44	40	21:11 (16)	20:38			19:21			17:11	15	16:18 (11)	16:21			16:20
30	05:45		20:26 (15)	06:40			07:36			07:33		16:01 (11)	08:32			08:59
	21:42	37	21:10 (16)	20:36			19:19			17:08	19	16:20 (11)	16:20			16:21
31	05:46		20:26 (15)	06:42						07:35		16:00 (11)				08:59
	21:40	29	20:55 (14)	20:33						17:06	21	16:21 (11)				16:22
Potential sun hours	515			461			383			327			257			231
Total, worst case		1154			453			344			470			252		
Sun reduction		0.27			0.27			0.29			0.23			0.20		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.63			0.62			0.59			0.58			0.58		
Total reduction		0.17			0.17			0.17			0.14			0.12		
Total, real		192			76			59			64			29		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: Q - H17

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April	May	June	July	August	September		October	November	December
1	08:58	08:27	07:29		07:12	06:02	05:12	05:08	05:48	06:44		07:38	07:37	08:33
	16:24	17:16	18:13		20:12	21:09	22:00	22:15	21:39	20:31		19:16	17:04	16:19
2	08:58	08:25	07:26		07:10	06:00	05:11	05:08	05:50	06:46		07:40	07:39	08:35
	16:25	17:18	18:15		20:14	21:11	22:01	22:14	21:37	20:28		19:14	17:02	16:18
3	08:58	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:47		07:42	07:41	08:36
	16:26	17:20	18:17		20:16	21:12	22:02	22:14	21:35	20:26		19:11	17:00	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:53	06:49		07:44	07:43	08:38
	16:27	17:22	18:19		20:18	21:14	22:03	22:13	21:33	20:24		19:09	16:58	16:17
5	08:57	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51		07:45	07:45	08:39
	16:29	17:24	18:21		20:20	21:16	22:05	22:13	21:31	20:21		19:06	16:57	16:16
6	08:57	08:18	07:17		07:00	05:52	05:07	05:12	05:57	06:53		07:47	07:47	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19		19:04	16:55	16:16
7	08:56	08:16	07:14		06:58	05:50	05:07	05:13	05:59	06:55		07:49	07:49	08:42
	16:31	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16		19:01	16:53	16:15
8	08:56	08:14	07:12		06:55	05:48	05:06	05:14	06:01	06:56		07:51	07:51	08:43
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14		18:59	16:51	16:15
9	08:55	08:12	07:09		06:53	05:46	05:06	05:15	06:02	06:58		07:53	07:53	08:45
	16:34	17:32	18:29		20:27	21:23	22:08	22:10	21:23	20:11		18:56	16:49	16:15
10	08:55	08:10	07:07		06:50	05:44	05:05	05:16	06:04	07:00		07:55	07:55	08:46
	16:36	17:34	18:30		20:29	21:25	22:09	22:09	21:21	20:09		18:54	16:47	16:14
11	08:54	08:08	07:05		06:48	05:42	05:05	05:17	06:06	07:02		07:57	07:57	08:47
	16:37	17:36	18:32		20:31	21:27	22:10	22:08	21:19	20:06		18:52	16:46	16:14
12	08:53	08:06	07:02		06:46	05:40	05:04	05:18	06:08	07:04		07:59	07:59	08:48
	16:39	17:38	18:34		20:33	21:29	22:11	22:07	21:17	20:04		18:49	16:44	16:14
13	08:52	08:04	07:00		06:43	05:39	05:04	05:20	06:09	07:05		08:00	08:01	08:49
	16:41	17:41	18:36		20:35	21:31	22:12	22:06	21:15	20:01		18:47	16:42	16:14
14	08:51	08:02	06:57	18:08 (6)	06:41	05:37	05:04	05:21	06:11	07:07		08:02	08:03	08:50
	16:42	17:43	18:38	3 18:11 (6)	20:37	21:32	22:12	22:05	21:13	19:59		18:44	16:40	16:14
15	08:50	08:00	06:55	18:07 (6)	06:38	05:35	05:03	05:22	06:13	07:09		08:04	08:05	08:51
	16:44	17:45	18:40	6 18:13 (6)	20:39	21:34	22:13	22:04	21:10	19:56		18:42	16:39	16:14
16	08:49	07:58	06:52	18:06 (6)	06:36	05:33	05:03	05:23	06:15	07:11		18:57 (5)	08:06	08:07	08:52
	16:46	17:47	18:42	9 18:15 (6)	20:41	21:36	22:14	22:03	21:08	19:54	10	19:07 (5)	18:40	16:37	16:14
17	08:48	07:56	06:50	18:06 (6)	06:34	05:32	05:03	05:25	06:17	07:13		18:55 (5)	08:08	08:09	08:53
	16:47	17:49	18:44	11 18:17 (6)	20:43	21:37	22:14	22:02	21:06	19:51	14	19:09 (5)	18:37	16:36	16:14
18	08:47	07:54	06:47	18:05 (6)	06:31	05:30	05:03	05:26	06:18	07:14		18:53 (5)	08:10	08:11	08:54
	16:49	17:51	18:46	14 18:19 (6)	20:44	21:39	22:14	22:01	21:04	19:49	18	19:11 (5)	18:35	16:34	16:14
19	08:46	07:51	06:45	18:05 (6)	06:29	05:29	05:03	05:28	06:20	07:16		18:52 (5)	08:12	08:12	08:54
	16:51	17:53	18:48	16 18:21 (6)	20:46	21:41	22:15	21:59	21:01	19:46	20	19:12 (5)	18:33	16:33	16:14
20	08:45	07:49	06:42	18:05 (6)	06:27	05:27	05:03	05:29	06:22	07:18		18:51 (5)	08:14	08:14	08:55
	16:53	17:55	18:50	17 18:22 (5)	20:48	21:42	22:15	21:58	20:59	19:44	21	19:12 (5)	18:30	16:31	16:15
21	08:44	07:47	06:40	18:05 (5)	06:24	05:26	05:03	05:31	06:24	07:20		18:50 (5)	08:16	08:16	08:56
	16:55	17:57	18:52	20 18:25 (5)	20:50	21:44	22:15	21:56	20:57	19:41	21	19:11 (5)	18:28	16:30	16:15
22	08:42	07:45	06:37	18:04 (5)	06:22	05:24	05:03	05:32	06:26	07:22		18:49 (5)	08:18	08:18	08:56
	16:56	17:59	18:53	22 18:26 (5)	20:52	21:46	22:16	21:55	20:55	19:39	21	19:10 (5)	18:26	16:29	16:16
23	08:41	07:43	06:35	18:04 (5)	06:20	05:23	05:04	05:34	06:27	07:23		18:49 (5)	08:20	08:20	08:57
	16:58	18:01	18:55	22 18:26 (5)	20:54	21:47	22:16	21:54	20:52	19:36	19	19:08 (5)	18:24	16:28	16:16
24	08:40	07:40	06:32	18:04 (5)	06:18	05:21	05:04	05:35	06:29	07:25		18:49 (6)	08:22	08:22	08:57
	17:00	18:03	18:57	20 18:24 (5)	20:56	21:49	22:16	21:52	20:50	19:34	16	19:05 (6)	18:22	16:26	16:17
25	08:38	07:38	06:30	18:05 (5)	06:15	05:20	05:04	05:37	06:31	07:27		18:49 (6)	07:24	08:23	08:58
	17:02	18:05	18:59	18 18:23 (5)	20:58	21:50	22:16	21:50	20:48	19:31	14	19:03 (6)	17:19	16:25	16:17
26	08:37	07:36	06:27	18:06 (5)	06:13	05:19	05:05	05:38	06:33	07:29		18:47 (6)	07:26	08:25	08:58
	17:04	18:07	19:01	15 18:21 (5)	20:59	21:52	22:16	21:49	20:45	19:29	13	19:00 (6)	17:17	16:24	16:18
27	08:35	07:33	06:25	18:08 (5)	06:11	05:17	05:05	05:40	06:35	07:31		18:47 (6)	07:28	08:27	08:58
	17:06	18:09	19:03	12 18:20 (5)	21:01	21:53	22:16	21:47	20:43	19:26	10	18:57 (6)	17:15	16:23	16:19
28	08:34	07:31	06:22	18:12 (5)	06:09	05:16	05:06	05:42	06:36	07:33		18:48 (6)	07:29	08:28	08:58
	17:08	18:11	19:05	2 18:14 (5)	21:03	21:54	22:16	21:46	20:41	19:24	7	18:55 (6)	17:13	16:22	16:20
29	08:32		07:20		06:06	05:15	05:06	05:43	06:38	07:34		18:48 (6)	07:31	08:30	08:58
	17:10		20:07		21:05	21:56	22:15	21:44	20:38	19:21	5	18:53 (6)	17:11	16:21	16:21
30	08:31		07:17		06:04	05:14	05:07	05:45	06:40	07:36		18:49 (6)	07:33	08:32	08:58
	17:12		20:09		21:07	21:57	22:15	21:42	20:36	19:19	1	18:50 (6)	17:09	16:20	16:21
31	08:29		07:15			05:13		05:47	06:42				07:35		08:58
	17:14		20:10			21:59		21:40	20:33				17:07		16:22
Potential sun hours	248	272	367		421	496	513	515	461	382			328	257	231
Total, worst case				207							210				
Sun reduction				0.22							0.29				
Oper. time red.				1.00							1.00				
Wind dir. red.				0.58							0.58				
Total reduction				0.13							0.17				
Total, real				27							36				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: R - H18

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May			June		
1	08:58	08:27	07:29		07:13		08:04 (1)	06:02		05:12		21:04 (6)
	16:24	17:16	18:13		20:12	17	08:21 (1)	21:09		22:00	21	21:25 (6)
2	08:58	08:25	07:26		07:10		08:09 (1)	06:00		05:11		21:03 (6)
	16:25	17:18	18:15		20:14	7	08:16 (1)	21:11		22:01	23	21:26 (6)
3	08:58	08:24	07:24		07:08			05:58		05:10		21:03 (6)
	16:26	17:20	18:17		20:16			21:13		22:02	23	21:26 (6)
4	08:58	08:22	07:22		07:05			05:56		05:09		21:03 (6)
	16:28	17:22	18:19		20:18			21:14		22:03	25	21:28 (6)
5	08:57	08:20	07:19		07:03			05:54		05:08		21:02 (6)
	16:29	17:24	18:21		20:20			21:16		22:05	27	21:29 (6)
6	08:57	08:18	07:17		07:00			05:52		05:08		21:03 (6)
	16:30	17:26	18:23		20:22			21:18		22:06	27	21:30 (6)
7	08:56	08:16	07:14		06:58			05:50		05:07		21:02 (6)
	16:32	17:28	18:25		20:24			21:20		22:07	29	21:31 (6)
8	08:56	08:14	07:12		06:55			05:48		05:06		21:01 (6)
	16:33	17:30	18:27		20:26			21:22		22:08	30	21:31 (6)
9	08:55	08:12	07:10		06:53			05:46		05:06		21:02 (6)
	16:34	17:32	18:29		20:27			21:23		22:09	30	21:32 (6)
10	08:55	08:10	07:07		06:50			05:44		05:05		21:02 (6)
	16:36	17:34	18:31		20:29			21:25		22:09	32	21:34 (6)
11	08:54	08:08	07:05	07:29 (1)	06:48			05:42		05:05		21:01 (6)
	16:37	17:37	18:32	1 07:30 (1)	20:31			21:27		22:10	32	21:33 (6)
12	08:53	08:06	07:02	07:26 (1)	06:46			05:41		05:04		21:02 (6)
	16:39	17:39	18:34	6 07:32 (1)	20:33			21:29		22:11	32	21:34 (6)
13	08:52	08:04	07:00	07:24 (1)	06:43			05:39		05:04		21:02 (6)
	16:41	17:41	18:36	9 07:33 (1)	20:35			21:31		22:12	33	21:35 (6)
14	08:51	08:02	06:57	07:21 (1)	06:41			05:37		05:04		21:02 (6)
	16:42	17:43	18:38	13 07:34 (1)	20:37			21:32		22:12	33	21:35 (6)
15	08:50	08:00	06:55	07:19 (1)	06:38			05:35		05:03		21:01 (6)
	16:44	17:45	18:40	16 07:35 (1)	20:39			21:34		22:13	34	21:35 (6)
16	08:49	07:58	06:52	07:16 (1)	06:36			05:34		05:03		21:02 (6)
	16:46	17:47	18:42	19 07:35 (1)	20:41			21:36		22:14	33	21:35 (6)
17	08:48	07:56	06:50	07:14 (1)	06:34			05:32		05:03		21:02 (6)
	16:47	17:49	18:44	22 07:36 (1)	20:43			21:37		22:14	33	21:35 (6)
18	08:47	07:54	06:47	07:11 (1)	06:31			05:30		05:03		21:02 (6)
	16:49	17:51	18:46	25 07:36 (1)	20:44			21:39		22:14	34	21:36 (6)
19	08:46	07:51	06:45	07:09 (1)	06:29			05:29		05:03		21:02 (6)
	16:51	17:53	18:48	27 07:36 (1)	20:46			21:41		22:15	34	21:36 (6)
20	08:45	07:49	06:42	07:06 (1)	06:27			05:27		05:03		21:03 (6)
	16:53	17:55	18:50	30 07:36 (1)	20:48			21:42		22:15	34	21:37 (6)
21	08:44	07:47	06:40	07:04 (1)	06:24			05:26		05:03		21:03 (6)
	16:55	17:57	18:52	32 07:36 (1)	20:50			21:44		22:15	34	21:37 (6)
22	08:42	07:45	06:37	07:01 (1)	06:22			05:24		05:03		21:03 (6)
	16:57	17:59	18:53	34 07:35 (1)	20:52			21:46		22:16	34	21:37 (6)
23	08:41	07:43	06:35	06:59 (1)	06:20			05:23		05:04		21:03 (6)
	16:58	18:01	18:55	36 07:35 (1)	20:54			21:47		22:16	34	21:37 (6)
24	08:40	07:40	06:32	06:57 (1)	06:18			05:21		05:04		21:04 (6)
	17:00	18:03	18:57	37 07:34 (1)	20:56			21:49		22:16	34	21:38 (6)
25	08:38	07:38	06:30	06:57 (1)	06:15			05:20		05:04		21:04 (6)
	17:02	18:05	18:59	36 07:33 (1)	20:58			21:50		22:16	33	21:37 (6)
26	08:37	07:36	06:27	06:57 (1)	06:13			05:19	21:13 (6)	05:05		21:04 (6)
	17:04	18:07	19:01	35 07:32 (1)	20:59			21:52	5 21:18 (6)	22:16	33	21:37 (6)
27	08:35	07:33	06:25	06:58 (1)	06:11			05:17	21:10 (6)	05:05		21:05 (6)
	17:06	18:09	19:03	33 07:31 (1)	21:01			21:53	9 21:19 (6)	22:16	33	21:38 (6)
28	08:34	07:31	06:22	06:58 (1)	06:09			05:16	21:08 (6)	05:06		21:04 (6)
	17:08	18:11	19:05	31 07:29 (1)	21:03			21:55	12 21:20 (6)	22:16	33	21:37 (6)
29	08:32		07:20	08:00 (1)	06:07			05:15	21:07 (6)	05:06		21:05 (6)
	17:10		20:07	28 08:28 (1)	21:05			21:56	14 21:21 (6)	22:15	33	21:38 (6)
30	08:31		07:18	08:00 (1)	06:04			05:14	21:06 (6)	05:07		21:06 (6)
	17:12		20:09	26 08:26 (1)	21:07			21:57	17 21:23 (6)	22:15	32	21:38 (6)
31	08:29		07:15	08:02 (1)				05:13	21:05 (6)			
	17:14		20:11	22 08:24 (1)				21:59	19 21:24 (6)			
Potential sun hours	248	272	367		421			496		513		
Total, worst case				518		24			76		932	
Sun reduction				0.22		0.34			0.36		0.26	
Oper. time red.				1.00		1.00			1.00		1.00	
Wind dir. red.				0.59		0.59			0.63		0.63	
Total reduction				0.13		0.20			0.23		0.16	
Total, real				69		5			17		152	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: R - H18

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August	September		October		November	December
1	05:08	21:06 (6)	05:48	06:44		07:38	08:05 (1)	07:37	08:33
	22:15	32 21:38 (6)	21:39	20:31		19:16	7 08:12 (1)	17:05	16:19
2	05:08	21:06 (6)	05:50	06:46		07:40	08:07 (1)	07:39	08:35
	22:14	32 21:38 (6)	21:37	20:28		19:14	3 08:10 (1)	17:03	16:19
3	05:09	21:07 (6)	05:52	06:47		07:42		07:41	08:36
	22:14	31 21:38 (6)	21:35	20:26		19:11		17:01	16:18
4	05:10	21:08 (6)	05:54	06:49		07:44		07:43	08:38
	22:13	30 21:38 (6)	21:33	20:24		19:09		16:59	16:17
5	05:11	21:07 (6)	05:55	06:51		07:45		07:45	08:39
	22:13	29 21:36 (6)	21:31	20:21		19:06		16:57	16:16
6	05:12	21:08 (6)	05:57	06:53		07:47		07:47	08:41
	22:12	28 21:36 (6)	21:29	20:19		19:04		16:55	16:16
7	05:13	21:08 (6)	05:59	06:55		07:49		07:49	08:42
	22:12	27 21:35 (6)	21:27	20:16		19:01		16:53	16:15
8	05:14	21:09 (6)	06:01	06:56		07:51		07:51	08:43
	22:11	26 21:35 (6)	21:25	20:14		18:59		16:51	16:15
9	05:15	21:10 (6)	06:02	06:58		07:53		07:53	08:45
	22:10	24 21:34 (6)	21:23	20:11		18:57		16:49	16:15
10	05:16	21:10 (6)	06:04	07:00	08:03 (1)	07:55		07:55	08:46
	22:09	23 21:33 (6)	21:21	20:09	5 08:08 (1)	18:54		16:47	16:14
11	05:17	21:11 (6)	06:06	07:02	07:58 (1)	07:57		07:57	08:47
	22:08	22 21:33 (6)	21:19	20:06	15 08:13 (1)	18:52		16:46	16:14
12	05:18	21:13 (6)	06:08	07:04	07:55 (1)	07:59		07:59	08:48
	22:07	20 21:33 (6)	21:17	20:04	21 08:16 (1)	18:49		16:44	16:14
13	05:20	21:14 (6)	06:09	07:05	07:52 (1)	08:00		08:01	08:49
	22:06	18 21:32 (6)	21:15	20:01	25 08:17 (1)	18:47		16:42	16:14
14	05:21	21:15 (6)	06:11	07:07	07:50 (1)	08:02		08:03	08:50
	22:05	16 21:31 (6)	21:13	19:59	28 08:18 (1)	18:45		16:41	16:14
15	05:22	21:16 (6)	06:13	07:09	07:49 (1)	08:04		08:05	08:51
	22:04	13 21:29 (6)	21:10	19:56	31 08:20 (1)	18:42		16:39	16:14
16	05:24	21:17 (6)	06:15	07:11	07:48 (1)	08:06		08:07	08:52
	22:03	11 21:28 (6)	21:08	19:54	33 08:21 (1)	18:40		16:37	16:14
17	05:25	21:20 (6)	06:17	07:13	07:46 (1)	08:08		08:09	08:53
	22:02	8 21:28 (6)	21:06	19:51	34 08:20 (1)	18:37		16:36	16:14
18	05:26		06:18	07:14	07:45 (1)	08:10		08:11	08:54
	22:01		21:04	19:49	36 08:21 (1)	18:35		16:34	16:14
19	05:28		06:20	07:16	07:44 (1)	08:12		08:12	08:55
	21:59		21:01	19:46	37 08:21 (1)	18:33		16:33	16:14
20	05:29		06:22	07:18	07:45 (1)	08:14		08:14	08:55
	21:58		20:59	19:44	36 08:21 (1)	18:31		16:32	16:15
21	05:31		06:24	07:20	07:46 (1)	08:16		08:16	08:56
	21:56		20:57	19:41	35 08:21 (1)	18:28		16:30	16:15
22	05:32		06:26	07:22	07:48 (1)	08:18		08:18	08:56
	21:55		20:55	19:39	32 08:20 (1)	18:26		16:29	16:16
23	05:34		06:28	07:23	07:50 (1)	08:20		08:20	08:57
	21:54		20:52	19:36	30 08:20 (1)	18:24		16:28	16:16
24	05:35		06:29	07:25	07:52 (1)	08:22		08:22	08:57
	21:52		20:50	19:34	28 08:20 (1)	18:22		16:26	16:17
25	05:37		06:31	07:27	07:54 (1)	07:24		08:23	08:58
	21:51		20:48	19:31	25 08:19 (1)	17:19		16:25	16:17
26	05:38		06:33	07:29	07:55 (1)	07:26		08:25	08:58
	21:49		20:45	19:29	23 08:18 (1)	17:17		16:24	16:18
27	05:40		06:35	07:31	07:57 (1)	07:28		08:27	08:58
	21:47		20:43	19:26	20 08:17 (1)	17:15		16:23	16:19
28	05:42		06:37	07:33	07:59 (1)	07:30		08:28	08:58
	21:46		20:41	19:24	17 08:16 (1)	17:13		16:22	16:20
29	05:43		06:38	07:34	08:01 (1)	07:31		08:30	08:58
	21:44		20:38	19:21	14 08:15 (1)	17:11		16:21	16:21
30	05:45		06:40	07:36	08:03 (1)	07:33		08:32	08:58
	21:42		20:36	19:19	11 08:14 (1)	17:09		16:20	16:22
31	05:47		06:42			07:35			08:58
	21:40		20:33			17:07			16:23
Potential sun hours	515		461	382		328		257	231
Total, worst case		390			536		10		
Sun reduction		0.27			0.29		0.23		
Oper. time red.		1.00			1.00		1.00		
Wind dir. red.		0.63			0.59		0.59		
Total reduction		0.17			0.17		0.14		
Total, real		66			93		1		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: S - H19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May	June
1	08:58			08:27		16:03 (18)	07:29		17:29 (16)	07:12		18:28 (17)	06:02	05:11
	16:24			17:16	31	16:34 (18)	18:13	15	17:44 (16)	20:12	17	18:45 (17)	21:09	22:00
2	08:58			08:25		16:02 (18)	07:26		17:29 (16)	07:10		18:33 (17)	06:00	05:10
	16:25			17:18	33	16:35 (18)	18:15	14	17:43 (16)	20:14	7	18:40 (17)	21:11	22:01
3	08:58			08:24		16:01 (18)	07:24		17:31 (16)	07:07			05:58	05:10
	16:26			17:20	35	16:36 (18)	18:17	10	17:41 (16)	20:16			21:13	22:02
4	08:58			08:22		16:01 (18)	07:21		17:33 (16)	07:05			05:56	05:09
	16:27			17:22	35	16:36 (18)	18:19	5	17:38 (16)	20:18			21:14	22:03
5	08:57			08:20		16:01 (18)	07:19			07:02			05:54	05:08
	16:28			17:24	36	16:37 (18)	18:21			20:20			21:16	22:05
6	08:57			08:18		16:00 (18)	07:17			07:00			05:52	05:07
	16:30			17:26	38	16:38 (18)	18:23			20:22			21:18	22:06
7	08:56			08:16		16:00 (18)	07:14		17:36 (17)	06:58			05:50	05:06
	16:31			17:28	38	16:38 (18)	18:24	14	17:50 (17)	20:24			21:20	22:07
8	08:56			08:14		16:00 (18)	07:12		17:32 (17)	06:55			05:48	05:06
	16:33			17:30	39	16:39 (18)	18:26	21	17:53 (17)	20:26			21:22	22:08
9	08:55			08:12		15:59 (18)	07:09		17:30 (17)	06:53			05:46	05:05
	16:34			17:32	39	16:38 (18)	18:28	26	17:56 (17)	20:27			21:23	22:09
10	08:55			08:10		15:59 (18)	07:07		17:28 (17)	06:50			05:44	05:05
	16:36			17:34	39	16:38 (18)	18:30	29	17:57 (17)	20:29			21:25	22:09
11	08:54			08:08		15:59 (18)	07:05		17:26 (17)	06:48			05:42	05:04
	16:37			17:36	39	16:38 (18)	18:32	33	17:59 (17)	20:31			21:27	22:10
12	08:53			08:06		15:59 (18)	07:02		17:24 (17)	06:45			05:40	05:04
	16:39			17:38	39	16:38 (18)	18:34	35	17:59 (17)	20:33			21:29	22:11
13	08:52			08:04		16:00 (18)	07:00		17:24 (17)	06:43			05:38	05:04
	16:40			17:40	38	16:38 (18)	18:36	36	18:00 (17)	20:35			21:31	22:12
14	08:51			08:02		16:00 (18)	06:57		17:22 (17)	06:41			05:37	05:03
	16:42			17:42	38	16:38 (18)	18:38	38	18:00 (17)	20:37			21:32	22:12
15	08:51			08:00		16:00 (18)	06:55		17:21 (17)	06:38			05:35	05:03
	16:44			17:44	37	16:37 (18)	18:40	40	18:01 (17)	20:39			21:34	22:13
16	08:50			07:58		16:01 (18)	06:52		17:20 (17)	06:36			05:33	05:03
	16:45			17:46	36	16:37 (18)	18:42	41	18:01 (17)	20:41			21:36	22:14
17	08:48			07:56		16:02 (18)	06:50		17:20 (17)	06:33			05:32	05:03
	16:47			17:49	34	16:36 (18)	18:44	42	18:02 (17)	20:42			21:37	22:14
18	08:47			07:54		16:03 (18)	06:47		17:19 (17)	06:31			05:30	05:03
	16:49			17:51	33	16:36 (18)	18:46	42	18:01 (17)	20:44			21:39	22:15
19	08:46			07:51		16:03 (18)	06:45		17:19 (17)	06:29			05:28	05:03
	16:51			17:53	31	16:34 (18)	18:48	43	18:02 (17)	20:46			21:41	22:15
20	08:45			07:49		16:05 (18)	06:42		17:18 (17)	06:26			05:27	05:03
	16:53			17:55	28	16:33 (18)	18:50	43	18:01 (17)	20:48			21:42	22:15
21	08:44			07:47		16:07 (18)	06:40		17:19 (17)	06:24			05:25	05:03
	16:54			17:57	25	16:32 (18)	18:51	42	18:01 (17)	20:50			21:44	22:16
22	08:42			07:45		16:08 (18)	06:37		17:18 (17)	06:22			05:24	05:03
	16:56			17:59	21	16:29 (18)	18:53	42	18:00 (17)	20:52			21:46	22:16
23	08:41			07:42		16:11 (18)	06:35		17:19 (17)	06:20			05:22	05:03
	16:58			18:01	17	17:32 (16)	18:55	41	18:00 (17)	20:54			21:47	22:16
24	08:40			07:40		16:17 (18)	06:32		17:18 (17)	06:17			05:21	05:04
	17:00			18:03	10	17:35 (16)	18:57	40	17:58 (17)	20:56			21:49	22:16
25	08:38			07:38		17:29 (16)	06:30		17:19 (17)	06:15			05:20	05:04
	17:02			18:05	7	17:36 (16)	18:59	39	17:58 (17)	20:58			21:50	22:16
26	08:37		16:11 (18)	07:36		17:29 (16)	06:27		17:19 (17)	06:13			05:18	05:04
	17:04	10	16:21 (18)	18:07	10	17:39 (16)	19:01	37	17:56 (17)	20:59			21:52	22:16
27	08:35		16:09 (18)	07:33		17:28 (16)	06:25		17:20 (17)	06:11			05:17	05:05
	17:06	16	16:25 (18)	18:09	12	17:40 (16)	19:03	36	17:56 (17)	21:01			21:53	22:16
28	08:34		16:07 (18)	07:31		17:28 (16)	06:22		17:21 (17)	06:08			05:16	05:05
	17:08	20	16:27 (18)	18:11	15	17:43 (16)	19:05	33	17:54 (17)	21:03			21:55	22:16
29	08:32		16:05 (18)				07:20		18:22 (17)	06:06			05:15	05:06
	17:10	24	16:29 (18)				20:07	31	18:53 (17)	21:05			21:56	22:15
30	08:31		16:04 (18)				07:17		18:23 (17)	06:04			05:14	05:07
	17:12	26	16:30 (18)				20:08	27	18:50 (17)	21:07			21:57	22:15
31	08:29		16:03 (18)				07:15		18:26 (17)				05:12	
	17:14	29	16:32 (18)				20:10	22	18:48 (17)				21:59	
Potential sun hours	248			272			367			421			496	513
Total, worst case		125			833			917			24			
Sun reduction		0.17			0.22			0.22			0.34			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.60			0.60			0.57			0.57			
Total reduction		0.10			0.13			0.13			0.20			
Total, real		13			111			117			5			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: S - H19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December	
1	05:07		05:48		06:44		07:38		18:04 (17)	07:37	15:29 (18)	08:33
	22:15		21:39		20:31		19:16	35	18:39 (17)	17:04	39	16:08 (18)	16:19
2	05:08		05:50		06:45		07:40		18:04 (17)	07:39	15:28 (18)	08:35
	22:14		21:37		20:28		19:14	33	18:37 (17)	17:02	39	16:07 (18)	16:18
3	05:09		05:52		06:47		07:42		18:05 (17)	07:41	15:29 (18)	08:36
	22:14		21:35		20:26		19:11	30	18:35 (17)	17:00	38	16:07 (18)	16:17
4	05:10		05:53		06:49		07:44		18:06 (17)	07:43	15:30 (18)	08:38
	22:14		21:33		20:24		19:09	28	18:34 (17)	16:58	38	16:08 (18)	16:17
5	05:11		05:55		06:51		07:45		18:08 (17)	07:45	15:30 (18)	08:39
	22:13		21:31		20:21		19:06	23	18:31 (17)	16:56	37	16:07 (18)	16:16
6	05:11		05:57		06:53		07:47		18:11 (17)	07:47	15:30 (18)	08:41
	22:12		21:29		20:19		19:04	17	18:28 (17)	16:54	37	16:07 (18)	16:16
7	05:12		05:59		06:54		07:49		18:15 (17)	07:49	15:31 (18)	08:42
	22:12		21:27		20:16		19:01	8	18:23 (17)	16:53	35	16:06 (18)	16:15
8	05:14		06:00		06:56		07:51			07:51	15:31 (18)	08:43
	22:11		21:25		20:14		18:59			16:51	34	16:05 (18)	16:15
9	05:15		06:02		06:58		07:53			07:53	15:32 (18)	08:45
	22:10		21:23		20:11		18:56			16:49	32	16:04 (18)	16:14
10	05:16		06:04		07:00	18:28 (17)	07:55		18:06 (16)	07:55	15:34 (18)	08:46
	22:09		21:21		20:09	4	18:32 (17)	18:54	8	18:14 (16)	16:47	30	16:04 (18)	16:14
11	05:17		06:06		07:02	18:22 (17)	07:57		18:04 (16)	07:57	15:35 (18)	08:47
	22:08		21:19		20:06	16	18:38 (17)	18:51	12	18:16 (16)	16:45	28	16:03 (18)	16:14
12	05:18		06:07		07:03	18:17 (17)	07:58		18:03 (16)	07:59	15:36 (18)	08:48
	22:07		21:17		20:04	22	18:39 (17)	18:49	14	18:17 (16)	16:44	26	16:02 (18)	16:14
13	05:19		06:09		07:05	18:15 (17)	08:00		18:02 (16)	08:01	15:37 (18)	08:49
	22:06		21:15		20:01	26	18:41 (17)	18:47	15	18:17 (16)	16:42	24	16:01 (18)	16:13
14	05:21		06:11		07:07	18:13 (17)	08:02		18:01 (16)	08:03	15:39 (18)	08:50
	22:05		21:13		19:59	30	18:43 (17)	18:44	14	18:15 (16)	16:40	20	15:59 (18)	16:13
15	05:22		06:13		07:09	18:11 (17)	08:04		18:01 (16)	08:05	15:41 (18)	08:51
	22:04		21:10		19:56	33	18:44 (17)	18:42	12	18:13 (16)	16:39	16	15:57 (18)	16:13
16	05:23		06:15		07:11	18:09 (17)	08:06		18:01 (16)	08:07	15:44 (18)	08:52
	22:03		21:08		19:54	35	18:44 (17)	18:40	9	18:10 (16)	16:37	10	15:54 (18)	16:13
17	05:25		06:16		07:12	18:08 (17)	08:08		18:01 (16)	08:09		08:53
	22:02		21:06		19:51	37	18:45 (17)	18:37	7	18:08 (16)	16:36			16:14
18	05:26		06:18		07:14	18:07 (17)	08:10		16:46 (18)	08:11		08:54
	22:01		21:04		19:49	38	18:45 (17)	18:35	13	18:05 (16)	16:34			16:14
19	05:27		06:20		07:16	18:06 (17)	08:12		16:41 (18)	08:12		08:55
	21:59		21:01		19:46	40	18:46 (17)	18:33	18	16:59 (18)	16:33			16:14
20	05:29		06:22		07:18	18:04 (17)	08:14		16:39 (18)	08:14		08:55
	21:58		20:59		19:44	41	18:45 (17)	18:30	22	17:01 (18)	16:31			16:14
21	05:30		06:24		07:20	18:04 (17)	08:16		16:36 (18)	08:16		08:56
	21:57		20:57		19:41	41	18:45 (17)	18:28	27	17:03 (18)	16:30			16:15
22	05:32		06:25		07:21	18:03 (17)	08:18		16:35 (18)	08:18		08:56
	21:55		20:55		19:39	42	18:45 (17)	18:26	29	17:04 (18)	16:29			16:15
23	05:33		06:27		07:23	18:03 (17)	08:20		16:33 (18)	08:20		08:57
	21:54		20:52		19:36	42	18:45 (17)	18:24	32	17:05 (18)	16:27			16:16
24	05:35		06:29		07:25	18:03 (17)	08:22		16:32 (18)	08:22		08:57
	21:52		20:50		19:34	42	18:45 (17)	18:21	34	17:06 (18)	16:26			16:16
25	05:37		06:31		07:27	18:03 (17)	07:24		15:31 (18)	08:23		08:58
	21:51		20:48		19:31	42	18:45 (17)	17:19	35	16:06 (18)	16:25			16:17
26	05:38		06:33		07:29	18:02 (17)	07:26		15:30 (18)	08:25		08:58
	21:49		20:45		19:28	42	18:44 (17)	17:17	37	16:07 (18)	16:24			16:18
27	05:40		06:35		07:31	18:02 (17)	07:27		15:29 (18)	08:27		08:58
	21:47		20:43		19:26	41	18:43 (17)	17:15	38	16:07 (18)	16:23			16:19
28	05:41		06:36		07:32	18:02 (17)	07:29		15:30 (18)	08:29		08:58
	21:46		20:40		19:23	40	18:42 (17)	17:13	38	16:08 (18)	16:22			16:19
29	05:43		06:38		07:34	18:03 (17)	07:31		15:29 (18)	08:30		08:58
	21:44		20:38		19:21	39	18:42 (17)	17:11	39	16:08 (18)	16:21			16:20
30	05:45		06:40		07:36	18:03 (17)	07:33		15:29 (18)	08:32		08:59
	21:42		20:36		19:18	38	18:41 (17)	17:08	39	16:08 (18)	16:20			16:21
31	05:46		06:42				07:35		15:29 (18)			08:58
	21:40		20:33				17:06	39	16:08 (18)			16:22
Potential sun hours	515		461		383		327			257		230
Total, worst case						731		705			483	
Sun reduction						0.29		0.23			0.20	
Oper. time red.						1.00		1.00			1.00	
Wind dir. red.						0.57		0.59			0.60	
Total reduction						0.17		0.14			0.12	
Total, real						122		97			58	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: T - H20

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March			April			May			June		
1	08:59	08:27	07:29			07:13		07:55 (7)	06:02			05:12		06:05 (8)
	16:24	17:16	18:13			20:13	39	08:34 (7)	21:09			22:00	36	06:41 (8)
2	08:58	08:26	07:26			07:10		07:54 (7)	06:00			05:11		06:05 (8)
	16:25	17:18	18:15			20:14	39	08:33 (7)	21:11			22:01	35	06:40 (8)
3	08:58	08:24	07:24			07:08		07:54 (7)	05:58			05:10		06:06 (8)
	16:26	17:20	18:17			20:16	40	08:34 (7)	21:13			22:02	35	06:41 (8)
4	08:58	08:22	07:22			07:05		07:52 (7)	05:56			05:09		06:06 (8)
	16:28	17:22	18:19			20:18	42	08:34 (7)	21:15			22:04	35	06:41 (8)
5	08:58	08:20	07:19			07:03		07:52 (7)	05:54			05:08		06:06 (8)
	16:29	17:24	18:21			20:20	42	08:34 (7)	21:16			22:05	34	06:40 (8)
6	08:57	08:18	07:17			07:00		07:51 (7)	05:52			05:08		06:07 (8)
	16:30	17:26	18:23			20:22	42	08:33 (7)	21:18			22:06	34	06:41 (8)
7	08:57	08:16	07:14			06:58		07:51 (7)	05:50		06:19 (8)	05:07		06:07 (8)
	16:32	17:28	18:25			20:24	42	08:33 (7)	21:20	6	06:25 (8)	22:07	34	06:41 (8)
8	08:56	08:14	07:12			06:55		07:51 (7)	05:48		06:15 (8)	05:06		06:08 (8)
	16:33	17:30	18:27			20:26	42	08:33 (7)	21:22	14	06:29 (8)	22:08	33	06:41 (8)
9	08:55	08:13	07:10			06:53		07:51 (7)	05:46		06:13 (8)	05:06		06:08 (8)
	16:34	17:32	18:29			20:28	41	08:32 (7)	21:24	18	06:31 (8)	22:09	33	06:41 (8)
10	08:55	08:11	07:07			06:51		07:51 (7)	05:44		06:12 (8)	05:05		06:09 (8)
	16:36	17:35	18:31			20:29	41	08:32 (7)	21:25	21	06:33 (8)	22:10	32	06:41 (8)
11	08:54	08:09	07:05			06:48		07:51 (7)	05:42		06:10 (8)	05:05		06:08 (8)
	16:37	17:37	18:33			20:31	40	08:31 (7)	21:27	24	06:34 (8)	22:10	32	06:40 (8)
12	08:53	08:07	07:02			06:46		07:51 (7)	05:41		06:08 (8)	05:04		06:09 (8)
	16:39	17:39	18:34			20:33	39	08:30 (7)	21:29	27	06:35 (8)	22:11	32	06:41 (8)
13	08:52	08:04	07:00			06:43		07:52 (7)	05:39		06:08 (8)	05:04		06:09 (8)
	16:41	17:41	18:36			20:35	37	08:29 (7)	21:31	28	06:36 (8)	22:12	32	06:41 (8)
14	08:52	08:02	06:57			06:41		07:52 (7)	05:37		06:06 (8)	05:04		06:10 (8)
	16:42	17:43	18:38			20:37	35	08:27 (7)	21:32	30	06:36 (8)	22:13	31	06:41 (8)
15	08:51	08:00	06:55			06:39		07:53 (7)	05:35		06:06 (8)	05:03		06:09 (8)
	16:44	17:45	18:40			20:39	33	08:26 (7)	21:34	32	06:38 (8)	22:13	31	06:40 (8)
16	08:50	07:58	06:52			06:36		07:54 (7)	05:34		06:05 (8)	05:03		06:10 (8)
	16:46	17:47	18:42			20:41	31	08:25 (7)	21:36	33	06:38 (8)	22:14	31	06:41 (8)
17	08:49	07:56	06:50			06:34		07:54 (7)	05:32		06:05 (8)	05:03		06:10 (8)
	16:47	17:49	18:44			20:43	29	08:23 (7)	21:38	34	06:39 (8)	22:14	31	06:41 (8)
18	08:48	07:54	06:47			06:31		07:56 (7)	05:30		06:04 (8)	05:03		06:10 (8)
	16:49	17:51	18:46			20:45	25	08:21 (7)	21:39	35	06:39 (8)	22:15	31	06:41 (8)
19	08:46	07:52	06:45			06:29		07:58 (7)	05:29		06:05 (8)	05:03		06:11 (8)
	16:51	17:53	18:48			20:46	21	08:19 (7)	21:41	34	06:39 (8)	22:15	30	06:41 (8)
20	08:45	07:49	06:43			06:27		08:01 (7)	05:27		06:04 (8)	05:03		06:12 (8)
	16:53	17:55	18:50			20:48	15	08:16 (7)	21:43	35	06:39 (8)	22:15	30	06:42 (8)
21	08:44	07:47	06:40			06:24		08:05 (7)	05:26		06:04 (8)	05:03		06:12 (8)
	16:55	17:57	18:52			20:50	4	08:09 (7)	21:44	36	06:40 (8)	22:16	30	06:42 (8)
22	08:43	07:45	06:38			06:22			05:24		06:04 (8)	05:03		06:12 (8)
	16:57	17:59	18:54			20:52			21:46	36	06:40 (8)	22:16	30	06:42 (8)
23	08:41	07:43	06:35			06:20			05:23		06:03 (8)	05:04		06:12 (8)
	16:58	18:01	18:55			20:54			21:47	37	06:40 (8)	22:16	30	06:42 (8)
24	08:40	07:40	06:33			06:18			05:21		06:04 (8)	05:04		06:13 (8)
	17:00	18:03	18:57			20:56			21:49	36	06:40 (8)	22:16	30	06:43 (8)
25	08:38	07:38	06:30		07:09 (7)	06:15			05:20		06:04 (8)	05:04		06:12 (8)
	17:02	18:05	18:59	15	07:24 (7)	20:58			21:50	36	06:40 (8)	22:16	31	06:43 (8)
26	08:37	07:36	06:28		07:05 (7)	06:13			05:19		06:04 (8)	05:05		06:12 (8)
	17:04	18:07	19:01	21	07:26 (7)	21:00			21:52	37	06:41 (8)	22:16	31	06:43 (8)
27	08:35	07:33	06:25		07:03 (7)	06:11			05:17		06:04 (8)	05:05		06:13 (8)
	17:06	18:09	19:03	26	07:29 (7)	21:02			21:53	37	06:41 (8)	22:16	30	06:43 (8)
28	08:34	07:31	06:23		07:01 (7)	06:09			05:16		06:04 (8)	05:06		06:13 (8)
	17:08	18:11	19:05	30	07:31 (7)	21:03			21:55	37	06:41 (8)	22:16	31	06:44 (8)
29	08:32		07:20		07:59 (7)	06:07			05:15		06:05 (8)	05:06		06:13 (8)
	17:10		20:07	32	08:31 (7)	21:05			21:56	36	06:41 (8)	22:16	31	06:44 (8)
30	08:31		07:18		07:58 (7)	06:04			05:14		06:05 (8)	05:07		06:13 (8)
	17:12		20:09	35	08:33 (7)	21:07			21:57	36	06:41 (8)	22:15	32	06:45 (8)
31	08:29		07:15		07:56 (7)				05:13		06:05 (8)			
	17:14		20:11	37	08:33 (7)				21:59	36	06:41 (8)			
Potential sun hours	248	272	367			421			496			513		
Total, worst case				196			719			771			958	
Sun reduction				0.22			0.34			0.36			0.26	
Oper. time red.				1.00			1.00			1.00			1.00	
Wind dir. red.				0.59			0.59			0.58			0.58	
Total reduction				0.13			0.20			0.21			0.15	
Total, real				26			146			162			144	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: T - H20

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:08		06:13 (8)	05:48		06:19 (8)	06:44		07:51 (7)	07:38	07:38	08:34
	22:15	31	06:44 (8)	21:39	26	06:45 (8)	20:31	39	08:30 (7)	19:16	17:05	16:19
2	05:08		06:13 (8)	05:50		06:21 (8)	06:46		07:49 (7)	07:40	07:40	08:35
	22:15	32	06:45 (8)	21:37	23	06:44 (8)	20:29	41	08:30 (7)	19:14	17:03	16:19
3	05:09		06:13 (8)	05:52		06:23 (8)	06:47		07:49 (7)	07:42	07:42	08:37
	22:14	33	06:46 (8)	21:35	20	06:43 (8)	20:26	41	08:30 (7)	19:11	17:01	16:18
4	05:10		06:13 (8)	05:54		06:24 (8)	06:49		07:48 (7)	07:44	07:44	08:38
	22:14	33	06:46 (8)	21:33	16	06:40 (8)	20:24	42	08:30 (7)	19:09	16:59	16:17
5	05:11		06:13 (8)	05:55		06:26 (8)	06:51		07:47 (7)	07:46	07:45	08:40
	22:13	34	06:47 (8)	21:31	12	06:38 (8)	20:21	42	08:29 (7)	19:06	16:57	16:16
6	05:12		06:13 (8)	05:57			06:53		07:47 (7)	07:47	07:47	08:41
	22:12	33	06:46 (8)	21:29			20:19	42	08:29 (7)	19:04	16:55	16:16
7	05:13		06:13 (8)	05:59			06:55		07:47 (7)	07:49	07:49	08:42
	22:12	34	06:47 (8)	21:27			20:16	42	08:29 (7)	19:01	16:53	16:15
8	05:14		06:13 (8)	06:01			06:57		07:47 (7)	07:51	07:51	08:44
	22:11	34	06:47 (8)	21:25			20:14	42	08:29 (7)	18:59	16:51	16:15
9	05:15		06:13 (8)	06:02			06:58		07:47 (7)	07:53	07:53	08:45
	22:10	34	06:47 (8)	21:23			20:11	40	08:27 (7)	18:57	16:49	16:15
10	05:16		06:13 (8)	06:04			07:00		07:47 (7)	07:55	07:55	08:46
	22:09	35	06:48 (8)	21:21			20:09	40	08:27 (7)	18:54	16:47	16:14
11	05:17		06:13 (8)	06:06			07:02		07:48 (7)	07:57	07:57	08:47
	22:08	35	06:48 (8)	21:19			20:06	38	08:26 (7)	18:52	16:46	16:14
12	05:18		06:13 (8)	06:08			07:04		07:48 (7)	07:59	07:59	08:48
	22:08	36	06:49 (8)	21:17			20:04	37	08:25 (7)	18:49	16:44	16:14
13	05:20		06:13 (8)	06:10			07:06		07:48 (7)	08:01	08:01	08:49
	22:07	36	06:49 (8)	21:15			20:01	35	08:23 (7)	18:47	16:42	16:14
14	05:21		06:13 (8)	06:11			07:07		07:49 (7)	08:03	08:03	08:50
	22:05	36	06:49 (8)	21:13			19:59	33	08:22 (7)	18:45	16:41	16:14
15	05:22		06:13 (8)	06:13			07:09		07:50 (7)	08:04	08:05	08:51
	22:04	36	06:49 (8)	21:11			19:56	30	08:20 (7)	18:42	16:39	16:14
16	05:24		06:13 (8)	06:15			07:11		07:52 (7)	08:06	08:07	08:52
	22:03	36	06:49 (8)	21:08			19:54	27	08:19 (7)	18:40	16:37	16:14
17	05:25		06:14 (8)	06:17			07:13		07:53 (7)	08:08	08:09	08:53
	22:02	36	06:50 (8)	21:06			19:51	22	08:15 (7)	18:38	16:36	16:14
18	05:26		06:13 (8)	06:19			07:15		07:56 (7)	08:10	08:11	08:54
	22:01	37	06:50 (8)	21:04			19:49	16	08:12 (7)	18:35	16:34	16:14
19	05:28		06:13 (8)	06:20			07:16		08:02 (7)	08:12	08:13	08:55
	21:59	37	06:50 (8)	21:02			19:46	4	08:06 (7)	18:33	16:33	16:14
20	05:29		06:14 (8)	06:22			07:18			08:14	08:15	08:55
	21:58	36	06:50 (8)	20:59			19:44			18:31	16:32	16:15
21	05:31		06:14 (8)	06:24			07:20			08:16	08:16	08:56
	21:57	36	06:50 (8)	20:57			19:41			18:28	16:30	16:15
22	05:32		06:14 (8)	06:26		08:09 (7)	07:22			08:18	08:18	08:57
	21:55	36	06:50 (8)	20:55	6	08:15 (7)	19:39			18:26	16:29	16:16
23	05:34		06:14 (8)	06:28		08:04 (7)	07:24			08:20	08:20	08:57
	21:54	36	06:50 (8)	20:52	16	08:20 (7)	19:36			18:24	16:28	16:16
24	05:35		06:14 (8)	06:29		08:01 (7)	07:25			08:22	08:22	08:57
	21:52	35	06:49 (8)	20:50	22	08:23 (7)	19:34			18:22	16:26	16:17
25	05:37		06:15 (8)	06:31		07:59 (7)	07:27			07:24	08:24	08:58
	21:51	35	06:50 (8)	20:48	25	08:24 (7)	19:31			17:19	16:25	16:17
26	05:38		06:15 (8)	06:33		07:57 (7)	07:29			07:26	08:25	08:58
	21:49	34	06:49 (8)	20:45	29	08:26 (7)	19:29			17:17	16:24	16:18
27	05:40		06:16 (8)	06:35		07:56 (7)	07:31			07:28	08:27	08:58
	21:47	33	06:49 (8)	20:43	31	08:27 (7)	19:26			17:15	16:23	16:19
28	05:42		06:16 (8)	06:37		07:55 (7)	07:33			07:30	08:29	08:59
	21:46	32	06:48 (8)	20:41	33	08:28 (7)	19:24			17:13	16:22	16:20
29	05:43		06:17 (8)	06:38		07:53 (7)	07:35			07:32	08:30	08:59
	21:44	31	06:48 (8)	20:38	35	08:28 (7)	19:21			17:11	16:21	16:21
30	05:45		06:17 (8)	06:40		07:52 (7)	07:36			07:34	08:32	08:59
	21:42	30	06:47 (8)	20:36	37	08:29 (7)	19:19			17:09	16:20	16:22
31	05:47		06:18 (8)	06:42		07:51 (7)				07:36		08:59
	21:41	28	06:46 (8)	20:33	39	08:30 (7)				17:07		16:23
Potential sun hours	515			461			382			328	257	231
Total, worst case		1060			370			653				
Sun reduction		0.27			0.27			0.29				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.58			0.59			0.59				
Total reduction		0.15			0.16			0.17				
Total, real		164			60			113				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: U - H21

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April		May	June
1	08:58	08:27		07:29		16:23 (18)	07:12	18:37 (17)	06:02	05:11
	16:24	17:16		18:13	39	17:45 (16)	20:12	42 19:19 (17)	21:09	22:00
2	08:58	08:25		07:26		16:24 (18)	07:10	18:38 (17)	06:00	05:10
	16:25	17:18		18:15	39	17:47 (16)	20:14	41 19:19 (17)	21:11	22:01
3	08:58	08:24		07:24		16:26 (18)	07:07	18:37 (17)	05:58	05:10
	16:26	17:20		18:17	38	17:49 (16)	20:16	41 19:18 (17)	21:13	22:02
4	08:58	08:22		07:21		16:27 (18)	07:05	18:38 (17)	05:56	05:09
	16:27	17:22		18:19	37	17:51 (16)	20:18	40 19:18 (17)	21:14	22:03
5	08:57	08:20		07:19		16:30 (18)	07:02	18:39 (17)	05:54	05:08
	16:28	17:24		18:21	32	17:52 (16)	20:20	38 19:17 (17)	21:16	22:05
6	08:57	08:18		07:17		16:34 (18)	07:00	18:39 (17)	05:52	05:07
	16:30	17:26		18:23	22	17:51 (16)	20:22	37 19:16 (17)	21:18	22:06
7	08:56	08:16	16:37 (18)	07:14		17:38 (16)	06:58	18:40 (17)	05:50	05:06
	16:31	17:28	5 16:42 (18)	18:24	12	17:50 (16)	20:24	35 19:15 (17)	21:20	22:07
8	08:56	08:14	16:32 (18)	07:12		17:40 (16)	06:55	18:40 (17)	05:48	05:06
	16:33	17:30	15 16:47 (18)	18:26	7	17:47 (16)	20:25	33 19:13 (17)	21:22	22:08
9	08:55	08:12	16:29 (18)	07:09			06:53	18:41 (17)	05:46	05:05
	16:34	17:32	20 16:49 (18)	18:28			20:27	31 19:12 (17)	21:23	22:09
10	08:55	08:10	16:27 (18)	07:07			06:50	18:42 (17)	05:44	05:05
	16:36	17:34	24 16:51 (18)	18:30			20:29	27 19:09 (17)	21:25	22:09
11	08:54	08:08	16:26 (18)	07:05			06:48	18:44 (17)	05:42	05:04
	16:37	17:36	27 16:53 (18)	18:32			20:31	24 19:08 (17)	21:27	22:10
12	08:53	08:06	16:25 (18)	07:02			06:45	18:47 (17)	05:40	05:04
	16:39	17:38	30 16:55 (18)	18:34			20:33	18 19:05 (17)	21:29	22:11
13	08:52	08:04	16:24 (18)	07:00			06:43	18:49 (17)	05:38	05:04
	16:40	17:40	32 16:56 (18)	18:36			20:35	12 19:01 (17)	21:31	22:12
14	08:51	08:02	16:23 (18)	06:57			06:41		05:37	05:03
	16:42	17:42	34 16:57 (18)	18:38			20:37		21:32	22:12
15	08:51	08:00	16:22 (18)	06:55			06:38		05:35	05:03
	16:44	17:44	35 16:57 (18)	18:40			20:39		21:34	22:13
16	08:50	07:58	16:21 (18)	06:52			06:36		05:33	05:03
	16:45	17:46	37 16:58 (18)	18:42			20:41		21:36	22:14
17	08:48	07:56	16:21 (18)	06:50			06:33		05:32	05:03
	16:47	17:49	38 16:59 (18)	18:44			20:42		21:37	22:14
18	08:47	07:54	16:21 (18)	06:47		17:57 (17)	06:31		05:30	05:03
	16:49	17:51	39 17:00 (18)	18:46	11	18:08 (17)	20:44		21:39	22:15
19	08:46	07:51	16:20 (18)	06:45		17:53 (17)	06:29		05:28	05:03
	16:51	17:53	39 16:59 (18)	18:48	19	18:12 (17)	20:46		21:41	22:15
20	08:45	07:49	16:20 (18)	06:42		17:50 (17)	06:26		05:27	05:03
	16:53	17:55	40 17:00 (18)	18:50	24	18:14 (17)	20:48		21:42	22:15
21	08:44	07:47	16:20 (18)	06:40		17:48 (17)	06:24		05:25	05:03
	16:54	17:57	40 17:00 (18)	18:51	28	18:16 (17)	20:50		21:44	22:16
22	08:42	07:45	16:19 (18)	06:37		17:46 (17)	06:22		05:24	05:03
	16:56	17:59	40 16:59 (18)	18:53	31	18:17 (17)	20:52		21:46	22:16
23	08:41	07:42	16:20 (18)	06:35		17:45 (17)	06:20		05:22	05:03
	16:58	18:01	39 16:59 (18)	18:55	33	18:18 (17)	20:54		21:47	22:16
24	08:40	07:40	16:20 (18)	06:32		17:43 (17)	06:17		05:21	05:04
	17:00	18:03	39 16:59 (18)	18:57	36	18:19 (17)	20:56		21:49	22:16
25	08:38	07:38	16:20 (18)	06:30		17:42 (17)	06:15		05:20	05:04
	17:02	18:05	38 16:58 (18)	18:59	38	18:20 (17)	20:58		21:50	22:16
26	08:37	07:36	16:21 (18)	06:27		17:41 (17)	06:13		05:18	05:04
	17:04	18:07	37 16:58 (18)	19:01	39	18:20 (17)	20:59		21:52	22:16
27	08:35	07:33	16:21 (18)	06:25		17:40 (17)	06:11		05:17	05:05
	17:06	18:09	36 16:57 (18)	19:03	40	18:20 (17)	21:01		21:53	22:16
28	08:34	07:31	16:22 (18)	06:22		17:39 (17)	06:08		05:16	05:05
	17:08	18:11	38 17:43 (16)	19:05	41	18:20 (17)	21:03		21:55	22:16
29	08:32			07:20		18:39 (17)	06:06		05:15	05:06
	17:10			20:07	41	19:20 (17)	21:05		21:56	22:15
30	08:31			07:17		18:38 (17)	06:04		05:14	05:07
	17:12			20:08	42	19:20 (17)	21:07		21:57	22:15
31	08:29			07:15		18:38 (17)			05:12	
	17:14			20:10	42	19:20 (17)			21:59	
Potential sun hours	248	272		367			421		496	513
Total, worst case			722		691			419		
Sun reduction			0.22		0.22			0.34		
Oper. time red.			1.00		1.00			1.00		
Wind dir. red.			0.58		0.58			0.58		
Total reduction			0.13		0.13			0.20		
Total, real			93		89			83		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: U - H21

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August			September			October			November			December
1	05:07	05:48			06:44		18:43 (17)	07:38			07:37		15:57 (18)	08:33
	22:15	21:39			20:31	24	19:07 (17)	19:16			17:04	24	16:21 (18)	16:19
2	05:08	05:50			06:45		18:41 (17)	07:40			07:39		15:59 (18)	08:35
	22:14	21:37			20:28	27	19:08 (17)	19:14			17:02	19	16:18 (18)	16:18
3	05:09	05:52			06:47		18:39 (17)	07:42			07:41		16:02 (18)	08:36
	22:14	21:35			20:26	31	19:10 (17)	19:11			17:00	13	16:15 (18)	16:17
4	05:10	05:53			06:49		18:37 (17)	07:44			07:43			08:38
	22:14	21:33			20:24	33	19:10 (17)	19:09			16:58			16:17
5	05:11	05:55			06:51		18:36 (17)	07:45		18:18 (16)	07:45			08:39
	22:13	21:31			20:21	35	19:11 (17)	19:06	4	18:22 (16)	16:56			16:16
6	05:12	05:57			06:53		18:35 (17)	07:47		18:15 (16)	07:47			08:41
	22:12	21:29			20:19	37	19:12 (17)	19:04	10	18:25 (16)	16:54			16:16
7	05:12	05:59			06:54		18:34 (17)	07:49		18:13 (16)	07:49			08:42
	22:12	21:27			20:16	38	19:12 (17)	19:01	13	18:26 (16)	16:53			16:15
8	05:14	06:00			06:56		18:32 (17)	07:51		17:07 (18)	07:51			08:43
	22:11	21:25			20:14	40	19:12 (17)	18:59	28	18:27 (16)	16:51			16:15
9	05:15	06:02			06:58		18:32 (17)	07:53		17:04 (18)	07:53			08:45
	22:10	21:23			20:11	40	19:12 (17)	18:56	35	18:27 (16)	16:49			16:14
10	05:16	06:04			07:00		18:31 (17)	07:55		17:01 (18)	07:55			08:46
	22:09	21:21			20:09	41	19:12 (17)	18:54	38	18:25 (16)	16:47			16:14
11	05:17	06:06			07:02		18:31 (17)	07:57		16:59 (18)	07:57			08:47
	22:08	21:19			20:06	41	19:12 (17)	18:51	39	18:22 (16)	16:45			16:14
12	05:18	06:07			07:03		18:29 (17)	07:58		16:57 (18)	07:59			08:48
	22:07	21:17			20:04	42	19:11 (17)	18:49	40	18:20 (16)	16:44			16:14
13	05:19	06:09			07:05		18:29 (17)	08:00		16:56 (18)	08:01			08:49
	22:06	21:15			20:01	42	19:11 (17)	18:47	38	18:17 (16)	16:42			16:13
14	05:21	06:11			07:07		18:29 (17)	08:02		16:54 (18)	08:03			08:50
	22:05	21:13			19:59	42	19:11 (17)	18:44	38	18:15 (16)	16:40			16:13
15	05:22	06:13			07:09		18:29 (17)	08:04		16:53 (18)	08:05			08:51
	22:04	21:10			19:56	41	19:10 (17)	18:42	37	17:30 (18)	16:39			16:13
16	05:23	06:15			07:11		18:29 (17)	08:06		16:53 (18)	08:07			08:52
	22:03	21:08			19:54	40	19:09 (17)	18:40	37	17:30 (18)	16:37			16:13
17	05:25	06:16			07:12		18:29 (17)	08:08		16:52 (18)	08:09			08:53
	22:02	21:06			19:51	39	19:08 (17)	18:37	39	17:31 (18)	16:36			16:14
18	05:26	06:18			07:14		18:30 (17)	08:10		16:51 (18)	08:11			08:54
	22:01	21:04			19:49	37	19:07 (17)	18:35	40	17:31 (18)	16:34			16:14
19	05:27	06:20			07:16		18:30 (17)	08:12		16:51 (18)	08:12			08:55
	21:59	21:01			19:46	36	19:06 (17)	18:33	40	17:31 (18)	16:33			16:14
20	05:29	06:22			07:18		18:30 (17)	08:14		16:50 (18)	08:14			08:55
	21:58	20:59			19:44	34	19:04 (17)	18:30	40	17:30 (18)	16:31			16:14
21	05:30	06:24			07:20		18:31 (17)	08:16		16:50 (18)	08:16			08:56
	21:57	20:57			19:41	32	19:03 (17)	18:28	40	17:30 (18)	16:30			16:15
22	05:32	06:25			07:21		18:32 (17)	08:18		16:50 (18)	08:18			08:56
	21:55	20:55			19:39	29	19:01 (17)	18:26	40	17:30 (18)	16:29			16:15
23	05:33	06:27			07:23		18:34 (17)	08:20		16:50 (18)	08:20			08:57
	21:54	20:52			19:36	25	18:59 (17)	18:24	39	17:29 (18)	16:27			16:16
24	05:35	06:29			07:25		18:36 (17)	08:22		16:50 (18)	08:22			08:57
	21:52	20:50			19:33	21	18:57 (17)	18:21	39	17:29 (18)	16:26			16:16
25	05:37	06:31			07:27		18:39 (17)	07:24		15:50 (18)	08:23			08:58
	21:51	20:48			19:31	14	18:53 (17)	17:19	38	16:28 (18)	16:25			08:17
26	05:38	06:33			07:29			07:26		15:51 (18)	08:25			08:58
	21:49	20:45			19:28			17:17	37	16:28 (18)	16:24			16:18
27	05:40	06:35			07:31			07:27		15:51 (18)	08:27			08:58
	21:47	20:43			19:26			17:15	36	16:27 (18)	16:23			16:19
28	05:41	06:36			07:32			07:29		15:53 (18)	08:29			08:58
	21:46	20:40			19:23			17:13	34	16:27 (18)	16:22			16:19
29	05:43	06:38			07:34			07:31		15:54 (18)	08:30			08:58
	21:44	20:38			19:21			17:11	31	16:25 (18)	16:21			16:20
30	05:45	06:40		18:50 (17)	07:36			07:33		15:55 (18)	08:32			08:59
	21:42	20:36	12	19:02 (17)	19:18			17:08	29	16:24 (18)	16:20			16:21
31	05:46	06:42		18:47 (17)				07:35		15:56 (18)				08:58
	21:40	20:33	19	19:06 (17)				17:06	27	16:23 (18)				16:22
Potential sun hours	515	461			383			327			257			230
Total, worst case			31			861			906			56		
Sun reduction			0.27			0.29			0.23			0.20		
Oper. time red.			1.00			1.00			1.00			1.00		
Wind dir. red.			0.58			0.58			0.58			0.58		
Total reduction			0.16			0.17			0.14			0.12		
Total, real			5			146			123			6		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: V - H22

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April		May	June
1	08:58	08:27		07:29		16:39 (18)	07:12	19:09 (17)	06:02	05:11
	16:24	17:16		18:13	41	17:20 (18)	20:12	19:35 (17)	21:09	22:00
2	08:58	08:25		07:26		16:38 (18)	07:10	19:07 (17)	06:00	05:11
	16:25	17:18		18:15	42	17:20 (18)	20:14	19:37 (17)	21:11	22:01
3	08:58	08:24		07:24		16:38 (18)	07:07	19:05 (17)	05:58	05:10
	16:26	17:20		18:17	42	17:20 (18)	20:16	19:38 (17)	21:13	22:02
4	08:58	08:22		07:21		16:38 (18)	07:05	19:04 (17)	05:56	05:09
	16:27	17:22		18:19	42	17:20 (18)	20:18	19:39 (17)	21:14	22:03
5	08:57	08:20		07:19		16:38 (18)	07:02	19:03 (17)	05:54	05:08
	16:28	17:24		18:21	42	17:20 (18)	20:20	19:40 (17)	21:16	22:05
6	08:57	08:18		07:17		16:38 (18)	07:00	19:02 (17)	05:52	05:07
	16:30	17:26		18:23	41	17:19 (18)	20:22	19:40 (17)	21:18	22:06
7	08:56	08:16		07:14		16:38 (18)	06:58	19:01 (17)	05:50	05:06
	16:31	17:28		18:24	41	17:19 (18)	20:24	19:41 (17)	21:20	22:07
8	08:56	08:14		07:12		16:38 (18)	06:55	19:00 (17)	05:48	05:06
	16:33	17:30		18:26	40	17:18 (18)	20:25	19:40 (17)	21:22	22:08
9	08:55	08:12		07:09		16:39 (18)	06:53	18:59 (17)	05:46	05:05
	16:34	17:32		18:28	38	17:17 (18)	20:27	19:41 (17)	21:23	22:09
10	08:55	08:10		07:07		16:39 (18)	06:50	18:58 (17)	05:44	05:05
	16:36	17:34		18:30	37	17:16 (18)	20:29	19:40 (17)	21:25	22:09
11	08:54	08:08		07:05		16:40 (18)	06:48	18:58 (17)	05:42	05:04
	16:37	17:36		18:32	35	17:15 (18)	20:31	19:40 (17)	21:27	22:10
12	08:53	08:06		07:02		16:41 (18)	06:45	18:58 (17)	05:40	05:04
	16:39	17:38		18:34	32	17:13 (18)	20:33	19:40 (17)	21:29	22:11
13	08:52	08:04		07:00		16:43 (18)	06:43	18:58 (17)	05:38	05:04
	16:40	17:40		18:36	29	17:12 (18)	20:35	19:39 (17)	21:31	22:12
14	08:51	08:02		06:57		16:44 (18)	06:41	18:58 (17)	05:37	05:03
	16:42	17:42		18:38	26	17:10 (18)	20:37	19:39 (17)	21:32	22:12
15	08:50	08:00		06:55		16:46 (18)	06:38	18:58 (17)	05:35	05:03
	16:44	17:44		18:40	22	17:08 (18)	20:39	19:39 (17)	21:34	22:13
16	08:50	07:58		06:52		16:49 (18)	06:36	18:58 (17)	05:33	05:03
	16:45	17:46		18:42	15	17:04 (18)	20:41	19:38 (17)	21:36	22:14
17	08:48	07:56		06:50			06:33	18:58 (17)	05:32	05:03
	16:47	17:49		18:44			20:42	19:37 (17)	21:37	22:14
18	08:47	07:54	16:57 (18)	06:47			06:31	18:59 (17)	05:30	05:03
	16:49	17:51	8 17:05 (18)	18:46			20:44	19:37 (17)	21:39	22:15
19	08:46	07:51	16:52 (18)	06:45			06:29	19:00 (17)	05:28	05:03
	16:51	17:53	17 17:09 (18)	18:48			20:46	19:36 (17)	21:41	22:15
20	08:45	07:49	16:49 (18)	06:42			06:26	19:00 (17)	05:27	05:03
	16:53	17:55	23 17:12 (18)	18:50			20:48	19:34 (17)	21:42	22:15
21	08:44	07:47	16:48 (18)	06:40			06:24	19:01 (17)	05:25	05:03
	16:54	17:57	26 17:14 (18)	18:51			20:50	19:33 (17)	21:44	22:16
22	08:42	07:45	16:45 (18)	06:37			06:22	19:02 (17)	05:24	05:03
	16:56	17:59	30 17:15 (18)	18:53			20:52	19:32 (17)	21:46	22:16
23	08:41	07:42	16:44 (18)	06:35			06:20	19:04 (17)	05:22	05:03
	16:58	18:01	32 17:16 (18)	18:55			20:54	19:30 (17)	21:47	22:16
24	08:40	07:40	16:43 (18)	06:32			06:17	19:06 (17)	05:21	05:04
	17:00	18:03	35 17:18 (18)	18:57			20:56	19:29 (17)	21:49	22:16
25	08:38	07:38	16:42 (18)	06:30			06:15	19:07 (17)	05:20	05:04
	17:02	18:05	36 17:18 (18)	18:59			20:58	19:25 (17)	21:50	22:16
26	08:37	07:36	16:41 (18)	06:27			06:13	19:10 (17)	05:18	05:04
	17:04	18:07	38 17:19 (18)	19:01			20:59	19:22 (17)	21:52	22:16
27	08:35	07:33	16:40 (18)	06:25			06:11		05:17	05:05
	17:06	18:09	39 17:19 (18)	19:03			21:01		21:53	22:16
28	08:34	07:31	16:39 (18)	06:22			06:08		05:16	05:05
	17:08	18:11	41 17:20 (18)	19:05			21:03		21:55	22:16
29	08:32			07:20		19:22 (17)	06:06		05:15	05:06
	17:10			20:07	3	19:25 (17)	21:05		21:56	22:15
30	08:31			07:17		19:15 (17)	06:04		05:14	05:07
	17:12			20:08	16	19:31 (17)	21:07		21:57	22:15
31	08:29			07:15		19:12 (17)			05:12	
	17:14			20:10	22	19:34 (17)			21:59	
Potential sun hours	248	272		367			421		496	513
Total, worst case			325		606			898		
Sun reduction			0.22		0.22			0.34		
Oper. time red.			1.00		1.00			1.00		
Wind dir. red.			0.58		0.58			0.59		
Total reduction			0.13		0.13			0.20		
Total, real			42		79			182		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: V - H22

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August			September			October			November	December
1	05:07	05:48			06:44		18:57 (17)	07:38		17:21 (18)	07:37	08:33
	22:15	21:39			20:31	42	19:39 (17)	19:16	32	17:53 (18)	17:04	16:19
2	05:08	05:50			06:45		18:57 (17)	07:40		17:19 (18)	07:39	08:35
	22:14	21:37			20:28	42	19:39 (17)	19:14	33	17:52 (18)	17:02	16:18
3	05:09	05:52			06:47		18:57 (17)	07:42		17:17 (18)	07:41	08:36
	22:14	21:35			20:26	42	19:39 (17)	19:11	36	17:53 (18)	17:00	16:17
4	05:10	05:53			06:49		18:57 (17)	07:44		17:16 (18)	07:43	08:38
	22:14	21:33			20:24	40	19:37 (17)	19:09	38	17:54 (18)	16:58	16:17
5	05:11	05:55			06:51		18:57 (17)	07:45		17:15 (18)	07:45	08:39
	22:13	21:31			20:21	40	19:37 (17)	19:06	39	17:54 (18)	16:56	16:16
6	05:12	05:57			06:53		18:58 (17)	07:47		17:15 (18)	07:47	08:41
	22:12	21:29			20:19	38	19:36 (17)	19:04	40	17:55 (18)	16:54	16:16
7	05:12	05:59			06:54		18:58 (17)	07:49		17:14 (18)	07:49	08:42
	22:12	21:27			20:16	37	19:35 (17)	19:01	41	17:55 (18)	16:53	16:15
8	05:14	06:00			06:56		18:58 (17)	07:51		17:13 (18)	07:51	08:43
	22:11	21:25			20:14	35	19:33 (17)	18:59	42	17:55 (18)	16:51	16:15
9	05:15	06:02			06:58		18:59 (17)	07:53		17:13 (18)	07:53	08:45
	22:10	21:23			20:11	33	19:32 (17)	18:56	42	17:55 (18)	16:49	16:14
10	05:16	06:04			07:00		19:00 (17)	07:55		17:13 (18)	07:55	08:46
	22:09	21:21			20:09	30	19:30 (17)	18:54	42	17:55 (18)	16:47	16:14
11	05:17	06:06			07:02		19:02 (17)	07:57		17:12 (18)	07:57	08:47
	22:08	21:19			20:06	27	19:29 (17)	18:51	42	17:54 (18)	16:45	16:14
12	05:18	06:07			07:03		19:03 (17)	07:58		17:12 (18)	07:59	08:48
	22:07	21:17			20:04	22	19:25 (17)	18:49	42	17:54 (18)	16:44	16:14
13	05:19	06:09			07:05		19:05 (17)	08:00		17:13 (18)	08:01	08:49
	22:06	21:15			20:01	17	19:22 (17)	18:47	40	17:53 (18)	16:42	16:13
14	05:21	06:11			07:07		19:10 (17)	08:02		17:13 (18)	08:03	08:50
	22:05	21:13			19:59	7	19:17 (17)	18:44	40	17:53 (18)	16:40	16:13
15	05:22	06:13			07:09			08:04		17:13 (18)	08:05	08:51
	22:04	21:10			19:56			18:42	39	17:52 (18)	16:39	16:13
16	05:23	06:15			07:11			08:06		17:13 (18)	08:07	08:52
	22:03	21:08			19:54			18:40	38	17:51 (18)	16:37	16:13
17	05:25	06:16		19:17 (17)	07:12			08:08		17:14 (18)	08:09	08:53
	22:02	21:06	13	19:30 (17)	19:51			18:37	36	17:50 (18)	16:36	16:14
18	05:26	06:18		19:13 (17)	07:14			08:10		17:15 (18)	08:11	08:54
	22:01	21:04	19	19:32 (17)	19:49			18:35	34	17:49 (18)	16:34	16:14
19	05:27	06:20		19:11 (17)	07:16			08:12		17:16 (18)	08:12	08:55
	21:59	21:01	24	19:35 (17)	19:46			18:33	31	17:47 (18)	16:33	16:14
20	05:29	06:22		19:09 (17)	07:18			08:14		17:17 (18)	08:14	08:55
	21:58	20:59	27	19:36 (17)	19:44			18:30	29	17:46 (18)	16:31	16:14
21	05:30	06:24		19:07 (17)	07:20			08:16		17:18 (18)	08:16	08:56
	21:57	20:57	30	19:37 (17)	19:41			18:28	26	17:44 (18)	16:30	16:15
22	05:32	06:25		19:05 (17)	07:21			08:18		17:20 (18)	08:18	08:56
	21:55	20:55	33	19:38 (17)	19:39			18:26	21	17:41 (18)	16:29	16:15
23	05:33	06:27		19:04 (17)	07:23			08:20		17:23 (18)	08:20	08:57
	21:54	20:52	35	19:39 (17)	19:36			18:24	15	17:38 (18)	16:27	16:16
24	05:35	06:29		19:02 (17)	07:25			08:22			08:22	08:57
	21:52	20:50	37	19:39 (17)	19:33			18:21			16:26	16:16
25	05:37	06:31		19:02 (17)	07:27			07:24			08:23	08:58
	21:51	20:48	38	19:40 (17)	19:31			17:19			16:25	16:17
26	05:38	06:33		19:01 (17)	07:29			07:26			08:25	08:58
	21:49	20:45	39	19:40 (17)	19:28			17:17			16:24	16:18
27	05:40	06:35		19:00 (17)	07:31		17:32 (18)	07:27			08:27	08:58
	21:47	20:43	41	19:41 (17)	19:26	12	17:44 (18)	17:15			16:23	16:19
28	05:41	06:36		18:59 (17)	07:32		17:28 (18)	07:29			08:29	08:58
	21:46	20:40	41	19:40 (17)	19:23	19	17:47 (18)	17:13			16:22	16:19
29	05:43	06:38		18:59 (17)	07:34		17:25 (18)	07:31			08:30	08:58
	21:44	20:38	41	19:40 (17)	19:21	25	17:50 (18)	17:11			16:21	16:20
30	05:45	06:40		18:58 (17)	07:36		17:23 (18)	07:33			08:32	08:59
	21:42	20:36	42	19:40 (17)	19:18	28	17:51 (18)	17:08			16:20	16:21
31	05:46	06:42		18:58 (17)				07:35				08:58
	21:40	20:33	42	19:40 (17)				17:06				16:22
Potential sun hours	515	461			383			327			257	230
Total, worst case			502			536			818			
Sun reduction			0.27			0.29			0.23			
Oper. time red.			1.00			1.00			1.00			
Wind dir. red.			0.59			0.59			0.58			
Total reduction			0.16			0.17			0.14			
Total, real			81			92			112			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: W - H23

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February		March			April		May		June		July		August		September			October			November			December		
1	08:58		15:17 (1)	08:27		07:29			07:12		06:02		05:12		05:08		05:48		06:44			07:38			07:37			08:33		15:06 (1)
	16:24	28	15:45 (1)	17:16		18:13			20:12		21:09		22:00		22:15		21:39		20:31			19:16			17:04			16:19	29	15:35 (1)
2	08:58		15:18 (1)	08:25		07:26			07:10		06:00		05:11		05:08		05:50		06:46			07:40			07:39			08:35		15:05 (1)
	16:25	29	15:47 (1)	17:18		18:15			20:14		21:11		22:01		22:14		21:37		20:28			19:14			17:02			16:18	30	15:35 (1)
3	08:58		15:18 (1)	08:24		07:24			07:08		05:58		05:10		05:09		05:52		06:47			07:42			07:41			08:36		15:05 (1)
	16:26	30	15:48 (1)	17:20		18:17			20:16		21:12		22:02		22:14		21:35		20:26			19:11			17:00			16:18	31	15:36 (1)
4	08:58		15:19 (1)	08:22		07:22			07:05		05:56		05:09		05:10		05:53		06:49			07:44			07:43			08:38		15:06 (1)
	16:27	30	15:49 (1)	17:22		18:19			20:18		21:14		22:03		22:13		21:33		20:24			19:09			16:58			16:17	31	15:37 (1)
5	08:57		15:19 (1)	08:20		07:19			07:03		05:54		05:08		05:11		05:55		06:51			07:45			07:45			08:39		15:06 (1)
	16:29	31	15:50 (1)	17:24		18:21			20:20		21:16		22:04		22:13		21:31		20:21			19:06			16:57			16:16	31	15:37 (1)
6	08:57		15:20 (1)	08:18		07:17			07:00		05:52		05:07		05:12		05:57		06:53			07:47			07:47			08:41		15:06 (1)
	16:30	32	15:52 (1)	17:26		18:23			20:22		21:18		22:06		22:12		21:29		20:19			19:04			16:55			16:16	32	15:38 (1)
7	08:56		15:21 (1)	08:16		07:14			06:58		05:50		05:07		05:13		05:59		06:55			07:49			07:49			08:42		15:06 (1)
	16:31	31	15:52 (1)	17:28		18:25			20:24		21:20		22:07		22:12		21:27		20:16			19:01			16:53			16:15	32	15:38 (1)
8	08:56		15:21 (1)	08:14		07:12			06:55		05:48		05:06		05:14		06:00		06:56			07:51			07:51			08:43		15:07 (1)
	16:33	31	15:52 (1)	17:30		18:27			20:26		21:22		22:08		22:11		21:25		20:14			18:59			16:51			16:15	31	15:38 (1)
9	08:55		15:21 (1)	08:12		07:09			06:53		05:46		05:06		05:15		06:02		06:58			07:53			07:53			08:45		15:07 (1)
	16:34	31	15:52 (1)	17:32		18:28			20:27		21:23		22:08		22:10		21:23		20:11			18:56			16:49			16:15	30	15:37 (1)
10	08:55		15:23 (1)	08:10		07:07			06:50		05:44		05:05		05:16		06:04		07:00			07:55			07:55			08:46		15:07 (1)
	16:36	30	15:53 (1)	17:34		18:30			20:29		21:25		22:09		22:09		21:21		20:09			18:54			16:47			16:14	29	15:36 (1)
11	08:54		15:23 (1)	08:08		07:05			06:48		05:42		05:05		05:17		06:06		07:02			07:57			07:57			08:47		15:07 (1)
	16:37	30	15:53 (1)	17:36		18:32			20:31		21:27		22:10		22:08		21:19		20:06			18:52			16:45			16:14	28	15:35 (1)
12	08:53		15:24 (1)	08:06		07:02			06:46		05:40		05:04		05:18		06:08		07:04			07:59			07:59			08:48		15:09 (1)
	16:39	29	15:53 (1)	17:38		18:34			20:33		21:29		22:11		22:07		21:17		20:04			18:49			16:44			16:14	27	15:36 (1)
13	08:52		15:25 (1)	08:04		07:00			06:43		05:39		05:04		05:20		06:09		07:05			08:00			08:01			08:49		15:09 (1)
	16:41	28	15:53 (1)	17:41		18:36			20:35		21:31		22:12		22:06		21:15		20:01			18:47			16:42			16:14	27	15:36 (1)
14	08:51		15:25 (1)	08:02		06:57			06:41		05:37		05:03		05:21		06:11		07:07			08:02			08:03			08:50		15:09 (1)
	16:42	27	15:52 (1)	17:43		18:38			20:37		21:32		22:12		22:05		21:12		19:59			18:44			16:40			16:14	26	15:35 (1)
15	08:50		15:26 (1)	08:00		06:55			06:38		05:35		05:03		05:22		06:13		07:09			08:04			08:05			08:51		15:10 (1)
	16:44	26	15:52 (1)	17:45		18:40			20:39		21:34		22:13		22:04		21:10		19:56			18:42			16:39			16:14	25	15:35 (1)
16	08:49		15:27 (1)	07:58		06:52			06:36		05:33		05:03		05:23		06:15		07:11			08:06			08:07			08:52		15:10 (1)
	16:46	25	15:52 (1)	17:47		18:42			20:41		21:36		22:13		22:03		21:08		19:54			18:40			16:37			16:14	25	15:35 (1)
17	08:48		15:28 (1)	07:56		06:50			06:34		05:32		05:03		05:25		06:17		07:13		19:07 (5)	08:08			08:09			08:53		15:10 (1)
	16:47	24	15:52 (1)	17:49		18:44			20:42		21:37		22:14		22:02		21:06		19:51	5	19:12 (5)	18:37			16:36			16:14	25	15:35 (1)
18	08:47		15:30 (1)	07:54		06:47		18:17 (5)	06:31		05:30		05:03		05:26		06:18		07:14		19:04 (5)	08:10			08:11			08:54		15:11 (1)
	16:49	22	15:52 (1)	17:51		18:46	2	18:19 (5)	20:44		21:39		22:14		22:00		21:04		19:49	11	19:15 (5)	18:35			16:34			16:14	24	15:35 (1)
19	08:46		15:31 (1)	07:51		06:45		18:17 (5)	06:29		05:29		05:03		05:28		06:20		07:16		19:03 (5)	08:12			08:12			08:54		15:12 (1)
	16:51	20	15:51 (1)	17:53		18:48	4	18:21 (5)	20:46		21:41		22:15		21:59		21:01		19:46	13	19:16 (5)	18:33			16:33			16:14	24	15:36 (1)
20	08:45		15:33 (1)	07:49		06:42		18:15 (5)	06:27		05:27		05:03		05:29		06:22		07:18		19:02 (5)	08:14			08:14		15:13 (1)	08:55		15:12 (1)
	16:53	17	15:50 (1)	17:55		18:50	7	18:22 (5)	20:48		21:42		22:15		21:58		20:59		19:44	14	19:16 (5)	18:30			16:31	9	15:22 (1)	16:15	24	15:36 (1)
21	08:44		15:34 (1)	07:47		06:40		18:15 (5)	06:24		05:25		05:03		05:31		06:24		07:20		19:00 (5)	08:16			08:16		15:10 (1)	08:56		15:12 (1)
	16:55	15	15:49 (1)	17:57		18:52	10	18:25 (5)	20:50		21:44		22:15		21:56		20:57		19:41	12	19:12 (5)	18:28			16:30	15	15:25 (1)	16:15	24	15:36 (1)
22	08:42		15:38 (1)	07:45		06:37		18:14 (5)	06:22		05:24		05:03		05:32		06:26		07:22		19:00 (5)	08:18			08:18		15:09 (1)	08:56		15:13 (1)
	16:56	9	15:47 (1)	17:59		18:53	12	18:26 (5)	20:52		21:46		22:16		21:55		20:55		19:39	10	19:10 (5)	18:26			16:29	17	15:26 (1)	16:15	24	15:37 (1)
23	08:41			07:42		06:35		18:15 (5)	06:20		05:23		05:04		05:34		06:27		07:23		19:00 (5)	08:20			08:20		15:08 (1)	08:57		15:13 (1)
	16:58			18:01		18:55	14	18:29 (5)	20:54		21:47		22:16		21:54		20:52		19:36	8	19:08 (5)	18:24			16:27	20	15:28 (1)	16:16	24	15:37 (1)
24	08:40			07:40		06:32		18:15 (5)	06:17		05:21		05:04		05:35		06:29		07:25		19:00 (5)	08:22			08:22		15:07 (1)	08:57		15:13 (1)
	17:00			18:03		18:57	14	18:29 (5)	20:56		21:49		22:16		21:52		20:50		19:34	5	19:05 (5)	18:21			16:26	22	15:29 (1)	16:17	24	15:37 (1)
25	08:38			07:38		06:30		18:16 (5)	06:15		05:20		05:04		05:37		06:31		07:27		19:01 (5)	07:24			08:23		15:07 (1)	08:58		15:15 (1)
	17:02			18:05		18:59	12	18:28 (5)	20:58		21:50		22:16		21:50		20:48		19:31	2	19:03 (5)	17:19			16:25	23	15:30 (1)	16:17	24	15:39 (1)
26	08:37			07:36		06:27		18:18 (5)	06:13		05:19		05:05		05:38		06:33		07:29			07:26			08:25		15:06 (1)	08:58		15:15 (1)
	17:04			18:07		19:01	7	18:25 (5)	20:59		21:52		22:16		21:49		20:45		19:29			17:17			16:24	25	15:31 (1)	16:18	24	15:39 (1)
27	08:35			07:33		06:25			06:11		05:17		05:05		05:40		06:35		07:31			07:27			08:27		15:05 (1)	08:58		15:15 (1)
	17:06			18:09		19:03			21:01		21:53		22:16		21:47		20:43		19:26			17:15			16:23	27	15:32 (1)	16:19	25	15:40 (1)
28	08:34			07:31		06:22			06:09		05:16		05:06		05:42		06:36		07:33			07:29			08:28		15:05 (1)	08:58		15:16 (1)
	17:08			18:11		19:05			21:03		21:54		22:16		21:46		20:40		19:24			17:13			16:22	27	15:32 (1)	16:20	25	15:41 (1)
29	08:32					07:20			06:06		05:15		05:06		05:43		06:38		07:34			07:31			08:30		15:05 (1)	08:58		15:16 (1)
	17:10					20:07			21:05		21:56		22:15		21:44		20:38		19:21			17:11			16:21	28	15:33 (1)	16:20	26	15:42 (1)
30	08:30					07:17			06:04		05:14		05:07		05:45		06:40		07:36			07:33			08:32		15:05 (1)	08:58		15:17 (1)
	17:12					20:09			21:07		21:57		22:15		21:42		20:36		19:19			17:09			16:20	29	15:34 (1)	16:21	26	15:43 (1)
31	08:29					07:15					05:13				05:47		06:42					07:35						08:58		15:17 (1)
	17:14					20:10					21:59				21:40		20:33					17:06						16:22	27	15:44 (1)
Potential sun hours	248			272		367			421		496		513		515		461		382			328			257			231		
Total, worst case		575					82													80						242			834	
Sun reduction		0.17					0.22													0.29						0.20			0.12	
Oper. time red.		1.00					1.00													1.00						1.00			1.00	
Wind dir. red.		0.63					0.58													0.58						0.63			0.63	
Total reduction		0.11					0.13													0.17						0.13			0.08	
Total, real		61					11													14						30			63	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: X - H24

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:38	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
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	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
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30	08:30		07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: Y - H25

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June
1	08:58	08:27	07:29		07:12		18:20 (18)	06:02	19:28 (17)	05:11
	16:24	17:16	18:13		20:12	18	18:38 (18)	21:09	36	20:04 (17)	22:00
2	08:58	08:25	07:26		07:10		18:25 (18)	06:00	19:28 (17)	05:11
	16:25	17:18	18:15		20:14	9	18:34 (18)	21:11	35	20:03 (17)	22:01
3	08:58	08:24	07:24		07:07			05:58	19:28 (17)	05:10
	16:26	17:20	18:17		20:16			21:12	34	20:02 (17)	22:02
4	08:58	08:22	07:21		07:05			05:56	19:29 (17)	05:09
	16:27	17:22	18:19		20:18			21:14	33	20:02 (17)	22:03
5	08:57	08:20	07:19		07:02			05:54	19:29 (17)	05:08
	16:28	17:24	18:21		20:20			21:16	32	20:01 (17)	22:05
6	08:57	08:18	07:17		07:00			05:52	19:31 (17)	05:07
	16:30	17:26	18:23		20:22			21:18	30	20:01 (17)	22:06
7	08:56	08:16	07:14		06:58			05:50	19:32 (17)	05:06
	16:31	17:28	18:24		20:24			21:20	27	19:59 (17)	22:07
8	08:56	08:14	07:12	17:34 (18)	06:55			05:48	19:33 (17)	05:06
	16:33	17:30	18:26	3	17:37 (18)	20:25			21:22	25	19:58 (17)	22:08
9	08:55	08:12	07:09	17:28 (18)	06:53			05:46	19:34 (17)	05:05
	16:34	17:32	18:28	15	17:43 (18)	20:27			21:23	22	19:56 (17)	22:09
10	08:55	08:10	07:07	17:24 (18)	06:50			05:44	19:36 (17)	05:05
	16:36	17:34	18:30	22	17:46 (18)	20:29			21:25	18	19:54 (17)	22:09
11	08:54	08:08	07:05	17:22 (18)	06:48			05:42	19:38 (17)	05:04
	16:37	17:36	18:32	26	17:48 (18)	20:31			21:27	15	19:53 (17)	22:10
12	08:53	08:06	07:02	17:20 (18)	06:45			05:40	19:42 (17)	05:04
	16:39	17:38	18:34	29	17:49 (18)	20:33			21:29	7	19:49 (17)	22:11
13	08:52	08:04	07:00	17:19 (18)	06:43		19:46 (17)	05:38	05:04
	16:40	17:40	18:36	32	17:51 (18)	20:35	6	19:52 (17)	21:31	22:12
14	08:51	08:02	06:57	17:17 (18)	06:41		19:41 (17)	05:37	05:03
	16:42	17:42	18:38	34	17:51 (18)	20:37	16	19:57 (17)	21:32	22:12
15	08:50	08:00	06:55	17:16 (18)	06:38		19:39 (17)	05:35	05:03
	16:44	17:44	18:40	36	17:52 (18)	20:39	20	19:59 (17)	21:34	22:13
16	08:49	07:58	06:52	17:15 (18)	06:36		19:36 (17)	05:33	05:03
	16:45	17:46	18:42	37	17:52 (18)	20:41	24	20:00 (17)	21:36	22:14
17	08:48	07:56	06:50	17:14 (18)	06:33		19:34 (17)	05:32	05:03
	16:47	17:49	18:44	39	17:53 (18)	20:42	28	20:02 (17)	21:37	22:14
18	08:47	07:54	06:47	17:13 (18)	06:31		19:33 (17)	05:30	05:03
	16:49	17:51	18:46	39	17:52 (18)	20:44	30	20:03 (17)	21:39	22:15
19	08:46	07:51	06:45	17:13 (18)	06:29		19:32 (17)	05:28	05:03
	16:51	17:53	18:48	40	17:53 (18)	20:46	32	20:04 (17)	21:41	22:15
20	08:45	07:49	06:42	17:12 (18)	06:26		19:30 (17)	05:27	05:03
	16:53	17:55	18:50	40	17:52 (18)	20:48	34	20:04 (17)	21:42	22:15
21	08:44	07:47	06:40	17:12 (18)	06:24		19:30 (17)	05:25	05:03
	16:54	17:57	18:51	41	17:53 (18)	20:50	35	20:05 (17)	21:44	22:15
22	08:42	07:45	06:37	17:12 (18)	06:22		19:29 (17)	05:24	05:03
	16:56	17:59	18:53	40	17:52 (18)	20:52	36	20:05 (17)	21:46	22:16
23	08:41	07:42	06:35	17:12 (18)	06:20		19:29 (17)	05:22	05:03
	16:58	18:01	18:55	40	17:52 (18)	20:54	37	20:06 (17)	21:47	22:16
24	08:40	07:40	06:32	17:12 (18)	06:17		19:28 (17)	05:21	05:04
	17:00	18:03	18:57	38	17:50 (18)	20:56	38	20:06 (17)	21:49	22:16
25	08:38	07:38	06:30	17:13 (18)	06:15		19:27 (17)	05:20	05:04
	17:02	18:05	18:59	37	17:50 (18)	20:58	38	20:05 (17)	21:50	22:16
26	08:37	07:36	06:27	17:12 (18)	06:13		19:27 (17)	05:18	05:04
	17:04	18:07	19:01	37	17:49 (18)	20:59	38	20:05 (17)	21:52	22:16
27	08:35	07:33	06:25	17:14 (18)	06:11		19:27 (17)	05:17	05:05
	17:06	18:09	19:03	34	17:48 (18)	21:01	38	20:05 (17)	21:53	22:16
28	08:34	07:31	06:22	17:14 (18)	06:08		19:27 (17)	05:16	05:05
	17:08	18:11	19:05	32	17:46 (18)	21:03	38	20:05 (17)	21:55	22:16
29	08:32		07:20	18:15 (18)	06:06		19:27 (17)	05:15	05:06
	17:10		20:07	30	18:45 (18)	21:05	38	20:05 (17)	21:56	22:15
30	08:31		07:17	18:16 (18)	06:04		19:27 (17)	05:14	05:07
	17:12		20:08	27	18:43 (18)	21:07	37	20:04 (17)	21:57	22:15
31	08:29		07:15	18:18 (18)				05:12	
	17:14		20:10	23	18:41 (18)				21:59		
Potential sun hours	248	272	367		421			496		513
Total, worst case				771		590			314	
Sun reduction				0.22		0.34			0.36	
Oper. time red.				1.00		1.00			1.00	
Wind dir. red.				0.57		0.59			0.59	
Total reduction				0.13		0.20			0.21	
Total, real				99		119			67	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: Y - H25

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September			October			November	December
1	05:07		05:48		19:50 (17)	06:44		07:38		17:59 (18)	07:37	08:33
	22:15		21:39	11	20:01 (17)	20:31		19:16	30	18:29 (18)	17:04	16:19
2	05:08		05:50		19:48 (17)	06:45		07:40		17:59 (18)	07:39	08:35
	22:14		21:37	16	20:04 (17)	20:28		19:14	28	18:27 (18)	17:02	16:18
3	05:09		05:52		19:45 (17)	06:47		07:42		18:01 (18)	07:41	08:36
	22:14		21:35	20	20:05 (17)	20:26		19:11	24	18:25 (18)	17:00	16:17
4	05:10		05:53		19:44 (17)	06:49		07:43		18:03 (18)	07:43	08:38
	22:13		21:33	23	20:07 (17)	20:23		19:09	19	18:22 (18)	16:58	16:17
5	05:11		05:55		19:43 (17)	06:51		07:45		18:07 (18)	07:45	08:39
	22:13		21:31	26	20:09 (17)	20:21		19:06	11	18:18 (18)	16:56	16:16
6	05:12		05:57		19:41 (17)	06:53		07:47			07:47	08:41
	22:12		21:29	28	20:09 (17)	20:19		19:04			16:54	16:16
7	05:12		05:59		19:40 (17)	06:54		07:49			07:49	08:42
	22:12		21:27	30	20:10 (17)	20:16		19:01			16:53	16:15
8	05:14		06:00		19:39 (17)	06:56		07:51			07:51	08:43
	22:11		21:25	31	20:10 (17)	20:14		18:59			16:51	16:15
9	05:15		06:02		19:38 (17)	06:58		07:53			07:53	08:45
	22:10		21:23	33	20:11 (17)	20:11		18:56			16:49	16:14
10	05:16		06:04		19:38 (17)	07:00	18:19 (18)	07:55			07:55	08:46
	22:09		21:21	34	20:12 (17)	20:09	7 18:26 (18)	18:54			16:47	16:14
11	05:17		06:06		19:36 (17)	07:02	18:14 (18)	07:57			07:57	08:47
	22:08		21:19	36	20:12 (17)	20:06	17 18:31 (18)	18:51			16:45	16:14
12	05:18		06:07		19:36 (17)	07:03	18:10 (18)	07:58			07:59	08:48
	22:07		21:17	36	20:12 (17)	20:04	22 18:32 (18)	18:49			16:44	16:14
13	05:19		06:09		19:36 (17)	07:05	18:08 (18)	08:00			08:01	08:49
	22:06		21:15	37	20:13 (17)	20:01	26 18:34 (18)	18:47			16:42	16:13
14	05:21		06:11		19:35 (17)	07:07	18:06 (18)	08:02			08:03	08:50
	22:05		21:13	37	20:12 (17)	19:59	29 18:35 (18)	18:44			16:40	16:13
15	05:22		06:13		19:35 (17)	07:09	18:04 (18)	08:04			08:05	08:51
	22:04		21:10	38	20:13 (17)	19:56	32 18:36 (18)	18:42			16:39	16:13
16	05:23		06:15		19:35 (17)	07:11	18:02 (18)	08:06			08:07	08:52
	22:03		21:08	38	20:13 (17)	19:54	34 18:36 (18)	18:40			16:37	16:13
17	05:25		06:16		19:35 (17)	07:12	18:01 (18)	08:08			08:09	08:53
	22:02		21:06	38	20:13 (17)	19:51	36 18:37 (18)	18:37			16:36	16:14
18	05:26		06:18		19:34 (17)	07:14	18:00 (18)	08:10			08:11	08:54
	22:01		21:04	38	20:12 (17)	19:49	37 18:37 (18)	18:35			16:34	16:14
19	05:27		06:20		19:34 (17)	07:16	17:59 (18)	08:12			08:12	08:55
	21:59		21:01	38	20:12 (17)	19:46	39 18:38 (18)	18:33			16:33	16:14
20	05:29		06:22		19:34 (17)	07:18	17:58 (18)	08:14			08:14	08:55
	21:58		20:59	37	20:11 (17)	19:44	39 18:37 (18)	18:30			16:31	16:14
21	05:30		06:24		19:34 (17)	07:20	17:57 (18)	08:16			08:16	08:56
	21:57		20:57	36	20:10 (17)	19:41	40 18:37 (18)	18:28			16:30	16:15
22	05:32		06:25		19:35 (17)	07:21	17:57 (18)	08:18			08:18	08:56
	21:55		20:55	34	20:09 (17)	19:39	40 18:37 (18)	18:26			16:29	16:15
23	05:33		06:27		19:35 (17)	07:23	17:57 (18)	08:20			08:20	08:57
	21:54		20:52	34	20:09 (17)	19:36	40 18:37 (18)	18:24			16:27	16:16
24	05:35		06:29		19:35 (17)	07:25	17:57 (18)	08:22			08:22	08:57
	21:52		20:50	32	20:07 (17)	19:33	40 18:37 (18)	18:21			16:26	16:16
25	05:37		06:31		19:36 (17)	07:27	17:56 (18)	07:24			08:23	08:58
	21:51		20:48	30	20:06 (17)	19:31	39 18:35 (18)	17:19			16:25	16:17
26	05:38		06:33		19:37 (17)	07:29	17:56 (18)	07:26			08:25	08:58
	21:49		20:45	28	20:05 (17)	19:28	39 18:35 (18)	17:17			16:24	16:18
27	05:40		06:35		19:39 (17)	07:31	17:56 (18)	07:27			08:27	08:58
	21:47		20:43	24	20:03 (17)	19:26	38 18:34 (18)	17:15			16:23	16:19
28	05:41		06:36		19:40 (17)	07:32	17:57 (18)	07:29			08:29	08:58
	21:46		20:40	20	20:00 (17)	19:23	36 18:33 (18)	17:13			16:22	16:19
29	05:43		06:38		19:42 (17)	07:34	17:57 (18)	07:31			08:30	08:58
	21:44		20:38	15	19:57 (17)	19:21	35 18:32 (18)	17:11			16:21	16:20
30	05:45		06:40		19:48 (17)	07:36	17:58 (18)	07:33			08:32	08:58
	21:42		20:36	4	19:52 (17)	19:18	33 18:31 (18)	17:08			16:20	16:21
31	05:46		06:42					07:35				08:58
	21:40		20:33					17:06				16:22
Potential sun hours	515		461			383		327			257	230
Total, worst case				882			698		112			
Sun reduction				0.27			0.29		0.23			
Oper. time red.				1.00			1.00		1.00			
Wind dir. red.				0.59			0.57		0.57			
Total reduction				0.16			0.17		0.13			
Total, real				142			117		15			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: Z - H26

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April		May	June
1	08:58			08:27		15:51 (18)	07:29		17:17 (17)	07:12		06:02	05:11
	16:24			17:16	35	16:26 (18)	18:13	23	17:40 (17)	20:12		21:09	22:00
2	08:58			08:25		15:51 (18)	07:26		17:14 (17)	07:10		06:00	05:10
	16:25			17:18	36	16:27 (18)	18:15	27	17:41 (17)	20:14		21:11	22:01
3	08:58			08:24		15:51 (18)	07:24		17:13 (17)	07:07		05:58	05:10
	16:26			17:20	36	16:27 (18)	18:17	30	17:43 (17)	20:16		21:13	22:02
4	08:58			08:22		15:51 (18)	07:21		17:11 (17)	07:05		05:56	05:09
	16:27			17:22	36	16:27 (18)	18:19	33	17:44 (17)	20:18		21:14	22:03
5	08:57			08:20		15:51 (18)	07:19		17:10 (17)	07:02		05:54	05:08
	16:28			17:24	36	16:27 (18)	18:21	35	17:45 (17)	20:20		21:16	22:05
6	08:57			08:18		15:51 (18)	07:17		17:09 (17)	07:00		05:52	05:07
	16:30			17:26	36	16:27 (18)	18:23	36	17:45 (17)	20:22		21:18	22:06
7	08:56			08:16		15:51 (18)	07:14		17:08 (17)	06:58		05:50	05:06
	16:31			17:28	36	16:27 (18)	18:24	38	17:46 (17)	20:24		21:20	22:07
8	08:56			08:14		15:52 (18)	07:12		17:07 (17)	06:55		05:48	05:06
	16:33			17:30	35	16:27 (18)	18:26	39	17:46 (17)	20:25		21:22	22:08
9	08:55			08:12		15:51 (18)	07:09		17:07 (17)	06:53		05:46	05:05
	16:34			17:32	35	16:26 (18)	18:28	39	17:46 (17)	20:27		21:23	22:09
10	08:55			08:10		15:52 (18)	07:07		17:06 (17)	06:50		05:44	05:05
	16:36			17:34	34	16:26 (18)	18:30	40	17:46 (17)	20:29		21:25	22:09
11	08:54			08:08		15:53 (18)	07:05		17:06 (17)	06:48		05:42	05:04
	16:37			17:36	32	16:25 (18)	18:32	40	17:46 (17)	20:31		21:27	22:10
12	08:53			08:06		15:54 (18)	07:02		17:05 (17)	06:45		05:40	05:04
	16:39			17:38	31	16:25 (18)	18:34	41	17:46 (17)	20:33		21:29	22:11
13	08:52			08:04		15:55 (18)	07:00		17:06 (17)	06:43		05:38	05:04
	16:40			17:40	29	16:24 (18)	18:36	40	17:46 (17)	20:35		21:31	22:12
14	08:51			08:02		15:57 (18)	06:57		17:05 (17)	06:41		05:37	05:03
	16:42			17:42	26	16:23 (18)	18:38	40	17:45 (17)	20:37		21:32	22:12
15	08:51			08:00		15:57 (18)	06:55		17:06 (17)	06:38		05:35	05:03
	16:44			17:44	24	16:21 (18)	18:40	38	17:44 (17)	20:39		21:34	22:13
16	08:50			07:58		16:00 (18)	06:52		17:06 (17)	06:36		05:33	05:03
	16:45			17:46	19	16:19 (18)	18:42	37	17:43 (17)	20:41		21:36	22:14
17	08:48			07:56		16:03 (18)	06:50		17:07 (17)	06:33		05:32	05:03
	16:47			17:49	14	16:17 (18)	18:44	36	17:43 (17)	20:42		21:37	22:14
18	08:47			07:54		16:09 (18)	06:47		17:07 (17)	06:31		05:30	05:03
	16:49			17:51	3	16:12 (18)	18:46	34	17:41 (17)	20:44		21:39	22:15
19	08:46		16:03 (18)	07:51			06:45		17:08 (17)	06:29		05:28	05:03
	16:51	3	16:06 (18)	17:53			18:48	32	17:40 (17)	20:46		21:41	22:15
20	08:45		16:00 (18)	07:49		17:25 (16)	06:42		17:09 (17)	06:26		05:27	05:03
	16:53	11	16:11 (18)	17:55	1	17:26 (16)	18:50	29	17:38 (17)	20:48		21:42	22:15
21	08:44		15:57 (18)	07:47		17:25 (16)	06:40		17:11 (17)	06:24		05:25	05:03
	16:54	16	16:13 (18)	17:57	3	17:28 (16)	18:51	26	17:37 (17)	20:50		21:44	22:16
22	08:42		15:56 (18)	07:45		17:23 (16)	06:37		17:12 (17)	06:22		05:24	05:03
	16:56	20	16:16 (18)	17:59	7	17:30 (16)	18:53	22	17:34 (17)	20:52		21:46	22:16
23	08:41		15:55 (18)	07:42		17:23 (16)	06:35		17:15 (17)	06:20		05:22	05:03
	16:58	22	16:17 (18)	18:01	9	17:32 (16)	18:55	16	17:31 (17)	20:54		21:47	22:16
24	08:40		15:54 (18)	07:40		17:23 (16)	06:32		17:20 (17)	06:17		05:21	05:04
	17:00	25	16:19 (18)	18:03	12	17:35 (16)	18:57	5	17:25 (17)	20:56		21:49	22:16
25	08:38		15:53 (18)	07:38		17:22 (16)	06:30			06:15		05:20	05:04
	17:02	27	16:20 (18)	18:05	14	17:36 (16)	18:59			20:58		21:50	22:16
26	08:37		15:52 (18)	07:36		17:23 (16)	06:27			06:13		05:18	05:04
	17:04	29	16:21 (18)	18:07	15	17:38 (16)	19:01			20:59		21:52	22:16
27	08:35		15:52 (18)	07:33		17:23 (16)	06:25			06:11		05:17	05:05
	17:06	31	16:23 (18)	18:09	13	17:36 (16)	19:03			21:01		21:53	22:16
28	08:34		15:52 (18)	07:31		17:19 (17)	06:22			06:08		05:16	05:05
	17:08	31	16:23 (18)	18:11	18	17:37 (17)	19:05			21:03		21:55	22:16
29	08:32		15:51 (18)				07:20			06:06		05:15	05:06
	17:10	33	16:24 (18)				20:07			21:05		21:56	22:15
30	08:31		15:51 (18)				07:17			06:04		05:14	05:07
	17:12	33	16:24 (18)				20:08			21:07		21:57	22:15
31	08:29		15:50 (18)				07:15					05:12	
	17:14	35	16:25 (18)				20:10					21:59	
Potential sun hours	248			272			367			421		496	513
Total, worst case		316			625			776					
Sun reduction		0.17			0.22			0.22					
Oper. time red.		1.00			1.00			1.00					
Wind dir. red.		0.61			0.60			0.58					
Total reduction		0.10			0.13			0.13					
Total, real		33			84			101					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: Z - H26

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September			October		November			December
1	05:07	05:48	06:44			07:38		17:45 (17)	07:37		15:22 (18)	08:33
	22:15	21:39	20:31			19:16	40	18:25 (17)	17:04	33	15:55 (18)	16:19
2	05:08	05:50	06:45			07:40		17:44 (17)	07:39		15:21 (18)	08:35
	22:14	21:37	20:28			19:14	40	18:24 (17)	17:02	35	15:56 (18)	16:18
3	05:09	05:52	06:47			07:42		17:44 (17)	07:41		15:20 (18)	08:36
	22:14	21:35	20:26			19:11	40	18:24 (17)	17:00	36	15:56 (18)	16:17
4	05:10	05:53	06:49			07:44		17:44 (17)	07:43		15:21 (18)	08:38
	22:14	21:33	20:24			19:09	40	18:24 (17)	16:58	36	15:57 (18)	16:17
5	05:11	05:55	06:51			07:45		17:44 (17)	07:45		15:21 (18)	08:39
	22:13	21:31	20:21			19:06	39	18:23 (17)	16:56	36	15:57 (18)	16:16
6	05:11	05:57	06:53			07:47		17:44 (17)	07:47		15:20 (18)	08:41
	22:12	21:29	20:19			19:04	38	18:22 (17)	16:54	37	15:57 (18)	16:16
7	05:12	05:59	06:54			07:49		17:45 (17)	07:49		15:20 (18)	08:42
	22:12	21:27	20:16			19:01	37	18:22 (17)	16:53	37	15:57 (18)	16:15
8	05:14	06:00	06:56			07:51		17:45 (17)	07:51		15:20 (18)	08:43
	22:11	21:25	20:14			18:59	36	18:21 (17)	16:51	37	15:57 (18)	16:15
9	05:15	06:02	06:58			07:53		17:46 (17)	07:53		15:21 (18)	08:45
	22:10	21:23	20:11			18:56	33	18:19 (17)	16:49	35	15:56 (18)	16:14
10	05:16	06:04	07:00			07:55		17:47 (17)	07:55		15:22 (18)	08:46
	22:09	21:21	20:09			18:54	31	18:18 (17)	16:47	35	15:57 (18)	16:14
11	05:17	06:06	07:02			07:57		17:48 (17)	07:57		15:22 (18)	08:47
	22:08	21:19	20:06			18:51	29	18:17 (17)	16:45	35	15:57 (18)	16:14
12	05:18	06:07	07:03			07:58		17:49 (17)	07:59		15:23 (18)	08:48
	22:07	21:17	20:04			18:49	26	18:15 (17)	16:44	33	15:56 (18)	16:14
13	05:19	06:09	07:05			08:00		17:51 (17)	08:01		15:23 (18)	08:49
	22:06	21:15	20:01			18:47	21	18:12 (17)	16:42	33	15:56 (18)	16:13
14	05:21	06:11	07:07			08:02		17:54 (17)	08:03		15:24 (18)	08:50
	22:05	21:13	19:59			18:44	15	18:09 (16)	16:40	31	15:55 (18)	16:13
15	05:22	06:13	07:09			08:04		17:56 (16)	08:05		15:24 (18)	08:51
	22:04	21:10	19:56			18:42	14	18:10 (16)	16:39	31	15:55 (18)	16:13
16	05:23	06:15	07:11			08:06		17:55 (16)	08:07		15:25 (18)	08:52
	22:03	21:08	19:54			18:40	15	18:10 (16)	16:37	29	15:54 (18)	16:13
17	05:25	06:16	07:12			08:08		17:54 (16)	08:09		15:27 (18)	08:53
	22:02	21:06	19:51			18:37	14	18:08 (16)	16:36	27	15:54 (18)	16:14
18	05:26	06:18	07:14			08:10		17:54 (16)	08:11		15:28 (18)	08:54
	22:01	21:04	19:49			18:35	11	18:05 (16)	16:34	25	15:53 (18)	16:14
19	05:27	06:20	07:16			08:12		17:54 (16)	08:12		15:30 (18)	08:55
	21:59	21:01	19:46			18:33	9	18:03 (16)	16:33	22	15:52 (18)	16:14
20	05:29	06:22	07:18		18:02 (17)	08:14		17:54 (16)	08:14		15:31 (18)	08:55
	21:58	20:59	19:44	14	18:16 (17)	18:30	6	18:00 (16)	16:31	20	15:51 (18)	16:14
21	05:30	06:24	07:20		17:59 (17)	08:16		17:55 (16)	08:16		15:33 (18)	08:56
	21:57	20:57	19:41	20	18:19 (17)	18:28	3	17:58 (16)	16:30	16	15:49 (18)	16:15
22	05:32	06:25	07:21		17:56 (17)	08:18			08:18		15:36 (18)	08:56
	21:55	20:55	19:39	25	18:21 (17)	18:26			16:29	11	15:47 (18)	16:15
23	05:33	06:27	07:23		17:54 (17)	08:20			08:20		15:40 (18)	08:57
	21:54	20:52	19:36	28	18:22 (17)	18:24			16:27	3	15:43 (18)	16:16
24	05:35	06:29	07:25		17:52 (17)	08:22		16:36 (18)	08:22			08:57
	21:52	20:50	19:34	32	18:24 (17)	18:21	8	16:44 (18)	16:26			16:16
25	05:37	06:31	07:27		17:51 (17)	07:24		15:31 (18)	08:23			08:58
	21:51	20:48	19:31	33	18:24 (17)	17:19	16	15:47 (18)	16:25			16:17
26	05:38	06:33	07:29		17:49 (17)	07:26		15:29 (18)	08:25			08:58
	21:49	20:45	19:28	35	18:24 (17)	17:17	20	15:49 (18)	16:24			16:18
27	05:40	06:35	07:31		17:48 (17)	07:27		15:26 (18)	08:27			08:58
	21:47	20:43	19:26	37	18:25 (17)	17:15	25	15:51 (18)	16:23			16:19
28	05:41	06:36	07:32		17:47 (17)	07:29		15:26 (18)	08:29			08:58
	21:46	20:40	19:23	38	18:25 (17)	17:13	27	15:53 (18)	16:22			16:19
29	05:43	06:38	07:34		17:46 (17)	07:31		15:24 (18)	08:30			08:58
	21:44	20:38	19:21	39	18:25 (17)	17:11	30	15:54 (18)	16:21			16:20
30	05:45	06:40	07:36		17:46 (17)	07:33		15:23 (18)	08:32			08:59
	21:42	20:36	19:18	39	18:25 (17)	17:08	31	15:54 (18)	16:20			16:21
31	05:46	06:42				07:35		15:22 (18)				08:58
	21:40	20:33				17:06	33	15:55 (18)				16:22
Potential sun hours	515	461	383			327			257			230
Total, worst case				340			727			673		
Sun reduction				0.29			0.23			0.20		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.58			0.59			0.61		
Total reduction				0.17			0.14			0.12		
Total, real				58			100			82		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AA - H27

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May	June	July	August	September		October	November	December
1	08:58	08:27	07:29		07:13		19:03 (5)	06:02	05:12	05:08	05:48	06:44		07:38	07:37	08:33
	16:24	17:16	18:13		20:12	22	19:25 (5)	21:09	22:00	22:15	21:39	20:31		19:16	17:04	16:19
2	08:58	08:25	07:26		07:10		19:05 (5)	06:00	05:11	05:08	05:50	06:46		07:40	07:39	08:35
	16:25	17:18	18:15		20:14	18	19:23 (5)	21:11	22:01	22:14	21:37	20:28		19:14	17:02	16:18
3	08:58	08:24	07:24		07:08		19:08 (5)	05:58	05:10	05:09	05:52	06:47		07:42	07:41	08:36
	16:26	17:20	18:17		20:16	13	19:21 (5)	21:13	22:02	22:14	21:35	20:26		19:11	17:00	16:18
4	08:58	08:22	07:22		07:05		19:12 (5)	05:56	05:09	05:10	05:54	06:49		07:44	07:43	08:38
	16:27	17:22	18:19		20:18	3	19:15 (5)	21:14	22:03	22:13	21:33	20:24		19:09	16:59	16:17
5	08:57	08:20	07:19		07:03			05:54	05:08	05:11	05:55	06:51		07:45	07:45	08:39
	16:29	17:24	18:21		20:20			21:16	22:05	22:13	21:31	20:21		19:06	16:57	16:16
6	08:57	08:18	07:17		07:00			05:52	05:07	05:12	05:57	06:53		07:47	07:47	08:41
	16:30	17:26	18:23		20:22			21:18	22:06	22:12	21:29	20:19		19:04	16:55	16:16
7	08:56	08:16	07:14		06:58			05:50	05:07	05:13	05:59	06:55		07:49	07:49	08:42
	16:31	17:28	18:25		20:24			21:20	22:07	22:12	21:27	20:16		19:01	16:53	16:15
8	08:56	08:14	07:12		06:55			05:48	05:06	05:14	06:01	06:56		07:51	07:51	08:43
	16:33	17:30	18:27		20:26			21:22	22:08	22:11	21:25	20:14		18:59	16:51	16:15
9	08:55	08:12	07:09		06:53			05:46	05:06	05:15	06:02	06:58	19:01 (5)	07:53	07:53	08:45
	16:34	17:32	18:29		20:27			21:23	22:09	22:10	21:23	20:11	13 19:14 (5)	18:56	16:49	16:15
10	08:55	08:10	07:07		06:50			05:44	05:05	05:16	06:04	07:00	18:59 (5)	07:55	07:55	08:46
	16:36	17:34	18:30		20:29			21:25	22:09	22:09	21:21	20:09	17 19:16 (5)	18:54	16:47	16:14
11	08:54	08:08	07:05		06:48			05:42	05:05	05:17	06:06	07:02	18:57 (5)	07:57	07:57	08:47
	16:37	17:36	18:32		20:31			21:27	22:10	22:08	21:19	20:06	21 19:18 (5)	18:52	16:46	16:14
12	08:53	08:06	07:02		06:46			05:41	05:04	05:18	06:08	07:04	18:54 (5)	07:59	07:59	08:48
	16:39	17:39	18:34		20:33			21:29	22:11	22:07	21:17	20:04	24 19:18 (5)	18:49	16:44	16:14
13	08:52	08:04	07:00		06:43			05:39	05:04	05:20	06:09	07:05	18:53 (5)	08:00	08:01	08:49
	16:41	17:41	18:36		20:35			21:31	22:12	22:06	21:15	20:01	26 19:19 (5)	18:47	16:42	16:14
14	08:51	08:02	06:57	18:10 (6)	06:41			05:37	05:04	05:21	06:11	07:07	18:52 (5)	08:02	08:03	08:50
	16:42	17:43	18:38	1 18:11 (6)	20:37			21:32	22:12	22:05	21:13	19:59	28 19:20 (5)	18:44	16:40	16:14
15	08:50	08:00	06:55	18:08 (6)	06:38			05:35	05:03	05:22	06:13	07:09	18:51 (5)	08:04	08:05	08:51
	16:44	17:45	18:40	5 18:13 (6)	20:39			21:34	22:13	22:04	21:10	19:56	29 19:20 (5)	18:42	16:39	16:14
16	08:49	07:58	06:52	18:06 (6)	06:36			05:33	05:03	05:23	06:15	07:11	18:50 (5)	08:06	08:07	08:52
	16:46	17:47	18:42	9 18:15 (6)	20:41			21:36	22:14	22:03	21:08	19:54	29 19:19 (5)	18:40	16:37	16:14
17	08:48	07:56	06:50	18:05 (6)	06:34			05:32	05:03	05:25	06:17	07:13	18:50 (5)	08:08	08:09	08:53
	16:47	17:49	18:44	12 18:17 (6)	20:43			21:37	22:14	22:02	21:06	19:51	29 19:19 (5)	18:37	16:36	16:14
18	08:47	07:54	06:47	18:04 (6)	06:31			05:30	05:03	05:26	06:18	07:14	18:49 (5)	08:10	08:11	08:54
	16:49	17:51	18:46	15 18:19 (6)	20:44			21:39	22:14	22:01	21:04	19:49	30 19:19 (5)	18:35	16:34	16:14
19	08:46	07:51	06:45	18:04 (6)	06:29			05:29	05:03	05:28	06:20	07:16	18:49 (5)	08:12	08:12	08:54
	16:51	17:53	18:48	17 18:21 (6)	20:46			21:41	22:15	21:59	21:01	19:46	29 19:18 (5)	18:33	16:33	16:14
20	08:45	07:49	06:42	18:03 (6)	06:27			05:27	05:03	05:29	06:22	07:18	18:49 (5)	08:14	08:14	08:55
	16:53	17:55	18:50	19 18:22 (6)	20:48			21:42	22:15	21:58	20:59	19:44	27 19:16 (5)	18:31	16:31	16:15
21	08:44	07:47	06:40	18:03 (6)	06:24			05:26	05:03	05:31	06:24	07:20	18:48 (6)	08:16	08:16	08:56
	16:55	17:57	18:52	22 18:25 (6)	20:50			21:44	22:15	21:56	20:57	19:41	24 19:12 (5)	18:28	16:30	16:15
22	08:42	07:45	06:37	18:03 (6)	06:22			05:24	05:03	05:32	06:26	07:22	18:48 (6)	08:18	08:18	08:56
	16:57	17:59	18:53	23 18:26 (5)	20:52			21:46	22:16	21:55	20:55	19:39	22 19:10 (6)	18:26	16:29	16:16
23	08:41	07:43	06:35	18:03 (5)	06:20			05:23	05:04	05:34	06:27	07:23	18:48 (6)	08:20	08:20	08:57
	16:58	18:01	18:55	26 18:29 (5)	20:54			21:47	22:16	21:54	20:52	19:36	20 19:08 (6)	18:24	16:28	16:16
24	08:40	07:40	06:32	18:02 (5)	06:18			05:21	05:04	05:35	06:29	07:25	18:47 (6)	08:22	08:22	08:57
	17:00	18:03	18:57	28 18:30 (5)	20:56			21:49	22:16	21:52	20:50	19:34	18 19:05 (6)	18:22	16:26	16:17
25	08:38	07:38	06:30	18:02 (5)	06:15			05:20	05:04	05:37	06:31	07:27	18:48 (6)	07:24	08:23	08:58
	17:02	18:05	18:59	30 18:32 (5)	20:58			21:50	22:16	21:51	20:48	19:31	15 19:03 (6)	17:19	16:25	16:17
26	08:37	07:36	06:27	18:01 (5)	06:13			05:19	05:05	05:38	06:33	07:29	18:47 (6)	07:26	08:25	08:58
	17:04	18:07	19:01	30 18:31 (5)	20:59			21:52	22:16	21:49	20:45	19:29	13 19:00 (6)	17:17	16:24	16:18
27	08:35	07:33	06:25	18:01 (5)	06:11			05:17	05:05	05:40	06:35	07:31	18:47 (6)	07:28	08:27	08:58
	17:06	18:09	19:03	30 18:31 (5)	21:01			21:53	22:16	21:47	20:43	19:26	10 18:57 (6)	17:15	16:23	16:19
28	08:34	07:31	06:22	18:01 (5)	06:09			05:16	05:06	05:42	06:37	07:33	18:48 (6)	07:29	08:28	08:58
	17:08	18:11	19:05	29 18:30 (5)	21:03			21:55	22:16	21:46	20:41	19:24	7 18:55 (6)	17:13	16:22	16:20
29	08:32		07:20	19:02 (5)	06:07			05:15	05:06	05:43	06:38	07:34	18:50 (6)	07:31	08:30	08:58
	17:10		20:07	27 19:29 (5)	21:05			21:56	22:15	21:44	20:38	19:21	3 18:53 (6)	17:11	16:21	16:21
30	08:31		07:17	19:02 (5)	06:04			05:14	05:07	05:45	06:40	07:36		07:33	08:32	08:58
	17:12		20:09	26 19:28 (5)	21:07			21:57	22:15	21:42	20:36	19:19		17:09	16:20	16:21
31	08:29		07:15	19:03 (5)				05:13		05:47	06:42			07:35		08:58
	17:14		20:10	24 19:27 (5)				21:59		21:40	20:33			17:07		16:23
Potential sun hours	248	272	367		421			496	513	515	461	382		328	257	231
Total, worst case				373		56							434			
Sun reduction				0.22		0.34							0.29			
Oper. time red.				1.00		1.00							1.00			
Wind dir. red.				0.58		0.58							0.58			
Total reduction				0.13		0.20							0.17			
Total, real				49		11							74			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AB - H28

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April	May	June	July	August	September		October	November	December
1	08:58	08:27	07:29		07:12	06:02	05:12	05:08	05:48	06:44		07:38	07:37	08:33
	16:24	17:16	18:13		20:12	21:09	22:00	22:15	21:39	20:31		19:16	17:04	16:19
2	08:58	08:25	07:26		07:10	06:00	05:11	05:08	05:50	06:46		07:40	07:39	08:35
	16:25	17:18	18:15		20:14	21:11	22:01	22:14	21:37	20:28		19:14	17:02	16:18
3	08:58	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:47		07:42	07:41	08:36
	16:26	17:20	18:17		20:16	21:12	22:02	22:14	21:35	20:26		19:11	17:00	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:53	06:49		07:44	07:43	08:38
	16:27	17:22	18:19		20:18	21:14	22:03	22:13	21:33	20:24		19:09	16:58	16:17
5	08:57	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51		07:45	07:45	08:39
	16:29	17:24	18:21		20:20	21:16	22:05	22:13	21:31	20:21		19:06	16:57	16:16
6	08:57	08:18	07:17		07:00	05:52	05:07	05:12	05:57	06:53		07:47	07:47	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19		19:04	16:55	16:16
7	08:56	08:16	07:14		06:58	05:50	05:07	05:13	05:59	06:55		07:49	07:49	08:42
	16:31	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16		19:01	16:53	16:15
8	08:56	08:14	07:12		06:55	05:48	05:06	05:14	06:01	06:56		07:51	07:51	08:43
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14		18:59	16:51	16:15
9	08:55	08:12	07:09		06:53	05:46	05:06	05:15	06:02	06:58		07:53	07:53	08:45
	16:34	17:32	18:29		20:27	21:23	22:08	22:10	21:23	20:11		18:56	16:49	16:15
10	08:55	08:10	07:07		06:50	05:44	05:05	05:16	06:04	07:00		07:55	07:55	08:46
	16:36	17:34	18:30		20:29	21:25	22:09	22:09	21:21	20:09		18:54	16:47	16:14
11	08:54	08:08	07:05		06:48	05:42	05:05	05:17	06:06	07:02		07:57	07:57	08:47
	16:37	17:36	18:32		20:31	21:27	22:10	22:08	21:19	20:06		18:52	16:46	16:14
12	08:53	08:06	07:02		06:46	05:40	05:04	05:18	06:08	07:04		07:59	07:59	08:48
	16:39	17:38	18:34		20:33	21:29	22:11	22:07	21:17	20:04		18:49	16:44	16:14
13	08:52	08:04	07:00		06:43	05:39	05:04	05:20	06:09	07:05	19:03 (5)	08:00	08:01	08:49
	16:41	17:41	18:36		20:35	21:31	22:12	22:06	21:15	20:01	7 19:10 (5)	18:47	16:42	16:14
14	08:51	08:02	06:57		06:41	05:37	05:04	05:21	06:11	07:07	19:00 (5)	08:02	08:03	08:50
	16:42	17:43	18:38		20:37	21:32	22:12	22:05	21:13	19:59	13 19:13 (5)	18:44	16:40	16:14
15	08:50	08:00	06:55	18:10 (6)	06:38	05:35	05:03	05:22	06:13	07:09	18:58 (5)	08:04	08:05	08:51
	16:44	17:45	18:40	3 18:13 (6)	20:39	21:34	22:13	22:04	21:10	19:56	17 19:15 (5)	18:42	16:39	16:14
16	08:49	07:58	06:52	18:08 (6)	06:36	05:33	05:03	05:23	06:15	07:11	18:55 (5)	08:06	08:07	08:52
	16:46	17:47	18:42	7 18:15 (6)	20:41	21:36	22:14	22:03	21:08	19:54	20 19:15 (5)	18:40	16:37	16:14
17	08:48	07:56	06:50	18:08 (6)	06:34	05:32	05:03	05:25	06:17	07:13	18:54 (5)	08:08	08:09	08:53
	16:47	17:49	18:44	9 18:17 (6)	20:43	21:37	22:14	22:02	21:06	19:51	21 19:15 (5)	18:37	16:36	16:14
18	08:47	07:54	06:47	18:06 (6)	06:31	05:30	05:03	05:26	06:18	07:14	18:53 (5)	08:10	08:11	08:54
	16:49	17:51	18:46	13 18:19 (6)	20:44	21:39	22:14	22:01	21:04	19:49	23 19:16 (5)	18:35	16:34	16:14
19	08:46	07:51	06:45	18:06 (6)	06:29	05:29	05:03	05:28	06:20	07:16	18:53 (5)	08:12	08:12	08:54
	16:51	17:53	18:48	15 18:21 (6)	20:46	21:41	22:15	21:59	21:01	19:46	23 19:16 (5)	18:33	16:33	16:14
20	08:45	07:49	06:42	18:06 (6)	06:27	05:27	05:03	05:29	06:22	07:18	18:53 (5)	08:14	08:14	08:55
	16:53	17:55	18:50	16 18:22 (6)	20:48	21:42	22:15	21:58	20:59	19:44	23 19:16 (5)	18:31	16:31	16:15
21	08:44	07:47	06:40	18:06 (6)	06:24	05:26	05:03	05:31	06:24	07:20	18:51 (5)	08:16	08:16	08:56
	16:55	17:57	18:52	19 18:25 (6)	20:50	21:44	22:15	21:56	20:57	19:41	21 19:12 (5)	18:28	16:30	16:15
22	08:42	07:45	06:37	18:06 (6)	06:22	05:24	05:03	05:32	06:26	07:22	18:51 (6)	08:18	08:18	08:56
	16:56	17:59	18:53	20 18:26 (5)	20:52	21:46	22:16	21:55	20:55	19:39	19 19:10 (5)	18:26	16:29	16:16
23	08:41	07:43	06:35	18:06 (5)	06:20	05:23	05:04	05:34	06:27	07:23	18:51 (6)	08:20	08:20	08:57
	16:58	18:01	18:55	23 18:29 (5)	20:54	21:47	22:16	21:54	20:52	19:36	17 19:08 (6)	18:24	16:28	16:16
24	08:40	07:40	06:32	18:05 (5)	06:18	05:21	05:04	05:35	06:29	07:25	18:50 (6)	08:22	08:22	08:57
	17:00	18:03	18:57	24 18:29 (5)	20:56	21:49	22:16	21:52	20:50	19:34	15 19:05 (6)	18:22	16:26	16:17
25	08:38	07:38	06:30	18:06 (5)	06:15	05:20	05:04	05:37	06:31	07:27	18:50 (6)	07:24	08:23	08:58
	17:02	18:05	18:59	22 18:28 (5)	20:58	21:50	22:16	21:50	20:48	19:31	13 19:03 (6)	17:19	16:25	16:17
26	08:37	07:36	06:27	18:06 (5)	06:13	05:19	05:05	05:38	06:33	07:29	18:49 (6)	07:26	08:25	08:58
	17:04	18:07	19:01	21 18:27 (5)	20:59	21:52	22:16	21:49	20:45	19:29	11 19:00 (6)	17:17	16:24	16:18
27	08:35	07:33	06:25	18:07 (5)	06:11	05:17	05:05	05:40	06:35	07:31	18:50 (6)	07:28	08:27	08:58
	17:06	18:09	19:03	19 18:26 (5)	21:01	21:53	22:16	21:47	20:43	19:26	7 18:57 (6)	17:15	16:23	16:19
28	08:34	07:31	06:22	18:07 (5)	06:09	05:16	05:06	05:42	06:37	07:33	18:50 (6)	07:29	08:28	08:58
	17:08	18:11	19:05	17 18:24 (5)	21:03	21:54	22:16	21:46	20:41	19:24	5 18:55 (6)	17:13	16:22	16:20
29	08:32		07:20	19:09 (5)	06:07	05:15	05:06	05:43	06:38	07:34	18:52 (6)	07:31	08:30	08:58
	17:10		20:07	14 19:23 (5)	21:05	21:56	22:15	21:44	20:38	19:21	1 18:53 (6)	17:11	16:21	16:21
30	08:31		07:17	19:11 (5)	06:04	05:14	05:07	05:45	06:40	07:36		07:33	08:32	08:58
	17:12		20:09	8 19:19 (5)	21:07	21:57	22:15	21:42	20:36	19:19		17:09	16:20	16:21
31	08:29		07:15			05:13		05:47	06:42			07:35		08:58
	17:14		20:10			21:59		21:40	20:33			17:07		16:22
Potential sun hours	248	272	367		421	496	513	515	461	382		328	257	231
Total, worst case				250							256			
Sun reduction				0.22							0.29			
Oper. time red.				1.00							1.00			
Wind dir. red.				0.58							0.58			
Total reduction				0.13							0.17			
Total, real				33							43			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AC - H29

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April			May			June		
1	08:58	08:27		07:29		17:11 (11)	07:12			06:02			05:12		20:58 (16)
	16:24	17:16		18:13	19	17:30 (11)	20:12			21:09			22:00	25	21:23 (16)
2	08:58	08:25		07:26		17:12 (11)	07:10			06:00			05:11		20:58 (16)
	16:25	17:18		18:15	16	17:28 (11)	20:14			21:11			22:01	25	21:23 (16)
3	08:58	08:24		07:24		17:15 (11)	07:07			05:58			05:10		20:57 (16)
	16:26	17:20		18:17	11	17:26 (11)	20:16			21:13			22:02	27	21:24 (16)
4	08:58	08:22		07:22			07:05			05:56		20:36 (15)	05:09		20:58 (16)
	16:27	17:22		18:19			20:18			21:14	7	20:43 (15)	22:03	27	21:25 (16)
5	08:57	08:20		07:19			07:03			05:54		20:34 (15)	05:08		20:57 (16)
	16:29	17:24		18:21			20:20			21:16	11	20:45 (15)	22:05	28	21:25 (16)
6	08:57	08:18		07:17			07:00			05:52		20:33 (15)	05:07		20:57 (16)
	16:30	17:26		18:23			20:22			21:18	14	20:47 (15)	22:06	28	21:25 (16)
7	08:56	08:16		07:14			06:58			05:50		20:32 (15)	05:07		20:57 (16)
	16:31	17:28		18:25			20:24			21:20	17	20:49 (14)	22:07	29	21:26 (16)
8	08:56	08:14		07:12		17:56 (12)	06:55		19:51 (13)	05:48		20:31 (15)	05:06		20:57 (16)
	16:33	17:30		18:26	3	17:59 (12)	20:26	7	19:58 (13)	21:22	19	20:50 (14)	22:08	29	21:26 (16)
9	08:55	08:12		07:09		17:52 (12)	06:53		19:49 (13)	05:46		20:30 (15)	05:05		20:57 (16)
	16:34	17:32		18:28	9	18:01 (12)	20:27	11	20:00 (13)	21:23	22	20:52 (14)	22:09	29	21:26 (16)
10	08:55	08:10		07:07		17:50 (12)	06:50		19:48 (13)	05:44		20:29 (15)	05:05		20:57 (16)
	16:36	17:34		18:30	13	18:03 (12)	20:29	14	20:02 (13)	21:25	24	20:53 (14)	22:09	29	21:26 (16)
11	08:54	08:08		07:05		17:48 (12)	06:48		19:46 (13)	05:42		20:30 (15)	05:04		20:57 (16)
	16:37	17:36		18:32	17	18:05 (12)	20:31	17	20:03 (13)	21:27	24	20:54 (14)	22:10	30	21:27 (16)
12	08:53	08:06		07:02		17:47 (12)	06:45		19:45 (13)	05:40		20:29 (15)	05:04		20:58 (16)
	16:39	17:38		18:34	20	18:07 (12)	20:33	20	20:05 (13)	21:29	25	20:54 (14)	22:11	29	21:27 (16)
13	08:52	08:04		07:00		17:46 (12)	06:43		19:44 (13)	05:39		20:29 (15)	05:04		20:58 (16)
	16:40	17:40		18:36	23	18:09 (12)	20:35	22	20:06 (13)	21:31	25	20:54 (14)	22:12	30	21:28 (16)
14	08:51	08:02		06:57		17:45 (12)	06:41		19:43 (13)	05:37		20:29 (15)	05:03		20:57 (16)
	16:42	17:42		18:38	25	18:10 (12)	20:37	23	20:06 (13)	21:32	26	20:55 (14)	22:12	30	21:27 (16)
15	08:51	08:00		06:55		17:45 (12)	06:38		19:43 (13)	05:35		20:29 (15)	05:03		20:58 (16)
	16:44	17:45		18:40	25	18:10 (12)	20:39	23	20:06 (13)	21:34	25	20:54 (14)	22:13	30	21:28 (16)
16	08:50	07:58		06:52		17:44 (12)	06:36		19:43 (13)	05:33		20:30 (15)	05:03		20:58 (16)
	16:45	17:47		18:42	26	18:10 (12)	20:41	22	20:05 (13)	21:36	25	20:55 (14)	22:14	30	21:28 (16)
17	08:48	07:56	17:17 (11)	06:50		17:44 (12)	06:34		19:43 (13)	05:32		20:30 (15)	05:03		20:58 (16)
	16:47	17:49	2 17:19 (11)	18:44	26	18:10 (12)	20:43	22	20:05 (13)	21:37	24	20:54 (14)	22:14	30	21:28 (16)
18	08:47	07:54	17:15 (11)	06:47		17:44 (12)	06:31		19:44 (13)	05:30		20:31 (15)	05:03		20:58 (16)
	16:49	17:51	7 17:22 (11)	18:46	25	18:09 (12)	20:44	21	20:05 (13)	21:39	23	20:54 (14)	22:15	31	21:29 (16)
19	08:46	07:51	17:13 (11)	06:45		17:44 (12)	06:29		19:44 (13)	05:28		20:31 (15)	05:03		20:58 (16)
	16:51	17:53	10 17:23 (11)	18:48	24	18:08 (12)	20:46	20	20:04 (13)	21:41	22	20:53 (14)	22:15	31	21:29 (16)
20	08:45	07:49	17:12 (11)	06:42		17:44 (12)	06:27		19:44 (13)	05:27		20:32 (15)	05:03		20:59 (16)
	16:53	17:55	14 17:26 (11)	18:50	23	18:07 (12)	20:48	18	20:02 (13)	21:42	21	20:53 (14)	22:15	30	21:29 (16)
21	08:44	07:47	17:11 (11)	06:40		17:46 (12)	06:24		19:46 (13)	05:25		20:33 (15)	05:03		21:00 (16)
	16:54	17:57	17 17:28 (11)	18:51	20	18:06 (12)	20:50	14	20:00 (13)	21:44	19	20:52 (14)	22:15	30	21:30 (16)
22	08:42	07:45	17:10 (11)	06:37		17:47 (12)	06:22		19:48 (13)	05:24		20:33 (15)	05:03		21:00 (16)
	16:56	17:59	20 17:30 (11)	18:53	17	18:04 (12)	20:52	10	19:58 (13)	21:46	17	20:50 (14)	22:16	30	21:30 (16)
23	08:41	07:43	17:10 (11)	06:35		17:49 (12)	06:20			05:22		20:35 (15)	05:03		21:00 (16)
	16:58	18:01	22 17:32 (11)	18:55	13	18:02 (12)	20:54			21:47	19	21:12 (16)	22:16	30	21:30 (16)
24	08:40	07:40	17:10 (11)	06:32		17:52 (12)	06:17			05:21		20:36 (15)	05:04		20:59 (16)
	17:00	18:03	23 17:33 (11)	18:57	5	17:57 (12)	20:56			21:49	21	21:15 (16)	22:16	31	21:30 (16)
25	08:38	07:38	17:09 (11)	06:30			06:15			05:20		20:39 (15)	05:04		21:00 (16)
	17:02	18:05	23 17:32 (11)	18:59			20:58			21:50	18	21:16 (16)	22:16	30	21:30 (16)
26	08:37	07:36	17:09 (11)	06:27			06:13			05:18		21:02 (16)	05:04		21:00 (16)
	17:04	18:07	23 17:32 (11)	19:01			20:59			21:52	16	21:18 (16)	22:16	30	21:30 (16)
27	08:35	07:33	17:09 (11)	06:25			06:11			05:17		21:01 (16)	05:05		21:01 (16)
	17:06	18:09	22 17:31 (11)	19:03			21:01			21:53	18	21:19 (16)	22:16	30	21:31 (16)
28	08:34	07:31	17:10 (11)	06:22			06:09			05:16		20:59 (16)	05:05		21:01 (16)
	17:08	18:11	21 17:31 (11)	19:05			21:03			21:55	21	21:20 (16)	22:16	30	21:31 (16)
29	08:32			07:20			06:06			05:15		20:58 (16)	05:06		21:01 (16)
	17:10			20:07			21:05			21:56	22	21:20 (16)	22:15	30	21:31 (16)
30	08:31			07:17			06:04			05:14		20:59 (16)	05:07		21:01 (16)
	17:12			20:09			21:07			21:57	23	21:22 (16)	22:15	30	21:31 (16)
31	08:29			07:15						05:13		20:58 (16)			
	17:14			20:10						21:59	25	21:23 (16)			
Potential sun hours	248	272		367			421			496			513		
Total, worst case			204		360			264			573			878	
Sun reduction			0.22		0.22			0.34			0.36			0.26	
Oper. time red.			1.00		1.00			1.00			1.00			1.00	
Wind dir. red.			0.58		0.57			0.59			0.62			0.63	
Total reduction			0.13		0.13			0.20			0.23			0.16	
Total, real			26		46			53			129			142	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Project:
6289 Tirawley WF

Description:
18 no. turbine windfarm at Tirawley, Co. Mayo

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com
Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AC - H29

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November	December		
1	05:07		21:01 (16)	05:48		20:40 (15)	06:44		19:45 (13)	07:38		18:26 (12)	07:37	08:33		
	22:15	30	21:31 (16)	21:39	25	21:05 (14)	20:31	17	20:02 (13)	19:16	22	18:48 (12)	17:04	16:19		
2	05:08		21:02 (16)	05:50		20:40 (15)	06:45		19:46 (13)	07:40		18:26 (12)	07:39	08:35		
	22:14	29	21:31 (16)	21:37	25	21:05 (14)	20:28	14	20:00 (13)	19:14	18	18:44 (12)	17:02	16:18		
3	05:09		21:03 (16)	05:52		20:40 (15)	06:47		19:47 (13)	07:42		18:27 (12)	07:41	08:36		
	22:14	29	21:32 (16)	21:35	23	21:03 (14)	20:26	11	19:58 (13)	19:11	15	18:42 (12)	17:00	16:18		
4	05:10		21:02 (16)	05:53		20:41 (15)	06:49		19:48 (13)	07:44		18:28 (12)	07:43	08:38		
	22:14	29	21:31 (16)	21:33	21	21:02 (14)	20:24	7	19:55 (13)	19:09	11	18:39 (12)	16:58	16:17		
5	05:11		21:03 (16)	05:55		20:42 (15)	06:51			07:45		18:31 (12)	07:45	08:39		
	22:13	28	21:31 (16)	21:31	18	21:00 (14)	20:21			19:06	6	18:37 (12)	16:56	16:16		
6	05:12		21:03 (16)	05:57		20:42 (15)	06:53			07:47			07:47	08:41		
	22:12	28	21:31 (16)	21:29	16	20:58 (14)	20:19			19:04			16:55	16:16		
7	05:13		21:04 (16)	05:59		20:43 (15)	06:54			07:49			07:49	08:42		
	22:12	27	21:31 (16)	21:27	13	20:56 (15)	20:16			19:01			16:53	16:15		
8	05:14		21:04 (16)	06:00		20:44 (15)	06:56			07:51			07:51	08:43		
	22:11	27	21:31 (16)	21:25	10	20:54 (15)	20:14			18:59			16:51	16:15		
9	05:15		21:04 (16)	06:02		20:47 (15)	06:58			07:53			07:53	08:45		
	22:10	27	21:31 (16)	21:23	5	20:52 (15)	20:11			18:56			16:49	16:14		
10	05:16		21:05 (16)	06:04			07:00			07:55		17:51 (11)	07:55	08:46		
	22:09	26	21:31 (16)	21:21			20:09			18:54	7	17:58 (11)	16:47	16:14		
11	05:17		21:05 (16)	06:06			07:02			07:57		17:47 (11)	07:57	08:47		
	22:08	26	21:31 (16)	21:19			20:06			18:52	14	18:01 (11)	16:45	16:14		
12	05:18		21:06 (16)	06:08			07:03			07:59		17:45 (11)	07:59	08:48		
	22:07	24	21:30 (16)	21:17			20:04			18:49	17	18:02 (11)	16:44	16:14		
13	05:19		21:06 (16)	06:09			07:05			08:00		17:44 (11)	08:01	08:49		14:58 (10)
	22:06	24	21:30 (16)	21:15			20:01			18:47	19	18:03 (11)	16:42	16:13	4	15:02 (10)
14	05:21		21:08 (16)	06:11			07:07			08:02		17:43 (11)	08:03	08:50		14:57 (10)
	22:05	22	21:30 (16)	21:13			19:59			18:44	21	18:04 (11)	16:40	16:13	6	15:03 (10)
15	05:22		21:08 (16)	06:13			07:09			08:04		17:42 (11)	08:05	08:51		14:57 (10)
	22:04	21	21:29 (16)	21:10			19:56			18:42	22	18:04 (11)	16:39	16:13	8	15:05 (10)
16	05:23		21:09 (16)	06:15			07:11			08:06		17:41 (11)	08:07	08:52		14:57 (10)
	22:03	19	21:28 (16)	21:08			19:54			18:40	23	18:04 (11)	16:37	16:14	9	15:06 (10)
17	05:25		21:10 (16)	06:16			07:13			08:08		17:41 (11)	08:09	08:53		14:57 (10)
	22:02	17	21:27 (16)	21:06			19:51			18:37	23	18:04 (11)	16:36	16:14	10	15:07 (10)
18	05:26		21:12 (16)	06:18			07:14			08:10		17:41 (11)	08:11	08:54		14:57 (10)
	22:01	15	21:27 (16)	21:04			19:49			18:35	23	18:04 (11)	16:34	16:14	10	15:07 (10)
19	05:27		20:47 (15)	06:20			07:16			08:12		17:41 (11)	08:12	08:55		14:57 (10)
	21:59	19	21:25 (16)	21:01			19:46			18:33	22	18:03 (11)	16:33	16:14	11	15:08 (10)
20	05:29		20:45 (15)	06:22		19:57 (13)	07:18		18:36 (12)	08:14		17:41 (11)	08:14	08:55		14:58 (10)
	21:58	19	21:23 (16)	20:59	4	20:01 (13)	19:44	12	18:48 (12)	18:30	19	18:00 (11)	16:31	16:14	11	15:09 (10)
21	05:30		20:45 (15)	06:24		19:52 (13)	07:20		18:33 (12)	08:16		17:42 (11)	08:16	08:56		14:58 (10)
	21:57	15	21:00 (14)	20:57	11	20:03 (13)	19:41	16	18:49 (12)	18:28	16	17:58 (11)	16:30	16:15	11	15:09 (10)
22	05:32		20:43 (15)	06:26		19:50 (13)	07:22		18:31 (12)	08:18		17:42 (11)	08:18	08:56		14:59 (10)
	21:55	18	21:01 (14)	20:55	15	20:05 (13)	19:39	19	18:50 (12)	18:26	13	17:55 (11)	16:29	16:15	11	15:10 (10)
23	05:33		20:43 (15)	06:27		19:49 (13)	07:23		18:29 (12)	08:20		17:43 (11)	08:20	08:57		14:59 (10)
	21:54	20	21:03 (14)	20:52	18	20:07 (13)	19:36	22	18:51 (12)	18:24	10	17:53 (11)	16:27	16:16	11	15:10 (10)
24	05:35		20:42 (15)	06:29		19:48 (13)	07:25		18:28 (12)	08:22		17:45 (11)	08:22	08:57		14:59 (10)
	21:52	21	21:03 (14)	20:50	20	20:08 (13)	19:34	24	18:52 (12)	18:21	6	17:51 (11)	16:26	16:16	11	15:10 (10)
25	05:37		20:41 (15)	06:31		19:46 (13)	07:27		18:28 (12)	07:24			08:23	08:58		15:00 (10)
	21:51	23	21:04 (14)	20:48	21	20:07 (13)	19:31	24	18:52 (12)	17:19			16:25	16:17	11	15:11 (10)
26	05:38		20:41 (15)	06:33		19:46 (13)	07:29		18:26 (12)	07:26			08:25	08:58		15:01 (10)
	21:49	24	21:05 (14)	20:45	22	20:08 (13)	19:29	25	18:51 (12)	17:17			16:24	16:18	10	15:11 (10)
27	05:40		20:40 (15)	06:35		19:45 (13)	07:31		18:26 (12)	07:28			08:27	08:58		15:02 (10)
	21:47	24	21:04 (14)	20:43	23	20:08 (13)	19:26	25	18:51 (12)	17:15			16:23	16:19	9	15:11 (10)
28	05:41		20:40 (15)	06:36		19:44 (13)	07:32		18:25 (12)	07:29			08:29	08:58		15:03 (10)
	21:46	25	21:05 (14)	20:41	23	20:07 (13)	19:24	26	18:51 (12)	17:13			16:22	16:19	8	15:11 (10)
29	05:43		20:39 (15)	06:38		19:44 (13)	07:34		18:26 (12)	07:31			08:30	08:58		15:04 (10)
	21:44	26	21:05 (14)	20:38	23	20:07 (13)	19:21	25	18:51 (12)	17:11			16:21	16:20	6	15:10 (10)
30	05:45		20:40 (15)	06:40		19:45 (13)	07:36		18:26 (12)	07:33			08:32	08:59		15:06 (10)
	21:42	25	21:05 (14)	20:36	22	20:07 (13)	19:19	24	18:50 (12)	17:08			16:20	16:21	4	15:10 (10)
31	05:46		20:40 (15)	06:42		19:45 (13)				07:35				08:58		
	21:40	26	21:06 (14)	20:33	20	20:05 (13)				17:06				16:22		
Potential sun hours	515			461			383			328			257	231		
Total, worst case		733			378			291			327				161	
Sun reduction		0.27			0.27			0.29			0.23				0.12	
Oper. time red.		1.00			1.00			1.00			1.00				1.00	
Wind dir. red.		0.63			0.60			0.57			0.58				0.64	
Total reduction		0.17			0.16			0.17			0.14				0.08	
Total, real		122			62			49			44				12	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AD - H30

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May			June	
1	08:59			08:27		09:00 (11)	07:29			07:13			06:02		06:35 (15)	05:12	
	16:24			17:16	15	09:15 (11)	18:13			20:12			21:09	28	07:03 (15)	22:00	
2	08:58			08:26		09:02 (11)	07:26			07:10			06:00		06:35 (15)	05:11	
	16:25			17:18	12	09:14 (11)	18:15			20:14			21:11	27	07:02 (15)	22:01	
3	08:58			08:24		09:05 (11)	07:24			07:08			05:58		06:36 (15)	05:10	
	16:26			17:20	6	09:11 (11)	18:17			20:16			21:13	25	07:01 (15)	22:02	
4	08:58			08:22			07:22			07:05			05:56		06:37 (15)	05:09	
	16:27			17:22			18:19			20:18			21:15	23	07:00 (15)	22:04	
5	08:58			08:20			07:19			07:03			05:54		06:39 (15)	05:08	
	16:29			17:24			18:21			20:20			21:16	21	07:00 (15)	22:05	
6	08:57			08:18			07:17			07:00			05:52		06:40 (15)	05:07	
	16:30			17:26			18:23			20:22			21:18	18	06:58 (15)	22:06	
7	08:57			08:16			07:14			06:58			05:50		06:42 (15)	05:07	
	16:31			17:28			18:25			20:24			21:20	14	06:56 (15)	22:07	
8	08:56			08:14			07:12			06:55			05:48		06:44 (15)	05:06	
	16:33			17:30			18:27			20:26			21:22	9	06:53 (15)	22:08	
9	08:55			08:13			07:10			06:53			05:46			05:05	
	16:34			17:32			18:29			20:28			21:24			22:09	
10	08:55			08:11			07:07			06:50		07:15 (16)	05:44			05:05	
	16:36			17:34			18:31			20:29	2	07:17 (16)	21:25			22:10	
11	08:54			08:09			07:05			06:48		07:12 (16)	05:42			05:04	
	16:37			17:36			18:32			20:31	5	07:17 (16)	21:27			22:10	
12	08:53			08:06		08:33 (12)	07:02			06:46		07:10 (16)	05:40			05:04	
	16:39			17:38	1	08:34 (12)	18:34			20:33	7	07:17 (16)	21:29			22:11	
13	08:52			08:04		08:31 (12)	07:00		07:24 (13)	06:43		07:08 (16)	05:39			05:04	
	16:41			17:41	4	08:35 (12)	18:36	1	07:25 (13)	20:35	9	07:17 (16)	21:31			22:12	
14	08:52			08:02		08:29 (12)	06:57		07:22 (13)	06:41		07:05 (16)	05:37			05:03	
	16:42			17:43	7	08:36 (12)	18:38	5	07:27 (13)	20:37	11	07:16 (16)	21:32			22:13	
15	08:51			08:00		08:27 (12)	06:55		07:19 (13)	06:38		07:03 (16)	05:35			05:03	
	16:44			17:45	9	08:36 (12)	18:40	8	07:27 (13)	20:39	13	07:16 (16)	21:34			22:13	
16	08:50			07:58		08:24 (12)	06:52		07:17 (13)	06:36		07:01 (16)	05:33			05:03	
	16:46			17:47	11	08:35 (12)	18:42	12	07:29 (13)	20:41	14	07:15 (16)	21:36			22:14	
17	08:49			07:56		08:22 (12)	06:50		07:14 (13)	06:34		06:58 (16)	05:32			05:03	
	16:47			17:49	13	08:35 (12)	18:44	14	07:28 (13)	20:43	16	07:14 (16)	21:38			22:14	
18	08:47			07:54		08:20 (12)	06:47		07:11 (13)	06:31		06:56 (16)	05:30			05:03	
	16:49			17:51	15	08:35 (12)	18:46	17	07:28 (13)	20:45	16	07:12 (16)	21:39			22:15	
19	08:46			07:52		08:17 (12)	06:45		07:09 (13)	06:29		06:54 (15)	05:29			05:03	
	16:51			17:53	17	08:34 (12)	18:48	20	07:29 (13)	20:46	17	07:11 (16)	21:41			22:15	
20	08:45			07:49		08:15 (12)	06:42		07:06 (13)	06:27		06:52 (15)	05:27			05:03	
	16:53			17:55	19	08:34 (12)	18:50	22	07:28 (13)	20:48	16	07:08 (16)	21:43			22:15	
21	08:44		09:14 (11)	07:47		08:13 (12)	06:40		07:04 (13)	06:24		06:49 (15)	05:25			05:03	
	16:55	2	09:16 (11)	17:57	20	08:33 (12)	18:52	24	07:28 (13)	20:50	16	07:05 (15)	21:44			22:16	
22	08:43		09:13 (11)	07:45		08:13 (12)	06:37		07:01 (13)	06:22		06:47 (15)	05:24			05:03	
	16:56	4	09:17 (11)	17:59	18	08:31 (12)	18:54	26	07:27 (13)	20:52	19	07:06 (15)	21:46			22:16	
23	08:41		09:11 (11)	07:43		08:15 (12)	06:35		06:59 (13)	06:20		06:45 (15)	05:23			05:04	
	16:58	6	09:17 (11)	18:01	14	08:29 (12)	18:55	28	07:27 (13)	20:54	21	07:06 (15)	21:47			22:16	
24	08:40		09:10 (11)	07:40		08:18 (12)	06:32		06:56 (13)	06:18		06:43 (15)	05:21			05:04	
	17:00	8	09:18 (11)	18:03	8	08:26 (12)	18:57	30	07:26 (13)	20:56	24	07:07 (15)	21:49			22:16	
25	08:38		09:08 (11)	07:38			06:30		06:56 (13)	06:15		06:41 (15)	05:20			05:04	
	17:02	10	09:18 (11)	18:05			18:59	29	07:25 (13)	20:58	26	07:07 (15)	21:50			22:16	
26	08:37		09:07 (11)	07:36			06:27		06:56 (13)	06:13		06:39 (15)	05:18			05:05	
	17:04	11	09:18 (11)	18:07			19:01	27	07:23 (13)	21:00	28	07:07 (15)	21:52			22:16	
27	08:35		09:05 (11)	07:33			06:25		06:58 (13)	06:11		06:36 (15)	05:17			05:05	
	17:06	13	09:18 (11)	18:09			19:03	24	07:22 (13)	21:01	29	07:05 (15)	21:53			22:16	
28	08:34		09:03 (11)	07:31			06:22		06:58 (13)	06:09		06:34 (15)	05:16			05:06	
	17:08	15	09:18 (11)	18:11			19:05	22	07:20 (13)	21:03	31	07:05 (15)	21:55			22:16	
29	08:32		09:01 (11)				07:20		08:00 (13)	06:06		06:34 (15)	05:15			05:06	
	17:10	16	09:17 (11)				20:07	18	08:18 (13)	21:05	31	07:05 (15)	21:56			22:16	
30	08:31		08:59 (11)				07:18		08:02 (13)	06:04		06:34 (15)	05:14			05:07	
	17:12	17	09:16 (11)				20:09	12	08:14 (13)	21:07	30	07:04 (15)	21:57			22:15	
31	08:29		08:59 (11)				07:15						05:13				
	17:14	18	09:17 (11)				20:11						21:59				
Potential sun hours	248			272			367			421			496			513	
Total, worst case		120			189			339			381			165			
Sun reduction		0.17			0.22			0.22			0.34			0.36			
Oper. time red.		1.00			1.00			1.00			1.00			1.00			
Wind dir. red.		0.64			0.63			0.59			0.57			0.58			
Total reduction		0.11			0.14			0.13			0.20			0.21			
Total, real		13			26			45			75			34			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AD - H30

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August			September			October			November			December
1	05:08	05:48			06:44		07:11 (16)	07:38			07:38			08:34
	22:15	21:39			20:31	5	07:16 (16)	19:16			17:04			16:19
2	05:08	05:50			06:46		07:13 (16)	07:40			07:40			08:35
	22:15	21:37			20:29	2	07:15 (16)	19:14			17:02			16:18
3	05:09	05:52			06:47			07:42			07:41			08:37
	22:14	21:35			20:26			19:11			17:00			16:18
4	05:10	05:53			06:49			07:44			07:43			08:38
	22:14	21:33			20:24			19:09			16:58			16:17
5	05:11	05:55		06:53 (15)	06:51			07:46			07:45			08:40
	22:13	21:31	11	07:04 (15)	20:21			19:06			16:57			16:16
6	05:12	05:57		06:50 (15)	06:53			07:47			07:47			08:41
	22:12	21:29	16	07:06 (15)	20:19			19:04			16:55			16:16
7	05:13	05:59		06:49 (15)	06:55			07:49			07:49			08:42
	22:12	21:27	19	07:08 (15)	20:16			19:01			16:53			16:15
8	05:14	06:00		06:48 (15)	06:56			07:51			07:51		08:34 (11)	08:44
	22:11	21:25	22	07:10 (15)	20:14			18:59			16:51	7	08:41 (11)	16:15
9	05:15	06:02		06:46 (15)	06:58			07:53			07:53		08:32 (11)	08:45
	22:10	21:23	24	07:10 (15)	20:11			18:57			16:49	13	08:45 (11)	16:14
10	05:16	06:04		06:45 (15)	07:00			07:55			07:55		08:31 (11)	08:46
	22:09	21:21	26	07:11 (15)	20:09			18:54			16:47	15	08:46 (11)	16:14
11	05:17	06:06		06:45 (15)	07:02			07:57			07:57		08:29 (11)	08:47
	22:08	21:19	27	07:12 (15)	20:06			18:52			16:46	18	08:47 (11)	16:14
12	05:18	06:08		06:43 (15)	07:04			07:59			07:59		08:31 (11)	08:48
	22:08	21:17	29	07:12 (15)	20:04			18:49			16:44	17	08:48 (11)	16:14
13	05:20	06:09		06:43 (15)	07:05		07:54 (13)	08:01			08:01		08:33 (11)	08:49
	22:07	21:15	30	07:13 (15)	20:01	11	08:05 (13)	18:47			16:42	16	08:49 (11)	16:14
14	05:21	06:11		06:43 (15)	07:07		07:51 (13)	08:02			08:03		08:35 (11)	08:50
	22:05	21:13	30	07:13 (15)	19:59	17	08:08 (13)	18:45			16:40	15	08:50 (11)	16:14
15	05:22	06:13		06:42 (15)	07:09		07:49 (13)	08:04			08:05		08:38 (11)	08:51
	22:04	21:10	31	07:13 (15)	19:56	21	08:10 (13)	18:42			16:39	13	08:51 (11)	16:14
16	05:23	06:15		06:44 (15)	07:11		07:47 (13)	08:06			08:07		08:40 (11)	08:52
	22:03	21:08	29	07:13 (15)	19:54	25	08:12 (13)	18:40			16:37	11	08:51 (11)	16:14
17	05:25	06:17		06:46 (15)	07:13		07:45 (13)	08:08			08:09		08:42 (11)	08:53
	22:02	21:06	27	07:13 (15)	19:51	27	08:12 (13)	18:37			16:36	10	08:52 (11)	16:14
18	05:26	06:18		06:47 (15)	07:14		07:44 (13)	08:10		08:48 (12)	08:11		08:44 (11)	08:54
	22:01	21:04	25	07:12 (15)	19:49	29	08:13 (13)	18:35	11	08:59 (12)	16:34	8	08:52 (11)	16:14
19	05:28	06:20		06:49 (15)	07:16		07:43 (13)	08:12		08:46 (12)	08:13		08:46 (11)	08:55
	21:59	21:02	23	07:12 (15)	19:46	30	08:13 (13)	18:33	15	09:01 (12)	16:33	6	08:52 (11)	16:14
20	05:29	06:22		06:51 (15)	07:18		07:45 (13)	08:14		08:44 (12)	08:14		08:48 (11)	08:55
	21:58	20:59	21	07:12 (15)	19:44	29	08:14 (13)	18:31	19	09:03 (12)	16:31	4	08:52 (11)	16:15
21	05:31	06:24		06:53 (15)	07:20		07:46 (13)	08:16		08:44 (12)	08:16		08:50 (11)	08:56
	21:57	20:57	19	07:12 (15)	19:41	27	08:13 (13)	18:28	20	09:04 (12)	16:30	2	08:52 (11)	16:15
22	05:32	06:26		06:54 (15)	07:22		07:48 (13)	08:18		08:46 (12)	08:18			08:57
	21:55	20:55	16	07:10 (15)	19:39	25	08:13 (13)	18:26	18	09:04 (12)	16:29			16:15
23	05:34	06:27		06:56 (15)	07:23		07:50 (13)	08:20		08:48 (12)	08:20			08:57
	21:54	20:52	17	07:13 (16)	19:36	23	08:13 (13)	18:24	17	09:05 (12)	16:27			16:16
24	05:35	06:29		06:58 (15)	07:25		07:52 (13)	08:22		08:50 (12)	08:22			08:57
	21:52	20:50	17	07:15 (16)	19:34	20	08:12 (13)	18:22	15	09:05 (12)	16:26			16:17
25	05:37	06:31		06:59 (16)	07:27		07:54 (13)	07:24		07:52 (12)	08:24			08:58
	21:51	20:48	16	07:15 (16)	19:31	18	08:12 (13)	17:19	13	08:05 (12)	16:25			16:17
26	05:38	06:33		07:01 (16)	07:29		07:55 (13)	07:26		07:55 (12)	08:25			08:58
	21:49	20:45	15	07:16 (16)	19:29	15	08:10 (13)	17:17	11	08:06 (12)	16:24			16:18
27	05:40	06:35		07:03 (16)	07:31		07:57 (13)	07:28		07:57 (12)	08:27			08:58
	21:47	20:43	14	07:17 (16)	19:26	13	08:10 (13)	17:15	8	08:05 (12)	16:23			16:19
28	05:42	06:37		07:05 (16)	07:33		07:59 (13)	07:30		07:59 (12)	08:29			08:59
	21:46	20:41	13	07:18 (16)	19:24	10	08:09 (13)	17:13	6	08:05 (12)	16:22			16:20
29	05:43	06:38		07:06 (16)	07:34		08:01 (13)	07:32		08:01 (12)	08:30			08:59
	21:44	20:38	11	07:17 (16)	19:21	6	08:07 (13)	17:11	3	08:04 (12)	16:21			16:20
30	05:45	06:40		07:08 (16)	07:36		08:03 (13)	07:34		08:03 (12)	08:32			08:59
	21:42	20:36	9	07:17 (16)	19:19	3	08:06 (13)	17:09	1	08:04 (12)	16:20			16:21
31	05:47	06:42		07:10 (16)				07:36						08:59
	21:41	20:33	7	07:17 (16)				17:07						16:22
Potential sun hours	515	461			383			327			257			230
Total, worst case			544			356			157			155		
Sun reduction			0.27			0.29			0.23			0.20		
Oper. time red.			1.00			1.00			1.00			1.00		
Wind dir. red.			0.57			0.59			0.62			0.64		
Total reduction			0.16			0.17			0.15			0.13		
Total, real			85			61			23			20		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AE - H31

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April		May	June
1	08:58			08:27		16:09 (18)	07:29			07:12		06:02	05:11
	16:24			17:16	26	16:35 (18)	18:13			20:12		21:09	22:00
2	08:58			08:25		16:08 (18)	07:26			07:10		06:00	05:10
	16:25			17:18	28	16:36 (18)	18:15			20:14		21:11	22:01
3	08:58			08:24		16:07 (18)	07:24			07:07		05:58	05:10
	16:26			17:20	30	16:37 (18)	18:17			20:16		21:13	22:02
4	08:58			08:22		16:06 (18)	07:21			07:05		05:56	05:09
	16:27			17:22	32	16:38 (18)	18:19			20:18		21:14	22:03
5	08:57			08:20		16:06 (18)	07:19		17:37 (17)	07:02		05:54	05:08
	16:28			17:24	33	16:39 (18)	18:21	7	17:44 (17)	20:20		21:16	22:05
6	08:57			08:18		16:06 (18)	07:17		17:32 (17)	07:00		05:52	05:07
	16:30			17:26	33	16:39 (18)	18:23	16	17:48 (17)	20:22		21:18	22:06
7	08:56			08:16		16:05 (18)	07:14		17:29 (17)	06:58		05:50	05:06
	16:31			17:28	35	16:40 (18)	18:24	22	17:51 (17)	20:24		21:20	22:07
8	08:56			08:14		16:05 (18)	07:12		17:27 (17)	06:55		05:48	05:06
	16:33			17:30	36	16:41 (18)	18:26	26	17:53 (17)	20:25		21:22	22:08
9	08:55			08:12		16:04 (18)	07:09		17:25 (17)	06:53		05:46	05:05
	16:34			17:32	36	16:40 (18)	18:28	29	17:54 (17)	20:27		21:23	22:09
10	08:55			08:10		16:04 (18)	07:07		17:23 (17)	06:50		05:44	05:05
	16:36			17:34	36	16:40 (18)	18:30	32	17:55 (17)	20:29		21:25	22:09
11	08:54			08:08		16:04 (18)	07:05		17:23 (17)	06:48		05:42	05:04
	16:37			17:36	37	16:41 (18)	18:32	33	17:56 (17)	20:31		21:27	22:10
12	08:53			08:06		16:04 (18)	07:02		17:21 (17)	06:45		05:40	05:04
	16:39			17:38	37	16:41 (18)	18:34	35	17:56 (17)	20:33		21:29	22:11
13	08:52			08:04		16:05 (18)	07:00		17:21 (17)	06:43		05:38	05:04
	16:40			17:40	36	16:41 (18)	18:36	36	17:57 (17)	20:35		21:31	22:12
14	08:51			08:02		16:05 (18)	06:57		17:19 (17)	06:41		05:37	05:03
	16:42			17:42	36	16:41 (18)	18:38	38	17:57 (17)	20:37		21:32	22:12
15	08:51			08:00		16:05 (18)	06:55		17:19 (17)	06:38		05:35	05:03
	16:44			17:44	34	16:39 (18)	18:40	39	17:58 (17)	20:39		21:34	22:13
16	08:50			07:58		16:06 (18)	06:52		17:18 (17)	06:36		05:33	05:03
	16:45			17:46	33	16:39 (18)	18:42	39	17:57 (17)	20:41		21:36	22:14
17	08:48			07:56		16:07 (18)	06:50		17:18 (17)	06:33		05:32	05:03
	16:47			17:49	32	16:39 (18)	18:44	39	17:57 (17)	20:42		21:37	22:14
18	08:47			07:54		16:08 (18)	06:47		17:18 (17)	06:31		05:30	05:03
	16:49			17:51	30	16:38 (18)	18:46	39	17:57 (17)	20:44		21:39	22:15
19	08:46			07:51		16:08 (18)	06:45		17:18 (17)	06:29		05:28	05:03
	16:51			17:53	28	16:36 (18)	18:48	39	17:57 (17)	20:46		21:41	22:15
20	08:45			07:49		16:10 (18)	06:42		17:17 (17)	06:26		05:27	05:03
	16:53			17:55	25	16:35 (18)	18:50	39	17:56 (17)	20:48		21:42	22:15
21	08:44			07:47		16:12 (18)	06:40		17:18 (17)	06:24		05:25	05:03
	16:54			17:57	22	16:34 (18)	18:51	37	17:55 (17)	20:50		21:44	22:16
22	08:42			07:45		16:14 (18)	06:37		17:18 (17)	06:22		05:24	05:03
	16:56			17:59	17	16:31 (18)	18:53	36	17:54 (17)	20:52		21:46	22:16
23	08:41			07:42		16:17 (18)	06:35		17:19 (17)	06:20		05:22	05:03
	16:58			18:01	11	16:28 (18)	18:55	34	17:53 (17)	20:54		21:47	22:16
24	08:40			07:40			06:32		17:19 (17)	06:17		05:21	05:04
	17:00			18:03			18:57	33	17:52 (17)	20:56		21:49	22:16
25	08:38			07:38			06:30		17:21 (17)	06:15		05:20	05:04
	17:02			18:05			18:59	30	17:51 (17)	20:58		21:50	22:16
26	08:37			07:36			06:27		17:21 (17)	06:13		05:18	05:04
	17:04			18:07			19:01	28	17:49 (17)	20:59		21:52	22:16
27	08:35			07:33			06:25		17:24 (17)	06:11		05:17	05:05
	17:06			18:09			19:03	23	17:47 (17)	21:01		21:53	22:16
28	08:34		16:15 (18)	07:31			06:22		17:25 (17)	06:08		05:16	05:05
	17:08	11	16:26 (18)	18:11			19:05	19	17:44 (17)	21:03		21:55	22:16
29	08:32		16:12 (18)				07:20		18:29 (17)	06:06		05:15	05:06
	17:10	17	16:29 (18)				20:07	12	18:41 (17)	21:05		21:56	22:15
30	08:31		16:11 (18)				07:17			06:04		05:14	05:07
	17:12	20	16:31 (18)				20:08			21:07		21:57	22:15
31	08:29		16:09 (18)				07:15					05:12	
	17:14	24	16:33 (18)				20:10					21:59	
Potential sun hours	248			272			367			421		496	513
Total, worst case		72			703			760					
Sun reduction		0.17			0.22			0.22					
Oper. time red.		1.00			1.00			1.00					
Wind dir. red.		0.59			0.59			0.57					
Total reduction		0.10			0.13			0.13					
Total, real		7			93			97					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AE - H31

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October		November		December
1	05:07	05:48	06:44		07:38		18:01 (17)	07:37	15:34 (18)	08:33
	22:15	21:39	20:31		19:16	36	18:37 (17)	17:04	16:10 (18)	16:19
2	05:08	05:50	06:45		07:40		18:00 (17)	07:39	15:34 (18)	08:35
	22:14	21:37	20:28		19:14	35	18:35 (17)	17:02	16:10 (18)	16:18
3	05:09	05:52	06:47		07:42		18:01 (17)	07:41	15:34 (18)	08:36
	22:14	21:35	20:26		19:11	32	18:33 (17)	17:00	16:09 (18)	16:17
4	05:10	05:53	06:49		07:44		18:02 (17)	07:43	15:35 (18)	08:38
	22:14	21:33	20:24		19:09	30	18:32 (17)	16:58	16:10 (18)	16:17
5	05:11	05:55	06:51		07:45		18:03 (17)	07:45	15:35 (18)	08:39
	22:13	21:31	20:21		19:06	27	18:30 (17)	16:56	16:09 (18)	16:16
6	05:11	05:57	06:53		07:47		18:04 (17)	07:47	15:36 (18)	08:41
	22:12	21:29	20:19		19:04	24	18:28 (17)	16:54	16:08 (18)	16:16
7	05:12	05:59	06:54		07:49		18:06 (17)	07:49	15:36 (18)	08:42
	22:12	21:27	20:16		19:01	20	18:26 (17)	16:53	16:08 (18)	16:15
8	05:14	06:00	06:56		07:51		18:10 (17)	07:51	15:37 (18)	08:43
	22:11	21:25	20:14		18:59	12	18:22 (17)	16:51	16:07 (18)	16:15
9	05:15	06:02	06:58		07:53			07:53	15:38 (18)	08:45
	22:10	21:23	20:11		18:56			16:49	16:06 (18)	16:14
10	05:16	06:04	07:00		07:55			07:55	15:40 (18)	08:46
	22:09	21:21	20:09		18:54			16:47	16:06 (18)	16:14
11	05:17	06:06	07:02		07:57			07:57	15:41 (18)	08:47
	22:08	21:19	20:06		18:51			16:45	16:04 (18)	16:14
12	05:18	06:07	07:03		07:58			07:59	15:42 (18)	08:48
	22:07	21:17	20:04		18:49			16:44	16:03 (18)	16:14
13	05:19	06:09	07:05		08:00			08:01	15:44 (18)	08:49
	22:06	21:15	20:01		18:47			16:42	16:01 (18)	16:13
14	05:21	06:11	07:07	18:20 (17)	08:02			08:03	15:47 (18)	08:50
	22:05	21:13	19:59	10 18:30 (17)	18:44			16:40	11 15:58 (18)	16:13
15	05:22	06:13	07:09	18:16 (17)	08:04			08:05		08:51
	22:04	21:10	19:56	18 18:34 (17)	18:42			16:39		16:13
16	05:23	06:15	07:11	18:12 (17)	08:06			08:07		08:52
	22:03	21:08	19:54	23 18:35 (17)	18:40			16:37		16:13
17	05:25	06:16	07:12	18:10 (17)	08:08			08:09		08:53
	22:02	21:06	19:51	27 18:37 (17)	18:37			16:36		16:14
18	05:26	06:18	07:14	18:08 (17)	08:10			08:11		08:54
	22:01	21:04	19:49	30 18:38 (17)	18:35			16:34		16:14
19	05:27	06:20	07:16	18:07 (17)	08:12		16:47 (18)	08:12		08:55
	21:59	21:01	19:46	32 18:39 (17)	18:33	14	17:01 (18)	16:33		16:14
20	05:29	06:22	07:18	18:05 (17)	08:14		16:44 (18)	08:14		08:55
	21:58	20:59	19:44	34 18:39 (17)	18:30	19	17:03 (18)	16:31		16:14
21	05:30	06:24	07:20	18:04 (17)	08:16		16:42 (18)	08:16		08:56
	21:57	20:57	19:41	35 18:39 (17)	18:28	23	17:05 (18)	16:30		16:15
22	05:32	06:25	07:21	18:03 (17)	08:18		16:40 (18)	08:18		08:56
	21:55	20:55	19:39	37 18:40 (17)	18:26	26	17:06 (18)	16:29		16:15
23	05:33	06:27	07:23	18:02 (17)	08:20		16:38 (18)	08:20		08:57
	21:54	20:52	19:36	38 18:40 (17)	18:24	29	17:07 (18)	16:27		16:16
24	05:35	06:29	07:25	18:02 (17)	08:22		16:37 (18)	08:22		08:57
	21:52	20:50	19:33	38 18:40 (17)	18:21	31	17:08 (18)	16:26		16:16
25	05:37	06:31	07:27	18:01 (17)	07:24		15:36 (18)	08:23		08:58
	21:51	20:48	19:31	39 18:40 (17)	17:19	32	16:08 (18)	16:25		16:17
26	05:38	06:33	07:29	18:00 (17)	07:26		15:35 (18)	08:25		08:58
	21:49	20:45	19:28	39 18:39 (17)	17:17	34	16:09 (18)	16:24		16:18
27	05:40	06:35	07:31	18:00 (17)	07:27		15:34 (18)	08:27		08:58
	21:47	20:43	19:26	39 18:39 (17)	17:15	35	16:09 (18)	16:23		16:19
28	05:41	06:36	07:32	18:00 (17)	07:29		15:35 (18)	08:29		08:58
	21:46	20:40	19:23	39 18:39 (17)	17:13	35	16:10 (18)	16:22		16:19
29	05:43	06:38	07:34	18:00 (17)	07:31		15:34 (18)	08:30		08:58
	21:44	20:38	19:21	38 18:38 (17)	17:11	36	16:10 (18)	16:21		16:20
30	05:45	06:40	07:36	18:00 (17)	07:33		15:34 (18)	08:32		08:59
	21:42	20:36	19:18	37 18:37 (17)	17:08	36	16:10 (18)	16:20		16:21
31	05:46	06:42			07:35		15:34 (18)			08:58
	21:40	20:33			17:06	36	16:10 (18)			16:22
Potential sun hours	515	461	383		327			257		230
Total, worst case				553		602			396	
Sun reduction				0.29		0.23			0.20	
Oper. time red.				1.00		1.00			1.00	
Wind dir. red.				0.57		0.59			0.59	
Total reduction				0.17		0.14			0.12	
Total, real				93		83			47	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AF - H32

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February	March	April			May			June		
1	08:58		15:33 (1)	08:27	07:29	07:12			06:02		20:16 (9)	05:12		20:21 (9)
	16:24	12	15:45 (1)	17:16	18:13	20:12			21:09	16	20:32 (9)	22:00	9	20:30 (9)
2	08:58		15:35 (1)	08:25	07:26	07:10			06:00		20:14 (9)	05:11		20:24 (9)
	16:25	10	15:45 (1)	17:18	18:15	20:14			21:11	20	20:34 (9)	22:01	2	20:26 (9)
3	08:58		15:35 (1)	08:24	07:24	07:07			05:58		20:12 (9)	05:10		
	16:26	9	15:44 (1)	17:20	18:17	20:16			21:12	23	20:35 (9)	22:02		
4	08:58		15:37 (1)	08:22	07:21	07:05			05:56		20:11 (9)	05:09		
	16:27	8	15:45 (1)	17:22	18:19	20:18			21:14	25	20:36 (9)	22:03		
5	08:57		15:38 (1)	08:20	07:19	07:03			05:54		20:11 (9)	05:08		
	16:29	5	15:43 (1)	17:24	18:21	20:20			21:16	27	20:38 (9)	22:04		
6	08:57			08:18	07:17	07:00			05:52		20:10 (9)	05:07		
	16:30			17:26	18:23	20:22			21:18	28	20:38 (9)	22:06		
7	08:56			08:16	07:14	06:58			05:50		20:09 (9)	05:07		21:23 (10)
	16:31			17:28	18:25	20:24			21:20	30	20:39 (9)	22:07	6	21:29 (10)
8	08:56			08:14	07:12	06:55			05:48		20:08 (9)	05:06		21:21 (10)
	16:33			17:30	18:27	20:26			21:22	31	20:39 (9)	22:08	9	21:30 (10)
9	08:55			08:12	07:09	06:53			05:46		20:08 (9)	05:05		21:21 (10)
	16:34			17:32	18:28	20:27			21:23	31	20:39 (9)	22:08	11	21:32 (10)
10	08:55			08:10	07:07	06:50			05:44		20:08 (9)	05:05		21:20 (10)
	16:36			17:34	18:30	20:29			21:25	32	20:40 (9)	22:09	12	21:32 (10)
11	08:54			08:08	07:05	06:48			05:42		20:07 (9)	05:04		21:19 (10)
	16:37			17:36	18:32	20:31			21:27	33	20:40 (9)	22:10	15	21:34 (10)
12	08:53			08:06	07:02	06:45			05:40		20:07 (9)	05:04		21:19 (10)
	16:39			17:38	18:34	20:33			21:29	32	20:39 (9)	22:11	16	21:35 (10)
13	08:52			08:04	07:00	06:43			05:39		20:08 (9)	05:04		21:19 (10)
	16:40			17:40	18:36	20:35			21:31	32	20:40 (9)	22:12	17	21:36 (10)
14	08:51			08:02	06:57	06:41			05:37		20:07 (9)	05:03		21:18 (10)
	16:42			17:43	18:38	20:37			21:32	33	20:40 (9)	22:12	17	21:35 (10)
15	08:50			08:00	06:55	06:38			05:35		20:07 (9)	05:03		21:19 (10)
	16:44			17:45	18:40	20:39			21:34	32	20:39 (9)	22:13	17	21:36 (10)
16	08:49			07:58	06:52	06:36			05:33		20:08 (9)	05:03		21:19 (10)
	16:46			17:47	18:42	20:41			21:36	32	20:40 (9)	22:13	17	21:36 (10)
17	08:48			07:56	06:50	06:34			05:32		20:07 (9)	05:03		21:19 (10)
	16:47			17:49	18:44	20:42			21:37	32	20:39 (9)	22:14	18	21:37 (10)
18	08:47			07:54	06:47	06:31			05:30		20:08 (9)	05:03		21:19 (10)
	16:49			17:51	18:46	20:44			21:39	31	20:39 (9)	22:14	18	21:37 (10)
19	08:46			07:51	06:45	06:29			05:28		20:08 (9)	05:03		21:19 (10)
	16:51			17:53	18:48	20:46			21:41	30	20:38 (9)	22:15	19	21:38 (10)
20	08:45			07:49	06:42	06:27			05:27		20:09 (9)	05:03		21:19 (10)
	16:53			17:55	18:50	20:48			21:42	29	20:38 (9)	22:15	19	21:38 (10)
21	08:44			07:47	06:40	06:24			05:25		20:10 (9)	05:03		21:20 (10)
	16:55			17:57	18:51	20:50			21:44	28	20:38 (9)	22:15	19	21:39 (10)
22	08:42			07:45	06:37	06:22			05:24		20:09 (9)	05:03		21:20 (10)
	16:56			17:59	18:53	20:52			21:46	28	20:37 (9)	22:16	19	21:39 (10)
23	08:41			07:42	06:35	06:20			05:23		20:10 (9)	05:03		21:20 (10)
	16:58			18:01	18:55	20:54			21:47	27	20:37 (9)	22:16	19	21:39 (10)
24	08:40			07:40	06:32	06:17			05:21		20:11 (9)	05:04		21:20 (10)
	17:00			18:03	18:57	20:56			21:49	26	20:37 (9)	22:16	18	21:38 (10)
25	08:38			07:38	06:30	06:15			05:20		20:12 (9)	05:04		21:21 (10)
	17:02			18:05	18:59	20:58			21:50	24	20:36 (9)	22:16	18	21:39 (10)
26	08:37			07:36	06:27	06:13			05:18		20:13 (9)	05:05		21:21 (10)
	17:04			18:07	19:01	20:59			21:52	23	20:36 (9)	22:16	18	21:39 (10)
27	08:35			07:33	06:25	06:11			05:17		20:14 (9)	05:05		21:22 (10)
	17:06			18:09	19:03	21:01			21:53	21	20:35 (9)	22:16	17	21:39 (10)
28	08:34			07:31	06:22	06:09			05:16		20:15 (9)	05:06		21:21 (10)
	17:08			18:11	19:05	21:03			21:54	19	20:34 (9)	22:16	18	21:39 (10)
29	08:32				07:20	06:06			05:15		20:16 (9)	05:06		21:22 (10)
	17:10				20:07	21:05			21:56	18	20:34 (9)	22:15	17	21:39 (10)
30	08:30				07:17	06:04		20:18 (9)	05:14		20:18 (9)	05:07		21:23 (10)
	17:12				20:09	21:07	12	20:30 (9)	21:57	15	20:33 (9)	22:15	16	21:39 (10)
31	08:29				07:15				05:13		20:19 (9)			
	17:14				20:10				21:59	12	20:31 (9)			
Potential sun hours	248			272	367	421			496			513		
Total, worst case		44					12			820			401	
Sun reduction		0.17					0.34			0.36			0.26	
Oper. time red.		1.00					1.00			1.00			1.00	
Wind dir. red.		0.63					0.62			0.62			0.64	
Total reduction		0.11					0.21			0.22			0.16	
Total, real		5					3			183			66	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AF - H32

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November	December		
1	05:07		21:23 (10)	05:48		20:17 (9)	06:44	07:38	07:37	08:33		
	22:15	15	21:38 (10)	21:39	33	20:50 (9)	20:31	19:16	17:04	16:19		
2	05:08		21:24 (10)	05:50		20:18 (9)	06:45	07:40	07:39	08:35		
	22:14	14	21:38 (10)	21:37	32	20:50 (9)	20:28	19:14	17:02	16:18		
3	05:09		21:26 (10)	05:52		20:17 (9)	06:47	07:42	07:41	08:36		
	22:14	12	21:38 (10)	21:35	32	20:49 (9)	20:26	19:11	17:00	16:18		
4	05:10		21:26 (10)	05:53		20:18 (9)	06:49	07:44	07:43	08:38		
	22:13	10	21:36 (10)	21:33	31	20:49 (9)	20:24	19:09	16:58	16:17		
5	05:11		21:27 (10)	05:55		20:19 (9)	06:51	07:45	07:45	08:39		
	22:13	8	21:35 (10)	21:31	30	20:49 (9)	20:21	19:06	16:56	16:16		
6	05:12		21:30 (10)	05:57		20:19 (9)	06:53	07:47	07:47	08:41		
	22:12	3	21:33 (10)	21:29	29	20:48 (9)	20:19	19:04	16:55	16:16		
7	05:13			05:59		20:19 (9)	06:55	07:49	07:49	08:42		15:25 (1)
	22:12			21:27	28	20:47 (9)	20:16	19:01	16:53	16:15	5	15:30 (1)
8	05:14			06:00		20:21 (9)	06:56	07:51	07:51	08:43		15:25 (1)
	22:11			21:25	26	20:47 (9)	20:14	18:59	16:51	16:15	8	15:33 (1)
9	05:15			06:02		20:21 (9)	06:58	07:53	07:53	08:45		15:24 (1)
	22:10			21:23	24	20:45 (9)	20:11	18:56	16:49	16:14	10	15:34 (1)
10	05:16			06:04		20:22 (9)	07:00	07:55	07:55	08:46		15:24 (1)
	22:09			21:21	22	20:44 (9)	20:09	18:54	16:47	16:14	10	15:34 (1)
11	05:17		20:29 (9)	06:06		20:24 (9)	07:02	07:57	07:57	08:47		15:23 (1)
	22:08	7	20:36 (9)	21:19	19	20:43 (9)	20:06	18:52	16:45	16:14	12	15:35 (1)
12	05:18		20:27 (9)	06:08		20:25 (9)	07:04	07:59	07:59	08:48		15:24 (1)
	22:07	11	20:38 (9)	21:17	15	20:40 (9)	20:04	18:49	16:44	16:14	12	15:36 (1)
13	05:19		20:27 (9)	06:09		20:28 (9)	07:05	08:00	08:01	08:49		15:24 (1)
	22:06	13	20:40 (9)	21:15	9	20:37 (9)	20:01	18:47	16:42	16:14	12	15:36 (1)
14	05:21		20:26 (9)	06:11			07:07	08:02	08:03	08:50		15:24 (1)
	22:05	16	20:42 (9)	21:12			19:59	18:44	16:40	16:14	11	15:35 (1)
15	05:22		20:24 (9)	06:13			07:09	08:04	08:05	08:51		15:25 (1)
	22:04	19	20:43 (9)	21:10			19:56	18:42	16:39	16:14	10	15:35 (1)
16	05:23		20:23 (9)	06:15			07:11	08:06	08:07	08:52		15:25 (1)
	22:03	20	20:43 (9)	21:08			19:54	18:40	16:37	16:14	10	15:35 (1)
17	05:25		20:22 (9)	06:17			07:13	08:08	08:09	08:53		15:24 (1)
	22:02	22	20:44 (9)	21:06			19:51	18:37	16:36	16:14	11	15:35 (1)
18	05:26		20:22 (9)	06:18			07:14	08:10	08:11	08:54		15:25 (1)
	22:00	23	20:45 (9)	21:04			19:49	18:35	16:34	16:14	10	15:35 (1)
19	05:28		20:21 (9)	06:20			07:16	08:12	08:12	08:54		15:26 (1)
	21:59	25	20:46 (9)	21:01			19:46	18:33	16:33	16:14	10	15:36 (1)
20	05:29		20:20 (9)	06:22			07:18	08:14	08:14	08:55		15:26 (1)
	21:58	26	20:46 (9)	20:59			19:44	18:30	16:31	16:15	10	15:36 (1)
21	05:31		20:20 (9)	06:24			07:20	08:16	08:16	08:56		15:26 (1)
	21:56	27	20:47 (9)	20:57			19:41	18:28	16:30	16:15	10	15:36 (1)
22	05:32		20:20 (9)	06:26			07:22	08:18	08:18	08:56		15:27 (1)
	21:55	28	20:48 (9)	20:55			19:39	18:26	16:29	16:15	10	15:37 (1)
23	05:34		20:20 (9)	06:27			07:23	08:20	08:20	08:57		15:27 (1)
	21:54	29	20:49 (9)	20:52			19:36	18:24	16:27	16:16	10	15:37 (1)
24	05:35		20:19 (9)	06:29			07:25	08:22	08:22	08:57		15:28 (1)
	21:52	30	20:49 (9)	20:50			19:34	18:21	16:26	16:17	9	15:37 (1)
25	05:37		20:18 (9)	06:31			07:27	07:24	08:23	08:58		15:29 (1)
	21:50	31	20:49 (9)	20:48			19:31	17:19	16:25	16:17	10	15:39 (1)
26	05:38		20:18 (9)	06:33			07:29	07:26	08:25	08:58		15:29 (1)
	21:49	32	20:50 (9)	20:45			19:29	17:17	16:24	16:18	10	15:39 (1)
27	05:40		20:18 (9)	06:35			07:31	07:27	08:27	08:58		15:30 (1)
	21:47	31	20:49 (9)	20:43			19:26	17:15	16:23	16:19	10	15:40 (1)
28	05:42		20:18 (9)	06:36			07:32	07:29	08:28	08:58		15:30 (1)
	21:46	32	20:50 (9)	20:40			19:24	17:13	16:22	16:20	11	15:41 (1)
29	05:43		20:18 (9)	06:38			07:34	07:31	08:30	08:58		15:31 (1)
	21:44	33	20:51 (9)	20:38			19:21	17:11	16:21	16:20	11	15:42 (1)
30	05:45		20:18 (9)	06:40			07:36	07:33	08:32	08:58		15:32 (1)
	21:42	32	20:50 (9)	20:36			19:19	17:09	16:20	16:21	11	15:43 (1)
31	05:47		20:18 (9)	06:42				07:35		08:58		15:33 (1)
	21:40	32	20:50 (9)	20:33				17:06		16:22	11	15:44 (1)
Potential sun hours	515			461			382	328	257	231		
Total, worst case		581			330						254	
Sun reduction		0.27			0.27						0.12	
Oper. time red.		1.00			1.00						1.00	
Wind dir. red.		0.62			0.62						0.63	
Total reduction		0.16			0.17						0.08	
Total, real		96			56						19	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AG - H33

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June
1	08:59	08:27	07:29		07:13		06:02		06:49 (8) 05:12
	16:24	17:16	18:13		20:13		21:09	35	07:24 (8) 22:00
2	08:58	08:26	07:26		07:10		06:00		06:49 (8) 05:11
	16:25	17:18	18:15		20:14		21:11	35	07:24 (8) 22:01
3	08:58	08:24	07:24		07:08		05:58		06:50 (8) 05:10
	16:26	17:20	18:17		20:16		21:13	34	07:24 (8) 22:02
4	08:58	08:22	07:22	07:59 (7)	07:05		05:56		06:50 (8) 05:09
	16:28	17:22	18:19	13	08:12 (7)	20:18	21:15	33	07:23 (8) 22:04
5	08:58	08:20	07:19	07:56 (7)	07:03		05:54		06:51 (8) 05:08
	16:29	17:24	18:21	20	08:16 (7)	20:20	21:16	32	07:23 (8) 22:05
6	08:57	08:18	07:17	07:54 (7)	07:00		05:52		06:51 (8) 05:08
	16:30	17:26	18:23	24	08:18 (7)	20:22	21:18	31	07:22 (8) 22:06
7	08:57	08:16	07:14	07:52 (7)	06:58		05:50		06:52 (8) 05:07
	16:32	17:28	18:25	27	08:19 (7)	20:24	21:20	28	07:20 (8) 22:07
8	08:56	08:14	07:12	07:51 (7)	06:55		05:48		06:52 (8) 05:06
	16:33	17:30	18:27	30	08:21 (7)	20:26	21:22	27	07:19 (8) 22:08
9	08:55	08:13	07:10	07:49 (7)	06:53		05:46		06:53 (8) 05:06
	16:34	17:32	18:29	32	08:21 (7)	20:28	21:24	25	07:18 (8) 22:09
10	08:55	08:11	07:07	07:48 (7)	06:51		05:44		06:55 (8) 05:05
	16:36	17:35	18:31	34	08:22 (7)	20:29	21:25	22	07:17 (8) 22:10
11	08:54	08:09	07:05	07:47 (7)	06:48		05:42		06:56 (8) 05:05
	16:37	17:37	18:33	35	08:22 (7)	20:31	21:27	19	07:15 (8) 22:10
12	08:53	08:07	07:02	07:46 (7)	06:46		05:41		06:58 (8) 05:04
	16:39	17:39	18:34	37	08:23 (7)	20:33	21:29	14	07:12 (8) 22:11
13	08:52	08:04	07:00	07:45 (7)	06:43		05:39		07:02 (8) 05:04
	16:41	17:41	18:36	38	08:23 (7)	20:35	21:31	8	07:10 (8) 22:12
14	08:52	08:02	06:57	07:45 (7)	06:41		05:37		05:04
	16:42	17:43	18:38	38	08:23 (7)	20:37	21:33		22:13
15	08:51	08:00	06:55	07:44 (7)	06:39		07:06 (8)	05:35	05:03
	16:44	17:45	18:40	39	08:23 (7)	20:39	9	07:15 (8)	21:34 22:13
16	08:50	07:58	06:52	07:44 (7)	06:36		07:02 (8)	05:34	05:03
	16:46	17:47	18:42	39	08:23 (7)	20:41	17	07:19 (8)	21:36 22:14
17	08:49	07:56	06:50	07:44 (7)	06:34		06:59 (8)	05:32	05:03
	16:47	17:49	18:44	38	08:22 (7)	20:43	21	07:20 (8)	21:38 22:14
18	08:48	07:54	06:47	07:44 (7)	06:31		06:57 (8)	05:30	05:03
	16:49	17:51	18:46	38	08:22 (7)	20:45	25	07:22 (8)	21:39 22:15
19	08:46	07:52	06:45	07:44 (7)	06:29		06:55 (8)	05:29	05:03
	16:51	17:53	18:48	36	08:20 (7)	20:46	28	07:23 (8)	21:41 22:15
20	08:45	07:49	06:43	07:45 (7)	06:27		06:54 (8)	05:27	05:03
	16:53	17:55	18:50	35	08:20 (7)	20:48	30	07:24 (8)	21:43 22:15
21	08:44	07:47	06:40	07:44 (7)	06:24		06:52 (8)	05:26	05:03
	16:55	17:57	18:52	34	08:18 (7)	20:50	32	07:24 (8)	21:44 22:16
22	08:43	07:45	06:38	07:46 (7)	06:22		06:52 (8)	05:24	05:03
	16:57	17:59	18:54	32	08:18 (7)	20:52	33	07:25 (8)	21:46 22:16
23	08:41	07:43	06:35	07:46 (7)	06:20		06:51 (8)	05:23	05:04
	16:58	18:01	18:55	30	08:16 (7)	20:54	34	07:25 (8)	21:47 22:16
24	08:40	07:40	06:33	07:46 (7)	06:18		06:51 (8)	05:21	05:04
	17:00	18:03	18:57	27	08:13 (7)	20:56	35	07:26 (8)	21:49 22:16
25	08:38	07:38	06:30	07:48 (7)	06:15		06:50 (8)	05:20	05:04
	17:02	18:05	18:59	24	08:12 (7)	20:58	36	07:26 (8)	21:50 22:16
26	08:37	07:36	06:28	07:50 (7)	06:13		06:50 (8)	05:19	05:05
	17:04	18:07	19:01	18	08:08 (7)	21:00	36	07:26 (8)	21:52 22:16
27	08:35	07:33	06:25	07:53 (7)	06:11		06:50 (8)	05:17	05:05
	17:06	18:09	19:03	12	08:05 (7)	21:02	36	07:26 (8)	21:53 22:16
28	08:34	07:31	06:23		06:09		06:49 (8)	05:16	05:06
	17:08	18:11	19:05		21:03	37	07:26 (8)	21:55	22:16
29	08:32		07:20		06:07		06:48 (8)	05:15	05:06
	17:10		20:07		21:05	37	07:25 (8)	21:56	22:16
30	08:31		07:18		06:04		06:48 (8)	05:14	05:07
	17:12		20:09		21:07	37	07:25 (8)	21:57	22:15
31	08:29		07:15					05:13	
	17:14		20:11					21:59	
Potential sun hours	248	272	367		421		496		513
Total, worst case				730		483		343	
Sun reduction				0.22		0.34		0.36	
Oper. time red.				1.00		1.00		1.00	
Wind dir. red.				0.61		0.57		0.57	
Total reduction				0.14		0.20		0.21	
Total, real				99		95		71	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AG - H33

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:08		05:48		07:08 (8)	06:44	07:38	08:25 (7)	07:38	08:34
	22:15		21:39	16	07:24 (8)	20:31	19:16	37 09:02 (7)	17:05	16:19
2	05:08		05:50		07:06 (8)	06:46	07:40	08:25 (7)	07:40	08:35
	22:15		21:37	20	07:26 (8)	20:29	19:14	36 09:01 (7)	17:03	16:19
3	05:09		05:52		07:05 (8)	06:47	07:42	08:26 (7)	07:42	08:37
	22:14		21:35	23	07:28 (8)	20:26	19:11	35 09:01 (7)	17:01	16:18
4	05:10		05:54		07:03 (8)	06:49	07:44	08:25 (7)	07:44	08:38
	22:14		21:33	25	07:28 (8)	20:24	19:09	34 08:59 (7)	16:59	16:17
5	05:11		05:55		07:02 (8)	06:51	07:46	08:26 (7)	07:45	08:40
	22:13		21:31	28	07:30 (8)	20:21	19:06	31 08:57 (7)	16:57	16:16
6	05:12		05:57		07:01 (8)	06:53	07:47	08:27 (7)	07:47	08:41
	22:12		21:29	29	07:30 (8)	20:19	19:04	29 08:56 (7)	16:55	16:16
7	05:13		05:59		07:00 (8)	06:55	07:49	08:28 (7)	07:49	08:42
	22:12		21:27	31	07:31 (8)	20:16	19:01	26 08:54 (7)	16:53	16:15
8	05:14		06:01		07:00 (8)	06:57	07:51	08:30 (7)	07:51	08:44
	22:11		21:25	32	07:32 (8)	20:14	18:59	22 08:52 (7)	16:51	16:15
9	05:15		06:02		06:59 (8)	06:58	07:53	08:33 (7)	07:53	08:45
	22:10		21:23	33	07:32 (8)	20:11	18:57	16 08:49 (7)	16:49	16:15
10	05:16		06:04		06:58 (8)	07:00	07:55	08:37 (7)	07:55	08:46
	22:09		21:21	35	07:33 (8)	20:09	18:54	8 08:45 (7)	16:47	16:14
11	05:17		06:06		06:58 (8)	07:02	07:57		07:57	08:47
	22:08		21:19	35	07:33 (8)	20:06	18:52		16:46	16:14
12	05:18		06:08		06:57 (8)	07:04	07:59		07:59	08:48
	22:08		21:17	36	07:33 (8)	20:04	18:49		16:44	16:14
13	05:20		06:10		06:57 (8)	07:06	08:01		08:01	08:49
	22:07		21:15	36	07:33 (8)	20:01	18:47		16:42	16:14
14	05:21		06:11		06:57 (8)	07:07	08:03		08:03	08:50
	22:05		21:13	37	07:34 (8)	19:59	18:45		16:41	16:14
15	05:22		06:13		06:56 (8)	07:09	08:04		08:05	08:51
	22:04		21:11	37	07:33 (8)	19:56	18:42		16:39	16:14
16	05:24		06:15		06:56 (8)	07:11	08:44 (7)	08:06	08:07	08:52
	22:03		21:08	37	07:33 (8)	19:54	9 08:53 (7)	18:40	16:37	16:14
17	05:25		06:17		06:56 (8)	07:13	08:39 (7)	08:08	08:09	08:53
	22:02		21:06	37	07:33 (8)	19:51	17 08:56 (7)	18:38	16:36	16:14
18	05:26		06:19		06:57 (8)	07:15	08:36 (7)	08:10	08:11	08:54
	22:01		21:04	36	07:33 (8)	19:49	23 08:59 (7)	18:35	16:34	16:14
19	05:28		06:20		06:56 (8)	07:16	08:34 (7)	08:12	08:13	08:55
	21:59		21:02	35	07:31 (8)	19:46	26 09:00 (7)	18:33	16:33	16:14
20	05:29		06:22		06:57 (8)	07:18	08:33 (7)	08:14	08:15	08:55
	21:58		20:59	34	07:31 (8)	19:44	29 09:02 (7)	18:31	16:32	16:15
21	05:31		06:24		06:57 (8)	07:20	08:31 (7)	08:16	08:16	08:56
	21:57		20:57	33	07:30 (8)	19:41	32 09:03 (7)	18:28	16:30	16:15
22	05:32		06:26		06:57 (8)	07:22	08:29 (7)	08:18	08:18	08:57
	21:55		20:55	32	07:29 (8)	19:39	34 09:03 (7)	18:26	16:29	16:16
23	05:34		06:28		06:58 (8)	07:24	08:28 (7)	08:20	08:20	08:57
	21:54		20:52	30	07:28 (8)	19:36	35 09:03 (7)	18:24	16:28	16:16
24	05:35		06:29		06:59 (8)	07:25	08:28 (7)	08:22	08:22	08:57
	21:52		20:50	28	07:27 (8)	19:34	36 09:04 (7)	18:22	16:26	16:17
25	05:37		06:31		07:00 (8)	07:27	08:27 (7)	07:24	08:24	08:58
	21:51		20:48	24	07:24 (8)	19:31	37 09:04 (7)	17:19	16:25	16:17
26	05:38		06:33		07:02 (8)	07:29	08:27 (7)	07:26	08:25	08:58
	21:49		20:45	21	07:23 (8)	19:29	37 09:04 (7)	17:17	16:24	16:18
27	05:40		06:35		07:04 (8)	07:31	08:25 (7)	07:28	08:27	08:58
	21:47		20:43	16	07:20 (8)	19:26	38 09:03 (7)	17:15	16:23	16:19
28	05:42		06:37		07:08 (8)	07:33	08:25 (7)	07:30	08:29	08:59
	21:46		20:41	8	07:16 (8)	19:24	38 09:03 (7)	17:13	16:22	16:20
29	05:43		06:38			07:35	08:25 (7)	07:32	08:30	08:59
	21:44		20:38			19:21	38 09:03 (7)	17:11	16:21	16:21
30	05:45		06:40			07:36	08:25 (7)	07:34	08:32	08:59
	21:42		20:36			19:19	38 09:03 (7)	17:09	16:20	16:22
31	05:47	07:11 (8)	06:42					07:36		08:59
	21:41	11 07:22 (8)	20:33					17:07		16:23
Potential sun hours	515		461		382		328		257	231
Total, worst case		11		824		467		274		
Sun reduction		0.27		0.27		0.29		0.23		
Oper. time red.		1.00		1.00		1.00		1.00		
Wind dir. red.		0.57		0.57		0.61		0.61		
Total reduction		0.15		0.16		0.18		0.14		
Total, real		2		129		83		39		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AH - H34

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April		May		June
1	08:58	08:27		07:29		17:00 (2)	07:13	19:02 (3)	06:02	20:19 (4)	05:12
	16:24	17:16		18:13	38	17:38 (2)	20:12	35	19:37 (3)	21:09	19	20:38 (4)	22:00
2	08:58	08:25		07:26		16:59 (2)	07:10	19:02 (3)	06:00	20:18 (4)	05:11
	16:25	17:18		18:15	38	17:37 (2)	20:14	35	19:37 (3)	21:11	22	20:40 (4)	22:01
3	08:58	08:24		07:24		16:59 (2)	07:08	19:03 (3)	05:58	20:17 (4)	05:10
	16:26	17:20		18:17	38	17:37 (2)	20:16	34	19:37 (3)	21:12	24	20:41 (4)	22:02
4	08:58	08:22		07:22		16:59 (2)	07:05	19:02 (3)	05:56	20:17 (4)	05:09
	16:28	17:22		18:19	37	17:36 (2)	20:18	33	19:35 (3)	21:14	27	20:44 (4)	22:03
5	08:57	08:20		07:19		16:59 (2)	07:03	19:03 (3)	05:54	20:16 (4)	05:08
	16:29	17:24		18:21	37	17:36 (2)	20:20	32	19:35 (3)	21:16	30	20:46 (4)	22:04
6	08:57	08:18		07:17		16:59 (2)	07:00	19:03 (3)	05:52	20:16 (4)	05:08
	16:30	17:26		18:23	36	17:35 (2)	20:22	30	19:33 (3)	21:18	31	20:47 (4)	22:05
7	08:56	08:16		07:14		17:00 (2)	06:58	19:04 (3)	05:50	20:15 (4)	05:07
	16:32	17:28		18:25	34	17:34 (2)	20:24	28	19:32 (3)	21:20	34	20:49 (4)	22:06
8	08:56	08:14		07:12		17:00 (2)	06:55	19:04 (3)	05:48	20:15 (4)	05:06
	16:33	17:30		18:27	33	17:33 (2)	20:26	26	19:30 (3)	21:22	34	20:49 (4)	22:07
9	08:55	08:12		07:09		17:02 (2)	06:53	19:06 (3)	05:46	20:14 (4)	05:06
	16:34	17:32		18:29	30	17:32 (2)	20:27	23	19:29 (3)	21:23	35	20:49 (4)	22:08
10	08:55	08:10		07:07		17:03 (2)	06:50	19:08 (3)	05:44	20:15 (4)	05:05
	16:36	17:34		18:30	27	17:30 (2)	20:29	19	19:27 (3)	21:25	35	20:50 (4)	22:09
11	08:54	08:08		07:05		17:05 (2)	06:48	19:10 (3)	05:42	20:14 (4)	05:05
	16:37	17:37		18:32	23	17:28 (2)	20:31	14	19:24 (3)	21:27	35	20:49 (4)	22:10
12	08:53	08:06		07:02		17:06 (2)	06:46			05:41		20:14 (4)	05:04
	16:39	17:39		18:34	19	17:25 (2)	20:33			21:29	35	20:49 (4)	22:11
13	08:52	08:04		07:00		17:10 (2)	06:43			05:39		20:15 (4)	05:04
	16:41	17:41		18:36	12	17:22 (2)	20:35			21:30	34	20:49 (4)	22:12
14	08:51	08:02		06:57			06:41			05:37		20:14 (4)	05:04
	16:42	17:43		18:38			20:37			21:32	35	20:49 (4)	22:12
15	08:50	08:00		06:55			06:38			05:35		20:14 (4)	05:03
	16:44	17:45		18:40			20:39			21:34	34	20:48 (4)	22:13
16	08:49	07:58		06:52			06:36			05:34		20:15 (4)	05:03
	16:46	17:47		18:42			20:41			21:36	33	20:48 (4)	22:13
17	08:48	07:56	17:14 (2)	06:50			06:34			05:32		20:15 (4)	05:03
	16:47	17:49	6 17:20 (2)	18:44			20:42			21:37	33	20:48 (4)	22:14
18	08:47	07:54	17:11 (2)	06:47			06:31			05:30		20:16 (4)	05:03
	16:49	17:51	11 17:22 (2)	18:46			20:44			21:39	32	20:48 (4)	22:14
19	08:46	07:51	17:08 (2)	06:45			06:29			05:29		20:17 (4)	05:03
	16:51	17:53	16 17:24 (2)	18:48			20:46			21:41	31	20:48 (4)	22:15
20	08:45	07:49	17:06 (2)	06:42			06:27			05:27		20:17 (4)	05:03
	16:53	17:55	20 17:26 (2)	18:50			20:48			21:42	30	20:47 (4)	22:15
21	08:44	07:47	17:05 (2)	06:40		18:18 (3)	06:24			05:26		20:17 (4)	05:03
	16:55	17:57	24 17:29 (2)	18:52	7	18:25 (3)	20:50			21:44	29	20:46 (4)	22:15
22	08:42	07:45	17:03 (2)	06:37		18:14 (3)	06:22			05:24		20:18 (4)	05:03
	16:57	17:59	27 17:30 (2)	18:53	12	18:26 (3)	20:52			21:45	28	20:46 (4)	22:16
23	08:41	07:42	17:03 (2)	06:35		18:12 (3)	06:20			05:23		20:19 (4)	05:04
	16:58	18:01	30 17:33 (2)	18:55	17	18:29 (3)	20:54			21:47	26	20:45 (4)	22:16
24	08:40	07:40	17:02 (2)	06:32		18:09 (3)	06:18			05:21		20:20 (4)	05:04
	17:00	18:03	33 17:35 (2)	18:57	21	18:30 (3)	20:56			21:49	25	20:45 (4)	22:16
25	08:38	07:38	17:01 (2)	06:30		18:08 (3)	06:15			05:20		20:21 (4)	05:04
	17:02	18:05	36 17:37 (2)	18:59	24	18:32 (3)	20:58			21:50	23	20:44 (4)	22:16
26	08:37	07:36	17:00 (2)	06:27		18:06 (3)	06:13			05:19		20:22 (4)	05:05
	17:04	18:07	37 17:37 (2)	19:01	28	18:34 (3)	20:59			21:52	21	20:43 (4)	22:16
27	08:35	07:33	16:59 (2)	06:25		18:06 (3)	06:11		20:30 (4)	05:17		20:23 (4)	05:05
	17:06	18:09	38 17:37 (2)	19:03	30	18:36 (3)	21:01	2	20:32 (4)	21:53	20	20:43 (4)	22:16
28	08:34	07:31	16:59 (2)	06:22		18:04 (3)	06:09		20:25 (4)	05:16		20:24 (4)	05:06
	17:08	18:11	39 17:38 (2)	19:05	33	18:37 (3)	21:03	8	20:33 (4)	21:54	18	20:42 (4)	22:15
29	08:32			07:20		19:04 (3)	06:07		20:23 (4)	05:15		20:26 (4)	05:06
	17:10			20:07	34	19:38 (3)	21:05	12	20:35 (4)	21:56	15	20:41 (4)	22:15
30	08:30			07:17		19:03 (3)	06:04		20:21 (4)	05:14		20:27 (4)	05:07
	17:12			20:09	34	19:37 (3)	21:07	15	20:36 (4)	21:57	12	20:39 (4)	22:15
31	08:29			07:15		19:03 (3)				05:13		20:29 (4)	
	17:14			20:10	35	19:38 (3)				21:58	8	20:37 (4)	
Potential sun hours	248	272		367			421			496			513
Total, worst case			317		677			346			848		
Sun reduction			0.22		0.22			0.34			0.36		
Oper. time red.			1.00		1.00			1.00			1.00		
Wind dir. red.			0.58		0.58			0.59			0.62		
Total reduction			0.13		0.13			0.20			0.22		
Total, real			41		88			70			190		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AH - H34

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:08		05:48		20:24 (4)	06:44	19:09 (3)	07:38	17:48 (2)	07:37	08:33
	22:15		21:39	35	20:59 (4)	20:31 14	19:23 (3)	19:16 16	18:04 (2)	17:05	16:19
2	05:08		05:50		20:25 (4)	06:46	19:06 (3)	07:40	17:44 (2)	07:39	08:35
	22:14		21:37	35	21:00 (4)	20:28 19	19:25 (3)	19:14 21	18:05 (2)	17:03	16:19
3	05:09		05:52		20:25 (4)	06:47	19:04 (3)	07:42	17:41 (2)	07:41	08:36
	22:14		21:35	35	21:00 (4)	20:26 23	19:27 (3)	19:11 26	18:07 (2)	17:01	16:18
4	05:10		05:54		20:24 (4)	06:49	19:02 (3)	07:44	17:40 (2)	07:43	08:38
	22:13		21:33	35	20:59 (4)	20:24 26	19:28 (3)	19:09 28	18:08 (2)	16:59	16:17
5	05:11		05:55		20:25 (4)	06:51	19:00 (3)	07:45	17:38 (2)	07:45	08:39
	22:13		21:31	34	20:59 (4)	20:21 28	19:28 (3)	19:06 31	18:09 (2)	16:57	16:16
6	05:12		05:57		20:25 (4)	06:53	18:59 (3)	07:47	17:37 (2)	07:47	08:41
	22:12		21:29	32	20:57 (4)	20:19 30	19:29 (3)	19:04 33	18:10 (2)	16:55	16:16
7	05:13		05:59		20:25 (4)	06:55	18:58 (3)	07:49	17:36 (2)	07:49	08:42
	22:11		21:27	31	20:56 (4)	20:16 32	19:30 (3)	19:01 35	18:11 (2)	16:53	16:15
8	05:14		06:01		20:26 (4)	06:56	18:57 (3)	07:51	17:35 (2)	07:51	08:43
	22:11		21:25	28	20:54 (4)	20:14 33	19:30 (3)	18:59 36	18:11 (2)	16:51	16:15
9	05:15		06:02		20:26 (4)	06:58	18:56 (3)	07:53	17:34 (2)	07:53	08:45
	22:10		21:23	26	20:52 (4)	20:11 34	19:30 (3)	18:56 37	18:11 (2)	16:49	16:15
10	05:16		06:04		20:27 (4)	07:00	18:55 (3)	07:55	17:34 (2)	07:55	08:46
	22:09		21:21	23	20:50 (4)	20:09 35	19:30 (3)	18:54 37	18:11 (2)	16:47	16:14
11	05:17		06:06		20:28 (4)	07:02	18:55 (3)	07:57	17:33 (2)	07:57	08:47
	22:08		21:19	21	20:49 (4)	20:06 35	19:30 (3)	18:52 38	18:11 (2)	16:46	16:14
12	05:18		20:39 (4)	06:08	20:28 (4)	07:04	18:54 (3)	07:59	17:33 (2)	07:59	08:48
	22:07	5	20:44 (4)	21:17	18 20:46 (4)	20:04 35	19:29 (3)	18:49 38	18:11 (2)	16:44	16:14
13	05:20		20:37 (4)	06:09	20:30 (4)	07:05	18:54 (3)	08:00	17:33 (2)	08:01	08:49
	22:06	10	20:47 (4)	21:15	14 20:44 (4)	20:01 35	19:29 (3)	18:47 38	18:11 (2)	16:42	16:14
14	05:21		20:35 (4)	06:11	20:32 (4)	07:07	18:54 (3)	08:02	17:33 (2)	08:03	08:50
	22:05	13	20:48 (4)	21:12	11 20:43 (4)	19:59 34	19:28 (3)	18:45 38	18:11 (2)	16:41	16:14
15	05:22		20:33 (4)	06:13	20:33 (4)	07:09	18:54 (3)	08:04	17:33 (2)	08:05	08:51
	22:04	17	20:50 (4)	21:10	7 20:40 (4)	19:56 34	19:28 (3)	18:42 37	18:10 (2)	16:39	16:14
16	05:24		20:32 (4)	06:15		07:11	18:54 (3)	08:06	17:33 (2)	08:07	08:52
	22:03	19	20:51 (4)	21:08		19:54 31	19:25 (3)	18:40 36	18:09 (2)	16:37	16:14
17	05:25		20:32 (4)	06:17		07:13	18:55 (3)	08:08	17:33 (2)	08:09	08:53
	22:02	21	20:53 (4)	21:06		19:51 28	19:23 (3)	18:37 35	18:08 (2)	16:36	16:14
18	05:26		20:31 (4)	06:18		07:14	18:55 (3)	08:10	17:34 (2)	08:11	08:54
	22:00	22	20:53 (4)	21:04		19:49 25	19:20 (3)	18:35 31	18:05 (2)	16:34	16:14
19	05:28		20:30 (4)	06:20		07:16	18:56 (3)	08:12	17:34 (2)	08:12	08:54
	21:59	24	20:54 (4)	21:01		19:46 22	19:18 (3)	18:33 29	18:03 (2)	16:33	16:14
20	05:29		20:30 (4)	06:22		07:18	18:58 (3)	08:14	17:35 (2)	08:14	08:55
	21:58	25	20:55 (4)	20:59		19:44 18	19:16 (3)	18:31 26	18:01 (2)	16:32	16:15
21	05:31		20:29 (4)	06:24		07:20	18:59 (3)	08:16	17:36 (2)	08:16	08:56
	21:56	27	20:56 (4)	20:57		19:41 13	19:12 (3)	18:28 22	17:58 (2)	16:30	16:15
22	05:32		20:28 (4)	06:26		07:22	19:01 (3)	08:18	17:37 (2)	08:18	08:56
	21:55	28	20:56 (4)	20:55		19:39 9	19:10 (3)	18:26 19	17:56 (2)	16:29	16:16
23	05:34		20:28 (4)	06:28		07:23		08:20	17:39 (2)	08:20	08:57
	21:53	29	20:57 (4)	20:52		19:36		18:24 14	17:53 (2)	16:28	16:16
24	05:35		20:27 (4)	06:29		07:25		08:22	17:41 (2)	08:22	08:57
	21:52	30	20:57 (4)	20:50		19:34		18:22 10	17:51 (2)	16:26	16:17
25	05:37		20:27 (4)	06:31		07:27		07:24	16:45 (2)	08:23	08:58
	21:50	31	20:58 (4)	20:48		19:31		17:19 3	16:48 (2)	16:25	16:17
26	05:38		20:26 (4)	06:33		07:29		07:26		08:25	08:58
	21:49	32	20:58 (4)	20:45		19:29		17:17		16:24	16:18
27	05:40		20:26 (4)	06:35		07:31		07:27		08:27	08:58
	21:47	33	20:59 (4)	20:43		19:26		17:15		16:23	16:19
28	05:42		20:25 (4)	06:37		07:33		07:29		08:28	08:58
	21:46	34	20:59 (4)	20:40		19:24		17:13		16:22	16:20
29	05:43		20:25 (4)	06:38		07:34		07:31		08:30	08:58
	21:44	35	21:00 (4)	20:38		19:21		17:11		16:21	16:21
30	05:45		20:25 (4)	06:40		07:36	17:52 (2)	07:33		08:32	08:58
	21:42	34	20:59 (4)	20:36		19:19 8	18:00 (2)	17:09		16:20	16:22
31	05:47		20:25 (4)	06:42				07:35			08:58
	21:40	35	21:00 (4)	20:33				17:07			16:23
Potential sun hours	515			461		382		328		257	231
Total, worst case		504			385		601		714		
Sun reduction		0.27			0.27		0.29		0.23		
Oper. time red.		1.00			1.00		1.00		1.00		
Wind dir. red.		0.62			0.62		0.59		0.58		
Total reduction		0.16			0.17		0.17		0.14		
Total, real		83			65		103		97		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AI - H35

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May		June	
1	08:58			08:27		16:10 (18)	07:29			07:12			06:02		05:11	
	16:24			17:16	25	16:35 (18)	18:13			20:12			21:09		22:00	
2	08:58			08:25		16:09 (18)	07:26			07:10			06:00		05:10	
	16:25			17:18	27	16:36 (18)	18:15			20:14			21:11		22:01	
3	08:58			08:24		16:08 (18)	07:24			07:07			05:58		05:10	
	16:26			17:20	29	16:37 (18)	18:17			20:16			21:13		22:02	
4	08:58			08:22		16:08 (18)	07:21		17:35 (17)	07:05			05:56		05:09	
	16:27			17:22	30	16:38 (18)	18:19	6	17:41 (17)	20:18			21:14		22:03	
5	08:57			08:20		16:07 (18)	07:19		17:30 (17)	07:02			05:54		05:08	
	16:28			17:24	32	16:39 (18)	18:21	16	17:46 (17)	20:20			21:16		22:05	
6	08:57			08:18		16:07 (18)	07:17		17:27 (17)	07:00			05:52		05:07	
	16:30			17:26	32	16:39 (18)	18:23	21	17:48 (17)	20:22			21:18		22:06	
7	08:56			08:16		16:07 (18)	07:14		17:25 (17)	06:58			05:50		05:06	
	16:31			17:28	33	16:40 (18)	18:24	26	17:51 (17)	20:24			21:20		22:07	
8	08:56			08:14		16:06 (18)	07:12		17:23 (17)	06:55			05:48		05:06	
	16:33			17:30	35	16:41 (18)	18:26	28	17:51 (17)	20:25			21:22		22:08	
9	08:55			08:12		16:05 (18)	07:09		17:22 (17)	06:53			05:46		05:05	
	16:34			17:32	35	16:40 (18)	18:28	31	17:53 (17)	20:27			21:23		22:09	
10	08:55			08:10		16:05 (18)	07:07		17:20 (17)	06:50			05:44		05:05	
	16:36			17:34	35	16:40 (18)	18:30	33	17:53 (17)	20:29			21:25		22:09	
11	08:54			08:08		16:05 (18)	07:05		17:20 (17)	06:48			05:42		05:04	
	16:37			17:36	36	16:41 (18)	18:32	34	17:54 (17)	20:31			21:27		22:10	
12	08:53			08:06		16:06 (18)	07:02		17:18 (17)	06:45			05:40		05:04	
	16:39			17:38	35	16:41 (18)	18:34	36	17:54 (17)	20:33			21:29		22:11	
13	08:52			08:04		16:06 (18)	07:00		17:18 (17)	06:43			05:38		05:04	
	16:40			17:40	35	16:41 (18)	18:36	37	17:55 (17)	20:35			21:31		22:12	
14	08:51			08:02		16:07 (18)	06:57		17:17 (17)	06:41			05:37		05:03	
	16:42			17:42	34	16:41 (18)	18:38	37	17:54 (17)	20:37			21:32		22:12	
15	08:51			08:00		16:06 (18)	06:55		17:17 (17)	06:38			05:35		05:03	
	16:44			17:44	33	16:39 (18)	18:40	38	17:55 (17)	20:39			21:34		22:13	
16	08:50			07:58		16:07 (18)	06:52		17:16 (17)	06:36			05:33		05:03	
	16:45			17:46	32	16:39 (18)	18:42	38	17:54 (17)	20:41			21:36		22:14	
17	08:48			07:56		16:08 (18)	06:50		17:17 (17)	06:33			05:32		05:03	
	16:47			17:49	31	16:39 (18)	18:44	37	17:54 (17)	20:42			21:37		22:14	
18	08:47			07:54		16:09 (18)	06:47		17:16 (17)	06:31			05:30		05:03	
	16:49			17:51	29	16:38 (18)	18:46	37	17:53 (17)	20:44			21:39		22:15	
19	08:46			07:51		16:10 (18)	06:45		17:17 (17)	06:29			05:28		05:03	
	16:51			17:53	26	16:36 (18)	18:48	36	17:53 (17)	20:46			21:41		22:15	
20	08:45			07:49		16:12 (18)	06:42		17:17 (17)	06:26			05:27		05:03	
	16:53			17:55	23	16:35 (18)	18:50	35	17:52 (17)	20:48			21:42		22:15	
21	08:44			07:47		16:14 (18)	06:40		17:18 (17)	06:24			05:25		05:03	
	16:54			17:57	19	16:33 (18)	18:51	33	17:51 (17)	20:50			21:44		22:16	
22	08:42			07:45		16:16 (18)	06:37		17:18 (17)	06:22			05:24		05:03	
	16:56			17:59	14	16:30 (18)	18:53	31	17:49 (17)	20:52			21:46		22:16	
23	08:41			07:42			06:35		17:19 (17)	06:20			05:22		05:03	
	16:58			18:01			18:55	30	17:49 (17)	20:54			21:47		22:16	
24	08:40			07:40			06:32		17:20 (17)	06:17			05:21		05:04	
	17:00			18:03			18:57	26	17:46 (17)	20:56			21:49		22:16	
25	08:38			07:38			06:30		17:22 (17)	06:15			05:20		05:04	
	17:02			18:05			18:59	23	17:45 (17)	20:58			21:50		22:16	
26	08:37			07:36			06:27		17:23 (17)	06:13			05:18		05:04	
	17:04			18:07			19:01	19	17:42 (17)	20:59			21:52		22:16	
27	08:35			07:33			06:25		17:27 (17)	06:11			05:17		05:05	
	17:06			18:09			19:03	12	17:39 (17)	21:01			21:53		22:16	
28	08:34		16:18 (18)	07:31			06:22			06:08			05:16		05:05	
	17:08	7	16:25 (18)	18:11			19:05			21:03			21:55		22:16	
29	08:32		16:14 (18)				07:20			06:06			05:15		05:06	
	17:10	14	16:28 (18)				20:07			21:05			21:56		22:15	
30	08:31		16:12 (18)				07:17			06:04			05:14		05:07	
	17:12	19	16:31 (18)				20:08			21:07			21:57		22:15	
31	08:29		16:11 (18)				07:15						05:12			
	17:14	21	16:32 (18)				20:10						21:59			
Potential sun hours	248			272			367			421			496		513	
Total, worst case		61			660			700								
Sun reduction		0.17			0.22			0.22								
Oper. time red.		1.00			1.00			1.00								
Wind dir. red.		0.59			0.59			0.57								
Total reduction		0.10			0.13			0.13								
Total, real		6			87			90								

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AI - H35

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December	
1	05:07		05:48		06:44		07:38		17:58 (17)		07:37	
	22:15		21:39		20:31		19:16	36	18:34 (17)		17:04	35
2	05:08		05:50		06:45		07:40		17:57 (17)		07:39	
	22:14		21:37		20:28		19:14	35	18:32 (17)		17:02	35
3	05:09		05:52		06:47		07:42		17:58 (17)		07:41	
	22:14		21:35		20:26		19:11	33	18:31 (17)		17:00	34
4	05:10		05:53		06:49		07:44		17:59 (17)		07:43	
	22:14		21:33		20:24		19:09	31	18:30 (17)		16:58	34
5	05:11		05:55		06:51		07:45		17:59 (17)		07:45	
	22:13		21:31		20:21		19:06	30	18:29 (17)		16:56	32
6	05:11		05:57		06:53		07:47		18:01 (17)		07:47	
	22:12		21:29		20:19		19:04	26	18:27 (17)		16:54	31
7	05:12		05:59		06:54		07:49		18:02 (17)		07:49	
	22:12		21:27		20:16		19:01	23	18:25 (17)		16:53	30
8	05:14		06:00		06:56		07:51		18:04 (17)		07:51	
	22:11		21:25		20:14		18:59	19	18:23 (17)		16:51	29
9	05:15		06:02		06:58		07:53		18:07 (17)		07:53	
	22:10		21:23		20:11		18:56	13	18:20 (17)		16:49	27
10	05:16		06:04		07:00		07:55				07:55	
	22:09		21:21		20:09		18:54				16:47	24
11	05:17		06:06		07:02		07:57				07:57	
	22:08		21:19		20:06		18:51				16:45	21
12	05:18		06:07		07:03		07:58				07:59	
	22:07		21:17		20:04		18:49				16:44	18
13	05:19		06:09		07:05		08:00				08:01	
	22:06		21:15		20:01		18:47				16:42	14
14	05:21		06:11		07:07		08:02				08:03	
	22:05		21:13		19:59		18:44				16:40	7
15	05:22		06:13		07:09		08:04				08:05	
	22:04		21:10		19:56		18:42				16:39	
16	05:23		06:15		07:11		18:16 (17)		08:06		08:07	
	22:03		21:08		19:54	10	18:26 (17)		18:40		16:37	
17	05:25		06:16		07:12		18:12 (17)		08:08		08:09	
	22:02		21:06		19:51	18	18:30 (17)		18:37		16:36	
18	05:26		06:18		07:14		18:10 (17)		08:10		08:11	
	22:01		21:04		19:49	22	18:32 (17)		18:35		16:34	
19	05:27		06:20		07:16		18:08 (17)		08:12		16:51 (18)	
	21:59		21:01		19:46	26	18:34 (17)		18:33	7	16:58 (18)	
20	05:29		06:22		07:18		18:05 (17)		08:14		16:46 (18)	
	21:58		20:59		19:44	29	18:34 (17)		18:30	16	17:02 (18)	
21	05:30		06:24		07:20		18:04 (17)		08:16		16:44 (18)	
	21:57		20:57		19:41	31	18:35 (17)		18:28	20	17:04 (18)	
22	05:32		06:25		07:21		18:02 (17)		08:18		16:42 (18)	
	21:55		20:55		19:39	33	18:35 (17)		18:26	24	17:06 (18)	
23	05:33		06:27		07:23		18:01 (17)		08:20		16:40 (18)	
	21:54		20:52		19:36	35	18:36 (17)		18:24	27	17:07 (18)	
24	05:35		06:29		07:25		18:01 (17)		08:22		16:39 (18)	
	21:52		20:50		19:33	35	18:36 (17)		18:21	29	17:08 (18)	
25	05:37		06:31		07:27		18:00 (17)		07:24		15:37 (18)	
	21:51		20:48		19:31	37	18:37 (17)		17:19	31	16:08 (18)	
26	05:38		06:33		07:29		17:58 (17)		07:26		15:37 (18)	
	21:49		20:45		19:28	38	18:36 (17)		17:17	32	16:09 (18)	
27	05:40		06:35		07:31		17:58 (17)		07:27		15:36 (18)	
	21:47		20:43		19:26	38	18:36 (17)		17:15	33	16:09 (18)	
28	05:41		06:36		07:32		17:58 (17)		07:29		15:36 (18)	
	21:46		20:40		19:23	38	18:36 (17)		17:13	34	16:10 (18)	
29	05:43		06:38		07:34		17:58 (17)		07:31		15:36 (18)	
	21:44		20:38		19:21	37	18:35 (17)		17:11	34	16:10 (18)	
30	05:45		06:40		07:36		17:58 (17)		07:33		15:35 (18)	
	21:42		20:36		19:18	37	18:35 (17)		17:08	35	16:10 (18)	
31	05:46		06:42						07:35		15:35 (18)	
	21:40		20:33						17:06	35	16:10 (18)	
Potential sun hours	515		461		383		327		257		230	
Total, worst case						464		603		371		
Sun reduction						0.29		0.23		0.20		
Oper. time red.						1.00		1.00		1.00		
Wind dir. red.						0.57		0.59		0.59		
Total reduction						0.17		0.14		0.12		
Total, real						78		83		44		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AJ - H36

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June			
1	08:58		08:27		07:29		07:12		19:02 (9)		06:02		20:03 (10)	05:12	
	16:24		17:16		18:13		20:12	32	19:34 (9)		21:09	30	20:33 (10)	22:00	
2	08:58		08:25		07:26		07:10		19:02 (9)		06:00		20:02 (10)	05:11	
	16:25		17:18		18:15		20:14	33	19:35 (9)		21:11	31	20:33 (10)	22:01	
3	08:58		08:24		07:24		07:07		19:00 (9)		05:58		20:01 (10)	05:10	
	16:26		17:20		18:17		20:16	34	19:34 (9)		21:12	33	20:34 (10)	22:02	
4	08:58		08:22		07:21		07:05		19:00 (9)		05:56		20:01 (10)	05:09	
	16:27		17:22		18:19		20:18	34	19:34 (9)		21:14	33	20:34 (10)	22:03	
5	08:57		08:20		07:19		07:03		19:01 (9)		05:54		20:01 (10)	05:08	
	16:29		17:24		18:21		20:20	33	19:34 (9)		21:16	34	20:35 (10)	22:05	
6	08:57		08:18		07:17		07:00		19:00 (9)		05:52		20:01 (10)	05:07	
	16:30		17:26		18:23		20:22	33	19:33 (9)		21:18	34	20:35 (10)	22:06	
7	08:56		08:16		07:14		06:58		19:00 (9)		05:50		20:00 (10)	05:07	
	16:31		17:28		18:25		20:24	33	19:33 (9)		21:20	35	20:35 (10)	22:07	
8	08:56		08:14		07:12		06:55		19:00 (9)		05:48		20:00 (10)	05:06	
	16:33		17:30		18:26		20:26	32	19:32 (9)		21:22	35	20:35 (10)	22:08	
9	08:55		08:12		07:09		06:53		19:01 (9)		05:46		20:00 (10)	05:05	
	16:34		17:32		18:28		20:27	30	19:31 (9)		21:23	34	20:34 (10)	22:08	
10	08:55		08:10		07:07		06:50		19:02 (9)		05:44		20:01 (10)	05:05	
	16:36		17:34		18:30		20:29	29	19:31 (9)		21:25	34	20:35 (10)	22:09	
11	08:54		08:08		07:05		06:48		19:02 (9)		05:42		20:01 (10)	05:04	
	16:37		17:36		18:32		20:31	27	19:29 (9)		21:27	33	20:34 (10)	22:10	
12	08:53		08:06		07:02		06:45		19:03 (9)		05:40		20:01 (10)	05:04	
	16:39		17:38		18:34		20:33	25	19:28 (9)		21:29	33	20:34 (10)	22:11	
13	08:52		08:04		07:00		06:43		19:04 (9)		05:39		20:01 (10)	05:04	
	16:40		17:40		18:36		20:35	21	19:25 (9)		21:31	33	20:34 (10)	22:12	
14	08:51		08:02		06:57		06:41		19:06 (9)		05:37		20:01 (10)	05:03	
	16:42		17:43		18:38		20:37	17	19:23 (9)		21:32	32	20:33 (10)	22:12	
15	08:50		08:00		06:55		06:38		19:09 (9)		05:35		20:02 (10)	05:03	
	16:44		17:45		18:40		20:39	12	19:21 (9)		21:34	30	20:32 (10)	22:13	
16	08:49		07:58		06:52		06:36				05:33		20:03 (10)	05:03	21:36 (11)
	16:46		17:47		18:42		20:41				21:36	29	20:32 (10)	22:14	1 21:37 (11)
17	08:48		07:56		06:50		06:34				05:32		20:03 (10)	05:03	21:35 (11)
	16:47		17:49		18:44		20:42				21:37	28	20:31 (10)	22:14	2 21:37 (11)
18	08:47		07:54		06:47		06:31				05:30		20:04 (10)	05:03	21:35 (11)
	16:49		17:51		18:46		20:44				21:39	27	20:31 (10)	22:14	3 21:38 (11)
19	08:46		07:51		06:45		06:29				05:28		20:04 (10)	05:03	21:35 (11)
	16:51		17:53		18:48		20:46				21:41	26	20:30 (10)	22:15	3 21:38 (11)
20	08:45		07:49		06:42		06:27				05:27		20:06 (10)	05:03	21:35 (11)
	16:53		17:55		18:50		20:48				21:42	23	20:29 (10)	22:15	3 21:38 (11)
21	08:44		07:47		06:40		06:24				05:25		20:07 (10)	05:03	21:36 (11)
	16:55		17:57		18:51		20:50				21:44	22	20:29 (10)	22:15	3 21:39 (11)
22	08:42		07:45		06:37		06:22				05:24		20:08 (10)	05:03	21:36 (11)
	16:56		17:59		18:53		20:52				21:46	19	20:27 (10)	22:16	3 21:39 (11)
23	08:41		07:42		06:35		06:20				05:22		20:09 (10)	05:03	21:36 (11)
	16:58		18:01		18:55		20:54				21:47	17	20:26 (10)	22:16	3 21:39 (11)
24	08:40		07:40		06:32		06:17				05:21		20:11 (10)	05:04	21:36 (11)
	17:00		18:03		18:57		20:56				21:49	14	20:25 (10)	22:16	3 21:39 (11)
25	08:38		07:38		06:30		18:16 (9)		06:15		20:13 (10)		05:20	20:13 (10)	05:04	21:37 (11)
	17:02		18:05		18:59	9	18:25 (9)		20:58	13	20:26 (10)		21:50	10 20:23 (10)	22:16	2 21:39 (11)
26	08:37		07:36		06:27		18:12 (9)		06:13		20:09 (10)		05:18		05:05	21:37 (11)
	17:04		18:07		19:01	16	18:28 (9)		20:59	18	20:27 (10)		21:52		22:16	2 21:39 (11)
27	08:35		07:33		06:25		18:09 (9)		06:11		20:08 (10)		05:17		05:05	
	17:06		18:09		19:03	22	18:31 (9)		21:01	21	20:29 (10)		21:53		22:16	
28	08:34		07:31		06:22		18:07 (9)		06:09		20:06 (10)		05:16		05:06	
	17:08		18:11		19:05	25	18:32 (9)		21:03	24	20:30 (10)		21:54		22:16	
29	08:32				07:20		19:06 (9)		06:06		20:05 (10)		05:15		05:06	
	17:10				20:07	27	19:33 (9)		21:05	27	20:32 (10)		21:56		22:15	
30	08:30				07:17		19:04 (9)		06:04		20:04 (10)		05:14		05:07	
	17:12				20:09	29	19:33 (9)		21:07	28	20:32 (10)		21:57		22:15	
31	08:29				07:15		19:03 (9)						05:13			
	17:14				20:10	31	19:34 (9)						21:59			
Potential sun hours	248		272		367				421				496		513	
Total, worst case						159				556				709		28
Sun reduction						0.22				0.34				0.36		0.26
Oper. time red.						1.00				1.00				1.00		1.00
Wind dir. red.						0.59				0.59				0.61		0.64
Total reduction						0.13				0.20				0.22		0.17
Total, real						21				113				157		5

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AJ - H36

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October	November	December
1	05:07			05:48		20:11 (10)	06:44		19:01 (9)	07:38	07:37	08:33
	22:15			21:39	33	20:44 (10)	20:31	27	19:28 (9)	19:16	17:04	16:19
2	05:08			05:50		20:11 (10)	06:45		19:00 (9)	07:40	07:39	08:35
	22:14			21:37	34	20:45 (10)	20:28	29	19:29 (9)	19:14	17:02	16:18
3	05:09			05:52		20:10 (10)	06:47		18:59 (9)	07:42	07:41	08:36
	22:14			21:35	34	20:44 (10)	20:26	30	19:29 (9)	19:11	17:00	16:18
4	05:10			05:53		20:10 (10)	06:49		18:57 (9)	07:44	07:43	08:38
	22:13			21:33	35	20:45 (10)	20:24	32	19:29 (9)	19:09	16:58	16:17
5	05:11			05:55		20:11 (10)	06:51		18:56 (9)	07:45	07:45	08:39
	22:13			21:31	34	20:45 (10)	20:21	33	19:29 (9)	19:06	16:56	16:16
6	05:12			05:57		20:10 (10)	06:53		18:56 (9)	07:47	07:47	08:41
	22:12			21:29	34	20:44 (10)	20:19	33	19:29 (9)	19:04	16:55	16:16
7	05:13			05:59		20:10 (10)	06:54		18:56 (9)	07:49	07:49	08:42
	22:12			21:27	34	20:44 (10)	20:16	34	19:30 (9)	19:01	16:53	16:15
8	05:14			06:00		20:11 (10)	06:56		18:55 (9)	07:51	07:51	08:43
	22:11			21:25	33	20:44 (10)	20:14	33	19:28 (9)	18:59	16:51	16:15
9	05:15			06:02		20:10 (10)	06:58		18:55 (9)	07:53	07:53	08:45
	22:10			21:23	33	20:43 (10)	20:11	33	19:28 (9)	18:56	16:49	16:14
10	05:16			06:04		20:11 (10)	07:00		18:55 (9)	07:55	07:55	08:46
	22:09			21:21	32	20:43 (10)	20:09	33	19:28 (9)	18:54	16:47	16:14
11	05:17			06:06		20:12 (10)	07:02		18:55 (9)	07:57	07:57	08:47
	22:08			21:19	31	20:43 (10)	20:06	32	19:27 (9)	18:52	16:45	16:14
12	05:18			06:08		20:11 (10)	07:04		18:55 (9)	07:59	07:59	08:48
	22:07			21:17	30	20:41 (10)	20:04	31	19:26 (9)	18:49	16:44	16:14
13	05:19			06:09		20:12 (10)	07:05		18:55 (9)	08:00	08:01	08:49
	22:06			21:15	29	20:41 (10)	20:01	30	19:25 (9)	18:47	16:42	16:14
14	05:21			06:11		20:14 (10)	07:07		18:56 (9)	08:02	08:03	08:50
	22:05			21:12	26	20:40 (10)	19:59	28	19:24 (9)	18:44	16:40	16:14
15	05:22			06:13		20:14 (10)	07:09		18:57 (9)	08:04	08:05	08:51
	22:04			21:10	24	20:38 (10)	19:56	25	19:22 (9)	18:42	16:39	16:14
16	05:23			06:15		20:15 (10)	07:11		18:58 (9)	08:06	08:07	08:52
	22:03			21:08	21	20:36 (10)	19:54	21	19:19 (9)	18:40	16:37	16:14
17	05:25			06:17		20:17 (10)	07:13		18:59 (9)	08:08	08:09	08:53
	22:02			21:06	17	20:34 (10)	19:51	18	19:17 (9)	18:37	16:36	16:14
18	05:26		20:24 (10)	06:18		20:19 (10)	07:14		19:02 (9)	08:10	08:11	08:54
	22:00	7	20:31 (10)	21:04	12	20:31 (10)	19:49	12	19:14 (9)	18:35	16:34	16:14
19	05:28		20:22 (10)	06:20			07:16			08:12	08:12	08:54
	21:59	12	20:34 (10)	21:01			19:46			18:33	16:33	16:14
20	05:29		20:20 (10)	06:22			07:18			08:14	08:14	08:55
	21:58	15	20:35 (10)	20:59			19:44			18:30	16:31	16:15
21	05:31		20:19 (10)	06:24			07:20			08:16	08:16	08:56
	21:56	18	20:37 (10)	20:57			19:41			18:28	16:30	16:15
22	05:32		20:17 (10)	06:26			07:22			08:18	08:18	08:56
	21:55	21	20:38 (10)	20:55			19:39			18:26	16:29	16:15
23	05:34		20:17 (10)	06:27			07:23			08:20	08:20	08:57
	21:54	23	20:40 (10)	20:52			19:36			18:24	16:27	16:16
24	05:35		20:16 (10)	06:29			07:25			08:22	08:22	08:57
	21:52	24	20:40 (10)	20:50			19:34			18:21	16:26	16:17
25	05:37		20:14 (10)	06:31			07:27			07:24	08:23	08:58
	21:50	27	20:41 (10)	20:48			19:31			17:19	16:25	16:17
26	05:38		20:14 (10)	06:33			07:29			07:26	08:25	08:58
	21:49	28	20:42 (10)	20:45			19:29			17:17	16:24	16:18
27	05:40		20:13 (10)	06:35			07:31			07:27	08:27	08:58
	21:47	29	20:42 (10)	20:43			19:26			17:15	16:23	16:19
28	05:42		20:13 (10)	06:36		19:10 (9)	07:32			07:29	08:28	08:58
	21:46	30	20:43 (10)	20:40	12	19:22 (9)	19:24			17:13	16:22	16:20
29	05:43		20:13 (10)	06:38		19:07 (9)	07:34			07:31	08:30	08:58
	21:44	31	20:44 (10)	20:38	17	19:24 (9)	19:21			17:11	16:21	16:20
30	05:45		20:12 (10)	06:40		19:05 (9)	07:36			07:33	08:32	08:58
	21:42	32	20:44 (10)	20:36	21	19:26 (9)	19:19			17:09	16:20	16:21
31	05:47		20:12 (10)	06:42		19:03 (9)				07:35		08:58
	21:40	33	20:45 (10)	20:33	25	19:28 (9)				17:06		16:22
Potential sun hours	515			461			382			328	257	231
Total, worst case		330			601			514				
Sun reduction		0.27			0.27			0.29				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.61			0.61			0.59				
Total reduction		0.16			0.17			0.17				
Total, real		54			100			88				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AK - H37

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:59		08:27		07:29		07:13		06:02		06:28 (15)	
	16:24		17:16		18:13		20:12		21:09	4	06:32 (15)	
2	08:58		08:26		07:26		07:10		06:00		06:26 (15)	
	16:25		17:18		18:15		20:14		21:11	6	06:32 (15)	
3	08:58		08:24		07:24		07:08		05:58		06:24 (15)	
	16:26		17:20		18:17		20:16		21:13	8	06:32 (15)	
4	08:58		08:22		07:22	07:46 (11)	07:05		05:56		06:23 (15)	
	16:27		17:22		18:19	1 07:47 (11)	20:18		21:15	9	06:32 (15)	
5	08:58		08:20		07:19	07:44 (11)	07:03		05:54		06:21 (15)	
	16:29		17:24		18:21	3 07:47 (11)	20:20		21:16	10	06:31 (15)	
6	08:57		08:18		07:17	07:41 (11)	07:00		05:52		06:19 (15)	
	16:30		17:26		18:23	5 07:46 (11)	20:22		21:18	11	06:30 (15)	
7	08:57		08:16		07:14	07:39 (11)	06:58		05:50		06:17 (15)	
	16:31		17:28		18:25	6 07:45 (11)	20:24		21:20	12	06:29 (15)	
8	08:56		08:14		07:12	07:37 (11)	06:55		05:48		06:19 (15)	
	16:33		17:30		18:27	7 07:44 (11)	20:26		21:22	8	06:27 (15)	
9	08:55		08:13		07:10	07:35 (11)	06:53		05:46			
	16:34		17:32		18:29	5 07:40 (11)	20:28		21:24			
10	08:55		08:11		07:07		06:50	07:15 (13)	05:44			
	16:36		17:34		18:31		20:29	2 07:17 (13)	21:25			
11	08:54		08:09		07:05		06:48	07:12 (13)	05:42			
	16:37		17:36		18:32		20:31	4 07:16 (13)	21:27			
12	08:53		08:07		07:02		06:46	07:10 (13)	05:41			
	16:39		17:39		18:34		20:33	6 07:16 (13)	21:29			
13	08:52		08:04		07:00		06:43	07:08 (13)	05:39			
	16:41		17:41		18:36		20:35	8 07:16 (13)	21:31			
14	08:52		08:02		06:57		06:41	07:05 (13)	05:37			
	16:42		17:43		18:38		20:37	9 07:14 (13)	21:32			
15	08:51		08:00		06:55		06:38	07:03 (13)	05:35			
	16:44		17:45		18:40		20:39	10 07:13 (13)	21:34			
16	08:50		07:58		06:52		06:36	07:01 (13)	05:33			
	16:46		17:47		18:42		20:41	10 07:11 (13)	21:36			
17	08:49		07:56		06:50		06:34	07:03 (13)	05:32			
	16:47		17:49		18:44		20:43	4 07:07 (13)	21:38			
18	08:48		07:54		06:47		06:31		05:30			
	16:49		17:51		18:46		20:45		21:39			
19	08:46		07:52		06:45	07:09 (12)	06:29		05:29			
	16:51		17:53		18:48	2 07:11 (12)	20:46		21:41			
20	08:45		07:49		06:42	07:06 (12)	06:27		05:27			
	16:53		17:55		18:50	4 07:10 (12)	20:48		21:43			
21	08:44		07:47		06:40	07:04 (12)	06:24		05:26			
	16:55		17:57		18:52	5 07:09 (12)	20:50		21:44			
22	08:43		07:45		06:37	07:01 (12)	06:22		05:24			
	16:57		17:59		18:54	6 07:07 (12)	20:52		21:46			
23	08:41		07:43		06:35	06:59 (12)	06:20		05:23			
	16:58		18:01		18:55	6 07:05 (12)	20:54		21:47			
24	08:40		07:40		06:32		06:18		05:21			
	17:00		18:03		18:57		20:56		21:49			
25	08:38		07:38		06:30		06:15		05:20			
	17:02		18:05		18:59		20:58		21:50			
26	08:37		07:36		06:28		06:13		05:19			
	17:04		18:07		19:01		21:00		21:52			
27	08:35		07:33		06:25		06:11		05:17		05:48 (14)	
	17:06		18:09		19:03		21:01		21:53	1	05:49 (14)	
28	08:34		07:31		06:23		06:09		05:16		05:47 (14)	
	17:08		18:11		19:05		21:03		21:55	3	05:50 (14)	
29	08:32				07:20		06:07		05:15		05:46 (14)	
	17:10				20:07		21:05		21:56	4	05:50 (14)	
30	08:31				07:18		06:04	06:30 (15)	05:14		05:45 (14)	
	17:12				20:09		21:07	2 06:32 (15)	21:57	6	05:51 (14)	
31	08:29				07:15				05:13		05:44 (14)	
	17:14				20:11				21:59	7	05:51 (14)	
Potential sun hours	248		272		367		421		496		513	
Total, worst case						50		55		89		501
Sun reduction						0.22		0.34		0.36		0.26
Oper. time red.						1.00		1.00		1.00		1.00
Wind dir. red.						0.59		0.57		0.58		0.58
Total reduction						0.13		0.19		0.21		0.15
Total, real						7		11		19		75

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AK - H37

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:08	05:41 (14)	05:48		06:44	07:11 (13)	07:38		07:38	08:34
	22:15	17 05:58 (14)	21:39		20:31	4 07:15 (13)	19:16		17:05	16:19
2	05:08	05:42 (14)	05:50		06:46	07:13 (13)	07:40		07:40	08:35
	22:15	17 05:59 (14)	21:37		20:29	2 07:15 (13)	19:14		17:03	16:18
3	05:09	05:43 (14)	05:52		06:47		07:42		07:42	08:37
	22:14	16 05:59 (14)	21:35		20:26		19:11		17:01	16:18
4	05:10	05:44 (14)	05:54	06:30 (15)	06:49		07:44		07:43	08:38
	22:14	15 05:59 (14)	21:33	5 06:35 (15)	20:24		19:09		16:59	16:17
5	05:11	05:44 (14)	05:55	06:28 (15)	06:51		07:46	08:12 (11)	07:45	08:40
	22:13	15 05:59 (14)	21:31	10 06:38 (15)	20:21		19:06	6 08:18 (11)	16:57	16:16
6	05:12	05:45 (14)	05:57	06:27 (15)	06:53		07:47	08:14 (11)	07:47	08:41
	22:12	14 05:59 (14)	21:29	12 06:39 (15)	20:19		19:04	6 08:20 (11)	16:55	16:16
7	05:13	05:46 (14)	05:59	06:29 (15)	06:55		07:49	08:16 (11)	07:49	08:42
	22:12	13 05:59 (14)	21:27	11 06:40 (15)	20:16		19:01	5 08:21 (11)	16:53	16:15
8	05:14	05:47 (14)	06:01	06:31 (15)	06:56		07:51	08:18 (11)	07:51	08:44
	22:11	12 05:59 (14)	21:25	10 06:41 (15)	20:14		18:59	4 08:22 (11)	16:51	16:15
9	05:15	05:48 (14)	06:02	06:32 (15)	06:58		07:53	08:20 (11)	07:53	08:45
	22:10	11 05:59 (14)	21:23	9 06:41 (15)	20:11		18:57	2 08:22 (11)	16:49	16:15
10	05:16	05:49 (14)	06:04	06:34 (15)	07:00		07:55		07:55	08:46
	22:09	10 05:59 (14)	21:21	7 06:41 (15)	20:09		18:54		16:47	16:14
11	05:17	05:50 (14)	06:06	06:36 (15)	07:02		07:57		07:57	08:47
	22:08	9 05:59 (14)	21:19	6 06:42 (15)	20:06		18:52		16:46	16:14
12	05:18	05:51 (14)	06:08	06:37 (15)	07:04		07:59		07:59	08:48
	22:08	8 05:59 (14)	21:17	4 06:41 (15)	20:04		18:49		16:44	16:14
13	05:20	05:53 (14)	06:09	06:39 (15)	07:05		08:01		08:01	08:49
	22:07	7 06:00 (14)	21:15	2 06:41 (15)	20:01		18:47		16:42	16:14
14	05:21	05:54 (14)	06:11		07:07		08:02		08:03	08:50
	22:05	5 05:59 (14)	21:13		19:59		18:45		16:41	16:14
15	05:22	05:55 (14)	06:13		07:09		08:04		08:05	08:51
	22:04	4 05:59 (14)	21:11		19:56		18:42		16:39	16:14
16	05:23	05:56 (14)	06:15		07:11		08:06		08:07	08:52
	22:03	2 05:58 (14)	21:08		19:54		18:40		16:37	16:14
17	05:25		06:17		07:13		08:08		08:09	08:53
	22:02		21:06		19:51		18:37		16:36	16:14
18	05:26		06:18		07:14		08:10		08:11	08:54
	22:01		21:04		19:49		18:35		16:34	16:14
19	05:28		06:20		07:16		08:12		08:13	08:55
	21:59		21:02		19:46		18:33		16:33	16:14
20	05:29		06:22		07:18	07:45 (12)	08:14		08:15	08:55
	21:58		20:59		19:44	6 07:51 (12)	18:31		16:31	16:15
21	05:31		06:24		07:20	07:46 (12)	08:16		08:16	08:56
	21:57		20:57		19:41	6 07:52 (12)	18:28		16:30	16:15
22	05:32		06:26		07:22	07:48 (12)	08:18		08:18	08:57
	21:55		20:55		19:39	5 07:53 (12)	18:26		16:29	16:16
23	05:34		06:28		07:24	07:50 (12)	08:20		08:20	08:57
	21:54		20:52		19:36	4 07:54 (12)	18:24		16:28	16:16
24	05:35		06:29		07:25	07:52 (12)	08:22		08:22	08:57
	21:52		20:50		19:34	2 07:54 (12)	18:22		16:26	16:17
25	05:37		06:31		07:27		07:24		08:24	08:58
	21:51		20:48		19:31		17:19		16:25	16:17
26	05:38		06:33	07:05 (13)	07:29		07:26		08:25	08:58
	21:49		20:45	6 07:11 (13)	19:29		17:17		16:24	16:18
27	05:40		06:35	07:03 (13)	07:31		07:28		08:27	08:58
	21:47		20:43	10 07:13 (13)	19:26		17:15		16:23	16:19
28	05:42		06:37	07:05 (13)	07:33		07:30		08:29	08:59
	21:46		20:41	10 07:15 (13)	19:24		17:13		16:22	16:20
29	05:43		06:38	07:06 (13)	07:34		07:32		08:30	08:59
	21:44		20:38	9 07:15 (13)	19:21		17:11		16:21	16:21
30	05:45		06:40	07:08 (13)	07:36		07:34		08:32	08:59
	21:42		20:36	8 07:16 (13)	19:19		17:09		16:20	16:21
31	05:47		06:42	07:10 (13)			07:36			08:59
	21:41		20:33	6 07:16 (13)			17:07			16:22
Potential sun hours	515		461		383		328		257	231
Total, worst case		175		125		29		23		
Sun reduction		0.27		0.27		0.29		0.23		
Oper. time red.		1.00		1.00		1.00		1.00		
Wind dir. red.		0.58		0.58		0.59		0.60		
Total reduction		0.16		0.16		0.17		0.14		
Total, real		27		20		5		3		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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F91 RHH9 Sligo
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AL - H38

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June
1	08:58	14:48 (18)	08:27	16:03 (17)	07:29	07:12	06:02	05:11
	16:24	32 15:20 (18)	17:16	34 16:37 (17)	18:13	20:12	21:09	22:00
2	08:58	14:49 (18)	08:25	16:02 (17)	07:26	07:10	06:00	05:10
	16:25	32 15:21 (18)	17:18	36 16:38 (17)	18:15	20:14	21:11	22:01
3	08:58	14:50 (18)	08:24	16:02 (17)	07:24	07:07	05:58	05:10
	16:26	31 15:21 (18)	17:20	36 16:38 (17)	18:17	20:16	21:13	22:02
4	08:58	14:50 (18)	08:22	16:02 (17)	07:21	07:05	05:56	05:09
	16:27	31 15:21 (18)	17:22	37 16:39 (17)	18:19	20:18	21:14	22:04
5	08:57	14:51 (18)	08:20	16:02 (17)	07:19	07:02	05:54	05:08
	16:28	31 15:22 (18)	17:24	37 16:39 (17)	18:21	20:20	21:16	22:05
6	08:57	14:51 (18)	08:18	16:02 (17)	07:17	07:00	05:52	05:07
	16:30	31 15:22 (18)	17:26	37 16:39 (17)	18:23	20:22	21:18	22:06
7	08:56	14:51 (18)	08:16	16:02 (17)	07:14	06:58	05:50	05:06
	16:31	31 15:22 (18)	17:28	38 16:40 (17)	18:24	20:24	21:20	22:07
8	08:56	14:52 (18)	08:14	16:02 (17)	07:12	06:55	05:48	05:06
	16:33	30 15:22 (18)	17:30	38 16:40 (17)	18:26	20:26	21:22	22:08
9	08:55	14:53 (18)	08:12	16:01 (17)	07:09	06:53	05:46	05:05
	16:34	30 15:23 (18)	17:32	38 16:39 (17)	18:28	20:27	21:24	22:09
10	08:55	14:54 (18)	08:10	16:02 (17)	07:07	06:50	05:44	05:05
	16:36	29 15:23 (18)	17:34	37 16:39 (17)	18:30	20:29	21:25	22:09
11	08:54	14:54 (18)	08:08	16:02 (17)	07:05	06:48	05:42	05:04
	16:37	29 15:23 (18)	17:36	37 16:39 (17)	18:32	20:31	21:27	22:10
12	08:53	14:55 (18)	08:06	16:03 (17)	07:02	06:45	05:40	05:04
	16:39	28 15:23 (18)	17:38	35 16:38 (17)	18:34	20:33	21:29	22:11
13	08:52	14:56 (18)	08:04	16:04 (17)	07:00	06:43	05:38	05:03
	16:40	27 15:23 (18)	17:40	34 16:38 (17)	18:36	20:35	21:31	22:12
14	08:51	14:57 (18)	08:02	16:05 (17)	06:57	06:41	05:37	05:03
	16:42	26 15:23 (18)	17:42	32 16:37 (17)	18:38	20:37	21:32	22:12
15	08:51	14:57 (18)	08:00	16:05 (17)	06:55	06:38	05:35	05:03
	16:44	25 15:22 (18)	17:44	31 16:36 (17)	18:40	20:39	21:34	22:13
16	08:50	14:58 (18)	07:58	16:06 (17)	06:52	06:36	05:33	05:03
	16:45	24 15:22 (18)	17:46	29 16:35 (17)	18:42	20:41	21:36	22:14
17	08:48	15:00 (18)	07:56	16:08 (17)	06:50	06:33	05:32	05:03
	16:47	22 15:22 (18)	17:49	26 16:34 (17)	18:44	20:43	21:37	22:14
18	08:47	15:01 (18)	07:54	16:10 (17)	06:47	06:31	05:30	05:03
	16:49	21 15:22 (18)	17:51	23 16:33 (17)	18:46	20:44	21:39	22:15
19	08:46	15:02 (18)	07:51	16:11 (17)	06:45	06:29	05:28	05:03
	16:51	18 15:20 (18)	17:53	19 16:30 (17)	18:48	20:46	21:41	22:15
20	08:45	15:05 (18)	07:49	16:15 (17)	06:42	06:26	05:27	05:03
	16:53	14 15:19 (18)	17:55	12 16:27 (17)	18:50	20:48	21:42	22:15
21	08:44	15:07 (18)	07:47		06:40	06:24	05:25	05:03
	16:54	10 15:17 (18)	17:57		18:51	20:50	21:44	22:16
22	08:42	16:13 (17)	07:45		06:37	06:22	05:24	05:03
	16:56	8 16:21 (17)	17:59		18:53	20:52	21:46	22:16
23	08:41	16:10 (17)	07:42		06:35	06:20	05:22	05:03
	16:58	13 16:23 (17)	18:01		18:55	20:54	21:47	22:16
24	08:40	16:09 (17)	07:40		06:32	06:17	05:21	05:04
	17:00	17 16:26 (17)	18:03		18:57	20:56	21:49	22:16
25	08:38	16:07 (17)	07:38		06:30	06:15	05:20	05:04
	17:02	21 16:28 (17)	18:05		18:59	20:58	21:50	22:16
26	08:37	16:05 (17)	07:36		06:27	06:13	05:18	05:04
	17:04	25 16:30 (17)	18:07		19:01	20:59	21:52	22:16
27	08:35	16:05 (17)	07:33		06:25	06:11	05:17	05:05
	17:06	27 16:32 (17)	18:09		19:03	21:01	21:53	22:16
28	08:34	16:04 (17)	07:31		06:22	06:08	05:16	05:05
	17:08	29 16:33 (17)	18:11		19:05	21:03	21:55	22:16
29	08:32	16:03 (17)			07:20	06:06	05:15	05:06
	17:10	31 16:34 (17)			20:07	21:05	21:56	22:16
30	08:31	16:03 (17)			07:17	06:04	05:14	05:07
	17:12	32 16:35 (17)			20:09	21:07	21:57	22:15
31	08:29	16:02 (17)			07:15		05:12	
	17:14	34 16:36 (17)			20:10		21:59	
Potential sun hours	248		272		367	421	496	513
Total, worst case		789		646				
Sun reduction		0.17		0.22				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.63		0.60				
Total reduction		0.11		0.13				
Total, real		84		86				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AL - H38

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October			November			December		
1	05:07		05:48		06:44		07:38			07:37		15:31 (17)	08:33		14:36 (18)
	22:15		21:39		20:31		19:16			17:04	37	16:08 (17)	16:19	29	15:05 (18)
2	05:08		05:50		06:45		07:40			07:39		15:31 (17)	08:35		14:36 (18)
	22:15		21:37		20:28		19:14			17:02	37	16:08 (17)	16:18	29	15:05 (18)
3	05:09		05:52		06:47		07:42			07:41		15:31 (17)	08:36		14:36 (18)
	22:14		21:35		20:26		19:11			17:00	38	16:09 (17)	16:17	30	15:06 (18)
4	05:10		05:53		06:49		07:44			07:43		15:31 (17)	08:38		14:37 (18)
	22:14		21:33		20:24		19:09			16:58	38	16:09 (17)	16:17	30	15:07 (18)
5	05:11		05:55		06:51		07:45			07:45		15:31 (17)	08:39		14:36 (18)
	22:13		21:31		20:21		19:06			16:56	38	16:09 (17)	16:16	31	15:07 (18)
6	05:11		05:57		06:53		07:47			07:47		15:31 (17)	08:41		14:37 (18)
	22:12		21:29		20:19		19:04			16:54	38	16:09 (17)	16:16	31	15:08 (18)
7	05:12		05:59		06:54		07:49			07:49		15:31 (17)	08:42		14:37 (18)
	22:12		21:27		20:16		19:01			16:53	37	16:08 (17)	16:15	31	15:08 (18)
8	05:13		06:00		06:56		07:51			07:51		15:32 (17)	08:43		14:38 (18)
	22:11		21:25		20:14		18:59			16:51	36	16:08 (17)	16:15	31	15:09 (18)
9	05:15		06:02		06:58		07:53			07:53		15:33 (17)	08:45		14:38 (18)
	22:10		21:23		20:11		18:56			16:49	36	16:09 (17)	16:14	31	15:09 (18)
10	05:16		06:04		07:00		07:55			07:55		15:33 (17)	08:46		14:38 (18)
	22:09		21:21		20:09		18:54			16:47	35	16:08 (17)	16:14	32	15:10 (18)
11	05:17		06:06		07:02		07:57			07:57		15:34 (17)	08:47		14:39 (18)
	22:08		21:19		20:06		18:51			16:45	33	16:07 (17)	16:14	32	15:11 (18)
12	05:18		06:07		07:03		07:59			07:59		15:35 (17)	08:48		14:39 (18)
	22:07		21:17		20:04		18:49			16:44	32	16:07 (17)	16:13	32	15:11 (18)
13	05:19		06:09		07:05		08:00			08:01		15:35 (17)	08:49		14:40 (18)
	22:06		21:15		20:01		18:47			16:42	31	16:06 (17)	16:13	32	15:12 (18)
14	05:21		06:11		07:07		08:02			08:03		15:36 (17)	08:50		14:40 (18)
	22:05		21:13		19:59		18:44			16:40	29	16:05 (17)	16:13	32	15:12 (18)
15	05:22		06:13		07:09		08:04			08:05		15:37 (17)	08:51		14:40 (18)
	22:04		21:10		19:56		18:42			16:39	27	16:04 (17)	16:13	32	15:12 (18)
16	05:23		06:15		07:11		08:06			08:07		15:39 (17)	08:52		14:41 (18)
	22:03		21:08		19:54		18:40			16:37	25	16:04 (17)	16:13	32	15:13 (18)
17	05:25		06:16		07:12		08:08			08:09		15:41 (17)	08:53		14:42 (18)
	22:02		21:06		19:51		18:37			16:36	21	16:02 (17)	16:14	32	15:14 (18)
18	05:26		06:18		07:14		08:10			08:11		15:43 (17)	08:54		14:41 (18)
	22:01		21:04		19:49		18:35			16:34	17	16:00 (17)	16:14	32	15:13 (18)
19	05:27		06:20		07:16		08:12			08:13		15:45 (17)	08:55		14:42 (18)
	21:59		21:01		19:46		18:33			16:33	13	15:58 (17)	16:14	32	15:14 (18)
20	05:29		06:22		07:18		08:14			08:14		15:48 (17)	08:55		14:43 (18)
	21:58		20:59		19:44		18:30			16:31	8	15:56 (17)	16:14	32	15:15 (18)
21	05:30		06:24		07:20		08:16			08:16		14:43 (18)	08:56		14:43 (18)
	21:57		20:57		19:41		18:28			16:30	10	14:53 (18)	16:15	32	15:15 (18)
22	05:32		06:25		07:21		08:18		16:44 (17)	08:18		14:41 (18)	08:56		14:44 (18)
	21:55		20:55		19:39		18:26	14	16:58 (17)	16:29	14	14:55 (18)	16:15	32	15:16 (18)
23	05:33		06:27		07:23		08:20		16:41 (17)	08:20		14:39 (18)	08:57		14:44 (18)
	21:54		20:52		19:36		18:24	20	17:01 (17)	16:27	18	14:57 (18)	16:16	32	15:16 (18)
24	05:35		06:29		07:25		08:22		16:39 (17)	08:22		14:38 (18)	08:57		14:44 (18)
	21:52		20:50		19:34		18:21	23	17:02 (17)	16:26	21	14:59 (18)	16:16	32	15:16 (18)
25	05:37		06:31		07:27		07:24		15:37 (17)	08:23		14:38 (18)	08:58		14:45 (18)
	21:51		20:48		19:31		17:19	27	16:04 (17)	16:25	22	15:00 (18)	16:17	32	15:17 (18)
26	05:38		06:33		07:29		07:26		15:35 (17)	08:25		14:37 (18)	08:58		14:45 (18)
	21:49		20:45		19:28		17:17	30	16:05 (17)	16:24	24	15:01 (18)	16:18	32	15:17 (18)
27	05:40		06:35		07:31		07:28		15:34 (17)	08:27		14:37 (18)	08:58		14:46 (18)
	21:47		20:43		19:26		17:15	32	16:06 (17)	16:23	25	15:02 (18)	16:18	32	15:18 (18)
28	05:41		06:36		07:32		07:29		15:34 (17)	08:29		14:36 (18)	08:58		14:46 (18)
	21:46		20:40		19:23		17:13	33	16:07 (17)	16:22	26	15:02 (18)	16:19	32	15:18 (18)
29	05:43		06:38		07:34		07:31		15:33 (17)	08:30		14:36 (18)	08:58		14:47 (18)
	21:44		20:38		19:21		17:11	35	16:08 (17)	16:21	27	15:03 (18)	16:20	32	15:19 (18)
30	05:45		06:40		07:36		07:33		15:32 (17)	08:32		14:36 (18)	08:59		14:47 (18)
	21:42		20:36		19:18		17:08	36	16:08 (17)	16:20	28	15:04 (18)	16:21	32	15:19 (18)
31	05:46		06:42				07:35		15:32 (17)				08:59		14:48 (18)
	21:40		20:33				17:06	36	16:08 (17)				16:22	32	15:20 (18)
Potential sun hours	515		461		383		327			257			230		
Total, worst case								286			821			977	
Sun reduction								0.23			0.20			0.12	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.60			0.61			0.64	
Total reduction								0.14			0.12			0.08	
Total, real								40			100			74	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AM - H39

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	19:00 (5)	06:02	05:12	05:08	05:48	06:44	07:38	18:38 (6)	07:37	08:33
	16:24	17:16	18:13	20:12	7 19:07 (5)	21:09	22:00	22:15	21:39	20:31	19:16	10 18:48 (6)	17:04	16:19
2	08:58	08:25	07:26	07:10		06:00	05:11	05:08	05:50	06:46	07:40	18:39 (6)	07:39	08:35
	16:25	17:18	18:15	20:14		21:11	22:01	22:14	21:37	20:28	19:14	6 18:45 (6)	17:02	16:18
3	08:58	08:24	07:24	07:08		05:58	05:10	05:09	05:52	06:47	07:42	18:39 (6)	07:41	08:36
	16:26	17:20	18:17	20:16		21:13	22:02	22:14	21:35	20:26	19:11	3 18:42 (6)	17:00	16:18
4	08:58	08:22	07:22	07:05		05:56	05:09	05:10	05:54	06:49	07:44		07:43	08:38
	16:27	17:22	18:19	20:18		21:14	22:03	22:13	21:33	20:24	19:09		16:59	16:17
5	08:57	08:20	07:19	07:03		05:54	05:08	05:11	05:55	06:51	07:45		07:45	08:39
	16:29	17:24	18:21	20:20		21:16	22:05	22:13	21:31	20:21	19:06		16:57	16:16
6	08:57	08:18	07:17	07:00		05:52	05:07	05:12	05:57	06:53	07:47		07:47	08:41
	16:30	17:26	18:23	20:22		21:18	22:06	22:12	21:29	20:19	19:04		16:55	16:16
7	08:56	08:16	07:14	06:58		05:50	05:07	05:13	05:59	06:55	07:49		07:49	08:42
	16:31	17:28	18:25	20:24		21:20	22:07	22:12	21:27	20:16	19:01		16:53	16:15
8	08:56	08:14	07:12	06:55		05:48	05:06	05:14	06:01	06:56	07:51		07:51	08:43
	16:33	17:30	18:27	20:26		21:22	22:08	22:11	21:25	20:14	18:59		16:51	16:15
9	08:55	08:12	07:10	06:53		05:46	05:06	05:15	06:02	06:58	07:53		07:53	08:45
	16:34	17:32	18:29	20:27		21:23	22:09	22:10	21:23	20:11	18:56		16:49	16:15
10	08:55	08:10	07:07	18:02 (6)		06:50	05:44	05:05	05:16	06:04	07:00	07:55		07:55	08:46
	16:36	17:34	18:30	1 18:03 (6)		20:29	21:25	22:09	22:09	21:21	20:09	18:54		16:47	16:14
11	08:54	08:08	07:05	18:01 (6)		06:48	05:42	05:05	05:17	06:06	07:02	07:57		07:57	08:47
	16:37	17:36	18:32	4 18:05 (6)		20:31	21:27	22:10	22:08	21:19	20:06	6 19:00 (5)	18:52	16:46	16:14
12	08:53	08:06	07:02	17:58 (6)		06:46	05:41	05:04	05:18	06:08	07:04	18:48 (5)	07:59	07:59	08:48
	16:39	17:39	18:34	9 18:07 (6)		20:33	21:29	22:11	22:07	21:17	20:04	15 19:03 (5)	18:49	16:44	16:14
13	08:52	08:04	07:00	17:58 (6)		06:43	05:39	05:04	05:20	06:09	07:05	18:46 (5)	08:00	08:01	08:49
	16:41	17:41	18:36	11 18:09 (6)		20:35	21:31	22:12	22:06	21:15	20:01	19 19:05 (5)	18:47	16:42	16:14
14	08:51	08:02	06:57	17:56 (6)		06:41	05:37	05:04	05:21	06:11	07:07	18:44 (5)	08:02	08:03	08:50
	16:42	17:43	18:38	15 18:11 (6)		20:37	21:32	22:12	22:05	21:13	19:59	23 19:07 (5)	18:44	16:41	16:14
15	08:50	08:00	06:55	17:56 (6)		06:38	05:35	05:03	05:22	06:13	07:09	18:42 (5)	08:04	08:05	08:51
	16:44	17:45	18:40	17 18:13 (6)		20:39	21:34	22:13	22:04	21:10	19:56	26 19:08 (5)	18:42	16:39	16:14
16	08:49	07:58	06:52	17:54 (5)		06:36	05:33	05:03	05:23	06:15	07:11	18:41 (5)	08:06	08:07	08:52
	16:46	17:47	18:42	21 18:15 (6)		20:41	21:36	22:14	22:03	21:08	19:54	28 19:09 (5)	18:40	16:37	16:14
17	08:48	07:56	06:50	17:54 (5)		06:34	05:32	05:03	05:25	06:17	07:13	18:39 (5)	08:08	08:09	08:53
	16:47	17:49	18:44	23 18:17 (6)		20:43	21:37	22:14	22:02	21:06	19:51	30 19:09 (5)	18:37	16:36	16:14
18	08:47	07:54	06:47	17:52 (5)		06:31	05:30	05:03	05:26	06:18	07:14	18:38 (5)	08:10	08:11	08:54
	16:49	17:51	18:46	27 18:19 (6)		20:44	21:39	22:14	22:01	21:04	19:49	31 19:09 (5)	18:35	16:34	16:14
19	08:46	07:51	06:45	17:52 (5)		06:29	05:29	05:03	05:28	06:20	07:16	18:37 (5)	08:12	08:12	08:55
	16:51	17:53	18:48	29 18:21 (5)		20:46	21:41	22:15	21:59	21:01	19:46	33 19:10 (5)	18:33	16:33	16:14
20	08:45	07:49	06:42	17:51 (5)		06:27	05:27	05:03	05:29	06:22	07:18	18:37 (5)	08:14	08:14	08:55
	16:53	17:55	18:50	31 18:22 (5)		20:48	21:42	22:15	21:58	20:59	19:44	33 19:10 (5)	18:31	16:31	16:15
21	08:44	07:47	06:40	17:51 (5)		06:24	05:26	05:03	05:31	06:24	07:20	18:36 (5)	08:16	08:16	08:56
	16:55	17:57	18:52	33 18:24 (5)		20:50	21:44	22:15	21:56	20:57	19:41	33 19:09 (5)	18:28	16:30	16:15
22	08:42	07:45	06:37	17:50 (5)		06:22	05:24	05:03	05:32	06:26	07:22	18:35 (5)	08:18	08:18	08:56
	16:57	17:59	18:53	33 18:23 (5)		20:52	21:46	22:16	21:55	20:55	19:39	34 19:09 (5)	18:26	16:29	16:16
23	08:41	07:43	06:35	17:50 (5)		06:20	05:23	05:04	05:34	06:27	07:23	18:35 (5)	08:20	08:20	08:57
	16:58	18:01	18:55	33 18:23 (5)		20:54	21:47	22:16	21:54	20:52	19:36	33 19:08 (5)	18:24	16:28	16:16
24	08:40	07:40	06:32	17:50 (5)		06:18	05:21	05:04	05:35	06:29	07:25	18:35 (5)	08:22	08:22	08:57
	17:00	18:03	18:57	32 18:22 (5)		20:56	21:49	22:16	21:52	20:50	19:34	30 19:05 (5)	18:22	16:26	16:17
25	08:38	07:38	06:30	17:50 (5)		06:15	05:20	05:04	05:37	06:31	07:27	18:36 (5)	07:24	08:23	08:58
	17:02	18:05	18:59	32 18:22 (5)		20:58	21:50	22:16	21:51	20:48	19:31	27 19:03 (6)	17:19	16:25	16:17
26	08:37	07:36	06:27	17:50 (5)		06:13	05:19	05:05	05:38	06:33	07:29	18:35 (5)	07:26	08:25	08:58
	17:04	18:07	19:01	31 18:21 (5)		20:59	21:52	22:16	21:49	20:45	19:29	25 19:00 (6)	17:17	16:24	16:18
27	08:35	07:33	06:25	17:51 (5)		06:11	05:17	05:05	05:40	06:35	07:31	18:36 (5)	07:28	08:27	08:58
	17:06	18:09	19:03	29 18:20 (5)		21:01	21:53	22:16	21:47	20:43	19:26	21 18:57 (6)	17:15	16:23	16:19
28	08:34	07:31	06:22	17:52 (5)		06:09	05:16	05:06	05:42	06:37	07:33	18:37 (6)	07:30	08:28	08:58
	17:08	18:11	19:05	26 18:18 (5)		21:03	21:55	22:16	21:46	20:41	19:24	18 18:55 (6)	17:13	16:22	16:20
29	08:32		07:20	18:53 (5)		06:07	05:15	05:06	05:43	06:38	07:34	18:37 (6)	07:31	08:30	08:58
	17:10		20:07	24 19:17 (5)		21:05	21:56	22:15	21:44	20:38	19:21	16 18:53 (6)	17:11	16:21	16:21
30	08:31		07:17	18:54 (5)		06:04	05:14	05:07	05:45	06:40	07:36	18:37 (6)	07:33	08:32	08:58
	17:12		20:09	20 19:14 (5)		21:07	21:57	22:15	21:42	20:36	19:19	13 18:50 (6)	17:09	16:20	16:22
31	08:29		07:15	18:57 (5)			05:13		05:47	06:42			07:35		08:58
	17:14		20:10	15 19:12 (5)			21:59		21:40	20:33			17:07		16:23
Potential sun hours	248	272	367	421		496	513	515	461	382		328		257	231
Total, worst case			496	7						494	19			
Sun reduction			0.22	0.34						0.29	0.23			
Oper. time red.			1.00	1.00						1.00	1.00			
Wind dir. red.			0.58	0.58						0.58	0.57			
Total reduction			0.13	0.20						0.17	0.13			
Total, real			64	1						83	3			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AN - H40

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June	July	August	September	October	November		December	
1	08:58		08:27	15:57 (1)	07:29	07:12	06:02	05:12	05:08	05:48	06:44	07:38	07:37		08:33	15:29 (1)
	16:24		17:16	20 16:17 (1)	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04		16:19	14 15:43 (1)
2	08:58		08:25	16:00 (1)	07:26	07:10	06:00	05:11	05:08	05:50	06:46	07:40	07:39		08:35	15:29 (1)
	16:25		17:18	16 16:16 (1)	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:02		16:18	12 15:41 (1)
3	08:58	15:47 (1)	08:24	16:03 (1)	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41		08:36	15:31 (1)
	16:26	1 15:48 (1)	17:20	11 16:14 (1)	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:00		16:18	10 15:41 (1)
4	08:58	15:47 (1)	08:22		07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43		08:38	15:32 (1)
	16:27	2 15:49 (1)	17:22		18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:58		16:17	8 15:40 (1)
5	08:57	15:47 (1)	08:20		07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45		08:39	15:32 (1)
	16:29	3 15:50 (1)	17:24		18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57		16:16	7 15:39 (1)
6	08:57	15:47 (1)	08:18		07:17	07:00	05:52	05:07	05:12	05:57	06:53	07:47	07:47		08:41	15:33 (1)
	16:30	5 15:52 (1)	17:26		18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55		16:16	6 15:39 (1)
7	08:56	15:47 (1)	08:16		07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49		08:42	15:34 (1)
	16:31	7 15:54 (1)	17:28		18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53		16:15	4 15:38 (1)
8	08:56	15:47 (1)	08:14		07:12	06:55	05:48	05:06	05:14	06:00	06:56	07:51	07:51	15:32 (1)	08:43	15:35 (1)
	16:33	8 15:55 (1)	17:30		18:27	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	12 15:44 (1)	16:15	3 15:38 (1)
9	08:55	15:46 (1)	08:12		07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	15:30 (1)	08:45	15:36 (1)
	16:34	10 15:56 (1)	17:32		18:28	20:27	21:23	22:08	22:10	21:23	20:11	18:56	16:49	16 15:46 (1)	16:15	1 15:37 (1)
10	08:55	15:47 (1)	08:10		07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	15:29 (1)	08:46	
	16:36	12 15:59 (1)	17:34		18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	20 15:49 (1)	16:14	
11	08:54	15:47 (1)	08:08		07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	15:27 (1)	08:47	
	16:37	14 16:01 (1)	17:36		18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:45	23 15:50 (1)	16:14	
12	08:53	15:47 (1)	08:06		07:02	06:46	05:40	05:04	05:18	06:08	07:04	07:59	07:59	15:26 (1)	08:48	
	16:39	15 16:02 (1)	17:38		18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	25 15:51 (1)	16:14	
13	08:52	15:48 (1)	08:04		07:00	06:43	05:39	05:04	05:20	06:09	07:05	08:00	08:01	15:25 (1)	08:49	
	16:41	16 16:04 (1)	17:41		18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	27 15:52 (1)	16:14	
14	08:51	15:47 (1)	08:02		06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03	15:25 (1)	08:50	
	16:42	18 16:05 (1)	17:43		18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:44	16:40	27 15:52 (1)	16:14	
15	08:50	15:47 (1)	08:00		06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	15:24 (1)	08:51	
	16:44	20 16:07 (1)	17:45		18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	29 15:53 (1)	16:14	
16	08:49	15:47 (1)	07:58		06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07	15:24 (1)	08:52	
	16:46	23 16:10 (1)	17:47		18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	30 15:54 (1)	16:14	
17	08:48	15:48 (1)	07:56		06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	15:24 (1)	08:53	
	16:47	24 16:12 (1)	17:49		18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36	30 15:54 (1)	16:14	
18	08:47	15:48 (1)	07:54		06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11	15:24 (1)	08:54	
	16:49	26 16:14 (1)	17:51		18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	32 15:56 (1)	16:14	
19	08:46	15:48 (1)	07:51		06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	15:24 (1)	08:54	
	16:51	27 16:15 (1)	17:53		18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	32 15:56 (1)	16:14	
20	08:45	15:49 (1)	07:49		06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	15:24 (1)	08:55	
	16:53	29 16:18 (1)	17:55		18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	32 15:56 (1)	16:15	
21	08:44	15:48 (1)	07:47		06:40	06:24	05:25	05:03	05:31	06:24	07:20	08:16	08:16	15:24 (1)	08:56	
	16:55	31 16:19 (1)	17:57		18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	32 15:56 (1)	16:15	
22	08:42	15:49 (1)	07:45		06:37	06:22	05:24	05:03	05:32	06:26	07:22	08:18	08:18	15:25 (1)	08:56	
	16:56	32 16:21 (1)	17:59		18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	29 15:54 (1)	16:15	
23	08:41	15:49 (1)	07:42		06:35	06:20	05:23	05:04	05:34	06:27	07:23	08:20	08:20	15:25 (1)	08:57	
	16:58	32 16:21 (1)	18:01		18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	28 15:53 (1)	16:16	
24	08:40	15:50 (1)	07:40		06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22	15:25 (1)	08:57	
	17:00	32 16:22 (1)	18:03		18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	16:26	26 15:51 (1)	16:17	
25	08:38	15:51 (1)	07:38		06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	15:26 (1)	08:58	
	17:02	30 16:21 (1)	18:05		18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	24 15:50 (1)	16:17	
26	08:37	15:51 (1)	07:36		06:27	06:13	05:19	05:05	05:38	06:33	07:29	07:26	08:25	15:26 (1)	08:58	
	17:04	30 16:21 (1)	18:07		19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	23 15:49 (1)	16:18	
27	08:35	15:52 (1)	07:33		06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	15:26 (1)	08:58	
	17:06	29 16:21 (1)	18:09		19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	21 15:47 (1)	16:19	
28	08:34	15:53 (1)	07:31		06:22	06:09	05:16	05:06	05:42	06:36	07:32	07:29	08:28	15:27 (1)	08:58	
	17:08	28 16:21 (1)	18:11		19:05	21:03	21:54	22:16	21:46	20:40	19:24	17:13	16:22	18 15:45 (1)	16:20	
29	08:32	15:54 (1)			07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	08:30	15:28 (1)	08:58	
	17:10	26 16:20 (1)			20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	17 15:45 (1)	16:20	
30	08:30	15:55 (1)			07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	15:29 (1)	08:58	
	17:12	24 16:19 (1)			20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	15 15:44 (1)	16:21	
31	08:29	15:56 (1)			07:15		05:13		05:47	06:42		07:35			08:58	
	17:14	22 16:18 (1)			20:10		21:58		21:40	20:33		17:06			16:22	
Potential sun hours	248		272		367	421	496	513	515	461	382	328	257		231	
Total, worst case	576		47										568		65	
Sun reduction	0.17		0.22										0.20		0.12	
Oper. time red.	1.00		1.00										1.00		1.00	
Wind dir. red.	0.61		0.61										0.61		0.61	
Total reduction	0.10		0.14										0.12		0.07	
Total, real	60		6										70		5	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AO - H41

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June		
1	08:59	08:27	07:29	07:13		06:02		05:12		05:45 (14)
	16:24	17:16	18:13	20:12		21:09		22:00	16	06:01 (14)
2	08:58	08:26	07:26	07:10		06:00		05:11		05:45 (14)
	16:25	17:18	18:15	20:14		21:11		22:01	15	06:00 (14)
3	08:58	08:24	07:24	07:08		05:58		05:10		05:46 (14)
	16:26	17:20	18:17	20:16		21:13		22:02	14	06:00 (14)
4	08:58	08:22	07:22	07:05		05:56		05:09		05:47 (14)
	16:27	17:22	18:19	20:18		21:15		22:04	13	06:00 (14)
5	08:58	08:20	07:19	07:03		05:54		05:08		05:48 (14)
	16:29	17:24	18:21	20:20		21:16		22:05	11	05:59 (14)
6	08:57	08:18	07:17	07:00		05:52		05:07		05:48 (14)
	16:30	17:26	18:23	20:22		21:18		22:06	11	05:59 (14)
7	08:57	08:16	07:14	06:58		05:50		05:07		05:49 (14)
	16:31	17:28	18:25	20:24		21:20		22:07	10	05:59 (14)
8	08:56	08:14	07:12	06:55		05:48		05:06		05:50 (14)
	16:33	17:30	18:27	20:26		21:22		22:08	8	05:58 (14)
9	08:55	08:13	07:10	06:53		05:46		05:06		05:51 (14)
	16:34	17:32	18:29	20:28		21:24		22:09	6	05:57 (14)
10	08:55	08:11	07:07	06:50	07:15 (13)	05:44		05:05		05:53 (14)
	16:36	17:34	18:31	20:29	2 07:17 (13)	21:25		22:10	3	05:56 (14)
11	08:54	08:09	07:05	06:48	07:12 (13)	05:42		05:05		
	16:37	17:37	18:33	20:31	4 07:16 (13)	21:27		22:10		
12	08:53	08:07	07:02	06:46	07:10 (13)	05:41		05:04		
	16:39	17:39	18:34	20:33	5 07:15 (13)	21:29		22:11		
13	08:53	08:04	07:00	06:43	07:08 (13)	05:39		05:04		
	16:41	17:41	18:36	20:35	6 07:14 (13)	21:31		22:12		
14	08:52	08:02	06:57	06:41	07:05 (13)	05:37		05:04		
	16:42	17:43	18:38	20:37	7 07:12 (13)	21:33		22:13		
15	08:51	08:00	06:55	06:38	07:06 (13)	05:35		05:03		
	16:44	17:45	18:40	20:39	2 07:08 (13)	21:34		22:13		
16	08:50	07:58	06:52	06:36		05:34		05:03		
	16:46	17:47	18:42	20:41		21:36		22:14		
17	08:49	07:56	06:50	06:34		05:32		05:03		
	16:47	17:49	18:44	20:43		21:38		22:14		
18	08:48	07:54	06:47	06:31		05:30		05:03		
	16:49	17:51	18:46	20:45		21:39		22:15		
19	08:46	07:52	06:45	06:29		05:29	05:58 (14)	05:03		
	16:51	17:53	18:48	20:46		21:41	2 06:00 (14)	22:15		
20	08:45	07:49	06:42	06:27		05:27	05:56 (14)	05:03		
	16:53	17:55	18:50	20:48		21:43	4 06:00 (14)	22:15		
21	08:44	07:47	06:40	06:24		05:26	05:55 (14)	05:03		
	16:55	17:57	18:52	20:50		21:44	6 06:01 (14)	22:16		
22	08:43	07:45	06:37	06:22		05:24	05:54 (14)	05:03		
	16:57	17:59	18:54	20:52		21:46	7 06:01 (14)	22:16		
23	08:41	07:43	06:35	06:20		05:23	05:52 (14)	05:04		
	16:58	18:01	18:55	20:54		21:47	9 06:01 (14)	22:16		
24	08:40	07:40	06:33	06:18		05:21	05:51 (14)	05:04		
	17:00	18:03	18:57	20:56		21:49	10 06:01 (14)	22:16		
25	08:38	07:38	06:30	06:15		05:20	05:50 (14)	05:04		
	17:02	18:05	18:59	20:58		21:50	12 06:02 (14)	22:16		
26	08:37	07:36	06:28	06:13		05:19	05:49 (14)	05:05		
	17:04	18:07	19:01	21:00		21:52	13 06:02 (14)	22:16		
27	08:35	07:33	06:25	06:11		05:17	05:48 (14)	05:05		
	17:06	18:09	19:03	21:02		21:53	14 06:02 (14)	22:16		
28	08:34	07:31	06:23	06:09		05:16	05:47 (14)	05:06		
	17:08	18:11	19:05	21:03		21:55	15 06:02 (14)	22:16		
29	08:32		07:20	06:07		05:15	05:46 (14)	05:06		
	17:10		20:07	21:05		21:56	16 06:02 (14)	22:16		
30	08:31		07:18	06:04		05:14	05:45 (14)	05:07		
	17:12		20:09	21:07		21:57	16 06:01 (14)	22:15		
31	08:29		07:15			05:13	05:45 (14)			
	17:14		20:11			21:59	16 06:01 (14)			
Potential sun hours	248	272	367	421		496		513		
Total, worst case					26		140		107	
Sun reduction					0.34		0.36		0.26	
Oper. time red.					1.00		1.00		1.00	
Wind dir. red.					0.57		0.58		0.58	
Total reduction					0.20		0.21		0.15	
Total, real					5		29		16	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AO - H41

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:08		05:48		06:44	07:11 (13)	07:38	07:38	08:34
	22:15		21:39		20:31	4 07:15 (13)	19:16	17:05	16:19
2	05:08	05:59 (14)	05:50		06:46	07:13 (13)	07:40	07:40	08:35
	22:15	1 06:00 (14)	21:37		20:29	2 07:15 (13)	19:14	17:03	16:18
3	05:09	05:57 (14)	05:52		06:47		07:42	07:42	08:37
	22:14	5 06:02 (14)	21:35		20:26		19:11	17:01	16:18
4	05:10	05:56 (14)	05:54		06:49		07:44	07:44	08:38
	22:14	7 06:03 (14)	21:33		20:24		19:09	16:59	16:17
5	05:11	05:55 (14)	05:55		06:51		07:46	07:45	08:40
	22:13	9 06:04 (14)	21:31		20:21		19:06	16:57	16:16
6	05:12	05:54 (14)	05:57		06:53		07:47	07:47	08:41
	22:12	11 06:05 (14)	21:29		20:19		19:04	16:55	16:16
7	05:13	05:54 (14)	05:59		06:55		07:49	07:49	08:42
	22:12	11 06:05 (14)	21:27		20:16		19:01	16:53	16:15
8	05:14	05:54 (14)	06:01		06:56		07:51	07:51	08:44
	22:11	12 06:06 (14)	21:25		20:14		18:59	16:51	16:15
9	05:15	05:53 (14)	06:02		06:58		07:53	07:53	08:45
	22:10	14 06:07 (14)	21:23		20:11		18:57	16:49	16:15
10	05:16	05:53 (14)	06:04		07:00		07:55	07:55	08:46
	22:09	15 06:08 (14)	21:21		20:09		18:54	16:47	16:14
11	05:17	05:53 (14)	06:06		07:02		07:57	07:57	08:47
	22:09	15 06:08 (14)	21:19		20:06		18:52	16:46	16:14
12	05:18	05:52 (14)	06:08		07:04		07:59	07:59	08:48
	22:08	16 06:08 (14)	21:17		20:04		18:49	16:44	16:14
13	05:20	05:53 (14)	06:09		07:05		08:01	08:01	08:49
	22:07	17 06:10 (14)	21:15		20:01		18:47	16:42	16:14
14	05:21	05:54 (14)	06:11		07:07		08:02	08:03	08:50
	22:05	16 06:10 (14)	21:13		19:59		18:45	16:41	16:14
15	05:22	05:55 (14)	06:13		07:09		08:04	08:05	08:51
	22:04	15 06:10 (14)	21:11		19:56		18:42	16:39	16:14
16	05:23	05:56 (14)	06:15		07:11		08:06	08:07	08:52
	22:03	14 06:10 (14)	21:08		19:54		18:40	16:37	16:14
17	05:25	05:58 (14)	06:17		07:13		08:08	08:09	08:53
	22:02	13 06:11 (14)	21:06		19:51		18:38	16:36	16:14
18	05:26	05:59 (14)	06:18		07:14		08:10	08:11	08:54
	22:01	12 06:11 (14)	21:04		19:49		18:35	16:34	16:14
19	05:28	06:00 (14)	06:20		07:16		08:12	08:13	08:55
	21:59	11 06:11 (14)	21:02		19:46		18:33	16:33	16:14
20	05:29	06:02 (14)	06:22		07:18		08:14	08:15	08:55
	21:58	10 06:12 (14)	20:59		19:44		18:31	16:31	16:15
21	05:31	06:03 (14)	06:24		07:20		08:16	08:16	08:56
	21:57	8 06:11 (14)	20:57		19:41		18:28	16:30	16:15
22	05:32	06:04 (14)	06:26		07:22		08:18	08:18	08:57
	21:55	7 06:11 (14)	20:55		19:39		18:26	16:29	16:16
23	05:34	06:06 (14)	06:28		07:24		08:20	08:20	08:57
	21:54	5 06:11 (14)	20:52		19:36		18:24	16:28	16:16
24	05:35	06:07 (14)	06:29		07:25		08:22	08:22	08:57
	21:52	3 06:10 (14)	20:50		19:34		18:22	16:26	16:17
25	05:37	06:09 (14)	06:31		07:27		07:24	08:24	08:58
	21:51	1 06:10 (14)	20:48		19:31		07:19	16:25	16:17
26	05:38		06:33		07:29		07:26	08:25	08:58
	21:49		20:45		19:29		17:17	16:24	16:18
27	05:40		06:35		07:31		07:28	08:27	08:58
	21:47		20:43		19:26		17:15	16:23	16:19
28	05:42		06:37	07:07 (13)	07:33		07:30	08:29	08:59
	21:46		20:41	3 07:10 (13)	19:24		17:13	16:22	16:20
29	05:43		06:38	07:06 (13)	07:34		07:32	08:30	08:59
	21:44		20:38	7 07:13 (13)	19:21		17:11	16:21	16:21
30	05:45		06:40	07:08 (13)	07:36		07:34	08:32	08:59
	21:42		20:36	6 07:14 (13)	19:19		17:09	16:20	16:21
31	05:47		06:42	07:10 (13)			07:36		08:59
	21:41		20:33	5 07:15 (13)			17:07		16:22
Potential sun hours	515		461		383		328	257	231
Total, worst case		248		21		6			
Sun reduction		0.27		0.27		0.29			
Oper. time red.		1.00		1.00		1.00			
Wind dir. red.		0.58		0.57		0.57			
Total reduction		0.15		0.16		0.17			
Total, real		38		3		1			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AP - H42

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April		May	June
1	08:58			08:27		15:37 (18)	07:29		16:44 (17)	07:12		06:02	05:11
	16:24			17:16	29	16:06 (18)	18:13	35	17:19 (17)	20:12		21:09	22:00
2	08:58			08:25		15:38 (18)	07:26		16:43 (17)	07:10		06:00	05:10
	16:25			17:18	27	16:05 (18)	18:15	34	17:17 (17)	20:14		21:11	22:01
3	08:58			08:24		15:39 (18)	07:24		16:44 (17)	07:07		05:58	05:10
	16:26			17:20	25	16:04 (18)	18:17	33	17:17 (17)	20:16		21:13	22:02
4	08:58		15:40 (18)	08:22		15:41 (18)	07:21		16:45 (17)	07:05		05:56	05:09
	16:27	4	15:44 (18)	17:22	22	16:03 (18)	18:19	30	17:15 (17)	20:18		21:14	22:03
5	08:57		15:38 (18)	08:20		15:42 (18)	07:19		16:46 (17)	07:02		05:54	05:08
	16:28	9	15:47 (18)	17:24	20	16:02 (18)	18:21	28	17:14 (17)	20:20		21:16	22:05
6	08:57		15:37 (18)	08:18		15:44 (18)	07:17		16:47 (17)	07:00		05:52	05:07
	16:30	12	15:49 (18)	17:26	16	16:00 (18)	18:23	25	17:12 (17)	20:22		21:18	22:06
7	08:56		15:36 (18)	08:16		15:48 (18)	07:14		16:49 (17)	06:58		05:50	05:06
	16:31	14	15:50 (18)	17:28	10	15:58 (18)	18:24	22	17:11 (17)	20:24		21:20	22:07
8	08:56		15:35 (18)	08:14			07:12		16:51 (17)	06:55		05:48	05:06
	16:33	16	15:51 (18)	17:30			18:26	17	17:08 (17)	20:26		21:22	22:08
9	08:55		15:35 (18)	08:12			07:09		16:55 (17)	06:53		05:46	05:05
	16:34	19	15:54 (18)	17:32			18:28	9	17:04 (17)	20:27		21:23	22:09
10	08:55		15:35 (18)	08:10			07:07			06:50		05:44	05:05
	16:36	20	15:55 (18)	17:34			18:30			20:29		21:25	22:09
11	08:54		15:34 (18)	08:08			07:05			06:48		05:42	05:04
	16:37	22	15:56 (18)	17:36			18:32			20:31		21:27	22:10
12	08:53		15:34 (18)	08:06			07:02			06:45		05:40	05:04
	16:39	23	15:57 (18)	17:38			18:34			20:33		21:29	22:11
13	08:52		15:34 (18)	08:04			07:00			06:43		05:38	05:04
	16:40	24	15:58 (18)	17:40			18:36			20:35		21:31	22:12
14	08:51		15:34 (18)	08:02		16:56 (17)	06:57			06:41		05:37	05:03
	16:42	25	15:59 (18)	17:42	13	17:09 (17)	18:38			20:37		21:32	22:12
15	08:51		15:33 (18)	08:00		16:52 (17)	06:55			06:38		05:35	05:03
	16:44	26	15:59 (18)	17:44	19	17:11 (17)	18:40			20:39		21:34	22:13
16	08:50		15:33 (18)	07:58		16:50 (17)	06:52			06:36		05:33	05:03
	16:45	28	16:01 (18)	17:46	23	17:13 (17)	18:42			20:41		21:36	22:14
17	08:48		15:33 (18)	07:56		16:49 (17)	06:50			06:33		05:32	05:03
	16:47	29	16:02 (18)	17:49	26	17:15 (17)	18:44			20:42		21:37	22:14
18	08:47		15:33 (18)	07:54		16:48 (17)	06:47			06:31		05:30	05:03
	16:49	30	16:03 (18)	17:51	28	17:16 (17)	18:46			20:44		21:39	22:15
19	08:46		15:32 (18)	07:51		16:46 (17)	06:45			06:29		05:28	05:03
	16:51	31	16:03 (18)	17:53	31	17:17 (17)	18:48			20:46		21:41	22:15
20	08:45		15:33 (18)	07:49		16:46 (17)	06:42			06:26		05:27	05:03
	16:53	31	16:04 (18)	17:55	32	17:18 (17)	18:50			20:48		21:42	22:15
21	08:44		15:32 (18)	07:47		16:45 (17)	06:40			06:24		05:25	05:03
	16:54	32	16:04 (18)	17:57	34	17:19 (17)	18:51			20:50		21:44	22:16
22	08:42		15:33 (18)	07:45		16:44 (17)	06:37			06:22		05:24	05:03
	16:56	32	16:05 (18)	17:59	35	17:19 (17)	18:53			20:52		21:46	22:16
23	08:41		15:33 (18)	07:42		16:44 (17)	06:35			06:20		05:22	05:03
	16:58	32	16:05 (18)	18:01	35	17:19 (17)	18:55			20:54		21:47	22:16
24	08:40		15:33 (18)	07:40		16:44 (17)	06:32			06:17		05:21	05:04
	17:00	33	16:06 (18)	18:03	36	17:20 (17)	18:57			20:56		21:49	22:16
25	08:38		15:33 (18)	07:38		16:43 (17)	06:30			06:15		05:20	05:04
	17:02	33	16:06 (18)	18:05	36	17:19 (17)	18:59			20:58		21:50	22:16
26	08:37		15:33 (18)	07:36		16:43 (17)	06:27			06:13		05:18	05:04
	17:04	33	16:06 (18)	18:07	36	17:19 (17)	19:01			20:59		21:52	22:16
27	08:35		15:34 (18)	07:33		16:42 (17)	06:25			06:11		05:17	05:05
	17:06	32	16:06 (18)	18:09	37	17:19 (17)	19:03			21:01		21:53	22:16
28	08:34		15:34 (18)	07:31		16:43 (17)	06:22			06:08		05:16	05:05
	17:08	32	16:06 (18)	18:11	36	17:19 (17)	19:05			21:03		21:55	22:16
29	08:32		15:35 (18)				07:20			06:06		05:15	05:06
	17:10	31	16:06 (18)				20:07			21:05		21:56	22:15
30	08:31		15:35 (18)				07:17			06:04		05:14	05:07
	17:12	31	16:06 (18)				20:08			21:07		21:57	22:15
31	08:29		15:36 (18)				07:15					05:12	
	17:14	29	16:05 (18)				20:10					21:59	
Potential sun hours	248			272			367			421		496	513
Total, worst case		713			606			233					
Sun reduction		0.17			0.22			0.22					
Oper. time red.		1.00			1.00			1.00					
Wind dir. red.		0.62			0.59			0.58					
Total reduction		0.11			0.13			0.13					
Total, real		76			80			30					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AP - H42

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October			November			December		
1	05:07		05:48		06:44		07:38			07:37			08:33		15:16 (18)
	22:15		21:39		20:31		19:16			17:04			16:19	22	15:38 (18)
2	05:08		05:50		06:45		07:40			07:39			08:35		15:17 (18)
	22:14		21:37		20:28		19:14			17:02			16:18	20	15:37 (18)
3	05:09		05:52		06:47		07:42			07:41			08:36		15:18 (18)
	22:14		21:35		20:26		19:11			17:00			16:17	19	15:37 (18)
4	05:10		05:53		06:49		07:44			07:43		15:17 (18)	08:38		15:20 (18)
	22:14		21:33		20:24		19:09			16:58	11	15:28 (18)	16:17	17	15:37 (18)
5	05:11		05:55		06:51		07:45		17:29 (17)	07:45		15:14 (18)	08:39		15:21 (18)
	22:13		21:31		20:21		19:06	14	17:43 (17)	16:56	16	15:30 (18)	16:16	14	15:35 (18)
6	05:11		05:57		06:53		07:47		17:26 (17)	07:47		15:12 (18)	08:41		15:23 (18)
	22:12		21:29		20:19		19:04	20	17:46 (17)	16:54	20	15:32 (18)	16:16	12	15:35 (18)
7	05:12		05:59		06:54		07:49		17:24 (17)	07:49		15:10 (18)	08:42		15:24 (18)
	22:12		21:27		20:16		19:01	24	17:48 (17)	16:53	23	15:33 (18)	16:15	10	15:34 (18)
8	05:14		06:00		06:56		07:51		17:22 (17)	07:51		15:09 (18)	08:43		15:27 (18)
	22:11		21:25		20:14		18:59	27	17:49 (17)	16:51	25	15:34 (18)	16:15	6	15:33 (18)
9	05:15		06:02		06:58		07:53		17:20 (17)	07:53		15:08 (18)	08:45		
	22:10		21:23		20:11		18:56	30	17:50 (17)	16:49	27	15:35 (18)	16:14		
10	05:16		06:04		07:00		07:55		17:19 (17)	07:55		15:08 (18)	08:46		
	22:09		21:21		20:09		18:54	32	17:51 (17)	16:47	29	15:37 (18)	16:14		
11	05:17		06:06		07:02		07:57		17:18 (17)	07:57		15:07 (18)	08:47		
	22:08		21:19		20:06		18:51	33	17:51 (17)	16:45	30	15:37 (18)	16:14		
12	05:18		06:07		07:03		07:58		17:17 (17)	07:59		15:07 (18)	08:48		
	22:07		21:17		20:04		18:49	35	17:52 (17)	16:44	31	15:38 (18)	16:13		
13	05:19		06:09		07:05		08:00		17:16 (17)	08:01		15:07 (18)	08:49		
	22:06		21:15		20:01		18:47	36	17:52 (17)	16:42	31	15:38 (18)	16:13		
14	05:21		06:11		07:07		08:02		17:16 (17)	08:03		15:06 (18)	08:50		
	22:05		21:13		19:59		18:44	36	17:52 (17)	16:40	32	15:38 (18)	16:13		
15	05:22		06:13		07:09		08:04		17:15 (17)	08:05		15:06 (18)	08:51		
	22:04		21:10		19:56		18:42	37	17:52 (17)	16:39	32	15:38 (18)	16:13		
16	05:23		06:15		07:11		08:06		17:15 (17)	08:07		15:06 (18)	08:52		
	22:03		21:08		19:54		18:40	37	17:52 (17)	16:37	33	15:39 (18)	16:13		
17	05:25		06:16		07:12		08:08		17:15 (17)	08:09		15:07 (18)	08:53		
	22:02		21:06		19:51		18:37	36	17:51 (17)	16:36	33	15:40 (18)	16:14		
18	05:26		06:18		07:14		08:10		17:15 (17)	08:11		15:07 (18)	08:54		
	22:01		21:04		19:49		18:35	36	17:51 (17)	16:34	33	15:40 (18)	16:14		
19	05:27		06:20		07:16		08:12		17:15 (17)	08:12		15:08 (18)	08:55		
	21:59		21:01		19:46		18:33	35	17:50 (17)	16:33	32	15:40 (18)	16:14		
20	05:29		06:22		07:18		08:14		17:15 (17)	08:14		15:08 (18)	08:55		
	21:58		20:59		19:44		18:30	35	17:50 (17)	16:31	32	15:40 (18)	16:14		
21	05:30		06:24		07:20		08:16		17:16 (17)	08:16		15:08 (18)	08:56		
	21:57		20:57		19:41		18:28	33	17:49 (17)	16:30	32	15:40 (18)	16:15		
22	05:32		06:25		07:21		08:18		17:16 (17)	08:18		15:09 (18)	08:56		
	21:55		20:55		19:39		18:26	32	17:48 (17)	16:29	31	15:40 (18)	16:15		
23	05:33		06:27		07:23		08:20		17:17 (17)	08:20		15:10 (18)	08:57		
	21:54		20:52		19:36		18:24	30	17:47 (17)	16:27	30	15:40 (18)	16:16		
24	05:35		06:29		07:25		08:22		17:18 (17)	08:22		15:10 (18)	08:57		
	21:52		20:50		19:33		18:21	28	17:46 (17)	16:26	30	15:40 (18)	16:16		
25	05:37		06:31		07:27		07:24		16:19 (17)	08:23		15:11 (18)	08:58		
	21:51		20:48		19:31		17:19	25	16:44 (17)	16:25	29	15:40 (18)	16:17		
26	05:38		06:33		07:29		07:26		16:20 (17)	08:25		15:12 (18)	08:58		
	21:49		20:45		19:28		17:17	22	16:42 (17)	16:24	28	15:40 (18)	16:18		
27	05:40		06:35		07:31		07:27		16:22 (17)	08:27		15:13 (18)	08:58		
	21:47		20:43		19:26		17:15	18	16:40 (17)	16:23	27	15:40 (18)	16:18		
28	05:41		06:36		07:32		07:29		16:26 (17)	08:29		15:13 (18)	08:58		
	21:46		20:40		19:23		17:13	11	16:37 (17)	16:22	25	15:38 (18)	16:19		
29	05:43		06:38		07:34		07:31			08:30		15:14 (18)	08:58		
	21:44		20:38		19:21		17:11			16:21	24	15:38 (18)	16:20		
30	05:45		06:40		07:36		07:33			08:32		15:15 (18)	08:59		
	21:42		20:36		19:18		17:08			16:20	23	15:38 (18)	16:21		
31	05:46		06:42				07:35						08:59		
	21:40		20:33				17:06						16:22		
Potential sun hours	515		461		383		327			257			230		
Total, worst case								702			749			120	
Sun reduction								0.23			0.20			0.12	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.58			0.62			0.62	
Total reduction								0.14			0.12			0.07	
Total, real								96			93			9	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AQ - H43

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April			May	June	July	August	September		October			November	December
1	08:58	08:27	07:29		07:13		18:53 (5)	06:02	05:12	05:08	05:48	06:44		07:38		18:37 (6)	07:37	08:33
	16:24	17:16	18:13		20:12	20	19:13 (5)	21:09	22:00	22:15	21:39	20:31		19:16	11	18:48 (6)	17:05	16:19
2	08:58	08:25	07:26		07:10		18:55 (5)	06:00	05:11	05:08	05:50	06:46		07:40		18:38 (6)	07:39	08:35
	16:25	17:18	18:15		20:14	15	19:10 (5)	21:11	22:01	22:14	21:37	20:28		19:14	7	18:45 (6)	17:02	16:18
3	08:58	08:24	07:24		07:08		19:01 (5)	05:58	05:10	05:09	05:52	06:47		07:42		18:38 (6)	07:41	08:36
	16:26	17:20	18:17		20:16	4	19:05 (5)	21:13	22:02	22:14	21:35	20:26		19:11	4	18:42 (6)	17:00	16:18
4	08:58	08:22	07:22		07:05			05:56	05:09	05:10	05:54	06:49		07:44			07:43	08:38
	16:27	17:22	18:19		20:18			21:14	22:03	22:13	21:33	20:24		19:09			16:59	16:17
5	08:57	08:20	07:19		07:03			05:54	05:08	05:11	05:55	06:51		07:45			07:45	08:39
	16:29	17:24	18:21		20:20			21:16	22:05	22:13	21:31	20:21		19:06			16:57	16:16
6	08:57	08:18	07:17		07:00			05:52	05:07	05:12	05:57	06:53		07:47			07:47	08:41
	16:30	17:26	18:23		20:22			21:18	22:06	22:12	21:29	20:19		19:04			16:55	16:16
7	08:56	08:16	07:14		06:58			05:50	05:07	05:13	05:59	06:55		07:49			07:49	08:42
	16:31	17:28	18:25		20:24			21:20	22:07	22:12	21:27	20:16		19:01			16:53	16:15
8	08:56	08:14	07:12		06:55			05:48	05:06	05:14	06:01	06:56		07:51			07:51	08:43
	16:33	17:30	18:27		20:26			21:22	22:08	22:11	21:25	20:14		18:59			16:51	16:15
9	08:55	08:12	07:10		06:53			05:46	05:06	05:15	06:02	06:58		07:53			07:53	08:45
	16:34	17:32	18:29		20:27			21:23	22:09	22:10	21:23	20:11		18:56			16:49	16:15
10	08:55	08:10	07:07		18:01 (6)			06:50	05:05	05:16	06:04	07:00		18:49 (5)	07:55			07:55	08:46
	16:36	17:34	18:30	2	18:03 (6)			20:29	22:09	22:09	21:21	20:09	14	19:03 (5)	18:54			16:47	16:14
11	08:54	08:08	07:05		17:59 (6)			06:48	05:05	05:17	06:06	07:02		18:46 (5)	07:57			07:57	08:47
	16:37	17:36	18:32	6	18:05 (6)			20:31	22:10	22:08	21:19	20:06	20	19:06 (5)	18:52			16:46	16:14
12	08:53	08:06	07:02		17:57 (6)			06:46	05:04	05:18	06:08	07:04		18:43 (5)	07:59			07:59	08:48
	16:39	17:39	18:34	10	18:07 (6)			20:33	22:11	22:07	21:17	20:04	24	19:07 (5)	18:49			16:44	16:14
13	08:52	08:04	07:00		17:56 (6)			06:43	05:04	05:20	06:09	07:05		18:41 (5)	08:00			08:01	08:49
	16:41	17:41	18:36	13	18:09 (6)			20:35	22:12	22:06	21:15	20:01	27	19:08 (5)	18:47			16:42	16:14
14	08:51	08:02	06:57		17:55 (6)			06:41	05:04	05:21	06:11	07:07		18:40 (5)	08:02			08:03	08:50
	16:42	17:43	18:38	16	18:11 (6)			20:37	22:12	22:05	21:13	19:59	29	19:09 (5)	18:44			16:41	16:14
15	08:50	08:00	06:55		17:54 (6)			06:38	05:03	05:22	06:13	07:09		18:39 (5)	08:04			08:05	08:51
	16:44	17:45	18:40	19	18:13 (6)			20:39	22:13	22:04	21:10	19:56	31	19:10 (5)	18:42			16:39	16:14
16	08:49	07:58	06:52		17:53 (6)			06:36	05:03	05:23	06:15	07:11		18:38 (5)	08:06			08:07	08:52
	16:46	17:47	18:42	22	18:15 (6)			20:41	22:14	22:03	21:08	19:54	33	19:11 (5)	18:40			16:37	16:14
17	08:48	07:56	06:50		17:52 (5)			06:34	05:03	05:25	06:17	07:13		18:36 (5)	08:08			08:09	08:53
	16:47	17:49	18:44	25	18:17 (6)			20:43	22:14	22:02	21:06	19:51	34	19:10 (5)	18:37			16:36	16:14
18	08:47	07:54	06:47		17:50 (5)			06:31	05:03	05:26	06:18	07:14		18:35 (5)	08:10			08:11	08:54
	16:49	17:51	18:46	29	18:19 (6)			20:44	22:14	22:01	21:04	19:49	35	19:10 (5)	18:35			16:34	16:14
19	08:46	07:51	06:45		17:50 (5)			06:29	05:03	05:28	06:20	07:16		18:35 (5)	08:12			08:12	08:55
	16:51	17:53	18:48	31	18:21 (5)			20:46	22:15	21:59	21:01	19:46	35	19:10 (5)	18:33			16:33	16:14
20	08:45	07:49	06:42		17:49 (5)			06:27	05:03	05:29	06:22	07:18		18:34 (5)	08:14			08:14	08:55
	16:53	17:55	18:50	33	18:22 (5)			20:48	22:15	21:58	20:59	19:44	36	19:10 (5)	18:31			16:31	16:15
21	08:44	07:47	06:40		17:49 (5)			06:24	05:03	05:31	06:24	07:20		18:33 (5)	08:16			08:16	08:56
	16:55	17:57	18:52	35	18:24 (5)			20:50	22:15	21:56	20:57	19:41	36	19:09 (5)	18:28			16:30	16:15
22	08:42	07:45	06:37		17:48 (5)			06:22	05:03	05:32	06:26	07:22		18:33 (5)	08:18			08:18	08:56
	16:57	17:59	18:53	36	18:24 (5)			20:52	22:16	21:55	20:55	19:39	36	19:09 (5)	18:26			16:29	16:16
23	08:41	07:43	06:35		17:48 (5)			06:20	05:04	05:34	06:27	07:23		18:33 (5)	08:20			08:20	08:57
	16:58	18:01	18:55	36	18:24 (5)			20:54	22:16	21:54	20:52	19:36	35	19:08 (5)	18:24			16:28	16:16
24	08:40	07:40	06:32		17:47 (5)			06:18	05:04	05:35	06:29	07:25		18:33 (5)	08:22			08:22	08:57
	17:00	18:03	18:57	36	18:23 (5)			20:56	22:16	21:52	20:50	19:34	32	19:05 (5)	18:22			16:26	16:17
25	08:38	07:38	06:30		17:48 (5)			06:15	05:04	05:37	06:31	07:27		18:34 (5)	07:24			08:23	08:58
	17:02	18:05	18:59	35	18:23 (5)			20:58	22:16	21:51	20:48	19:31	29	19:03 (6)	17:19			16:25	16:17
26	08:37	07:36	06:27		17:47 (5)			06:13	05:05	05:38	06:33	07:29		18:33 (5)	07:26			08:25	08:58
	17:04	18:07	19:01	35	18:22 (5)			20:59	22:16	21:49	20:45	19:29	27	19:00 (6)	17:17			16:24	16:18
27	08:35	07:33	06:25		17:48 (5)			06:11	05:05	05:40	06:35	07:31		18:34 (5)	07:28			08:27	08:58
	17:06	18:09	19:03	33	18:21 (5)			21:01	22:16	21:47	20:43	19:26	23	18:57 (6)	17:15			16:23	16:19
28	08:34	07:31	06:22		17:48 (5)			06:09	05:06	05:42	06:37	07:33		18:35 (6)	07:30			08:28	08:58
	17:08	18:11	19:05	32	18:20 (5)			21:03	22:16	21:46	20:41	19:24	20	18:55 (6)	17:13			16:22	16:20
29	08:32		07:20		18:49 (5)			06:07	05:06	05:43	06:38	07:34		18:35 (6)	07:31			08:30	08:58
	17:10		20:07	30	19:19 (5)			21:05	22:15	21:44	20:38	19:21	18	18:53 (6)	17:11			16:21	16:21
30	08:31		07:17		18:50 (5)			06:04	05:07	05:45	06:40	07:36		18:36 (6)	07:33			08:32	08:58
	17:12		20:09	27	19:17 (5)			21:07	22:15	21:42	20:36	19:19	14	18:50 (6)	17:09			16:20	16:22
31	08:29		07:15		18:51 (5)					05:47	06:42				07:35				08:58
	17:14		20:10	25	19:16 (5)					21:40	20:33				17:07				16:23
Potential sun hours	248	272	367		421			496	513	515	461	382		328			257	231	
Total, worst case				566		39							588		22				
Sun reduction				0.22		0.34							0.29		0.23				
Oper. time red.				1.00		1.00							1.00		1.00				
Wind dir. red.				0.58		0.58							0.58		0.57				
Total reduction				0.13		0.20							0.17		0.13				
Total, real				73		8							99		3				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AR - H44

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June	
1	08:58	08:27	07:29	07:12		06:02	19:15 (18)	05:11	20:20 (17)
	16:24	17:16	18:13	20:12		21:09	23 19:38 (18)	22:00	31 20:51 (17)
2	08:58	08:25	07:26	07:10		06:00	19:16 (18)	05:11	20:20 (17)
	16:25	17:18	18:15	20:14		21:11	21 19:37 (18)	22:01	31 20:51 (17)
3	08:58	08:24	07:24	07:07		05:58	19:18 (18)	05:10	20:20 (17)
	16:26	17:20	18:17	20:16		21:12	17 19:35 (18)	22:02	31 20:51 (17)
4	08:58	08:22	07:21	07:05		05:56	19:21 (18)	05:09	20:20 (17)
	16:27	17:22	18:19	20:18		21:14	11 19:32 (18)	22:03	30 20:50 (17)
5	08:57	08:20	07:19	07:02		05:54		05:08	20:21 (17)
	16:28	17:24	18:21	20:20		21:16		22:05	30 20:51 (17)
6	08:57	08:18	07:17	07:00		05:52		05:07	20:21 (17)
	16:30	17:26	18:23	20:22		21:18		22:06	29 20:50 (17)
7	08:56	08:16	07:14	06:58		05:50		05:06	20:22 (17)
	16:31	17:28	18:24	20:24		21:20		22:07	29 20:51 (17)
8	08:56	08:14	07:12	06:55		05:48		05:06	20:22 (17)
	16:33	17:30	18:26	20:25		21:22		22:08	29 20:51 (17)
9	08:55	08:12	07:09	06:53	19:26 (18)	05:46		05:05	20:23 (17)
	16:34	17:32	18:28	20:27	10 19:36 (18)	21:23		22:09	28 20:51 (17)
10	08:55	08:10	07:07	06:50	19:22 (18)	05:44	20:28 (17)	05:05	20:23 (17)
	16:36	17:34	18:30	20:29	17 19:39 (18)	21:25	10 20:38 (17)	22:09	27 20:50 (17)
11	08:54	08:08	07:05	06:48	19:19 (18)	05:42	20:27 (17)	05:04	20:23 (17)
	16:37	17:36	18:32	20:31	22 19:41 (18)	21:27	14 20:41 (17)	22:10	28 20:51 (17)
12	08:53	08:06	07:02	06:45	19:18 (18)	05:40	20:24 (17)	05:04	20:24 (17)
	16:39	17:38	18:34	20:33	25 19:43 (18)	21:29	19 20:43 (17)	22:11	27 20:51 (17)
13	08:52	08:04	07:00	06:43	19:16 (18)	05:38	20:23 (17)	05:04	20:24 (17)
	16:40	17:40	18:36	20:35	28 19:44 (18)	21:31	21 20:44 (17)	22:12	26 20:50 (17)
14	08:51	08:02	06:57	06:41	19:15 (18)	05:37	20:22 (17)	05:03	20:24 (17)
	16:42	17:42	18:38	20:37	30 19:45 (18)	21:32	24 20:46 (17)	22:12	27 20:51 (17)
15	08:50	08:00	06:55	06:38	19:14 (18)	05:35	20:21 (17)	05:03	20:25 (17)
	16:44	17:44	18:40	20:39	32 19:46 (18)	21:34	25 20:46 (17)	22:13	26 20:51 (17)
16	08:49	07:58	06:52	06:36	19:12 (18)	05:33	20:21 (17)	05:03	20:25 (17)
	16:45	17:46	18:42	20:41	33 19:45 (18)	21:36	26 20:47 (17)	22:14	26 20:51 (17)
17	08:48	07:56	06:50	06:33	19:12 (18)	05:32	20:20 (17)	05:03	20:25 (17)
	16:47	17:49	18:44	20:42	34 19:46 (18)	21:37	27 20:47 (17)	22:14	26 20:51 (17)
18	08:47	07:54	06:47	06:31	19:11 (18)	05:30	20:20 (17)	05:03	20:26 (17)
	16:49	17:51	18:46	20:44	35 19:46 (18)	21:39	28 20:48 (17)	22:14	25 20:51 (17)
19	08:46	07:51	06:45	06:29	19:11 (18)	05:28	20:19 (17)	05:03	20:26 (17)
	16:51	17:53	18:48	20:46	36 19:47 (18)	21:41	29 20:48 (17)	22:15	25 20:51 (17)
20	08:45	07:49	06:42	06:26	19:10 (18)	05:27	20:19 (17)	05:03	20:26 (17)
	16:53	17:55	18:50	20:48	36 19:46 (18)	21:42	30 20:49 (17)	22:15	25 20:51 (17)
21	08:44	07:47	06:40	06:24	19:10 (18)	05:25	20:19 (17)	05:03	20:26 (17)
	16:54	17:57	18:51	20:50	36 19:46 (18)	21:44	31 20:50 (17)	22:15	25 20:51 (17)
22	08:42	07:45	06:37	06:22	19:10 (18)	05:24	20:18 (17)	05:03	20:27 (17)
	16:56	17:59	18:53	20:52	36 19:46 (18)	21:46	31 20:49 (17)	22:16	25 20:52 (17)
23	08:41	07:42	06:35	06:20	19:10 (18)	05:22	20:18 (17)	05:03	20:27 (17)
	16:58	18:01	18:55	20:54	36 19:46 (18)	21:47	32 20:50 (17)	22:16	25 20:52 (17)
24	08:40	07:40	06:32	06:17	19:10 (18)	05:21	20:18 (17)	05:04	20:27 (17)
	17:00	18:03	18:57	20:56	35 19:45 (18)	21:49	32 20:50 (17)	22:16	25 20:52 (17)
25	08:38	07:38	06:30	06:15	19:10 (18)	05:20	20:19 (17)	05:04	20:28 (17)
	17:02	18:05	18:59	20:58	34 19:44 (18)	21:50	32 20:51 (17)	22:16	25 20:53 (17)
26	08:37	07:36	06:27	06:13	19:10 (18)	05:18	20:19 (17)	05:04	20:27 (17)
	17:04	18:07	19:01	20:59	33 19:43 (18)	21:52	32 20:51 (17)	22:16	26 20:53 (17)
27	08:35	07:33	06:25	06:11	19:11 (18)	05:17	20:18 (17)	05:05	20:28 (17)
	17:06	18:09	19:03	21:01	32 19:43 (18)	21:53	32 20:50 (17)	22:16	26 20:54 (17)
28	08:34	07:31	06:22	06:08	19:12 (18)	05:16	20:18 (17)	05:05	20:27 (17)
	17:08	18:11	19:05	21:03	30 19:42 (18)	21:55	32 20:50 (17)	22:16	27 20:54 (17)
29	08:32		07:20	06:06	19:12 (18)	05:15	20:18 (17)	05:06	20:28 (17)
	17:10		20:07	21:05	29 19:41 (18)	21:56	32 20:50 (17)	22:15	26 20:54 (17)
30	08:30		07:17	06:04	19:13 (18)	05:14	20:19 (17)	05:07	20:27 (17)
	17:12		20:08	21:07	27 19:40 (18)	21:57	31 20:50 (17)	22:15	27 20:54 (17)
31	08:29		07:15			05:12	20:20 (17)		
	17:14		20:10			21:59	31 20:51 (17)		
Potential sun hours	248	272	367	421		496		513	
Total, worst case					666		673		813
Sun reduction					0.34		0.36		0.26
Oper. time red.					1.00		1.00		1.00
Wind dir. red.					0.59		0.62		0.62
Total reduction					0.20		0.22		0.16
Total, real					135		151		130

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AR - H44

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07	20:28 (17)	05:48	20:35 (17)	06:44	19:18 (18)	07:38	07:37	08:33
	22:15	27 20:55 (17)	21:39	18 20:53 (17)	20:31	22 19:40 (18)	19:16	17:04	16:19
2	05:08	20:28 (17)	05:50	20:38 (17)	06:45	19:21 (18)	07:40	07:39	08:35
	22:14	27 20:55 (17)	21:37	13 20:51 (17)	20:28	17 19:38 (18)	19:14	17:02	16:18
3	05:09	20:28 (17)	05:52	20:40 (17)	06:47	19:24 (18)	07:42	07:41	08:36
	22:14	28 20:56 (17)	21:35	7 20:47 (17)	20:26	10 19:34 (18)	19:11	17:00	16:17
4	05:10	20:27 (17)	05:53		06:49		07:43	07:43	08:38
	22:13	29 20:56 (17)	21:33		20:23		19:09	16:58	16:17
5	05:11	20:27 (17)	05:55		06:51		07:45	07:45	08:39
	22:13	29 20:56 (17)	21:31		20:21		19:06	16:56	16:16
6	05:12	20:27 (17)	05:57		06:53		07:47	07:47	08:41
	22:12	30 20:57 (17)	21:29		20:19		19:04	16:54	16:16
7	05:13	20:28 (17)	05:59		06:54		07:49	07:49	08:42
	22:12	29 20:57 (17)	21:27		20:16		19:01	16:53	16:15
8	05:14	20:28 (17)	06:00	19:33 (18)	06:56		07:51	07:51	08:43
	22:11	30 20:58 (17)	21:25	4 19:37 (18)	20:14		18:59	16:51	16:15
9	05:15	20:28 (17)	06:02	19:29 (18)	06:58		07:53	07:53	08:45
	22:10	30 20:58 (17)	21:23	13 19:42 (18)	20:11		18:56	16:49	16:14
10	05:16	20:27 (17)	06:04	19:27 (18)	07:00		07:55	07:55	08:46
	22:09	31 20:58 (17)	21:21	18 19:45 (18)	20:09		18:54	16:47	16:14
11	05:17	20:27 (17)	06:06	19:24 (18)	07:02		07:57	07:57	08:47
	22:08	31 20:58 (17)	21:19	22 19:46 (18)	20:06		18:51	16:45	16:14
12	05:18	20:27 (17)	06:07	19:23 (18)	07:03		07:58	07:59	08:48
	22:07	32 20:59 (17)	21:17	24 19:47 (18)	20:04		18:49	16:44	16:14
13	05:19	20:27 (17)	06:09	19:22 (18)	07:05		08:00	08:01	08:49
	22:06	32 20:59 (17)	21:15	27 19:49 (18)	20:01		18:47	16:42	16:13
14	05:21	20:28 (17)	06:11	19:20 (18)	07:07		08:02	08:03	08:50
	22:05	32 21:00 (17)	21:12	29 19:49 (18)	19:59		18:44	16:40	16:13
15	05:22	20:28 (17)	06:13	19:19 (18)	07:09		08:04	08:05	08:51
	22:04	32 21:00 (17)	21:10	31 19:50 (18)	19:56		18:42	16:39	16:13
16	05:23	20:28 (17)	06:15	19:18 (18)	07:11		08:06	08:07	08:52
	22:03	32 21:00 (17)	21:08	32 19:50 (18)	19:54		18:40	16:37	16:13
17	05:25	20:27 (17)	06:16	19:18 (18)	07:12		08:08	08:09	08:53
	22:02	32 20:59 (17)	21:06	33 19:51 (18)	19:51		18:37	16:36	16:14
18	05:26	20:28 (17)	06:18	19:16 (18)	07:14		08:10	08:11	08:54
	22:01	32 21:00 (17)	21:04	35 19:51 (18)	19:49		18:35	16:34	16:14
19	05:27	20:28 (17)	06:20	19:16 (18)	07:16		08:12	08:12	08:55
	21:59	32 21:00 (17)	21:01	35 19:51 (18)	19:46		18:33	16:33	16:14
20	05:29	20:28 (17)	06:22	19:16 (18)	07:18		08:14	08:14	08:55
	21:58	32 21:00 (17)	20:59	35 19:51 (18)	19:44		18:30	16:31	16:14
21	05:30	20:29 (17)	06:24	19:15 (18)	07:20		08:16	08:16	08:56
	21:56	31 21:00 (17)	20:57	36 19:51 (18)	19:41		18:28	16:30	16:15
22	05:32	20:29 (17)	06:25	19:15 (18)	07:21		08:18	08:18	08:56
	21:55	31 21:00 (17)	20:55	36 19:51 (18)	19:39		18:26	16:29	16:15
23	05:33	20:28 (17)	06:27	19:15 (18)	07:23		08:20	08:20	08:57
	21:54	31 20:59 (17)	20:52	36 19:51 (18)	19:36		18:24	16:27	16:16
24	05:35	20:29 (17)	06:29	19:14 (18)	07:25		08:22	08:22	08:57
	21:52	30 20:59 (17)	20:50	35 19:49 (18)	19:33		18:21	16:26	16:16
25	05:37	20:29 (17)	06:31	19:14 (18)	07:27		07:24	08:23	08:58
	21:51	29 20:58 (17)	20:48	35 19:49 (18)	19:31		17:19	16:25	16:17
26	05:38	20:30 (17)	06:33	19:14 (18)	07:29		07:25	08:25	08:58
	21:49	29 20:59 (17)	20:45	35 19:49 (18)	19:28		17:17	16:24	16:18
27	05:40	20:30 (17)	06:35	19:15 (18)	07:31		07:27	08:27	08:58
	21:47	28 20:58 (17)	20:43	33 19:48 (18)	19:26		17:15	16:23	16:19
28	05:41	20:31 (17)	06:36	19:15 (18)	07:32		07:29	08:28	08:58
	21:46	26 20:57 (17)	20:40	31 19:46 (18)	19:23		17:13	16:22	16:19
29	05:43	20:32 (17)	06:38	19:15 (18)	07:34		07:31	08:30	08:58
	21:44	24 20:56 (17)	20:38	31 19:46 (18)	19:21		17:11	16:21	16:20
30	05:45	20:33 (17)	06:40	19:17 (18)	07:36		07:33	08:32	08:58
	21:42	22 20:55 (17)	20:36	27 19:44 (18)	19:18		17:08	16:20	16:21
31	05:46	20:35 (17)	06:42	19:17 (18)			07:35		08:58
	21:40	20 20:55 (17)	20:33	25 19:42 (18)			17:06		16:22
Potential sun hours	515		461		383		327	257	230
Total, worst case		910		736		49			
Sun reduction		0.27		0.27		0.29			
Oper. time red.		1.00		1.00		1.00			
Wind dir. red.		0.62		0.59		0.59			
Total reduction		0.17		0.16		0.17			
Total, real		151		119		8			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AS - H45

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June	July	August	September	October	November		December	
1	08:58		14:31 (18)	08:27	15:34 (17)	07:29	07:12	06:02	05:11	05:07	05:48	06:44	07:38	07:37		08:33	15:12 (17)
	16:24	34	15:45 (17)	17:16	34	16:08 (17)	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04		16:19	30	15:42 (17)
2	08:58		14:32 (18)	08:25	15:35 (17)	07:26	07:10	06:00	05:10	05:08	05:50	06:45	07:40	07:39	15:17 (17)	08:35		15:13 (17)
	16:25	34	15:46 (17)	17:18	32	16:07 (17)	18:15	20:14	21:11	22:01	22:15	21:37	20:28	19:14	17:02	8	15:25 (17)	16:18	29	15:42 (17)
3	08:58		14:34 (18)	08:24	15:36 (17)	07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41	15:14 (17)	08:37		15:13 (17)
	16:26	35	15:48 (17)	17:20	31	16:07 (17)	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	17:00	16	15:30 (17)	16:17	27	15:40 (17)
4	08:58		14:34 (18)	08:22	15:37 (17)	07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43	15:12 (17)	08:38		14:26 (18)
	16:27	35	15:49 (17)	17:22	29	16:06 (17)	18:19	20:18	21:14	22:04	22:14	21:33	20:24	19:09	16:58	20	15:32 (17)	16:17	31	15:40 (17)
5	08:57		14:36 (18)	08:20	15:38 (17)	07:19	07:02	05:54	05:08	05:11	05:55	06:51	07:45	07:45	15:10 (17)	08:39		14:24 (18)
	16:28	35	15:51 (17)	17:24	27	16:05 (17)	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:56	23	15:33 (17)	16:16	33	15:38 (17)
6	08:57		14:37 (18)	08:18	15:40 (17)	07:17	07:00	05:52	05:07	05:11	05:57	06:53	07:47	07:47	15:08 (17)	08:41		14:23 (18)
	16:30	35	15:52 (17)	17:26	24	16:04 (17)	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:54	27	15:35 (17)	16:16	35	15:38 (17)
7	08:56		14:39 (18)	08:16	15:42 (17)	07:14	06:58	05:50	05:06	05:12	05:59	06:54	07:49	07:49	15:07 (17)	08:42		14:22 (18)
	16:31	33	15:53 (17)	17:28	20	16:02 (17)	18:24	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	29	15:36 (17)	16:15	35	15:37 (17)
8	08:56		14:41 (18)	08:14	15:45 (17)	07:12	06:55	05:48	05:06	05:13	06:00	06:56	07:51	07:51	15:06 (17)	08:44		14:22 (18)
	16:33	31	15:55 (17)	17:30	15	16:00 (17)	18:26	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	30	15:36 (17)	16:15	35	15:37 (17)
9	08:55		15:30 (17)	08:12	15:49 (17)	07:09	06:53	05:46	05:05	05:15	06:02	06:58	07:53	07:53	15:06 (17)	08:45		14:22 (18)
	16:34	27	15:57 (17)	17:32	5	15:54 (17)	18:28	20:27	21:24	22:09	22:10	21:23	20:11	18:56	16:49	32	15:38 (17)	16:14	35	15:36 (17)
10	08:55		15:30 (17)	08:10			07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55		15:05 (17)	08:46		14:21 (18)
	16:36	29	15:59 (17)	17:34			18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	34	15:39 (17)	16:14	34	15:35 (17)
11	08:54		15:30 (17)	08:08			07:05	06:48	05:42	05:04	05:17	06:06	07:02	07:57	07:57		15:04 (17)	08:47		14:22 (18)
	16:37	30	16:00 (17)	17:36			18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:51	16:45	35	15:39 (17)	16:14	34	15:36 (17)
12	08:53		15:30 (17)	08:06			07:02	06:45	05:40	05:04	05:18	06:07	07:03	07:59	07:59		15:04 (17)	08:48		14:22 (18)
	16:39	31	16:01 (17)	17:38			18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	36	15:40 (17)	16:13	33	15:35 (17)
13	08:52		15:30 (17)	08:04			07:00	06:43	05:38	05:03	05:19	06:09	07:05	08:00	08:01		15:04 (17)	08:49		14:22 (18)
	16:40	32	16:02 (17)	17:40			18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	36	15:40 (17)	16:13	32	15:35 (17)
14	08:51		15:30 (17)	08:02			06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03		15:03 (17)	08:50		14:22 (18)
	16:42	32	16:02 (17)	17:42			18:38	20:37	21:32	22:12	22:05	21:13	19:59	18:44	16:40	37	15:40 (17)	16:13	32	15:35 (17)
15	08:51		15:29 (17)	08:00			06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05		15:03 (17)	08:51		14:22 (18)
	16:44	33	16:02 (17)	17:44			18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	38	15:41 (17)	16:13	32	15:35 (17)
16	08:50		15:29 (17)	07:58			06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07		15:04 (17)	08:52		14:23 (18)
	16:45	34	16:03 (17)	17:46			18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	38	15:42 (17)	16:13	30	15:35 (17)
17	08:48		15:29 (17)	07:56			06:50	06:33	05:32	05:03	05:25	06:16	07:12	08:08	08:09		15:04 (17)	08:53		14:23 (18)
	16:47	35	16:04 (17)	17:49			18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:37	16:36	38	15:42 (17)	16:14	29	15:35 (17)
18	08:47		15:30 (17)	07:54			06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11		15:04 (17)	08:54		14:23 (18)
	16:49	35	16:05 (17)	17:51			18:46	20:44	21:39	22:15	22:01	21:04	19:49	18:35	16:34	38	15:42 (17)	16:14	29	15:35 (17)
19	08:46		15:29 (17)	07:51			06:45	06:29	05:28	05:03	05:27	06:20	07:16	08:12	08:13		15:04 (17)	08:55		14:23 (18)
	16:51	36	16:05 (17)	17:53			18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	38	15:42 (17)	16:14	29	15:35 (17)
20	08:45		15:29 (17)	07:49			06:42	06:26	05:27	05:03	05:29	06:22	07:18	08:14	08:14		15:05 (17)	08:55		14:24 (18)
	16:53	37	16:06 (17)	17:55			18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	37	15:42 (17)	16:14	29	15:36 (17)
21	08:44		15:29 (17)	07:47			06:40	06:24	05:25	05:03	05:30	06:24	07:20	08:16	08:16		15:05 (17)	08:56		14:24 (18)
	16:54	37	16:06 (17)	17:57			18:51	20:50	21:44	22:16	21:57	20:57	19:41	18:28	16:30	37	15:42 (17)	16:15	29	15:36 (17)
22	08:42		15:30 (17)	07:45			06:37	06:22	05:24	05:03	05:32	06:25	07:22	08:18	08:18		15:06 (17)	08:56		14:25 (18)
	16:56	37	16:07 (17)	17:59			18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	36	15:42 (17)	16:15	29	15:37 (17)
23	08:41		15:29 (17)	07:42			06:35	06:20	05:22	05:03	05:33	06:27	07:23	08:20	08:20		15:06 (17)	08:57		14:25 (18)
	16:58	38	16:07 (17)	18:01			18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	36	15:42 (17)	16:16	29	15:37 (17)
24	08:40		15:30 (17)	07:40			06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22		15:07 (17)	08:57		14:25 (18)
	17:00	38	16:08 (17)	18:03			18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	16:26	35	15:42 (17)	16:16	29	15:37 (17)
25	08:38		15:30 (17)	07:38			06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23		15:07 (17)	08:58		14:26 (18)
	17:02	38	16:08 (17)	18:05			18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19	16:25	35	15:42 (17)	16:17	29	15:38 (17)
26	08:37		15:30 (17)	07:36			06:27	06:13	05:18	05:04	05:38	06:33	07:29	07:26	08:25		15:08 (17)	08:58		14:27 (18)
	17:04	38	16:08 (17)	18:07			19:01	20:59	21:52	22:16	21:49	20:45	19:28	17:17	16:24	34	15:42 (17)	16:18	29	15:39 (17)
27	08:35		15:31 (17)	07:33			06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28	08:27		15:09 (17)	08:58		14:27 (18)
	17:06	38	16:09 (17)	18:09			19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	34	15:43 (17)	16:18	31	15:40 (17)
28	08:34		15:31 (17)	07:31			06:22	06:08	05:16	05:05	05:41	06:36	07:32	07:29	08:29		15:09 (17)	08:58		14:28 (18)
	17:08	37	16:08 (17)	18:11			19:05	21:03	21:55	22:16	21:46	20:40	19:23	17:13	16:22	33	15:42 (17)	16:19	31	15:40 (17)
29	08:32		15:32 (17)				07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	08:30		15:10 (17)	08:59		14:29 (18)
	17:10	36	16:08 (17)				20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11	16:21	32	15:42 (17)	16:20	31	15:41 (17)
30	08:31		15:32 (17)				07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32		15:11 (17)	08:59		14:29 (18)
	17:12	36	16:08 (17)				20:09	21:07	21:57	22:15	21:42	20:36	19:18	17:08	16:20	31	15:42 (17)	16:21	33	15:43 (17)
31	08:29		15:33 (17)				07:15		05:12		05:46	06:42		07:35				08:59		14:30 (18)
	17:14	34	16:07 (17)				20:10		21:59		21:40	20:33		17:06				16:22	34	15:44 (17)
Potential sun hours	248			272		367	421	496	513	515	461	383	327	257		230				
Total, worst case		1070			217										933			967		
Sun reduction		0.17			0.22										0.20			0.12		
Oper. time red.		1.00			1.00										1.00			1.00		
Wind dir. red.		0.63			0.62										0.62			0.64		
Total reduction		0.11			0.14										0.12			0.08		
Total, real		114			30										116			74		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AT - H46

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June	
1	08:58	08:27	07:29	07:12		06:02	19:55 (18)	05:11	19:54 (18)
	16:24	17:16	18:13	20:12		21:09 19	20:14 (18)	22:00 24	20:18 (18)
2	08:58	08:25	07:26	07:10		06:00	19:53 (18)	05:11	19:55 (18)
	16:25	17:18	18:15	20:14		21:11 23	20:16 (18)	22:01 23	20:18 (18)
3	08:58	08:24	07:24	07:07		05:58	19:52 (18)	05:10	19:55 (18)
	16:26	17:20	18:17	20:16		21:12 25	20:17 (18)	22:02 22	20:17 (18)
4	08:58	08:22	07:21	07:05		05:56	19:50 (18)	05:09	19:56 (18)
	16:27	17:22	18:19	20:18		21:14 28	20:18 (18)	22:03 25	21:11 (17)
5	08:57	08:20	07:19	07:02		05:54	19:49 (18)	05:08	19:58 (18)
	16:28	17:24	18:21	20:20		21:16 30	20:19 (18)	22:05 27	21:14 (17)
6	08:57	08:18	07:17	07:00		05:52	19:49 (18)	05:07	19:58 (18)
	16:30	17:26	18:23	20:22		21:18 32	20:21 (18)	22:06 29	21:15 (17)
7	08:56	08:16	07:14	06:58		05:50	19:48 (18)	05:07	20:00 (18)
	16:31	17:28	18:24	20:24		21:20 33	20:21 (18)	22:07 29	21:17 (17)
8	08:56	08:14	07:12	06:55		05:48	19:47 (18)	05:06	20:01 (18)
	16:33	17:30	18:26	20:25		21:22 34	20:21 (18)	22:08 28	21:17 (17)
9	08:55	08:12	07:09	06:53		05:46	19:47 (18)	05:05	20:02 (18)
	16:34	17:32	18:28	20:27		21:23 35	20:22 (18)	22:09 28	21:19 (17)
10	08:55	08:10	07:07	06:50		05:44	19:46 (18)	05:05	20:03 (18)
	16:36	17:34	18:30	20:29		21:25 36	20:22 (18)	22:09 26	21:19 (17)
11	08:54	08:08	07:05	06:48		05:42	19:46 (18)	05:04	20:06 (18)
	16:37	17:36	18:32	20:31		21:27 37	20:23 (18)	22:10 23	21:20 (17)
12	08:53	08:06	07:02	06:45		05:40	19:46 (18)	05:04	21:01 (17)
	16:39	17:38	18:34	20:33		21:29 36	20:22 (18)	22:11 20	21:21 (17)
13	08:52	08:04	07:00	06:43		05:38	19:45 (18)	05:04	21:00 (17)
	16:40	17:40	18:36	20:35		21:31 37	20:22 (18)	22:12 20	21:20 (17)
14	08:51	08:02	06:57	06:41		05:37	19:46 (18)	05:03	21:00 (17)
	16:42	17:42	18:38	20:37		21:32 37	20:23 (18)	22:12 21	21:21 (17)
15	08:50	08:00	06:55	06:38		05:35	19:45 (18)	05:03	21:01 (17)
	16:44	17:44	18:40	20:39		21:34 37	20:22 (18)	22:13 21	21:22 (17)
16	08:49	07:58	06:52	06:36		05:33	19:46 (18)	05:03	21:01 (17)
	16:45	17:46	18:42	20:41		21:36 37	20:23 (18)	22:14 21	21:22 (17)
17	08:48	07:56	06:50	06:33		05:32	19:46 (18)	05:03	21:01 (17)
	16:47	17:49	18:44	20:42		21:37 36	20:22 (18)	22:14 21	21:22 (17)
18	08:47	07:54	06:47	06:31		05:30	19:46 (18)	05:03	21:01 (17)
	16:49	17:51	18:46	20:44		21:39 37	20:23 (18)	22:14 22	21:23 (17)
19	08:46	07:51	06:45	06:29		05:28	19:46 (18)	05:03	21:01 (17)
	16:51	17:53	18:48	20:46		21:41 36	20:22 (18)	22:15 22	21:23 (17)
20	08:45	07:49	06:42	06:26		05:27	19:47 (18)	05:03	21:01 (17)
	16:53	17:55	18:50	20:48		21:42 35	20:22 (18)	22:15 22	21:23 (17)
21	08:44	07:47	06:40	06:24		05:25	19:47 (18)	05:03	21:01 (17)
	16:54	17:57	18:51	20:50		21:44 35	20:22 (18)	22:15 22	21:23 (17)
22	08:42	07:45	06:37	06:22		05:24	19:47 (18)	05:03	21:02 (17)
	16:56	17:59	18:53	20:52		21:46 34	20:21 (18)	22:16 22	21:24 (17)
23	08:41	07:42	06:35	06:20		05:22	19:48 (18)	05:03	21:02 (17)
	16:58	18:01	18:55	20:54		21:47 33	20:21 (18)	22:16 22	21:24 (17)
24	08:40	07:40	06:32	06:17		05:21	19:48 (18)	05:04	21:02 (17)
	17:00	18:03	18:57	20:56		21:49 33	20:21 (18)	22:16 22	21:24 (17)
25	08:38	07:38	06:30	06:15		05:20	19:49 (18)	05:04	21:03 (17)
	17:02	18:05	18:59	20:58		21:50 32	20:21 (18)	22:16 22	21:25 (17)
26	08:37	07:36	06:27	06:13		05:18	19:50 (18)	05:04	21:03 (17)
	17:04	18:07	19:01	20:59		21:52 31	20:21 (18)	22:16 21	21:24 (17)
27	08:35	07:33	06:25	06:11		05:17	19:50 (18)	05:05	21:04 (17)
	17:06	18:09	19:03	21:01		21:53 30	20:20 (18)	22:16 21	21:25 (17)
28	08:34	07:31	06:22	06:08		05:16	19:50 (18)	05:05	21:03 (17)
	17:08	18:11	19:05	21:03		21:55 29	20:19 (18)	22:16 21	21:24 (17)
29	08:32		07:20	06:06	20:02 (18)	05:15	19:51 (18)	05:06	21:04 (17)
	17:10		20:07	21:05 6	20:08 (18)	21:56 28	20:19 (18)	22:15 21	21:25 (17)
30	08:30		07:17	06:04	19:58 (18)	05:14	19:52 (18)	05:07	21:04 (17)
	17:12		20:08	21:07 14	20:12 (18)	21:57 26	20:18 (18)	22:15 20	21:24 (17)
31	08:29		07:15			05:12	19:53 (18)		
	17:14		20:10			21:59 26	20:19 (18)		
Potential sun hours	248	272	367	421		496		513	
Total, worst case				20		997		688	
Sun reduction				0.34		0.36		0.26	
Oper. time red.				1.00		1.00		1.00	
Wind dir. red.				0.61		0.61		0.62	
Total reduction				0.21		0.22		0.16	
Total, real				4		219		110	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AT - H46

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October	November	December
1	05:07	20:11 (18)	05:48	19:56 (18)	06:44	07:38	07:37	08:33
	22:15	21 21:24 (17)	21:39	37 20:33 (18)	20:31	19:16	17:04	16:19
2	05:08	20:09 (18)	05:50	19:57 (18)	06:45	07:40	07:39	08:35
	22:14	25 21:24 (17)	21:37	36 20:33 (18)	20:28	19:14	17:02	16:18
3	05:09	20:08 (18)	05:52	19:56 (18)	06:47	07:42	07:41	08:36
	22:14	27 21:24 (17)	21:35	36 20:32 (18)	20:26	19:11	17:00	16:17
4	05:10	20:06 (18)	05:53	19:57 (18)	06:49	07:43	07:43	08:38
	22:13	28 21:23 (17)	21:33	35 20:32 (18)	20:23	19:09	16:58	16:17
5	05:11	20:06 (18)	05:55	19:58 (18)	06:51	07:45	07:45	08:39
	22:13	28 21:22 (17)	21:31	34 20:32 (18)	20:21	19:06	16:56	16:16
6	05:12	20:05 (18)	05:57	19:58 (18)	06:53	07:47	07:47	08:41
	22:12	29 21:22 (17)	21:29	32 20:30 (18)	20:19	19:04	16:54	16:16
7	05:13	20:04 (18)	05:59	19:59 (18)	06:54	07:49	07:49	08:42
	22:12	29 21:21 (17)	21:27	31 20:30 (18)	20:16	19:01	16:53	16:15
8	05:14	20:04 (18)	06:00	19:59 (18)	06:56	07:51	07:51	08:43
	22:11	27 21:20 (17)	21:25	29 20:28 (18)	20:14	18:59	16:51	16:15
9	05:15	20:03 (18)	06:02	20:00 (18)	06:58	07:53	07:53	08:45
	22:10	21 20:24 (18)	21:23	27 20:27 (18)	20:11	18:56	16:49	16:14
10	05:16	20:03 (18)	06:04	20:01 (18)	07:00	07:55	07:55	08:46
	22:09	22 20:25 (18)	21:21	25 20:26 (18)	20:09	18:54	16:47	16:14
11	05:17	20:02 (18)	06:06	20:02 (18)	07:02	07:57	07:57	08:47
	22:08	23 20:25 (18)	21:19	22 20:24 (18)	20:06	18:51	16:45	16:14
12	05:18	20:01 (18)	06:07	20:04 (18)	07:03	07:58	07:59	08:48
	22:07	25 20:26 (18)	21:17	18 20:22 (18)	20:04	18:49	16:44	16:14
13	05:19	20:01 (18)	06:09	20:07 (18)	07:05	08:00	08:01	08:49
	22:06	26 20:27 (18)	21:15	13 20:20 (18)	20:01	18:47	16:42	16:13
14	05:21	20:01 (18)	06:11		07:07	08:02	08:03	08:50
	22:05	27 20:28 (18)	21:12		19:59	18:44	16:40	16:13
15	05:22	20:00 (18)	06:13		07:09	08:04	08:05	08:51
	22:04	29 20:29 (18)	21:10		19:56	18:42	16:39	16:13
16	05:23	19:59 (18)	06:15		07:11	08:06	08:07	08:52
	22:03	30 20:29 (18)	21:08		19:54	18:40	16:37	16:13
17	05:25	19:59 (18)	06:16		07:12	08:08	08:09	08:53
	22:02	30 20:29 (18)	21:06		19:51	18:37	16:36	16:14
18	05:26	19:59 (18)	06:18		07:14	08:10	08:11	08:54
	22:01	32 20:31 (18)	21:04		19:49	18:35	16:34	16:14
19	05:27	19:58 (18)	06:20		07:16	08:12	08:12	08:55
	21:59	33 20:31 (18)	21:01		19:46	18:33	16:33	16:14
20	05:29	19:58 (18)	06:22		07:18	08:14	08:14	08:55
	21:58	33 20:31 (18)	20:59		19:44	18:30	16:31	16:14
21	05:30	19:58 (18)	06:24		07:20	08:16	08:16	08:56
	21:56	34 20:32 (18)	20:57		19:41	18:28	16:30	16:15
22	05:32	19:57 (18)	06:25		07:21	08:18	08:18	08:56
	21:55	35 20:32 (18)	20:55		19:39	18:26	16:29	16:15
23	05:33	19:57 (18)	06:27		07:23	08:20	08:20	08:57
	21:54	35 20:32 (18)	20:52		19:36	18:24	16:27	16:16
24	05:35	19:57 (18)	06:29		07:25	08:22	08:22	08:57
	21:52	36 20:33 (18)	20:50		19:33	18:21	16:26	16:16
25	05:37	19:56 (18)	06:31		07:27	07:24	08:23	08:58
	21:51	36 20:32 (18)	20:48		19:31	17:19	16:25	16:17
26	05:38	19:57 (18)	06:33		07:29	07:25	08:25	08:58
	21:49	36 20:33 (18)	20:45		19:28	17:17	16:24	16:18
27	05:40	19:56 (18)	06:35		07:31	07:27	08:27	08:58
	21:47	37 20:33 (18)	20:43		19:26	17:15	16:23	16:19
28	05:41	19:56 (18)	06:36		07:32	07:29	08:28	08:58
	21:46	37 20:33 (18)	20:40		19:23	17:13	16:22	16:19
29	05:43	19:56 (18)	06:38		07:34	07:31	08:30	08:58
	21:44	37 20:33 (18)	20:38		19:21	17:11	16:21	16:20
30	05:45	19:56 (18)	06:40		07:36	07:33	08:32	08:58
	21:42	37 20:33 (18)	20:36		19:18	17:08	16:20	16:21
31	05:46	19:57 (18)	06:42			07:35		08:58
	21:40	37 20:34 (18)	20:33			17:06		16:22
Potential sun hours	515		461		383	327	257	230
Total, worst case		942		375				
Sun reduction		0.27		0.27				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.61		0.61				
Total reduction		0.16		0.17				
Total, real		153		62				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AU - H47

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February	March	April	May			June		
1	08:58		15:43 (1)	08:27	07:29	07:12	06:02			05:12		20:26 (9)
	16:24	2	15:45 (1)	17:16	18:13	20:12	21:09			22:00	28	20:54 (9)
2	08:58		15:44 (1)	08:25	07:26	07:10	06:00			05:11		20:27 (9)
	16:25	3	15:47 (1)	17:18	18:15	20:14	21:11			22:01	27	20:54 (9)
3	08:58		15:44 (1)	08:24	07:24	07:07	05:58			05:10		20:27 (9)
	16:26	3	15:47 (1)	17:20	18:17	20:16	21:12			22:02	26	20:53 (9)
4	08:58		15:45 (1)	08:22	07:21	07:05	05:56			05:09		20:28 (9)
	16:27	4	15:49 (1)	17:22	18:19	20:18	21:14			22:03	26	20:54 (9)
5	08:57		15:45 (1)	08:20	07:19	07:03	05:54			05:08		20:28 (9)
	16:29	5	15:50 (1)	17:24	18:21	20:20	21:16			22:04	25	20:53 (9)
6	08:57		15:46 (1)	08:18	07:17	07:00	05:52			05:07		20:28 (9)
	16:30	6	15:52 (1)	17:26	18:23	20:22	21:18			22:06	25	20:53 (9)
7	08:56		15:46 (1)	08:16	07:14	06:58	05:50			05:07		20:29 (9)
	16:31	8	15:54 (1)	17:28	18:25	20:24	21:20			22:07	24	20:53 (9)
8	08:56		15:47 (1)	08:14	07:12	06:55	05:48			05:06		20:29 (9)
	16:33	8	15:55 (1)	17:30	18:26	20:25	21:22			22:08	24	20:53 (9)
9	08:55		15:47 (1)	08:12	07:09	06:53	05:46		20:33 (9)	05:05		20:30 (9)
	16:34	9	15:56 (1)	17:32	18:28	20:27	21:23	11	20:44 (9)	22:08	23	20:53 (9)
10	08:55		15:49 (1)	08:10	07:07	06:50	05:44		20:31 (9)	05:05		20:30 (9)
	16:36	10	15:59 (1)	17:34	18:30	20:29	21:25	16	20:47 (9)	22:09	22	20:52 (9)
11	08:54		15:49 (1)	08:08	07:05	06:48	05:42		20:30 (9)	05:04		20:31 (9)
	16:37	12	16:01 (1)	17:36	18:32	20:31	21:27	18	20:48 (9)	22:10	21	20:52 (9)
12	08:53		15:50 (1)	08:06	07:02	06:45	05:40		20:28 (9)	05:04		20:32 (9)
	16:39	12	16:02 (1)	17:38	18:34	20:33	21:29	21	20:49 (9)	22:11	21	20:53 (9)
13	08:52		15:51 (1)	08:04	07:00	06:43	05:39		20:28 (9)	05:04		20:33 (9)
	16:40	13	16:04 (1)	17:40	18:36	20:35	21:31	23	20:51 (9)	22:12	20	20:53 (9)
14	08:51		15:51 (1)	08:02	06:57	06:41	05:37		20:26 (9)	05:03		20:32 (9)
	16:42	14	16:05 (1)	17:43	18:38	20:37	21:32	25	20:51 (9)	22:12	20	20:52 (9)
15	08:50		15:52 (1)	08:00	06:55	06:38	05:35		20:25 (9)	05:03		20:33 (9)
	16:44	13	16:05 (1)	17:45	18:40	20:39	21:34	26	20:51 (9)	22:13	19	20:52 (9)
16	08:49		15:54 (1)	07:58	06:52	06:36	05:33		20:25 (9)	05:03		20:33 (9)
	16:46	10	16:04 (1)	17:47	18:42	20:41	21:36	27	20:52 (9)	22:13	19	20:52 (9)
17	08:48		15:56 (1)	07:56	06:50	06:34	05:32		20:24 (9)	05:03		20:34 (9)
	16:47	7	16:03 (1)	17:49	18:44	20:42	21:37	28	20:52 (9)	22:14	18	20:52 (9)
18	08:47			07:54	06:47	06:31	05:30		20:25 (9)	05:03		20:34 (9)
	16:49			17:51	18:46	20:44	21:39	28	20:53 (9)	22:14	18	20:52 (9)
19	08:46			07:51	06:45	06:29	05:28		20:24 (9)	05:03		20:34 (9)
	16:51			17:53	18:48	20:46	21:41	29	20:53 (9)	22:15	18	20:52 (9)
20	08:45			07:49	06:42	06:27	05:27		20:24 (9)	05:03		20:35 (9)
	16:53			17:55	18:50	20:48	21:42	29	20:53 (9)	22:15	17	20:52 (9)
21	08:44			07:47	06:40	06:24	05:25		20:24 (9)	05:03		20:36 (9)
	16:55			17:57	18:51	20:50	21:44	30	20:54 (9)	22:15	17	20:53 (9)
22	08:42			07:45	06:37	06:22	05:24		20:23 (9)	05:03		20:36 (9)
	16:56			17:59	18:53	20:52	21:46	30	20:53 (9)	22:16	17	20:53 (9)
23	08:41			07:42	06:35	06:20	05:23		20:24 (9)	05:04		20:35 (9)
	16:58			18:01	18:55	20:54	21:47	30	20:54 (9)	22:16	18	20:53 (9)
24	08:40			07:40	06:32	06:17	05:21		20:24 (9)	05:04		20:35 (9)
	17:00			18:03	18:57	20:56	21:49	30	20:54 (9)	22:16	18	20:53 (9)
25	08:38			07:38	06:30	06:15	05:20		20:24 (9)	05:04		20:36 (9)
	17:02			18:05	18:59	20:58	21:50	30	20:54 (9)	22:16	18	20:54 (9)
26	08:37			07:36	06:27	06:13	05:18		20:25 (9)	05:05		20:36 (9)
	17:04			18:07	19:01	20:59	21:52	30	20:55 (9)	22:16	18	20:54 (9)
27	08:35			07:33	06:25	06:11	05:17		20:25 (9)	05:05		20:36 (9)
	17:06			18:09	19:03	21:01	21:53	30	20:55 (9)	22:16	19	20:55 (9)
28	08:34			07:31	06:22	06:09	05:16		20:25 (9)	05:06		20:35 (9)
	17:08			18:11	19:05	21:03	21:54	30	20:55 (9)	22:16	20	20:55 (9)
29	08:32				07:20	06:06	05:15		20:26 (9)	05:06		20:36 (9)
	17:10				20:07	21:05	21:56	29	20:55 (9)	22:15	20	20:56 (9)
30	08:30				07:17	06:04	05:14		20:26 (9)	05:07		20:36 (9)
	17:12				20:09	21:07	21:57	28	20:54 (9)	22:15	21	20:57 (9)
31	08:29				07:15		05:13		20:26 (9)			
	17:14				20:10		21:58	28	20:54 (9)			
Potential sun hours	248			272	367	421	496			513		
Total, worst case		139						606			627	
Sun reduction		0.17						0.36			0.26	
Oper. time red.		1.00						1.00			1.00	
Wind dir. red.		0.62						0.62			0.62	
Total reduction		0.11						0.23			0.16	
Total, real		15						137			101	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AU - H47

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November			December		
1	05:07		20:35 (9)	05:48		20:39 (9)	06:44	07:38	07:37			08:33		15:31 (1)
	22:15	22	20:57 (9)	21:39	20	20:59 (9)	20:31	19:16	17:04			16:19	12	15:43 (1)
2	05:08		20:36 (9)	05:50		20:40 (9)	06:45	07:40	07:39			08:35		15:31 (1)
	22:14	21	20:57 (9)	21:37	18	20:58 (9)	20:28	19:14	17:02			16:18	10	15:41 (1)
3	05:09		20:36 (9)	05:52		20:42 (9)	06:47	07:42	07:41			08:36		15:31 (1)
	22:14	22	20:58 (9)	21:35	13	20:55 (9)	20:26	19:11	17:00			16:18	10	15:41 (1)
4	05:10		20:35 (9)	05:53		20:45 (9)	06:49	07:44	07:43			08:38		15:32 (1)
	22:13	23	20:58 (9)	21:33	8	20:53 (9)	20:24	19:09	16:58			16:17	8	15:40 (1)
5	05:11		20:35 (9)	05:55			06:51	07:45	07:45			08:39		15:31 (1)
	22:13	23	20:58 (9)	21:31			20:21	19:06	16:56			16:16	8	15:39 (1)
6	05:12		20:35 (9)	05:57			06:53	07:47	07:47			08:41		15:32 (1)
	22:12	24	20:59 (9)	21:29			20:19	19:04	16:55			16:16	7	15:39 (1)
7	05:13		20:35 (9)	05:59			06:55	07:49	07:49			08:42		15:32 (1)
	22:12	25	21:00 (9)	21:27			20:16	19:01	16:53			16:15	6	15:38 (1)
8	05:14		20:35 (9)	06:00			06:56	07:51	07:51			08:43		15:33 (1)
	22:11	25	21:00 (9)	21:25			20:14	18:59	16:51			16:15	5	15:38 (1)
9	05:15		20:34 (9)	06:02			06:58	07:53	07:53			08:45		15:33 (1)
	22:10	27	21:01 (9)	21:23			20:11	18:56	16:49			16:14	4	15:37 (1)
10	05:16		20:34 (9)	06:04			07:00	07:55	07:55			08:46		15:33 (1)
	22:09	27	21:01 (9)	21:21			20:09	18:54	16:47			16:14	3	15:36 (1)
11	05:17		20:34 (9)	06:06			07:02	07:57	07:57			08:47		15:34 (1)
	22:08	27	21:01 (9)	21:19			20:06	18:52	16:45			16:14	1	15:35 (1)
12	05:18		20:34 (9)	06:08			07:04	07:59	07:59			08:48		15:35 (1)
	22:07	28	21:02 (9)	21:17			20:04	18:49	16:44			16:14	1	15:36 (1)
13	05:19		20:34 (9)	06:09			07:05	08:00	08:01			08:49		15:35 (1)
	22:06	29	21:03 (9)	21:15			20:01	18:47	16:42			16:14	1	15:36 (1)
14	05:21		20:34 (9)	06:11			07:07	08:02	08:03			08:50		
	22:05	29	21:03 (9)	21:12			19:59	18:44	16:40			16:14		
15	05:22		20:34 (9)	06:13			07:09	08:04	08:05			08:51		
	22:04	29	21:03 (9)	21:10			19:56	18:42	16:39			16:14		
16	05:23		20:34 (9)	06:15			07:11	08:06	08:07			08:52		
	22:03	29	21:03 (9)	21:08			19:54	18:40	16:37			16:14		
17	05:25		20:33 (9)	06:17			07:13	08:08	08:09			08:53		
	22:02	30	21:03 (9)	21:06			19:51	18:37	16:36			16:14		
18	05:26		20:34 (9)	06:18			07:14	08:10	08:11			08:54		
	22:00	30	21:04 (9)	21:04			19:49	18:35	16:34			16:14		
19	05:28		20:34 (9)	06:20			07:16	08:12	08:12			08:54		
	21:59	30	21:04 (9)	21:01			19:46	18:33	16:33			16:14		
20	05:29		20:33 (9)	06:22			07:18	08:14	08:14			08:55		
	21:58	31	21:04 (9)	20:59			19:44	18:30	16:31			16:15		
21	05:31		20:34 (9)	06:24			07:20	08:16	08:16			08:56		
	21:56	30	21:04 (9)	20:57			19:41	18:28	16:30			16:15		
22	05:32		20:34 (9)	06:26			07:22	08:18	08:18			08:56		
	21:55	30	21:04 (9)	20:55			19:39	18:26	16:29			16:15		
23	05:34		20:35 (9)	06:27			07:23	08:20	08:20			08:57		
	21:54	29	21:04 (9)	20:52			19:36	18:24	16:27			16:16		
24	05:35		20:34 (9)	06:29			07:25	08:22	08:22			08:57		
	21:52	30	21:04 (9)	20:50			19:34	18:21	16:26			16:17		
25	05:37		20:34 (9)	06:31			07:27	07:24	08:23		15:35 (1)	08:58		
	21:50	29	21:03 (9)	20:48			19:31	17:19	16:25	6	15:41 (1)	16:17		
26	05:38		20:35 (9)	06:33			07:29	07:25	08:25		15:33 (1)	08:58		
	21:49	28	21:03 (9)	20:45			19:29	17:17	16:24	10	15:43 (1)	16:18		
27	05:40		20:35 (9)	06:35			07:31	07:27	08:27		15:32 (1)	08:58		
	21:47	27	21:02 (9)	20:43			19:26	17:15	16:23	12	15:44 (1)	16:19		
28	05:42		20:36 (9)	06:36			07:32	07:29	08:28		15:31 (1)	08:58		
	21:46	26	21:02 (9)	20:40			19:24	17:13	16:22	14	15:45 (1)	16:20		
29	05:43		20:37 (9)	06:38			07:34	07:31	08:30		15:31 (1)	08:58		
	21:44	25	21:02 (9)	20:38			19:21	17:11	16:21	13	15:44 (1)	16:20		
30	05:45		20:37 (9)	06:40			07:36	07:33	08:32		15:31 (1)	08:58		
	21:42	24	21:01 (9)	20:36			19:19	17:09	16:20	13	15:44 (1)	16:21		
31	05:47		20:38 (9)	06:42				07:35				08:58		
	21:40	23	21:01 (9)	20:33				17:06				16:22		
Potential sun hours	515			461			382	328	257			231		
Total, worst case		832			59					68			76	
Sun reduction		0.27			0.27					0.20			0.12	
Oper. time red.		1.00			1.00					1.00			1.00	
Wind dir. red.		0.62			0.62					0.62			0.62	
Total reduction		0.17			0.17					0.12			0.07	
Total, real		138			10					8			6	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AV - H48

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April			May	June
1	08:58		09:44 (3)	08:27		09:04 (4)	07:29	07:13			06:02	05:12
	16:24	17	10:01 (3)	17:16	23	09:27 (4)	18:13	20:12			21:09	22:00
2	08:58		09:45 (3)	08:25		09:04 (4)	07:26	07:10			06:00	05:11
	16:25	16	10:01 (3)	17:18	22	09:26 (4)	18:15	20:14			21:11	22:01
3	08:58		09:46 (3)	08:24		09:06 (4)	07:24	07:08			05:58	05:10
	16:26	15	10:01 (3)	17:20	19	09:25 (4)	18:17	20:16			21:13	22:02
4	08:58		09:47 (3)	08:22		09:07 (4)	07:22	07:05			05:56	05:09
	16:28	14	10:01 (3)	17:22	16	09:23 (4)	18:19	20:18			21:14	22:03
5	08:57		09:48 (3)	08:20		09:10 (4)	07:19	07:03		07:27 (1)	05:54	05:08
	16:29	12	10:00 (3)	17:24	11	09:21 (4)	18:21	20:20	2	07:29 (1)	21:16	22:05
6	08:57		09:50 (3)	08:18			07:17	07:00		07:24 (1)	05:52	05:08
	16:30	10	10:00 (3)	17:26			18:23	20:22	4	07:28 (1)	21:18	22:06
7	08:56		09:51 (3)	08:16			07:14	06:58		07:22 (1)	05:50	05:07
	16:32	8	09:59 (3)	17:28			18:25	20:24	5	07:27 (1)	21:20	22:07
8	08:56		09:54 (3)	08:14			07:12	06:55		07:20 (1)	05:48	05:06
	16:33	3	09:57 (3)	17:30			18:27	20:26	6	07:26 (1)	21:22	22:08
9	08:55			08:12			07:10	06:53		07:17 (1)	05:46	05:06
	16:34			17:32			18:29	20:28	6	07:23 (1)	21:24	22:09
10	08:55			08:10			07:07	06:51			05:44	05:05
	16:36			17:35			18:31	20:29			21:25	22:09
11	08:54			08:08			07:05	06:48			05:42	05:05
	16:38			17:37			18:33	20:31			21:27	22:10
12	08:53			08:06			07:02	06:46			05:41	05:04
	16:39			17:39			18:34	20:33			21:29	22:11
13	08:52			08:04			07:00	06:43			05:39	05:04
	16:41			17:41			18:36	20:35			21:31	22:12
14	08:51			08:02			06:57	06:41			05:37	05:04
	16:42			17:43			18:38	20:37			21:32	22:12
15	08:51			08:00			06:55	06:39			05:35	05:03
	16:44			17:45			18:40	20:39			21:34	22:13
16	08:50		09:21 (4)	07:58			06:52	06:36			05:34	05:03
	16:46	1	09:22 (4)	17:47			18:42	20:41			21:36	22:14
17	08:48		09:20 (4)	07:56			06:50	06:34			05:32	05:03
	16:48	3	09:23 (4)	17:49			18:44	20:43			21:37	22:14
18	08:47		09:19 (4)	07:54			06:47	06:31			05:30	05:03
	16:49	5	09:24 (4)	17:51			18:46	20:44			21:39	22:14
19	08:46		09:17 (4)	07:52			06:45	06:29			05:29	05:03
	16:51	8	09:25 (4)	17:53			18:48	20:46			21:41	22:15
20	08:45		09:16 (4)	07:49			06:42	06:27			05:27	05:03
	16:53	10	09:26 (4)	17:55			18:50	20:48			21:42	22:15
21	08:44		09:14 (4)	07:47			06:40	06:24			05:26	05:03
	16:55	12	09:26 (4)	17:57			18:52	20:50			21:44	22:15
22	08:42		09:13 (4)	07:45			06:37	06:22			05:24	05:04
	16:57	14	09:27 (4)	17:59			18:54	20:52			21:46	22:16
23	08:41		09:11 (4)	07:43			06:35	06:20			05:23	05:04
	16:59	16	09:27 (4)	18:01			18:55	20:54			21:47	22:16
24	08:40		09:10 (4)	07:40			06:32	06:18			05:21	05:04
	17:00	18	09:28 (4)	18:03			18:57	20:56			21:49	22:16
25	08:38		09:08 (4)	07:38			06:30	06:15			05:20	05:04
	17:02	20	09:28 (4)	18:05			18:59	20:58			21:50	22:16
26	08:37		09:06 (4)	07:36			06:28	06:13			05:19	05:05
	17:04	21	09:27 (4)	18:07			19:01	21:00			21:52	22:16
27	08:35		09:05 (4)	07:33			06:25	06:11			05:17	05:05
	17:06	23	09:28 (4)	18:09			19:03	21:01			21:53	22:16
28	08:34		09:03 (4)	07:31			06:23	06:09			05:16	05:06
	17:08	25	09:28 (4)	18:11			19:05	21:03			21:55	22:16
29	08:32		09:01 (4)				07:20	06:07			05:15	05:06
	17:10	27	09:28 (4)				20:07	21:05			21:56	22:15
30	08:31		09:01 (4)				07:18	06:04			05:14	05:07
	17:12	26	09:27 (4)				20:09	21:07			21:57	22:15
31	08:29		09:02 (4)				07:15				05:13	
	17:14	25	09:27 (4)				20:11				21:59	
Potential sun hours	248			272			367	421			496	513
Total, worst case		349			91				23			
Sun reduction		0.17			0.22				0.34			
Oper. time red.		1.00			1.00				1.00			
Wind dir. red.		0.65			0.65				0.58			
Total reduction		0.11			0.14				0.20			
Total, real		39			13				5			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AV - H48

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October	November		December		
1	05:08	05:48	06:44		07:38	07:37		08:33		
	22:15	21:39	20:31		19:16	17:05		16:19		
2	05:08	05:50	06:46		07:40	07:39		08:35		
	22:14	21:37	20:29		19:14	17:03		16:19		
3	05:09	05:52	06:47	07:15 (1)	07:42	07:41		08:36		
	22:14	21:35	20:26	6 07:21 (1)	19:11	17:01		16:18		
4	05:10	05:54	06:49	07:17 (1)	07:44	07:43		08:38		09:39 (3)
	22:13	21:33	20:24	6 07:23 (1)	19:09	16:59		16:17	3	09:42 (3)
5	05:11	05:55	06:51	07:18 (1)	07:46	07:45	08:43 (4)	08:39		09:36 (3)
	22:13	21:31	20:21	5 07:23 (1)	19:06	16:57	4 08:47 (4)	16:17	8	09:44 (3)
6	05:12	05:57	06:53	07:20 (1)	07:47	07:47	08:39 (4)	08:41		09:36 (3)
	22:12	21:29	20:19	4 07:24 (1)	19:04	16:55	12 08:51 (4)	16:16	10	09:46 (3)
7	05:13	05:59	06:55	07:22 (1)	07:49	07:49	08:37 (4)	08:42		09:35 (3)
	22:12	21:27	20:16	2 07:24 (1)	19:01	16:53	16 08:53 (4)	16:15	12	09:47 (3)
8	05:14	06:01	06:56		07:51	07:51	08:35 (4)	08:43		09:35 (3)
	22:11	21:25	20:14		18:59	16:51	20 08:55 (4)	16:15	14	09:49 (3)
9	05:15	06:02	06:58		07:53	07:53	08:35 (4)	08:45		09:35 (3)
	22:10	21:23	20:11		18:57	16:49	22 08:57 (4)	16:15	15	09:50 (3)
10	05:16	06:04	07:00		07:55	07:55	08:34 (4)	08:46		09:34 (3)
	22:09	21:21	20:09		18:54	16:47	24 08:58 (4)	16:14	16	09:50 (3)
11	05:17	06:06	07:02		07:57	07:57	08:34 (4)	08:47		09:34 (3)
	22:08	21:19	20:06		18:52	16:46	25 08:59 (4)	16:14	17	09:51 (3)
12	05:18	06:08	07:04		07:59	07:59	08:33 (4)	08:48		09:35 (3)
	22:07	21:17	20:04		18:49	16:44	26 08:59 (4)	16:14	18	09:53 (3)
13	05:20	06:10	07:05		08:01	08:01	08:33 (4)	08:49		09:35 (3)
	22:06	21:15	20:01		18:47	16:42	27 09:00 (4)	16:14	18	09:53 (3)
14	05:21	06:11	07:07		08:02	08:03	08:35 (4)	08:50		09:35 (3)
	22:05	21:13	19:59		18:45	16:41	25 09:00 (4)	16:14	19	09:54 (3)
15	05:22	06:13	07:09		08:04	08:05	08:37 (4)	08:51		09:36 (3)
	22:04	21:10	19:56		18:42	16:39	23 09:00 (4)	16:14	19	09:55 (3)
16	05:24	06:15	07:11		08:06	08:07	08:39 (4)	08:52		09:36 (3)
	22:03	21:08	19:54		18:40	16:37	21 09:00 (4)	16:14	19	09:55 (3)
17	05:25	06:17	07:13		08:08	08:09	08:42 (4)	08:53		09:36 (3)
	22:02	21:06	19:51		18:38	16:36	20 09:02 (4)	16:14	19	09:55 (3)
18	05:26	06:19	07:14		08:10	08:11	08:44 (4)	08:54		09:36 (3)
	22:01	21:04	19:49		18:35	16:34	18 09:02 (4)	16:14	20	09:56 (3)
19	05:28	06:20	07:16		08:12	08:13	08:46 (4)	08:55		09:37 (3)
	21:59	21:02	19:46		18:33	16:33	16 09:02 (4)	16:14	20	09:57 (3)
20	05:29	06:22	07:18		08:14	08:14	08:48 (4)	08:55		09:38 (3)
	21:58	20:59	19:44		18:31	16:32	14 09:02 (4)	16:15	20	09:58 (3)
21	05:31	06:24	07:20		08:16	08:16	08:50 (4)	08:56		09:37 (3)
	21:57	20:57	19:41		18:28	16:30	12 09:02 (4)	16:15	21	09:58 (3)
22	05:32	06:26	07:22		08:18	08:18	08:52 (4)	08:56		09:38 (3)
	21:55	20:55	19:39		18:26	16:29	10 09:02 (4)	16:16	21	09:59 (3)
23	05:34	06:28	07:24		08:20	08:20	08:54 (4)	08:57		09:39 (3)
	21:54	20:52	19:36		18:24	16:28	8 09:02 (4)	16:16	20	09:59 (3)
24	05:35	06:29	07:25		08:22	08:22	08:56 (4)	08:57		09:39 (3)
	21:52	20:50	19:34		18:22	16:26	6 09:02 (4)	16:17	20	09:59 (3)
25	05:37	06:31	07:27		07:24	08:23	08:58 (4)	08:58		09:40 (3)
	21:51	20:48	19:31		17:19	16:25	3 09:01 (4)	16:17	20	10:00 (3)
26	05:39	06:33	07:29		07:26	08:25	09:00 (4)	08:58		09:40 (3)
	21:49	20:45	19:29		17:17	16:24	1 09:01 (4)	16:18	20	10:00 (3)
27	05:40	06:35	07:31		07:28	08:27		08:58		09:41 (3)
	21:47	20:43	19:26		17:15	16:23		16:19	19	10:00 (3)
28	05:42	06:37	07:33		07:30	08:29		08:58		09:41 (3)
	21:46	20:41	19:24		17:13	16:22		16:20	20	10:01 (3)
29	05:43	06:38	07:34		07:32	08:30		08:58		09:42 (3)
	21:44	20:38	19:21		17:11	16:21		16:21	19	10:01 (3)
30	05:45	06:40	07:36		07:34	08:32		08:58		09:43 (3)
	21:42	20:36	19:19		17:09	16:20		16:22	18	10:01 (3)
31	05:47	06:42			07:35			08:58		09:44 (3)
	21:40	20:33			17:07			16:23	18	10:02 (3)
Potential sun hours	515	461	382		328	257		231		
Total, worst case				23			353		483	
Sun reduction				0.29			0.20		0.12	
Oper. time red.				1.00			1.00		1.00	
Wind dir. red.				0.58			0.65		0.66	
Total reduction				0.17			0.13		0.08	
Total, real				4			46		38	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AW - H49

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June	
1	08:58	08:27	07:29	07:12		06:02		19:21 (18)	05:11		20:29 (17)
	16:24	17:16	18:13	20:12		21:09	34	19:55 (18)	22:00	31	21:00 (17)
2	08:58	08:25	07:26	07:10		06:00		19:22 (18)	05:11		20:29 (17)
	16:25	17:18	18:15	20:14		21:11	33	19:55 (18)	22:01	31	21:00 (17)
3	08:58	08:24	07:24	07:07		05:58		19:22 (18)	05:10		20:29 (17)
	16:26	17:20	18:17	20:16		21:12	32	19:54 (18)	22:02	31	21:00 (17)
4	08:58	08:22	07:21	07:05		05:56		19:23 (18)	05:09		20:29 (17)
	16:27	17:22	18:19	20:18		21:14	30	19:53 (18)	22:03	31	21:00 (17)
5	08:57	08:20	07:19	07:02		05:54		19:23 (18)	05:08		20:29 (17)
	16:28	17:24	18:21	20:20		21:16	29	19:52 (18)	22:05	31	21:00 (17)
6	08:57	08:18	07:17	07:00		05:52		19:25 (18)	05:07		20:29 (17)
	16:30	17:26	18:23	20:22		21:18	27	19:52 (18)	22:06	31	21:00 (17)
7	08:56	08:16	07:14	06:58		05:50		19:26 (18)	05:06		20:30 (17)
	16:31	17:28	18:24	20:24		21:20	25	19:51 (18)	22:07	31	21:01 (17)
8	08:56	08:14	07:12	06:55		05:48		19:27 (18)	05:06		20:30 (17)
	16:33	17:30	18:26	20:25		21:22	23	19:50 (18)	22:08	31	21:01 (17)
9	08:55	08:12	07:09	06:53		05:46		19:28 (18)	05:05		20:30 (17)
	16:34	17:32	18:28	20:27		21:23	20	19:48 (18)	22:09	31	21:01 (17)
10	08:55	08:10	07:07	06:50		05:44		19:30 (18)	05:05		20:30 (17)
	16:36	17:34	18:30	20:29		21:25	16	19:46 (18)	22:09	31	21:01 (17)
11	08:54	08:08	07:05	06:48		05:42		19:33 (18)	05:04		20:31 (17)
	16:37	17:36	18:32	20:31		21:27	11	19:44 (18)	22:10	30	21:01 (17)
12	08:53	08:06	07:02	06:45		05:40			05:04		20:31 (17)
	16:39	17:38	18:34	20:33		21:29			22:11	31	21:02 (17)
13	08:52	08:04	07:00	06:43		05:38			05:04		20:31 (17)
	16:40	17:40	18:36	20:35		21:31			22:12	30	21:01 (17)
14	08:51	08:02	06:57	06:41		05:37			05:03		20:31 (17)
	16:42	17:42	18:38	20:37		21:32			22:12	30	21:01 (17)
15	08:50	08:00	06:55	06:38		19:36 (18)	05:35	20:39 (17)	05:03		20:32 (17)
	16:44	17:44	18:40	20:39	11	19:47 (18)	21:34	7	20:46 (17)	22:13	30	21:02 (17)
16	08:49	07:58	06:52	06:36		19:32 (18)	05:33		20:37 (17)	05:03		20:32 (17)
	16:45	17:46	18:42	20:41	18	19:50 (18)	21:36	12	20:49 (17)	22:14	30	21:02 (17)
17	08:48	07:56	06:50	06:33		19:30 (18)	05:32		20:34 (17)	05:03		20:32 (17)
	16:47	17:49	18:44	20:42	22	19:52 (18)	21:37	17	20:51 (17)	22:14	30	21:02 (17)
18	08:47	07:54	06:47	06:31		19:28 (18)	05:30		20:34 (17)	05:03		20:32 (17)
	16:49	17:51	18:46	20:44	25	19:53 (18)	21:39	18	20:52 (17)	22:14	30	21:02 (17)
19	08:46	07:51	06:45	06:29		19:27 (18)	05:28		20:32 (17)	05:03		20:33 (17)
	16:51	17:53	18:48	20:46	28	19:55 (18)	21:41	21	20:53 (17)	22:15	29	21:02 (17)
20	08:45	07:49	06:42	06:26		19:25 (18)	05:27		20:32 (17)	05:03		20:33 (17)
	16:53	17:55	18:50	20:48	30	19:55 (18)	21:42	22	20:54 (17)	22:15	29	21:02 (17)
21	08:44	07:47	06:40	06:24		19:24 (18)	05:25		20:31 (17)	05:03		20:33 (17)
	16:54	17:57	18:51	20:50	32	19:56 (18)	21:44	25	20:56 (17)	22:15	29	21:02 (17)
22	08:42	07:45	06:37	06:22		19:24 (18)	05:24		20:30 (17)	05:03		20:34 (17)
	16:56	17:59	18:53	20:52	32	19:56 (18)	21:46	26	20:56 (17)	22:16	29	21:03 (17)
23	08:41	07:42	06:35	06:20		19:23 (18)	05:22		20:30 (17)	05:03		20:34 (17)
	16:58	18:01	18:55	20:54	34	19:57 (18)	21:47	26	20:56 (17)	22:16	29	21:03 (17)
24	08:40	07:40	06:32	06:17		19:23 (18)	05:21		20:30 (17)	05:04		20:34 (17)
	17:00	18:03	18:57	20:56	34	19:57 (18)	21:49	27	20:57 (17)	22:16	29	21:03 (17)
25	08:38	07:38	06:30	06:15		19:21 (18)	05:20		20:29 (17)	05:04		20:34 (17)
	17:02	18:05	18:59	20:58	35	19:56 (18)	21:50	29	20:58 (17)	22:16	30	21:04 (17)
26	08:37	07:36	06:27	06:13		19:21 (18)	05:18		20:29 (17)	05:04		20:34 (17)
	17:04	18:07	19:01	20:59	36	19:57 (18)	21:52	29	20:58 (17)	22:16	30	21:04 (17)
27	08:35	07:33	06:25	06:11		19:21 (18)	05:17		20:28 (17)	05:05		20:35 (17)
	17:06	18:09	19:03	21:01	35	19:56 (18)	21:53	30	20:58 (17)	22:16	30	21:05 (17)
28	08:34	07:31	06:22	06:08		19:21 (18)	05:16		20:28 (17)	05:05		20:34 (17)
	17:08	18:11	19:05	21:03	35	19:56 (18)	21:55	30	20:58 (17)	22:16	30	21:04 (17)
29	08:32		07:20	06:06		19:21 (18)	05:15		20:28 (17)	05:06		20:35 (17)
	17:10		20:07	21:05	35	19:56 (18)	21:56	30	20:58 (17)	22:15	30	21:05 (17)
30	08:30		07:17	06:04		19:21 (18)	05:14		20:28 (17)	05:07		20:34 (17)
	17:12		20:08	21:07	35	19:56 (18)	21:57	31	20:59 (17)	22:15	31	21:05 (17)
31	08:29		07:15				05:12		20:29 (17)			
	17:14		20:10				21:59	31	21:00 (17)			
Potential sun hours	248	272	367	421			496			513		
Total, worst case					477			691			906	
Sun reduction					0.34			0.36			0.26	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.59			0.61			0.63	
Total reduction					0.20			0.22			0.16	
Total, real					97			153			146	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AW - H49

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November	December
1	05:07		20:35 (17)	05:48		19:46 (18)	06:44	07:38	07:37	08:33
	22:15	30	21:05 (17)	21:39	5	19:51 (18)	20:31	19:16	17:04	16:19
2	05:08		20:35 (17)	05:50		19:42 (18)	06:45	07:40	07:39	08:35
	22:14	31	21:06 (17)	21:37	13	19:55 (18)	20:28	19:14	17:02	16:18
3	05:09		20:36 (17)	05:52		19:39 (18)	06:47	07:42	07:41	08:36
	22:14	30	21:06 (17)	21:35	18	19:57 (18)	20:26	19:11	17:00	16:17
4	05:10		20:35 (17)	05:53		19:38 (18)	06:49	07:43	07:43	08:38
	22:13	31	21:06 (17)	21:33	21	19:59 (18)	20:23	19:09	16:58	16:17
5	05:11		20:35 (17)	05:55		19:37 (18)	06:51	07:45	07:45	08:39
	22:13	31	21:06 (17)	21:31	23	20:00 (18)	20:21	19:06	16:56	16:16
6	05:12		20:36 (17)	05:57		19:35 (18)	06:53	07:47	07:47	08:41
	22:12	31	21:07 (17)	21:29	26	20:01 (18)	20:19	19:04	16:54	16:16
7	05:13		20:36 (17)	05:59		19:34 (18)	06:54	07:49	07:49	08:42
	22:12	31	21:07 (17)	21:27	28	20:02 (18)	20:16	19:01	16:53	16:15
8	05:14		20:36 (17)	06:00		19:32 (18)	06:56	07:51	07:51	08:43
	22:11	31	21:07 (17)	21:25	30	20:02 (18)	20:14	18:59	16:51	16:15
9	05:15		20:36 (17)	06:02		19:32 (18)	06:58	07:53	07:53	08:45
	22:10	31	21:07 (17)	21:23	31	20:03 (18)	20:11	18:56	16:49	16:14
10	05:16		20:36 (17)	06:04		19:31 (18)	07:00	07:55	07:55	08:46
	22:09	31	21:07 (17)	21:21	33	20:04 (18)	20:09	18:54	16:47	16:14
11	05:17		20:36 (17)	06:06		19:30 (18)	07:02	07:57	07:57	08:47
	22:08	31	21:07 (17)	21:19	33	20:03 (18)	20:06	18:51	16:45	16:14
12	05:18		20:36 (17)	06:07		19:30 (18)	07:03	07:58	07:59	08:48
	22:07	31	21:07 (17)	21:17	34	20:04 (18)	20:04	18:49	16:44	16:14
13	05:19		20:36 (17)	06:09		19:30 (18)	07:05	08:00	08:01	08:49
	22:06	31	21:07 (17)	21:15	34	20:04 (18)	20:01	18:47	16:42	16:13
14	05:21		20:38 (17)	06:11		19:29 (18)	07:07	08:02	08:03	08:50
	22:05	30	21:08 (17)	21:12	35	20:04 (18)	19:59	18:44	16:40	16:13
15	05:22		20:38 (17)	06:13		19:29 (18)	07:09	08:04	08:05	08:51
	22:04	30	21:08 (17)	21:10	35	20:04 (18)	19:56	18:42	16:39	16:13
16	05:23		20:38 (17)	06:15		19:29 (18)	07:11	08:06	08:07	08:52
	22:03	29	21:07 (17)	21:08	35	20:04 (18)	19:54	18:40	16:37	16:13
17	05:25		20:38 (17)	06:16		19:29 (18)	07:12	08:08	08:09	08:53
	22:02	29	21:07 (17)	21:06	35	20:04 (18)	19:51	18:37	16:36	16:14
18	05:26		20:39 (17)	06:18		19:28 (18)	07:14	08:10	08:11	08:54
	22:01	29	21:08 (17)	21:04	35	20:03 (18)	19:49	18:35	16:34	16:14
19	05:27		20:39 (17)	06:20		19:28 (18)	07:16	08:12	08:12	08:55
	21:59	28	21:07 (17)	21:01	35	20:03 (18)	19:46	18:33	16:33	16:14
20	05:29		20:39 (17)	06:22		19:29 (18)	07:18	08:14	08:14	08:55
	21:58	27	21:06 (17)	20:59	33	20:02 (18)	19:44	18:30	16:31	16:14
21	05:30		20:40 (17)	06:24		19:28 (18)	07:20	08:16	08:16	08:56
	21:56	27	21:07 (17)	20:57	33	20:01 (18)	19:41	18:28	16:30	16:15
22	05:32		20:41 (17)	06:25		19:29 (18)	07:21	08:18	08:18	08:56
	21:55	25	21:06 (17)	20:55	31	20:00 (18)	19:39	18:26	16:29	16:15
23	05:33		20:41 (17)	06:27		19:30 (18)	07:23	08:20	08:20	08:57
	21:54	24	21:05 (17)	20:52	29	19:59 (18)	19:36	18:24	16:27	16:16
24	05:35		20:42 (17)	06:29		19:30 (18)	07:25	08:22	08:22	08:57
	21:52	22	21:04 (17)	20:50	27	19:57 (18)	19:33	18:21	16:26	16:16
25	05:37		20:43 (17)	06:31		19:31 (18)	07:27	07:24	08:23	08:58
	21:51	20	21:03 (17)	20:48	25	19:56 (18)	19:31	17:19	16:25	16:17
26	05:38		20:44 (17)	06:33		19:33 (18)	07:29	07:25	08:25	08:58
	21:49	18	21:02 (17)	20:45	21	19:54 (18)	19:28	17:17	16:24	16:18
27	05:40		20:46 (17)	06:35		19:35 (18)	07:31	07:27	08:27	08:58
	21:47	14	21:00 (17)	20:43	17	19:52 (18)	19:26	17:15	16:23	16:19
28	05:41		20:48 (17)	06:36		19:37 (18)	07:32	07:29	08:28	08:58
	21:46	10	20:58 (17)	20:40	11	19:48 (18)	19:23	17:13	16:22	16:19
29	05:43			06:38			07:34	07:31	08:30	08:58
	21:44			20:38			19:21	17:11	16:21	16:20
30	05:45			06:40			07:36	07:33	08:32	08:58
	21:42			20:36			19:18	17:08	16:20	16:21
31	05:46			06:42				07:35		08:58
	21:40			20:33				17:06		16:22
Potential sun hours	515			461			383	327	257	230
Total, worst case		763			766					
Sun reduction		0.27			0.27					
Oper. time red.		1.00			1.00					
Wind dir. red.		0.63			0.59					
Total reduction		0.17			0.16					
Total, real		127			123					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AX - H50

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March			April			May			June
1	08:58	08:27	07:29			07:12		18:56 (18)	06:02		19:59 (17)	05:11
	16:24	17:16	18:13			20:12	28	19:24 (18)	21:09	25	20:24 (17)	22:00
2	08:58	08:25	07:26			07:10		18:55 (18)	06:00		19:58 (17)	05:11
	16:25	17:18	18:15			20:14	30	19:25 (18)	21:11	27	20:25 (17)	22:01
3	08:58	08:24	07:24			07:07		18:54 (18)	05:58		19:57 (17)	05:10
	16:26	17:20	18:17			20:16	31	19:25 (18)	21:12	28	20:25 (17)	22:02
4	08:58	08:22	07:21			07:05		18:53 (18)	05:56		19:56 (17)	05:09
	16:27	17:22	18:19			20:18	33	19:26 (18)	21:14	29	20:25 (17)	22:03
5	08:57	08:20	07:19			07:02		18:53 (18)	05:54		19:55 (17)	05:08
	16:28	17:24	18:21			20:20	33	19:26 (18)	21:16	31	20:26 (17)	22:05
6	08:57	08:18	07:17			07:00		18:52 (18)	05:52		19:56 (17)	05:07
	16:30	17:26	18:23			20:22	34	19:26 (18)	21:18	31	20:27 (17)	22:06
7	08:56	08:16	07:14			06:58		18:52 (18)	05:50		19:55 (17)	05:06
	16:31	17:28	18:24			20:24	34	19:26 (18)	21:20	32	20:27 (17)	22:07
8	08:56	08:14	07:12			06:55		18:51 (18)	05:48		19:55 (17)	05:06
	16:33	17:30	18:26			20:25	34	19:25 (18)	21:22	31	20:26 (17)	22:08
9	08:55	08:12	07:09			06:53		18:51 (18)	05:46		19:55 (17)	05:05
	16:34	17:32	18:28			20:27	34	19:25 (18)	21:23	31	20:26 (17)	22:09
10	08:55	08:10	07:07			06:50		18:50 (18)	05:44		19:54 (17)	05:05
	16:36	17:34	18:30			20:29	34	19:24 (18)	21:25	32	20:26 (17)	22:09
11	08:54	08:08	07:05			06:48		18:51 (18)	05:42		19:55 (17)	05:04
	16:37	17:36	18:32			20:31	33	19:24 (18)	21:27	31	20:26 (17)	22:10
12	08:53	08:06	07:02			06:45		18:52 (18)	05:40		19:55 (17)	05:04
	16:39	17:38	18:34			20:33	31	19:23 (18)	21:29	31	20:26 (17)	22:11
13	08:52	08:04	07:00			06:43		18:52 (18)	05:38		19:55 (17)	05:04
	16:40	17:40	18:36			20:35	29	19:21 (18)	21:31	30	20:25 (17)	22:12
14	08:51	08:02	06:57			06:41		18:53 (18)	05:37		19:56 (17)	05:03
	16:42	17:42	18:38			20:37	28	19:21 (18)	21:32	29	20:25 (17)	22:12
15	08:50	08:00	06:55			06:38		18:54 (18)	05:35		19:56 (17)	05:03
	16:44	17:44	18:40			20:39	26	19:20 (18)	21:34	28	20:24 (17)	22:13
16	08:49	07:58	06:52			06:36		18:54 (18)	05:33		19:57 (17)	05:03
	16:45	17:46	18:42			20:41	23	19:17 (18)	21:36	28	20:25 (17)	22:14
17	08:48	07:56	06:50			06:33		18:56 (18)	05:32		19:57 (17)	05:03
	16:47	17:49	18:44			20:42	20	19:16 (18)	21:37	26	20:23 (17)	22:14
18	08:47	07:54	06:47			06:31		18:59 (18)	05:30		19:59 (17)	05:03
	16:49	17:51	18:46			20:44	14	19:13 (18)	21:39	24	20:23 (17)	22:15
19	08:46	07:51	06:45			06:29		19:04 (18)	05:28		19:59 (17)	05:03
	16:51	17:53	18:48			20:46	5	19:09 (18)	21:41	23	20:22 (17)	22:15
20	08:45	07:49	06:42			06:26			05:27		20:00 (17)	05:03
	16:53	17:55	18:50			20:48			21:42	22	20:22 (17)	22:15
21	08:44	07:47	06:40			06:24			05:25		20:02 (17)	05:03
	16:54	17:57	18:51			20:50			21:44	19	20:21 (17)	22:15
22	08:42	07:45	06:37			06:22			05:24		20:02 (17)	05:03
	16:56	17:59	18:53			20:52			21:46	17	20:19 (17)	22:16
23	08:41	07:42	06:35			06:20			05:22		20:04 (17)	05:03
	16:58	18:01	18:55			20:54			21:47	14	20:18 (17)	22:16
24	08:40	07:40	06:32			06:17			05:21		20:06 (17)	05:04
	17:00	18:03	18:57			20:56			21:49	11	20:17 (17)	22:16
25	08:38	07:38	06:30			06:15			05:20		20:09 (17)	05:04
	17:02	18:05	18:59			20:58			21:50	5	20:14 (17)	22:16
26	08:37	07:36	06:27			06:13			05:18			05:04
	17:04	18:07	19:01			20:59			21:52			22:16
27	08:35	07:33	06:25			06:11		20:05 (17)	05:17			05:05
	17:06	18:09	19:03			21:01	13	20:18 (17)	21:53			22:16
28	08:34	07:31	06:22		18:06 (18)	06:08		20:03 (17)	05:16			05:05
	17:08	18:11	19:05	11	18:17 (18)	21:03	17	20:20 (17)	21:55			22:16
29	08:32		07:20		19:03 (18)	06:06		20:01 (17)	05:15			05:06
	17:10		20:07	17	19:20 (18)	21:05	21	20:22 (17)	21:56			22:15
30	08:31		07:17		19:00 (18)	06:04		20:00 (17)	05:14			05:07
	17:12		20:08	22	19:22 (18)	21:07	23	20:23 (17)	21:57			22:15
31	08:29		07:15		18:58 (18)				05:12			
	17:14		20:10	25	19:23 (18)				21:59			
Potential sun hours	248	272	367			421			496			513
Total, worst case				75			608			635		
Sun reduction				0.22			0.34			0.36		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.59			0.59			0.61		
Total reduction				0.13			0.20			0.22		
Total, real				10			123			140		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AX - H50

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October	November	December
1	05:07			05:48		20:05 (17)	06:44		18:50 (18)	07:38	07:37	08:33
	22:15			21:39	31	20:36 (17)	20:31	33	19:23 (18)	19:16	17:04	16:19
2	05:08			05:50		20:06 (17)	06:45		18:49 (18)	07:40	07:39	08:35
	22:14			21:37	31	20:37 (17)	20:28	34	19:23 (18)	19:14	17:02	16:18
3	05:09			05:52		20:05 (17)	06:47		18:49 (18)	07:42	07:41	08:36
	22:14			21:35	31	20:36 (17)	20:26	34	19:23 (18)	19:11	17:00	16:17
4	05:10			05:53		20:05 (17)	06:49		18:48 (18)	07:43	07:43	08:38
	22:13			21:33	32	20:37 (17)	20:23	34	19:22 (18)	19:09	16:58	16:17
5	05:11			05:55		20:04 (17)	06:51		18:48 (18)	07:45	07:45	08:39
	22:13			21:31	32	20:36 (17)	20:21	34	19:22 (18)	19:06	16:56	16:16
6	05:12			05:57		20:05 (17)	06:53		18:48 (18)	07:47	07:47	08:41
	22:12			21:29	31	20:36 (17)	20:19	34	19:22 (18)	19:04	16:54	16:16
7	05:12			05:59		20:05 (17)	06:54		18:48 (18)	07:49	07:49	08:42
	22:12			21:27	31	20:36 (17)	20:16	33	19:21 (18)	19:01	16:53	16:15
8	05:14			06:00		20:05 (17)	06:56		18:47 (18)	07:51	07:51	08:43
	22:11			21:25	30	20:35 (17)	20:14	33	19:20 (18)	18:59	16:51	16:15
9	05:15			06:02		20:06 (17)	06:58		18:48 (18)	07:53	07:53	08:45
	22:10			21:23	29	20:35 (17)	20:11	31	19:19 (18)	18:56	16:49	16:14
10	05:16			06:04		20:06 (17)	07:00		18:48 (18)	07:55	07:55	08:46
	22:09			21:21	28	20:34 (17)	20:09	30	19:18 (18)	18:54	16:47	16:14
11	05:17			06:06		20:06 (17)	07:02		18:49 (18)	07:57	07:57	08:47
	22:08			21:19	27	20:33 (17)	20:06	28	19:17 (18)	18:51	16:45	16:14
12	05:18			06:07		20:07 (17)	07:03		18:49 (18)	07:58	07:59	08:48
	22:07			21:17	25	20:32 (17)	20:04	26	19:15 (18)	18:49	16:44	16:14
13	05:19			06:09		20:09 (17)	07:05		18:51 (18)	08:00	08:01	08:49
	22:06			21:15	22	20:31 (17)	20:01	22	19:13 (18)	18:47	16:42	16:13
14	05:21			06:11		20:09 (17)	07:07		18:52 (18)	08:02	08:03	08:50
	22:05			21:12	20	20:29 (17)	19:59	19	19:11 (18)	18:44	16:40	16:13
15	05:22			06:13		20:11 (17)	07:09		18:55 (18)	08:04	08:05	08:51
	22:04			21:10	16	20:27 (17)	19:56	13	19:08 (18)	18:42	16:39	16:13
16	05:23			06:15		20:14 (17)	07:11			08:06	08:07	08:52
	22:03			21:08	11	20:25 (17)	19:54			18:40	16:37	16:13
17	05:25			06:16			07:12			08:08	08:09	08:53
	22:02			21:06			19:51			18:37	16:36	16:14
18	05:26			06:18			07:14			08:10	08:11	08:54
	22:01			21:04			19:49			18:35	16:34	16:14
19	05:27		20:17 (17)	06:20			07:16			08:12	08:12	08:55
	21:59	8	20:25 (17)	21:01			19:46			18:33	16:33	16:14
20	05:29		20:14 (17)	06:22			07:18			08:14	08:14	08:55
	21:58	13	20:27 (17)	20:59			19:44			18:30	16:31	16:14
21	05:30		20:14 (17)	06:24			07:20			08:16	08:16	08:56
	21:56	15	20:29 (17)	20:57			19:41			18:28	16:30	16:15
22	05:32		20:12 (17)	06:25			07:21			08:18	08:18	08:56
	21:55	18	20:30 (17)	20:55			19:39			18:26	16:29	16:15
23	05:33		20:10 (17)	06:27			07:23			08:20	08:20	08:57
	21:54	21	20:31 (17)	20:52			19:36			18:24	16:27	16:16
24	05:35		20:10 (17)	06:29		19:05 (18)	07:25			08:22	08:22	08:57
	21:52	22	20:32 (17)	20:50	7	19:12 (18)	19:33			18:21	16:26	16:16
25	05:37		20:09 (17)	06:31		19:01 (18)	07:27			07:24	08:23	08:58
	21:51	24	20:33 (17)	20:48	15	19:16 (18)	19:31			17:19	16:25	16:17
26	05:38		20:09 (17)	06:33		18:59 (18)	07:29			07:25	08:25	08:58
	21:49	25	20:34 (17)	20:45	20	19:19 (18)	19:28			17:17	16:24	16:18
27	05:40		20:07 (17)	06:35		18:57 (18)	07:31			07:27	08:27	08:58
	21:47	27	20:34 (17)	20:43	23	19:20 (18)	19:26			17:15	16:23	16:19
28	05:41		20:07 (17)	06:36		18:55 (18)	07:32			07:29	08:28	08:58
	21:46	28	20:35 (17)	20:40	25	19:20 (18)	19:23			17:13	16:22	16:19
29	05:43		20:06 (17)	06:38		18:53 (18)	07:34			07:31	08:30	08:58
	21:44	29	20:35 (17)	20:38	29	19:22 (18)	19:21			17:11	16:21	16:20
30	05:45		20:06 (17)	06:40		18:52 (18)	07:36			07:33	08:32	08:58
	21:42	30	20:36 (17)	20:36	30	19:22 (18)	19:18			17:08	16:20	16:21
31	05:46		20:05 (17)	06:42		18:51 (18)				07:35		08:58
	21:40	31	20:36 (17)	20:33	31	19:22 (18)				17:06		16:22
Potential sun hours	515			461			383			327	257	230
Total, worst case		291			607			438				
Sun reduction		0.27			0.27			0.29				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.61			0.60			0.59				
Total reduction		0.16			0.16			0.17				
Total, real		47			100			75				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AY - H51

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April	May	June
1	08:58		08:27		16:08 (18)	07:29	17:22 (17)	07:12	06:02	05:11
	16:24		17:16	25	16:33 (18)	18:13	16	17:38 (17)	20:12	21:09	22:00
2	08:58		08:25		16:07 (18)	07:26	17:19 (17)	07:10	06:00	05:10
	16:25		17:18	27	16:34 (18)	18:15	21	17:40 (17)	20:14	21:11	22:01
3	08:58		08:24		16:06 (18)	07:24	17:17 (17)	07:07	05:58	05:10
	16:26		17:20	29	16:35 (18)	18:17	25	17:42 (17)	20:16	21:13	22:02
4	08:58		08:22		16:06 (18)	07:21	17:15 (17)	07:05	05:56	05:09
	16:27		17:22	30	16:36 (18)	18:19	27	17:42 (17)	20:18	21:14	22:03
5	08:57		08:20		16:06 (18)	07:19	17:14 (17)	07:02	05:54	05:08
	16:28		17:24	30	16:36 (18)	18:21	30	17:44 (17)	20:20	21:16	22:05
6	08:57		08:18		16:05 (18)	07:17	17:13 (17)	07:00	05:52	05:07
	16:30		17:26	32	16:37 (18)	18:23	31	17:44 (17)	20:22	21:18	22:06
7	08:56		08:16		16:05 (18)	07:14	17:12 (17)	06:58	05:50	05:06
	16:31		17:28	32	16:37 (18)	18:24	33	17:45 (17)	20:24	21:20	22:07
8	08:56		08:14		16:05 (18)	07:12	17:11 (17)	06:55	05:48	05:06
	16:33		17:30	32	16:37 (18)	18:26	34	17:45 (17)	20:25	21:22	22:08
9	08:55		08:12		16:05 (18)	07:09	17:11 (17)	06:53	05:46	05:05
	16:34		17:32	31	16:36 (18)	18:28	34	17:45 (17)	20:27	21:23	22:09
10	08:55		08:10		16:05 (18)	07:07	17:10 (17)	06:50	05:44	05:05
	16:36		17:34	32	16:37 (18)	18:30	34	17:44 (17)	20:29	21:25	22:09
11	08:54		08:08		16:05 (18)	07:05	17:10 (17)	06:48	05:42	05:04
	16:37		17:36	32	16:37 (18)	18:32	35	17:45 (17)	20:31	21:27	22:10
12	08:53		08:06		16:06 (18)	07:02	17:10 (17)	06:45	05:40	05:04
	16:39		17:38	30	16:36 (18)	18:34	34	17:44 (17)	20:33	21:29	22:11
13	08:52		08:04		16:07 (18)	07:00	17:10 (17)	06:43	05:38	05:04
	16:40		17:40	29	16:36 (18)	18:36	34	17:44 (17)	20:35	21:31	22:12
14	08:51		08:02		16:07 (18)	06:57	17:10 (17)	06:41	05:37	05:03
	16:42		17:42	29	16:36 (18)	18:38	33	17:43 (17)	20:37	21:32	22:12
15	08:51		08:00		16:08 (18)	06:55	17:11 (17)	06:38	05:35	05:03
	16:44		17:44	26	16:34 (18)	18:40	31	17:42 (17)	20:39	21:34	22:13
16	08:50		07:58		16:09 (18)	06:52	17:11 (17)	06:36	05:33	05:03
	16:45		17:46	24	16:33 (18)	18:42	30	17:41 (17)	20:41	21:36	22:14
17	08:48		07:56		16:11 (18)	06:50	17:12 (17)	06:33	05:32	05:03
	16:47		17:49	21	16:32 (18)	18:44	28	17:40 (17)	20:42	21:37	22:14
18	08:47		07:54		16:13 (18)	06:47	17:13 (17)	06:31	05:30	05:03
	16:49		17:51	18	16:31 (18)	18:46	25	17:38 (17)	20:44	21:39	22:15
19	08:46		07:51		16:15 (18)	06:45	17:15 (17)	06:29	05:28	05:03
	16:51		17:53	12	16:27 (18)	18:48	21	17:36 (17)	20:46	21:41	22:15
20	08:45		07:49			06:42	17:17 (17)	06:26	05:27	05:03
	16:53		17:55			18:50	16	17:33 (17)	20:48	21:42	22:15
21	08:44		07:47			06:40	17:21 (17)	06:24	05:25	05:03
	16:54		17:57			18:51	9	17:30 (17)	20:50	21:44	22:16
22	08:42		07:45			06:37		06:22	05:24	05:03
	16:56		17:59			18:53		20:52	21:46	22:16
23	08:41		07:42			06:35		06:20	05:22	05:03
	16:58		18:01			18:55		20:54	21:47	22:16
24	08:40		07:40			06:32		06:17	05:21	05:04
	17:00		18:03			18:57		20:56	21:49	22:16
25	08:38		07:38			06:30		06:15	05:20	05:04
	17:02		18:05			18:59		20:58	21:50	22:16
26	08:37		07:36			06:27		06:13	05:18	05:04
	17:04		18:07			19:01		20:59	21:52	22:16
27	08:35	16:15 (18)	07:33			06:25		06:11	05:17	05:05
	17:06	9	16:24 (18)	18:09		19:03		21:01	21:53	22:16
28	08:34	16:12 (18)	07:31		17:25 (17)	06:22		06:08	05:16	05:05
	17:08	14	16:26 (18)	18:11	9	17:34 (17)	19:05		21:03	21:55	22:16
29	08:32	16:10 (18)				07:20		06:06	05:15	05:06
	17:10	18	16:28 (18)			20:07		21:05	21:56	22:15
30	08:31	16:09 (18)				07:17		06:04	05:14	05:07
	17:12	21	16:30 (18)			20:08		21:07	21:57	22:15
31	08:29	16:08 (18)				07:15			05:12	
	17:14	23	16:31 (18)			20:10			21:59	
Potential sun hours	248		272			367		421	496	513
Total, worst case	85		530			581				
Sun reduction	0.17		0.22			0.22				
Oper. time red.	1.00		1.00			1.00				
Wind dir. red.	0.60		0.60			0.58				
Total reduction	0.10		0.13			0.13				
Total, real	9		70			75				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AY - H51

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October		November		December
1	05:07	05:48	06:44		07:38		17:50 (17)	07:37	15:34 (18)	08:33
	22:15	21:39	20:31		19:16	34	18:24 (17)	17:04	32	16:06 (18)	16:19
2	05:08	05:50	06:45		07:40		17:48 (17)	07:39	15:34 (18)	08:35
	22:14	21:37	20:28		19:14	35	18:23 (17)	17:02	32	16:06 (18)	16:18
3	05:09	05:52	06:47		07:42		17:48 (17)	07:41	15:34 (18)	08:36
	22:14	21:35	20:26		19:11	34	18:22 (17)	17:00	32	16:06 (18)	16:17
4	05:10	05:53	06:49		07:43		17:48 (17)	07:43	15:35 (18)	08:38
	22:14	21:33	20:23		19:09	34	18:22 (17)	16:58	32	16:07 (18)	16:17
5	05:11	05:55	06:51		07:45		17:48 (17)	07:45	15:35 (18)	08:39
	22:13	21:31	20:21		19:06	34	18:22 (17)	16:56	31	16:06 (18)	16:16
6	05:11	05:57	06:53		07:47		17:48 (17)	07:47	15:35 (18)	08:41
	22:12	21:29	20:19		19:04	33	18:21 (17)	16:54	31	16:06 (18)	16:16
7	05:12	05:59	06:54		07:49		17:49 (17)	07:49	15:36 (18)	08:42
	22:12	21:27	20:16		19:01	31	18:20 (17)	16:53	29	16:05 (18)	16:15
8	05:14	06:00	06:56		07:51		17:49 (17)	07:51	15:36 (18)	08:43
	22:11	21:25	20:14		18:59	30	18:19 (17)	16:51	29	16:05 (18)	16:15
9	05:15	06:02	06:58		07:53		17:50 (17)	07:53	15:37 (18)	08:45
	22:10	21:23	20:11		18:56	28	18:18 (17)	16:49	27	16:04 (18)	16:14
10	05:16	06:04	07:00		07:55		17:51 (17)	07:55	15:39 (18)	08:46
	22:09	21:21	20:09		18:54	26	18:17 (17)	16:47	25	16:04 (18)	16:14
11	05:17	06:06	07:02		07:57		17:52 (17)	07:57	15:40 (18)	08:47
	22:08	21:19	20:06		18:51	23	18:15 (17)	16:45	23	16:03 (18)	16:14
12	05:18	06:07	07:03		07:58		17:54 (17)	07:59	15:41 (18)	08:48
	22:07	21:17	20:04		18:49	19	18:13 (17)	16:44	21	16:02 (18)	16:13
13	05:19	06:09	07:05		08:00		17:56 (17)	08:01	15:42 (18)	08:49
	22:06	21:15	20:01		18:47	14	18:10 (17)	16:42	18	16:00 (18)	16:13
14	05:21	06:11	07:07		08:02		18:02 (17)	08:03	15:44 (18)	08:50
	22:05	21:13	19:59		18:44	2	18:04 (17)	16:40	14	15:58 (18)	16:13
15	05:22	06:13	07:09		08:04			08:05	15:47 (18)	08:51
	22:04	21:10	19:56		18:42			16:39	9	15:56 (18)	16:13
16	05:23	06:15	07:11		08:06			08:07			08:52
	22:03	21:08	19:54		18:40			16:37			16:13
17	05:25	06:16	07:12		08:08			08:09			08:53
	22:02	21:06	19:51		18:37			16:36			16:14
18	05:26	06:18	07:14		08:10			08:11			08:54
	22:01	21:04	19:49		18:35			16:34			16:14
19	05:27	06:20	07:16		08:12			08:12			08:55
	21:59	21:01	19:46		18:33			16:33			16:14
20	05:29	06:22	07:18		08:14			08:14			08:55
	21:58	20:59	19:44		18:30			16:31			16:14
21	05:30	06:24	07:20		08:16			08:16			08:56
	21:57	20:57	19:41		18:28			16:30			16:15
22	05:32	06:25	07:21	18:07 (17)	08:18		16:48 (18)	08:18			08:56
	21:55	20:55	19:39	6	18:13 (17)	18:26	7	16:55 (18)	16:29			16:15
23	05:33	06:27	07:23	18:02 (17)	08:20		16:44 (18)	08:20			08:57
	21:54	20:52	19:36	15	18:17 (17)	18:24	15	16:59 (18)	16:27			16:16
24	05:35	06:29	07:25	17:59 (17)	08:22		16:42 (18)	08:22			08:57
	21:52	20:50	19:33	20	18:19 (17)	18:21	19	17:01 (18)	16:26			16:16
25	05:37	06:31	07:27	17:56 (17)	07:24		15:40 (18)	08:23			08:58
	21:51	20:48	19:31	24	18:20 (17)	17:19	22	16:02 (18)	16:25			16:17
26	05:38	06:33	07:29	17:55 (17)	07:26		15:38 (18)	08:25			08:58
	21:49	20:45	19:28	26	18:21 (17)	17:17	25	16:03 (18)	16:24			16:18
27	05:40	06:35	07:31	17:53 (17)	07:27		15:37 (18)	08:27			08:58
	21:47	20:43	19:26	29	18:22 (17)	17:15	27	16:04 (18)	16:23			16:18
28	05:41	06:36	07:32	17:52 (17)	07:29		15:37 (18)	08:29			08:58
	21:46	20:40	19:23	31	18:23 (17)	17:13	28	16:05 (18)	16:22			16:19
29	05:43	06:38	07:34	17:51 (17)	07:31		15:36 (18)	08:30			08:58
	21:44	20:38	19:21	32	18:23 (17)	17:11	30	16:06 (18)	16:21			16:20
30	05:45	06:40	07:36	17:50 (17)	07:33		15:35 (18)	08:32			08:59
	21:42	20:36	19:18	34	18:24 (17)	17:08	31	16:06 (18)	16:20			16:21
31	05:46	06:42				07:35		15:35 (18)				08:58
	21:40	20:33				17:06	31	16:06 (18)				16:22
Potential sun hours	515	461	383			327			257			230
Total, worst case				217			612			385		
Sun reduction				0.29			0.23			0.20		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.58			0.59			0.60		
Total reduction				0.17			0.14			0.12		
Total, real				37			84			46		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AZ - H52

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June		
1	08:58	08:27	07:29	07:12		19:16 (18)	06:02	20:14 (17)	05:11	20:17 (17)
	16:24	17:16	18:13	20:12	7	19:23 (18)	21:09	11	20:25 (17)	22:00	7	20:24 (17)
2	08:58	08:25	07:26	07:10		19:12 (18)	06:00	20:11 (17)	05:11	
	16:25	17:18	18:15	20:14	15	19:27 (18)	21:11	16	20:27 (17)	22:01		
3	08:58	08:24	07:24	07:07		19:09 (18)	05:58	20:09 (17)	05:10	
	16:26	17:20	18:17	20:16	20	19:29 (18)	21:12	20	20:29 (17)	22:02		
4	08:58	08:22	07:21	07:05		19:07 (18)	05:56	20:08 (17)	05:09	
	16:27	17:22	18:19	20:18	24	19:31 (18)	21:14	22	20:30 (17)	22:03		
5	08:57	08:20	07:19	07:02		19:06 (18)	05:54	20:07 (17)	05:08	
	16:28	17:24	18:21	20:20	26	19:32 (18)	21:16	24	20:31 (17)	22:05		
6	08:57	08:18	07:17	07:00		19:04 (18)	05:52	20:06 (17)	05:07	
	16:30	17:26	18:23	20:22	29	19:33 (18)	21:18	27	20:33 (17)	22:06		
7	08:56	08:16	07:14	06:58		19:03 (18)	05:50	20:06 (17)	05:06	
	16:31	17:28	18:24	20:24	31	19:34 (18)	21:20	27	20:33 (17)	22:07		
8	08:56	08:14	07:12	06:55		19:01 (18)	05:48	20:05 (17)	05:06	
	16:33	17:30	18:26	20:25	32	19:33 (18)	21:22	28	20:33 (17)	22:08		
9	08:55	08:12	07:09	06:53		19:01 (18)	05:46	20:04 (17)	05:05	
	16:34	17:32	18:28	20:27	33	19:34 (18)	21:23	29	20:33 (17)	22:09		
10	08:55	08:10	07:07	06:50		19:00 (18)	05:44	20:03 (17)	05:05	
	16:36	17:34	18:30	20:29	34	19:34 (18)	21:25	30	20:33 (17)	22:09		
11	08:54	08:08	07:05	06:48		19:00 (18)	05:42	20:04 (17)	05:04	
	16:37	17:36	18:32	20:31	34	19:34 (18)	21:27	30	20:34 (17)	22:10		
12	08:53	08:06	07:02	06:45		19:00 (18)	05:40	20:03 (17)	05:04	
	16:39	17:38	18:34	20:33	34	19:34 (18)	21:29	31	20:34 (17)	22:11		
13	08:52	08:04	07:00	06:43		18:59 (18)	05:38	20:03 (17)	05:04	
	16:40	17:40	18:36	20:35	34	19:33 (18)	21:31	31	20:34 (17)	22:12		
14	08:51	08:02	06:57	06:41		18:59 (18)	05:37	20:03 (17)	05:03	
	16:42	17:42	18:38	20:37	34	19:33 (18)	21:32	31	20:34 (17)	22:12		
15	08:50	08:00	06:55	06:38		19:00 (18)	05:35	20:03 (17)	05:03	
	16:44	17:44	18:40	20:39	33	19:33 (18)	21:34	31	20:34 (17)	22:13		
16	08:49	07:58	06:52	06:36		18:59 (18)	05:33	20:04 (17)	05:03	
	16:45	17:46	18:42	20:41	32	19:31 (18)	21:36	30	20:34 (17)	22:14		
17	08:48	07:56	06:50	06:33		19:00 (18)	05:32	20:03 (17)	05:03	
	16:47	17:49	18:44	20:42	31	19:31 (18)	21:37	31	20:34 (17)	22:14		
18	08:47	07:54	06:47	06:31		19:01 (18)	05:30	20:04 (17)	05:03	
	16:49	17:51	18:46	20:44	29	19:30 (18)	21:39	30	20:34 (17)	22:15		
19	08:46	07:51	06:45	06:29		19:02 (18)	05:28	20:04 (17)	05:03	
	16:51	17:53	18:48	20:46	27	19:29 (18)	21:41	29	20:33 (17)	22:15		
20	08:45	07:49	06:42	06:26		19:02 (18)	05:27	20:05 (17)	05:03	
	16:53	17:55	18:50	20:48	25	19:27 (18)	21:42	28	20:33 (17)	22:15		
21	08:44	07:47	06:40	06:24		19:03 (18)	05:25	20:06 (17)	05:03	
	16:54	17:57	18:51	20:50	23	19:26 (18)	21:44	27	20:33 (17)	22:15		
22	08:42	07:45	06:37	06:22		19:05 (18)	05:24	20:05 (17)	05:03	
	16:56	17:59	18:53	20:52	19	19:24 (18)	21:46	27	20:32 (17)	22:16		
23	08:41	07:42	06:35	06:20		19:08 (18)	05:22	20:06 (17)	05:03	
	16:58	18:01	18:55	20:54	13	19:21 (18)	21:47	26	20:32 (17)	22:16		
24	08:40	07:40	06:32	06:17		19:13 (18)	05:21	20:07 (17)	05:04	
	17:00	18:03	18:57	20:56	4	19:17 (18)	21:49	25	20:32 (17)	22:16		
25	08:38	07:38	06:30	06:15			05:20	20:08 (17)	05:04	
	17:02	18:05	18:59	20:58			21:50	23	20:31 (17)	22:16		
26	08:37	07:36	06:27	06:13			05:18	20:09 (17)	05:04	
	17:04	18:07	19:01	20:59			21:52	22	20:31 (17)	22:16		
27	08:35	07:33	06:25	06:11			05:17	20:09 (17)	05:05	
	17:06	18:09	19:03	21:01			21:53	20	20:29 (17)	22:16		
28	08:34	07:31	06:22	06:08			05:16	20:10 (17)	05:05	
	17:08	18:11	19:05	21:03			21:55	18	20:28 (17)	22:16		
29	08:32		07:20	06:06			05:15	20:12 (17)	05:06	
	17:10		20:07	21:05			21:56	16	20:28 (17)	22:15		
30	08:30		07:17	06:04			05:14	20:13 (17)	05:07	
	17:12		20:08	21:07			21:57	14	20:27 (17)	22:15		
31	08:29		07:15				05:12	20:15 (17)		
	17:14		20:10				21:59	11	20:26 (17)			
Potential sun hours	248	272	367	421		496		513		
Total, worst case					623		765		7	
Sun reduction					0.34		0.36		0.26	
Oper. time red.					1.00		1.00		1.00	
Wind dir. red.					0.59		0.61		0.61	
Total reduction					0.20		0.22		0.16	
Total, real					126		170		1	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: AZ - H52

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October	November	December
1	05:07			05:48		20:14 (17)	06:44		18:59 (18)	07:38	07:37	08:33
	22:15			21:39	30	20:44 (17)	20:31	34	19:33 (18)	19:16	17:04	16:19
2	05:08			05:50		20:14 (17)	06:45		18:59 (18)	07:40	07:39	08:35
	22:14			21:37	31	20:45 (17)	20:28	34	19:33 (18)	19:14	17:02	16:18
3	05:09			05:52		20:14 (17)	06:47		18:59 (18)	07:42	07:41	08:36
	22:14			21:35	30	20:44 (17)	20:26	33	19:32 (18)	19:11	17:00	16:17
4	05:10			05:53		20:14 (17)	06:49		18:58 (18)	07:43	07:43	08:38
	22:13			21:33	30	20:44 (17)	20:23	33	19:31 (18)	19:09	16:58	16:17
5	05:11			05:55		20:14 (17)	06:51		18:59 (18)	07:45	07:45	08:39
	22:13			21:31	28	20:42 (17)	20:21	31	19:30 (18)	19:06	16:56	16:16
6	05:12			05:57		20:15 (17)	06:53		19:00 (18)	07:47	07:47	08:41
	22:12			21:29	27	20:42 (17)	20:19	29	19:29 (18)	19:04	16:54	16:16
7	05:12			05:59		20:16 (17)	06:54		19:01 (18)	07:49	07:49	08:42
	22:12			21:27	26	20:42 (17)	20:16	27	19:28 (18)	19:01	16:53	16:15
8	05:14			06:00		20:16 (17)	06:56		19:01 (18)	07:51	07:51	08:43
	22:11			21:25	24	20:40 (17)	20:14	24	19:25 (18)	18:59	16:51	16:15
9	05:15			06:02		20:18 (17)	06:58		19:03 (18)	07:53	07:53	08:45
	22:10			21:23	21	20:39 (17)	20:11	20	19:23 (18)	18:56	16:49	16:14
10	05:16			06:04		20:19 (17)	07:00		19:05 (18)	07:55	07:55	08:46
	22:09			21:21	19	20:38 (17)	20:09	16	19:21 (18)	18:54	16:47	16:14
11	05:17		20:26 (17)	06:06		20:20 (17)	07:02		19:09 (18)	07:57	07:57	08:47
	22:08	4	20:30 (17)	21:19	15	20:35 (17)	20:06	8	19:17 (18)	18:51	16:45	16:14
12	05:18		20:24 (17)	06:07		20:23 (17)	07:03			07:58	07:59	08:48
	22:07	9	20:33 (17)	21:17	10	20:33 (17)	20:04			18:49	16:44	16:14
13	05:19		20:22 (17)	06:09			07:05			08:00	08:01	08:49
	22:06	12	20:34 (17)	21:15			20:01			18:47	16:42	16:13
14	05:21		20:22 (17)	06:11			07:07			08:02	08:03	08:50
	22:05	15	20:37 (17)	21:12			19:59			18:44	16:40	16:13
15	05:22		20:20 (17)	06:13			07:09			08:04	08:05	08:51
	22:04	18	20:38 (17)	21:10			19:56			18:42	16:39	16:13
16	05:23		20:19 (17)	06:15			07:11			08:06	08:07	08:52
	22:03	19	20:38 (17)	21:08			19:54			18:40	16:37	16:13
17	05:25		20:18 (17)	06:16			07:12			08:08	08:09	08:53
	22:02	21	20:39 (17)	21:06			19:51			18:37	16:36	16:14
18	05:26		20:18 (17)	06:18			07:14			08:10	08:11	08:54
	22:01	22	20:40 (17)	21:04			19:49			18:35	16:34	16:14
19	05:27		20:17 (17)	06:20		19:17 (18)	07:16			08:12	08:12	08:55
	21:59	24	20:41 (17)	21:01	7	19:24 (18)	19:46			18:33	16:33	16:14
20	05:29		20:16 (17)	06:22		19:13 (18)	07:18			08:14	08:14	08:55
	21:58	25	20:41 (17)	20:59	15	19:28 (18)	19:44			18:30	16:31	16:14
21	05:30		20:16 (17)	06:24		19:10 (18)	07:20			08:16	08:16	08:56
	21:56	26	20:42 (17)	20:57	19	19:29 (18)	19:41			18:28	16:30	16:15
22	05:32		20:16 (17)	06:25		19:08 (18)	07:21			08:18	08:18	08:56
	21:55	27	20:43 (17)	20:55	23	19:31 (18)	19:39			18:26	16:29	16:15
23	05:33		20:15 (17)	06:27		19:06 (18)	07:23			08:20	08:20	08:57
	21:54	28	20:43 (17)	20:52	26	19:32 (18)	19:36			18:24	16:27	16:16
24	05:35		20:15 (17)	06:29		19:04 (18)	07:25			08:22	08:22	08:57
	21:52	29	20:44 (17)	20:50	28	19:32 (18)	19:33			18:21	16:26	16:16
25	05:37		20:14 (17)	06:31		19:03 (18)	07:27			07:24	08:23	08:58
	21:51	30	20:44 (17)	20:48	30	19:33 (18)	19:31			17:19	16:25	16:17
26	05:38		20:14 (17)	06:33		19:03 (18)	07:29			07:25	08:25	08:58
	21:49	30	20:44 (17)	20:45	31	19:34 (18)	19:28			17:17	16:24	16:18
27	05:40		20:14 (17)	06:35		19:02 (18)	07:31			07:27	08:27	08:58
	21:47	30	20:44 (17)	20:43	32	19:34 (18)	19:26			17:15	16:23	16:19
28	05:41		20:14 (17)	06:36		19:00 (18)	07:32			07:29	08:28	08:58
	21:46	31	20:45 (17)	20:40	34	19:34 (18)	19:23			17:13	16:22	16:19
29	05:43		20:13 (17)	06:38		19:00 (18)	07:34			07:31	08:30	08:58
	21:44	31	20:44 (17)	20:38	34	19:34 (18)	19:21			17:11	16:21	16:20
30	05:45		20:14 (17)	06:40		19:00 (18)	07:36			07:33	08:32	08:58
	21:42	31	20:45 (17)	20:36	34	19:34 (18)	19:18			17:08	16:20	16:21
31	05:46		20:13 (17)	06:42		18:59 (18)				07:35		08:58
	21:40	31	20:44 (17)	20:33	34	19:33 (18)				17:06		16:22
Potential sun hours	515			461			383			327	257	230
Total, worst case		493			638			289				
Sun reduction		0.27			0.27			0.29				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.61			0.60			0.59				
Total reduction		0.16			0.16			0.17				
Total, real		81			105			50				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BA - H53

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April			May			June		
1	08:58	08:27	07:29	07:12			06:02		19:19 (18)	05:11		20:19 (17)
	16:24	17:16	18:13	20:12			21:09	15	19:34 (18)	22:00	27	20:46 (17)
2	08:58	08:25	07:26	07:10			06:00		19:22 (18)	05:11		20:19 (17)
	16:25	17:18	18:15	20:14			21:11	9	19:31 (18)	22:01	27	20:46 (17)
3	08:58	08:24	07:24	07:07			05:58			05:10		20:19 (17)
	16:26	17:20	18:17	20:16			21:12			22:02	27	20:46 (17)
4	08:58	08:22	07:21	07:05			05:56			05:09		20:19 (17)
	16:27	17:22	18:19	20:18			21:14			22:03	26	20:45 (17)
5	08:57	08:20	07:19	07:02			05:54			05:08		20:21 (17)
	16:28	17:24	18:21	20:20			21:16			22:05	25	20:46 (17)
6	08:57	08:18	07:17	07:00			05:52			05:07		20:21 (17)
	16:30	17:26	18:23	20:22			21:18			22:06	24	20:45 (17)
7	08:56	08:16	07:14	06:58			05:50			05:06		20:22 (17)
	16:31	17:28	18:24	20:24			21:20			22:07	23	20:45 (17)
8	08:56	08:14	07:12	06:55		19:28 (18)	05:48		20:26 (17)	05:06		20:22 (17)
	16:33	17:30	18:26	20:25	6	19:34 (18)	21:22	10	20:36 (17)	22:08	23	20:45 (17)
9	08:55	08:12	07:09	06:53		19:23 (18)	05:46		20:23 (17)	05:05		20:23 (17)
	16:34	17:32	18:28	20:27	16	19:39 (18)	21:23	15	20:38 (17)	22:09	22	20:45 (17)
10	08:55	08:10	07:07	06:50		19:20 (18)	05:44		20:21 (17)	05:05		20:23 (17)
	16:36	17:34	18:30	20:29	20	19:40 (18)	21:25	19	20:40 (17)	22:09	21	20:44 (17)
11	08:54	08:08	07:04	06:48		19:18 (18)	05:42		20:21 (17)	05:04		20:24 (17)
	16:37	17:36	18:32	20:31	24	19:42 (18)	21:27	21	20:42 (17)	22:10	21	20:45 (17)
12	08:53	08:06	07:02	06:45		19:17 (18)	05:40		20:19 (17)	05:04		20:25 (17)
	16:39	17:38	18:34	20:33	27	19:44 (18)	21:29	23	20:42 (17)	22:11	20	20:45 (17)
13	08:52	08:04	07:00	06:43		19:15 (18)	05:38		20:18 (17)	05:04		20:24 (17)
	16:40	17:40	18:36	20:35	29	19:44 (18)	21:31	25	20:43 (17)	22:12	20	20:44 (17)
14	08:51	08:02	06:57	06:41		19:14 (18)	05:37		20:18 (17)	05:03		20:25 (17)
	16:42	17:42	18:38	20:37	31	19:45 (18)	21:32	26	20:44 (17)	22:12	19	20:44 (17)
15	08:50	08:00	06:55	06:38		19:14 (18)	05:35		20:17 (17)	05:03		20:26 (17)
	16:44	17:44	18:40	20:39	32	19:46 (18)	21:34	27	20:44 (17)	22:13	18	20:44 (17)
16	08:49	07:58	06:52	06:36		19:12 (18)	05:33		20:17 (17)	05:03		20:26 (17)
	16:45	17:46	18:42	20:41	33	19:45 (18)	21:36	28	20:45 (17)	22:14	18	20:44 (17)
17	08:48	07:56	06:50	06:33		19:12 (18)	05:32		20:16 (17)	05:03		20:27 (17)
	16:47	17:49	18:44	20:42	34	19:46 (18)	21:37	29	20:45 (17)	22:14	17	20:44 (17)
18	08:47	07:54	06:47	06:31		19:12 (18)	05:30		20:16 (17)	05:03		20:27 (17)
	16:49	17:51	18:46	20:44	34	19:46 (18)	21:39	30	20:46 (17)	22:14	17	20:44 (17)
19	08:46	07:51	06:45	06:29		19:12 (18)	05:28		20:16 (17)	05:03		20:27 (17)
	16:51	17:53	18:48	20:46	34	19:46 (18)	21:41	30	20:46 (17)	22:15	17	20:44 (17)
20	08:45	07:49	06:42	06:26		19:11 (18)	05:27		20:16 (17)	05:03		20:27 (17)
	16:53	17:55	18:50	20:48	34	19:45 (18)	21:42	30	20:46 (17)	22:15	17	20:44 (17)
21	08:44	07:47	06:40	06:24		19:11 (18)	05:25		20:16 (17)	05:03		20:27 (17)
	16:54	17:57	18:51	20:50	34	19:45 (18)	21:44	31	20:47 (17)	22:15	17	20:44 (17)
22	08:42	07:45	06:37	06:22		19:11 (18)	05:24		20:15 (17)	05:03		20:28 (17)
	16:56	17:59	18:53	20:52	34	19:45 (18)	21:46	31	20:46 (17)	22:16	17	20:45 (17)
23	08:41	07:42	06:35	06:20		19:11 (18)	05:22		20:16 (17)	05:03		20:28 (17)
	16:58	18:01	18:55	20:54	33	19:44 (18)	21:47	31	20:47 (17)	22:16	17	20:45 (17)
24	08:40	07:40	06:32	06:17		19:12 (18)	05:21		20:16 (17)	05:04		20:28 (17)
	17:00	18:03	18:57	20:56	32	19:44 (18)	21:49	31	20:47 (17)	22:16	17	20:45 (17)
25	08:38	07:38	06:30	06:15		19:11 (18)	05:20		20:16 (17)	05:04		20:29 (17)
	17:02	18:05	18:59	20:58	31	19:42 (18)	21:50	31	20:47 (17)	22:16	17	20:46 (17)
26	08:37	07:36	06:27	06:13		19:12 (18)	05:18		20:17 (17)	05:04		20:28 (17)
	17:04	18:07	19:01	20:59	29	19:41 (18)	21:52	30	20:47 (17)	22:16	18	20:46 (17)
27	08:35	07:33	06:25	06:11		19:13 (18)	05:17		20:16 (17)	05:05		20:29 (17)
	17:06	18:09	19:03	21:01	27	19:40 (18)	21:53	30	20:46 (17)	22:16	18	20:47 (17)
28	08:34	07:31	06:22	06:08		19:14 (18)	05:16		20:16 (17)	05:05		20:28 (17)
	17:08	18:11	19:05	21:03	25	19:39 (18)	21:55	30	20:46 (17)	22:16	19	20:47 (17)
29	08:32		07:20	06:06		19:15 (18)	05:15		20:17 (17)	05:06		20:29 (17)
	17:10		20:07	21:05	23	19:38 (18)	21:56	29	20:46 (17)	22:15	19	20:48 (17)
30	08:30		07:17	06:04		19:17 (18)	05:14		20:17 (17)	05:07		20:28 (17)
	17:12		20:08	21:07	19	19:36 (18)	21:57	29	20:46 (17)	22:15	20	20:48 (17)
31	08:29		07:15				05:12		20:18 (17)			
	17:14		20:10				21:59	29	20:47 (17)			
Potential sun hours	248	272	367	421			496			513		
Total, worst case					641			669			608	
Sun reduction					0.34			0.36			0.26	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.59			0.62			0.62	
Total reduction					0.20			0.22			0.16	
Total, real					130			150			97	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BA - H53

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07	20:28 (17)	05:48	20:30 (17)	06:44	19:17 (18)	07:38	07:37	08:33
	22:15	21 20:49 (17)	21:39	22 20:52 (17)	20:31	24 19:41 (18)	19:16	17:04	16:19
2	05:08	20:28 (17)	05:50	20:31 (17)	06:45	19:19 (18)	07:40	07:39	08:35
	22:14	21 20:49 (17)	21:37	21 20:52 (17)	20:28	20 19:39 (18)	19:14	17:02	16:18
3	05:09	20:28 (17)	05:52	20:32 (17)	06:47	19:21 (18)	07:42	07:41	08:36
	22:14	22 20:50 (17)	21:35	18 20:50 (17)	20:26	16 19:37 (18)	19:11	17:00	16:17
4	05:10	20:27 (17)	05:53	20:34 (17)	06:49	19:25 (18)	07:43	07:43	08:38
	22:13	23 20:50 (17)	21:33	14 20:48 (17)	20:23	6 19:31 (18)	19:09	16:58	16:17
5	05:11	20:27 (17)	05:55	20:37 (17)	06:51		07:45	07:45	08:39
	22:13	24 20:51 (17)	21:31	8 20:45 (17)	20:21		19:06	16:56	16:16
6	05:12	20:27 (17)	05:57		06:53		07:47	07:47	08:41
	22:12	24 20:51 (17)	21:29		20:19		19:04	16:54	16:16
7	05:12	20:27 (17)	05:59		06:54		07:49	07:49	08:42
	22:12	25 20:52 (17)	21:27		20:16		19:01	16:53	16:15
8	05:14	20:27 (17)	06:00		06:56		07:51	07:51	08:43
	22:11	25 20:52 (17)	21:25		20:14		18:59	16:51	16:15
9	05:15	20:27 (17)	06:02		06:58		07:53	07:53	08:45
	22:10	26 20:53 (17)	21:23		20:11		18:56	16:49	16:14
10	05:16	20:27 (17)	06:04		07:00		07:55	07:55	08:46
	22:09	26 20:53 (17)	21:21		20:09		18:54	16:47	16:14
11	05:17	20:26 (17)	06:06	19:29 (18)	07:02		07:57	07:57	08:47
	22:08	28 20:54 (17)	21:19	12 19:41 (18)	20:06		18:51	16:45	16:14
12	05:18	20:26 (17)	06:07	19:27 (18)	07:03		07:58	07:59	08:48
	22:07	28 20:54 (17)	21:17	16 19:43 (18)	20:04		18:49	16:44	16:14
13	05:19	20:26 (17)	06:09	19:25 (18)	07:05		08:00	08:01	08:49
	22:06	28 20:54 (17)	21:15	20 19:45 (18)	20:01		18:47	16:42	16:13
14	05:21	20:26 (17)	06:11	19:22 (18)	07:07		08:02	08:03	08:50
	22:05	29 20:55 (17)	21:12	24 19:46 (18)	19:59		18:44	16:40	16:13
15	05:22	20:26 (17)	06:13	19:21 (18)	07:09		08:04	08:05	08:51
	22:04	30 20:56 (17)	21:10	26 19:47 (18)	19:56		18:42	16:39	16:13
16	05:23	20:26 (17)	06:15	19:20 (18)	07:11		08:06	08:07	08:52
	22:03	30 20:56 (17)	21:08	28 19:48 (18)	19:54		18:40	16:37	16:13
17	05:25	20:25 (17)	06:16	19:19 (18)	07:12		08:08	08:09	08:53
	22:02	31 20:56 (17)	21:06	30 19:49 (18)	19:51		18:37	16:36	16:14
18	05:26	20:26 (17)	06:18	19:18 (18)	07:14		08:10	08:11	08:54
	22:01	31 20:57 (17)	21:04	31 19:49 (18)	19:49		18:35	16:34	16:14
19	05:27	20:26 (17)	06:20	19:17 (18)	07:16		08:12	08:12	08:55
	21:59	30 20:56 (17)	21:01	33 19:50 (18)	19:46		18:33	16:33	16:14
20	05:29	20:25 (17)	06:22	19:17 (18)	07:18		08:14	08:14	08:55
	21:58	31 20:56 (17)	20:59	33 19:50 (18)	19:44		18:30	16:31	16:14
21	05:30	20:26 (17)	06:24	19:16 (18)	07:20		08:16	08:16	08:56
	21:56	31 20:57 (17)	20:57	33 19:49 (18)	19:41		18:28	16:30	16:15
22	05:32	20:26 (17)	06:25	19:15 (18)	07:21		08:18	08:18	08:56
	21:55	31 20:57 (17)	20:55	35 19:50 (18)	19:39		18:26	16:29	16:15
23	05:33	20:25 (17)	06:27	19:15 (18)	07:23		08:20	08:20	08:57
	21:54	31 20:56 (17)	20:52	35 19:50 (18)	19:36		18:24	16:27	16:16
24	05:35	20:26 (17)	06:29	19:14 (18)	07:25		08:22	08:22	08:57
	21:52	31 20:57 (17)	20:50	35 19:49 (18)	19:33		18:21	16:26	16:16
25	05:37	20:26 (17)	06:31	19:14 (18)	07:27		07:24	08:23	08:58
	21:51	30 20:56 (17)	20:48	35 19:49 (18)	19:31		17:19	16:25	16:17
26	05:38	20:27 (17)	06:33	19:15 (18)	07:29		07:25	08:25	08:58
	21:49	29 20:56 (17)	20:45	33 19:48 (18)	19:28		17:17	16:24	16:18
27	05:40	20:27 (17)	06:35	19:15 (18)	07:31		07:27	08:27	08:58
	21:47	28 20:55 (17)	20:43	33 19:48 (18)	19:26		17:15	16:23	16:19
28	05:41	20:27 (17)	06:36	19:15 (18)	07:32		07:29	08:28	08:58
	21:46	28 20:55 (17)	20:40	31 19:46 (18)	19:23		17:13	16:22	16:19
29	05:43	20:27 (17)	06:38	19:15 (18)	07:34		07:31	08:30	08:58
	21:44	27 20:54 (17)	20:38	31 19:46 (18)	19:21		17:11	16:21	16:20
30	05:45	20:29 (17)	06:40	19:16 (18)	07:36		07:33	08:32	08:58
	21:42	25 20:54 (17)	20:36	29 19:45 (18)	19:18		17:08	16:20	16:21
31	05:46	20:29 (17)	06:42	19:16 (18)			07:35		08:58
	21:40	24 20:53 (17)	20:33	27 19:43 (18)			17:06		16:22
Potential sun hours	515		461		383		327	257	230
Total, worst case		848		693		66			
Sun reduction		0.27		0.27		0.29			
Oper. time red.		1.00		1.00		1.00			
Wind dir. red.		0.62		0.59		0.59			
Total reduction		0.17		0.16		0.17			
Total, real		140		113		11			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BB - H54

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27		07:29		07:12		19:05 (18)		06:02	
	16:24		17:16		18:13		20:12	20	19:25 (18)		21:09	19
2	08:58		08:25		07:26		07:10		19:04 (18)		06:00	
	16:25		17:18		18:15		20:14	23	19:27 (18)		21:11	23
3	08:58		08:24		07:24		07:07		19:01 (18)		05:58	
	16:26		17:20		18:17		20:16	27	19:28 (18)		21:12	25
4	08:58		08:22		07:21		07:05		19:00 (18)		05:56	
	16:27		17:22		18:19		20:18	29	19:29 (18)		21:14	26
5	08:57		08:20		07:19		07:02		19:00 (18)		05:54	
	16:28		17:24		18:21		20:20	30	19:30 (18)		21:16	28
6	08:57		08:18		07:17		07:00		18:58 (18)		05:52	
	16:30		17:26		18:23		20:22	32	19:30 (18)		21:18	29
7	08:56		08:16		07:14		06:58		18:58 (18)		05:50	
	16:31		17:28		18:24		20:24	33	19:31 (18)		21:20	29
8	08:56		08:14		07:12		06:55		18:57 (18)		05:48	
	16:33		17:30		18:26		20:25	33	19:30 (18)		21:22	30
9	08:55		08:12		07:09		06:53		18:56 (18)		05:46	
	16:34		17:32		18:28		20:27	34	19:30 (18)		21:23	30
10	08:55		08:10		07:07		06:50		18:55 (18)		05:44	
	16:36		17:34		18:30		20:29	35	19:30 (18)		21:25	31
11	08:54		08:08		07:05		06:48		18:56 (18)		05:42	
	16:37		17:36		18:32		20:31	34	19:30 (18)		21:27	31
12	08:53		08:06		07:02		06:45		18:56 (18)		05:40	
	16:39		17:38		18:34		20:33	34	19:30 (18)		21:29	32
13	08:52		08:04		07:00		06:43		18:55 (18)		05:38	
	16:40		17:40		18:36		20:35	33	19:28 (18)		21:31	31
14	08:51		08:02		06:57		06:41		18:56 (18)		05:37	
	16:42		17:42		18:38		20:37	32	19:28 (18)		21:32	30
15	08:50		08:00		06:55		06:38		18:57 (18)		05:35	
	16:44		17:44		18:40		20:39	30	19:27 (18)		21:34	30
16	08:49		07:58		06:52		06:36		18:57 (18)		05:33	
	16:45		17:46		18:42		20:41	29	19:26 (18)		21:36	29
17	08:48		07:56		06:50		06:33		18:58 (18)		05:32	
	16:47		17:49		18:44		20:42	27	19:25 (18)		21:37	29
18	08:47		07:54		06:47		06:31		18:59 (18)		05:30	
	16:49		17:51		18:46		20:44	25	19:24 (18)		21:39	28
19	08:46		07:51		06:45		06:29		19:01 (18)		05:28	
	16:51		17:53		18:48		20:46	21	19:22 (18)		21:41	27
20	08:45		07:49		06:42		06:26		19:02 (18)		05:27	
	16:53		17:55		18:50		20:48	17	19:19 (18)		21:42	26
21	08:44		07:47		06:40		06:24		19:05 (18)		05:25	
	16:54		17:57		18:51		20:50	11	19:16 (18)		21:44	25
22	08:42		07:45		06:37		06:22				05:24	
	16:56		17:59		18:53		20:52				21:46	23
23	08:41		07:42		06:35		06:20				05:22	
	16:58		18:01		18:55		20:54				21:47	21
24	08:40		07:40		06:32		06:17				05:21	
	17:00		18:03		18:57		20:56				21:49	20
25	08:38		07:38		06:30		06:15				05:20	
	17:02		18:05		18:59		20:58				21:50	18
26	08:37		07:36		06:27		06:13				05:18	
	17:04		18:07		19:01		20:59				21:52	15
27	08:35		07:33		06:25		06:11				05:17	
	17:06		18:09		19:03		21:01				21:53	13
28	08:34		07:31		06:22		06:08				05:16	
	17:08		18:11		19:05		21:03				21:55	8
29	08:32				07:20		06:06		20:10 (17)		05:15	
	17:10				20:07		21:05	11	20:21 (17)		21:56	
30	08:30				07:17		06:04		20:08 (17)		05:14	
	17:12				20:08	6	21:07	16	20:24 (17)		21:57	
31	08:29				07:15						05:12	
	17:14				20:10	15					21:59	
Potential sun hours	248		272		367		421		496		513	
Total, worst case						21		616		706		
Sun reduction						0.22		0.34		0.36		
Oper. time red.						1.00		1.00		1.00		
Wind dir. red.						0.59		0.59		0.61		
Total reduction						0.13		0.20		0.22		
Total, real						3		125		156		

Table layout: For each day in each month the following matrix apply				
Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BB - H54

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07		05:48	20:10 (17)	06:44	18:55 (18)	07:38	07:37	08:33
	22:15		21:39	31 20:41 (17)	20:31	34 19:29 (18)	19:16	17:04	16:19
2	05:08		05:50	20:10 (17)	06:45	18:54 (18)	07:40	07:39	08:35
	22:14		21:37	31 20:41 (17)	20:28	35 19:29 (18)	19:14	17:02	16:18
3	05:09		05:52	20:10 (17)	06:47	18:54 (18)	07:42	07:41	08:36
	22:14		21:35	30 20:40 (17)	20:26	34 19:28 (18)	19:11	17:00	16:17
4	05:10		05:53	20:10 (17)	06:49	18:54 (18)	07:43	07:43	08:38
	22:13		21:33	31 20:41 (17)	20:23	33 19:27 (18)	19:09	16:58	16:17
5	05:11		05:55	20:10 (17)	06:51	18:54 (18)	07:45	07:45	08:39
	22:13		21:31	30 20:40 (17)	20:21	33 19:27 (18)	19:06	16:56	16:16
6	05:12		05:57	20:10 (17)	06:53	18:54 (18)	07:47	07:47	08:41
	22:12		21:29	30 20:40 (17)	20:19	32 19:26 (18)	19:04	16:54	16:16
7	05:12		05:59	20:11 (17)	06:54	18:55 (18)	07:49	07:49	08:42
	22:12		21:27	28 20:39 (17)	20:16	30 19:25 (18)	19:01	16:53	16:15
8	05:14		06:00	20:11 (17)	06:56	18:55 (18)	07:51	07:51	08:43
	22:11		21:25	27 20:38 (17)	20:14	28 19:23 (18)	18:59	16:51	16:15
9	05:15		06:02	20:12 (17)	06:58	18:55 (18)	07:53	07:53	08:45
	22:10		21:23	25 20:37 (17)	20:11	27 19:22 (18)	18:56	16:49	16:14
10	05:16		06:04	20:13 (17)	07:00	18:57 (18)	07:55	07:55	08:46
	22:09		21:21	24 20:37 (17)	20:09	24 19:21 (18)	18:54	16:47	16:14
11	05:17		06:06	20:13 (17)	07:02	18:58 (18)	07:57	07:57	08:47
	22:08		21:19	22 20:35 (17)	20:06	21 19:19 (18)	18:51	16:45	16:14
12	05:18		06:07	20:15 (17)	07:03	19:00 (18)	07:58	07:59	08:48
	22:07		21:17	18 20:33 (17)	20:04	15 19:15 (18)	18:49	16:44	16:14
13	05:19		06:09	20:17 (17)	07:05	19:03 (18)	08:00	08:01	08:49
	22:06		21:15	15 20:32 (17)	20:01	8 19:11 (18)	18:47	16:42	16:13
14	05:21		06:11	20:19 (17)	07:07		08:02	08:03	08:50
	22:05		21:12	9 20:28 (17)	19:59		18:44	16:40	16:13
15	05:22	20:23 (17)	06:13		07:09		08:04	08:05	08:51
	22:04	5 20:28 (17)	21:10		19:56		18:42	16:39	16:13
16	05:23	20:20 (17)	06:15		07:11		08:06	08:07	08:52
	22:03	10 20:30 (17)	21:08		19:54		18:40	16:37	16:13
17	05:25	20:18 (17)	06:16		07:12		08:08	08:09	08:53
	22:02	14 20:32 (17)	21:06		19:51		18:37	16:36	16:14
18	05:26	20:18 (17)	06:18		07:14		08:10	08:11	08:54
	22:01	16 20:34 (17)	21:04		19:49		18:35	16:34	16:14
19	05:27	20:16 (17)	06:20		07:16		08:12	08:12	08:55
	21:59	19 20:35 (17)	21:01		19:46		18:33	16:33	16:14
20	05:29	20:15 (17)	06:22		07:18		08:14	08:14	08:55
	21:58	20 20:35 (17)	20:59		19:44		18:30	16:31	16:14
21	05:30	20:15 (17)	06:24		07:20		08:16	08:16	08:56
	21:56	22 20:37 (17)	20:57		19:41		18:28	16:30	16:15
22	05:32	20:14 (17)	06:25	19:09 (18)	07:21		08:18	08:18	08:56
	21:55	23 20:37 (17)	20:55	13 19:22 (18)	19:39		18:26	16:29	16:15
23	05:33	20:12 (17)	06:27	19:06 (18)	07:23		08:20	08:20	08:57
	21:54	26 20:38 (17)	20:52	18 19:24 (18)	19:36		18:24	16:27	16:16
24	05:35	20:12 (17)	06:29	19:03 (18)	07:25		08:22	08:22	08:57
	21:52	27 20:39 (17)	20:50	22 19:25 (18)	19:33		18:21	16:26	16:16
25	05:37	20:11 (17)	06:31	19:02 (18)	07:27		07:24	08:23	08:58
	21:51	28 20:39 (17)	20:48	24 19:26 (18)	19:31		17:19	16:25	16:17
26	05:38	20:12 (17)	06:33	19:00 (18)	07:29		07:25	08:25	08:58
	21:49	28 20:40 (17)	20:45	28 19:28 (18)	19:28		17:17	16:24	16:18
27	05:40	20:11 (17)	06:35	18:59 (18)	07:31		07:27	08:27	08:58
	21:47	29 20:40 (17)	20:43	29 19:28 (18)	19:26		17:15	16:23	16:19
28	05:41	20:11 (17)	06:36	18:58 (18)	07:32		07:29	08:28	08:58
	21:46	30 20:41 (17)	20:40	30 19:28 (18)	19:23		17:13	16:22	16:19
29	05:43	20:10 (17)	06:38	18:57 (18)	07:34		07:31	08:30	08:58
	21:44	30 20:40 (17)	20:38	32 19:29 (18)	19:21		17:11	16:21	16:20
30	05:45	20:10 (17)	06:40	18:56 (18)	07:36		07:33	08:32	08:58
	21:42	31 20:41 (17)	20:36	33 19:29 (18)	19:18		17:08	16:20	16:21
31	05:46	20:09 (17)	06:42	18:55 (18)			07:35		08:58
	21:40	31 20:40 (17)	20:33	33 19:28 (18)			17:06		16:22
Potential sun hours	515		461		383		327	257	230
Total, worst case		389		613		354			
Sun reduction		0.27		0.27		0.29			
Oper. time red.		1.00		1.00		1.00			
Wind dir. red.		0.61		0.60		0.59			
Total reduction		0.16		0.16		0.17			
Total, real		63		101		61			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BC - H55

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April			May			June		
1	08:58	08:27	07:29	07:12			06:02		19:37 (18)	05:11		20:45 (17)
	16:24	17:16	18:13	20:12			21:09	33	20:10 (18)	22:00	24	21:09 (17)
2	08:58	08:25	07:26	07:10			06:00		19:37 (18)	05:11		20:44 (17)
	16:25	17:18	18:15	20:14			21:11	34	20:11 (18)	22:01	25	21:09 (17)
3	08:58	08:24	07:24	07:07			05:58		19:36 (18)	05:10		20:44 (17)
	16:26	17:20	18:17	20:16			21:12	35	20:11 (18)	22:02	26	21:10 (17)
4	08:58	08:22	07:21	07:05			05:56		19:36 (18)	05:09		20:43 (17)
	16:27	17:22	18:19	20:18			21:14	35	20:11 (18)	22:03	27	21:10 (17)
5	08:57	08:20	07:19	07:02			05:54		19:35 (18)	05:08		20:44 (17)
	16:28	17:24	18:21	20:20			21:16	36	20:11 (18)	22:05	27	21:11 (17)
6	08:57	08:18	07:17	07:00			05:52		19:36 (18)	05:07		20:44 (17)
	16:30	17:26	18:23	20:22			21:18	35	20:11 (18)	22:06	27	21:11 (17)
7	08:56	08:16	07:14	06:58			05:50		19:36 (18)	05:07		20:44 (17)
	16:31	17:28	18:24	20:24			21:20	35	20:11 (18)	22:07	28	21:12 (17)
8	08:56	08:14	07:12	06:55			05:48		19:36 (18)	05:06		20:44 (17)
	16:33	17:30	18:26	20:25			21:22	35	20:11 (18)	22:08	28	21:12 (17)
9	08:55	08:12	07:09	06:53			05:46		19:36 (18)	05:05		20:44 (17)
	16:34	17:32	18:28	20:27			21:23	34	20:10 (18)	22:09	29	21:13 (17)
10	08:55	08:10	07:07	06:50			05:44		19:36 (18)	05:05		20:44 (17)
	16:36	17:34	18:30	20:29			21:25	34	20:10 (18)	22:09	28	21:12 (17)
11	08:54	08:08	07:05	06:48			05:42		19:37 (18)	05:04		20:44 (17)
	16:37	17:36	18:32	20:31			21:27	33	20:10 (18)	22:10	29	21:13 (17)
12	08:53	08:06	07:02	06:45			05:40		19:37 (18)	05:04		20:44 (17)
	16:39	17:38	18:34	20:33			21:29	32	20:09 (18)	22:11	30	21:14 (17)
13	08:52	08:04	07:00	06:43			05:38		19:37 (18)	05:04		20:44 (17)
	16:40	17:40	18:36	20:35			21:31	31	20:08 (18)	22:12	29	21:13 (17)
14	08:51	08:02	06:57	06:41			05:37		19:38 (18)	05:03		20:44 (17)
	16:42	17:42	18:38	20:37			21:32	30	20:08 (18)	22:12	30	21:14 (17)
15	08:50	08:00	06:55	06:38			05:35		19:39 (18)	05:03		20:44 (17)
	16:44	17:44	18:40	20:39			21:34	28	20:07 (18)	22:13	30	21:14 (17)
16	08:49	07:58	06:52	06:36			05:33		19:40 (18)	05:03		20:45 (17)
	16:45	17:46	18:42	20:41			21:36	27	20:07 (18)	22:14	29	21:14 (17)
17	08:48	07:56	06:50	06:33			05:32		19:40 (18)	05:03		20:45 (17)
	16:47	17:49	18:44	20:42			21:37	26	20:06 (18)	22:14	30	21:15 (17)
18	08:47	07:54	06:47	06:31			05:30		19:42 (18)	05:03		20:45 (17)
	16:49	17:51	18:46	20:44			21:39	24	20:06 (18)	22:14	30	21:15 (17)
19	08:46	07:51	06:45	06:29			05:28		19:42 (18)	05:03		20:45 (17)
	16:51	17:53	18:48	20:46			21:41	22	20:04 (18)	22:15	30	21:15 (17)
20	08:45	07:49	06:42	06:26			05:27		19:44 (18)	05:03		20:45 (17)
	16:53	17:55	18:50	20:48			21:42	19	20:03 (18)	22:15	30	21:15 (17)
21	08:44	07:47	06:40	06:24			05:25		19:46 (18)	05:03		20:45 (17)
	16:54	17:57	18:51	20:50			21:44	16	20:02 (18)	22:15	30	21:15 (17)
22	08:42	07:45	06:37	06:22			05:24		19:47 (18)	05:03		20:46 (17)
	16:56	17:59	18:53	20:52			21:46	13	20:00 (18)	22:16	30	21:16 (17)
23	08:41	07:42	06:35	06:20		19:50 (18)	05:22		19:50 (18)	05:03		20:46 (17)
	16:58	18:01	18:55	20:54	11	20:01 (18)	21:47	7	19:57 (18)	22:16	30	21:16 (17)
24	08:40	07:40	06:32	06:17		19:47 (18)	05:21		20:52 (17)	05:04		20:46 (17)
	17:00	18:03	18:57	20:56	17	20:04 (18)	21:49	8	21:00 (17)	22:16	30	21:16 (17)
25	08:38	07:38	06:30	06:15		19:44 (18)	05:20		20:50 (17)	05:04		20:47 (17)
	17:02	18:05	18:59	20:58	21	20:05 (18)	21:50	12	21:02 (17)	22:16	30	21:17 (17)
26	08:37	07:36	06:27	06:13		19:42 (18)	05:18		20:49 (17)	05:04		20:47 (17)
	17:04	18:07	19:01	20:59	24	20:06 (18)	21:52	15	21:04 (17)	22:16	29	21:16 (17)
27	08:35	07:33	06:25	06:11		19:41 (18)	05:17		20:47 (17)	05:05		20:47 (17)
	17:06	18:09	19:03	21:01	27	20:08 (18)	21:53	17	21:04 (17)	22:16	30	21:17 (17)
28	08:34	07:31	06:22	06:08		19:40 (18)	05:16		20:46 (17)	05:05		20:47 (17)
	17:08	18:11	19:05	21:03	29	20:09 (18)	21:55	19	21:05 (17)	22:16	30	21:17 (17)
29	08:32		07:20	06:06		19:39 (18)	05:15		20:45 (17)	05:06		20:48 (17)
	17:10		20:07	21:05	30	20:09 (18)	21:56	21	21:06 (17)	22:15	29	21:17 (17)
30	08:30		07:17	06:04		19:38 (18)	05:14		20:45 (17)	05:07		20:48 (17)
	17:12		20:08	21:07	32	20:10 (18)	21:57	22	21:07 (17)	22:15	29	21:17 (17)
31	08:29		07:15				05:12		20:45 (17)			
	17:14		20:10				21:59	24	21:09 (17)			
Potential sun hours	248	272	367	421			496			513		
Total, worst case					191			792			863	
Sun reduction					0.34			0.36			0.26	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.60			0.60			0.63	
Total reduction					0.21			0.22			0.16	
Total, real					39			173			140	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BC - H55

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November	December
1	05:07		20:48 (17)	05:48		19:47 (18)	06:44	07:38	07:37	08:33
	22:15	29	21:17 (17)	21:39	33	20:20 (18)	20:31	19:16	17:04	16:19
2	05:08		20:49 (17)	05:50		19:47 (18)	06:45	07:40	07:39	08:35
	22:14	29	21:18 (17)	21:37	34	20:21 (18)	20:28	19:14	17:02	16:18
3	05:09		20:49 (17)	05:52		19:46 (18)	06:47	07:42	07:41	08:36
	22:14	29	21:18 (17)	21:35	34	20:20 (18)	20:26	19:11	17:00	16:17
4	05:10		20:49 (17)	05:53		19:46 (18)	06:49	07:43	07:43	08:38
	22:13	28	21:17 (17)	21:33	35	20:21 (18)	20:23	19:09	16:58	16:17
5	05:11		20:49 (17)	05:55		19:46 (18)	06:51	07:45	07:45	08:39
	22:13	28	21:17 (17)	21:31	35	20:21 (18)	20:21	19:06	16:56	16:16
6	05:12		20:50 (17)	05:57		19:45 (18)	06:53	07:47	07:47	08:41
	22:12	27	21:17 (17)	21:29	36	20:21 (18)	20:19	19:04	16:54	16:16
7	05:13		20:50 (17)	05:59		19:46 (18)	06:54	07:49	07:49	08:42
	22:12	27	21:17 (17)	21:27	35	20:21 (18)	20:16	19:01	16:53	16:15
8	05:14		20:51 (17)	06:00		19:45 (18)	06:56	07:51	07:51	08:43
	22:11	26	21:17 (17)	21:25	35	20:20 (18)	20:14	18:59	16:51	16:15
9	05:15		20:51 (17)	06:02		19:45 (18)	06:58	07:53	07:53	08:45
	22:10	26	21:17 (17)	21:23	35	20:20 (18)	20:11	18:56	16:49	16:14
10	05:16		20:52 (17)	06:04		19:46 (18)	07:00	07:55	07:55	08:46
	22:09	25	21:17 (17)	21:21	34	20:20 (18)	20:09	18:54	16:47	16:14
11	05:17		20:52 (17)	06:06		19:45 (18)	07:02	07:57	07:57	08:47
	22:08	25	21:17 (17)	21:19	34	20:19 (18)	20:06	18:51	16:45	16:14
12	05:18		20:53 (17)	06:07		19:46 (18)	07:03	07:58	07:59	08:48
	22:07	23	21:16 (17)	21:17	33	20:19 (18)	20:04	18:49	16:44	16:14
13	05:19		20:53 (17)	06:09		19:47 (18)	07:05	08:00	08:01	08:49
	22:06	23	21:16 (17)	21:15	31	20:18 (18)	20:01	18:47	16:42	16:13
14	05:21		20:55 (17)	06:11		19:46 (18)	07:07	08:02	08:03	08:50
	22:05	21	21:16 (17)	21:12	31	20:17 (18)	19:59	18:44	16:40	16:13
15	05:22		20:55 (17)	06:13		19:47 (18)	07:09	08:04	08:05	08:51
	22:04	20	21:15 (17)	21:10	29	20:16 (18)	19:56	18:42	16:39	16:13
16	05:23		20:56 (17)	06:15		19:49 (18)	07:11	08:06	08:07	08:52
	22:03	18	21:14 (17)	21:08	26	20:15 (18)	19:54	18:40	16:37	16:13
17	05:25		20:57 (17)	06:16		19:50 (18)	07:12	08:08	08:09	08:53
	22:02	16	21:13 (17)	21:06	24	20:14 (18)	19:51	18:37	16:36	16:14
18	05:26		20:59 (17)	06:18		19:51 (18)	07:14	08:10	08:11	08:54
	22:01	14	21:13 (17)	21:04	20	20:11 (18)	19:49	18:35	16:34	16:14
19	05:27		21:00 (17)	06:20		19:53 (18)	07:16	08:12	08:12	08:55
	21:59	11	21:11 (17)	21:01	16	20:09 (18)	19:46	18:33	16:33	16:14
20	05:29		21:03 (17)	06:22		19:56 (18)	07:18	08:14	08:14	08:55
	21:58	5	21:08 (17)	20:59	10	20:06 (18)	19:44	18:30	16:31	16:14
21	05:30		19:59 (18)	06:24			07:20	08:16	08:16	08:56
	21:56	10	20:09 (18)	20:57			19:41	18:28	16:30	16:15
22	05:32		19:57 (18)	06:25			07:21	08:18	08:18	08:56
	21:55	14	20:11 (18)	20:55			19:39	18:26	16:29	16:15
23	05:33		19:55 (18)	06:27			07:23	08:20	08:20	08:57
	21:54	17	20:12 (18)	20:52			19:36	18:24	16:27	16:16
24	05:35		19:54 (18)	06:29			07:25	08:22	08:22	08:57
	21:52	20	20:14 (18)	20:50			19:33	18:21	16:26	16:16
25	05:37		19:52 (18)	06:31			07:27	07:24	08:23	08:58
	21:51	23	20:15 (18)	20:48			19:31	17:19	16:25	16:17
26	05:38		19:52 (18)	06:33			07:29	07:25	08:25	08:58
	21:49	24	20:16 (18)	20:45			19:28	17:17	16:24	16:18
27	05:40		19:50 (18)	06:35			07:31	07:27	08:27	08:58
	21:47	27	20:17 (18)	20:43			19:26	17:15	16:23	16:19
28	05:41		19:50 (18)	06:36			07:32	07:29	08:28	08:58
	21:46	28	20:18 (18)	20:40			19:23	17:13	16:22	16:19
29	05:43		19:49 (18)	06:38			07:34	07:31	08:30	08:58
	21:44	29	20:18 (18)	20:38			19:21	17:11	16:21	16:20
30	05:45		19:48 (18)	06:40			07:36	07:33	08:32	08:58
	21:42	31	20:19 (18)	20:36			19:18	17:08	16:20	16:21
31	05:46		19:48 (18)	06:42				07:35		08:58
	21:40	32	20:20 (18)	20:33				17:06		16:22
Potential sun hours	515			461			383	327	257	230
Total, worst case		705			600					
Sun reduction		0.27			0.27					
Oper. time red.		1.00			1.00					
Wind dir. red.		0.62			0.60					
Total reduction		0.16			0.16					
Total, real		116			98					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BD - H56

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May	June
1	08:58		08:27		16:21 (2)		07:29		17:13 (3)	07:12		19:04 (4)	06:02	05:12
	16:24		17:16	22	16:43 (2)		18:13	25	17:38 (3)	20:12	19	19:23 (4)	21:09	22:00
2	08:58		08:25		16:22 (2)		07:26		17:13 (3)	07:10		19:06 (4)	06:00	05:11
	16:25		17:18	24	16:46 (2)		18:15	24	17:37 (3)	20:14	15	19:21 (4)	21:11	22:01
3	08:58		08:24		16:22 (2)		07:24		17:14 (3)	07:08		19:09 (4)	05:58	05:10
	16:26		17:20	26	16:48 (2)		18:17	22	17:36 (3)	20:16	9	19:18 (4)	21:12	22:02
4	08:58		08:22		16:22 (2)		07:22		17:14 (3)	07:05			05:56	05:09
	16:28		17:22	26	16:48 (2)		18:19	20	17:34 (3)	20:18			21:14	22:03
5	08:57		08:20		16:22 (2)		07:19		17:16 (3)	07:03			05:54	05:08
	16:29		17:24	26	16:48 (2)		18:21	17	17:33 (3)	20:20			21:16	22:04
6	08:57		08:18		16:23 (2)		07:17		17:17 (3)	07:00			05:52	05:08
	16:30		17:26	25	16:48 (2)		18:23	14	17:31 (3)	20:22			21:18	22:05
7	08:56		08:16		16:23 (2)		07:14		17:21 (3)	06:58			05:50	05:07
	16:31		17:28	25	16:48 (2)		18:25	6	17:27 (3)	20:24			21:20	22:07
8	08:56		08:14		16:23 (2)		07:12			06:55			05:48	05:06
	16:33		17:30	23	16:46 (2)		18:27			20:26			21:22	22:07
9	08:55		08:12		16:24 (2)		07:09			06:53			05:46	05:06
	16:34		17:32	22	16:46 (2)		18:29			20:27			21:23	22:08
10	08:55		08:10		16:25 (2)		07:07			06:50			05:44	05:05
	16:36		17:34	20	16:45 (2)		18:30			20:29			21:25	22:09
11	08:54		08:08		16:26 (2)		07:05			06:48			05:42	05:05
	16:37		17:36	18	16:44 (2)		18:32			20:31			21:27	22:10
12	08:53		08:06		16:28 (2)		07:02			06:46			05:41	05:04
	16:39		17:39	14	16:42 (2)		18:34			20:33			21:29	22:11
13	08:52		08:04		16:31 (2)		07:00			06:43			05:39	05:04
	16:41		17:41	9	16:40 (2)		18:36			20:35			21:30	22:12
14	08:51		08:02				06:57			06:41			05:37	05:04
	16:42		17:43				18:38			20:37			21:32	22:12
15	08:50		08:00				06:55			06:38			05:35	05:03
	16:44		17:45				18:40			20:39			21:34	22:13
16	08:49		07:58				06:52			06:36			05:34	05:03
	16:46		17:47				18:42			20:41			21:36	22:13
17	08:48		07:56				06:50		18:16 (4)	06:34			05:32	05:03
	16:47		17:49				18:44	1	18:17 (4)	20:42			21:37	22:14
18	08:47		07:54				06:47		18:11 (4)	06:31			05:30	05:03
	16:49		17:51				18:46	8	18:19 (4)	20:44			21:39	22:14
19	08:46		07:51		17:22 (3)		06:45		18:09 (4)	06:29			05:29	05:03
	16:51		17:53	2	17:24 (3)		18:48	12	18:21 (4)	20:46			21:41	22:15
20	08:45		07:49		17:19 (3)		06:42		18:07 (4)	06:27			05:27	05:03
	16:53		17:55	7	17:26 (3)		18:50	15	18:22 (4)	20:48			21:42	22:15
21	08:44		07:47		17:18 (3)		06:40		18:06 (4)	06:24			05:26	05:03
	16:55		17:57	11	17:29 (3)		18:52	19	18:25 (4)	20:50			21:44	22:15
22	08:42		07:45		17:16 (3)		06:37		18:04 (4)	06:22			05:24	05:03
	16:57		17:59	14	17:30 (3)		18:53	22	18:26 (4)	20:52			21:45	22:16
23	08:41		07:42		17:15 (3)		06:35		18:04 (4)	06:20			05:23	05:04
	16:58		18:01	18	17:33 (3)		18:55	25	18:29 (4)	20:54			21:47	22:16
24	08:40		07:40		17:14 (3)		06:32		18:02 (4)	06:18			05:21	05:04
	17:00		18:03	21	17:35 (3)		18:57	28	18:30 (4)	20:56			21:49	22:16
25	08:38		07:38		17:13 (3)		06:30		18:02 (4)	06:15			05:20	05:04
	17:02	2	16:28 (2)	18:05	24	17:37 (3)		18:59	28	18:30 (4)	20:58			21:50	22:16
26	08:37		16:25 (2)	07:36		17:13 (3)		06:27		18:02 (4)	06:13			05:19	05:05
	17:04	5	16:30 (2)	18:07	25	17:38 (3)		19:01	27	18:29 (4)	20:59			21:52	22:16
27	08:35		16:25 (2)	07:33		17:12 (3)		06:25		18:02 (4)	06:11			05:17	05:05
	17:06	8	16:33 (2)	18:09	26	17:38 (3)		19:03	27	18:29 (4)	21:01			21:53	22:16
28	08:34		16:24 (2)	07:31		17:13 (3)		06:22		18:01 (4)	06:09			05:16	05:06
	17:08	11	16:35 (2)	18:11	25	17:38 (3)		19:05	27	18:28 (4)	21:03			21:54	22:16
29	08:32		16:23 (2)					07:20		19:02 (4)	06:07			05:15	05:06
	17:10	14	16:37 (2)					20:07	26	19:28 (4)	21:05			21:56	22:15
30	08:30		16:22 (2)					07:17		19:02 (4)	06:04			05:14	05:07
	17:12	17	16:39 (2)					20:09	24	19:26 (4)	21:07			21:57	22:15
31	08:29		16:22 (2)					07:15		19:03 (4)				05:13	
	17:14	19	16:41 (2)					20:10	22	19:25 (4)				21:58	
Potential sun hours	248		272		367		421		496	513
Total, worst case	76		453		439		43			
Sun reduction	0.17		0.22		0.22		0.34			
Oper. time red.	1.00		1.00		1.00		1.00			
Wind dir. red.	0.59		0.59		0.58		0.58			
Total reduction	0.10		0.13		0.13		0.20			
Total, real	8		59		57		9			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BD - H56

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October		November		December
1	05:08	05:48	06:44		07:38		07:37		15:54 (2)	08:33
	22:15	21:39	20:31		19:16		17:05	21	16:15 (2)	16:19
2	05:08	05:50	06:46		07:40		07:39		15:53 (2)	08:35
	22:14	21:37	20:28		19:14		17:02	22	16:15 (2)	16:18
3	05:09	05:52	06:47		07:42		07:41		15:52 (2)	08:36
	22:14	21:35	20:26		19:11		17:00	24	16:16 (2)	16:18
4	05:10	05:54	06:49		07:44		07:43		15:53 (2)	08:38
	22:13	21:33	20:24		19:09		16:59	24	16:17 (2)	16:17
5	05:11	05:55	06:51		07:45		07:45		15:52 (2)	08:39
	22:13	21:31	20:21		19:06		16:57	26	16:18 (2)	16:16
6	05:12	05:57	06:53		07:47		07:47		15:52 (2)	08:41
	22:12	21:29	20:19		19:04		16:55	26	16:18 (2)	16:16
7	05:13	05:59	06:55		07:49	17:55 (3)	07:49		15:52 (2)	08:42
	22:11	21:27	20:16		19:01	10 18:05 (3)	16:53	26	16:18 (2)	16:15
8	05:14	06:01	06:56		07:51	17:52 (3)	07:51		15:52 (2)	08:43
	22:11	21:25	20:14		18:59	16 18:08 (3)	16:51	26	16:18 (2)	16:15
9	05:15	06:02	06:58	19:03 (4)	07:53	17:50 (3)	07:53		15:52 (2)	08:45
	22:10	21:23	20:11	8 19:11 (4)	18:56	19 18:09 (3)	16:49	24	16:16 (2)	16:15
10	05:16	06:04	07:00	19:00 (4)	07:55	17:49 (3)	07:55		15:53 (2)	08:46
	22:09	21:21	20:09	14 19:14 (4)	18:54	21 18:10 (3)	16:47	22	16:15 (2)	16:14
11	05:17	06:06	07:02	18:57 (4)	07:57	17:48 (3)	07:57		15:54 (2)	08:47
	22:08	21:19	20:06	19 19:16 (4)	18:52	23 18:11 (3)	16:46	19	16:13 (2)	16:14
12	05:18	06:08	07:04	18:55 (4)	07:59	17:47 (3)	07:59		15:54 (2)	08:48
	22:07	21:17	20:04	21 19:16 (4)	18:49	24 18:11 (3)	16:44	17	16:11 (2)	16:14
13	05:20	06:09	07:05	18:54 (4)	08:00	17:46 (3)	08:01		15:55 (2)	08:49
	22:06	21:15	20:01	23 19:17 (4)	18:47	25 18:11 (3)	16:42	14	16:09 (2)	16:14
14	05:21	06:11	07:07	18:53 (4)	08:02	17:46 (3)	08:03		15:56 (2)	08:50
	22:05	21:12	19:59	25 19:18 (4)	18:44	25 18:11 (3)	16:41	11	16:07 (2)	16:14
15	05:22	06:13	07:09	18:52 (4)	08:04	17:45 (3)	08:05		15:57 (2)	08:51
	22:04	21:10	19:56	26 19:18 (4)	18:42	26 18:11 (3)	16:39	8	16:05 (2)	16:14
16	05:24	06:15	07:11	18:50 (4)	08:06	17:45 (3)	08:07		15:58 (2)	08:52
	22:03	21:08	19:54	28 19:18 (4)	18:40	25 18:10 (3)	16:37	5	16:03 (2)	16:14
17	05:25	06:17	07:13	18:50 (4)	08:08	17:46 (3)	08:09		15:59 (2)	08:53
	22:02	21:06	19:51	28 19:18 (4)	18:37	22 18:08 (3)	16:36	2	16:01 (2)	16:14
18	05:26	06:18	07:14	18:50 (4)	08:10	17:46 (3)	08:11			08:54
	22:00	21:04	19:49	27 19:17 (4)	18:35	19 18:05 (3)	16:34			16:14
19	05:28	06:20	07:16	18:50 (4)	08:12	17:47 (3)	08:12			08:54
	21:59	21:01	19:46	27 19:17 (4)	18:33	16 18:03 (3)	16:33			16:14
20	05:29	06:22	07:18	18:50 (4)	08:14	17:47 (3)	08:14			08:55
	21:58	20:59	19:44	26 19:16 (4)	18:31	14 18:01 (3)	16:31			16:15
21	05:31	06:24	07:20	18:49 (4)	08:16	17:49 (3)	08:16			08:56
	21:56	20:57	19:41	23 19:12 (4)	18:28	9 17:58 (3)	16:30			16:15
22	05:32	06:26	07:22	18:50 (4)	08:18	17:50 (3)	08:18			08:56
	21:55	20:55	19:39	20 19:10 (4)	18:26	6 17:56 (3)	16:29			16:16
23	05:34	06:27	07:23	18:51 (4)	08:20		08:20			08:57
	21:53	20:52	19:36	17 19:08 (4)	18:24		16:28			16:16
24	05:35	06:29	07:25	18:52 (4)	08:22		08:22			08:57
	21:52	20:50	19:34	13 19:05 (4)	18:22		16:26			16:17
25	05:37	06:31	07:27	18:54 (4)	07:24		08:23			08:58
	21:50	20:48	19:31	9 19:03 (4)	17:19		16:25			16:17
26	05:38	06:33	07:29	18:56 (4)	07:26		08:25			08:58
	21:49	20:45	19:29	4 19:00 (4)	17:17		16:24			16:18
27	05:40	06:35	07:31		07:27		08:27			08:58
	21:47	20:43	19:26		17:15		16:23			16:19
28	05:42	06:37	07:33		07:29		08:28			08:58
	21:46	20:40	19:24		17:13		16:22			16:20
29	05:43	06:38	07:34		07:31	16:00 (2)	08:30			08:58
	21:44	20:38	19:21		17:11	10 16:10 (2)	16:21			16:21
30	05:45	06:40	07:36		07:33	15:58 (2)	08:32			08:58
	21:42	20:36	19:19		17:09	14 16:12 (2)	16:20			16:22
31	05:47	06:42			07:35	15:56 (2)				08:58
	21:40	20:33			17:07	18 16:14 (2)				16:23
Potential sun hours	515	461	382		328		257			231
Total, worst case				358		342		317		
Sun reduction				0.29		0.23		0.20		
Oper. time red.				1.00		1.00		1.00		
Wind dir. red.				0.58		0.58		0.59		
Total reduction				0.17		0.14		0.12		
Total, real				61		47		37		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BE - H57

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April			May			June		
1	08:58		15:21 (9)	08:27		16:09 (10)	07:29	07:12			06:02			05:12		20:31 (12)
	16:24	22	15:43 (9)	17:16	29	16:38 (10)	18:13	20:12			21:09			22:00	18	20:49 (12)
2	08:58		15:21 (9)	08:25		16:09 (10)	07:26	07:10			06:00			05:11		20:32 (12)
	16:25	23	15:44 (9)	17:18	30	16:39 (10)	18:15	20:14			21:11			22:01	16	20:48 (12)
3	08:58		15:22 (9)	08:24		16:08 (10)	07:24	07:07			05:58			05:10		20:32 (12)
	16:26	23	15:45 (9)	17:20	32	16:40 (10)	18:17	20:16			21:13			22:02	15	20:47 (12)
4	08:58		15:21 (9)	08:22		16:08 (10)	07:22	07:05			05:56			05:09		20:34 (12)
	16:27	24	15:45 (9)	17:22	33	16:41 (10)	18:19	20:18			21:14			22:03	13	20:47 (12)
5	08:57		15:21 (9)	08:20		16:07 (10)	07:19	07:03			05:54		20:37 (12)	05:08		20:35 (12)
	16:29	25	15:46 (9)	17:24	34	16:41 (10)	18:21	20:20			21:16	4	20:41 (12)	22:05	11	20:46 (12)
6	08:57		15:22 (9)	08:18		16:07 (10)	07:17	07:00			05:52		20:33 (12)	05:07		20:36 (12)
	16:30	25	15:47 (9)	17:26	35	16:42 (10)	18:23	20:22			21:18	12	20:45 (12)	22:06	9	20:45 (12)
7	08:56		15:22 (9)	08:16		16:07 (10)	07:14	06:58			05:50		20:31 (12)	05:07		20:38 (12)
	16:31	25	15:47 (9)	17:28	35	16:42 (10)	18:25	20:24			21:20	16	20:47 (12)	22:07	9	21:31 (13)
8	08:56		15:22 (9)	08:14		16:07 (10)	07:12	06:55		19:49 (11)	05:48		20:29 (12)	05:06		21:26 (13)
	16:33	26	15:48 (9)	17:30	35	16:42 (10)	18:27	20:26	3	19:52 (11)	21:22	19	20:48 (12)	22:08	5	21:31 (13)
9	08:55		15:23 (9)	08:12		16:06 (10)	07:09	06:53		19:44 (11)	05:46		20:28 (12)	05:05		21:26 (13)
	16:34	26	15:49 (9)	17:32	35	16:41 (10)	18:28	20:27	13	19:57 (11)	21:23	21	20:49 (12)	22:09	7	21:33 (13)
10	08:55		15:23 (9)	08:10		16:07 (10)	07:07	06:50		19:42 (11)	05:44		20:27 (12)	05:05		21:25 (13)
	16:36	27	15:50 (9)	17:34	35	16:42 (10)	18:30	20:29	17	19:59 (11)	21:25	23	20:50 (12)	22:09	8	21:33 (13)
11	08:54		15:23 (9)	08:08		16:07 (10)	07:05	06:48		19:40 (11)	05:42		20:26 (12)	05:04		21:25 (13)
	16:37	27	15:50 (9)	17:36	35	16:42 (10)	18:32	20:31	20	20:00 (11)	21:27	25	20:51 (12)	22:10	9	21:34 (13)
12	08:53		15:23 (9)	08:06		16:07 (10)	07:02	06:45		19:38 (11)	05:40		20:25 (12)	05:04		21:25 (13)
	16:39	28	15:51 (9)	17:38	34	16:41 (10)	18:34	20:33	23	20:01 (11)	21:29	26	20:51 (12)	22:11	10	21:35 (13)
13	08:52		15:23 (9)	08:04		16:08 (10)	07:00	06:43		19:37 (11)	05:39		20:25 (12)	05:04		21:25 (13)
	16:40	28	15:51 (9)	17:40	33	16:41 (10)	18:36	20:35	24	20:01 (11)	21:31	26	20:51 (12)	22:12	11	21:36 (13)
14	08:51		15:24 (9)	08:02		16:09 (10)	06:57	06:41		19:36 (11)	05:37		20:25 (12)	05:03		21:24 (13)
	16:42	28	15:52 (9)	17:42	32	16:41 (10)	18:38	20:37	26	20:02 (11)	21:32	27	20:52 (12)	22:12	12	21:36 (13)
15	08:50		15:23 (9)	08:00		16:09 (10)	06:55	06:38		19:36 (11)	05:35		20:24 (12)	05:03		21:24 (13)
	16:44	29	15:52 (9)	17:45	30	16:39 (10)	18:40	20:39	27	20:03 (11)	21:34	28	20:52 (12)	22:13	12	21:36 (13)
16	08:49		15:24 (9)	07:58		16:10 (10)	06:52	06:36		19:35 (11)	05:33		20:25 (12)	05:03		21:24 (13)
	16:46	28	15:52 (9)	17:47	29	16:39 (10)	18:42	20:41	28	20:03 (11)	21:36	27	20:52 (12)	22:14	13	21:37 (13)
17	08:48		15:24 (9)	07:56		16:11 (10)	06:50	06:34		19:34 (11)	05:32		20:24 (12)	05:03		21:24 (13)
	16:47	29	15:53 (9)	17:49	27	16:38 (10)	18:44	20:43	28	20:02 (11)	21:37	28	20:52 (12)	22:14	13	21:37 (13)
18	08:47		15:25 (9)	07:54		16:13 (10)	06:47	06:31		19:34 (11)	05:30		20:24 (12)	05:03		21:24 (13)
	16:49	28	15:53 (9)	17:51	24	16:37 (10)	18:46	20:44	28	20:02 (11)	21:39	29	20:53 (12)	22:14	14	21:38 (13)
19	08:46		15:25 (9)	07:51		16:14 (10)	06:45	06:29		19:34 (11)	05:28		20:24 (12)	05:03		21:24 (13)
	16:51	28	15:53 (9)	17:53	20	16:34 (10)	18:48	20:46	28	20:02 (11)	21:41	28	20:52 (12)	22:15	14	21:38 (13)
20	08:45		15:26 (9)	07:49		16:17 (10)	06:42	06:27		19:34 (11)	05:27		20:24 (12)	05:03		21:24 (13)
	16:53	27	15:53 (9)	17:55	15	16:32 (10)	18:50	20:48	27	20:01 (11)	21:42	28	20:52 (12)	22:15	14	21:38 (13)
21	08:44		15:26 (9)	07:47		16:22 (10)	06:40	06:24		19:34 (11)	05:25		20:25 (12)	05:03		21:25 (13)
	16:54	27	15:53 (9)	17:57	6	16:28 (10)	18:52	20:50	26	20:00 (11)	21:44	28	20:53 (12)	22:15	14	21:39 (13)
22	08:42		15:27 (9)	07:45			06:37	06:22		19:35 (11)	05:24		20:24 (12)	05:03		21:25 (13)
	16:56	26	15:53 (9)	17:59			18:53	20:52	24	19:59 (11)	21:46	28	20:52 (12)	22:16	14	21:39 (13)
23	08:41		15:27 (9)	07:43			06:35	06:20		19:36 (11)	05:22		20:25 (12)	05:03		21:25 (13)
	16:58	26	15:53 (9)	18:01			18:55	20:54	23	19:59 (11)	21:47	27	20:52 (12)	22:16	14	21:39 (13)
24	08:40		15:28 (9)	07:40			06:32	06:17		19:37 (11)	05:21		20:26 (12)	05:04		21:25 (13)
	17:00	25	15:53 (9)	18:03			18:57	20:56	20	19:57 (11)	21:49	26	20:52 (12)	22:16	14	21:39 (13)
25	08:38		15:29 (9)	07:38			06:30	06:15		19:38 (11)	05:20		20:26 (12)	05:04		21:26 (13)
	17:02	23	15:52 (9)	18:05			18:59	20:58	18	19:56 (11)	21:50	26	20:52 (12)	22:16	13	21:39 (13)
26	08:37		15:30 (9)	07:36			06:27	06:13		19:39 (11)	05:18		20:27 (12)	05:05		21:26 (13)
	17:04	33	16:27 (10)	18:07			19:01	20:59	14	19:53 (11)	21:52	25	20:52 (12)	22:16	13	21:39 (13)
27	08:35		15:32 (9)	07:33			06:25	06:11		19:42 (11)	05:17		20:28 (12)	05:05		21:27 (13)
	17:06	37	16:31 (10)	18:09			19:03	21:01	8	19:50 (11)	21:53	23	20:51 (12)	22:16	12	21:39 (13)
28	08:34		15:33 (9)	07:31			06:22	06:09			05:16		20:28 (12)	05:06		21:27 (13)
	17:08	37	16:33 (10)	18:11			19:05	21:03			21:55	23	20:51 (12)	22:16	12	21:39 (13)
29	08:32		15:35 (9)				07:20	06:06			05:15		20:29 (12)	05:06		21:28 (13)
	17:10	36	16:34 (10)				20:07	21:05			21:56	22	20:51 (12)	22:15	11	21:39 (13)
30	08:31		15:38 (9)				07:17	06:04			05:14		20:29 (12)	05:07		21:28 (13)
	17:12	33	16:35 (10)				20:09	21:07			21:57	21	20:50 (12)	22:15	10	21:38 (13)
31	08:29		16:09 (10)				07:15				05:13		20:30 (12)			
	17:14	27	16:36 (10)				20:10				21:59	20	20:50 (12)			
Potential sun hours	248			272			367	421			496			513		
Total, worst case		856			618				425			636			360	
Sun reduction		0.17			0.22				0.34			0.36			0.26	
Oper. time red.		1.00			1.00				1.00			1.00			1.00	
Wind dir. red.		0.62			0.59				0.59			0.62			0.64	
Total reduction		0.11			0.13				0.20			0.23			0.16	
Total, real		91			82				86			143			59	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BE - H57

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December		
1	05:07		21:29 (13)	05:48		20:36 (12)	06:44		19:38 (11)	07:38			07:37		15:36 (10)	08:33		15:05 (9)
	22:15	9	21:38 (13)	21:39	25	21:01 (12)	20:31	21	19:59 (11)	19:16			17:04	35	16:11 (10)	16:19	27	15:32 (9)
2	05:08		21:30 (13)	05:50		20:37 (12)	06:45		19:40 (11)	07:40			07:39		15:36 (10)	08:35		15:05 (9)
	22:14	8	21:38 (13)	21:37	24	21:01 (12)	20:28	17	19:57 (11)	19:14			17:02	35	16:11 (10)	16:18	27	15:32 (9)
3	05:09		21:31 (13)	05:52		20:37 (12)	06:47		19:42 (11)	07:42			07:41		15:36 (10)	08:36		15:06 (9)
	22:14	7	21:38 (13)	21:35	22	20:59 (12)	20:26	13	19:55 (11)	19:11			17:00	35	16:11 (10)	16:18	26	15:32 (9)
4	05:10		21:31 (13)	05:53		20:38 (12)	06:49		19:46 (11)	07:44			07:43		15:37 (10)	08:38		15:07 (9)
	22:13	6	21:37 (13)	21:33	21	20:59 (12)	20:24	3	19:49 (11)	19:09			16:58	35	16:12 (10)	16:17	26	15:33 (9)
5	05:11		20:44 (12)	05:55		20:40 (12)	06:51			07:45			07:45		15:37 (10)	08:39		15:07 (9)
	22:13	10	21:37 (13)	21:31	18	20:58 (12)	20:21			19:06			16:56	34	16:11 (10)	16:16	25	15:32 (9)
6	05:12		20:43 (12)	05:57		20:41 (12)	06:53			07:47			07:47		15:37 (10)	08:41		15:08 (9)
	22:12	8	20:51 (12)	21:29	14	20:55 (12)	20:19			19:04			16:55	34	16:11 (10)	16:16	25	15:33 (9)
7	05:13		20:42 (12)	05:59		20:43 (12)	06:54			07:49			07:49		15:37 (10)	08:42		15:08 (9)
	22:12	10	20:52 (12)	21:27	10	20:53 (12)	20:16			19:01			16:53	33	16:10 (10)	16:15	25	15:33 (9)
8	05:14		20:41 (12)	06:00			06:56			07:51			07:51		15:38 (10)	08:43		15:09 (9)
	22:11	12	20:53 (12)	21:25			20:14			18:59			16:51	32	16:10 (10)	16:15	24	15:33 (9)
9	05:15		20:40 (12)	06:02			06:58			07:53			07:53		15:38 (10)	08:45		15:10 (9)
	22:10	14	20:54 (12)	21:23			20:11			18:56			16:49	31	16:09 (10)	16:14	23	15:33 (9)
10	05:16		20:39 (12)	06:04			07:00			07:55			07:55		15:40 (10)	08:46		15:10 (9)
	22:09	16	20:55 (12)	21:21			20:09			18:54			16:47	29	16:09 (10)	16:14	23	15:33 (9)
11	05:17		20:39 (12)	06:06			07:02			07:57			07:57		15:41 (10)	08:47		15:11 (9)
	22:08	17	20:56 (12)	21:19			20:06			18:52			16:45	27	16:08 (10)	16:14	22	15:33 (9)
12	05:18		20:38 (12)	06:08			07:04			07:59			07:59		15:10 (9)	08:48		15:12 (9)
	22:07	19	20:57 (12)	21:17			20:04			18:49			16:44	33	16:07 (10)	16:14	22	15:34 (9)
13	05:19		20:37 (12)	06:09			07:05			08:00			08:01		15:07 (9)	08:49		15:13 (9)
	22:06	20	20:57 (12)	21:15			20:01			18:47			16:42	36	16:06 (10)	16:14	21	15:34 (9)
14	05:21		20:38 (12)	06:11			07:07			08:02			08:03		15:05 (9)	08:50		15:13 (9)
	22:05	21	20:59 (12)	21:13			19:59			18:44			16:40	36	16:04 (10)	16:13	21	15:34 (9)
15	05:22		20:37 (12)	06:13			07:09			08:04			08:05		15:04 (9)	08:51		15:14 (9)
	22:04	22	20:59 (12)	21:10			19:56			18:42			16:39	36	16:03 (10)	16:13	20	15:34 (9)
16	05:23		20:36 (12)	06:15		19:49 (11)	07:11			08:06			08:07		15:03 (9)	08:52		15:15 (9)
	22:03	24	21:00 (12)	21:08	10	19:59 (11)	19:54			18:40			16:37	33	16:00 (10)	16:14	20	15:35 (9)
17	05:25		20:36 (12)	06:17		19:46 (11)	07:13			08:08			08:09		15:03 (9)	08:53		15:16 (9)
	22:02	24	21:00 (12)	21:06	15	20:01 (11)	19:51			18:37			16:36	23	15:26 (9)	16:14	19	15:35 (9)
18	05:26		20:36 (12)	06:18		19:44 (11)	07:14			08:10			08:11		15:02 (9)	08:54		15:16 (9)
	22:01	25	21:01 (12)	21:04	18	20:02 (11)	19:49			18:35			16:34	25	15:27 (9)	16:14	19	15:35 (9)
19	05:28		20:35 (12)	06:20		19:42 (11)	07:16			08:12			08:12		15:02 (9)	08:55		15:16 (9)
	21:59	26	21:01 (12)	21:01	21	20:03 (11)	19:46			18:33			16:33	26	15:28 (9)	16:14	19	15:35 (9)
20	05:29		20:35 (12)	06:22		19:41 (11)	07:18			08:14			08:14		15:02 (9)	08:55		15:17 (9)
	21:58	26	21:01 (12)	20:59	23	20:04 (11)	19:44			18:30			16:31	26	15:28 (9)	16:15	19	15:36 (9)
21	05:30		20:35 (12)	06:24		19:39 (11)	07:20			08:16		16:50 (10)	08:16		15:02 (9)	08:56		15:17 (9)
	21:57	27	21:02 (12)	20:57	25	20:04 (11)	19:41			18:28	10	17:00 (10)	16:30	27	15:29 (9)	16:15	19	15:36 (9)
22	05:32		20:35 (12)	06:26		19:39 (11)	07:22			08:18		16:47 (10)	08:18		15:02 (9)	08:56		15:18 (9)
	21:55	27	21:02 (12)	20:55	26	20:05 (11)	19:39			18:26	16	17:03 (10)	16:29	28	15:30 (9)	16:15	19	15:37 (9)
23	05:34		20:35 (12)	06:27		19:38 (11)	07:23			08:20		16:44 (10)	08:20		15:02 (9)	08:57		15:18 (9)
	21:54	28	21:03 (12)	20:52	27	20:05 (11)	19:36			18:24	21	17:05 (10)	16:27	28	15:30 (9)	16:16	19	15:37 (9)
24	05:35		20:35 (12)	06:29		19:38 (11)	07:25			08:22		16:42 (10)	08:22		15:02 (9)	08:57		15:18 (9)
	21:52	28	21:03 (12)	20:50	28	20:06 (11)	19:34			18:21	25	17:07 (10)	16:26	28	15:30 (9)	16:17	19	15:37 (9)
25	05:37		20:34 (12)	06:31		19:37 (11)	07:27			07:24		15:40 (10)	08:23		15:02 (9)	08:58		15:20 (9)
	21:51	28	21:02 (12)	20:48	28	20:05 (11)	19:31			17:19	28	16:08 (10)	16:25	29	15:31 (9)	16:17	18	15:38 (9)
26	05:38		20:35 (12)	06:33		19:37 (11)	07:29			07:26		15:39 (10)	08:25		15:03 (9)	08:58		15:20 (9)
	21:49	28	21:03 (12)	20:45	28	20:05 (11)	19:29			17:17	29	16:08 (10)	16:24	28	15:31 (9)	16:18	19	15:39 (9)
27	05:40		20:34 (12)	06:35		19:37 (11)	07:31			07:28		15:38 (10)	08:27		15:03 (9)	08:58		15:20 (9)
	21:47	28	21:02 (12)	20:43	28	20:05 (11)	19:26			17:15	31	16:09 (10)	16:23	29	15:32 (9)	16:19	19	15:39 (9)
28	05:42		20:35 (12)	06:36		19:36 (11)	07:32			07:29		15:38 (10)	08:29		15:03 (9)	08:58		15:20 (9)
	21:46	28	21:03 (12)	20:40	27	20:03 (11)	19:24			17:13	33	16:11 (10)	16:22	28	15:31 (9)	16:19	20	15:40 (9)
29	05:43		20:35 (12)	06:38		19:37 (11)	07:34			07:31		15:37 (10)	08:30		15:03 (9)	08:58		15:20 (9)
	21:44	27	21:02 (12)	20:38	26	20:03 (11)	19:21			17:11	34	16:11 (10)	16:21	29	15:32 (9)	16:20	21	15:41 (9)
30	05:45		20:35 (12)	06:40		19:38 (11)	07:36			07:33		15:37 (10)	08:32		15:04 (9)	08:58		15:21 (9)
	21:42	27	21:02 (12)	20:36	24	20:02 (11)	19:19			17:09	34	16:11 (10)	16:20	28	15:32 (9)	16:21	21	15:42 (9)
31	05:47		20:36 (12)	06:42		19:38 (11)				07:35		15:36 (10)				08:58		15:21 (9)
	21:40	26	21:02 (12)	20:33	23	20:01 (11)				17:06	35	16:11 (10)				16:22	22	15:43 (9)
Potential sun hours	515			461			382			328			257			231		
Total, worst case		626			511			54			296			916			669	
Sun reduction		0.27			0.27			0.29			0.23			0.20			0.12	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.62			0.60			0.59			0.59			0.61			0.63	
Total reduction		0.17			0.16			0.17			0.14			0.12			0.08	
Total, real		104			84			9			41			112			50	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BF - H58

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June
1	08:58	08:27	07:29		07:12		18:30 (18)	06:02	19:31 (17)	05:11
	16:24	17:16	18:13		20:12	20	18:50 (18)	21:09	24	19:55 (17)	22:00
2	08:58	08:25	07:26		07:10		18:33 (18)	06:00	19:32 (17)	05:10
	16:25	17:18	18:15		20:14	15	18:48 (18)	21:11	22	19:54 (17)	22:01
3	08:58	08:24	07:24		07:07		18:36 (18)	05:58	19:33 (17)	05:10
	16:26	17:20	18:17		20:16	6	18:42 (18)	21:12	19	19:52 (17)	22:02
4	08:58	08:22	07:21		07:05			05:56	19:35 (17)	05:09
	16:27	17:22	18:19		20:18			21:14	15	19:50 (17)	22:03
5	08:57	08:20	07:19		07:02			05:54	19:38 (17)	05:08
	16:28	17:24	18:21		20:20			21:16	9	19:47 (17)	22:05
6	08:57	08:18	07:17		07:00			05:52		05:07
	16:30	17:26	18:23		20:22			21:18		22:06
7	08:56	08:16	07:14		06:58			05:50		05:06
	16:31	17:28	18:24		20:24			21:20		22:07
8	08:56	08:14	07:12		06:55			05:48		05:06
	16:33	17:30	18:26		20:25			21:22		22:08
9	08:55	08:12	07:09		06:53			05:46		05:05
	16:34	17:32	18:28		20:27			21:23		22:09
10	08:55	08:10	07:07		06:50			05:44		05:05
	16:36	17:34	18:30		20:29			21:25		22:09
11	08:54	08:08	07:05		06:48			05:42		05:04
	16:37	17:36	18:32		20:31			21:27		22:10
12	08:53	08:06	07:02		06:45		19:44 (17)	05:40		05:04
	16:39	17:38	18:34		20:33	6	19:50 (17)	21:29		22:11
13	08:52	08:04	07:00	17:43 (18)	06:43		19:39 (17)	05:38		05:04
	16:40	17:40	18:36	6	17:49 (18)	20:35	14	19:53 (17)	21:31		22:12
14	08:51	08:02	06:57	17:37 (18)	06:41		19:37 (17)	05:37		05:03
	16:42	17:42	18:38	15	17:52 (18)	20:37	19	19:56 (17)	21:32		22:12
15	08:50	08:00	06:55	17:35 (18)	06:38		19:35 (17)	05:35		05:03
	16:44	17:44	18:40	20	17:55 (18)	20:39	23	19:58 (17)	21:34		22:13
16	08:49	07:58	06:52	17:32 (18)	06:36		19:33 (17)	05:33		05:03
	16:45	17:46	18:42	24	17:56 (18)	20:41	25	19:58 (17)	21:36		22:14
17	08:48	07:56	06:50	17:31 (18)	06:33		19:32 (17)	05:32		05:03
	16:47	17:49	18:44	27	17:58 (18)	20:42	27	19:59 (17)	21:37		22:14
18	08:47	07:54	06:47	17:29 (18)	06:31		19:31 (17)	05:30		05:03
	16:49	17:51	18:46	29	17:58 (18)	20:44	29	20:00 (17)	21:39		22:15
19	08:46	07:51	06:45	17:29 (18)	06:29		19:31 (17)	05:28		05:03
	16:51	17:53	18:48	30	17:59 (18)	20:46	30	20:01 (17)	21:41		22:15
20	08:45	07:49	06:42	17:27 (18)	06:26		19:29 (17)	05:27		05:03
	16:53	17:55	18:50	32	17:59 (18)	20:48	31	20:00 (17)	21:42		22:15
21	08:44	07:47	06:40	17:27 (18)	06:24		19:29 (17)	05:25		05:03
	16:54	17:57	18:51	33	18:00 (18)	20:50	31	20:00 (17)	21:44		22:15
22	08:42	07:45	06:37	17:26 (18)	06:22		19:29 (17)	05:24		05:03
	16:56	17:59	18:53	33	17:59 (18)	20:52	31	20:00 (17)	21:46		22:16
23	08:41	07:42	06:35	17:26 (18)	06:20		19:28 (17)	05:22		05:03
	16:58	18:01	18:55	34	18:00 (18)	20:54	33	20:01 (17)	21:47		22:16
24	08:40	07:40	06:32	17:25 (18)	06:17		19:28 (17)	05:21		05:04
	17:00	18:03	18:57	34	17:59 (18)	20:56	32	20:00 (17)	21:49		22:16
25	08:38	07:38	06:30	17:26 (18)	06:15		19:28 (17)	05:20		05:04
	17:02	18:05	18:59	33	17:59 (18)	20:58	31	19:59 (17)	21:50		22:16
26	08:37	07:36	06:27	17:25 (18)	06:13		19:28 (17)	05:18		05:04
	17:04	18:07	19:01	33	17:58 (18)	20:59	31	19:59 (17)	21:52		22:16
27	08:35	07:33	06:25	17:26 (18)	06:11		19:28 (17)	05:17		05:05
	17:06	18:09	19:03	32	17:58 (18)	21:01	30	19:58 (17)	21:53		22:16
28	08:34	07:31	06:22	17:26 (18)	06:08		19:29 (17)	05:16		05:05
	17:08	18:11	19:05	30	17:56 (18)	21:03	29	19:58 (17)	21:55		22:16
29	08:32		07:20	18:27 (18)	06:06		19:29 (17)	05:15		05:06
	17:10		20:07	28	18:55 (18)	21:05	28	19:57 (17)	21:56		22:15
30	08:31		07:17	18:27 (18)	06:04		19:30 (17)	05:14		05:07
	17:12		20:08	26	18:53 (18)	21:07	26	19:56 (17)	21:57		22:15
31	08:29		07:15	18:29 (18)				05:12		
	17:14		20:10	23	18:52 (18)			21:59		
Potential sun hours	248	272	367		421			496		513
Total, worst case				522		547			89	
Sun reduction				0.22		0.34			0.36	
Oper. time red.				1.00		1.00			1.00	
Wind dir. red.				0.57		0.59			0.59	
Total reduction				0.13		0.20			0.21	
Total, real				66		110			19	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BF - H58

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October	November	December
1	05:07	05:48		06:44		07:38	07:37	08:33
	22:15	21:39		20:31		19:16	17:04	16:19
2	05:08	05:50		06:45		07:40	07:39	08:35
	22:14	21:37		20:28		19:14	17:02	16:18
3	05:09	05:52		06:47		07:42	07:41	08:36
	22:14	21:35		20:26		19:11	17:00	16:17
4	05:10	05:53		06:49		07:43	07:43	08:38
	22:13	21:33		20:23		19:09	16:58	16:17
5	05:11	05:55		06:51		07:45	07:45	08:39
	22:13	21:31		20:21		19:06	16:56	16:16
6	05:12	05:57		06:53		07:47	07:47	08:41
	22:12	21:29		20:19		19:04	16:54	16:16
7	05:12	05:59		06:54		07:49	07:49	08:42
	22:12	21:27		20:16		19:01	16:53	16:15
8	05:14	06:00	19:46 (17)	06:56		07:51	07:51	08:43
	22:11	21:25	12 19:58 (17)	20:14		18:59	16:51	16:15
9	05:15	06:02	19:44 (17)	06:58	18:32 (18)	07:53	07:53	08:45
	22:10	21:23	16 20:00 (17)	20:11	3 18:35 (18)	18:56	16:49	16:14
10	05:16	06:04	19:42 (17)	07:00	18:26 (18)	07:55	07:55	08:46
	22:09	21:21	20 20:02 (17)	20:09	14 18:40 (18)	18:54	16:47	16:14
11	05:17	06:06	19:40 (17)	07:02	18:23 (18)	07:57	07:57	08:47
	22:08	21:19	23 20:03 (17)	20:06	20 18:43 (18)	18:51	16:45	16:14
12	05:18	06:07	19:39 (17)	07:03	18:20 (18)	07:58	07:59	08:48
	22:07	21:17	25 20:04 (17)	20:04	23 18:43 (18)	18:49	16:44	16:14
13	05:19	06:09	19:38 (17)	07:05	18:19 (18)	08:00	08:01	08:49
	22:06	21:15	27 20:05 (17)	20:01	26 18:45 (18)	18:47	16:42	16:13
14	05:21	06:11	19:37 (17)	07:07	18:17 (18)	08:02	08:03	08:50
	22:05	21:12	28 20:05 (17)	19:59	29 18:46 (18)	18:44	16:40	16:13
15	05:22	06:13	19:36 (17)	07:09	18:16 (18)	08:04	08:05	08:51
	22:04	21:10	29 20:05 (17)	19:56	30 18:46 (18)	18:42	16:39	16:13
16	05:23	06:15	19:36 (17)	07:11	18:14 (18)	08:06	08:07	08:52
	22:03	21:08	30 20:06 (17)	19:54	32 18:46 (18)	18:40	16:37	16:13
17	05:25	06:16	19:35 (17)	07:12	18:14 (18)	08:08	08:09	08:53
	22:02	21:06	32 20:07 (17)	19:51	32 18:46 (18)	18:37	16:36	16:14
18	05:26	06:18	19:34 (17)	07:14	18:13 (18)	08:10	08:11	08:54
	22:01	21:04	32 20:06 (17)	19:49	33 18:46 (18)	18:35	16:34	16:14
19	05:27	06:20	19:34 (17)	07:16	18:13 (18)	08:12	08:12	08:55
	21:59	21:01	32 20:06 (17)	19:46	33 18:46 (18)	18:33	16:33	16:14
20	05:29	06:22	19:34 (17)	07:18	18:12 (18)	08:14	08:14	08:55
	21:58	20:59	32 20:06 (17)	19:44	33 18:45 (18)	18:30	16:31	16:14
21	05:30	06:24	19:33 (17)	07:20	18:12 (18)	08:16	08:16	08:56
	21:57	20:57	32 20:05 (17)	19:41	33 18:45 (18)	18:28	16:30	16:15
22	05:32	06:25	19:33 (17)	07:21	18:12 (18)	08:18	08:18	08:56
	21:55	20:55	32 20:05 (17)	19:39	33 18:45 (18)	18:26	16:29	16:15
23	05:33	06:27	19:34 (17)	07:23	18:12 (18)	08:20	08:20	08:57
	21:54	20:52	31 20:05 (17)	19:36	32 18:44 (18)	18:24	16:27	16:16
24	05:35	06:29	19:33 (17)	07:25	18:12 (18)	08:22	08:22	08:57
	21:52	20:50	30 20:03 (17)	19:33	31 18:43 (18)	18:21	16:26	16:16
25	05:37	06:31	19:34 (17)	07:27	18:12 (18)	07:24	08:23	08:58
	21:51	20:48	29 20:03 (17)	19:31	29 18:41 (18)	17:19	16:25	16:17
26	05:38	06:33	19:35 (17)	07:29	18:13 (18)	07:26	08:25	08:58
	21:49	20:45	27 20:02 (17)	19:28	27 18:40 (18)	17:17	16:24	16:18
27	05:40	06:35	19:36 (17)	07:31	18:14 (18)	07:27	08:27	08:58
	21:47	20:43	25 20:01 (17)	19:26	25 18:39 (18)	17:15	16:23	16:19
28	05:41	06:36	19:36 (17)	07:32	18:15 (18)	07:29	08:28	08:58
	21:46	20:40	22 19:58 (17)	19:23	22 18:37 (18)	17:13	16:22	16:19
29	05:43	06:38	19:38 (17)	07:34	18:17 (18)	07:31	08:30	08:58
	21:44	20:38	18 19:56 (17)	19:21	17 18:34 (18)	17:11	16:21	16:20
30	05:45	06:40	19:40 (17)	07:36	18:20 (18)	07:33	08:32	08:58
	21:42	20:36	14 19:54 (17)	19:18	11 18:31 (18)	17:08	16:20	16:21
31	05:46	06:42	19:44 (17)			07:35		08:58
	21:40	20:33	4 19:48 (17)			17:06		16:22
Potential sun hours	515	461		383		327	257	230
Total, worst case			602		568			
Sun reduction			0.27		0.29			
Oper. time red.			1.00		1.00			
Wind dir. red.			0.59		0.57			
Total reduction			0.16		0.17			
Total, real			97		94			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BG - H59

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April			May			June		
1	08:59			08:27		08:56 (5)	07:29	07:13			06:02		07:00 (7)	05:12		05:45 (8)
	16:24			17:16	5	09:01 (5)	18:13	20:13			21:09	32	07:32 (7)	22:00	27	06:12 (8)
2	08:58			08:26		08:54 (5)	07:26	07:10			06:00		07:00 (7)	05:11		05:45 (8)
	16:25			17:18	7	09:01 (5)	18:15	20:14			21:11	31	07:31 (7)	22:01	27	06:12 (8)
3	08:58			08:24		08:52 (5)	07:24	07:08			05:58		07:01 (7)	05:10		05:46 (8)
	16:26			17:20	9	09:01 (5)	18:17	20:16			21:13	31	07:32 (7)	22:02	27	06:13 (8)
4	08:58			08:22		08:50 (5)	07:22	07:05			05:56		07:02 (7)	05:09		05:45 (8)
	16:28			17:22	11	09:01 (5)	18:19	20:18			21:15	29	07:31 (7)	22:04	28	06:13 (8)
5	08:58			08:20		08:48 (5)	07:19	07:03			05:54		07:02 (7)	05:08		05:45 (8)
	16:29			17:24	13	09:01 (5)	18:21	20:20			21:16	28	07:30 (7)	22:05	28	06:13 (8)
6	08:57			08:18		08:46 (5)	07:17	07:00			05:52		07:03 (7)	05:08		05:46 (8)
	16:30			17:26	14	09:00 (5)	18:23	20:22			21:18	25	07:28 (7)	22:06	28	06:14 (8)
7	08:57			08:16		08:47 (5)	07:14	06:58			05:50		07:04 (7)	05:07		05:45 (8)
	16:32			17:28	13	09:00 (5)	18:25	20:24			21:20	23	07:27 (7)	22:07	29	06:14 (8)
8	08:56			08:14		08:49 (5)	07:12	06:55			05:48		07:05 (7)	05:06		05:46 (8)
	16:33			17:30	9	08:58 (5)	18:27	20:26			21:22	20	07:25 (7)	22:08	29	06:15 (8)
9	08:55			08:13		08:51 (5)	07:10	06:53			05:46		07:06 (7)	05:06		05:46 (8)
	16:34			17:32	5	08:56 (5)	18:29	20:28			21:24	17	07:23 (7)	22:09	28	06:14 (8)
10	08:55			08:11			07:07	06:51			05:44		07:09 (7)	05:05		05:46 (8)
	16:36			17:35			18:31	20:29			21:25	12	07:21 (7)	22:10	29	06:15 (8)
11	08:54			08:09			07:05	06:48			05:42			05:05		05:46 (8)
	16:37			17:37			18:33	20:31			21:27			22:10	29	06:15 (8)
12	08:53			08:07			07:02	06:46			05:41			05:04		05:46 (8)
	16:39			17:39			18:34	20:33			21:29			22:11	29	06:15 (8)
13	08:52			08:04			07:00	06:43			05:39			05:04		05:47 (8)
	16:41			17:41			18:36	20:35			21:31			22:12	29	06:16 (8)
14	08:52			08:02			06:57	06:41			05:37			05:04		05:47 (8)
	16:42			17:43			18:38	20:37			21:32			22:13	29	06:16 (8)
15	08:51		09:23 (6)	08:00			06:55	06:39		07:15 (7)	05:35			05:03		05:47 (8)
	16:44	1	09:24 (6)	17:45			18:40	20:39	10	07:25 (7)	21:34			22:13	29	06:16 (8)
16	08:50		09:21 (6)	07:58			06:52	06:36		07:11 (7)	05:34			05:03		05:47 (8)
	16:46	3	09:24 (6)	17:47			18:42	20:41	17	07:28 (7)	21:36			22:14	29	06:16 (8)
17	08:49		09:20 (6)	07:56			06:50	06:34		07:08 (7)	05:32			05:03		05:47 (8)
	16:47	5	09:25 (6)	17:49			18:44	20:43	21	07:29 (7)	21:38			22:14	29	06:16 (8)
18	08:48		09:19 (6)	07:54			06:47	06:31		07:07 (7)	05:30			05:03		05:47 (8)
	16:49	7	09:26 (6)	17:51			18:46	20:45	24	07:31 (7)	21:39			22:15	29	06:16 (8)
19	08:46		09:17 (6)	07:52			06:45	06:29		07:05 (7)	05:29			05:03		05:48 (8)
	16:51	9	09:26 (6)	17:53			18:48	20:46	27	07:32 (7)	21:41			22:15	29	06:17 (8)
20	08:45		09:16 (6)	07:49			06:43	06:27		07:04 (7)	05:27		05:56 (8)	05:03		05:48 (8)
	16:53	11	09:27 (6)	17:55			18:50	20:48	29	07:33 (7)	21:43	4	06:00 (8)	22:15	29	06:17 (8)
21	08:44		09:14 (6)	07:47			06:40	06:24		07:02 (7)	05:26		05:55 (8)	05:03		05:48 (8)
	16:55	12	09:26 (6)	17:57			18:52	20:50	31	07:33 (7)	21:44	8	06:03 (8)	22:16	29	06:17 (8)
22	08:43		09:13 (6)	07:45			06:38	06:22		07:02 (7)	05:24		05:54 (8)	05:03		05:48 (8)
	16:57	14	09:27 (6)	17:59			18:54	20:52	32	07:34 (7)	21:46	11	06:05 (8)	22:16	29	06:17 (8)
23	08:41		09:11 (6)	07:43			06:35	06:20		07:01 (7)	05:23		05:52 (8)	05:04		05:48 (8)
	16:58	16	09:27 (6)	18:01			18:56	20:54	33	07:34 (7)	21:47	14	06:06 (8)	22:16	29	06:17 (8)
24	08:40		09:10 (6)	07:40			06:33	06:18		07:01 (7)	05:21		05:51 (8)	05:04		05:49 (8)
	17:00	18	09:28 (6)	18:03			18:57	20:56	33	07:34 (7)	21:49	16	06:07 (8)	22:16	29	06:18 (8)
25	08:38		09:10 (6)	07:38			06:30	06:15		07:01 (7)	05:20		05:50 (8)	05:04		05:49 (8)
	17:02	17	09:27 (6)	18:05			18:59	20:58	34	07:35 (7)	21:50	18	06:08 (8)	22:16	29	06:18 (8)
26	08:37		09:11 (6)	07:36			06:28	06:13		07:00 (7)	05:19		05:49 (8)	05:05		05:50 (8)
	17:04	16	09:27 (6)	18:07			19:01	21:00	35	07:35 (7)	21:52	20	06:09 (8)	22:16	29	06:19 (8)
27	08:35		09:12 (6)	07:33			06:25	06:11		07:00 (7)	05:17		05:48 (8)	05:05		05:49 (8)
	17:06	15	09:27 (6)	18:09			19:03	21:02	35	07:35 (7)	21:53	22	06:10 (8)	22:16	29	06:18 (8)
28	08:34		09:13 (6)	07:31			06:23	06:09		07:00 (7)	05:16		05:47 (8)	05:06		05:50 (8)
	17:08	13	09:26 (6)	18:11			19:05	21:03	34	07:34 (7)	21:55	24	06:11 (8)	22:16	29	06:19 (8)
29	08:32		09:15 (6)				07:20	06:07		06:59 (7)	05:15		05:46 (8)	05:06		05:50 (8)
	17:10	9	09:24 (6)				20:07	21:05	34	07:33 (7)	21:56	25	06:11 (8)	22:16	29	06:19 (8)
30	08:31		09:18 (6)				07:18	06:04		06:59 (7)	05:14		05:46 (8)	05:07		05:50 (8)
	17:12	3	09:21 (6)				20:09	21:07	34	07:33 (7)	21:57	26	06:12 (8)	22:15	29	06:19 (8)
31	08:29		08:58 (5)				07:15				05:13		05:45 (8)			
	17:14	2	09:00 (5)				20:11				21:59	27	06:12 (8)			
Potential sun hours	248			272			367	421			496			513		
Total, worst case		171			86				463			463			860	
Sun reduction		0.17			0.22				0.34			0.36			0.26	
Oper. time red.		1.00			1.00				1.00			1.00			1.00	
Wind dir. red.		0.65			0.63				0.57			0.57			0.58	
Total reduction		0.11			0.14				0.19			0.21			0.15	
Total, real		19			12				90			96			128	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BG - H59

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November			December
1	05:08		05:50 (8)	05:48			06:44	07:38	07:38			08:34
	22:15	29	06:19 (8)	21:39			20:31	19:16	17:05			16:19
2	05:08		05:50 (8)	05:50		07:22 (7)	06:46	07:40	07:40		08:20 (5)	08:35
	22:15	29	06:19 (8)	21:37	7	07:29 (7)	20:29	19:14	17:03	6	08:26 (5)	16:19
3	05:09		05:51 (8)	05:52		07:19 (7)	06:47	07:42	07:42		08:18 (5)	08:37
	22:14	29	06:20 (8)	21:35	14	07:33 (7)	20:26	19:11	17:01	10	08:28 (5)	16:18
4	05:10		05:51 (8)	05:54		07:16 (7)	06:49	07:44	07:44		08:17 (5)	08:38
	22:14	29	06:20 (8)	21:33	18	07:34 (7)	20:24	19:09	16:59	12	08:29 (5)	16:17
5	05:11		05:52 (8)	05:55		07:15 (7)	06:51	07:46	07:45		08:16 (5)	08:40
	22:13	28	06:20 (8)	21:31	21	07:36 (7)	20:21	19:06	16:57	14	08:30 (5)	16:17
6	05:12		05:51 (8)	05:57		07:13 (7)	06:53	07:47	07:47		08:18 (5)	08:41
	22:12	29	06:20 (8)	21:29	24	07:37 (7)	20:19	19:04	16:55	13	08:31 (5)	16:16
7	05:13		05:51 (8)	05:59		07:12 (7)	06:55	07:49	07:49		08:20 (5)	08:42
	22:12	29	06:20 (8)	21:27	26	07:38 (7)	20:16	19:01	16:53	11	08:31 (5)	16:15
8	05:14		05:52 (8)	06:01		07:12 (7)	06:57	07:51	07:51		08:22 (5)	08:44
	22:11	28	06:20 (8)	21:25	27	07:39 (7)	20:14	18:59	16:51	9	08:31 (5)	16:15
9	05:15		05:52 (8)	06:02		07:10 (7)	06:58	07:53	07:53		08:25 (5)	08:45
	22:10	28	06:20 (8)	21:23	29	07:39 (7)	20:11	18:57	16:49	7	08:32 (5)	16:15
10	05:16		05:52 (8)	06:04		07:10 (7)	07:00	07:55	07:55		08:27 (5)	08:46
	22:09	28	06:20 (8)	21:21	30	07:40 (7)	20:09	18:54	16:47	4	08:31 (5)	16:14
11	05:17		05:52 (8)	06:06		07:09 (7)	07:02	07:57	07:57		08:29 (5)	08:47
	22:08	28	06:20 (8)	21:19	32	07:41 (7)	20:06	18:52	16:46	2	08:31 (5)	16:14
12	05:18		05:54 (8)	06:08		07:08 (7)	07:04	07:59	07:59		08:49 (6)	08:48
	22:08	26	06:20 (8)	21:17	33	07:41 (7)	20:04	18:49	16:44	4	08:53 (6)	16:14
13	05:20		05:54 (8)	06:10		07:08 (7)	07:06	08:01	08:01		08:46 (6)	08:49
	22:07	26	06:20 (8)	21:15	33	07:41 (7)	20:01	18:47	16:42	10	08:56 (6)	16:14
14	05:21		05:54 (8)	06:11		07:08 (7)	07:07	08:03	08:03		08:45 (6)	08:50
	22:05	26	06:20 (8)	21:13	34	07:42 (7)	19:59	18:45	16:41	12	08:57 (6)	16:14
15	05:22		05:55 (8)	06:13		07:07 (7)	07:09	08:04	08:05		08:45 (6)	08:51
	22:04	24	06:19 (8)	21:11	34	07:41 (7)	19:56	18:42	16:39	15	09:00 (6)	16:14
16	05:24		05:56 (8)	06:15		07:07 (7)	07:11	08:06	08:07		08:44 (6)	08:52
	22:03	23	06:19 (8)	21:08	34	07:41 (7)	19:54	18:40	16:37	16	09:00 (6)	16:14
17	05:25		05:58 (8)	06:17		07:07 (7)	07:13	08:08	08:09		08:44 (6)	08:53
	22:02	21	06:19 (8)	21:06	34	07:41 (7)	19:51	18:38	16:36	17	09:01 (6)	16:14
18	05:26		05:59 (8)	06:19		07:07 (7)	07:15	08:10	08:11		08:44 (6)	08:54
	22:01	19	06:18 (8)	21:04	34	07:41 (7)	19:49	18:35	16:34	18	09:02 (6)	16:14
19	05:28		06:00 (8)	06:20		07:07 (7)	07:16	08:12	08:13		08:46 (6)	08:55
	21:59	17	06:17 (8)	21:02	33	07:40 (7)	19:46	18:33	16:33	16	09:02 (6)	16:14
20	05:29		06:02 (8)	06:22		07:07 (7)	07:18	08:14	08:15		08:48 (6)	08:55
	21:58	15	06:17 (8)	20:59	33	07:40 (7)	19:44	18:31	16:32	14	09:02 (6)	16:15
21	05:31		06:03 (8)	06:24		07:08 (7)	07:20	08:16	08:16		08:50 (6)	08:56
	21:57	13	06:16 (8)	20:57	31	07:39 (7)	19:41	18:28	16:30	12	09:02 (6)	16:15
22	05:32		06:04 (8)	06:26		07:07 (7)	07:22	08:18	08:18		08:52 (6)	08:57
	21:55	10	06:14 (8)	20:55	31	07:38 (7)	19:39	18:26	16:29	11	09:03 (6)	16:16
23	05:34		06:06 (8)	06:28		07:08 (7)	07:24	08:20	08:20		08:54 (6)	08:57
	21:54	7	06:13 (8)	20:52	29	07:37 (7)	19:36	18:24	16:28	9	09:03 (6)	16:16
24	05:35			06:29		07:09 (7)	07:25	08:22	08:22		08:56 (6)	08:57
	21:52			20:50	27	07:36 (7)	19:34	18:22	16:26	7	09:03 (6)	16:17
25	05:37			06:31		07:10 (7)	07:27	07:24	08:24		08:58 (6)	08:58
	21:51			20:48	23	07:33 (7)	19:31	17:19	16:25	5	09:03 (6)	16:17
26	05:38			06:33		07:11 (7)	07:29	07:26	08:25		09:00 (6)	08:58
	21:49			20:45	21	07:32 (7)	19:29	17:17	16:24	3	09:03 (6)	16:18
27	05:40			06:35		07:13 (7)	07:31	07:28	08:27		09:02 (6)	08:58
	21:47			20:43	17	07:30 (7)	19:26	17:15	16:23	1	09:03 (6)	16:19
28	05:42			06:37		07:17 (7)	07:33	07:30	08:29			08:59
	21:46			20:41	9	07:26 (7)	19:24	17:13	16:22			16:20
29	05:43			06:38			07:35	07:32	08:30			08:59
	21:44			20:38			19:21	17:11	16:21			16:21
30	05:45			06:40			07:36	07:34	08:32			08:59
	21:42			20:36			19:19	17:09	16:20			16:22
31	05:47			06:42				07:36				08:59
	21:41			20:33				17:07				16:23
Potential sun hours	515			461			382	328	257			231
Total, worst case		541			718					258		
Sun reduction		0.27			0.27					0.20		
Oper. time red.		1.00			1.00					1.00		
Wind dir. red.		0.58			0.57					0.64		
Total reduction		0.15			0.15					0.13		
Total, real		83			111					33		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BH - H60

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April	May	June
1	08:58			08:27		15:41 (18)	07:29		16:44 (17)	07:12	06:02	05:11
	16:24			17:16	27	16:08 (18)	18:13	30	17:14 (17)	20:12	21:09	22:00
2	08:58			08:25		15:42 (18)	07:26		16:44 (17)	07:10	06:00	05:10
	16:25			17:18	25	16:07 (18)	18:15	29	17:13 (17)	20:14	21:11	22:01
3	08:58			08:24		15:43 (18)	07:24		16:46 (17)	07:07	05:58	05:10
	16:26			17:20	23	16:06 (18)	18:17	26	17:12 (17)	20:16	21:13	22:02
4	08:58			08:22		15:44 (18)	07:21		16:46 (17)	07:05	05:56	05:09
	16:27			17:22	21	16:05 (18)	18:19	24	17:10 (17)	20:18	21:14	22:03
5	08:57			08:20		15:46 (18)	07:19		16:49 (17)	07:02	05:54	05:08
	16:28			17:24	18	16:04 (18)	18:21	20	17:09 (17)	20:20	21:16	22:05
6	08:57			08:18		15:48 (18)	07:17		16:50 (17)	07:00	05:52	05:07
	16:30			17:26	14	16:02 (18)	18:23	15	17:05 (17)	20:22	21:18	22:06
7	08:56			08:16		15:52 (18)	07:14		16:55 (17)	06:58	05:50	05:06
	16:31			17:28	7	15:59 (18)	18:24	6	17:01 (17)	20:24	21:20	22:07
8	08:56		15:42 (18)	08:14			07:12			06:55	05:48	05:06
	16:33	8	15:50 (18)	17:30			18:26			20:25	21:22	22:08
9	08:55		15:42 (18)	08:12			07:09			06:53	05:46	05:05
	16:34	11	15:53 (18)	17:32			18:28			20:27	21:23	22:09
10	08:55		15:41 (18)	08:10			07:07			06:50	05:44	05:05
	16:36	14	15:55 (18)	17:34			18:30			20:29	21:25	22:09
11	08:54		15:40 (18)	08:08			07:05			06:48	05:42	05:04
	16:37	16	15:56 (18)	17:36			18:32			20:31	21:27	22:10
12	08:53		15:39 (18)	08:06			07:02			06:45	05:40	05:04
	16:39	19	15:58 (18)	17:38			18:34			20:33	21:29	22:11
13	08:52		15:39 (18)	08:04		16:55 (17)	07:00			06:43	05:38	05:03
	16:40	20	15:59 (18)	17:40	10	17:05 (17)	18:36			20:35	21:31	22:12
14	08:51		15:38 (18)	08:02		16:52 (17)	06:57			06:41	05:37	05:03
	16:42	22	16:00 (18)	17:42	16	17:08 (17)	18:38			20:37	21:32	22:12
15	08:51		15:37 (18)	08:00		16:49 (17)	06:55			06:38	05:35	05:03
	16:44	23	16:00 (18)	17:44	21	17:10 (17)	18:40			20:39	21:34	22:13
16	08:50		15:37 (18)	07:58		16:48 (17)	06:52			06:36	05:33	05:03
	16:45	25	16:02 (18)	17:46	24	17:12 (17)	18:42			20:41	21:36	22:14
17	08:48		15:37 (18)	07:56		16:47 (17)	06:50			06:33	05:32	05:03
	16:47	26	16:03 (18)	17:49	26	17:13 (17)	18:44			20:42	21:37	22:14
18	08:47		15:37 (18)	07:54		16:46 (17)	06:47			06:31	05:30	05:03
	16:49	27	16:04 (18)	17:51	29	17:15 (17)	18:46			20:44	21:39	22:15
19	08:46		15:37 (18)	07:51		16:45 (17)	06:45			06:29	05:28	05:03
	16:51	27	16:04 (18)	17:53	30	17:15 (17)	18:48			20:46	21:41	22:15
20	08:45		15:37 (18)	07:49		16:44 (17)	06:42			06:26	05:27	05:03
	16:53	28	16:05 (18)	17:55	32	17:16 (17)	18:50			20:48	21:42	22:15
21	08:44		15:36 (18)	07:47		16:44 (17)	06:40			06:24	05:25	05:03
	16:54	29	16:05 (18)	17:57	32	17:16 (17)	18:51			20:50	21:44	22:16
22	08:42		15:37 (18)	07:45		16:43 (17)	06:37			06:22	05:24	05:03
	16:56	30	16:07 (18)	17:59	33	17:16 (17)	18:53			20:52	21:46	22:16
23	08:41		15:37 (18)	07:42		16:43 (17)	06:35			06:20	05:22	05:03
	16:58	30	16:07 (18)	18:01	34	17:17 (17)	18:55			20:54	21:47	22:16
24	08:40		15:37 (18)	07:40		16:43 (17)	06:32			06:17	05:21	05:04
	17:00	31	16:08 (18)	18:03	34	17:17 (17)	18:57			20:56	21:49	22:16
25	08:38		15:37 (18)	07:38		16:42 (17)	06:30			06:15	05:20	05:04
	17:02	31	16:08 (18)	18:05	34	17:16 (17)	18:59			20:58	21:50	22:16
26	08:37		15:37 (18)	07:36		16:43 (17)	06:27			06:13	05:18	05:04
	17:04	31	16:08 (18)	18:07	33	17:16 (17)	19:01			20:59	21:52	22:16
27	08:35		15:38 (18)	07:33		16:42 (17)	06:25			06:11	05:17	05:05
	17:06	30	16:08 (18)	18:09	33	17:15 (17)	19:03			21:01	21:53	22:16
28	08:34		15:38 (18)	07:31		16:43 (17)	06:22			06:08	05:16	05:05
	17:08	30	16:08 (18)	18:11	32	17:15 (17)	19:05			21:03	21:55	22:16
29	08:32		15:38 (18)				07:20			06:06	05:15	05:06
	17:10	30	16:08 (18)				20:07			21:05	21:56	22:15
30	08:31		15:39 (18)				07:17			06:04	05:14	05:07
	17:12	29	16:08 (18)				20:08			21:07	21:57	22:15
31	08:29		15:39 (18)				07:15				05:12	
	17:14	28	16:07 (18)				20:10				21:59	
Potential sun hours	248			272			367			421	496	513
Total, worst case		595			588			150				
Sun reduction		0.17			0.22			0.22				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.62			0.59			0.58				
Total reduction		0.11			0.13			0.13				
Total, real		63			77			20				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BH - H60

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October			November			December		
1	05:07	05:48	06:44	07:38			07:37			08:33		15:22 (18)
	22:15	21:39	20:31	19:16			17:04			16:19	16	15:38 (18)
2	05:08	05:50	06:45	07:40			07:39			08:35		15:23 (18)
	22:14	21:37	20:28	19:14			17:02			16:18	14	15:37 (18)
3	05:09	05:52	06:47	07:42			07:41			08:36		15:25 (18)
	22:14	21:35	20:26	19:11			17:00			16:17	11	15:36 (18)
4	05:10	05:53	06:49	07:44			07:43		15:21 (18)	08:38		15:27 (18)
	22:14	21:33	20:24	19:09			16:58	8	15:29 (18)	16:17	8	15:35 (18)
5	05:11	05:55	06:51	07:45			07:45		15:17 (18)	08:39		15:30 (18)
	22:13	21:31	20:21	19:06			16:56	15	15:32 (18)	16:16	2	15:32 (18)
6	05:11	05:57	06:53	07:47			07:47		15:15 (18)	08:41		
	22:12	21:29	20:19	19:04			16:54	19	15:34 (18)	16:16		
7	05:12	05:59	06:54	07:49		17:28 (17)	07:49		15:14 (18)	08:42		
	22:12	21:27	20:16	19:01	12	17:40 (17)	16:53	21	15:35 (18)	16:15		
8	05:13	06:00	06:56	07:51		17:25 (17)	07:51		15:13 (18)	08:43		
	22:11	21:25	20:14	18:59	18	17:43 (17)	16:51	23	15:36 (18)	16:15		
9	05:15	06:02	06:58	07:53		17:22 (17)	07:53		15:12 (18)	08:45		
	22:10	21:23	20:11	18:56	22	17:44 (17)	16:49	25	15:37 (18)	16:14		
10	05:16	06:04	07:00	07:55		17:21 (17)	07:55		15:12 (18)	08:46		
	22:09	21:21	20:09	18:54	25	17:46 (17)	16:47	27	15:39 (18)	16:14		
11	05:17	06:06	07:02	07:57		17:19 (17)	07:57		15:11 (18)	08:47		
	22:08	21:19	20:06	18:51	28	17:47 (17)	16:45	28	15:39 (18)	16:14		
12	05:18	06:07	07:03	07:58		17:18 (17)	07:59		15:11 (18)	08:48		
	22:07	21:17	20:04	18:49	29	17:47 (17)	16:44	29	15:40 (18)	16:13		
13	05:19	06:09	07:05	08:00		17:17 (17)	08:01		15:10 (18)	08:49		
	22:06	21:15	20:01	18:47	31	17:48 (17)	16:42	30	15:40 (18)	16:13		
14	05:21	06:11	07:07	08:02		17:16 (17)	08:03		15:10 (18)	08:50		
	22:05	21:13	19:59	18:44	32	17:48 (17)	16:40	30	15:40 (18)	16:13		
15	05:22	06:13	07:09	08:04		17:15 (17)	08:05		15:10 (18)	08:51		
	22:04	21:10	19:56	18:42	33	17:48 (17)	16:39	30	15:40 (18)	16:13		
16	05:23	06:15	07:11	08:06		17:15 (17)	08:07		15:10 (18)	08:52		
	22:03	21:08	19:54	18:40	33	17:48 (17)	16:37	30	15:40 (18)	16:13		
17	05:25	06:16	07:12	08:08		17:14 (17)	08:09		15:11 (18)	08:53		
	22:02	21:06	19:51	18:37	34	17:48 (17)	16:36	31	15:42 (18)	16:14		
18	05:26	06:18	07:14	08:10		17:14 (17)	08:11		15:11 (18)	08:54		
	22:01	21:04	19:49	18:35	34	17:48 (17)	16:34	31	15:42 (18)	16:14		
19	05:27	06:20	07:16	08:12		17:14 (17)	08:12		15:12 (18)	08:55		
	21:59	21:01	19:46	18:33	34	17:48 (17)	16:33	30	15:42 (18)	16:14		
20	05:29	06:22	07:18	08:14		17:14 (17)	08:14		15:12 (18)	08:55		
	21:58	20:59	19:44	18:30	33	17:47 (17)	16:31	30	15:42 (18)	16:14		
21	05:30	06:24	07:20	08:16		17:14 (17)	08:16		15:13 (18)	08:56		
	21:57	20:57	19:41	18:28	33	17:47 (17)	16:30	28	15:41 (18)	16:15		
22	05:32	06:25	07:21	08:18		17:15 (17)	08:18		15:13 (18)	08:56		
	21:55	20:55	19:39	18:26	31	17:46 (17)	16:29	28	15:41 (18)	16:15		
23	05:33	06:27	07:23	08:20		17:15 (17)	08:20		15:14 (18)	08:57		
	21:54	20:52	19:36	18:24	30	17:45 (17)	16:27	27	15:41 (18)	16:16		
24	05:35	06:29	07:25	08:22		17:16 (17)	08:22		15:15 (18)	08:57		
	21:52	20:50	19:33	18:21	28	17:44 (17)	16:26	26	15:41 (18)	16:16		
25	05:37	06:31	07:27	07:24		16:17 (17)	08:23		15:15 (18)	08:58		
	21:51	20:48	19:31	17:19	25	16:42 (17)	16:25	26	15:41 (18)	16:17		
26	05:38	06:33	07:29	07:26		16:18 (17)	08:25		15:16 (18)	08:58		
	21:49	20:45	19:28	17:17	23	16:41 (17)	16:24	25	15:41 (18)	16:18		
27	05:40	06:35	07:31	07:27		16:19 (17)	08:27		15:17 (18)	08:58		
	21:47	20:43	19:26	17:15	20	16:39 (17)	16:23	24	15:41 (18)	16:18		
28	05:41	06:36	07:32	07:29		16:22 (17)	08:29		15:18 (18)	08:58		
	21:46	20:40	19:23	17:13	15	16:37 (17)	16:22	21	15:39 (18)	16:19		
29	05:43	06:38	07:34	07:31		16:26 (17)	08:30		15:19 (18)	08:58		
	21:44	20:38	19:21	17:10	7	16:33 (17)	16:21	20	15:39 (18)	16:20		
30	05:45	06:40	07:36	07:33			08:32		15:20 (18)	08:59		
	21:42	20:36	19:18	17:08			16:20	19	15:39 (18)	16:21		
31	05:46	06:42		07:35						08:59		
	21:40	20:33		17:06						16:22		
Potential sun hours	515	461	383	327			257			230		
Total, worst case					610			681			51	
Sun reduction					0.23			0.20			0.12	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.58			0.62			0.62	
Total reduction					0.14			0.12			0.07	
Total, real					83			84			4	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BI - H61

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:11	05:07	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:08	05:50	06:45	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52	05:07	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:00	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22	22:08	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:05	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23	22:09	22:10	21:23	20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:04	05:17	06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40	05:04	05:18	06:07	07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38	05:04	05:19	06:09	07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:16	07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:01	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28	05:03	05:27	06:20	07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25	05:03	05:30	06:24	07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:03	05:32	06:25	07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22	05:03	05:33	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18	05:04	05:38	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16	05:05	05:41	06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55	22:16	21:46	20:40	19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57	22:15	21:42	20:36	19:18	17:08	16:20	16:21
31	08:29		07:15		05:13		05:46	06:42		07:35		08:58
	17:14		20:10		21:59		21:40	20:33		17:06		16:22
Potential sun hours	248	272	367	421	496	513	515	461	383	327	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BJ - H62

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February			March			April			May			June		
1	08:59	08:27			07:29		07:54 (11)	07:13			06:02		06:28 (15)	05:12		05:43 (14)
	16:24	17:16			18:13	6	08:00 (11)	20:12			21:09	10	06:38 (15)	22:00	11	05:54 (14)
2	08:58	08:26			07:26		07:51 (11)	07:10			06:00		06:26 (15)	05:11		05:42 (14)
	16:25	17:18			18:15	7	07:58 (11)	20:14			21:11	11	06:37 (15)	22:01	12	05:54 (14)
3	08:58	08:24			07:24		07:49 (11)	07:08			05:58		06:24 (15)	05:10		05:41 (14)
	16:26	17:20			18:17	8	07:57 (11)	20:16			21:13	12	06:36 (15)	22:02	13	05:54 (14)
4	08:58	08:22			07:22		07:47 (11)	07:05			05:56		06:23 (15)	05:09		05:41 (14)
	16:27	17:22			18:19	7	07:54 (11)	20:18			21:15	14	06:37 (15)	22:04	14	05:55 (14)
5	08:58	08:20			07:19			07:03			05:54		06:21 (15)	05:08		05:40 (14)
	16:29	17:24			18:21			20:20			21:16	14	06:35 (15)	22:05	15	05:55 (14)
6	08:57	08:18			07:17			07:00		07:24 (13)	05:52		06:22 (15)	05:07		05:39 (14)
	16:30	17:26			18:23			20:22	2	07:26 (13)	21:18	12	06:34 (15)	22:06	16	05:55 (14)
7	08:57	08:16			07:14			06:58		07:22 (13)	05:50		06:24 (15)	05:07		05:39 (14)
	16:31	17:28			18:25			20:24	5	07:27 (13)	21:20	8	06:32 (15)	22:07	17	05:56 (14)
8	08:56	08:14			07:12			06:55		07:19 (13)	05:48			05:06		05:38 (14)
	16:33	17:30			18:27			20:26	7	07:26 (13)	21:22			22:08	18	05:56 (14)
9	08:55	08:13			07:10			06:53		07:17 (13)	05:46			05:06		05:38 (14)
	16:34	17:32			18:29			20:28	9	07:26 (13)	21:24			22:09	19	05:57 (14)
10	08:55	08:11			07:07			06:50		07:15 (13)	05:44			05:05		05:38 (14)
	16:36	17:34			18:31			20:29	10	07:25 (13)	21:25			22:10	19	05:57 (14)
11	08:54	08:09			07:05			06:48		07:12 (13)	05:42			05:05		05:37 (14)
	16:37	17:36			18:32			20:31	12	07:24 (13)	21:27			22:10	20	05:57 (14)
12	08:53	08:06			07:02			06:46		07:10 (13)	05:41			05:04		05:37 (14)
	16:39	17:39			18:34			20:33	13	07:23 (13)	21:29			22:11	20	05:57 (14)
13	08:52	08:04			07:00			06:43		07:09 (13)	05:39			05:04		05:37 (14)
	16:41	17:41			18:36			20:35	12	07:21 (13)	21:31			22:12	21	05:58 (14)
14	08:52	08:02			06:57		07:22 (12)	06:41		07:11 (13)	05:37			05:03		05:37 (14)
	16:42	17:43			18:38	2	07:24 (12)	20:37	6	07:17 (13)	21:32			22:13	21	05:58 (14)
15	08:51	08:00			06:55		07:19 (12)	06:38			05:35			05:03		05:36 (14)
	16:44	17:45			18:40	4	07:23 (12)	20:39			21:34			22:13	21	05:57 (14)
16	08:50	07:58			06:52		07:17 (12)	06:36			05:33			05:03		05:36 (14)
	16:46	17:47			18:42	5	07:22 (12)	20:41			21:36			22:14	22	05:58 (14)
17	08:49	07:56			06:50		07:14 (12)	06:34			05:32			05:03		05:36 (14)
	16:47	17:49			18:44	7	07:21 (12)	20:43			21:38			22:14	22	05:58 (14)
18	08:48	07:54			06:47		07:12 (12)	06:31			05:30			05:03		05:36 (14)
	16:49	17:51			18:46	8	07:20 (12)	20:45			21:39			22:15	22	05:58 (14)
19	08:46	07:52			06:45		07:09 (12)	06:29			05:29			05:03		05:36 (14)
	16:51	17:53			18:48	8	07:17 (12)	20:46			21:41			22:15	22	05:58 (14)
20	08:45	07:49			06:42			06:27			05:27			05:03		05:37 (14)
	16:53	17:55			18:50			20:48			21:43			22:15	22	05:59 (14)
21	08:44	07:47			06:40			06:24			05:26			05:03		05:37 (14)
	16:55	17:57			18:52			20:50			21:44			22:16	22	05:59 (14)
22	08:43	07:45			06:37			06:22			05:24			05:03		05:37 (14)
	16:56	17:59			18:54			20:52			21:46			22:16	22	05:59 (14)
23	08:41	07:43			06:35			06:20			05:23			05:04		05:37 (14)
	16:58	18:01			18:55			20:54			21:47			22:16	22	05:59 (14)
24	08:40	07:40			06:32			06:18			05:21			05:04		05:38 (14)
	17:00	18:03			18:57			20:56			21:49			22:16	22	06:00 (14)
25	08:38	07:38			06:30			06:15			05:20			05:04		05:38 (14)
	17:02	18:05			18:59			20:58			21:50			22:16	22	06:00 (14)
26	08:37	07:36			06:27			06:13			05:19		05:49 (14)	05:05		05:38 (14)
	17:04	18:07			19:01			21:00			21:52	1	05:50 (14)	22:16	22	06:00 (14)
27	08:35	07:33		07:59 (11)	06:25			06:11		06:37 (15)	05:17		05:48 (14)	05:05		05:39 (14)
	17:06	18:09	2	08:01 (11)	19:03			21:01	1	06:38 (15)	21:53	3	05:51 (14)	22:16	21	06:00 (14)
28	08:34	07:31		07:56 (11)	06:23			06:09		06:34 (15)	05:16		05:47 (14)	05:06		05:39 (14)
	17:08	18:11	4	08:00 (11)	19:05			21:03	4	06:38 (15)	21:55	5	05:52 (14)	22:16	21	06:00 (14)
29	08:32				07:20			06:07		06:32 (15)	05:15		05:46 (14)	05:06		05:40 (14)
	17:10				20:07			21:05	6	06:38 (15)	21:56	7	05:53 (14)	22:16	21	06:01 (14)
30	08:31				07:18			06:04		06:30 (15)	05:14		05:45 (14)	05:07		05:41 (14)
	17:12				20:09			21:07	8	06:38 (15)	21:57	8	05:53 (14)	22:15	20	06:01 (14)
31	08:29				07:15						05:13		05:44 (14)			
	17:14				20:11						21:59	10	05:54 (14)			
Potential sun hours	248	272			367			421			496			513		
Total, worst case			6			62			95			115			582	
Sun reduction			0.22			0.22			0.34			0.36			0.26	
Oper. time red.			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.			0.61			0.60			0.57			0.58			0.58	
Total reduction			0.14			0.13			0.20			0.21			0.15	
Total, real			1			8			19			24			87	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BJ - H62

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:08	05:41 (14)	05:48		06:44	07:11 (13)	07:38		07:38	08:34
	22:15	20 06:01 (14)	21:39		20:31	12 07:23 (13)	19:16		17:05	16:19
2	05:08	05:42 (14)	05:50		06:46	07:13 (13)	07:40		07:40	08:35
	22:15	19 06:01 (14)	21:37		20:29	10 07:23 (13)	19:14		17:02	16:18
3	05:09	05:43 (14)	05:52		06:47	07:15 (13)	07:42		07:42	08:37
	22:14	19 06:02 (14)	21:35		20:26	9 07:24 (13)	19:11		17:00	16:18
4	05:10	05:44 (14)	05:54		06:49	07:17 (13)	07:44		07:43	08:38
	22:14	18 06:02 (14)	21:33		20:24	7 07:24 (13)	19:09		16:59	16:17
5	05:11	05:44 (14)	05:55	06:37 (15)	06:51	07:18 (13)	07:46		07:45	08:40
	22:13	17 06:01 (14)	21:31	2 06:39 (15)	20:21	5 07:23 (13)	19:06		16:57	16:16
6	05:12	05:45 (14)	05:57	06:33 (15)	06:53	07:20 (13)	07:47		07:47	08:41
	22:12	17 06:02 (14)	21:29	9 06:42 (15)	20:19	2 07:22 (13)	19:04		16:55	16:16
7	05:13	05:46 (14)	05:59	06:31 (15)	06:55		07:49		07:49	08:42
	22:12	16 06:02 (14)	21:27	13 06:44 (15)	20:16		19:01		16:53	16:15
8	05:14	05:47 (14)	06:01	06:31 (15)	06:56		07:51		07:51	08:44
	22:11	15 06:02 (14)	21:25	14 06:45 (15)	20:14		18:59		16:51	16:15
9	05:15	05:48 (14)	06:02	06:32 (15)	06:58		07:53		07:53	08:45
	22:10	14 06:02 (14)	21:23	13 06:45 (15)	20:11		18:57		16:49	16:15
10	05:16	05:49 (14)	06:04	06:34 (15)	07:00		07:55	08:22 (11)	07:55	08:46
	22:09	13 06:02 (14)	21:21	12 06:46 (15)	20:09		18:54	8 08:30 (11)	16:47	16:14
11	05:17	05:50 (14)	06:06	06:36 (15)	07:02		07:57	08:24 (11)	07:57	08:47
	22:08	12 06:02 (14)	21:19	11 06:47 (15)	20:06		18:52	8 08:32 (11)	16:46	16:14
12	05:18	05:51 (14)	06:08	06:37 (15)	07:04		07:59	08:26 (11)	07:59	08:48
	22:08	10 06:01 (14)	21:17	9 06:46 (15)	20:04		18:49	7 08:33 (11)	16:44	16:14
13	05:20	05:53 (14)	06:09	06:39 (15)	07:05		08:01	08:28 (11)	08:01	08:49
	22:07	9 06:02 (14)	21:15	7 06:46 (15)	20:01		18:47	5 08:33 (11)	16:42	16:14
14	05:21	05:54 (14)	06:11	06:41 (15)	07:07		08:02	08:30 (11)	08:03	08:50
	22:05	8 06:02 (14)	21:13	5 06:46 (15)	19:59		18:45	4 08:34 (11)	16:40	16:14
15	05:22	05:55 (14)	06:13	06:42 (15)	07:09		08:04	08:32 (11)	08:05	08:51
	22:04	6 06:01 (14)	21:11	3 06:45 (15)	19:56		18:42	1 08:33 (11)	16:39	16:14
16	05:23	05:56 (14)	06:15	06:44 (15)	07:11		08:06		08:07	08:52
	22:03	4 06:00 (14)	21:08	1 06:45 (15)	19:54		18:40		16:37	16:14
17	05:25	05:58 (14)	06:17		07:13		08:08		08:09	08:53
	22:02	2 06:00 (14)	21:06		19:51		18:37		16:36	16:14
18	05:26		06:18		07:14		08:10		08:11	08:54
	22:01		21:04		19:49		18:35		16:34	16:14
19	05:28		06:20		07:16		08:12		08:13	08:55
	21:59		21:02		19:46		18:33		16:33	16:14
20	05:29		06:22		07:18		08:14		08:15	08:55
	21:58		20:59		19:44		18:31		16:31	16:15
21	05:31		06:24		07:20		08:16		08:16	08:56
	21:57		20:57		19:41		18:28		16:30	16:15
22	05:32		06:26		07:22		08:18		08:18	08:57
	21:55		20:55		19:39		18:26		16:29	16:16
23	05:34		06:27		07:24		08:20		08:20	08:57
	21:54		20:52		19:36		18:24		16:28	16:16
24	05:35		06:29		07:25	07:53 (12)	08:22		08:22	08:57
	21:52		20:50		19:34	7 08:00 (12)	18:22		16:26	16:17
25	05:37		06:31		07:27	07:54 (12)	07:24		08:24	08:58
	21:51		20:48		19:31	8 08:02 (12)	17:19		16:25	16:17
26	05:38		06:33		07:29	07:56 (12)	07:26		08:25	08:58
	21:49		20:45		19:29	7 08:03 (12)	17:17		16:24	16:18
27	05:40		06:35		07:31	07:57 (12)	07:28		08:27	08:58
	21:47		20:43		19:26	6 08:03 (12)	17:15		16:23	16:19
28	05:42		06:37		07:33	07:59 (12)	07:30		08:29	08:59
	21:46		20:41		19:24	4 08:03 (12)	17:13		16:22	16:20
29	05:43		06:38	07:12 (13)	07:34	08:01 (12)	07:32		08:30	08:59
	21:44		20:38	6 07:18 (13)	19:21	2 08:03 (12)	17:11		16:21	16:21
30	05:45		06:40	07:09 (13)	07:36		07:34		08:32	08:59
	21:42		20:36	12 07:21 (13)	19:19		17:09		16:20	16:21
31	05:47		06:42	07:10 (13)			07:36			08:59
	21:41		20:33	13 07:23 (13)			17:07			16:22
Potential sun hours	515		461		383		328		257	231
Total, worst case		219		130		79		33		
Sun reduction		0.27		0.27		0.29		0.23		
Oper. time red.		1.00		1.00		1.00		1.00		
Wind dir. red.		0.58		0.58		0.58		0.61		
Total reduction		0.15		0.16		0.17		0.14		
Total, real		34		21		13		5		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BK - H63

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:11	20:03 (18)	05:07	20:13 (18)	05:48	20:12 (18)	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00 30	20:33 (18)	22:15 30	21:25 (17)	21:39 30	20:42 (18)	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	20:04 (18)	05:08	20:13 (18)	05:50	20:13 (18)	06:45	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01 29	20:33 (18)	22:14 28	21:24 (17)	21:37 28	20:41 (18)	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58	05:10	20:04 (18)	05:09	20:13 (18)	05:52	20:13 (18)	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02 28	20:32 (18)	22:14 24	20:37 (18)	21:35 27	20:40 (18)	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56	05:09	20:04 (18)	05:10	20:12 (18)	05:53	20:14 (18)	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03 28	20:32 (18)	22:13 25	20:37 (18)	21:33 25	20:39 (18)	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54	20:11 (18) 05:08	20:05 (18)	05:11	20:12 (18)	05:55	20:16 (18)	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16 11	20:22 (18) 22:05 27	20:32 (18)	22:13 25	20:37 (18)	21:31 22	20:38 (18)	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52	20:09 (18) 05:07	20:05 (18)	05:12	20:12 (18)	05:57	20:17 (18)	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18 16	20:25 (18) 22:06 27	20:32 (18)	22:12 26	20:38 (18)	21:29 19	20:36 (18)	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50	20:07 (18) 05:07	20:07 (18)	05:13	20:12 (18)	05:59	20:19 (18)	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20 20	20:27 (18) 22:07 25	20:32 (18)	22:12 27	20:39 (18)	21:27 15	20:34 (18)	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	20:05 (18) 05:06	20:07 (18)	05:14	20:12 (18)	06:00	20:21 (18)	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22 23	20:28 (18) 22:08 25	20:32 (18)	22:11 27	20:39 (18)	21:25 9	20:30 (18)	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	20:04 (18) 05:05	20:08 (18)	05:15	20:11 (18)	06:02		06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23 25	20:29 (18) 22:09 24	20:32 (18)	22:10 29	20:40 (18)	21:23		20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44	20:02 (18) 05:05	20:08 (18)	05:16	20:11 (18)	06:04		07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25 28	20:30 (18) 22:09 25	21:17 (17)	22:09 29	20:40 (18)	21:21		20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42	20:02 (18) 05:04	20:09 (18)	05:17	20:11 (18)	06:06		07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27 29	20:31 (18) 22:10 28	21:20 (17)	22:08 30	20:41 (18)	21:19		20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40	20:01 (18) 05:04	20:09 (18)	05:18	20:10 (18)	06:07		07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29 31	20:32 (18) 22:11 31	21:22 (17)	22:07 31	20:41 (18)	21:17		20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38	20:00 (18) 05:04	20:09 (18)	05:19	20:10 (18)	06:09		07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31 32	20:32 (18) 22:12 32	21:22 (17)	22:06 31	20:41 (18)	21:15		20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37	20:00 (18) 05:03	20:10 (18)	05:21	20:11 (18)	06:11		07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32 33	20:33 (18) 22:12 32	21:23 (17)	22:05 31	20:42 (18)	21:12		19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35	20:00 (18) 05:03	20:11 (18)	05:22	20:10 (18)	06:13		07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34 33	20:33 (18) 22:13 33	21:24 (17)	22:04 33	20:43 (18)	21:10		19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33	20:00 (18) 05:03	20:11 (18)	05:23	20:10 (18)	06:15		07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36 33	20:33 (18) 22:14 33	21:24 (17)	22:03 33	20:43 (18)	21:08		19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32	19:59 (18) 05:03	20:11 (18)	05:25	20:10 (18)	06:16		07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37 34	20:33 (18) 22:14 34	21:25 (17)	22:02 33	20:43 (18)	21:06		19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:00 (18) 05:03	20:12 (18)	05:26	20:10 (18)	06:18		07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39 34	20:34 (18) 22:14 33	21:25 (17)	22:01 34	20:44 (18)	21:04		19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28	19:59 (18) 05:03	20:12 (18)	05:27	20:10 (18)	06:20		07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41 34	20:33 (18) 22:15 33	21:25 (17)	21:59 34	20:44 (18)	21:01		19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27	19:59 (18) 05:03	20:12 (18)	05:29	20:09 (18)	06:22		07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42 35	20:34 (18) 22:15 34	21:26 (17)	21:58 35	20:44 (18)	20:59		19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25	20:00 (18) 05:03	20:12 (18)	05:30	20:10 (18)	06:24		07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44 34	20:34 (18) 22:15 34	21:26 (17)	21:56 34	20:44 (18)	20:57		19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	19:59 (18) 05:03	20:13 (18)	05:32	20:09 (18)	06:25		07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46 35	20:34 (18) 22:16 34	21:27 (17)	21:55 35	20:44 (18)	20:55		19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22	20:00 (18) 05:03	20:13 (18)	05:33	20:09 (18)	06:27		07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47 34	20:34 (18) 22:16 34	21:27 (17)	21:54 35	20:44 (18)	20:52		19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21	20:00 (18) 05:04	20:13 (18)	05:35	20:10 (18)	06:29		07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49 34	20:34 (18) 22:16 33	21:26 (17)	21:52 34	20:44 (18)	20:50		19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20	20:00 (18) 05:04	20:14 (18)	05:37	20:09 (18)	06:31		07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50 34	20:34 (18) 22:16 33	21:27 (17)	21:51 35	20:44 (18)	20:48		19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18	20:01 (18) 05:04	20:13 (18)	05:38	20:10 (18)	06:33		07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52 33	20:34 (18) 22:16 33	21:26 (17)	21:49 34	20:44 (18)	20:45		19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:00 (18) 05:05	20:14 (18)	05:40	20:10 (18)	06:35		07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53 33	20:33 (18) 22:16 33	21:27 (17)	21:47 33	20:43 (18)	20:43		19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16	20:01 (18) 05:05	20:13 (18)	05:41	20:10 (18)	06:36		07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55 32	20:33 (18) 22:16 33	21:26 (17)	21:46 34	20:44 (18)	20:40		19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15	20:01 (18) 05:06	20:14 (18)	05:43	20:10 (18)	06:38		07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56 32	20:33 (18) 22:15 31	21:26 (17)	21:44 33	20:43 (18)	20:38		19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14	20:01 (18) 05:07	20:13 (18)	05:45	20:11 (18)	06:40		07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57 32	20:33 (18) 22:15 31	21:25 (17)	21:42 32	20:43 (18)	20:36		19:18	17:08	16:20	16:21
31	08:29		07:15		05:12	20:03 (18)		05:46	20:12 (18)	06:42			07:35		08:58
	17:14		20:10		21:59 31	20:34 (18)		21:40 31	20:43 (18)	20:33			17:06		16:22
Potential sun hours	248	272	367	421	496	513	515	461	383	327	257	230
Total, worst case					815	920	965	175				
Sun reduction					0.36	0.26	0.27	0.27				
Oper. time red.					1.00	1.00	1.00	1.00				
Wind dir. red.					0.62	0.62	0.62	0.62				
Total reduction					0.22	0.16	0.16	0.17				
Total, real					181	147	158	29				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BL - H64

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May	June	July	August	September	October	November			December		
1	08:58		14:36 (18)	08:27		15:33 (17)	07:29	07:12	06:02	05:11	05:07	05:48	06:44	07:38	07:37			08:33		15:02 (17)
	16:24	31	15:45 (17)	17:16	20	15:53 (17)	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04			16:19	33	15:35 (17)
2	08:58		15:19 (17)	08:25		15:36 (17)	07:26	07:10	06:00	05:10	05:08	05:50	06:45	07:40	07:39			08:35		15:03 (17)
	16:25	27	15:46 (17)	17:18	15	15:51 (17)	18:15	20:14	21:11	22:01	22:15	21:37	20:28	19:14	17:02			16:18	33	15:36 (17)
3	08:58		15:19 (17)	08:24		15:39 (17)	07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41			08:37		15:03 (17)
	16:26	29	15:48 (17)	17:20	9	15:48 (17)	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	17:00			16:17	32	15:35 (17)
4	08:58		15:19 (17)	08:22			07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43			08:38		15:04 (17)
	16:27	29	15:48 (17)	17:22			18:19	20:18	21:14	22:04	22:14	21:33	20:24	19:09	16:58			16:17	32	15:36 (17)
5	08:57		15:20 (17)	08:20			07:19	07:02	05:54	05:08	05:11	05:55	06:51	07:45	07:45			08:39		15:04 (17)
	16:28	29	15:49 (17)	17:24			18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:56			16:16	31	15:35 (17)
6	08:57		15:19 (17)	08:18			07:17	07:00	05:52	05:07	05:11	05:57	06:53	07:47	07:47			08:41		15:05 (17)
	16:30	31	15:50 (17)	17:26			18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:54			16:16	31	15:36 (17)
7	08:57		15:19 (17)	08:16			07:14	06:58	05:50	05:06	05:12	05:59	06:54	07:49	07:49			08:42		15:06 (17)
	16:31	31	15:50 (17)	17:28			18:24	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53			16:15	30	15:36 (17)
8	08:56		15:19 (17)	08:14			07:12	06:55	05:48	05:06	05:13	06:00	06:56	07:51	07:51		15:09 (17)	08:44		15:07 (17)
	16:33	32	15:51 (17)	17:30			18:26	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	9	15:18 (17)	16:15	29	15:36 (17)
9	08:55		15:20 (17)	08:12			07:09	06:53	05:46	05:05	05:15	06:02	06:58	07:53	07:53		15:06 (17)	08:45		15:07 (17)
	16:34	32	15:52 (17)	17:32			18:28	20:27	21:24	22:09	22:10	21:23	20:11	18:56	16:49	16	15:22 (17)	16:14	29	15:36 (17)
10	08:55		15:20 (17)	08:10			07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55		15:04 (17)	08:46		15:08 (17)
	16:36	33	15:53 (17)	17:34			18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	20	15:24 (17)	16:14	27	15:35 (17)
11	08:54		15:20 (17)	08:08			07:05	06:48	05:42	05:04	05:17	06:06	07:02	07:57	07:57		15:02 (17)	08:47		14:28 (18)
	16:37	33	15:53 (17)	17:36			18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:51	16:45	23	15:25 (17)	16:14	30	15:36 (17)
12	08:53		15:20 (17)	08:06			07:02	06:45	05:40	05:04	05:18	06:07	07:03	07:59	07:59		15:01 (17)	08:48		14:26 (18)
	16:39	34	15:54 (17)	17:38			18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	25	15:26 (17)	16:13	32	15:35 (17)
13	08:52		15:21 (17)	08:04			07:00	06:43	05:38	05:03	05:19	06:09	07:05	08:00	08:01		15:00 (17)	08:49		14:25 (18)
	16:40	33	15:54 (17)	17:40			18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	27	15:27 (17)	16:13	34	15:35 (17)
14	08:51		15:21 (17)	08:02			06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03		14:59 (17)	08:50		14:25 (18)
	16:42	34	15:55 (17)	17:42			18:38	20:37	21:32	22:12	22:05	21:13	19:59	18:44	16:40	29	15:28 (17)	16:13	35	15:35 (17)
15	08:51		15:20 (17)	08:00			06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05		14:59 (17)	08:51		14:25 (18)
	16:44	35	15:55 (17)	17:44			18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	30	15:29 (17)	16:13	35	15:35 (17)
16	08:50		15:21 (17)	07:58			06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07		14:59 (17)	08:52		14:25 (18)
	16:45	34	15:55 (17)	17:46			18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	32	15:31 (17)	16:13	36	15:35 (17)
17	08:48		15:21 (17)	07:56			06:50	06:33	05:32	05:03	05:25	06:16	07:12	08:08	08:09		14:59 (17)	08:53		14:25 (18)
	16:47	35	15:56 (17)	17:49			18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:37	16:36	32	15:31 (17)	16:14	36	15:35 (17)
18	08:47		15:22 (17)	07:54			06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11		14:58 (17)	08:54		14:24 (18)
	16:49	35	15:57 (17)	17:51			18:46	20:44	21:39	22:15	22:01	21:04	19:49	18:35	16:34	34	15:32 (17)	16:14	37	15:35 (17)
19	08:46		15:22 (17)	07:51			06:45	06:29	05:28	05:03	05:27	06:20	07:16	08:12	08:13		14:58 (17)	08:55		14:25 (18)
	16:51	35	15:57 (17)	17:53			18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	34	15:32 (17)	16:14	36	15:35 (17)
20	08:45		15:22 (17)	07:49			06:42	06:26	05:27	05:03	05:29	06:22	07:18	08:14	08:14		14:58 (17)	08:55		14:26 (18)
	16:53	35	15:57 (17)	17:55			18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	34	15:32 (17)	16:14	35	15:36 (17)
21	08:44		15:22 (17)	07:47			06:40	06:24	05:25	05:03	05:30	06:24	07:20	08:16	08:16		14:58 (17)	08:56		14:26 (18)
	16:54	35	15:57 (17)	17:57			18:51	20:50	21:44	22:16	21:57	20:57	19:41	18:28	16:30	35	15:33 (17)	16:15	35	15:36 (17)
22	08:42		15:23 (17)	07:45			06:37	06:22	05:24	05:03	05:32	06:25	07:21	08:18	08:18		14:58 (17)	08:56		14:27 (18)
	16:56	34	15:57 (17)	17:59			18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	35	15:33 (17)	16:15	35	15:37 (17)
23	08:41		15:23 (17)	07:42			06:35	06:20	05:22	05:03	05:33	06:27	07:23	08:20	08:20		14:59 (17)	08:57		14:27 (18)
	16:58	34	15:57 (17)	18:01			18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	35	15:34 (17)	16:16	35	15:37 (17)
24	08:40		15:25 (17)	07:40			06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22		14:59 (17)	08:57		14:27 (18)
	17:00	33	15:58 (17)	18:03			18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	16:26	35	15:34 (17)	16:16	36	15:37 (17)
25	08:38		15:25 (17)	07:38			06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23		14:59 (17)	08:58		14:28 (18)
	17:02	32	15:57 (17)	18:05			18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19	16:25	35	15:34 (17)	16:17	36	15:38 (17)
26	08:37		15:25 (17)	07:36			06:27	06:13	05:18	05:04	05:38	06:33	07:29	07:26	08:25		15:00 (17)	08:58		14:29 (18)
	17:04	32	15:57 (17)	18:07			19:01	20:59	21:52	22:16	21:49	20:45	19:28	17:17	16:24	35	15:35 (17)	16:18	36	15:39 (17)
27	08:35		15:27 (17)	07:33			06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28	08:27		15:00 (17)	08:58		14:29 (18)
	17:06	30	15:57 (17)	18:09			19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	35	15:35 (17)	16:18	37	15:40 (17)
28	08:34		15:27 (17)	07:31			06:22	06:08	05:16	05:05	05:41	06:36	07:32	07:29	08:29		15:00 (17)	08:58		14:30 (18)
	17:08	29	15:56 (17)	18:11			19:05	21:03	21:55	22:16	21:46	20:40	19:23	17:13	16:22	34	15:34 (17)	16:19	35	15:40 (17)
29	08:32		15:28 (17)				07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	08:30		15:01 (17)	08:59		14:31 (18)
	17:10	27	15:55 (17)				20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11	16:21	34	15:35 (17)	16:20	35	15:41 (17)
30	08:31		15:29 (17)				07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32		15:01 (17)	08:59		14:33 (18)
	17:12	26	15:55 (17)				20:09	21:07	21:57	22:15	21:42	20:36	19:18	17:08	16:20	34	15:35 (17)	16:21	35	15:43 (17)
31	08:29		15:31 (17)				07:15		05:12		05:46	06:42		07:35				08:59		14:34 (18)
	17:14	22	15:53 (17)				20:10		21:59		21:40	20:33		17:06				16:22	33	15:44 (17)
Potential sun hours	248			272			367	421	496	513	515	461	383	327	257			230		
Total, worst case		981			44											692			1041	
Sun reduction		0.17			0.22											0.20			0.12	
Oper. time red.		1.00			1.00											1.00			1.00	
Wind dir. red.		0.63			0.63											0.63			0.63	
Total reduction		0.11			0.14											0.13			0.08	
Total, real		105			6											87			79	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BM - H65

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May			June		
1	08:58			08:27		15:56 (9)	07:29		16:45 (10)	07:12			06:02			05:12		20:38 (12)
	16:24			17:16	26	16:22 (9)	18:13	14	16:59 (10)	20:12			21:09			22:00	9	20:47 (12)
2	08:58			08:25		15:56 (9)	07:26		16:49 (10)	07:10			06:00			05:11		20:40 (12)
	16:25			17:18	25	16:21 (9)	18:15	5	16:54 (10)	20:14			21:11			22:01	5	20:45 (12)
3	08:58			08:24		15:57 (9)	07:24			07:07			05:58			05:10		21:24 (13)
	16:26			17:20	24	16:21 (9)	18:17			20:16			21:12			22:02	3	21:27 (13)
4	08:58			08:22		15:58 (9)	07:21			07:05			05:56			05:09		21:23 (13)
	16:27			17:22	22	16:20 (9)	18:19			20:18			21:14			22:03	5	21:28 (13)
5	08:57			08:20		15:59 (9)	07:19			07:03			05:54			05:08		21:22 (13)
	16:29			17:24	21	16:20 (9)	18:21			20:20			21:16			22:05	7	21:29 (13)
6	08:57			08:18		16:00 (9)	07:17			07:00			05:52		20:37 (12)	05:07		21:21 (13)
	16:30			17:26	19	16:19 (9)	18:23			20:22			21:18	9	20:46 (12)	22:06	9	21:30 (13)
7	08:56			08:16		16:02 (9)	07:14			06:58			05:50		20:34 (12)	05:07		21:21 (13)
	16:31			17:28	15	16:17 (9)	18:25			20:24			21:20	14	20:48 (12)	22:07	10	21:31 (13)
8	08:56			08:14		16:05 (9)	07:12			06:55			05:48		20:33 (12)	05:06		21:20 (13)
	16:33			17:30	14	16:55 (10)	18:26			20:26			21:22	16	20:49 (12)	22:08	11	21:31 (13)
9	08:55			08:12		16:45 (10)	07:09			06:53			05:46		20:31 (12)	05:05		21:21 (13)
	16:34			17:32	14	16:59 (10)	18:28			20:27			21:23	19	20:50 (12)	22:09	12	21:33 (13)
10	08:55			08:10		16:43 (10)	07:07			06:50			05:44		20:31 (12)	05:05		21:20 (13)
	16:36			17:34	18	17:01 (10)	18:30			20:29			21:25	20	20:51 (12)	22:09	13	21:33 (13)
11	08:54			08:08		16:42 (10)	07:05			06:48			05:42		20:30 (12)	05:04		21:20 (13)
	16:37			17:36	21	17:03 (10)	18:32			20:31			21:27	22	20:52 (12)	22:10	14	21:34 (13)
12	08:53			08:06		16:41 (10)	07:02			06:45		19:53 (11)	05:40		20:29 (12)	05:04		21:20 (13)
	16:39			17:38	24	17:05 (10)	18:34			20:33	10	20:03 (11)	21:29	23	20:52 (12)	22:11	15	21:35 (13)
13	08:52			08:04		16:40 (10)	07:00			06:43		19:49 (11)	05:39		20:28 (12)	05:04		21:21 (13)
	16:40			17:40	26	17:06 (10)	18:36			20:35	16	20:05 (11)	21:31	24	20:52 (12)	22:12	15	21:36 (13)
14	08:51			08:02		16:39 (10)	06:57			06:41		19:48 (11)	05:37		20:29 (12)	05:03		21:20 (13)
	16:42			17:42	28	17:07 (10)	18:38			20:37	18	20:06 (11)	21:32	24	20:53 (12)	22:12	16	21:36 (13)
15	08:50		16:01 (9)	08:00		16:38 (10)	06:55			06:38		19:47 (11)	05:35		20:28 (12)	05:03		21:20 (13)
	16:44	5	16:06 (9)	17:45	29	17:07 (10)	18:40			20:39	21	20:08 (11)	21:34	25	20:53 (12)	22:13	16	21:36 (13)
16	08:49		15:59 (9)	07:58		16:37 (10)	06:52			06:36		19:46 (11)	05:33		20:28 (12)	05:03		21:20 (13)
	16:46	10	16:09 (9)	17:47	31	17:08 (10)	18:42			20:41	22	20:08 (11)	21:36	25	20:53 (12)	22:14	17	21:37 (13)
17	08:48		15:58 (9)	07:56		16:37 (10)	06:50			06:34		19:44 (11)	05:32		20:28 (12)	05:03		21:20 (13)
	16:47	13	16:11 (9)	17:49	31	17:08 (10)	18:44			20:42	24	20:08 (11)	21:37	25	20:53 (12)	22:14	17	21:37 (13)
18	08:47		15:57 (9)	07:54		16:37 (10)	06:47			06:31		19:44 (11)	05:30		20:28 (12)	05:03		21:21 (13)
	16:49	16	16:13 (9)	17:51	32	17:09 (10)	18:46			20:44	25	20:09 (11)	21:39	25	20:53 (12)	22:14	17	21:38 (13)
19	08:46		15:56 (9)	07:51		16:36 (10)	06:45			06:29		19:44 (11)	05:28		20:28 (12)	05:03		21:21 (13)
	16:51	18	16:14 (9)	17:53	32	17:08 (10)	18:48			20:46	25	20:09 (11)	21:41	25	20:53 (12)	22:15	17	21:38 (13)
20	08:45		15:56 (9)	07:49		16:36 (10)	06:42			06:27		19:43 (11)	05:27		20:28 (12)	05:03		21:21 (13)
	16:53	20	16:16 (9)	17:55	33	17:09 (10)	18:50			20:48	25	20:08 (11)	21:42	25	20:53 (12)	22:15	17	21:38 (13)
21	08:44		15:55 (9)	07:47		16:37 (10)	06:40			06:24		19:43 (11)	05:25		20:29 (12)	05:03		21:22 (13)
	16:54	21	16:16 (9)	17:57	32	17:09 (10)	18:51			20:50	25	20:08 (11)	21:44	24	20:53 (12)	22:15	17	21:39 (13)
22	08:42		15:55 (9)	07:45		16:36 (10)	06:37			06:22		19:43 (11)	05:24		20:29 (12)	05:03		21:22 (13)
	16:56	23	16:18 (9)	17:59	32	17:08 (10)	18:53			20:52	24	20:07 (11)	21:46	23	20:52 (12)	22:16	17	21:39 (13)
23	08:41		15:54 (9)	07:42		16:37 (10)	06:35			06:20		19:44 (11)	05:22		20:30 (12)	05:03		21:22 (13)
	16:58	24	16:18 (9)	18:01	30	17:07 (10)	18:55			20:54	23	20:07 (11)	21:47	22	20:52 (12)	22:16	17	21:39 (13)
24	08:40		15:54 (9)	07:40		16:38 (10)	06:32			06:17		19:44 (11)	05:21		20:30 (12)	05:04		21:22 (13)
	17:00	25	16:19 (9)	18:03	29	17:07 (10)	18:57			20:56	22	20:06 (11)	21:49	22	20:52 (12)	22:16	17	21:39 (13)
25	08:38		15:54 (9)	07:38		16:38 (10)	06:30			06:15		19:45 (11)	05:20		20:31 (12)	05:04		21:23 (13)
	17:02	26	16:20 (9)	18:05	28	17:06 (10)	18:59			20:58	20	20:05 (11)	21:50	21	20:52 (12)	22:16	16	21:39 (13)
26	08:37		15:53 (9)	07:36		16:39 (10)	06:27			06:13		19:45 (11)	05:18		20:32 (12)	05:05		21:22 (13)
	17:04	27	16:20 (9)	18:07	26	17:05 (10)	19:01			20:59	18	20:03 (11)	21:52	19	20:51 (12)	22:16	17	21:39 (13)
27	08:35		15:54 (9)	07:33		16:40 (10)	06:25			06:11		19:47 (11)	05:17		20:33 (12)	05:05		21:23 (13)
	17:06	27	16:21 (9)	18:09	23	17:03 (10)	19:03			21:01	15	20:02 (11)	21:53	18	20:51 (12)	22:16	16	21:39 (13)
28	08:34		15:54 (9)	07:31		16:42 (10)	06:22			06:09		19:49 (11)	05:16		20:34 (12)	05:06		21:23 (13)
	17:08	27	16:21 (9)	18:11	19	17:01 (10)	19:05			21:03	10	19:59 (11)	21:55	16	20:50 (12)	22:16	16	21:39 (13)
29	08:32		15:54 (9)				07:20			06:06			05:15		20:34 (12)	05:06		21:24 (13)
	17:10	27	16:21 (9)				20:07			21:05			21:56	16	20:50 (12)	22:15	15	21:39 (13)
30	08:31		15:54 (9)				07:17			06:04			05:14		20:36 (12)	05:07		21:24 (13)
	17:12	27	16:21 (9)				20:09			21:07			21:57	13	20:49 (12)	22:15	14	21:38 (13)
31	08:29		15:54 (9)				07:15						05:13		20:37 (12)			
	17:14	27	16:21 (9)				20:10						21:59	11	20:48 (12)			
Potential sun hours	248			272			367			421			496			513		
Total, worst case		363			704			19			343			526			407	
Sun reduction		0.17			0.22			0.22			0.34			0.36			0.26	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.61			0.59			0.58			0.59			0.62			0.64	
Total reduction		0.10			0.13			0.13			0.20			0.23			0.16	
Total, real		38			92			2			69			119			67	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BM - H65

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October		November		December
1	05:07	21:24 (13)	05:48	20:40 (12)	06:44	07:38		07:37	16:13 (10)	08:33
	22:15	14 21:38 (13)	21:39	22 21:02 (12)	20:31	19:16		17:04	17 16:30 (10)	16:19
2	05:08	21:25 (13)	05:50	20:41 (12)	06:45	07:40		07:39	15:38 (9)	08:35
	22:14	13 21:38 (13)	21:37	21 21:02 (12)	20:28	19:14		17:02	14 16:28 (10)	16:18
3	05:09	21:26 (13)	05:52	20:41 (12)	06:47	07:42		07:41	15:33 (9)	08:36
	22:14	12 21:38 (13)	21:35	19 21:00 (12)	20:26	19:11		17:00	11 15:44 (9)	16:18
4	05:10	21:25 (13)	05:53	20:42 (12)	06:49	07:44		07:43	15:31 (9)	08:38
	22:13	12 21:37 (13)	21:33	18 21:00 (12)	20:24	19:09		16:58	16 15:47 (9)	16:17
5	05:11	21:26 (13)	05:55	20:43 (12)	06:51	07:45		07:45	15:30 (9)	08:39
	22:13	11 21:37 (13)	21:31	16 20:59 (12)	20:21	19:06		16:56	19 15:49 (9)	16:16
6	05:12	21:27 (13)	05:57	20:44 (12)	06:53	07:47		07:47	15:28 (9)	08:41
	22:12	9 21:36 (13)	21:29	12 20:56 (12)	20:19	19:04		16:55	22 15:50 (9)	16:16
7	05:13	21:28 (13)	05:59	20:48 (12)	06:54	07:49		07:49	15:27 (9)	08:42
	22:12	8 21:36 (13)	21:27	6 20:54 (12)	20:16	19:01		16:53	23 15:50 (9)	16:15
8	05:14	21:29 (13)	06:00		06:56	07:51		07:51	15:26 (9)	08:43
	22:11	6 21:35 (13)	21:25		20:14	18:59		16:51	25 15:51 (9)	16:15
9	05:15	21:30 (13)	06:02		06:58	07:53		07:53	15:26 (9)	08:45
	22:10	4 21:34 (13)	21:23		20:11	18:56		16:49	25 15:51 (9)	16:14
10	05:16		06:04		07:00	07:55		07:55	15:26 (9)	08:46
	22:09		21:21		20:09	18:54		16:47	27 15:53 (9)	16:14
11	05:17	20:46 (12)	06:06		07:02	07:57		07:57	15:26 (9)	08:47
	22:08	7 20:53 (12)	21:19		20:06	18:52		16:45	27 15:53 (9)	16:14
12	05:18	20:45 (12)	06:08		07:03	07:59	17:20 (10)	07:59	15:26 (9)	08:48
	22:07	10 20:55 (12)	21:17		20:04	18:49	11 17:31 (10)	16:44	27 15:53 (9)	16:14
13	05:19	20:43 (12)	06:09		07:05	08:00	17:17 (10)	08:01	15:26 (9)	08:49
	22:06	13 20:56 (12)	21:15		20:01	18:47	17 17:34 (10)	16:42	27 15:53 (9)	16:14
14	05:21	20:43 (12)	06:11	20:00 (11)	07:07	08:02	17:14 (10)	08:03	15:26 (9)	08:50
	22:05	15 20:58 (12)	21:13	5 20:05 (11)	19:59	18:44	21 17:35 (10)	16:40	27 15:53 (9)	16:13
15	05:22	20:42 (12)	06:13	19:56 (11)	07:09	08:04	17:12 (10)	08:05	15:26 (9)	08:51
	22:04	17 20:59 (12)	21:10	12 20:08 (11)	19:56	18:42	24 17:36 (10)	16:39	27 15:53 (9)	16:13
16	05:23	20:42 (12)	06:15	19:54 (11)	07:11	08:06	17:11 (10)	08:07	15:26 (9)	08:52
	22:03	17 20:59 (12)	21:08	16 20:10 (11)	19:54	18:40	26 17:37 (10)	16:37	27 15:53 (9)	16:14
17	05:25	20:41 (12)	06:17	19:53 (11)	07:13	08:08	17:10 (10)	08:09	15:28 (9)	08:53
	22:02	19 21:00 (12)	21:06	18 20:11 (11)	19:51	18:37	28 17:38 (10)	16:36	26 15:54 (9)	16:14
18	05:26	20:41 (12)	06:18	19:51 (11)	07:14	08:10	17:09 (10)	08:11	15:28 (9)	08:54
	22:01	20 21:01 (12)	21:04	20 20:11 (11)	19:49	18:35	30 17:39 (10)	16:34	25 15:53 (9)	16:14
19	05:28	20:40 (12)	06:20	19:50 (11)	07:16	08:12	17:08 (10)	08:12	15:29 (9)	08:55
	21:59	21 21:01 (12)	21:01	22 20:12 (11)	19:46	18:33	31 17:39 (10)	16:33	24 15:53 (9)	16:14
20	05:29	20:39 (12)	06:22	19:49 (11)	07:18	08:14	17:07 (10)	08:14	15:30 (9)	08:55
	21:58	23 21:02 (12)	20:59	24 20:13 (11)	19:44	18:30	32 17:39 (10)	16:31	23 15:53 (9)	16:15
21	05:30	20:40 (12)	06:24	19:48 (11)	07:20	08:16	17:07 (10)	08:16	15:31 (9)	08:56
	21:56	23 21:03 (12)	20:57	24 20:12 (11)	19:41	18:28	32 17:39 (10)	16:30	21 15:52 (9)	16:15
22	05:32	20:39 (12)	06:26	19:48 (11)	07:22	08:18	17:07 (10)	08:18	15:32 (9)	08:56
	21:55	24 21:03 (12)	20:55	24 20:12 (11)	19:39	18:26	32 17:39 (10)	16:29	20 15:52 (9)	16:15
23	05:34	20:39 (12)	06:27	19:48 (11)	07:23	08:20	17:06 (10)	08:20	15:33 (9)	08:57
	21:54	25 21:04 (12)	20:52	24 20:12 (11)	19:36	18:24	33 17:39 (10)	16:27	18 15:51 (9)	16:16
24	05:35	20:39 (12)	06:29	19:48 (11)	07:25	08:22	17:06 (10)	08:22	15:34 (9)	08:57
	21:52	24 21:03 (12)	20:50	24 20:12 (11)	19:34	18:21	32 17:38 (10)	16:26	16 15:50 (9)	16:17
25	05:37	20:38 (12)	06:31	19:47 (11)	07:27	07:24	16:07 (10)	08:23	15:36 (9)	08:58
	21:51	25 21:03 (12)	20:48	24 20:11 (11)	19:31	17:19	31 16:38 (10)	16:25	13 15:49 (9)	16:17
26	05:38	20:39 (12)	06:33	19:47 (11)	07:29	07:26	16:07 (10)	08:25	15:38 (9)	08:58
	21:49	25 21:04 (12)	20:45	24 20:11 (11)	19:29	17:17	30 16:37 (10)	16:24	10 15:48 (9)	16:18
27	05:40	20:38 (12)	06:35	19:48 (11)	07:31	07:27	16:07 (10)	08:27	15:41 (9)	08:58
	21:47	25 21:03 (12)	20:43	22 20:10 (11)	19:26	17:15	29 16:36 (10)	16:23	5 15:46 (9)	16:19
28	05:42	20:39 (12)	06:36	19:48 (11)	07:32	07:29	16:09 (10)	08:28		08:58
	21:46	25 21:04 (12)	20:40	20 20:08 (11)	19:24	17:13	27 16:36 (10)	16:22		16:19
29	05:43	20:38 (12)	06:38	19:49 (11)	07:34	07:31	16:09 (10)	08:30		08:58
	21:44	25 21:03 (12)	20:38	18 20:07 (11)	19:21	17:11	26 16:35 (10)	16:21		16:20
30	05:45	20:39 (12)	06:40	19:50 (11)	07:36	07:33	16:10 (10)	08:32		08:58
	21:42	24 21:03 (12)	20:36	16 20:06 (11)	19:19	17:09	24 16:34 (10)	16:20		16:21
31	05:47	20:40 (12)	06:42	19:53 (11)		07:35	16:12 (10)			08:58
	21:40	23 21:03 (12)	20:33	10 20:03 (11)		17:06	20 16:32 (10)			16:22
Potential sun hours	515		461		382	328		257		231
Total, worst case		519		461			536		562	
Sun reduction		0.27		0.27			0.23		0.20	
Oper. time red.		1.00		1.00			1.00		1.00	
Wind dir. red.		0.63		0.60			0.58		0.61	
Total reduction		0.17		0.16			0.14		0.12	
Total, real		86		75			73		68	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BN - H66

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June
1	08:58	08:27	07:29		07:12		18:38 (18)	06:02	19:36 (17)	05:11
	16:24	17:16	18:13		20:12	28	19:06 (18)	21:09	20:01 (17)	22:00
2	08:58	08:25	07:26		07:10		18:39 (18)	06:00	19:37 (17)	05:10
	16:25	17:18	18:15		20:14	26	19:05 (18)	21:11	20:00 (17)	22:01
3	08:58	08:24	07:24		07:07		18:39 (18)	05:58	19:38 (17)	05:10
	16:26	17:20	18:17		20:16	24	19:03 (18)	21:12	19:59 (17)	22:02
4	08:58	08:22	07:21		07:05		18:40 (18)	05:56	19:39 (17)	05:09
	16:27	17:22	18:19		20:18	22	19:02 (18)	21:14	19:57 (17)	22:03
5	08:57	08:20	07:19		07:02		18:42 (18)	05:54	19:41 (17)	05:08
	16:28	17:24	18:21		20:20	19	19:01 (18)	21:16	19:55 (17)	22:05
6	08:57	08:18	07:17		07:00		18:44 (18)	05:52	19:44 (17)	05:07
	16:30	17:26	18:23		20:22	13	18:57 (18)	21:18	19:54 (17)	22:06
7	08:56	08:16	07:14		06:58			05:50		05:06
	16:31	17:28	18:24		20:24			21:20		22:07
8	08:56	08:14	07:12		06:55			05:48		05:06
	16:33	17:30	18:26		20:25			21:22		22:08
9	08:55	08:12	07:09		06:53			05:46		05:05
	16:34	17:32	18:28		20:27			21:23		22:09
10	08:55	08:10	07:07		06:50			05:44		05:05
	16:36	17:34	18:30		20:29			21:25		22:09
11	08:54	08:08	07:04		06:48			05:42		05:04
	16:37	17:36	18:32		20:31			21:27		22:10
12	08:53	08:06	07:02		06:45			05:40		05:04
	16:39	17:38	18:34		20:33			21:29		22:11
13	08:52	08:04	07:00		06:43			05:38		05:04
	16:40	17:40	18:36		20:35			21:31		22:12
14	08:51	08:02	06:57		06:41			05:37		05:03
	16:42	17:42	18:38		20:37			21:32		22:12
15	08:50	08:00	06:55		06:38		19:48 (17)	05:35		05:03
	16:44	17:44	18:40		20:39	8	19:56 (17)	21:34		22:13
16	08:49	07:58	06:52		06:36		19:44 (17)	05:33		05:03
	16:45	17:46	18:42		20:41	14	19:58 (17)	21:36		22:14
17	08:48	07:56	06:50		06:33		19:42 (17)	05:32		05:03
	16:47	17:49	18:44		20:42	19	20:01 (17)	21:37		22:14
18	08:47	07:54	06:47		06:31		19:40 (17)	05:30		05:03
	16:49	17:51	18:46		20:44	22	20:02 (17)	21:39		22:15
19	08:46	07:51	06:45	17:50 (18)	06:29		19:39 (17)	05:28		05:03
	16:51	17:53	18:48	12 18:02 (18)	20:46	24	20:03 (17)	21:41		22:15
20	08:45	07:49	06:42	17:46 (18)	06:26		19:37 (17)	05:27		05:03
	16:53	17:55	18:50	18 18:04 (18)	20:48	26	20:03 (17)	21:42		22:15
21	08:44	07:47	06:40	17:45 (18)	06:24		19:37 (17)	05:25		05:03
	16:54	17:57	18:51	21 18:06 (18)	20:50	27	20:04 (17)	21:44		22:15
22	08:42	07:45	06:37	17:43 (18)	06:22		19:36 (17)	05:24		05:03
	16:56	17:59	18:53	24 18:07 (18)	20:52	28	20:04 (17)	21:46		22:16
23	08:41	07:42	06:35	17:42 (18)	06:20		19:36 (17)	05:22		05:03
	16:58	18:01	18:55	26 18:08 (18)	20:54	29	20:05 (17)	21:47		22:16
24	08:40	07:40	06:32	17:40 (18)	06:17		19:36 (17)	05:21		05:04
	17:00	18:03	18:57	28 18:08 (18)	20:56	29	20:05 (17)	21:49		22:16
25	08:38	07:38	06:30	17:40 (18)	06:15		19:34 (17)	05:20		05:04
	17:02	18:05	18:59	29 18:09 (18)	20:58	30	20:04 (17)	21:50		22:16
26	08:37	07:36	06:27	17:38 (18)	06:13		19:34 (17)	05:18		05:04
	17:04	18:07	19:01	31 18:09 (18)	20:59	30	20:04 (17)	21:52		22:16
27	08:35	07:33	06:25	17:38 (18)	06:11		19:35 (17)	05:17		05:05
	17:06	18:09	19:03	31 18:09 (18)	21:01	28	20:03 (17)	21:53		22:16
28	08:34	07:31	06:22	17:37 (18)	06:08		19:35 (17)	05:16		05:05
	17:08	18:11	19:05	31 18:08 (18)	21:03	28	20:03 (17)	21:55		22:16
29	08:32		07:20	18:38 (18)	06:06		19:35 (17)	05:15		05:06
	17:10		20:07	31 19:09 (18)	21:05	28	20:03 (17)	21:56		22:15
30	08:30		07:17	18:37 (18)	06:04		19:36 (17)	05:14		05:07
	17:12		20:08	30 19:07 (18)	21:07	26	20:02 (17)	21:57		22:15
31	08:29		07:15	18:38 (18)				05:12		
	17:14		20:10	29 19:07 (18)				21:59		
Potential sun hours	248	272	367		421			496		513
Total, worst case				341		528			111	
Sun reduction				0.22		0.34			0.36	
Oper. time red.				1.00		1.00			1.00	
Wind dir. red.				0.57		0.58			0.59	
Total reduction				0.13		0.20			0.21	
Total, real				44		106			24	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BN - H66

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October	November	December
1	05:07	05:48		06:44		07:38	07:37	08:33
	22:15	21:39		20:31		19:16	17:04	16:19
2	05:08	05:50		06:45		07:40	07:39	08:35
	22:14	21:37		20:28		19:14	17:02	16:18
3	05:09	05:52		06:47		07:42	07:41	08:36
	22:14	21:35		20:26		19:11	17:00	16:17
4	05:10	05:53		06:49		07:43	07:43	08:38
	22:13	21:33		20:23		19:09	16:58	16:17
5	05:11	05:55		06:51		07:45	07:45	08:39
	22:13	21:31		20:21		19:06	16:56	16:16
6	05:11	05:57	19:56 (17)	06:53	18:40 (18)	07:47	07:47	08:41
	22:12	21:29	4 20:00 (17)	20:19	13 18:53 (18)	19:04	16:54	16:16
7	05:12	05:59	19:52 (17)	06:54	18:38 (18)	07:49	07:49	08:42
	22:12	21:27	12 20:04 (17)	20:16	18 18:56 (18)	19:01	16:53	16:15
8	05:14	06:00	19:50 (17)	06:56	18:35 (18)	07:51	07:51	08:43
	22:11	21:25	15 20:05 (17)	20:14	21 18:56 (18)	18:59	16:51	16:15
9	05:15	06:02	19:48 (17)	06:58	18:33 (18)	07:53	07:53	08:45
	22:10	21:23	19 20:07 (17)	20:11	24 18:57 (18)	18:56	16:49	16:14
10	05:16	06:04	19:47 (17)	07:00	18:32 (18)	07:55	07:55	08:46
	22:09	21:21	22 20:09 (17)	20:09	26 18:58 (18)	18:54	16:47	16:14
11	05:17	06:06	19:45 (17)	07:02	18:31 (18)	07:57	07:57	08:47
	22:08	21:19	24 20:09 (17)	20:06	28 18:59 (18)	18:51	16:45	16:14
12	05:18	06:07	19:45 (17)	07:03	18:29 (18)	07:58	07:59	08:48
	22:07	21:17	25 20:10 (17)	20:04	29 18:58 (18)	18:49	16:44	16:14
13	05:19	06:09	19:44 (17)	07:05	18:28 (18)	08:00	08:01	08:49
	22:06	21:15	27 20:11 (17)	20:01	31 18:59 (18)	18:47	16:42	16:13
14	05:21	06:11	19:43 (17)	07:07	18:28 (18)	08:02	08:03	08:50
	22:05	21:12	27 20:10 (17)	19:59	31 18:59 (18)	18:44	16:40	16:13
15	05:22	06:13	19:42 (17)	07:09	18:28 (18)	08:04	08:05	08:51
	22:04	21:10	29 20:11 (17)	19:56	31 18:59 (18)	18:42	16:39	16:13
16	05:23	06:15	19:42 (17)	07:11	18:27 (18)	08:06	08:07	08:52
	22:03	21:08	29 20:11 (17)	19:54	31 18:58 (18)	18:40	16:37	16:13
17	05:25	06:16	19:42 (17)	07:12	18:27 (18)	08:08	08:09	08:53
	22:02	21:06	29 20:11 (17)	19:51	30 18:57 (18)	18:37	16:36	16:14
18	05:26	06:18	19:41 (17)	07:14	18:27 (18)	08:10	08:11	08:54
	22:01	21:04	29 20:10 (17)	19:49	30 18:57 (18)	18:35	16:34	16:14
19	05:27	06:20	19:41 (17)	07:16	18:27 (18)	08:12	08:12	08:55
	21:59	21:01	29 20:10 (17)	19:46	29 18:56 (18)	18:33	16:33	16:14
20	05:29	06:22	19:42 (17)	07:18	18:27 (18)	08:14	08:14	08:55
	21:58	20:59	28 20:10 (17)	19:44	27 18:54 (18)	18:30	16:31	16:14
21	05:30	06:24	19:41 (17)	07:20	18:28 (18)	08:16	08:16	08:56
	21:56	20:57	28 20:09 (17)	19:41	25 18:53 (18)	18:28	16:30	16:15
22	05:32	06:25	19:41 (17)	07:21	18:29 (18)	08:18	08:18	08:56
	21:55	20:55	27 20:08 (17)	19:39	22 18:51 (18)	18:26	16:29	16:15
23	05:33	06:27	19:42 (17)	07:23	18:30 (18)	08:20	08:20	08:57
	21:54	20:52	26 20:08 (17)	19:36	19 18:49 (18)	18:24	16:27	16:16
24	05:35	06:29	19:42 (17)	07:25	18:33 (18)	08:22	08:22	08:57
	21:52	20:50	24 20:06 (17)	19:33	14 18:47 (18)	18:21	16:26	16:16
25	05:37	06:31	19:43 (17)	07:27	18:36 (18)	07:24	08:23	08:58
	21:51	20:48	22 20:05 (17)	19:31	5 18:41 (18)	17:19	16:25	16:17
26	05:38	06:33	19:45 (17)	07:29		07:25	08:25	08:58
	21:49	20:45	18 20:03 (17)	19:28		17:17	16:24	16:18
27	05:40	06:35	19:47 (17)	07:31		07:27	08:27	08:58
	21:47	20:43	14 20:01 (17)	19:26		17:15	16:23	16:19
28	05:41	06:36	19:49 (17)	07:32		07:29	08:28	08:58
	21:46	20:40	7 19:56 (17)	19:23		17:13	16:22	16:19
29	05:43	06:38		07:34		07:31	08:30	08:58
	21:44	20:38		19:21		17:11	16:21	16:20
30	05:45	06:40		07:36		07:33	08:32	08:58
	21:42	20:36		19:18		17:08	16:20	16:21
31	05:46	06:42				07:35		08:58
	21:40	20:33				17:06		16:22
Potential sun hours	515	461		383		327	257	230
Total, worst case			514		484			
Sun reduction			0.27		0.29			
Oper. time red.			1.00		1.00			
Wind dir. red.			0.59		0.57			
Total reduction			0.16		0.17			
Total, real			83		81			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BO - H67

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June	
1	08:58	08:27	07:29	07:12		06:02		05:11	
	16:24	17:16	18:13	20:12		21:09	15	20:18 (18)	22:00 23 21:13 (17)
2	08:58	08:25	07:26	07:10		06:00		05:11	
	16:25	17:18	18:15	20:14		21:11	19	20:20 (18)	22:01 20 21:14 (17)
3	08:58	08:24	07:24	07:07		05:58		05:10	
	16:26	17:20	18:17	20:16		21:12	22	20:21 (18)	22:02 16 21:14 (17)
4	08:58	08:22	07:21	07:05		05:56		05:09	
	16:27	17:22	18:19	20:18		21:14	24	20:22 (18)	22:03 18 21:15 (17)
5	08:57	08:20	07:19	07:02		05:54		05:08	
	16:28	17:24	18:21	20:20		21:16	26	20:23 (18)	22:05 18 21:16 (17)
6	08:57	08:18	07:17	07:00		05:52		05:07	
	16:30	17:26	18:23	20:22		21:18	27	20:24 (18)	22:06 20 21:17 (17)
7	08:56	08:16	07:14	06:58		05:50		05:07	
	16:31	17:28	18:24	20:24		21:20	29	20:25 (18)	22:07 21 21:18 (17)
8	08:56	08:14	07:12	06:55		05:48		05:06	
	16:33	17:30	18:26	20:25		21:22	30	20:25 (18)	22:08 22 21:18 (17)
9	08:55	08:12	07:09	06:53		05:46		05:05	
	16:34	17:32	18:28	20:27		21:23	31	20:25 (18)	22:09 22 21:19 (17)
10	08:55	08:10	07:07	06:50		05:44		05:05	
	16:36	17:34	18:30	20:29		21:25	31	20:25 (18)	22:09 23 21:19 (17)
11	08:54	08:08	07:04	06:48		05:42		05:04	
	16:37	17:36	18:32	20:31		21:27	32	20:26 (18)	22:10 23 21:19 (17)
12	08:53	08:06	07:02	06:45		05:40		05:04	
	16:39	17:38	18:34	20:33		21:29	32	20:26 (18)	22:11 23 21:20 (17)
13	08:52	08:04	07:00	06:43		05:38		05:04	
	16:40	17:40	18:36	20:35		21:31	32	20:25 (18)	22:12 24 21:20 (17)
14	08:51	08:02	06:57	06:41		05:37		05:03	
	16:42	17:42	18:38	20:37		21:32	32	20:26 (18)	22:12 24 21:20 (17)
15	08:50	08:00	06:55	06:38		05:35		05:03	
	16:44	17:44	18:40	20:39		21:34	32	20:26 (18)	22:13 24 21:21 (17)
16	08:49	07:58	06:52	06:36		05:33		05:03	
	16:45	17:46	18:42	20:41		21:36	32	20:26 (18)	22:14 24 21:21 (17)
17	08:48	07:56	06:50	06:33		05:32		05:03	
	16:47	17:49	18:44	20:42		21:37	31	20:25 (18)	22:14 24 21:21 (17)
18	08:47	07:54	06:47	06:31		05:30		05:03	
	16:49	17:51	18:46	20:44		21:39	31	20:26 (18)	22:14 25 21:22 (17)
19	08:46	07:51	06:45	06:29		05:28		05:03	
	16:51	17:53	18:48	20:46		21:41	30	20:25 (18)	22:15 25 21:22 (17)
20	08:45	07:49	06:42	06:26		05:27		05:03	
	16:53	17:55	18:50	20:48		21:42	30	20:25 (18)	22:15 25 21:22 (17)
21	08:44	07:47	06:40	06:24		05:25		05:03	
	16:54	17:57	18:51	20:50		21:44	29	20:25 (18)	22:15 25 21:22 (17)
22	08:42	07:45	06:37	06:22		05:24		05:03	
	16:56	17:59	18:53	20:52		21:46	28	20:24 (18)	22:16 25 21:23 (17)
23	08:41	07:42	06:35	06:20		05:22		05:03	
	16:58	18:01	18:55	20:54		21:47	26	20:23 (18)	22:16 25 21:23 (17)
24	08:40	07:40	06:32	06:17		05:21		05:04	
	17:00	18:03	18:57	20:56		21:49	25	20:23 (18)	22:16 25 21:23 (17)
25	08:38	07:38	06:30	06:15		05:20		05:04	
	17:02	18:05	18:59	20:58		21:50	24	20:23 (18)	22:16 25 21:24 (17)
26	08:37	07:36	06:27	06:13		05:18		05:04	
	17:04	18:07	19:01	20:59		21:52	22	20:22 (18)	22:16 24 21:23 (17)
27	08:35	07:33	06:25	06:11		05:17		05:05	
	17:06	18:09	19:03	21:01		21:53	21	20:21 (18)	22:16 24 21:24 (17)
28	08:34	07:31	06:22	06:08		05:16		05:05	
	17:08	18:11	19:05	21:03		21:55	19	20:20 (18)	22:16 24 21:23 (17)
29	08:32		07:20	06:06		05:15		05:06	
	17:10		20:07	21:05		21:56	17	20:19 (18)	22:15 24 21:24 (17)
30	08:30		07:17	06:04	20:07 (18)	05:14		05:07	
	17:12		20:08	21:07	8 20:15 (18)	21:57	22	21:09 (17)	22:15 23 21:23 (17)
31	08:29		07:15			05:12		20:05 (18)	
	17:14		20:10			21:59	23	21:11 (17)	
Potential sun hours	248	272	367	421		496		513	
Total, worst case					8		824		688
Sun reduction					0.34		0.36		0.26
Oper. time red.					1.00		1.00		1.00
Wind dir. red.					0.61		0.61		0.63
Total reduction					0.21		0.22		0.16
Total, real					2		182		111

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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F91 RHH9 Sligo
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BO - H67

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October	November	December
1	05:07		05:48		06:44	07:38	07:37	08:33
	22:15	23	21:39	32	20:31	19:16	17:04	16:19
2	05:08		05:50		06:45	07:40	07:39	08:35
	22:14	23	21:37	31	20:28	19:14	17:02	16:18
3	05:09		05:52		06:47	07:42	07:41	08:36
	22:14	22	21:35	31	20:26	19:11	17:00	16:17
4	05:10		05:53		06:49	07:43	07:43	08:38
	22:13	21	21:33	30	20:23	19:09	16:58	16:17
5	05:11		05:55		06:51	07:45	07:45	08:39
	22:13	21	21:31	29	20:21	19:06	16:56	16:16
6	05:12		05:57		06:53	07:47	07:47	08:41
	22:12	20	21:29	28	20:19	19:04	16:54	16:16
7	05:13		05:59		06:54	07:49	07:49	08:42
	22:12	19	21:27	28	20:16	19:01	16:53	16:15
8	05:14		06:00		06:56	07:51	07:51	08:43
	22:11	19	21:25	25	20:14	18:59	16:51	16:15
9	05:15		06:02		06:58	07:53	07:53	08:45
	22:10	17	21:23	23	20:11	18:56	16:49	16:14
10	05:16		06:04		07:00	07:55	07:55	08:46
	22:09	16	21:21	21	20:09	18:54	16:47	16:14
11	05:17		06:06		07:02	07:57	07:57	08:47
	22:08	22	21:19	18	20:06	18:51	16:45	16:14
12	05:18		06:07		07:03	07:58	07:59	08:48
	22:07	23	21:17	13	20:04	18:49	16:44	16:14
13	05:19		06:09		07:05	08:00	08:01	08:49
	22:06	22	21:15	4	20:01	18:47	16:42	16:13
14	05:21		06:11		07:07	08:02	08:03	08:50
	22:05	18	21:12		19:59	18:44	16:40	16:13
15	05:22		06:13		07:09	08:04	08:05	08:51
	22:04	18	21:10		19:56	18:42	16:39	16:13
16	05:23		06:15		07:11	08:06	08:07	08:52
	22:03	20	21:08		19:54	18:40	16:37	16:13
17	05:25		06:16		07:12	08:08	08:09	08:53
	22:02	22	21:06		19:51	18:37	16:36	16:14
18	05:26		06:18		07:14	08:10	08:11	08:54
	22:01	23	21:04		19:49	18:35	16:34	16:14
19	05:27		06:20		07:16	08:12	08:12	08:55
	21:59	25	21:01		19:46	18:33	16:33	16:14
20	05:29		06:22		07:18	08:14	08:14	08:55
	21:58	26	20:59		19:44	18:30	16:31	16:14
21	05:30		06:24		07:20	08:16	08:16	08:56
	21:56	27	20:57		19:41	18:28	16:30	16:15
22	05:32		06:25		07:21	08:18	08:18	08:56
	21:55	28	20:55		19:39	18:26	16:29	16:15
23	05:33		06:27		07:23	08:20	08:20	08:57
	21:54	29	20:52		19:36	18:24	16:27	16:16
24	05:35		06:29		07:25	08:22	08:22	08:57
	21:52	29	20:50		19:33	18:21	16:26	16:16
25	05:37		06:31		07:27	07:24	08:23	08:58
	21:50	30	20:48		19:31	17:19	16:25	16:17
26	05:38		06:33		07:29	07:25	08:25	08:58
	21:49	31	20:45		19:28	17:17	16:24	16:18
27	05:40		06:35		07:31	07:27	08:27	08:58
	21:47	32	20:43		19:26	17:15	16:23	16:19
28	05:41		06:36		07:32	07:29	08:28	08:58
	21:46	31	20:40		19:23	17:13	16:22	16:19
29	05:43		06:38		07:34	07:31	08:30	08:58
	21:44	32	20:38		19:21	17:11	16:21	16:20
30	05:45		06:40		07:36	07:33	08:32	08:58
	21:42	32	20:36		19:18	17:08	16:20	16:21
31	05:46		06:42			07:35		08:58
	21:40	32	20:33			17:06		16:22
Potential sun hours	515		461		383	327	257	230
Total, worst case		753		313				
Sun reduction		0.27		0.27				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.62		0.61				
Total reduction		0.16		0.17				
Total, real		123		52				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BP - H68

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April			May			June		
1	08:58		15:26 (9)	08:27		16:10 (10)	07:29	07:12			06:02		20:13 (12)	05:12		21:06 (13)
	16:24	19	15:45 (9)	17:16	29	16:39 (10)	18:13	20:12			21:09	22	20:35 (12)	22:00	18	21:24 (13)
2	08:58		15:26 (9)	08:25		16:10 (10)	07:26	07:10			06:00		20:12 (12)	05:11		21:05 (13)
	16:25	21	15:47 (9)	17:18	29	16:39 (10)	18:15	20:14			21:11	23	20:35 (12)	22:01	20	21:25 (13)
3	08:58		15:27 (9)	08:24		16:10 (10)	07:24	07:07		19:34 (11)	05:58		20:11 (12)	05:10		21:05 (13)
	16:26	21	15:48 (9)	17:20	30	16:40 (10)	18:17	20:16	12	19:46 (11)	21:13	25	20:36 (12)	22:02	20	21:25 (13)
4	08:58		15:27 (9)	08:22		16:09 (10)	07:22	07:05		19:32 (11)	05:56		20:11 (12)	05:09		21:06 (13)
	16:27	21	15:48 (9)	17:22	31	16:40 (10)	18:19	20:18	17	19:49 (11)	21:14	25	20:36 (12)	22:03	20	21:26 (13)
5	08:57		15:26 (9)	08:20		16:09 (10)	07:19	07:03		19:31 (11)	05:54		20:11 (12)	05:08		21:05 (13)
	16:29	22	15:48 (9)	17:24	32	16:41 (10)	18:21	20:20	19	19:50 (11)	21:16	26	20:37 (12)	22:05	21	21:26 (13)
6	08:57		15:27 (9)	08:18		16:09 (10)	07:17	07:00		19:29 (11)	05:52		20:11 (12)	05:07		21:05 (13)
	16:30	23	15:50 (9)	17:26	32	16:41 (10)	18:23	20:22	22	19:51 (11)	21:18	26	20:37 (12)	22:06	21	21:26 (13)
7	08:56		15:27 (9)	08:16		16:09 (10)	07:14	06:58		19:28 (11)	05:50		20:10 (12)	05:07		21:06 (13)
	16:31	23	15:50 (9)	17:28	32	16:41 (10)	18:25	20:24	24	19:52 (11)	21:20	27	20:37 (12)	22:07	21	21:27 (13)
8	08:56		15:27 (9)	08:14		16:10 (10)	07:12	06:55		19:27 (11)	05:48		20:10 (12)	05:06		21:05 (13)
	16:33	24	15:51 (9)	17:30	31	16:41 (10)	18:26	20:26	24	19:51 (11)	21:22	27	20:37 (12)	22:08	21	21:26 (13)
9	08:55		15:28 (9)	08:12		16:09 (10)	07:09	06:53		19:26 (11)	05:46		20:10 (12)	05:05		21:06 (13)
	16:34	24	15:52 (9)	17:32	31	16:40 (10)	18:28	20:27	26	19:52 (11)	21:23	26	20:36 (12)	22:09	21	21:27 (13)
10	08:55		15:28 (9)	08:10		16:10 (10)	07:07	06:50		19:26 (11)	05:44		20:11 (12)	05:05		21:05 (13)
	16:36	25	15:53 (9)	17:34	30	16:40 (10)	18:30	20:29	26	19:52 (11)	21:25	26	20:37 (12)	22:09	22	21:27 (13)
11	08:54		15:28 (9)	08:08		16:10 (10)	07:05	06:48		19:25 (11)	05:42		20:11 (12)	05:04		21:06 (13)
	16:37	25	15:53 (9)	17:36	30	16:40 (10)	18:32	20:31	26	19:51 (11)	21:27	25	20:36 (12)	22:10	21	21:27 (13)
12	08:53		15:28 (9)	08:06		16:11 (10)	07:02	06:45		19:26 (11)	05:40		20:11 (12)	05:04		21:06 (13)
	16:39	26	15:54 (9)	17:38	28	16:39 (10)	18:34	20:33	25	19:51 (11)	21:29	24	20:35 (12)	22:11	22	21:28 (13)
13	08:52		15:28 (9)	08:04		16:12 (10)	07:00	06:43		19:25 (11)	05:39		20:11 (12)	05:04		21:07 (13)
	16:40	26	15:54 (9)	17:40	27	16:39 (10)	18:36	20:35	25	19:50 (11)	21:31	24	20:35 (12)	22:12	21	21:28 (13)
14	08:51		15:29 (9)	08:02		16:13 (10)	06:57	06:41		19:26 (11)	05:37		20:12 (12)	05:03		21:06 (13)
	16:42	26	15:55 (9)	17:42	25	16:38 (10)	18:38	20:37	23	19:49 (11)	21:32	22	20:34 (12)	22:12	22	21:28 (13)
15	08:50		15:28 (9)	08:00		16:14 (10)	06:55	06:38		19:26 (11)	05:35		20:13 (12)	05:03		21:06 (13)
	16:44	26	15:54 (9)	17:45	22	16:36 (10)	18:40	20:39	23	19:49 (11)	21:34	20	20:33 (12)	22:13	22	21:28 (13)
16	08:49		15:29 (9)	07:58		16:16 (10)	06:52	06:36		19:27 (11)	05:33		20:14 (12)	05:03		21:07 (13)
	16:45	26	15:55 (9)	17:47	19	16:35 (10)	18:42	20:41	21	19:48 (11)	21:36	19	20:33 (12)	22:14	21	21:28 (13)
17	08:48		15:29 (9)	07:56		16:18 (10)	06:50	06:34		19:28 (11)	05:32		20:15 (12)	05:03		21:07 (13)
	16:47	27	15:56 (9)	17:49	15	16:33 (10)	18:44	20:43	18	19:46 (11)	21:37	17	20:32 (12)	22:14	21	21:28 (13)
18	08:47		15:30 (9)	07:54		16:23 (10)	06:47	06:31		19:30 (11)	05:30		20:17 (12)	05:03		21:07 (13)
	16:49	26	15:56 (9)	17:51	6	16:29 (10)	18:46	20:44	14	19:44 (11)	21:39	14	20:31 (12)	22:14	22	21:29 (13)
19	08:46		15:30 (9)	07:51			06:45	06:29		19:33 (11)	05:28		20:18 (12)	05:03		21:07 (13)
	16:51	26	15:56 (9)	17:53			18:48	20:46	8	19:41 (11)	21:41	11	20:29 (12)	22:15	22	21:29 (13)
20	08:45		15:31 (9)	07:49			06:42	06:27			05:27		20:21 (12)	05:03		21:07 (13)
	16:53	25	15:56 (9)	17:55			18:50	20:48			21:42	5	20:26 (12)	22:15	22	21:29 (13)
21	08:44		15:31 (9)	07:47			06:40	06:24			05:25			05:03		21:08 (13)
	16:54	25	15:56 (9)	17:57			18:51	20:50			21:44			22:15	22	21:30 (13)
22	08:42		15:32 (9)	07:45			06:37	06:22			05:24			05:03		21:08 (13)
	16:56	24	15:56 (9)	17:59			18:53	20:52			21:46			22:16	22	21:30 (13)
23	08:41		15:32 (9)	07:42			06:35	06:20			05:22			05:03		21:08 (13)
	16:58	23	15:55 (9)	18:01			18:55	20:54			21:47			22:16	22	21:30 (13)
24	08:40		15:34 (9)	07:40			06:32	06:17			05:21			05:04		21:08 (13)
	17:00	22	15:56 (9)	18:03			18:57	20:56			21:49			22:16	22	21:30 (13)
25	08:38		15:35 (9)	07:38			06:30	06:15			05:20		21:11 (13)	05:04		21:09 (13)
	17:02	31	16:28 (10)	18:05			18:59	20:58			21:50	5	21:16 (13)	22:16	22	21:31 (13)
26	08:37		15:36 (9)	07:36			06:27	06:13			05:18		21:09 (13)	05:05		21:09 (13)
	17:04	33	16:30 (10)	18:07			19:01	20:59			21:52	9	21:18 (13)	22:16	21	21:30 (13)
27	08:35		15:38 (9)	07:33			06:25	06:11		20:20 (12)	05:17		21:08 (13)	05:05		21:10 (13)
	17:06	35	16:33 (10)	18:09			19:03	21:01	8	20:28 (12)	21:53	11	21:19 (13)	22:16	21	21:31 (13)
28	08:34		15:40 (9)	07:31			06:22	06:09		20:17 (12)	05:16		21:08 (13)	05:06		21:09 (13)
	17:08	33	16:34 (10)	18:11			19:05	21:03	14	20:31 (12)	21:55	12	21:20 (13)	22:16	22	21:31 (13)
29	08:32		15:43 (9)				07:20	06:06		20:16 (12)	05:15		21:07 (13)	05:06		21:10 (13)
	17:10	29	16:35 (10)				20:07	21:05	17	20:33 (12)	21:56	15	21:22 (13)	22:15	21	21:31 (13)
30	08:31		16:11 (10)				07:17	06:04		20:14 (12)	05:14		21:07 (13)	05:07		21:09 (13)
	17:12	25	16:36 (10)				20:09	21:07	20	20:34 (12)	21:57	16	21:23 (13)	22:15	22	21:31 (13)
31	08:29		16:10 (10)				07:15				05:13		21:06 (13)			
	17:14	27	16:37 (10)				20:10				21:59	18	21:24 (13)			
Potential sun hours	248			272			367	421			496			513		
Total, worst case		789			479				412			520			638	
Sun reduction		0.17			0.22				0.34			0.36			0.26	
Oper. time red.		1.00			1.00				1.00			1.00			1.00	
Wind dir. red.		0.62			0.60				0.59			0.62			0.63	
Total reduction		0.11			0.13				0.20			0.22			0.16	
Total, real		83			63				84			116			103	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BP - H68

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December		
1	05:07		21:10 (13)	05:48		20:21 (12)	06:44		19:24 (11)	07:38			07:37		15:39 (10)	08:33		15:10 (9)
	22:15	21	21:31 (13)	21:39	25	20:46 (12)	20:31	26	19:50 (11)	19:16			17:04	31	16:10 (10)	16:19	25	15:35 (9)
2	05:08		21:11 (13)	05:50		20:21 (12)	06:45		19:24 (11)	07:40			07:39		15:39 (10)	08:35		15:10 (9)
	22:14	21	21:32 (13)	21:37	26	20:47 (12)	20:28	26	19:50 (11)	19:14			17:02	31	16:10 (10)	16:18	25	15:35 (9)
3	05:09		21:11 (13)	05:52		20:20 (12)	06:47		19:24 (11)	07:42			07:41		15:38 (10)	08:36		15:11 (9)
	22:14	21	21:32 (13)	21:35	26	20:46 (12)	20:26	26	19:50 (11)	19:11			17:00	32	16:10 (10)	16:18	24	15:35 (9)
4	05:10		21:10 (13)	05:53		20:20 (12)	06:49		19:24 (11)	07:44			07:43		15:39 (10)	08:38		15:12 (9)
	22:13	22	21:32 (13)	21:33	27	20:47 (12)	20:24	24	19:48 (11)	19:09			16:58	32	16:11 (10)	16:17	24	15:36 (9)
5	05:11		21:11 (13)	05:55		20:21 (12)	06:51		19:24 (11)	07:45			07:45		15:39 (10)	08:39		15:12 (9)
	22:13	21	21:32 (13)	21:31	26	20:47 (12)	20:21	24	19:48 (11)	19:06			16:56	32	16:11 (10)	16:16	23	15:35 (9)
6	05:12		21:11 (13)	05:57		20:20 (12)	06:53		19:25 (11)	07:47			07:47		15:39 (10)	08:41		15:13 (9)
	22:12	21	21:32 (13)	21:29	26	20:46 (12)	20:19	22	19:47 (11)	19:04			16:55	31	16:10 (10)	16:16	23	15:36 (9)
7	05:13		21:12 (13)	05:59		20:20 (12)	06:54		19:26 (11)	07:49			07:49		15:39 (10)	08:42		15:13 (9)
	22:12	20	21:32 (13)	21:27	27	20:47 (12)	20:16	20	19:46 (11)	19:01			16:53	31	16:10 (10)	16:15	22	15:35 (9)
8	05:14		21:12 (13)	06:00		20:21 (12)	06:56		19:26 (11)	07:51			07:51		15:39 (10)	08:43		15:15 (9)
	22:11	20	21:32 (13)	21:25	26	20:47 (12)	20:14	17	19:43 (11)	18:59			16:51	31	16:10 (10)	16:15	21	15:36 (9)
9	05:15		21:12 (13)	06:02		20:20 (12)	06:58		19:28 (11)	07:53			07:53		15:40 (10)	08:45		15:15 (9)
	22:10	20	21:32 (13)	21:23	25	20:45 (12)	20:11	13	19:41 (11)	18:56			16:49	29	16:09 (10)	16:14	21	15:36 (9)
10	05:16		21:13 (13)	06:04		20:21 (12)	07:00		19:33 (11)	07:55			07:55		15:41 (10)	08:46		15:16 (9)
	22:09	19	21:32 (13)	21:21	24	20:45 (12)	20:09	3	19:36 (11)	18:54			16:47	28	16:09 (10)	16:14	20	15:36 (9)
11	05:17		21:13 (13)	06:06		20:22 (12)	07:02			07:57			07:57		15:42 (10)	08:47		15:16 (9)
	22:08	19	21:32 (13)	21:19	23	20:45 (12)	20:06			18:52			16:45	27	16:09 (10)	16:14	19	15:35 (9)
12	05:18		21:13 (13)	06:08		20:22 (12)	07:04			07:59			07:59		15:43 (10)	08:48		15:18 (9)
	22:07	19	21:32 (13)	21:17	21	20:43 (12)	20:04			18:49			16:44	25	16:08 (10)	16:14	18	15:36 (9)
13	05:19		21:14 (13)	06:09		20:23 (12)	07:05			08:00			08:01		15:14 (9)	08:49		15:18 (9)
	22:06	17	21:31 (13)	21:15	19	20:42 (12)	20:01			18:47			16:42	30	16:07 (10)	16:14	17	15:35 (9)
14	05:21		21:15 (13)	06:11		20:24 (12)	07:07			08:02			08:03		15:12 (9)	08:50		15:19 (9)
	22:05	16	21:31 (13)	21:13	17	20:41 (12)	19:59			18:44			16:40	33	16:06 (10)	16:13	16	15:35 (9)
15	05:22		21:16 (13)	06:13		20:26 (12)	07:09			08:04			08:05		15:10 (9)	08:51		15:20 (9)
	22:04	14	21:30 (13)	21:10	12	20:38 (12)	19:56			18:42			16:39	34	16:04 (10)	16:13	15	15:35 (9)
16	05:23		21:16 (13)	06:15		20:29 (12)	07:11			08:06			08:07		15:09 (9)	08:52		15:21 (9)
	22:03	12	21:28 (13)	21:08	6	20:35 (12)	19:54			18:40			16:37	33	16:03 (10)	16:14	14	15:35 (9)
17	05:25		21:17 (13)	06:17			07:13			08:08			08:09		15:09 (9)	08:53		15:21 (9)
	22:02	10	21:27 (13)	21:06			19:51			18:37			16:36	30	16:01 (10)	16:14	14	15:35 (9)
18	05:26		21:19 (13)	06:18			07:14			08:10			08:11		15:08 (9)	08:54		15:21 (9)
	22:01	8	21:27 (13)	21:04			19:49			18:35			16:34	22	15:30 (9)	16:14	14	15:35 (9)
19	05:28		21:21 (13)	06:20			07:16			08:12			08:12		15:07 (9)	08:55		15:22 (9)
	21:59	4	21:25 (13)	21:01			19:46			18:33			16:33	23	15:30 (9)	16:14	13	15:35 (9)
20	05:29			06:22			07:18			08:14			08:14		15:07 (9)	08:55		15:23 (9)
	21:58			20:59			19:44			18:30			16:31	24	15:31 (9)	16:15	13	15:36 (9)
21	05:30			06:24			07:20			08:16			08:16		15:07 (9)	08:56		15:23 (9)
	21:57			20:57			19:41			18:28			16:30	25	15:32 (9)	16:15	13	15:36 (9)
22	05:32			06:26			07:22			08:18			08:18		15:07 (9)	08:56		15:24 (9)
	21:55			20:55			19:39			18:26			16:29	25	15:32 (9)	16:15	13	15:37 (9)
23	05:34			06:27			07:23			08:20			08:20		15:07 (9)	08:57		15:24 (9)
	21:54			20:52			19:36			18:24			16:27	26	15:33 (9)	16:16	13	15:37 (9)
24	05:35		20:30 (12)	06:29		19:36 (11)	07:25			08:22		16:51 (10)	08:22		15:07 (9)	08:57		15:24 (9)
	21:52	8	20:38 (12)	20:50	9	19:45 (11)	19:34			18:21	9	17:00 (10)	16:26	26	15:33 (9)	16:17	13	15:37 (9)
25	05:37		20:27 (12)	06:31		19:32 (11)	07:27			07:24		15:47 (10)	08:23		15:07 (9)	08:58		15:25 (9)
	21:51	13	20:40 (12)	20:48	15	19:47 (11)	19:31			17:19	16	16:03 (10)	16:25	27	15:34 (9)	16:17	14	15:39 (9)
26	05:38		20:26 (12)	06:33		19:30 (11)	07:29			07:26		15:45 (10)	08:25		15:08 (9)	08:58		15:25 (9)
	21:49	16	20:42 (12)	20:45	19	19:49 (11)	19:29			17:17	20	16:05 (10)	16:24	26	15:34 (9)	16:18	14	15:39 (9)
27	05:40		20:25 (12)	06:35		19:29 (11)	07:31			07:28		15:43 (10)	08:27		15:08 (9)	08:58		15:25 (9)
	21:47	17	20:42 (12)	20:43	21	19:50 (11)	19:26			17:15	23	16:06 (10)	16:23	27	15:35 (9)	16:19	15	15:40 (9)
28	05:42		20:24 (12)	06:36		19:27 (11)	07:32			07:29		15:43 (10)	08:28		15:08 (9)	08:58		15:26 (9)
	21:46	20	20:44 (12)	20:40	23	19:50 (11)	19:24			17:13	25	16:08 (10)	16:22	26	15:34 (9)	16:19	15	15:41 (9)
29	05:43		20:23 (12)	06:38		19:26 (11)	07:34			07:31		15:41 (10)	08:30		15:08 (9)	08:58		15:26 (9)
	21:44	21	20:44 (12)	20:38	24	19:50 (11)	19:21			17:11	27	16:08 (10)	16:21	26	15:34 (9)	16:20	16	15:42 (9)
30	05:45		20:22 (12)	06:40		19:26 (11)	07:36			07:33		15:40 (10)	08:32		15:09 (9)	08:58		15:26 (9)
	21:42	23	20:45 (12)	20:36	25	19:51 (11)	19:19			17:09	29	16:09 (10)	16:20	26	15:35 (9)	16:21	17	15:43 (9)
31	05:47		20:22 (12)	06:42		19:25 (11)				07:35		15:40 (10)				08:58		15:26 (9)
	21:40	24	20:46 (12)	20:33	26	19:51 (11)				17:06	29	16:09 (10)				16:22	18	15:44 (9)
Potential sun hours	515			461			382			328			257			231		
Total, worst case		467			518			201			178			849			542	
Sun reduction		0.27			0.27			0.29			0.23			0.20			0.12	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.62			0.61			0.59			0.60			0.61			0.63	
Total reduction		0.17			0.17			0.17			0.14			0.12			0.07	
Total, real		77			86			35			25			103			41	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BQ - H69

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February	March	April	May	June	July	August	September	October	November			December		
1	08:58		15:16 (17)	08:27	07:29	07:12	06:02	05:11	05:07	05:48	06:44	07:38	07:37			08:33		15:01 (17)
	16:24	28	15:44 (17)	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04			16:19	32	15:33 (17)
2	08:58		15:16 (17)	08:25	07:26	07:10	06:00	05:10	05:08	05:50	06:45	07:40	07:39			08:35		15:01 (17)
	16:25	29	15:45 (17)	17:18	18:15	20:14	21:11	22:01	22:15	21:37	20:28	19:14	17:02			16:18	32	15:33 (17)
3	08:58		15:17 (17)	08:24	07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41			08:37		15:01 (17)
	16:26	29	15:46 (17)	17:20	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	17:00			16:17	32	15:33 (17)
4	08:58		15:17 (17)	08:22	07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43			08:38		15:02 (17)
	16:27	29	15:46 (17)	17:22	18:19	20:18	21:14	22:04	22:14	21:33	20:24	19:09	16:58			16:17	32	15:34 (17)
5	08:57		15:17 (17)	08:20	07:19	07:02	05:54	05:08	05:11	05:55	06:51	07:45	07:45			08:39		15:02 (17)
	16:28	30	15:47 (17)	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:56			16:16	31	15:33 (17)
6	08:57		15:17 (17)	08:18	07:17	07:00	05:52	05:07	05:11	05:57	06:53	07:47	07:47			08:41		15:03 (17)
	16:30	31	15:48 (17)	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:54			16:16	31	15:34 (17)
7	08:57		15:17 (17)	08:16	07:14	06:58	05:50	05:06	05:12	05:59	06:54	07:49	07:49			08:42		15:03 (17)
	16:31	31	15:48 (17)	17:28	18:24	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53			16:15	31	15:34 (17)
8	08:56		15:17 (17)	08:14	07:12	06:55	05:48	05:06	05:13	06:00	06:56	07:51	07:51			08:44		15:05 (17)
	16:33	31	15:48 (17)	17:30	18:26	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51			16:15	29	15:34 (17)
9	08:55		15:18 (17)	08:12	07:09	06:53	05:46	05:05	05:15	06:02	06:58	07:53	07:53			08:45		15:05 (17)
	16:34	32	15:50 (17)	17:32	18:28	20:27	21:24	22:09	22:10	21:23	20:11	18:56	16:49			16:14	29	15:34 (17)
10	08:55		15:18 (17)	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55			08:46		15:05 (17)
	16:36	32	15:50 (17)	17:34	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47			16:14	29	15:34 (17)
11	08:54		15:19 (17)	08:08	07:05	06:48	05:42	05:04	05:17	06:06	07:02	07:57	07:57		15:08 (17)	08:47		15:07 (17)
	16:37	32	15:51 (17)	17:36	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:51	16:45	8	15:16 (17)	16:14	28	15:35 (17)
12	08:53		15:19 (17)	08:06	07:02	06:45	05:40	05:04	05:18	06:07	07:03	07:59	07:59		15:05 (17)	08:48		15:07 (17)
	16:39	32	15:51 (17)	17:38	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	14	15:19 (17)	16:13	28	15:35 (17)
13	08:52		15:19 (17)	08:04	07:00	06:43	05:38	05:03	05:19	06:09	07:05	08:00	08:01		15:03 (17)	08:49		15:08 (17)
	16:40	33	15:52 (17)	17:40	18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	18	15:21 (17)	16:13	27	15:35 (17)
14	08:51		15:20 (17)	08:02	06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03		15:01 (17)	08:50		15:08 (17)
	16:42	32	15:52 (17)	17:42	18:38	20:37	21:32	22:12	22:05	21:13	19:59	18:44	16:40	21	15:22 (17)	16:13	27	15:35 (17)
15	08:51		15:19 (17)	08:00	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05		15:00 (17)	08:51		15:09 (17)
	16:44	33	15:52 (17)	17:44	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	24	15:24 (17)	16:13	26	15:35 (17)
16	08:50		15:20 (17)	07:58	06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07		15:00 (17)	08:52		15:10 (17)
	16:45	32	15:52 (17)	17:46	18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	26	15:26 (17)	16:13	25	15:35 (17)
17	08:48		15:20 (17)	07:56	06:50	06:33	05:32	05:03	05:25	06:16	07:12	08:08	08:09		14:59 (17)	08:53		14:31 (18)
	16:47	33	15:53 (17)	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:37	16:36	27	15:26 (17)	16:14	29	15:35 (17)
18	08:47		15:21 (17)	07:54	06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11		14:59 (17)	08:54		14:30 (18)
	16:49	32	15:53 (17)	17:51	18:46	20:44	21:39	22:15	22:01	21:04	19:49	18:35	16:34	28	15:27 (17)	16:14	30	15:35 (17)
19	08:46		15:21 (17)	07:51	06:45	06:29	05:28	05:03	05:27	06:20	07:16	08:12	08:13		14:58 (17)	08:55		14:30 (18)
	16:51	32	15:53 (17)	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	30	15:28 (17)	16:14	31	15:35 (17)
20	08:45		15:22 (17)	07:49	06:42	06:26	05:27	05:03	05:29	06:22	07:18	08:14	08:14		14:58 (17)	08:55		14:31 (18)
	16:53	31	15:53 (17)	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	30	15:28 (17)	16:14	31	15:36 (17)
21	08:44		15:22 (17)	07:47	06:40	06:24	05:25	05:03	05:30	06:24	07:20	08:16	08:16		14:58 (17)	08:56		14:31 (18)
	16:54	31	15:53 (17)	17:57	18:51	20:50	21:44	22:16	21:57	20:57	19:41	18:28	16:30	31	15:29 (17)	16:15	31	15:36 (17)
22	08:42		15:23 (17)	07:45	06:37	06:22	05:24	05:03	05:32	06:25	07:21	08:18	08:18		14:58 (17)	08:56		14:32 (18)
	16:56	30	15:53 (17)	17:59	18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	32	15:30 (17)	16:15	31	15:37 (17)
23	08:41		15:23 (17)	07:42	06:35	06:20	05:22	05:03	05:33	06:27	07:23	08:20	08:20		14:58 (17)	08:57		14:32 (18)
	16:58	30	15:53 (17)	18:01	18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	32	15:30 (17)	16:16	31	15:37 (17)
24	08:40		15:25 (17)	07:40	06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22		14:58 (17)	08:57		14:32 (18)
	17:00	28	15:53 (17)	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	16:26	32	15:30 (17)	16:16	31	15:37 (17)
25	08:38		15:25 (17)	07:38	06:30	06:15	05:20	05:04	05:36	06:31	07:27	07:24	08:23		14:58 (17)	08:58		14:34 (18)
	17:02	27	15:52 (17)	18:05	18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19	16:25	33	15:31 (17)	16:17	30	15:38 (17)
26	08:37		15:26 (17)	07:36	06:27	06:13	05:18	05:04	05:38	06:33	07:29	07:26	08:25		14:59 (17)	08:58		14:35 (18)
	17:04	26	15:52 (17)	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:28	17:17	16:24	32	15:31 (17)	16:18	29	15:39 (17)
27	08:35		15:28 (17)	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28	08:27		14:59 (17)	08:58		14:37 (18)
	17:06	24	15:52 (17)	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	33	15:32 (17)	16:18	27	15:40 (17)
28	08:34		15:29 (17)	07:31	06:22	06:08	05:16	05:05	05:41	06:36	07:32	07:29	08:29		14:59 (17)	08:58		15:15 (17)
	17:08	21	15:50 (17)	18:11	19:05	21:03	21:55	22:16	21:46	20:40	19:23	17:13	16:22	32	15:31 (17)	16:19	25	15:40 (17)
29	08:32		15:31 (17)		07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	08:30		14:59 (17)	08:59		15:15 (17)
	17:10	18	15:49 (17)		20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11	16:21	33	15:32 (17)	16:20	26	15:41 (17)
30	08:31		15:33 (17)		07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32		15:00 (17)	08:59		15:16 (17)
	17:12	14	15:47 (17)		20:09	21:07	21:57	22:15	21:42	20:36	19:18	17:08	16:20	32	15:32 (17)	16:21	27	15:43 (17)
31	08:29		15:37 (17)		07:15		05:12		05:46	06:42		07:35				08:59		15:16 (17)
	17:14	7	15:44 (17)		20:10		21:59		21:40	20:33		17:06				16:22	28	15:44 (17)
Potential sun hours	248			272	367	421	496	513	515	461	383	327	257			230		
Total, worst case		880												548			906	
Sun reduction		0.17												0.20			0.12	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		0.63												0.63			0.63	
Total reduction		0.11												0.13			0.08	
Total, real		94												69			68	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BR - H70

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June		
1	08:58	08:27	07:29	07:12		06:02		05:12		
	16:24	17:16	18:13	20:12		21:09		22:00		
2	08:58	08:25	07:26	07:10		06:00		05:11		
	16:25	17:18	18:15	20:14		21:11		22:01		
3	08:58	08:24	07:24	07:07		05:58	20:32 (10)	05:10		
	16:26	17:20	18:17	20:16		21:12	8 20:40 (10)	22:02		
4	08:58	08:22	07:21	07:05		05:56	20:29 (10)	05:09		
	16:27	17:22	18:19	20:18		21:14	13 20:42 (10)	22:03		
5	08:57	08:20	07:19	07:03		05:54	20:28 (10)	05:08		
	16:29	17:24	18:21	20:20		21:16	17 20:45 (10)	22:04		
6	08:57	08:18	07:17	07:00		05:52	20:27 (10)	05:07		
	16:30	17:26	18:23	20:22		21:18	19 20:46 (10)	22:06		
7	08:56	08:16	07:14	06:58		05:50	20:26 (10)	05:07		
	16:31	17:28	18:25	20:24		21:20	21 20:47 (10)	22:07		
8	08:56	08:14	07:12	06:55	19:47 (9)	05:48	20:25 (10)	05:06		
	16:33	17:30	18:26	20:25	4 19:51 (9)	21:22	22 20:47 (10)	22:08		
9	08:55	08:12	07:09	06:53	19:43 (9)	05:46	20:24 (10)	05:05		
	16:34	17:32	18:28	20:27	12 19:55 (9)	21:23	24 20:48 (10)	22:08		
10	08:55	08:10	07:07	06:50	19:41 (9)	05:44	20:24 (10)	05:05		
	16:36	17:34	18:30	20:29	17 19:58 (9)	21:25	25 20:49 (10)	22:09		
11	08:54	08:08	07:05	06:48	19:38 (9)	05:42	20:23 (10)	05:04		
	16:37	17:36	18:32	20:31	20 19:58 (9)	21:27	26 20:49 (10)	22:10		
12	08:53	08:06	07:02	06:45	19:37 (9)	05:40	20:23 (10)	05:04		
	16:39	17:38	18:34	20:33	23 20:00 (9)	21:29	26 20:49 (10)	22:11		
13	08:52	08:04	07:00	06:43	19:36 (9)	05:39	20:22 (10)	05:04		
	16:40	17:40	18:36	20:35	24 20:00 (9)	21:31	27 20:49 (10)	22:12		
14	08:51	08:02	06:57	06:41	19:35 (9)	05:37	20:23 (10)	05:03		
	16:42	17:42	18:38	20:37	25 20:00 (9)	21:32	26 20:49 (10)	22:12		
15	08:50	08:00	06:55	06:38	19:35 (9)	05:35	20:22 (10)	05:03		
	16:44	17:45	18:40	20:39	26 20:01 (9)	21:34	27 20:49 (10)	22:13		
16	08:49	07:58	06:52	06:36	19:34 (9)	05:33	20:23 (10)	05:03		21:36 (11)
	16:46	17:47	18:42	20:41	27 20:01 (9)	21:36	26 20:49 (10)	22:13	1	21:37 (11)
17	08:48	07:56	06:50	06:34	19:33 (9)	05:32	20:23 (10)	05:03		21:35 (11)
	16:47	17:49	18:44	20:42	27 20:00 (9)	21:37	26 20:49 (10)	22:14	2	21:37 (11)
18	08:47	07:54	06:47	06:31	19:33 (9)	05:30	20:23 (10)	05:03		21:35 (11)
	16:49	17:51	18:46	20:44	27 20:00 (9)	21:39	26 20:49 (10)	22:14	3	21:38 (11)
19	08:46	07:51	06:45	06:29	19:34 (9)	05:28	20:23 (10)	05:03		21:35 (11)
	16:51	17:53	18:48	20:46	26 20:00 (9)	21:41	25 20:48 (10)	22:15	3	21:38 (11)
20	08:45	07:49	06:42	06:27	19:33 (9)	05:27	20:24 (10)	05:03		21:35 (11)
	16:53	17:55	18:50	20:48	26 19:59 (9)	21:42	24 20:48 (10)	22:15	3	21:38 (11)
21	08:44	07:47	06:40	06:24	19:34 (9)	05:25	20:25 (10)	05:03		21:36 (11)
	16:55	17:57	18:51	20:50	24 19:58 (9)	21:44	23 20:48 (10)	22:15	3	21:39 (11)
22	08:42	07:45	06:37	06:22	19:34 (9)	05:24	20:25 (10)	05:03		21:36 (11)
	16:56	17:59	18:53	20:52	23 19:57 (9)	21:46	22 20:47 (10)	22:16	3	21:39 (11)
23	08:41	07:42	06:35	06:20	19:35 (9)	05:22	20:25 (10)	05:03		21:36 (11)
	16:58	18:01	18:55	20:54	21 19:56 (9)	21:47	22 20:47 (10)	22:16	3	21:39 (11)
24	08:40	07:40	06:32	06:17	19:37 (9)	05:21	20:26 (10)	05:04		21:36 (11)
	17:00	18:03	18:57	20:56	18 19:55 (9)	21:49	20 20:46 (10)	22:16	3	21:39 (11)
25	08:38	07:38	06:30	06:15	19:38 (9)	05:20	20:28 (10)	05:04		21:37 (11)
	17:02	18:05	18:59	20:58	15 19:53 (9)	21:50	18 20:46 (10)	22:16	2	21:39 (11)
26	08:37	07:36	06:27	06:13	19:40 (9)	05:18	20:29 (10)	05:05		21:37 (11)
	17:04	18:07	19:01	20:59	10 19:50 (9)	21:52	16 20:45 (10)	22:16	2	21:39 (11)
27	08:35	07:33	06:25	06:11		05:17	20:30 (10)	05:05		
	17:06	18:09	19:03	21:01		21:53	14 20:44 (10)	22:16		
28	08:34	07:31	06:22	06:09		05:16	20:31 (10)	05:06		
	17:08	18:11	19:05	21:03		21:54	12 20:43 (10)	22:16		
29	08:32		07:20	06:06		05:15	20:33 (10)	05:06		
	17:10		20:07	21:05		21:56	9 20:42 (10)	22:15		
30	08:30		07:17	06:04		05:14	20:35 (10)	05:07		
	17:12		20:09	21:07		21:57	5 20:40 (10)	22:15		
31	08:29		07:15			05:13				
	17:14		20:10			21:59				
Potential sun hours	248	272	367	421		496		513		
Total, worst case					395		569		28	
Sun reduction					0.34		0.36		0.26	
Oper. time red.					1.00		1.00		1.00	
Wind dir. red.					0.59		0.62		0.64	
Total reduction					0.20		0.22		0.17	
Total, real					80		128		5	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BR - H70

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07		05:48	20:33 (10)	06:44	19:37 (9)	07:38	07:37	08:33
	22:15		21:39	26 20:59 (10)	20:31	20 19:57 (9)	19:16	17:04	16:19
2	05:08		05:50	20:34 (10)	06:45	19:39 (9)	07:40	07:39	08:35
	22:14		21:37	25 20:59 (10)	20:28	17 19:56 (9)	19:14	17:02	16:18
3	05:09		05:52	20:33 (10)	06:47	19:41 (9)	07:42	07:41	08:36
	22:14		21:35	25 20:58 (10)	20:26	12 19:53 (9)	19:11	17:00	16:18
4	05:10		05:53	20:34 (10)	06:49	19:44 (9)	07:44	07:43	08:38
	22:13		21:33	24 20:58 (10)	20:23	4 19:48 (9)	19:09	16:58	16:17
5	05:11		05:55	20:35 (10)	06:51		07:45	07:45	08:39
	22:13		21:31	23 20:58 (10)	20:21		19:06	16:56	16:16
6	05:12		05:57	20:35 (10)	06:53		07:47	07:47	08:41
	22:12		21:29	21 20:56 (10)	20:19		19:04	16:55	16:16
7	05:13		05:59	20:37 (10)	06:54		07:49	07:49	08:42
	22:12		21:27	18 20:55 (10)	20:16		19:01	16:53	16:15
8	05:14		06:00	20:38 (10)	06:56		07:51	07:51	08:43
	22:11		21:25	16 20:54 (10)	20:14		18:59	16:51	16:15
9	05:15		06:02	20:39 (10)	06:58		07:53	07:53	08:45
	22:10		21:23	12 20:51 (10)	20:11		18:56	16:49	16:14
10	05:16		06:04	20:43 (10)	07:00		07:55	07:55	08:46
	22:09		21:21	5 20:48 (10)	20:09		18:54	16:47	16:14
11	05:17		06:06		07:02		07:57	07:57	08:47
	22:08		21:19		20:06		18:52	16:45	16:14
12	05:18		06:08		07:03		07:58	07:59	08:48
	22:07		21:17		20:04		18:49	16:44	16:14
13	05:19		06:09		07:05		08:00	08:01	08:49
	22:06		21:15		20:01		18:47	16:42	16:14
14	05:21	20:42 (10)	06:11		07:07		08:02	08:03	08:50
	22:05	8 20:50 (10)	21:12		19:59		18:44	16:40	16:14
15	05:22	20:40 (10)	06:13		07:09		08:04	08:05	08:51
	22:04	11 20:51 (10)	21:10		19:56		18:42	16:39	16:14
16	05:23	20:39 (10)	06:15		07:11		08:06	08:07	08:52
	22:03	13 20:52 (10)	21:08		19:54		18:40	16:37	16:14
17	05:25	20:38 (10)	06:17	19:47 (9)	07:12		08:08	08:09	08:53
	22:02	15 20:53 (10)	21:06	11 19:58 (9)	19:51		18:37	16:36	16:14
18	05:26	20:38 (10)	06:18	19:44 (9)	07:14		08:10	08:11	08:54
	22:00	17 20:55 (10)	21:04	15 19:59 (9)	19:49		18:35	16:34	16:14
19	05:28	20:37 (10)	06:20	19:42 (9)	07:16		08:12	08:12	08:54
	21:59	19 20:56 (10)	21:01	19 20:01 (9)	19:46		18:33	16:33	16:14
20	05:29	20:36 (10)	06:22	19:41 (9)	07:18		08:14	08:14	08:55
	21:58	20 20:56 (10)	20:59	21 20:02 (9)	19:44		18:30	16:31	16:15
21	05:30	20:36 (10)	06:24	19:39 (9)	07:20		08:16	08:16	08:56
	21:56	21 20:57 (10)	20:57	23 20:02 (9)	19:41		18:28	16:30	16:15
22	05:32	20:35 (10)	06:26	19:38 (9)	07:22		08:18	08:18	08:56
	21:55	22 20:57 (10)	20:55	25 20:03 (9)	19:39		18:26	16:29	16:15
23	05:34	20:35 (10)	06:27	19:38 (9)	07:23		08:20	08:20	08:57
	21:54	24 20:59 (10)	20:52	25 20:03 (9)	19:36		18:24	16:27	16:16
24	05:35	20:34 (10)	06:29	19:37 (9)	07:25		08:22	08:22	08:57
	21:52	25 20:59 (10)	20:50	27 20:04 (9)	19:34		18:21	16:26	16:17
25	05:37	20:33 (10)	06:31	19:36 (9)	07:27		07:24	08:23	08:58
	21:50	25 20:58 (10)	20:48	27 20:03 (9)	19:31		17:19	16:25	16:17
26	05:38	20:33 (10)	06:33	19:36 (9)	07:29		07:25	08:25	08:58
	21:49	26 20:59 (10)	20:45	27 20:03 (9)	19:29		17:17	16:24	16:18
27	05:40	20:33 (10)	06:35	19:36 (9)	07:31		07:27	08:27	08:58
	21:47	26 20:59 (10)	20:43	27 20:03 (9)	19:26		17:15	16:23	16:19
28	05:42	20:33 (10)	06:36	19:35 (9)	07:32		07:29	08:28	08:58
	21:46	27 21:00 (10)	20:40	27 20:02 (9)	19:24		17:13	16:22	16:20
29	05:43	20:34 (10)	06:38	19:36 (9)	07:34		07:31	08:30	08:58
	21:44	26 21:00 (10)	20:38	25 20:01 (9)	19:21		17:11	16:21	16:20
30	05:45	20:33 (10)	06:40	19:36 (9)	07:36		07:33	08:32	08:58
	21:42	27 21:00 (10)	20:36	24 20:00 (9)	19:19		17:09	16:20	16:21
31	05:47	20:34 (10)	06:42	19:37 (9)			07:35		08:58
	21:40	26 21:00 (10)	20:33	23 20:00 (9)			17:06		16:22
Potential sun hours	515		461		382		328	257	231
Total, worst case		378		541		53			
Sun reduction		0.27		0.27		0.29			
Oper. time red.		1.00		1.00		1.00			
Wind dir. red.		0.62		0.60		0.59			
Total reduction		0.17		0.16		0.17			
Total, real		62		89		9			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BS - H71

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:11	20:12 (18)	05:07	20:21 (18)	05:48	20:25 (18)	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00 30	20:42 (18)	22:15 24	20:45 (18)	21:39 22	20:47 (18)	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	20:13 (18)	05:08	20:21 (18)	05:50	20:26 (18)	06:45	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01 29	20:42 (18)	22:14 25	20:46 (18)	21:37 20	20:46 (18)	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58	05:10	20:13 (18)	05:09	20:21 (18)	05:52	20:27 (18)	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02 28	20:41 (18)	22:14 25	20:46 (18)	21:35 17	20:44 (18)	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56	05:09	20:13 (18)	05:10	20:21 (18)	05:53	20:29 (18)	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03 28	20:41 (18)	22:13 25	20:46 (18)	21:33 13	20:42 (18)	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54	05:08	20:14 (18)	05:11	20:21 (18)	05:55	20:34 (18)	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16	22:05 28	20:42 (18)	22:13 26	20:47 (18)	21:31 5	20:39 (18)	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52	05:07	20:14 (18)	05:12	20:21 (18)	05:57		06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06 27	20:41 (18)	22:12 26	20:47 (18)	21:29		20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	20:15 (18)	05:13	20:21 (18)	05:59		06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20	22:07 27	20:42 (18)	22:12 27	20:48 (18)	21:27		20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	20:21 (18) 05:06	20:15 (18)	05:14	20:20 (18)	06:00		06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22 9	20:30 (18) 22:08	20:41 (18)	22:11 28	20:48 (18)	21:25		20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	20:18 (18) 05:05	20:16 (18)	05:15	20:20 (18)	06:02		06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23 15	20:33 (18) 22:09	20:41 (18)	22:10 29	20:49 (18)	21:23		20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44	20:16 (18) 05:05	20:16 (18)	05:16	20:20 (18)	06:04		07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25 18	20:34 (18) 22:09	20:41 (18)	22:09 29	20:49 (18)	21:21		20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42	20:15 (18) 05:04	20:17 (18)	05:17	20:20 (18)	06:06		07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27 21	20:36 (18) 22:10	20:41 (18)	22:08 29	20:49 (18)	21:19		20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40	20:14 (18) 05:04	20:18 (18)	05:18	20:20 (18)	06:07		07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29 23	20:37 (18) 22:11	20:41 (18)	22:07 30	20:50 (18)	21:17		20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38	20:13 (18) 05:04	20:17 (18)	05:19	20:19 (18)	06:09		07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31 25	20:38 (18) 22:12	21:22 (17)	22:06 31	20:50 (18)	21:15		20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37	20:12 (18) 05:03	20:18 (18)	05:21	20:20 (18)	06:11		07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32 27	20:39 (18) 22:12	21:24 (17)	22:05 31	20:51 (18)	21:12		19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35	20:11 (18) 05:03	20:18 (18)	05:22	20:20 (18)	06:13		07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34 28	20:39 (18) 22:13	21:25 (17)	22:04 31	20:51 (18)	21:10		19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33	20:11 (18) 05:03	20:19 (18)	05:23	20:20 (18)	06:15		07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36 29	20:40 (18) 22:14	21:26 (17)	22:03 31	20:51 (18)	21:08		19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32	20:10 (18) 05:03	20:19 (18)	05:25	20:19 (18)	06:16		07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37 30	20:40 (18) 22:14	21:27 (17)	22:02 32	20:51 (18)	21:06		19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:11 (18) 05:03	20:20 (18)	05:26	20:20 (18)	06:18		07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39 30	20:41 (18) 22:14	21:27 (17)	22:01 32	20:52 (18)	21:04		19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28	20:10 (18) 05:03	20:20 (18)	05:27	20:20 (18)	06:20		07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41 31	20:41 (18) 22:15	21:27 (17)	21:59 32	20:52 (18)	21:01		19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27	20:10 (18) 05:03	20:20 (18)	05:29	20:19 (18)	06:22		07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42 31	20:41 (18) 22:15	21:28 (17)	21:58 32	20:51 (18)	20:59		19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25	20:10 (18) 05:03	20:20 (18)	05:30	20:20 (18)	06:24		07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44 32	20:42 (18) 22:15	21:28 (17)	21:56 32	20:52 (18)	20:57		19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:10 (18) 05:03	20:21 (18)	05:32	20:20 (18)	06:25		07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46 31	20:41 (18) 22:16	21:29 (17)	21:55 32	20:52 (18)	20:55		19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22	20:10 (18) 05:03	20:21 (18)	05:33	20:20 (18)	06:27		07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47 32	20:42 (18) 22:16	21:28 (17)	21:54 31	20:51 (18)	20:52		19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21	20:10 (18) 05:04	20:21 (18)	05:35	20:20 (18)	06:29		07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49 32	20:42 (18) 22:16	21:28 (17)	21:52 32	20:52 (18)	20:50		19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20	20:10 (18) 05:04	20:21 (18)	05:37	20:20 (18)	06:31		07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50 32	20:42 (18) 22:16	21:29 (17)	21:50 31	20:51 (18)	20:48		19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18	20:11 (18) 05:04	20:21 (18)	05:38	20:21 (18)	06:33		07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52 32	20:43 (18) 22:16	21:28 (17)	21:49 30	20:51 (18)	20:45		19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:10 (18) 05:05	20:22 (18)	05:40	20:21 (18)	06:35		07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53 32	20:42 (18) 22:16	21:28 (17)	21:47 29	20:50 (18)	20:43		19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16	20:10 (18) 05:05	20:21 (18)	05:41	20:22 (18)	06:36		07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55 32	20:42 (18) 22:16	21:28 (17)	21:46 28	20:50 (18)	20:40		19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15	20:11 (18) 05:06	20:21 (18)	05:43	20:22 (18)	06:38		07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56 31	20:42 (18) 22:15	21:27 (17)	21:44 27	20:49 (18)	20:38		19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14	20:11 (18) 05:07	20:21 (18)	05:45	20:23 (18)	06:40		07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57 30	20:41 (18) 22:15	20:44 (18)	21:42 26	20:49 (18)	20:36		19:18	17:08	16:20	16:21
31	08:29		07:15		05:12	20:12 (18)		05:46	20:24 (18)	06:42			07:35		08:58
	17:14		20:10		21:59 30	20:42 (18)		21:40 25	20:49 (18)	20:33			17:06		16:22
Potential sun hours	248	272	367	421	496	513	515	461	383	327	257	230
Total, worst case					663	863	898	77				
Sun reduction					0.36	0.26	0.27	0.27				
Oper. time red.					1.00	1.00	1.00	1.00				
Wind dir. red.					0.62	0.62	0.62	0.62				
Total reduction					0.22	0.16	0.16	0.17				
Total, real					149	138	148	13				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BT - H72

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:38	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
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15	08:50	08:00	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
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	17:08	18:11	19:05	21:03	21:54	22:15	21:45	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
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30	08:30		07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
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31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BU - H73

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02		05:11		20:19 (18)	05:07	20:26 (18)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09		22:00	32	20:51 (18)	22:15	30	20:56 (18)	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00		05:11		20:19 (18)	05:08	20:26 (18)	05:50	06:45	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11		22:01	32	20:51 (18)	22:14	31	20:57 (18)	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58		05:10		20:19 (18)	05:09	20:27 (18)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12		22:02	32	20:51 (18)	22:14	30	20:57 (18)	21:35	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56		05:09		20:19 (18)	05:10	20:26 (18)	05:53	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14		22:03	32	20:51 (18)	22:13	31	20:57 (18)	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54		05:08		20:20 (18)	05:11	20:26 (18)	05:55	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16		22:05	31	20:51 (18)	22:13	31	20:57 (18)	21:31	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52		05:07		20:20 (18)	05:12	20:26 (18)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18		22:06	31	20:51 (18)	22:12	31	20:57 (18)	21:29	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50		05:07		20:21 (18)	05:13	20:27 (18)	05:59	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20		22:07	31	20:52 (18)	22:12	31	20:58 (18)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48		05:06		20:21 (18)	05:14	20:27 (18)	06:00	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22		22:08	30	20:51 (18)	22:11	31	20:58 (18)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46		05:05		20:21 (18)	05:15	20:27 (18)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23		22:09	31	20:52 (18)	22:10	31	20:58 (18)	21:23	20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44		05:05		20:21 (18)	05:16	20:27 (18)	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25		22:09	30	20:51 (18)	22:09	31	20:58 (18)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42		05:04		20:22 (18)	05:17	20:27 (18)	06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27		22:10	30	20:52 (18)	22:08	32	20:59 (18)	21:19	20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40	20:33 (18)	05:04		20:22 (18)	05:18	20:27 (18)	06:07	07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29	1	20:34 (18)	22:11	30	20:52 (18)	22:07	32	20:59 (18)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38		20:27 (18)	05:04		20:22 (18)	05:19	20:27 (18)	06:09	07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31	12	20:39 (18)	22:12	29	20:51 (18)	22:06	32	20:59 (18)	21:15	20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37		20:26 (18)	05:03		20:22 (18)	05:21	20:28 (18)	06:11	07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32	15	20:41 (18)	22:12	30	20:52 (18)	22:05	32	21:00 (18)	21:12	19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35		20:24 (18)	05:03		20:23 (18)	05:22	20:28 (18)	06:13	07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34	19	20:43 (18)	22:13	29	20:52 (18)	22:04	31	20:59 (18)	21:10	19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33		20:23 (18)	05:03		20:23 (18)	05:23	20:28 (18)	06:15	07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36	21	20:44 (18)	22:14	29	20:52 (18)	22:03	31	20:59 (18)	21:08	19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32		20:22 (18)	05:03		20:24 (18)	05:25	20:27 (18)	06:16	07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	23	20:45 (18)	22:14	28	20:52 (18)	22:02	32	20:59 (18)	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30		20:21 (18)	05:03		20:24 (18)	05:26	20:28 (18)	06:18	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	25	20:46 (18)	22:14	29	20:53 (18)	22:01	32	21:00 (18)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28		20:20 (18)	05:03		20:24 (18)	05:27	20:28 (18)	06:20	07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41	26	20:46 (18)	22:15	29	20:53 (18)	21:59	31	20:59 (18)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27		20:20 (18)	05:03		20:24 (18)	05:29	20:28 (18)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	27	20:47 (18)	22:15	29	20:53 (18)	21:58	31	20:59 (18)	20:59	19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25		20:20 (18)	05:03		20:24 (18)	05:30	20:29 (18)	06:24	07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44	28	20:48 (18)	22:15	29	20:53 (18)	21:56	30	20:59 (18)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24		20:19 (18)	05:03		20:25 (18)	05:32	20:29 (18)	06:25	07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	29	20:48 (18)	22:16	29	20:54 (18)	21:55	29	20:58 (18)	20:55	19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22		20:19 (18)	05:03		20:25 (18)	05:33	20:30 (18)	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	30	20:49 (18)	22:16	29	20:54 (18)	21:54	27	20:57 (18)	20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21		20:19 (18)	05:04		20:25 (18)	05:35	20:31 (18)	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	30	20:49 (18)	22:16	29	20:54 (18)	21:52	27	20:58 (18)	20:50	19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20		20:19 (18)	05:04		20:26 (18)	05:37	20:31 (18)	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	31	20:50 (18)	22:16	28	20:54 (18)	21:50	25	20:56 (18)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18		20:19 (18)	05:04		20:25 (18)	05:38	20:32 (18)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	31	20:50 (18)	22:16	29	20:54 (18)	21:49	24	20:56 (18)	20:45	19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17		20:18 (18)	05:05		20:26 (18)	05:40	20:32 (18)	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	32	20:50 (18)	22:16	29	20:55 (18)	21:47	23	20:55 (18)	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16		20:18 (18)	05:05		20:26 (18)	05:41	20:34 (18)	06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55	32	20:50 (18)	22:16	29	20:55 (18)	21:46	20	20:54 (18)	20:40	19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15		20:18 (18)	05:06		20:26 (18)	05:43	20:35 (18)	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	32	20:50 (18)	22:15	30	20:56 (18)	21:44	17	20:52 (18)	20:38	19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14		20:18 (18)	05:07		20:26 (18)	05:45	20:37 (18)	06:40	07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57	32	20:50 (18)	22:15	29	20:55 (18)	21:42	14	20:51 (18)	20:36	19:18	17:08	16:20	16:21
31	08:29		07:15		05:12		20:19 (18)				05:46		20:40 (18)	06:42		07:35		08:58
	17:14		20:10		21:59	32	20:51 (18)				21:40	9	20:49 (18)	20:33		17:06		16:22
Potential sun hours	248	272	367	421	496		513		515		461	383	327	257	230
Total, worst case						508		894		869					
Sun reduction						0.36		0.26		0.27					
Oper. time red.						1.00		1.00		1.00					
Wind dir. red.						0.62		0.62		0.62					
Total reduction						0.23		0.16		0.17					
Total, real						114		144		144					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BV - H74

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June		July		August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:11		05:07		21:01 (18)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00		22:15	18	21:19 (18)	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11		05:08		21:02 (18)	05:50	06:45	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01		22:14	17	21:19 (18)	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58	05:10		05:09		21:03 (18)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02		22:14	15	21:18 (18)	21:35	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56	05:09		05:10		21:03 (18)	05:53	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03		22:13	14	21:17 (18)	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54	05:08	21:03 (18)	05:11		21:05 (18)	05:55	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16	22:05	3	21:06 (18)	12	21:17 (18)	21:31	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52	05:07		21:00 (18)		21:06 (18)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06	9	21:09 (18)	10	21:16 (18)	21:29	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07		21:00 (18)		21:08 (18)	05:59	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20	22:07	11	21:11 (18)	6	21:14 (18)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	20:58 (18)	05:14			06:00	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22	22:08	13	21:11 (18)			21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:05	20:58 (18)	05:15			06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23	22:09	15	21:13 (18)			21:23	20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44	05:05	20:57 (18)	05:16			06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	16	21:13 (18)			21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42	05:04	20:57 (18)	05:17			06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27	22:10	17	21:14 (18)			21:19	20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40	05:04	20:57 (18)	05:18			06:07	07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29	22:11	18	21:15 (18)			21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38	05:04	20:56 (18)	05:19			06:09	07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31	22:12	19	21:15 (18)			21:15	20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37	05:03	20:56 (18)	05:21			06:11	07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32	22:12	20	21:16 (18)			21:12	19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35	05:03	20:56 (18)	05:22			06:13	07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34	22:13	20	21:16 (18)			21:10	19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33	05:03	20:56 (18)	05:23			06:15	07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36	22:14	21	21:17 (18)			21:08	19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32	05:03	20:57 (18)	05:25			06:16	07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	22:14	20	21:17 (18)			21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	20:57 (18)	05:26			06:18	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	21	21:18 (18)			21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28	05:03	20:57 (18)	05:27			06:20	07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41	22:15	21	21:18 (18)			21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27	05:03	20:57 (18)	05:29			06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21	21:18 (18)			20:59	19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25	05:03	20:57 (18)	05:30			06:24	07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44	22:15	21	21:18 (18)			20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:03	20:58 (18)	05:32			06:25	07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	22:16	21	21:19 (18)			20:55	19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22	05:03	20:58 (18)	05:33			06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	22:16	21	21:19 (18)			20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21	05:04	20:58 (18)	05:35			06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21	21:19 (18)			20:50	19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20	05:04	20:59 (18)	05:37			06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	22:16	20	21:19 (18)			20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18	05:04	20:59 (18)	05:38			06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	20	21:19 (18)			20:45	19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	20:59 (18)	05:40			06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21	21:20 (18)			20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16	05:05	20:59 (18)	05:41			06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55	22:16	20	21:19 (18)			20:40	19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15	05:06	21:00 (18)	05:43			06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	19	21:19 (18)			20:38	19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14	05:07	21:00 (18)	05:45			06:40	07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57	22:15	19	21:19 (18)	21:42		20:36	19:18	17:08	16:20	16:21
31	08:29		07:15		05:13				05:46		06:42		07:35		08:58
	17:14		20:10		21:59				21:40		20:33		17:06		16:22
Potential sun hours	248	272	367	421	496	513			515		461	383	328	257	231
Total, worst case							468		92						
Sun reduction							0.26		0.27						
Oper. time red.							1.00		1.00						
Wind dir. red.							0.63		0.63						
Total reduction							0.16		0.17						
Total, real							76		15						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BW - H75

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:49	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:43	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:39	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:18	05:05	05:40	06:35	07:31	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:41	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BX - H76

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March			April			May			June
1	08:59	08:27	07:29			07:13			06:02		06:57 (8)	05:12
	16:24	17:16	18:13			20:13			21:09	18	07:15 (8)	22:00
2	08:58	08:26	07:26			07:10			06:00		06:59 (8)	05:11
	16:25	17:18	18:15			20:14			21:11	14	07:13 (8)	22:01
3	08:58	08:24	07:24			07:08			05:58		07:02 (8)	05:10
	16:26	17:20	18:17			20:16			21:13	9	07:11 (8)	22:02
4	08:58	08:22	07:22			07:05			05:56			05:09
	16:28	17:22	18:19			20:18			21:15			22:04
5	08:58	08:20	07:19			07:03			05:54			05:08
	16:29	17:24	18:21			20:20			21:16			22:05
6	08:57	08:18	07:17			07:00			05:52			05:08
	16:30	17:26	18:23			20:22			21:18			22:06
7	08:57	08:16	07:15			06:58			05:50			05:07
	16:32	17:28	18:25			20:24			21:20			22:07
8	08:56	08:15	07:12			06:55			05:48			05:06
	16:33	17:30	18:27			20:26			21:22			22:08
9	08:55	08:13	07:10			06:53			05:46			05:06
	16:34	17:32	18:29			20:28			21:24			22:09
10	08:55	08:11	07:07			06:51			05:44			05:05
	16:36	17:35	18:31			20:30			21:25			22:10
11	08:54	08:09	07:05			06:48			05:42			05:05
	16:37	17:37	18:33			20:31			21:27			22:10
12	08:53	08:07	07:02			06:46			05:41			05:04
	16:39	17:39	18:34			20:33			21:29			22:11
13	08:53	08:04	07:00		07:31 (7)	06:43		07:10 (8)	05:39			05:04
	16:41	17:41	18:36	14	07:45 (7)	20:35	1	07:11 (8)	21:31			22:12
14	08:52	08:02	06:57		07:29 (7)	06:41		07:05 (8)	05:37			05:04
	16:42	17:43	18:38	18	07:47 (7)	20:37	11	07:16 (8)	21:33			22:13
15	08:51	08:00	06:55		07:27 (7)	06:39		07:03 (8)	05:35			05:03
	16:44	17:45	18:40	21	07:48 (7)	20:39	15	07:18 (8)	21:34			22:13
16	08:50	07:58	06:52		07:26 (7)	06:36		07:01 (8)	05:34			05:03
	16:46	17:47	18:42	24	07:50 (7)	20:41	19	07:20 (8)	21:36			22:14
17	08:49	07:56	06:50		07:24 (7)	06:34		06:58 (8)	05:32			05:03
	16:47	17:49	18:44	26	07:50 (7)	20:43	22	07:20 (8)	21:38			22:14
18	08:48	07:54	06:47		07:23 (7)	06:31		06:57 (8)	05:30			05:03
	16:49	17:51	18:46	28	07:51 (7)	20:45	24	07:21 (8)	21:39			22:15
19	08:46	07:52	06:45		07:22 (7)	06:29		06:56 (8)	05:29			05:03
	16:51	17:53	18:48	28	07:50 (7)	20:46	26	07:22 (8)	21:41			22:15
20	08:45	07:49	06:43		07:22 (7)	06:27		06:55 (8)	05:27			05:03
	16:53	17:55	18:50	29	07:51 (7)	20:48	27	07:22 (8)	21:43			22:15
21	08:44	07:47	06:40		07:21 (7)	06:24		06:54 (8)	05:26			05:03
	16:55	17:57	18:52	29	07:50 (7)	20:50	28	07:22 (8)	21:44			22:16
22	08:43	07:45	06:38		07:21 (7)	06:22		06:54 (8)	05:24			05:03
	16:57	17:59	18:54	30	07:51 (7)	20:52	28	07:22 (8)	21:46			22:16
23	08:41	07:43	06:35		07:21 (7)	06:20		06:54 (8)	05:23			05:04
	16:58	18:01	18:56	28	07:49 (7)	20:54	28	07:22 (8)	21:47			22:16
24	08:40	07:40	06:33		07:21 (7)	06:18		06:54 (8)	05:21			05:04
	17:00	18:03	18:57	28	07:49 (7)	20:56	28	07:22 (8)	21:49			22:16
25	08:38	07:38	06:30		07:21 (7)	06:15		06:54 (8)	05:20			05:04
	17:02	18:05	18:59	27	07:48 (7)	20:58	27	07:21 (8)	21:50			22:16
26	08:37	07:36	06:28		07:22 (7)	06:13		06:54 (8)	05:19			05:05
	17:04	18:07	19:01	25	07:47 (7)	21:00	27	07:21 (8)	21:52			22:16
27	08:35	07:34	06:25		07:22 (7)	06:11		06:55 (8)	05:17			05:05
	17:06	18:09	19:03	23	07:45 (7)	21:02	25	07:20 (8)	21:53			22:16
28	08:34	07:31	06:23		07:24 (7)	06:09		06:55 (8)	05:16			05:06
	17:08	18:11	19:05	20	07:44 (7)	21:03	24	07:19 (8)	21:55			22:16
29	08:32		07:20		08:25 (7)	06:07		06:55 (8)	05:15			05:06
	17:10		20:07	16	08:41 (7)	21:05	22	07:17 (8)	21:56			22:16
30	08:31		07:18		08:28 (7)	06:04		06:56 (8)	05:14			05:07
	17:12		20:09	10	08:38 (7)	21:07	20	07:16 (8)	21:57			22:15
31	08:29		07:15						05:13			
	17:14		20:11						21:59			
Potential sun hours	248	272	367			421			496			513
Total, worst case				424			402			41		
Sun reduction				0.22			0.34			0.36		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.59			0.57			0.57		
Total reduction				0.13			0.20			0.21		
Total, real				56			78			8		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BX - H76

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October		November	December
1	05:08	05:48		06:44		07:38	08:13 (7)	07:38	08:34
	22:15	21:39		20:31		19:16	9 08:22 (7)	17:05	16:19
2	05:08	05:50		06:46		07:40		07:40	08:35
	22:15	21:37		20:29		19:14		17:03	16:19
3	05:09	05:52		06:47		07:42		07:42	08:37
	22:14	21:35		20:26		19:11		17:01	16:18
4	05:10	05:54		06:49		07:44		07:44	08:38
	22:14	21:33		20:24		19:09		16:59	16:17
5	05:11	05:55		06:51		07:46		07:46	08:40
	22:13	21:31		20:21		19:06		16:57	16:17
6	05:12	05:57		06:53		07:47		07:47	08:41
	22:12	21:29		20:19		19:04		16:55	16:16
7	05:13	05:59		06:55		07:49		07:49	08:42
	22:12	21:27		20:16		19:01		16:53	16:15
8	05:14	06:01		06:57		07:51		07:51	08:44
	22:11	21:25		20:14		18:59		16:51	16:15
9	05:15	06:02		06:58		07:53		07:53	08:45
	22:10	21:23		20:11		18:57		16:49	16:15
10	05:16	06:04	07:10 (8)	07:00		07:55		07:55	08:46
	22:09	21:21	10 07:20 (8)	20:09		18:54		16:47	16:14
11	05:17	06:06	07:08 (8)	07:02		07:57		07:57	08:47
	22:08	21:19	15 07:23 (8)	20:06		18:52		16:46	16:14
12	05:18	06:08	07:05 (8)	07:04		07:59		07:59	08:48
	22:08	21:17	19 07:24 (8)	20:04		18:49		16:44	16:14
13	05:20	06:10	07:04 (8)	07:06	08:18 (7)	08:01		08:01	08:49
	22:07	21:15	21 07:25 (8)	20:01	10 08:28 (7)	18:47		16:42	16:14
14	05:21	06:11	07:03 (8)	07:07	08:15 (7)	08:03		08:03	08:50
	22:05	21:13	23 07:26 (8)	19:59	16 08:31 (7)	18:45		16:41	16:14
15	05:22	06:13	07:02 (8)	07:09	08:13 (7)	08:04		08:05	08:51
	22:04	21:11	24 07:26 (8)	19:56	20 08:33 (7)	18:42		16:39	16:14
16	05:24	06:15	07:01 (8)	07:11	08:12 (7)	08:06		08:07	08:52
	22:03	21:08	26 07:27 (8)	19:54	22 08:34 (7)	18:40		16:37	16:14
17	05:25	06:17	07:01 (8)	07:13	08:09 (7)	08:08		08:09	08:53
	22:02	21:06	26 07:27 (8)	19:51	25 08:34 (7)	18:38		16:36	16:14
18	05:26	06:19	07:01 (8)	07:15	08:09 (7)	08:10		08:11	08:54
	22:01	21:04	27 07:28 (8)	19:49	26 08:35 (7)	18:35		16:34	16:14
19	05:28	06:20	06:59 (8)	07:16	08:08 (7)	08:12		08:13	08:55
	21:59	21:02	28 07:27 (8)	19:46	28 08:36 (7)	18:33		16:33	16:14
20	05:29	06:22	06:59 (8)	07:18	08:07 (7)	08:14		08:15	08:55
	21:58	20:59	28 07:27 (8)	19:44	29 08:36 (7)	18:31		16:32	16:15
21	05:31	06:24	07:00 (8)	07:20	08:07 (7)	08:16		08:16	08:56
	21:57	20:57	27 07:27 (8)	19:41	29 08:36 (7)	18:28		16:30	16:15
22	05:32	06:26	06:59 (8)	07:22	08:06 (7)	08:18		08:18	08:57
	21:55	20:55	27 07:26 (8)	19:39	29 08:35 (7)	18:26		16:29	16:16
23	05:34	06:28	06:59 (8)	07:24	08:05 (7)	08:20		08:20	08:57
	21:54	20:52	27 07:26 (8)	19:36	30 08:35 (7)	18:24		16:28	16:16
24	05:35	06:29	07:00 (8)	07:25	08:06 (7)	08:22		08:22	08:57
	21:52	20:50	25 07:25 (8)	19:34	28 08:34 (7)	18:22		16:26	16:17
25	05:37	06:31	06:59 (8)	07:27	08:06 (7)	07:24		08:24	08:58
	21:51	20:48	25 07:24 (8)	19:31	28 08:34 (7)	17:19		16:25	16:17
26	05:38	06:33	07:01 (8)	07:29	08:06 (7)	07:26		08:25	08:58
	21:49	20:45	22 07:23 (8)	19:29	27 08:33 (7)	17:17		16:24	16:18
27	05:40	06:35	07:03 (8)	07:31	08:06 (7)	07:28		08:27	08:58
	21:47	20:43	19 07:22 (8)	19:26	25 08:31 (7)	17:15		16:23	16:19
28	05:42	06:37	07:05 (8)	07:33	08:07 (7)	07:30		08:29	08:59
	21:46	20:41	15 07:20 (8)	19:24	22 08:29 (7)	17:13		16:22	16:20
29	05:43	06:38	07:06 (8)	07:35	08:08 (7)	07:32		08:30	08:59
	21:44	20:38	11 07:17 (8)	19:21	20 08:28 (7)	17:11		16:21	16:21
30	05:45	06:40		07:36	08:10 (7)	07:34		08:32	08:59
	21:42	20:36		19:19	15 08:25 (7)	17:09		16:20	16:22
31	05:47	06:42				07:36			08:59
	21:41	20:33				17:07			16:23
Potential sun hours	515	461		382		328		257	231
Total, worst case			445		429		9		
Sun reduction			0.27		0.29		0.23		
Oper. time red.			1.00		1.00		1.00		
Wind dir. red.			0.57		0.59		0.59		
Total reduction			0.16		0.17		0.14		
Total, real			69		74		1		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BY - H77

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May			June		
1	08:58			08:27		16:09 (9)	07:29		16:52 (10)	07:12			06:02			05:12		21:16 (13)
	16:24			17:16	25	16:34 (9)	18:13	24	17:16 (10)	20:12			21:09			22:00	9	21:25 (13)
2	08:58			08:25		16:09 (9)	07:26		16:52 (10)	07:10			06:00			05:11		21:15 (13)
	16:25			17:18	26	16:35 (9)	18:15	22	17:14 (10)	20:14			21:11			22:01	11	21:26 (13)
3	08:58			08:24		16:09 (9)	07:24		16:54 (10)	07:07			05:58			05:10		21:15 (13)
	16:26			17:20	26	16:35 (9)	18:17	19	17:13 (10)	20:16			21:12			22:02	12	21:27 (13)
4	08:58			08:22		16:09 (9)	07:21		16:56 (10)	07:05			05:56		20:34 (12)	05:09		21:15 (13)
	16:27			17:22	26	16:35 (9)	18:19	14	17:10 (10)	20:18			21:14	8	20:42 (12)	22:03	13	21:28 (13)
5	08:57			08:20		16:09 (9)	07:19		17:00 (10)	07:03			05:54		20:33 (12)	05:08		21:15 (13)
	16:29			17:24	26	16:35 (9)	18:21	6	17:06 (10)	20:20			21:16	12	20:45 (12)	22:05	14	21:29 (13)
6	08:57			08:18		16:10 (9)	07:17			07:00			05:52		20:31 (12)	05:07		21:14 (13)
	16:30			17:26	25	16:35 (9)	18:23			20:22			21:18	16	20:47 (12)	22:06	16	21:30 (13)
7	08:56			08:16		16:11 (9)	07:14			06:58			05:50		20:30 (12)	05:07		21:15 (13)
	16:31			17:28	23	16:34 (9)	18:25			20:24			21:20	18	20:48 (12)	22:07	16	21:31 (13)
8	08:56			08:14		16:11 (9)	07:12			06:55			05:48		20:29 (12)	05:06		21:14 (13)
	16:33			17:30	23	16:34 (9)	18:26			20:26			21:22	19	20:48 (12)	22:08	17	21:31 (13)
9	08:55			08:12		16:12 (9)	07:09			06:53			05:46		20:28 (12)	05:05		21:15 (13)
	16:34			17:32	20	16:32 (9)	18:28			20:27			21:23	21	20:49 (12)	22:09	17	21:32 (13)
10	08:55			08:10		16:13 (9)	07:07			06:50			05:44		20:27 (12)	05:05		21:14 (13)
	16:36			17:34	18	16:31 (9)	18:30			20:29			21:25	22	20:49 (12)	22:09	18	21:32 (13)
11	08:54			08:08		16:15 (9)	07:05			06:48			05:42		20:27 (12)	05:04		21:14 (13)
	16:37			17:36	15	16:30 (9)	18:32			20:31			21:27	23	20:50 (12)	22:10	19	21:33 (13)
12	08:53			08:06		16:18 (9)	07:02			06:45		19:53 (11)	05:40		20:27 (12)	05:04		21:15 (13)
	16:39			17:38	9	16:27 (9)	18:34			20:33	11	20:04 (11)	21:29	23	20:50 (12)	22:11	18	21:33 (13)
13	08:52			08:04			07:00			06:43		19:50 (11)	05:39		20:26 (12)	05:04		21:15 (13)
	16:40			17:40			18:36			20:35	16	20:06 (11)	21:31	23	20:49 (12)	22:12	19	21:34 (13)
14	08:51			08:02		16:59 (10)	06:57			06:41		19:49 (11)	05:37		20:27 (12)	05:03		21:15 (13)
	16:42			17:42	12	17:11 (10)	18:38			20:37	18	20:07 (11)	21:32	23	20:50 (12)	22:12	18	21:33 (13)
15	08:50			08:00		16:56 (10)	06:55			06:38		19:48 (11)	05:35		20:26 (12)	05:03		21:15 (13)
	16:44			17:45	17	17:13 (10)	18:40			20:39	20	20:08 (11)	21:34	23	20:49 (12)	22:13	19	21:34 (13)
16	08:49			07:58		16:54 (10)	06:52			06:36		19:47 (11)	05:33		20:27 (12)	05:03		21:15 (13)
	16:45			17:47	21	17:15 (10)	18:42			20:41	22	20:09 (11)	21:36	23	20:50 (12)	22:14	19	21:34 (13)
17	08:48			07:56		16:53 (10)	06:50			06:34		19:46 (11)	05:32		20:27 (12)	05:03		21:15 (13)
	16:47			17:49	24	17:17 (10)	18:44			20:42	22	20:08 (11)	21:37	22	20:49 (12)	22:14	19	21:34 (13)
18	08:47			07:54		16:53 (10)	06:47			06:31		19:46 (11)	05:30		20:28 (12)	05:03		21:15 (13)
	16:49			17:51	25	17:18 (10)	18:46			20:44	23	20:09 (11)	21:39	21	20:49 (12)	22:14	19	21:34 (13)
19	08:46			07:51		16:51 (10)	06:45			06:29		19:46 (11)	05:28		20:27 (12)	05:03		21:16 (13)
	16:51			17:53	27	17:18 (10)	18:48			20:46	23	20:09 (11)	21:41	21	20:48 (12)	22:15	19	21:35 (13)
20	08:45			07:49		16:51 (10)	06:42			06:27		19:45 (11)	05:27		20:28 (12)	05:03		21:16 (13)
	16:53			17:55	28	17:19 (10)	18:50			20:48	23	20:08 (11)	21:42	20	20:48 (12)	22:15	19	21:35 (13)
21	08:44			07:47		16:50 (10)	06:40			06:24		19:45 (11)	05:25		20:29 (12)	05:03		21:17 (13)
	16:54			17:57	30	17:20 (10)	18:51			20:50	22	20:07 (11)	21:44	19	20:48 (12)	22:15	19	21:36 (13)
22	08:42			07:45		16:49 (10)	06:37			06:22		19:45 (11)	05:24		20:29 (12)	05:03		21:17 (13)
	16:56			17:59	30	17:19 (10)	18:53			20:52	22	20:07 (11)	21:46	18	20:47 (12)	22:16	19	21:36 (13)
23	08:41		16:15 (9)	07:42		16:50 (10)	06:35			06:20		19:46 (11)	05:22		20:31 (12)	05:03		21:17 (13)
	16:58	8	16:23 (9)	18:01	29	17:19 (10)	18:55			20:54	20	20:06 (11)	21:47	15	20:46 (12)	22:16	19	21:36 (13)
24	08:40		16:13 (9)	07:40		16:50 (10)	06:32			06:17		19:47 (11)	05:21		20:32 (12)	05:04		21:17 (13)
	17:00	13	16:26 (9)	18:03	30	17:20 (10)	18:57			20:56	18	20:05 (11)	21:49	14	20:46 (12)	22:16	18	21:35 (13)
25	08:38		16:12 (9)	07:38		16:49 (10)	06:30			06:15		19:48 (11)	05:20		20:33 (12)	05:04		21:17 (13)
	17:02	16	16:28 (9)	18:05	30	17:19 (10)	18:59			20:58	16	20:04 (11)	21:50	12	20:45 (12)	22:16	19	21:36 (13)
26	08:37		16:10 (9)	07:36		16:50 (10)	06:27			06:13		19:49 (11)	05:18		20:35 (12)	05:05		21:17 (13)
	17:04	19	16:29 (9)	18:07	29	17:19 (10)	19:01			20:59	13	20:02 (11)	21:52	9	20:44 (12)	22:16	19	21:36 (13)
27	08:35		16:10 (9)	07:33		16:50 (10)	06:25			06:11		19:51 (11)	05:17		20:38 (12)	05:05		21:18 (13)
	17:06	21	16:31 (9)	18:09	27	17:17 (10)	19:03			21:01	8	19:59 (11)	21:53	3	20:41 (12)	22:16	19	21:37 (13)
28	08:34		16:10 (9)	07:31		16:51 (10)	06:22			06:09			05:16			05:06		21:18 (13)
	17:08	22	16:32 (9)	18:11	26	17:17 (10)	19:05			21:03			21:55			22:16	18	21:36 (13)
29	08:32		16:09 (9)				07:20			06:06			05:15		21:20 (13)	05:06		21:18 (13)
	17:10	23	16:32 (9)				20:07			21:05			21:56	2	21:22 (13)	22:15	19	21:37 (13)
30	08:31		16:09 (9)				07:17			06:04			05:14		21:18 (13)	05:07		21:18 (13)
	17:12	24	16:33 (9)				20:09			21:07			21:57	5	21:23 (13)	22:15	18	21:36 (13)
31	08:29		16:08 (9)				07:15						05:13		21:17 (13)			
	17:14	25	16:33 (9)				20:10						21:59	7	21:24 (13)			
Potential sun hours	248			272			367			421			496			513		
Total, worst case		171			647			85			297			442			518	
Sun reduction		0.17			0.22			0.22			0.34			0.36			0.26	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.60			0.59			0.58			0.59			0.62			0.63	
Total reduction		0.10			0.13			0.13			0.20			0.22			0.16	
Total, real		17			85			11			60			99			84	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BY - H77

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September		October			November			December	
1	05:07		21:19 (13)	05:48		20:37 (12)	06:44		07:38			07:37		15:42 (9)	08:33	
	22:15	18	21:37 (13)	21:39	23	21:00 (12)	20:31		19:16			17:04	19	16:01 (9)	16:19	
2	05:08		21:19 (13)	05:50		20:38 (12)	06:45		07:40			07:39		15:41 (9)	08:35	
	22:14	18	21:37 (13)	21:37	22	21:00 (12)	20:28		19:14			17:02	21	16:02 (9)	16:18	
3	05:09		21:20 (13)	05:52		20:37 (12)	06:47		07:42			07:41		15:40 (9)	08:36	
	22:14	18	21:38 (13)	21:35	22	20:59 (12)	20:26		19:11			17:00	22	16:02 (9)	16:18	
4	05:10		21:19 (13)	05:53		20:38 (12)	06:49		07:44			07:43		15:40 (9)	08:38	
	22:13	18	21:37 (13)	21:33	21	20:59 (12)	20:24		19:09			16:58	24	16:04 (9)	16:17	
5	05:11		21:20 (13)	05:55		20:39 (12)	06:51		07:45			07:45		15:40 (9)	08:39	
	22:13	17	21:37 (13)	21:31	19	20:58 (12)	20:21		19:06			16:56	24	16:04 (9)	16:16	
6	05:12		21:20 (13)	05:57		20:39 (12)	06:53		07:47			07:47		15:39 (9)	08:41	
	22:12	16	21:36 (13)	21:29	18	20:57 (12)	20:19		19:04			16:55	26	16:05 (9)	16:16	
7	05:13		21:21 (13)	05:59		20:41 (12)	06:54		07:49			07:49		15:39 (9)	08:42	
	22:12	15	21:36 (13)	21:27	15	20:56 (12)	20:16		19:01			16:53	26	16:05 (9)	16:15	
8	05:14		21:21 (13)	06:00		20:43 (12)	06:56		07:51			07:51		15:39 (9)	08:43	
	22:11	14	21:35 (13)	21:25	11	20:54 (12)	20:14		18:59			16:51	26	16:05 (9)	16:15	
9	05:15		21:22 (13)	06:02		20:45 (12)	06:58		07:53		17:33 (10)	07:53		15:39 (9)	08:45	
	22:10	12	21:34 (13)	21:23	6	20:51 (12)	20:11		18:56	11	17:44 (10)	16:49	25	16:04 (9)	16:14	
10	05:16		21:23 (13)	06:04			07:00		07:55		17:30 (10)	07:55		15:40 (9)	08:46	
	22:09	11	21:34 (13)	21:21			20:09		18:54	16	17:46 (10)	16:47	25	16:05 (9)	16:14	
11	05:17		21:23 (13)	06:06			07:02		07:57		17:27 (10)	07:57		15:40 (9)	08:47	
	22:08	10	21:33 (13)	21:19			20:06		18:52	21	17:48 (10)	16:45	25	16:05 (9)	16:14	
12	05:18		21:24 (13)	06:08			07:03		07:59		17:26 (10)	07:59		15:40 (9)	08:48	
	22:07	8	21:32 (13)	21:17			20:04		18:49	23	17:49 (10)	16:44	25	16:05 (9)	16:14	
13	05:19		21:25 (13)	06:09			07:05		08:00		17:24 (10)	08:01		15:41 (9)	08:49	
	22:06	6	21:31 (13)	21:15			20:01		18:47	26	17:50 (10)	16:42	23	16:04 (9)	16:14	
14	05:21		21:27 (13)	06:11			07:07		08:02		17:23 (10)	08:03		15:42 (9)	08:50	
	22:05	4	21:31 (13)	21:13			19:59		18:44	27	17:50 (10)	16:40	21	16:03 (9)	16:13	
15	05:22			06:13			07:09		08:04		17:22 (10)	08:05		15:42 (9)	08:51	
	22:04			21:10			19:56		18:42	29	17:51 (10)	16:39	21	16:03 (9)	16:13	
16	05:23			06:15		19:58 (11)	07:11		08:06		17:22 (10)	08:07		15:43 (9)	08:52	
	22:03			21:08	9	20:07 (11)	19:54		18:40	29	17:51 (10)	16:37	19	16:02 (9)	16:14	
17	05:25		20:45 (12)	06:17		19:56 (11)	07:13		08:08		17:21 (10)	08:09		15:46 (9)	08:53	
	22:02	6	20:51 (12)	21:06	13	20:09 (11)	19:51		18:37	30	17:51 (10)	16:36	16	16:02 (9)	16:14	
18	05:26		20:44 (12)	06:18		19:53 (11)	07:14		08:10		17:21 (10)	08:11		15:47 (9)	08:54	
	22:01	10	20:54 (12)	21:04	17	20:10 (11)	19:49		18:35	30	17:51 (10)	16:34	13	16:00 (9)	16:14	
19	05:28		20:42 (12)	06:20		19:52 (11)	07:16		08:12		17:21 (10)	08:12		15:50 (9)	08:55	
	21:59	13	20:55 (12)	21:01	19	20:11 (11)	19:46		18:33	30	17:51 (10)	16:33	8	15:58 (9)	16:14	
20	05:29		20:41 (12)	06:22		19:52 (11)	07:18		08:14		17:21 (10)	08:14			08:55	
	21:58	15	20:56 (12)	20:59	20	20:12 (11)	19:44		18:30	29	17:50 (10)	16:31			16:15	
21	05:30		20:41 (12)	06:24		19:50 (11)	07:20		08:16		17:21 (10)	08:16			08:56	
	21:56	16	20:57 (12)	20:57	22	20:12 (11)	19:41		18:28	29	17:50 (10)	16:30			16:15	
22	05:32		20:39 (12)	06:26		19:50 (11)	07:22		08:18		17:21 (10)	08:18			08:56	
	21:55	19	20:58 (12)	20:55	22	20:12 (11)	19:39		18:26	28	17:49 (10)	16:29			16:15	
23	05:34		20:39 (12)	06:27		19:49 (11)	07:23		08:20		17:22 (10)	08:20			08:57	
	21:54	20	20:59 (12)	20:52	23	20:12 (11)	19:36		18:24	26	17:48 (10)	16:27			16:16	
24	05:35		20:38 (12)	06:29		19:49 (11)	07:25		08:22		17:22 (10)	08:22			08:57	
	21:52	21	20:59 (12)	20:50	24	20:13 (11)	19:34		18:21	25	17:47 (10)	16:26			16:17	
25	05:37		20:38 (12)	06:31		19:48 (11)	07:27		07:24		16:23 (10)	08:23			08:58	
	21:51	21	20:59 (12)	20:48	23	20:11 (11)	19:31		17:19	23	16:46 (10)	16:25			16:17	
26	05:38		20:38 (12)	06:33		19:49 (11)	07:29		07:26		16:24 (10)	08:25			08:58	
	21:49	22	21:00 (12)	20:45	22	20:11 (11)	19:29		17:17	20	16:44 (10)	16:24			16:18	
27	05:40		20:37 (12)	06:35		19:49 (11)	07:31		07:27		16:26 (10)	08:27			08:58	
	21:47	23	21:00 (12)	20:43	22	20:11 (11)	19:26		17:15	16	16:42 (10)	16:23			16:19	
28	05:42		20:37 (12)	06:36		19:49 (11)	07:32		07:29		16:29 (10)	08:28			08:58	
	21:46	23	21:00 (12)	20:40	20	20:09 (11)	19:24		17:13	11	16:40 (10)	16:22			16:19	
29	05:43		20:37 (12)	06:38		19:50 (11)	07:34		07:31			08:30			08:58	
	21:44	23	21:00 (12)	20:38	18	20:08 (11)	19:21		17:11			16:21			16:20	
30	05:45		20:37 (12)	06:40		19:51 (11)	07:36		07:33		15:47 (9)	08:32			08:58	
	21:42	23	21:00 (12)	20:36	15	20:06 (11)	19:19		17:09	11	15:58 (9)	16:20			16:21	
31	05:47		20:37 (12)	06:42		19:53 (11)			07:35		15:44 (9)				08:58	
	21:40	24	21:01 (12)	20:33	11	20:04 (11)			17:06	16	16:00 (9)				16:22	
Potential sun hours	515			461			382		328			257			231	
Total, worst case		464			457					506			409			
Sun reduction		0.27			0.27					0.23			0.20			
Oper. time red.		1.00			1.00					1.00			1.00			
Wind dir. red.		0.63			0.60					0.58			0.60			
Total reduction		0.17			0.16					0.14			0.12			
Total, real		77			75					69			49			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BZ - H78

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April	May	June
1	08:58			08:27		15:56 (18)	07:29		16:54 (17)	07:12	06:02	05:11
	16:24			17:16	28	16:24 (18)	18:13	29	17:23 (17)	20:12	21:09	22:00
2	08:58			08:25		15:56 (18)	07:26		16:54 (17)	07:10	06:00	05:10
	16:25			17:18	28	16:24 (18)	18:15	28	17:22 (17)	20:14	21:11	22:01
3	08:58			08:24		15:56 (18)	07:24		16:54 (17)	07:07	05:58	05:10
	16:26			17:20	28	16:24 (18)	18:17	28	17:22 (17)	20:16	21:13	22:02
4	08:58			08:22		15:57 (18)	07:21		16:54 (17)	07:05	05:56	05:09
	16:27			17:22	27	16:24 (18)	18:19	27	17:21 (17)	20:18	21:14	22:03
5	08:57			08:20		15:57 (18)	07:19		16:56 (17)	07:02	05:54	05:08
	16:28			17:24	26	16:23 (18)	18:21	24	17:20 (17)	20:20	21:16	22:05
6	08:57			08:18		15:58 (18)	07:17		16:56 (17)	07:00	05:52	05:07
	16:30			17:26	25	16:23 (18)	18:23	22	17:18 (17)	20:22	21:18	22:06
7	08:56			08:16		15:59 (18)	07:14		16:58 (17)	06:58	05:50	05:06
	16:31			17:28	23	16:22 (18)	18:24	19	17:17 (17)	20:24	21:20	22:07
8	08:56			08:14		16:00 (18)	07:12		17:00 (17)	06:55	05:48	05:06
	16:33			17:30	22	16:22 (18)	18:26	14	17:14 (17)	20:25	21:22	22:08
9	08:55			08:12		16:00 (18)	07:09		17:05 (17)	06:53	05:46	05:05
	16:34			17:32	20	16:20 (18)	18:28	4	17:09 (17)	20:27	21:23	22:09
10	08:55			08:10		16:02 (18)	07:07			06:50	05:44	05:05
	16:36			17:34	17	16:19 (18)	18:30			20:29	21:25	22:09
11	08:54			08:08		16:05 (18)	07:05			06:48	05:42	05:04
	16:37			17:36	12	16:17 (18)	18:32			20:31	21:27	22:10
12	08:53			08:06		16:10 (18)	07:02			06:45	05:40	05:04
	16:39			17:38	2	16:12 (18)	18:34			20:33	21:29	22:11
13	08:52			08:04			07:00			06:43	05:38	05:03
	16:40			17:40			18:36			20:35	21:31	22:12
14	08:51			08:02			06:57			06:41	05:37	05:03
	16:42			17:42			18:38			20:37	21:32	22:12
15	08:51			08:00			06:55			06:38	05:35	05:03
	16:44			17:44			18:40			20:39	21:34	22:13
16	08:50			07:58			06:52			06:36	05:33	05:03
	16:45			17:46			18:42			20:41	21:36	22:14
17	08:48			07:56			06:50			06:33	05:32	05:03
	16:47			17:48			18:44			20:42	21:37	22:14
18	08:47			07:54		17:05 (17)	06:47			06:31	05:30	05:03
	16:49			17:51	9	17:14 (17)	18:46			20:44	21:39	22:15
19	08:46			07:51		17:02 (17)	06:45			06:29	05:28	05:03
	16:51			17:53	15	17:17 (17)	18:48			20:46	21:41	22:15
20	08:45		16:03 (18)	07:49		17:00 (17)	06:42			06:26	05:27	05:03
	16:52	7	16:10 (18)	17:55	19	17:19 (17)	18:50			20:48	21:42	22:15
21	08:44		16:01 (18)	07:47		16:59 (17)	06:40			06:24	05:25	05:03
	16:54	11	16:12 (18)	17:57	22	17:21 (17)	18:51			20:50	21:44	22:16
22	08:42		16:00 (18)	07:45		16:57 (17)	06:37			06:22	05:24	05:03
	16:56	15	16:15 (18)	17:59	24	17:21 (17)	18:53			20:52	21:46	22:16
23	08:41		15:58 (18)	07:42		16:56 (17)	06:35			06:20	05:22	05:03
	16:58	18	16:16 (18)	18:01	26	17:22 (17)	18:55			20:54	21:47	22:16
24	08:40		15:58 (18)	07:40		16:56 (17)	06:32			06:17	05:21	05:04
	17:00	20	16:18 (18)	18:03	27	17:23 (17)	18:57			20:56	21:49	22:16
25	08:38		15:57 (18)	07:38		16:54 (17)	06:30			06:15	05:20	05:04
	17:02	22	16:19 (18)	18:05	29	17:23 (17)	18:59			20:58	21:50	22:16
26	08:37		15:56 (18)	07:36		16:54 (17)	06:27			06:13	05:18	05:04
	17:04	23	16:19 (18)	18:07	30	17:24 (17)	19:01			20:59	21:52	22:16
27	08:35		15:57 (18)	07:33		16:53 (17)	06:25			06:11	05:17	05:05
	17:06	24	16:21 (18)	18:09	30	17:23 (17)	19:03			21:01	21:53	22:16
28	08:34		15:56 (18)	07:31		16:54 (17)	06:22			06:08	05:16	05:05
	17:08	26	16:22 (18)	18:11	29	17:23 (17)	19:05			21:03	21:55	22:16
29	08:32		15:56 (18)				07:20			06:06	05:15	05:06
	17:10	26	16:22 (18)				20:07			21:05	21:56	22:15
30	08:31		15:55 (18)				07:17			06:04	05:14	05:07
	17:12	27	16:22 (18)				20:08			21:07	21:57	22:15
31	08:29		15:55 (18)				07:15				05:12	
	17:14	27	16:22 (18)				20:10				21:59	
Potential sun hours	248			272			367			421	496	513
Total, worst case		246			518			195				
Sun reduction		0.17			0.22			0.22				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.61			0.60			0.58				
Total reduction		0.10			0.13			0.13				
Total, real		26			69			25				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: BZ - H78

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October		November		December
1	05:07	05:48	06:44	07:38		07:37		15:31 (18)	08:33
	22:15	21:39	20:31	19:16		17:04	17	15:48 (18)	16:19
2	05:08	05:50	06:45	07:40		07:39		15:30 (18)	08:35
	22:14	21:37	20:28	19:14		17:02	20	15:50 (18)	16:18
3	05:09	05:52	06:47	07:42		07:41		15:28 (18)	08:36
	22:14	21:35	20:26	19:11		17:00	23	15:51 (18)	16:17
4	05:10	05:53	06:49	07:43		07:43		15:28 (18)	08:38
	22:14	21:33	20:23	19:09		16:58	24	15:52 (18)	16:17
5	05:11	05:55	06:51	07:45		17:39 (17)	07:45		15:28 (18)	08:39
	22:13	21:31	20:21	19:06	10	17:49 (17)	16:56	25	15:53 (18)	16:16
6	05:11	05:57	06:53	07:47		17:35 (17)	07:47		15:27 (18)	08:41
	22:12	21:29	20:19	19:04	17	17:52 (17)	16:54	26	15:53 (18)	16:16
7	05:12	05:59	06:54	07:49		17:33 (17)	07:49		15:27 (18)	08:42
	22:12	21:27	20:16	19:01	20	17:53 (17)	16:53	26	15:53 (18)	16:15
8	05:13	06:00	06:56	07:51		17:31 (17)	07:51		15:26 (18)	08:43
	22:11	21:25	20:14	18:59	24	17:55 (17)	16:51	27	15:53 (18)	16:15
9	05:15	06:02	06:58	07:53		17:30 (17)	07:53		15:26 (18)	08:45
	22:10	21:23	20:11	18:56	25	17:55 (17)	16:49	28	15:54 (18)	16:14
10	05:16	06:04	07:00	07:55		17:29 (17)	07:55		15:27 (18)	08:46
	22:09	21:21	20:09	18:54	27	17:56 (17)	16:47	27	15:54 (18)	16:14
11	05:17	06:06	07:02	07:57		17:28 (17)	07:57		15:27 (18)	08:47
	22:08	21:19	20:06	18:51	28	17:56 (17)	16:45	27	15:54 (18)	16:14
12	05:18	06:07	07:03	07:58		17:28 (17)	07:59		15:27 (18)	08:48
	22:07	21:17	20:04	18:49	29	17:57 (17)	16:44	27	15:54 (18)	16:13
13	05:19	06:09	07:05	08:00		17:27 (17)	08:01		15:28 (18)	08:49
	22:06	21:15	20:01	18:47	30	17:57 (17)	16:42	26	15:54 (18)	16:13
14	05:21	06:11	07:07	08:02		17:27 (17)	08:03		15:28 (18)	08:50
	22:05	21:13	19:59	18:44	29	17:56 (17)	16:40	25	15:53 (18)	16:13
15	05:22	06:13	07:09	08:04		17:27 (17)	08:05		15:29 (18)	08:51
	22:04	21:10	19:56	18:42	29	17:56 (17)	16:39	24	15:53 (18)	16:13
16	05:23	06:15	07:11	08:06		17:27 (17)	08:07		15:29 (18)	08:52
	22:03	21:08	19:54	18:40	29	17:56 (17)	16:37	23	15:52 (18)	16:13
17	05:25	06:16	07:12	08:08		17:27 (17)	08:09		15:31 (18)	08:53
	22:02	21:06	19:51	18:37	28	17:55 (17)	16:36	22	15:53 (18)	16:14
18	05:26	06:18	07:14	08:10		17:27 (17)	08:11		15:32 (18)	08:54
	22:01	21:04	19:49	18:35	27	17:54 (17)	16:34	20	15:52 (18)	16:14
19	05:27	06:20	07:16	08:12		17:28 (17)	08:12		15:33 (18)	08:55
	21:59	21:01	19:46	18:33	25	17:53 (17)	16:33	18	15:51 (18)	16:14
20	05:29	06:22	07:18	08:14		17:28 (17)	08:14		15:35 (18)	08:55
	21:58	20:59	19:44	18:30	24	17:52 (17)	16:31	15	15:50 (18)	16:14
21	05:30	06:24	07:20	08:16		17:29 (17)	08:16		15:37 (18)	08:56
	21:57	20:57	19:41	18:28	22	17:51 (17)	16:30	11	15:48 (18)	16:15
22	05:32	06:25	07:21	08:18		17:31 (17)	08:18		15:39 (18)	08:56
	21:55	20:55	19:39	18:26	18	17:49 (17)	16:29	7	15:46 (18)	16:15
23	05:33	06:27	07:23	08:20		17:33 (17)	08:20			08:57
	21:54	20:52	19:36	18:24	13	17:46 (17)	16:27			16:16
24	05:35	06:29	07:25	08:22		17:36 (17)	08:22			08:57
	21:52	20:50	19:33	18:21	6	17:42 (17)	16:26			16:16
25	05:36	06:31	07:27	07:24			08:23			08:58
	21:51	20:48	19:31	17:19			16:25			08:17
26	05:38	06:33	07:29	07:26			08:25			08:58
	21:49	20:45	19:28	17:17			16:24			16:18
27	05:40	06:35	07:31	07:27			08:27			08:58
	21:47	20:43	19:26	17:15			16:23			16:18
28	05:41	06:36	07:32	07:29			08:29			08:58
	21:46	20:40	19:23	17:13			16:22			16:19
29	05:43	06:38	07:34	07:31			08:30			08:58
	21:44	20:38	19:21	17:10			16:21			16:20
30	05:45	06:40	07:36	07:33		15:37 (18)	08:32			08:59
	21:42	20:36	19:18	17:08	6	15:43 (18)	16:20			16:21
31	05:46	06:42		07:35		15:34 (18)				08:58
	21:40	20:33		17:06	13	15:47 (18)				16:22
Potential sun hours	515	461	383	327			257			230
Total, worst case					479			488		
Sun reduction					0.23			0.20		
Oper. time red.					1.00			1.00		
Wind dir. red.					0.58			0.61		
Total reduction					0.14			0.12		
Total, real					66			59		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CA - H79

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02		05:11		20:27 (18)	05:07	20:32 (18)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09		22:00	31	20:58 (18)	22:15	32	21:04 (18)	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00		05:11		20:27 (18)	05:08	20:33 (18)	05:50	06:45	07:40	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11		22:01	31	20:58 (18)	22:14	31	21:04 (18)	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58		05:10		20:26 (18)	05:09	20:33 (18)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12		22:02	32	20:58 (18)	22:14	32	21:05 (18)	21:35	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56		05:09		20:26 (18)	05:10	20:32 (18)	05:53	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14		22:03	32	20:58 (18)	22:13	32	21:04 (18)	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54		05:08		20:27 (18)	05:11	20:33 (18)	05:55	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16		22:05	32	20:59 (18)	22:13	31	21:04 (18)	21:31	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52		05:07		20:27 (18)	05:12	20:33 (18)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18		22:06	31	20:58 (18)	22:12	32	21:05 (18)	21:29	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50		05:07		20:27 (18)	05:13	20:33 (18)	05:59	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20		22:07	32	20:59 (18)	22:12	32	21:05 (18)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48		05:06		20:27 (18)	05:14	20:34 (18)	06:00	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22		22:08	32	20:59 (18)	22:11	31	21:05 (18)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46		05:05		20:28 (18)	05:15	20:34 (18)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23		22:09	31	20:59 (18)	22:10	31	21:05 (18)	21:23	20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44		05:05		20:27 (18)	05:16	20:34 (18)	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25		22:09	32	20:59 (18)	22:09	31	21:05 (18)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42		05:04		20:28 (18)	05:17	20:34 (18)	06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27		22:10	32	21:00 (18)	22:08	31	21:05 (18)	21:19	20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40		05:04		20:29 (18)	05:18	20:34 (18)	06:07	07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29		22:11	31	21:00 (18)	22:07	31	21:05 (18)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38		05:04		20:28 (18)	05:19	20:34 (18)	06:09	07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31		22:12	31	20:59 (18)	22:06	31	21:05 (18)	21:15	20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37		05:03		20:28 (18)	05:21	20:36 (18)	06:11	07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32		22:12	32	21:00 (18)	22:05	30	21:06 (18)	21:12	19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35		05:03		20:29 (18)	05:22	20:36 (18)	06:13	07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34		22:13	31	21:00 (18)	22:04	29	21:05 (18)	21:10	19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33		05:03		20:29 (18)	05:23	20:36 (18)	06:15	07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36		22:14	31	21:00 (18)	22:03	29	21:05 (18)	21:08	19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32	20:36 (18)	05:03		20:29 (18)	05:25	20:36 (18)	06:16	07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	9	20:45 (18)	22:14	32	21:01 (18)	22:02	28	21:04 (18)	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30		20:34 (18)	05:03		20:30 (18)	05:26	20:37 (18)	06:18	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	14	20:48 (18)	22:14	31	21:01 (18)	22:01	28	21:05 (18)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28		20:32 (18)	05:03		20:30 (18)	05:27	20:38 (18)	06:20	07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41	17	20:49 (18)	22:15	31	21:01 (18)	21:59	26	21:04 (18)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27		20:31 (18)	05:03		20:30 (18)	05:29	20:38 (18)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	20	20:51 (18)	22:15	31	21:01 (18)	21:58	25	21:03 (18)	20:59	19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25		20:30 (18)	05:03		20:30 (18)	05:30	20:39 (18)	06:24	07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44	22	20:52 (18)	22:15	31	21:01 (18)	21:56	24	21:03 (18)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24		20:29 (18)	05:03		20:31 (18)	05:32	20:40 (18)	06:25	07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	23	20:52 (18)	22:16	31	21:02 (18)	21:55	22	21:02 (18)	20:55	19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22		20:28 (18)	05:03		20:31 (18)	05:33	20:40 (18)	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	25	20:53 (18)	22:16	31	21:02 (18)	21:54	21	21:01 (18)	20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21		20:28 (18)	05:04		20:31 (18)	05:35	20:42 (18)	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	26	20:54 (18)	22:16	31	21:02 (18)	21:52	18	21:00 (18)	20:50	19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20		20:28 (18)	05:04		20:31 (18)	05:37	20:43 (18)	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	27	20:55 (18)	22:16	32	21:03 (18)	21:50	16	20:59 (18)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18		20:28 (18)	05:04		20:31 (18)	05:38	20:45 (18)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	28	20:56 (18)	22:16	32	21:03 (18)	21:49	12	20:57 (18)	20:45	19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17		20:27 (18)	05:05		20:32 (18)	05:40	20:47 (18)	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	28	20:55 (18)	22:16	31	21:03 (18)	21:47	7	20:54 (18)	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16		20:26 (18)	05:05		20:32 (18)	05:41			06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55	30	20:56 (18)	22:16	31	21:03 (18)	21:46			20:40	19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15		20:26 (18)	05:06		20:32 (18)	05:43			06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	30	20:56 (18)	22:15	32	21:04 (18)	21:44			20:38	19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14		20:26 (18)	05:07		20:32 (18)	05:45			06:40	07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57	30	20:56 (18)	22:15	31	21:03 (18)	21:42			20:36	19:18	17:08	16:20	16:21
31	08:29		07:15		05:13		20:27 (18)				05:46			06:42		07:35		08:58
	17:14		20:10		21:59	31	20:58 (18)				21:40			20:33		17:06		16:22
Potential sun hours	248	272	367	421	496		513		515		461	383	327	257	230
Total, worst case						360		942		723					
Sun reduction						0.36		0.26		0.27					
Oper. time red.						1.00		1.00		1.00					
Wind dir. red.						0.62		0.62		0.62					
Total reduction						0.23		0.16		0.17					
Total, real						81		152		120					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CB - H80

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February			March			April			May			June		
1	08:59		08:27			07:29			07:13		07:37 (13)	06:02		06:28 (15)	05:12		05:43 (14)
	16:24		17:16			18:13			20:12	4	07:41 (13)	21:09	16	06:44 (15)	22:00	9	05:52 (14)
2	08:58		08:26			07:26			07:10		07:34 (13)	06:00		06:26 (15)	05:11		05:42 (14)
	16:25		17:18			18:15			20:14	6	07:40 (13)	21:11	18	06:44 (15)	22:01	11	05:53 (14)
3	08:58		08:24			07:24			07:08		07:32 (13)	05:58		06:24 (15)	05:10		05:41 (14)
	16:26		17:20			18:17			20:16	9	07:41 (13)	21:13	19	06:43 (15)	22:02	12	05:53 (14)
4	08:58		08:22			07:22			07:05		07:29 (13)	05:56		06:25 (15)	05:09		05:41 (14)
	16:27		17:22			18:19			20:18	11	07:40 (13)	21:15	18	06:43 (15)	22:04	14	05:55 (14)
5	08:58		08:20			07:19			07:03		07:27 (13)	05:54		06:26 (15)	05:08		05:40 (14)
	16:29		17:24			18:21			20:20	13	07:40 (13)	21:16	16	06:42 (15)	22:05	15	05:55 (14)
6	08:57		08:18			07:17			07:00		07:24 (13)	05:52		06:27 (15)	05:07		05:39 (14)
	16:30		17:26			18:23			20:22	15	07:39 (13)	21:18	14	06:41 (15)	22:06	16	05:55 (14)
7	08:57		08:16			07:14		07:39 (12)	06:58		07:22 (13)	05:50		06:28 (15)	05:07		05:39 (14)
	16:31		17:28			18:25	2	07:41 (12)	20:24	17	07:39 (13)	21:20	11	06:39 (15)	22:07	17	05:56 (14)
8	08:56		08:14			07:12		07:37 (12)	06:55		07:19 (13)	05:48		06:31 (15)	05:06		05:38 (14)
	16:33		17:30			18:27	4	07:41 (12)	20:26	18	07:37 (13)	21:22	4	06:35 (15)	22:08	18	05:56 (14)
9	08:55		08:13			07:10		07:34 (12)	06:53		07:19 (13)	05:46			05:06		05:38 (14)
	16:34		17:32			18:29	7	07:41 (12)	20:28	17	07:36 (13)	21:24			22:09	19	05:57 (14)
10	08:55		08:11			07:07		07:32 (12)	06:50		07:21 (13)	05:44			05:05		05:38 (14)
	16:36		17:34			18:31	9	07:41 (12)	20:29	13	07:34 (13)	21:25			22:10	19	05:57 (14)
11	08:54		08:09			07:05		07:29 (12)	06:48		07:22 (13)	05:42			05:05		05:37 (14)
	16:37		17:36			18:32	10	07:39 (12)	20:31	9	07:31 (13)	21:27			22:10	20	05:57 (14)
12	08:53		08:06			07:02		07:27 (12)	06:46			05:40			05:04		05:37 (14)
	16:39		17:39			18:34	12	07:39 (12)	20:33			21:29			22:11	21	05:58 (14)
13	08:52		08:04			07:00		07:24 (12)	06:43			05:39			05:04		05:37 (14)
	16:41		17:41			18:36	13	07:37 (12)	20:35			21:31			22:12	21	05:58 (14)
14	08:52		08:02			06:57		07:25 (12)	06:41			05:37			05:03		05:37 (14)
	16:42		17:43			18:38	10	07:35 (12)	20:37			21:32			22:13	22	05:59 (14)
15	08:51		08:00			06:55			06:38			05:35			05:03		05:36 (14)
	16:44		17:45			18:40			20:39			21:34			22:13	22	05:58 (14)
16	08:50		07:58			06:52			06:36			05:33			05:03		05:36 (14)
	16:46		17:47			18:42			20:41			21:36			22:14	23	05:59 (14)
17	08:49		07:56			06:50			06:34			05:32			05:03		05:36 (14)
	16:47		17:49			18:44			20:43			21:38			22:14	23	05:59 (14)
18	08:48		07:54		08:20 (11)	06:47			06:31		06:56 (16)	05:30			05:03		05:36 (14)
	16:49		17:51	1	08:21 (11)	18:46			20:45	2	06:58 (16)	21:39			22:15	23	05:59 (14)
19	08:46		07:52		08:17 (11)	06:45			06:29		06:54 (16)	05:29			05:03		05:36 (14)
	16:51		17:53	4	08:21 (11)	18:48			20:46	4	06:58 (16)	21:41			22:15	23	05:59 (14)
20	08:45		07:49		08:15 (11)	06:42			06:27		06:52 (16)	05:27			05:03		05:37 (14)
	16:53		17:55	6	08:21 (11)	18:50			20:48	5	06:57 (16)	21:43			22:15	23	06:00 (14)
21	08:44		07:47		08:13 (11)	06:40			06:24		06:49 (16)	05:25			05:03		05:37 (14)
	16:55		17:57	8	08:21 (11)	18:52			20:50	7	06:56 (16)	21:44			22:16	23	06:00 (14)
22	08:43		07:45		08:10 (11)	06:37			06:22		06:47 (16)	05:24			05:03		05:37 (14)
	16:56		17:59	10	08:20 (11)	18:54			20:52	8	06:55 (16)	21:46			22:16	23	06:00 (14)
23	08:41		07:43		08:08 (11)	06:35			06:20		06:45 (16)	05:23			05:04		05:37 (14)
	16:58		18:01	11	08:19 (11)	18:55			20:54	9	06:54 (16)	21:47			22:16	23	06:00 (14)
24	08:40		07:40		08:06 (11)	06:32			06:18		06:43 (15)	05:21			05:04		05:38 (14)
	17:00		18:03	12	08:18 (11)	18:57			20:56	9	06:52 (16)	21:49			22:16	23	06:01 (14)
25	08:38		07:38		08:05 (11)	06:30			06:15		06:41 (15)	05:20			05:04		05:38 (14)
	17:02		18:05	11	08:16 (11)	18:59			20:58	4	06:45 (15)	21:50			22:16	23	06:01 (14)
26	08:37		07:36		08:09 (11)	06:27			06:13		06:39 (15)	05:19			05:05		05:38 (14)
	17:04		18:07	3	08:12 (11)	19:01			21:00	6	06:45 (15)	21:52			22:16	23	06:01 (14)
27	08:35		07:33			06:25			06:11		06:37 (15)	05:17			05:05		05:39 (14)
	17:06		18:09			19:03			21:01	9	06:46 (15)	21:53			22:16	22	06:01 (14)
28	08:34		07:31			06:23			06:09		06:34 (15)	05:16		05:47 (14)	05:06		05:39 (14)
	17:08		18:11			19:05			21:03	11	06:45 (15)	21:55	1	05:48 (14)	22:16	22	06:01 (14)
29	08:32					07:20			06:07		06:32 (15)	05:15		05:46 (14)	05:06		05:40 (14)
	17:10					20:07			21:05	13	06:45 (15)	21:56	4	05:50 (14)	22:16	22	06:02 (14)
30	08:31					07:18			06:04		06:30 (15)	05:14		05:45 (14)	05:07		05:41 (14)
	17:12					20:09			21:07	15	06:45 (15)	21:57	6	05:51 (14)	22:15	21	06:02 (14)
31	08:29					07:15						05:13		05:44 (14)			
	17:14					20:11						21:59	8	05:52 (14)			
Potential sun hours	248		272			367			421			496			513		
Total, worst case				66			67			234			135			596	
Sun reduction				0.22			0.22			0.34			0.36			0.26	
Oper. time red.				1.00			1.00			1.00			1.00			1.00	
Wind dir. red.				0.62			0.59			0.58			0.58			0.58	
Total reduction				0.14			0.13			0.20			0.21			0.15	
Total, real				9			9			47			28			90	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CB - H80

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November	December
1	05:08		05:41 (14)	05:48			06:44		07:21 (13)	07:38		08:05 (12)	07:38	08:34
	22:15	20	06:01 (14)	21:39			20:31	9	07:30 (13)	19:16	12	08:17 (12)	17:05	16:19
2	05:08		05:42 (14)	05:50			06:46		07:18 (13)	07:40		08:07 (12)	07:40	08:35
	22:15	20	06:02 (14)	21:37			20:29	14	07:32 (13)	19:14	11	08:18 (12)	17:02	16:18
3	05:09		05:43 (14)	05:52			06:47		07:17 (13)	07:42		08:09 (12)	07:42	08:37
	22:14	19	06:02 (14)	21:35			20:26	17	07:34 (13)	19:11	10	08:19 (12)	17:00	16:18
4	05:10		05:44 (14)	05:54			06:49		07:17 (13)	07:44		08:10 (12)	07:43	08:38
	22:14	18	06:02 (14)	21:33			20:24	18	07:35 (13)	19:09	8	08:18 (12)	16:59	16:17
5	05:11		05:44 (14)	05:55		06:40 (15)	06:51		07:18 (13)	07:46		08:12 (12)	07:45	08:40
	22:13	17	06:01 (14)	21:31	7	06:47 (15)	20:21	17	07:35 (13)	19:06	6	08:18 (12)	16:57	16:16
6	05:12		05:45 (14)	05:57		06:37 (15)	06:53		07:20 (13)	07:47		08:14 (12)	07:47	08:41
	22:12	16	06:01 (14)	21:29	12	06:49 (15)	20:19	15	07:35 (13)	19:04	3	08:17 (12)	16:55	16:16
7	05:13		05:46 (14)	05:59		06:36 (15)	06:55		07:22 (13)	07:49		08:16 (12)	07:49	08:42
	22:12	15	06:01 (14)	21:27	15	06:51 (15)	20:16	13	07:35 (13)	19:01	1	08:17 (12)	16:53	16:15
8	05:14		05:47 (14)	06:01		06:35 (15)	06:56		07:24 (13)	07:51			07:51	08:44
	22:11	14	06:01 (14)	21:25	17	06:52 (15)	20:14	11	07:35 (13)	18:59			16:51	16:15
9	05:15		05:48 (14)	06:02		06:34 (15)	06:58		07:25 (13)	07:53			07:53	08:45
	22:10	13	06:01 (14)	21:23	18	06:52 (15)	20:11	9	07:34 (13)	18:57			16:49	16:15
10	05:16		05:49 (14)	06:04		06:34 (15)	07:00		07:27 (13)	07:55			07:55	08:46
	22:09	12	06:01 (14)	21:21	19	06:53 (15)	20:09	7	07:34 (13)	18:54			16:47	16:14
11	05:17		05:50 (14)	06:06		06:36 (15)	07:02		07:29 (13)	07:57			07:57	08:47
	22:08	10	06:00 (14)	21:19	18	06:54 (15)	20:06	4	07:33 (13)	18:52			16:46	16:14
12	05:18		05:51 (14)	06:08		06:37 (15)	07:04		07:31 (13)	07:59			07:59	08:48
	22:08	9	06:00 (14)	21:17	16	06:53 (15)	20:04	1	07:32 (13)	18:49			16:44	16:14
13	05:20		05:53 (14)	06:09		06:39 (15)	07:05			08:01			08:01	08:49
	22:07	7	06:00 (14)	21:15	14	06:53 (15)	20:01			18:47			16:42	16:14
14	05:21		05:54 (14)	06:11		06:41 (15)	07:07			08:02			08:03	08:50
	22:05	5	05:59 (14)	21:13	12	06:53 (15)	19:59			18:45			16:40	16:14
15	05:22		05:55 (14)	06:13		06:42 (15)	07:09			08:04			08:05	08:51
	22:04	2	05:57 (14)	21:11	10	06:52 (15)	19:56			18:42			16:39	16:14
16	05:23			06:15		06:44 (15)	07:11			08:06		08:39 (11)	08:07	08:52
	22:03			21:08	8	06:52 (15)	19:54			18:40	7	08:46 (11)	16:37	16:14
17	05:25			06:17		06:46 (15)	07:13			08:08		08:36 (11)	08:09	08:53
	22:02			21:06	6	06:52 (15)	19:51			18:37	13	08:49 (11)	16:36	16:14
18	05:26			06:18		06:47 (15)	07:14			08:10		08:38 (11)	08:11	08:54
	22:01			21:04	3	06:50 (15)	19:49			18:35	12	08:50 (11)	16:34	16:14
19	05:28			06:20		06:50 (16)	07:16			08:12		08:40 (11)	08:13	08:55
	21:59			21:02	8	06:58 (16)	19:46			18:33	11	08:51 (11)	16:33	16:14
20	05:29			06:22		06:51 (16)	07:18			08:14		08:42 (11)	08:15	08:55
	21:58			20:59	9	07:00 (16)	19:44			18:31	9	08:51 (11)	16:31	16:15
21	05:31			06:24		06:53 (16)	07:20			08:16		08:44 (11)	08:16	08:56
	21:57			20:57	8	07:01 (16)	19:41			18:28	7	08:51 (11)	16:30	16:15
22	05:32			06:26		06:54 (16)	07:22			08:18		08:46 (11)	08:18	08:57
	21:55			20:55	7	07:01 (16)	19:39			18:26	5	08:51 (11)	16:29	16:15
23	05:34			06:27		06:56 (16)	07:24			08:20		08:48 (11)	08:20	08:57
	21:54			20:52	5	07:01 (16)	19:36			18:24	3	08:51 (11)	16:27	16:16
24	05:35			06:29		06:58 (16)	07:25			08:22			08:22	08:57
	21:52			20:50	3	07:01 (16)	19:34			18:22			16:26	16:17
25	05:37			06:31		06:59 (16)	07:27			07:24			08:24	08:58
	21:51			20:48	1	07:00 (16)	19:31			17:19			16:25	16:17
26	05:38			06:33			07:29			07:26			08:25	08:58
	21:49			20:45			19:29			17:17			16:24	16:18
27	05:40			06:35			07:31			07:28			08:27	08:58
	21:47			20:43			19:26			17:15			16:23	16:19
28	05:42			06:37			07:33			07:30			08:29	08:59
	21:46			20:41			19:24			17:13			16:22	16:20
29	05:43			06:38			07:34		08:06 (12)	07:32			08:30	08:59
	21:44			20:38			19:21	7	08:13 (12)	17:11			16:21	16:20
30	05:45			06:40			07:36		08:04 (12)	07:34			08:32	08:59
	21:42			20:36			19:19	12	08:16 (12)	17:09			16:20	16:21
31	05:47			06:42						07:36				08:59
	21:41			20:33						17:07				16:22
Potential sun hours	515			461			383			328			257	231
Total, worst case		197			216			154			118			
Sun reduction		0.27			0.27			0.29			0.23			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.58			0.58			0.58			0.61			
Total reduction		0.16			0.16			0.17			0.14			
Total, real		31			34			26			17			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CC - H81

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:59	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:38	08:34
	16:24	17:16	18:13	20:13	21:09	22:00	22:15	21:39	20:31 11	07:23 (8) 19:16	22 08:34 (7)	17:05 16:19
2	08:58	08:26	07:26	07:10	06:00	05:11	05:08	05:50	06:46	07:40	07:40	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:15	21:37	20:29 3	07:17 (8) 19:14	18 08:32 (7)	17:03 16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:42	08:37
	16:26	17:20	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	14 08:30 (7)	17:01 16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	08:19 (7)	07:44 08:38
	16:28	17:22	18:19	20:18	21:15	22:04	22:14	21:33	20:24	19:09	5 08:24 (7)	16:59 16:17
5	08:58	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:46		07:46 08:40
	16:29	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06		16:57 16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47		07:47 08:41
	16:30	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04		16:55 16:16
7	08:57	08:16	07:15	06:58	05:50	05:07	05:13	05:59	06:55	07:49		07:49 08:42
	16:32	17:28	18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01		16:53 16:15
8	08:56	08:15	07:12	06:55	05:48	05:06	05:14	06:01	06:57	07:51		07:51 08:44
	16:33	17:30	18:27	20:26	21:22	22:08	22:11	21:25	20:14	18:59		16:51 16:15
9	08:55	08:13	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53		07:53 08:45
	16:34	17:32	18:29	20:28	21:24	22:09	22:10	21:23	20:11	18:57		16:49 16:15
10	08:55	08:11	07:07 07:39 (7)	06:51 07:16 (8)	05:44	05:05	05:16	06:04	07:00	07:55		07:55 08:46
	16:36	17:35	18:31 11	07:50 (7) 20:30 4	07:20 (8) 21:25	22:10	22:09	21:21	20:09	18:54		16:47 16:14
11	08:54	08:09	07:05	07:36 (7) 06:48	07:12 (8) 05:42	05:05	05:17	06:06	07:02	07:57		07:57 08:47
	16:37	17:37	18:33 16	07:52 (7) 20:31 11	07:23 (8) 21:27	22:10	22:08	21:19	20:06	18:52		16:46 16:14
12	08:53	08:07	07:02	07:34 (7) 06:46	07:10 (8) 05:41	05:04	05:18	06:08	07:04	07:59		07:59 08:48
	16:39	17:39	18:34 20	07:54 (7) 20:33 15	07:25 (8) 21:29	22:11	22:08	21:17	20:04	18:49		16:44 16:14
13	08:53	08:04	07:00	07:32 (7) 06:43	07:08 (8) 05:39	05:04	05:20	06:10	07:06	08:01		08:01 08:49
	16:41	17:41	18:36 23	07:55 (7) 20:35 19	07:27 (8) 21:31	22:12	22:07	21:15	20:01	18:47		16:42 16:14
14	08:52	08:02	06:57	07:31 (7) 06:41	07:05 (8) 05:37	05:04	05:21	06:11 07:15 (8)	07:07	08:03		08:03 08:50
	16:42	17:43	18:38 25	07:56 (7) 20:37 22	07:27 (8) 21:33	22:13	22:05	21:13 11	07:26 (8) 19:59	18:45		16:41 16:14
15	08:51	08:00	06:55	07:29 (7) 06:39	07:04 (8) 05:35	05:03	05:22	06:13	07:12 (8) 07:09	08:04		08:05 08:51
	16:44	17:45	18:40 27	07:56 (7) 20:39 24	07:28 (8) 21:34	22:13	22:04	21:11 16	07:28 (8) 19:56	18:42		16:39 16:14
16	08:50	07:58	06:52	07:29 (7) 06:36	07:03 (8) 05:34	05:03	05:24	06:15	07:11 (8) 07:11	08:24 (7) 08:06		08:07 08:52
	16:46	17:47	18:42 28	07:57 (7) 20:41 26	07:29 (8) 21:36	22:14	22:03	21:08 19	07:30 (8) 19:54	8 08:32 (7) 18:40		16:37 16:14
17	08:49	07:56	06:50	07:28 (7) 06:34	07:02 (8) 05:32	05:03	05:25	06:17	07:10 (8) 07:13	08:20 (7) 08:08		08:09 08:53
	16:47	17:49	18:44 28	07:56 (7) 20:43 26	07:28 (8) 21:38	22:14	22:02	21:06 21	07:31 (8) 19:51	15 08:35 (7) 18:38		16:36 16:14
18	08:48	07:54	06:47	07:28 (7) 06:31	07:01 (8) 05:30	05:03	05:26	06:19	07:09 (8) 07:15	08:18 (7) 08:10		08:11 08:54
	16:49	17:51	18:46 29	07:57 (7) 20:45 28	07:29 (8) 21:39	22:15	22:01	21:04 23	07:32 (8) 19:49	19 08:37 (7) 18:35		16:34 16:14
19	08:46	07:52	06:45	07:27 (7) 06:29	07:01 (8) 05:29	05:03	05:28	06:20	07:07 (8) 07:16	08:16 (7) 08:12		08:13 08:55
	16:51	17:53	18:48 29	07:56 (7) 20:46 28	07:29 (8) 21:41	22:15	21:59	21:02 25	07:32 (8) 19:46	22 08:38 (7) 18:33		16:33 16:14
20	08:45	07:49	06:43	07:28 (7) 06:27	07:01 (8) 05:27	05:03	05:29	06:22	07:07 (8) 07:18	08:15 (7) 08:14		08:15 08:55
	16:53	17:55	18:50 28	07:56 (7) 20:48 28	07:29 (8) 21:43	22:15	21:58	20:59 26	07:33 (8) 19:44	24 08:39 (7) 18:31		16:32 16:15
21	08:44	07:47	06:40	07:27 (7) 06:24	07:00 (8) 05:26	05:03	05:31	06:24	07:06 (8) 07:20	08:14 (7) 08:16		08:16 08:56
	16:55	17:57	18:52 28	07:55 (7) 20:50 28	07:28 (8) 21:44	22:16	21:57	20:57 27	07:33 (8) 19:41	26 08:40 (7) 18:28		16:30 16:15
22	08:43	07:45	06:38	07:28 (7) 06:22	07:01 (8) 05:24	05:03	05:32	06:26	07:05 (8) 07:22	08:12 (7) 08:18		08:18 08:57
	16:57	17:59	18:54 26	07:54 (7) 20:52 26	07:27 (8) 21:46	22:16	21:55	20:55 27	07:32 (8) 19:39	27 08:39 (7) 18:26		16:29 16:16
23	08:41	07:43	06:35	07:28 (7) 06:20	07:01 (8) 05:23	05:04	05:34	06:28	07:05 (8) 07:24	08:11 (7) 08:20		08:20 08:57
	16:58	18:01	18:56 25	07:53 (7) 20:54 26	07:27 (8) 21:47	22:16	21:54	20:52 28	07:33 (8) 19:36	29 08:40 (7) 18:24		16:28 16:16
24	08:40	07:40	06:33	07:29 (7) 06:18	07:02 (8) 05:21	05:04	05:35	06:29	07:05 (8) 07:25	08:11 (7) 08:22		08:22 08:57
	17:00	18:03	18:57 23	07:52 (7) 20:56 24	07:26 (8) 21:49	22:16	21:52	20:50 28	07:33 (8) 19:34	29 08:40 (7) 18:22		16:26 16:17
25	08:38	07:38	06:30	07:30 (7) 06:15	07:02 (8) 05:20	05:04	05:37	06:31	07:04 (8) 07:27	08:11 (7) 07:24		08:24 08:58
	17:02	18:05	18:59 20	07:50 (7) 20:58 23	07:25 (8) 21:50	22:16	21:51	20:48 27	07:31 (8) 19:31	29 08:40 (7) 17:19		16:25 16:17
26	08:37	07:36	06:28	07:32 (7) 06:13	07:03 (8) 05:19	05:05	05:38	06:33	07:04 (8) 07:29	08:11 (7) 07:26		08:25 08:58
	17:04	18:07	19:01 16	07:48 (7) 21:00 21	07:24 (8) 21:52	22:16	21:49	20:45 27	07:31 (8) 19:29	28 08:39 (7) 17:17		16:24 16:18
27	08:35	07:34	06:25	07:34 (7) 06:11	07:05 (8) 05:17	05:05	05:40	06:35	07:05 (8) 07:31	08:10 (7) 07:28		08:27 08:58
	17:06	18:09	19:03 10	07:44 (7) 21:02 18	07:23 (8) 21:53	22:16	21:47	20:43 26	07:31 (8) 19:26	28 08:38 (7) 17:15		16:23 16:19
28	08:34	07:31	06:23	06:09	07:06 (8) 05:16	05:06	05:42	06:37	07:06 (8) 07:33	08:10 (7) 07:30		08:29 08:59
	17:08	18:11	19:05	21:03 15	07:21 (8) 21:55	22:16	21:46	20:41 24	07:30 (8) 19:24	27 08:37 (7) 17:13		16:22 16:20
29	08:32		07:20	06:07	07:08 (8) 05:15	05:06	05:43	06:38	07:06 (8) 07:35	08:10 (7) 07:32		08:30 08:59
	17:10		20:07	21:05 9	07:17 (8) 21:56	22:16	21:44	20:38 22	07:28 (8) 19:21	26 08:36 (7) 17:11		16:21 16:21
30	08:31		07:18	06:04	05:14	05:07	05:45	06:40	07:08 (8) 07:36	08:11 (7) 07:34		08:32 08:59
	17:12		20:09	21:07	21:57	22:15	21:42	20:36 19	07:27 (8) 19:19	24 08:35 (7) 17:09		16:20 16:22
31	08:29		07:15		05:13		05:47	06:42	07:10 (8)	07:36		08:59
	17:14		20:11		21:59		21:41	20:33 15	07:25 (8)	17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case			412	421				411	375	59		
Sun reduction			0.22	0.34				0.27	0.29	0.23		
Oper. time red.			1.00	1.00				1.00	1.00	1.00		
Wind dir. red.			0.59	0.57				0.57	0.59	0.59		
Total reduction			0.13	0.19				0.16	0.17	0.14		
Total, real			55	82				64	65	8		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CD - H82

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02		05:11		20:29 (18)	05:07	20:34 (18)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09		22:00	30	20:59 (18)	22:15	31	21:05 (18)	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00		05:11		20:28 (18)	05:08	20:34 (18)	05:50	06:45	07:40	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11		22:01	31	20:59 (18)	22:14	31	21:05 (18)	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58		05:10		20:28 (18)	05:09	20:35 (18)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12		22:02	31	20:59 (18)	22:14	31	21:06 (18)	21:35	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56		05:09		20:28 (18)	05:10	20:34 (18)	05:53	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14		22:03	31	20:59 (18)	22:13	31	21:05 (18)	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54		05:08		20:29 (18)	05:11	20:34 (18)	05:55	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16		22:05	31	21:00 (18)	22:13	32	21:06 (18)	21:31	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52		05:07		20:28 (18)	05:12	20:35 (18)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18		22:06	31	20:59 (18)	22:12	31	21:06 (18)	21:29	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50		05:07		20:29 (18)	05:13	20:35 (18)	05:59	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20		22:07	31	21:00 (18)	22:12	31	21:06 (18)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48		05:06		20:29 (18)	05:14	20:35 (18)	06:00	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22		22:08	31	21:00 (18)	22:11	31	21:06 (18)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46		05:05		20:29 (18)	05:15	20:36 (18)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23		22:09	32	21:01 (18)	22:10	30	21:06 (18)	21:23	20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44		05:05		20:29 (18)	05:16	20:36 (18)	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25		22:09	31	21:00 (18)	22:09	30	21:06 (18)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42		05:04		20:30 (18)	05:17	20:36 (18)	06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27		22:10	31	21:01 (18)	22:08	30	21:06 (18)	21:19	20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40		05:04		20:30 (18)	05:18	20:36 (18)	06:07	07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29		22:11	31	21:01 (18)	22:07	30	21:06 (18)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38		05:04		20:30 (18)	05:19	20:36 (18)	06:09	07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31		22:12	31	21:01 (18)	22:06	30	21:06 (18)	21:15	20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37		05:03		20:30 (18)	05:21	20:37 (18)	06:11	07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32		22:12	31	21:01 (18)	22:05	30	21:07 (18)	21:12	19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35		05:03		20:30 (18)	05:22	20:38 (18)	06:13	07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34		22:13	31	21:01 (18)	22:04	28	21:06 (18)	21:10	19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33		05:03		20:31 (18)	05:23	20:38 (18)	06:15	07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36		22:14	31	21:02 (18)	22:03	28	21:06 (18)	21:08	19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32		05:03		20:31 (18)	05:25	20:38 (18)	06:16	07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37		22:14	31	21:02 (18)	22:02	27	21:05 (18)	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30		20:37 (18)	05:03	20:31 (18)	05:26	20:39 (18)	06:18	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	10	20:47 (18)	22:14	31	21:02 (18)	22:01	27	21:06 (18)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28		20:34 (18)	05:03	20:31 (18)	05:27	20:40 (18)	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	15	20:49 (18)	22:15	31	21:02 (18)	21:59	25	21:05 (18)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27		20:33 (18)	05:03	20:31 (18)	05:29	20:40 (18)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	18	20:51 (18)	22:15	31	21:02 (18)	21:58	24	21:04 (18)	20:59	19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25		20:33 (18)	05:03	20:31 (18)	05:30	20:41 (18)	06:24	07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44	19	20:52 (18)	22:15	31	21:02 (18)	21:56	23	21:04 (18)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24		20:31 (18)	05:03	20:32 (18)	05:32	20:42 (18)	06:25	07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	22	20:53 (18)	22:16	31	21:03 (18)	21:55	21	21:03 (18)	20:55	19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22		20:31 (18)	05:03	20:32 (18)	05:33	20:42 (18)	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	23	20:54 (18)	22:16	31	21:03 (18)	21:54	19	21:01 (18)	20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21		20:30 (18)	05:04	20:32 (18)	05:35	20:44 (18)	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	25	20:55 (18)	22:16	31	21:03 (18)	21:52	17	21:01 (18)	20:50	19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20		20:30 (18)	05:04	20:33 (18)	05:37	20:46 (18)	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	26	20:56 (18)	22:16	31	21:04 (18)	21:50	13	20:59 (18)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18		20:30 (18)	05:04	20:33 (18)	05:38	20:49 (18)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	26	20:56 (18)	22:16	31	21:04 (18)	21:49	8	20:57 (18)	20:45	19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17		20:28 (18)	05:05	20:34 (18)	05:40			06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	28	20:56 (18)	22:16	30	21:04 (18)	21:47			20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16		20:28 (18)	05:05	20:33 (18)	05:41				06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55	29	20:57 (18)	22:16	31	21:04 (18)	21:46			20:40	19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15		20:28 (18)	05:06	20:34 (18)	05:43				06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	29	20:57 (18)	22:15	31	21:05 (18)	21:44			20:38	19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14		20:28 (18)	05:07	20:33 (18)	05:45				06:40	07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57	29	20:57 (18)	22:15	31	21:04 (18)	21:42			20:36	19:18	17:08	16:20	16:21
31	08:29		07:15		05:13		20:29 (18)				05:46			06:42		07:35		08:58
	17:14		20:10		21:59	30	20:59 (18)				21:40			20:33		17:06		16:22
Potential sun hours	248	272	367	421	496		513		515		461	383	327	257	230
Total, worst case						329		929		689					
Sun reduction						0.36		0.26		0.27					
Oper. time red.						1.00		1.00		1.00					
Wind dir. red.						0.63		0.63		0.63					
Total reduction						0.23		0.16		0.17					
Total, real						74		150		115					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CE - H83

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:49	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:43	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:39	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:18	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CF - H84

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April		May	June
1	08:59			08:27		09:10 (7)	07:29		07:58 (8)	07:13		06:02	05:12
	16:24			17:16	26	09:36 (7)	18:13	26	08:24 (8)	20:13		21:09	22:00
2	08:58			08:26		09:10 (7)	07:26		07:56 (8)	07:10		06:00	05:11
	16:25			17:18	26	09:36 (7)	18:15	28	08:24 (8)	20:14		21:11	22:01
3	08:58			08:24		09:10 (7)	07:24		07:56 (8)	07:08		05:58	05:10
	16:26			17:20	27	09:37 (7)	18:17	28	08:24 (8)	20:16		21:13	22:03
4	08:58			08:22		09:11 (7)	07:22		07:55 (8)	07:05		05:56	05:09
	16:28			17:22	26	09:37 (7)	18:19	29	08:24 (8)	20:18		21:15	22:04
5	08:58			08:20		09:11 (7)	07:19		07:56 (8)	07:03		05:54	05:08
	16:29			17:24	25	09:36 (7)	18:21	28	08:24 (8)	20:20		21:16	22:05
6	08:57			08:18		09:12 (7)	07:17		07:56 (8)	07:00		05:52	05:08
	16:30			17:26	24	09:36 (7)	18:23	28	08:24 (8)	20:22		21:18	22:06
7	08:57			08:16		09:12 (7)	07:15		07:55 (8)	06:58		05:50	05:07
	16:32			17:28	24	09:36 (7)	18:25	28	08:23 (8)	20:24		21:20	22:07
8	08:56			08:15		09:13 (7)	07:12		07:56 (8)	06:55		05:48	05:06
	16:33			17:30	22	09:35 (7)	18:27	27	08:23 (8)	20:26		21:22	22:08
9	08:56			08:13		09:14 (7)	07:10		07:56 (8)	06:53		05:46	05:06
	16:34			17:32	21	09:35 (7)	18:29	26	08:22 (8)	20:28		21:24	22:09
10	08:55			08:11		09:15 (7)	07:07		07:57 (8)	06:51		05:44	05:05
	16:36			17:35	19	09:34 (7)	18:31	24	08:21 (8)	20:30		21:25	22:10
11	08:54			08:09		09:16 (7)	07:05		07:58 (8)	06:48		05:42	05:05
	16:37			17:37	15	09:31 (7)	18:33	21	08:19 (8)	20:31		21:27	22:10
12	08:53			08:07		09:19 (7)	07:02		08:00 (8)	06:46		05:41	05:04
	16:39			17:39	10	09:29 (7)	18:34	17	08:17 (8)	20:33		21:29	22:11
13	08:53			08:04			07:00		08:01 (8)	06:43		05:39	05:04
	16:41			17:41			18:36	13	08:14 (8)	20:35		21:31	22:12
14	08:52			08:02			06:57			06:41		05:37	05:04
	16:42			17:43			18:38			20:37		21:33	22:13
15	08:51			08:00			06:55			06:39		05:35	05:03
	16:44			17:45			18:40			20:39		21:34	22:13
16	08:50			07:58			06:52			06:36		05:34	05:03
	16:46			17:47			18:42			20:41		21:36	22:14
17	08:49			07:56			06:50			06:34		05:32	05:03
	16:47			17:49			18:44			20:43		21:38	22:14
18	08:48			07:54			06:47			06:31		05:30	05:03
	16:49			17:51			18:46			20:45		21:39	22:15
19	08:46			07:52			06:45			06:29		05:29	05:03
	16:51			17:53			18:48			20:46		21:41	22:15
20	08:45			07:49			06:43			06:27		05:27	05:03
	16:53			17:55			18:50			20:48		21:43	22:15
21	08:44			07:47			06:40			06:24		05:26	05:03
	16:55			17:57			18:52			20:50		21:44	22:16
22	08:43			07:45			06:38			06:22		05:24	05:03
	16:57			17:59			18:54			20:52		21:46	22:16
23	08:41		09:16 (7)	07:43			06:35			06:20		05:23	05:04
	16:58	10	09:26 (7)	18:01			18:56			20:54		21:47	22:16
24	08:40		09:15 (7)	07:40		08:07 (8)	06:33			06:18		05:21	05:04
	17:00	13	09:28 (7)	18:03	10	08:17 (8)	18:57			20:56		21:49	22:16
25	08:38		09:13 (7)	07:38		08:03 (8)	06:30			06:15		05:20	05:04
	17:02	17	09:30 (7)	18:05	16	08:19 (8)	18:59			20:58		21:50	22:16
26	08:37		09:13 (7)	07:36		08:01 (8)	06:28			06:13		05:19	05:05
	17:04	19	09:32 (7)	18:07	20	08:21 (8)	19:01			21:00		21:52	22:16
27	08:36		09:12 (7)	07:34		08:00 (8)	06:25			06:11		05:17	05:05
	17:06	21	09:33 (7)	18:09	23	08:23 (8)	19:03			21:02		21:53	22:16
28	08:34		09:11 (7)	07:31		07:58 (8)	06:23			06:09		05:16	05:06
	17:08	22	09:33 (7)	18:11	25	08:23 (8)	19:05			21:03		21:55	22:16
29	08:32		09:10 (7)				07:20			06:07		05:15	05:06
	17:10	24	09:34 (7)				20:07			21:05		21:56	22:16
30	08:31		09:11 (7)				07:18			06:04		05:14	05:07
	17:12	24	09:35 (7)				20:09			21:07		21:57	22:15
31	08:29		09:11 (7)				07:15					05:13	
	17:14	25	09:36 (7)				20:11					21:59	
Potential sun hours	248			272			367			421		496	513
Total, worst case		175			359			323					
Sun reduction		0.17			0.22			0.22					
Oper. time red.		1.00			1.00			1.00					
Wind dir. red.		0.65			0.64			0.61					
Total reduction		0.11			0.14			0.14					
Total, real		19			51			44					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CF - H84

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September			October			November			December
1	05:08	05:48	06:44			07:38		08:39 (8)	07:38		08:44 (7)	08:34
	22:15	21:39	20:31			19:16	16	08:55 (8)	17:05	18	09:02 (7)	16:19
2	05:08	05:50	06:46			07:40		08:37 (8)	07:40		08:44 (7)	08:35
	22:15	21:37	20:29			19:14	20	08:57 (8)	17:03	20	09:04 (7)	16:19
3	05:09	05:52	06:47			07:42		08:36 (8)	07:42		08:43 (7)	08:37
	22:14	21:35	20:26			19:11	22	08:58 (8)	17:01	22	09:05 (7)	16:18
4	05:10	05:54	06:49			07:44		08:34 (8)	07:44		08:42 (7)	08:38
	22:14	21:33	20:24			19:09	24	08:58 (8)	16:59	24	09:06 (7)	16:17
5	05:11	05:55	06:51			07:46		08:33 (8)	07:46		08:41 (7)	08:40
	22:13	21:31	20:21			19:06	26	08:59 (8)	16:57	25	09:06 (7)	16:16
6	05:12	05:57	06:53			07:47		08:32 (8)	07:47		08:41 (7)	08:41
	22:12	21:29	20:19			19:04	27	08:59 (8)	16:55	25	09:06 (7)	16:16
7	05:13	05:59	06:55			07:49		08:31 (8)	07:49		08:40 (7)	08:42
	22:12	21:27	20:16			19:01	28	08:59 (8)	16:53	26	09:06 (7)	16:15
8	05:14	06:01	06:57			07:51		08:31 (8)	07:51		08:41 (7)	08:44
	22:11	21:25	20:14			18:59	28	08:59 (8)	16:51	26	09:07 (7)	16:15
9	05:15	06:02	06:58			07:53		08:30 (8)	07:53		08:41 (7)	08:45
	22:10	21:23	20:11			18:57	29	08:59 (8)	16:49	26	09:07 (7)	16:15
10	05:16	06:04	07:00			07:55		08:30 (8)	07:55		08:41 (7)	08:46
	22:09	21:21	20:09			18:54	29	08:59 (8)	16:47	26	09:07 (7)	16:14
11	05:17	06:06	07:02			07:57		08:30 (8)	07:57		08:42 (7)	08:47
	22:09	21:19	20:06			18:52	28	08:58 (8)	16:46	25	09:07 (7)	16:14
12	05:18	06:08	07:04			07:59		08:31 (8)	07:59		08:42 (7)	08:48
	22:08	21:17	20:04			18:49	27	08:58 (8)	16:44	24	09:06 (7)	16:14
13	05:20	06:10	07:06			08:01		08:31 (8)	08:01		08:42 (7)	08:49
	22:07	21:15	20:01			18:47	26	08:57 (8)	16:42	24	09:06 (7)	16:14
14	05:21	06:11	07:07			08:03		08:32 (8)	08:03		08:43 (7)	08:51
	22:05	21:13	19:59			18:45	24	08:56 (8)	16:41	22	09:05 (7)	16:14
15	05:22	06:13	07:09			08:04		08:33 (8)	08:05		08:45 (7)	08:51
	22:04	21:11	19:56			18:42	21	08:54 (8)	16:39	21	09:06 (7)	16:14
16	05:24	06:15	07:11			08:06		08:34 (8)	08:07		08:46 (7)	08:52
	22:03	21:08	19:54			18:40	18	08:52 (8)	16:37	19	09:05 (7)	16:14
17	05:25	06:17	07:13			08:08		08:36 (8)	08:09		08:47 (7)	08:53
	22:02	21:06	19:51			18:38	14	08:50 (8)	16:36	17	09:04 (7)	16:14
18	05:26	06:19	07:15			08:10		08:40 (8)	08:11		08:49 (7)	08:54
	22:01	21:04	19:49			18:35	6	08:46 (8)	16:34	13	09:02 (7)	16:14
19	05:28	06:20	07:16			08:12			08:13		08:51 (7)	08:55
	21:59	21:02	19:46			18:33			16:33	10	09:01 (7)	16:14
20	05:29	06:22	07:18			08:14			08:15		08:55 (7)	08:55
	21:58	20:59	19:44			18:31			16:32	1	08:56 (7)	16:15
21	05:31	06:24	07:20			08:16			08:16			08:56
	21:57	20:57	19:41			18:28			16:30			16:15
22	05:32	06:26	07:22			08:18			08:18			08:57
	21:55	20:55	19:39			18:26			16:29			16:16
23	05:34	06:28	07:24			08:20			08:20			08:57
	21:54	20:52	19:36			18:24			16:28			16:16
24	05:35	06:29	07:25			08:22			08:22			08:57
	21:52	20:50	19:34			18:22			16:26			16:17
25	05:37	06:31	07:27			07:24			08:24			08:58
	21:51	20:48	19:31			17:19			16:25			16:17
26	05:38	06:33	07:29			07:26			08:25			08:58
	21:49	20:45	19:29			17:17			16:24			16:18
27	05:40	06:35	07:31			07:28			08:27			08:58
	21:48	20:43	19:26			17:15			16:23			16:19
28	05:42	06:37	07:33			07:30			08:29			08:59
	21:46	20:41	19:24			17:13			16:22			16:20
29	05:43	06:38	07:35			07:32			08:30			08:59
	21:44	20:38	19:21			17:11			16:21			16:21
30	05:45	06:40	07:36		08:43 (8)	07:34		08:48 (7)	08:32			08:59
	21:42	20:36	19:19	9	08:52 (8)	17:09	11	08:59 (7)	16:20			16:22
31	05:47	06:42				07:36		08:45 (7)				08:59
	21:41	20:33				17:07	16	09:01 (7)				16:23
Potential sun hours	515	461	382			328			257			231
Total, worst case				9			440			414		
Sun reduction				0.29			0.23			0.20		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.61			0.62			0.65		
Total reduction				0.18			0.14			0.13		
Total, real				2			64			54		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CG - H85

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:59	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:38	08:34
	16:24	17:16	18:13	20:13	21:09	22:00	22:15	21:39	20:31 20	07:32 (8) 19:16 26	08:14 (7) 08:40 (7) 17:05	16:19
2	08:58	08:26	07:26	07:10	06:00	05:11	05:08	05:50	06:46	07:13 (8) 07:40	08:15 (7) 07:40	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:15	21:37	20:29 17	07:30 (8) 19:14 24	08:39 (7) 17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:15 (8) 07:42	08:16 (7) 07:42	08:37
	16:26	17:20	18:17	20:16	21:13	22:02	22:14	21:35	20:26 13	07:28 (8) 19:11 22	08:38 (7) 17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:17 (8) 07:44	08:16 (7) 07:44	08:38
	16:28	17:22	18:19	20:18	21:15	22:04	22:14	21:33	20:24 8	07:25 (8) 19:09 19	08:35 (7) 16:59	16:17
5	08:58	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:46	08:18 (7) 07:46	08:40
	16:29	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06 15	08:33 (7) 16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	08:22 (7) 07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04 7	08:29 (7) 16:55	16:16
7	08:57	08:16	07:15	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	16:15
8	08:56	08:15	07:12 07:44 (7)	06:55 07:20 (8)	05:48	05:06	05:14	06:01	06:57	07:51	07:51	08:44
	16:33	17:30	18:27 11	07:55 (7) 20:26 8	07:28 (8) 21:22	22:08	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:13	07:10	07:40 (7) 06:53	07:17 (8) 05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29 17	07:57 (7) 20:28 13	07:30 (8) 21:24	22:09	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:11	07:07	07:39 (7) 06:51	07:15 (8) 05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31 20	07:59 (7) 20:30 17	07:32 (8) 21:25	22:10	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:09	07:05	07:37 (7) 06:48	07:12 (8) 05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:37	17:37	18:33 23	08:00 (7) 20:31 20	07:32 (8) 21:27	22:10	22:09	21:19	20:06	18:52	16:46	16:14
12	08:53	08:07	07:02	07:36 (7) 06:46	07:10 (8) 05:41	05:04	05:18	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34 25	08:01 (7) 20:33 24	07:34 (8) 21:29	22:11	22:08	21:17	20:04	18:49	16:44	16:14
13	08:53	08:04	07:00	07:34 (7) 06:43	07:09 (8) 05:39	05:04	05:20	06:10	07:06	08:01	08:01	08:49
	16:41	17:41	18:36 27	08:01 (7) 20:35 25	07:34 (8) 21:31	22:12	22:07	21:15	20:01	18:47	16:42	16:14
14	08:52	08:02	06:57	07:34 (7) 06:41	07:08 (8) 05:37	05:04	05:21	06:11	07:07	08:03	08:03	08:50
	16:42	17:43	18:38 28	08:02 (7) 20:37 26	07:34 (8) 21:33	22:13	22:05	21:13	19:59	18:45	16:41	16:14
15	08:51	08:00	06:55	07:33 (7) 06:39	07:08 (8) 05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40 28	08:01 (7) 20:39 26	07:34 (8) 21:34	22:13	22:04	21:11	19:56	18:42	16:39	16:14
16	08:50	07:58	06:52	07:33 (7) 06:36	07:07 (8) 05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42 28	08:01 (7) 20:41 28	07:35 (8) 21:36	22:14	22:03	21:08	19:54	18:40	16:37	16:14
17	08:49	07:56	06:50	07:32 (7) 06:34	07:06 (8) 05:32	05:03	05:25	06:17 07:20 (8)	07:13	08:08	08:09	08:53
	16:47	17:49	18:44 29	08:01 (7) 20:43 28	07:34 (8) 21:38	22:14	22:02	21:06 11 07:31 (8)	19:51	18:38	16:36	16:14
18	08:48	07:54	06:47	07:33 (7) 06:31	07:06 (8) 05:30	05:03	05:26	06:19 07:18 (8)	07:15	08:10	08:11	08:54
	16:49	17:51	18:46 28	08:01 (7) 20:45 28	07:34 (8) 21:39	22:15	22:01	21:04 15 07:33 (8)	19:49	18:35	16:34	16:14
19	08:46	07:52	06:45	07:32 (7) 06:29	07:07 (8) 05:29	05:03	05:28	06:20 07:15 (8)	07:16 08:25 (7)	08:12	08:13	08:55
	16:51	17:53	18:48 27	07:59 (7) 20:46 26	07:33 (8) 21:41	22:15	21:59	21:02 19 07:34 (8)	19:46 12 08:37 (7)	18:33	16:33	16:14
20	08:45	07:49	06:43	07:33 (7) 06:27	07:07 (8) 05:27	05:03	05:29	06:22 07:14 (8)	07:18 08:22 (7)	08:14	08:15	08:55
	16:53	17:55	18:50 26	07:59 (7) 20:48 26	07:33 (8) 21:43	22:15	21:58	20:59 21 07:35 (8)	19:44 18 08:40 (7)	18:31	16:32	16:15
21	08:44	07:47	06:40	07:33 (7) 06:24	07:07 (8) 05:26	05:03	05:31	06:24 07:13 (8)	07:20 08:21 (7)	08:16	08:16	08:56
	16:55	17:57	18:52 24	07:57 (7) 20:50 24	07:31 (8) 21:44	22:16	21:57	20:57 23 07:36 (8)	19:41 20 08:41 (7)	18:28	16:30	16:15
22	08:43	07:45	06:38	07:35 (7) 06:22	07:08 (8) 05:24	05:03	05:32	06:26 07:11 (8)	07:22 08:18 (7)	08:18	08:18	08:57
	16:57	17:59	18:54 21	07:56 (7) 20:52 22	07:30 (8) 21:46	22:16	21:55	20:55 25 07:36 (8)	19:39 24 08:42 (7)	18:26	16:29	16:16
23	08:41	07:43	06:35	07:35 (7) 06:20	07:08 (8) 05:23	05:04	05:34	06:28 07:11 (8)	07:24 08:17 (7)	08:20	08:20	08:57
	16:58	18:01	18:56 19	07:54 (7) 20:54 21	07:29 (8) 21:47	22:16	21:54	20:52 26 07:37 (8)	19:36 25 08:42 (7)	18:24	16:28	16:16
24	08:40	07:40	06:33	07:38 (7) 06:18	07:10 (8) 05:21	05:04	05:35	06:29 07:10 (8)	07:25 08:16 (7)	08:22	08:22	08:57
	17:00	18:03	18:57 14	07:52 (7) 20:56 18	07:28 (8) 21:49	22:16	21:52	20:50 27 07:37 (8)	19:34 27 08:43 (7)	18:22	16:26	16:17
25	08:38	07:38	06:30	07:41 (7) 06:15	07:11 (8) 05:20	05:04	05:37	06:31 07:09 (8)	07:27 08:16 (7)	07:24	08:24	08:58
	17:02	18:05	18:59 6	07:47 (7) 20:58 15	07:26 (8) 21:50	22:16	21:51	20:48 27 07:36 (8)	19:31 27 08:43 (7)	17:19	16:25	16:17
26	08:37	07:36	06:28	06:13	07:14 (8) 05:19	05:05	05:38	06:33 07:09 (8)	07:29 08:15 (7)	07:26	08:25	08:58
	17:04	18:07	19:01	21:00 9	07:23 (8) 21:52	22:16	21:49	20:45 28 07:37 (8)	19:29 28 08:43 (7)	17:17	16:24	16:18
27	08:35	07:34	06:25	06:11	05:17	05:05	05:40	06:35 07:09 (8)	07:31 08:14 (7)	07:28	08:27	08:58
	17:06	18:09	19:03	21:02	21:53	22:16	21:47	20:43 27 07:36 (8)	19:26 28 08:42 (7)	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37 07:09 (8)	07:33 08:14 (7)	07:30	08:29	08:59
	17:08	18:11	19:05	21:03	21:55	22:16	21:46	20:41 27 07:36 (8)	19:24 28 08:42 (7)	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38 07:09 (8)	07:35 08:14 (7)	07:32	08:30	08:59
	17:10		20:07	21:05	21:56	22:16	21:44	20:38 26 07:35 (8)	19:21 28 08:42 (7)	17:11	16:21	16:21
30	08:31		07:18	06:04	05:14	05:07	05:45	06:40 07:09 (8)	07:36 08:14 (7)	07:34	08:32	08:59
	17:12		20:09	21:07	21:57	22:15	21:42	20:36 25 07:34 (8)	19:19 27 08:41 (7)	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42 07:10 (8)		07:36		08:59
	17:14		20:11		21:59		21:41	20:33 23 07:33 (8)		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case			401	404				350	350	113		
Sun reduction			0.22	0.34				0.27	0.29	0.23		
Oper. time red.			1.00	1.00				1.00	1.00	1.00		
Wind dir. red.			0.60	0.57				0.57	0.59	0.60		
Total reduction			0.13	0.20				0.16	0.17	0.14		
Total, real			54	79				55	61	16		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CH - H87

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April			May			June		
1	08:58	08:27	07:29	07:12			06:02		19:57 (18)	05:11		20:49 (17)
	16:24	17:16	18:13	20:12			21:09	22	20:19 (18)	22:00	22	21:11 (17)
2	08:58	08:25	07:26	07:10			06:00		19:56 (18)	05:11		20:49 (17)
	16:25	17:18	18:15	20:14			21:11	24	20:20 (18)	22:01	23	21:12 (17)
3	08:58	08:24	07:24	07:07			05:58		19:55 (18)	05:10		20:48 (17)
	16:26	17:20	18:17	20:16			21:12	26	20:21 (18)	22:02	24	21:12 (17)
4	08:58	08:22	07:21	07:05			05:56		19:54 (18)	05:09		20:48 (17)
	16:27	17:22	18:19	20:18			21:14	27	20:21 (18)	22:03	24	21:12 (17)
5	08:57	08:20	07:19	07:02			05:54		19:53 (18)	05:08		20:49 (17)
	16:28	17:24	18:21	20:20			21:16	28	20:21 (18)	22:05	24	21:13 (17)
6	08:57	08:18	07:17	07:00			05:52		19:54 (18)	05:07		20:48 (17)
	16:30	17:26	18:23	20:22			21:18	28	20:22 (18)	22:06	25	21:13 (17)
7	08:56	08:16	07:14	06:58			05:50		19:53 (18)	05:06		20:49 (17)
	16:31	17:28	18:24	20:24			21:20	29	20:22 (18)	22:07	25	21:14 (17)
8	08:56	08:14	07:12	06:55			05:48		19:53 (18)	05:06		20:48 (17)
	16:33	17:30	18:26	20:25			21:22	29	20:22 (18)	22:08	25	21:13 (17)
9	08:55	08:12	07:09	06:53			05:46		19:52 (18)	05:05		20:49 (17)
	16:34	17:32	18:28	20:27			21:23	30	20:22 (18)	22:09	25	21:14 (17)
10	08:55	08:10	07:07	06:50			05:44		19:52 (18)	05:05		20:48 (17)
	16:36	17:34	18:30	20:29			21:25	30	20:22 (18)	22:09	26	21:14 (17)
11	08:54	08:08	07:04	06:48			05:42		19:53 (18)	05:04		20:49 (17)
	16:37	17:36	18:32	20:31			21:27	29	20:22 (18)	22:10	25	21:14 (17)
12	08:53	08:06	07:02	06:45			05:40		19:53 (18)	05:04		20:49 (17)
	16:39	17:38	18:34	20:33			21:29	29	20:22 (18)	22:11	26	21:15 (17)
13	08:52	08:04	07:00	06:43			05:38		19:53 (18)	05:04		20:49 (17)
	16:40	17:40	18:36	20:35			21:31	28	20:21 (18)	22:12	25	21:14 (17)
14	08:51	08:02	06:57	06:41			05:37		19:54 (18)	05:03		20:49 (17)
	16:42	17:42	18:38	20:37			21:32	27	20:21 (18)	22:12	26	21:15 (17)
15	08:50	08:00	06:55	06:38			05:35		19:54 (18)	05:03		20:49 (17)
	16:44	17:44	18:40	20:39			21:34	26	20:20 (18)	22:13	26	21:15 (17)
16	08:49	07:58	06:52	06:36			05:33		19:55 (18)	05:03		20:50 (17)
	16:45	17:46	18:42	20:41			21:36	25	20:20 (18)	22:14	26	21:16 (17)
17	08:48	07:56	06:50	06:33			05:32		19:55 (18)	05:03		20:50 (17)
	16:47	17:49	18:44	20:42			21:37	24	20:19 (18)	22:14	26	21:16 (17)
18	08:47	07:54	06:47	06:31			05:30		19:56 (18)	05:03		20:50 (17)
	16:49	17:51	18:46	20:44			21:39	23	20:19 (18)	22:14	26	21:16 (17)
19	08:46	07:51	06:45	06:29			05:28		19:57 (18)	05:03		20:50 (17)
	16:51	17:53	18:48	20:46			21:41	21	20:18 (18)	22:15	26	21:16 (17)
20	08:45	07:49	06:42	06:26			05:27		19:58 (18)	05:03		20:50 (17)
	16:53	17:55	18:50	20:48			21:42	19	20:17 (18)	22:15	26	21:16 (17)
21	08:44	07:47	06:40	06:24			05:25		20:00 (18)	05:03		20:50 (17)
	16:54	17:57	18:51	20:50			21:44	16	20:16 (18)	22:15	26	21:16 (17)
22	08:42	07:45	06:37	06:22			05:24		20:01 (18)	05:03		20:51 (17)
	16:56	17:59	18:53	20:52			21:46	13	20:14 (18)	22:16	26	21:17 (17)
23	08:41	07:42	06:35	06:20			05:22		20:03 (18)	05:03		20:51 (17)
	16:58	18:01	18:55	20:54			21:47	10	20:13 (18)	22:16	26	21:17 (17)
24	08:40	07:40	06:32	06:17			05:21		20:06 (18)	05:04		20:51 (17)
	17:00	18:03	18:57	20:56			21:49	13	21:04 (17)	22:16	26	21:17 (17)
25	08:38	07:38	06:30	06:15			05:20		20:53 (17)	05:04		20:52 (17)
	17:02	18:05	18:59	20:58			21:50	12	21:05 (17)	22:16	26	21:18 (17)
26	08:37	07:36	06:27	06:13			05:18		20:52 (17)	05:04		20:52 (17)
	17:04	18:07	19:01	20:59			21:52	15	21:07 (17)	22:16	26	21:18 (17)
27	08:35	07:33	06:25	06:11		20:06 (18)	05:17		20:50 (17)	05:05		20:53 (17)
	17:06	18:09	19:03	21:01	5	20:11 (18)	21:53	17	21:07 (17)	22:16	25	21:18 (17)
28	08:34	07:31	06:22	06:08		20:02 (18)	05:16		20:50 (17)	05:05		20:52 (17)
	17:08	18:11	19:05	21:03	13	20:15 (18)	21:55	18	21:08 (17)	22:16	26	21:18 (17)
29	08:32		07:20	06:06		20:00 (18)	05:15		20:49 (17)	05:06		20:53 (17)
	17:10		20:07	21:05	17	20:17 (18)	21:56	20	21:09 (17)	22:15	26	21:19 (17)
30	08:30		07:17	06:04		19:58 (18)	05:14		20:49 (17)	05:07		20:53 (17)
	17:12		20:08	21:07	20	20:18 (18)	21:57	20	21:09 (17)	22:15	25	21:18 (17)
31	08:29		07:15				05:12		20:50 (17)			
	17:14		20:10				21:59	21	21:11 (17)			
Potential sun hours	248	272	367	421			496			513		
Total, worst case					55			699			759	
Sun reduction					0.34			0.36			0.26	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.61			0.61			0.63	
Total reduction					0.21			0.22			0.16	
Total, real					11			155			123	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CH - H87

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October	November	December
1	05:07		05:48		06:44	07:38	07:37	08:33
	22:15	26	21:39	29	20:31	19:16	17:04	16:19
2	05:08		05:50		06:45	07:40	07:39	08:35
	22:14	25	21:37	30	20:28	19:14	17:02	16:18
3	05:09		05:52		06:47	07:42	07:41	08:36
	22:14	26	21:35	29	20:26	19:11	17:00	16:17
4	05:10		05:53		06:49	07:43	07:43	08:38
	22:13	25	21:33	29	20:23	19:09	16:58	16:17
5	05:11		05:55		06:51	07:45	07:45	08:39
	22:13	25	21:31	30	20:21	19:06	16:56	16:16
6	05:12		05:57		06:53	07:47	07:47	08:41
	22:12	24	21:29	29	20:19	19:04	16:54	16:16
7	05:13		05:59		06:54	07:49	07:49	08:42
	22:12	24	21:27	29	20:16	19:01	16:53	16:15
8	05:14		06:00		06:56	07:51	07:51	08:43
	22:11	24	21:25	28	20:14	18:59	16:51	16:15
9	05:15		06:02		06:58	07:53	07:53	08:45
	22:10	23	21:23	27	20:11	18:56	16:49	16:14
10	05:16		06:04		07:00	07:55	07:55	08:46
	22:09	23	21:21	26	20:09	18:54	16:47	16:14
11	05:17		06:06		07:02	07:57	07:57	08:47
	22:08	23	21:19	24	20:06	18:51	16:45	16:14
12	05:18		06:07		07:03	07:58	07:59	08:48
	22:07	22	21:17	22	20:04	18:49	16:44	16:14
13	05:19		06:09		07:05	08:00	08:01	08:49
	22:06	21	21:15	19	20:01	18:47	16:42	16:13
14	05:21		06:11		07:07	08:02	08:03	08:50
	22:05	20	21:12	16	19:59	18:44	16:40	16:13
15	05:22		06:13		07:09	08:04	08:05	08:51
	22:04	19	21:10	11	19:56	18:42	16:39	16:13
16	05:23		06:15		07:11	08:06	08:07	08:52
	22:03	17	21:08		19:54	18:40	16:37	16:13
17	05:25		06:16		07:12	08:08	08:09	08:53
	22:02	16	21:06		19:51	18:37	16:36	16:14
18	05:26		06:18		07:14	08:10	08:11	08:54
	22:01	14	21:04		19:49	18:35	16:34	16:14
19	05:27		06:20		07:16	08:12	08:12	08:55
	21:59	11	21:01		19:46	18:33	16:33	16:14
20	05:29		06:22		07:18	08:14	08:14	08:55
	21:58	14	20:59		19:44	18:30	16:31	16:14
21	05:30		06:24		07:20	08:16	08:16	08:56
	21:56	12	20:57		19:41	18:28	16:30	16:15
22	05:32		06:25		07:21	08:18	08:18	08:56
	21:55	15	20:55		19:39	18:26	16:29	16:15
23	05:33		06:27		07:23	08:20	08:20	08:57
	21:54	17	20:52		19:36	18:24	16:27	16:16
24	05:35		06:29		07:25	08:22	08:22	08:57
	21:52	20	20:50		19:33	18:21	16:26	16:16
25	05:37		06:31		07:27	07:24	08:23	08:58
	21:50	21	20:48		19:31	17:19	16:25	16:17
26	05:38		06:33		07:29	07:25	08:25	08:58
	21:49	24	20:45		19:28	17:17	16:24	16:18
27	05:40		06:35		07:31	07:27	08:27	08:58
	21:47	25	20:43		19:26	17:15	16:23	16:19
28	05:41		06:36		07:32	07:29	08:28	08:58
	21:46	26	20:40		19:23	17:13	16:22	16:19
29	05:43		06:38		07:34	07:31	08:30	08:58
	21:44	27	20:38		19:21	17:11	16:21	16:20
30	05:45		06:40		07:36	07:33	08:32	08:58
	21:42	28	20:36		19:18	17:08	16:20	16:21
31	05:46		06:42			07:35		08:58
	21:40	28	20:33			17:06		16:22
Potential sun hours	515		461		383	327	257	230
Total, worst case		665		378				
Sun reduction		0.27		0.27				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.62		0.61				
Total reduction		0.16		0.17				
Total, real		110		63				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CI - H88

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:49	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:33	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:43	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:39	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:54	20:52	21:45	22:16	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:05	05:37	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:18	05:05	05:40	06:35	07:31	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:41	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:07	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:11		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CJ - H89

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:59	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:38	08:34
	16:24	17:16	18:13	20:13	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:26	07:26	07:10	06:00	05:11	05:08	05:50	06:46	07:40	07:40	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:15	21:37	20:29	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:42	08:37
	16:26	17:20	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:44	08:38
	16:28	17:22	18:19	20:18	21:15	22:04	22:14	21:33	20:24	19:09	16:59	16:17
5	08:58	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:46	07:46	08:40
	16:29	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55	16:16
7	08:57	08:16	07:15	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	7 07:54 (7) | 20:24	5 07:27 (8) | 21:20	22:07	22:12	21:27	20:16	19:01	16:53	16:15
8	08:56	08:15	07:12	06:55	05:48	05:06	05:14	06:01	06:57	07:51	07:51	08:44
	16:33	17:30	18:27	15 07:58 (7) | 20:26	11 07:31 (8) | 21:22	22:08	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:13	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	19 07:59 (7) | 20:28	16 07:33 (8) | 21:24	22:09	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:11	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	22 08:01 (7) | 20:30	19 07:34 (8) | 21:25	22:10	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:09	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:37	17:37	18:33	24 08:01 (7) | 20:31	22 07:34 (8) | 21:27	22:10	22:09	21:19	20:06	18:52	16:46	16:14
12	08:53	08:07	07:02	06:46	05:41	05:04	05:18	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	25 08:02 (7) | 20:33	24 07:35 (8) | 21:29	22:11	22:08	21:17	20:04	18:49	16:44	16:14
13	08:53	08:04	07:00	07:35 (7) | 06:43	07:10 (8) | 05:39	05:04	05:20	06:10	07:06	08:01	08:01	08:49
	16:41	17:41	18:36	27 08:02 (7) | 20:35	26 07:36 (8) | 21:31	22:12	22:07	21:15	20:01	18:47	16:42	16:14
14	08:52	08:02	06:57	07:35 (7) | 06:41	07:09 (8) | 05:37	05:04	05:21	06:11	07:07	08:03	08:03	08:50
	16:42	17:43	18:38	28 08:03 (7) | 20:37	27 07:36 (8) | 21:33	22:13	22:05	21:13	19:59	18:45	16:41	16:14
15	08:51	08:00	06:55	07:34 (7) | 06:39	07:09 (8) | 05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	28 08:02 (7) | 20:39	27 07:36 (8) | 21:34	22:13	22:04	21:11	19:56	18:42	16:39	16:14
16	08:50	07:58	06:52	07:34 (7) | 06:36	07:09 (8) | 05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	28 08:02 (7) | 20:41	27 07:36 (8) | 21:36	22:14	22:03	21:08	19:54	18:40	16:37	16:14
17	08:49	07:56	06:50	07:34 (7) | 06:34	07:08 (8) | 05:32	05:03	05:25	06:17	07:25 (8) | 07:13	08:08	08:09	08:53
	16:47	17:49	18:44	28 08:02 (7) | 20:43	27 07:35 (8) | 21:38	22:14	22:02	21:06	4 07:29 (8) | 19:51	18:38	16:36	16:14
18	08:48	07:54	06:47	07:34 (7) | 06:31	07:08 (8) | 05:30	05:03	05:26	06:19	07:21 (8) | 07:15	08:10	08:11	08:54
	16:49	17:51	18:46	27 08:01 (7) | 20:45	27 07:35 (8) | 21:39	22:15	22:01	21:04	12 07:33 (8) | 19:49	18:35	16:34	16:14
19	08:46	07:52	06:45	07:34 (7) | 06:29	07:08 (8) | 05:29	05:03	05:28	06:20	07:18 (8) | 07:16	08:12	08:13	08:55
	16:51	17:53	18:48	26 08:00 (7) | 20:46	26 07:34 (8) | 21:41	22:15	21:59	21:02	16 07:34 (8) | 19:46	8 08:36 (7) | 18:33	16:33	16:14
20	08:45	07:49	06:43	07:35 (7) | 06:27	07:09 (8) | 05:27	05:03	05:29	06:22	07:16 (8) | 07:18	08:25 (7) | 08:14	08:15	08:55
	16:53	17:55	18:50	24 07:59 (7) | 20:48	25 07:34 (8) | 21:43	22:15	21:58	20:59	20 07:36 (8) | 19:44	14 08:39 (7) | 18:31	16:32	16:15
21	08:44	07:47	06:40	07:35 (7) | 06:24	07:09 (8) | 05:26	05:03	05:31	06:24	07:15 (8) | 07:20	08:23 (7) | 08:16	08:16	08:56
	16:55	17:57	18:52	23 07:58 (7) | 20:50	23 07:32 (8) | 21:44	22:16	21:57	20:57	22 07:37 (8) | 19:41	18 08:41 (7) | 18:28	16:30	16:15
22	08:43	07:45	06:38	07:37 (7) | 06:22	07:10 (8) | 05:24	05:03	05:32	06:26	07:13 (8) | 07:22	08:20 (7) | 08:18	08:18	08:57
	16:57	17:59	18:54	19 07:56 (7) | 20:52	21 07:31 (8) | 21:46	22:16	21:55	20:55	24 07:37 (8) | 19:39	22 08:42 (7) | 18:26	16:29	16:16
23	08:41	07:43	06:35	07:38 (7) | 06:20	07:11 (8) | 05:23	05:04	05:34	06:28	07:13 (8) | 07:24	08:19 (7) | 08:20	08:20	08:57
	16:58	18:01	18:56	15 07:53 (7) | 20:54	19 07:30 (8) | 21:47	22:16	21:54	20:52	25 07:38 (8) | 19:36	24 08:43 (7) | 18:24	16:28	16:16
24	08:40	07:40	06:33	07:41 (7) | 06:18	07:12 (8) | 05:21	05:04	05:35	06:29	07:12 (8) | 07:25	08:18 (7) | 08:22	08:22	08:57
	17:00	18:03	18:57	10 07:51 (7) | 20:56	16 07:28 (8) | 21:49	22:16	21:52	20:50	26 07:38 (8) | 19:34	26 08:44 (7) | 18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	07:15 (8) | 05:20	05:04	05:37	06:31	07:11 (8) | 07:27	08:17 (7) | 07:24	08:24	08:58
	17:02	18:05	18:59	20:58	11 07:26 (8) | 21:50	22:16	21:51	20:48	27 07:38 (8) | 19:31	27 08:44 (7) | 17:19	16:25	16:17
26	08:37	07:36	06:28	06:13	05:19	05:05	05:38	06:33	07:11 (8) | 07:29	08:16 (7) | 07:26	08:25	08:58
	17:04	18:07	19:01	21:00	21:52	22:16	21:49	20:45	27 07:38 (8) | 19:29	28 08:44 (7) | 17:17	16:24	16:18
27	08:35	07:34	06:25	06:11	05:17	05:05	05:40	06:35	07:11 (8) | 07:31	08:15 (7) | 07:28	08:27	08:58
	17:06	18:09	19:03	21:02	21:53	22:16	21:47	20:43	27 07:38 (8) | 19:26	28 08:43 (7) | 17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37	07:11 (8) | 07:33	08:15 (7) | 07:30	08:29	08:59
	17:08	18:11	19:05	21:03	21:55	22:16	21:46	20:41	27 07:38 (8) | 19:24	28 08:43 (7) | 17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:10 (8) | 07:35	08:15 (7) | 07:32	08:30	08:59
	17:10		20:07	21:05	21:56	22:16	21:44	20:38	26 07:36 (8) | 19:21	28 08:43 (7) | 17:11	16:21	16:21
30	08:31		07:18	06:04	05:14	05:07	05:45	06:40	07:10 (8) | 07:36	08:15 (7) | 07:34	08:32	08:59
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	26 07:36 (8) | 19:19	27 08:42 (7) | 17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42	07:11 (8) |	07:36		08:59
	17:14		20:11		21:59		21:41	20:33	24 07:35 (8) |	17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case			395	399				333	353	123		
Sun reduction			0.22	0.34				0.27	0.29	0.23		
Oper. time red.			1.00	1.00				1.00	1.00	1.00		
Wind dir. red.			0.60	0.57				0.57	0.59	0.60		
Total reduction			0.13	0.20				0.16	0.17	0.14		
Total, real			53	78				52	61	17		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CK - H90

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June	
1	08:58	08:27	07:29	07:12		06:02		19:34 (18)	05:11		20:30 (17)
	16:24	17:16	18:13	20:12		21:09	28	20:02 (18)	22:00	25	20:55 (17)
2	08:58	08:25	07:26	07:10		06:00		19:35 (18)	05:11		20:30 (17)
	16:25	17:18	18:15	20:14		21:11	27	20:02 (18)	22:01	25	20:55 (17)
3	08:58	08:24	07:24	07:07		05:58		19:35 (18)	05:10		20:30 (17)
	16:26	17:20	18:17	20:16		21:12	26	20:01 (18)	22:02	24	20:54 (17)
4	08:58	08:22	07:21	07:05		05:56		19:36 (18)	05:09		20:31 (17)
	16:27	17:22	18:19	20:18		21:14	24	20:00 (18)	22:03	23	20:54 (17)
5	08:57	08:20	07:19	07:02		05:54		19:36 (18)	05:08		20:32 (17)
	16:28	17:24	18:21	20:20		21:16	23	19:59 (18)	22:05	23	20:55 (17)
6	08:57	08:18	07:17	07:00		05:52		19:38 (18)	05:07		20:32 (17)
	16:30	17:26	18:23	20:22		21:18	21	19:59 (18)	22:06	22	20:54 (17)
7	08:56	08:16	07:14	06:58		05:50		19:39 (18)	05:06		20:33 (17)
	16:31	17:28	18:24	20:24		21:20	18	19:57 (18)	22:07	22	20:55 (17)
8	08:56	08:14	07:12	06:55		05:48		19:41 (18)	05:06		20:33 (17)
	16:33	17:30	18:26	20:25		21:22	15	19:56 (18)	22:08	21	20:54 (17)
9	08:55	08:12	07:09	06:53		05:46		19:43 (18)	05:05		20:33 (17)
	16:34	17:32	18:28	20:27		21:23	10	19:53 (18)	22:09	22	20:55 (17)
10	08:55	08:10	07:07	06:50		05:44			05:05		20:33 (17)
	16:36	17:34	18:30	20:29		21:25			22:09	21	20:54 (17)
11	08:54	08:08	07:04	06:48		05:42			05:04		20:34 (17)
	16:37	17:36	18:32	20:31		21:27			22:10	20	20:54 (17)
12	08:53	08:06	07:02	06:45		05:40			05:04		20:35 (17)
	16:39	17:38	18:34	20:33		21:29			22:11	19	20:54 (17)
13	08:52	08:04	07:00	06:43		05:38		20:36 (17)	05:04		20:35 (17)
	16:40	17:40	18:36	20:35		21:31	9	20:45 (17)	22:12	19	20:54 (17)
14	08:51	08:02	06:57	06:41		05:37		20:34 (17)	05:03		20:35 (17)
	16:42	17:42	18:38	20:37		21:32	14	20:48 (17)	22:12	19	20:54 (17)
15	08:50	08:00	06:55	06:38		05:35		20:33 (17)	05:03		20:36 (17)
	16:44	17:44	18:40	20:39		21:34	16	20:49 (17)	22:13	18	20:54 (17)
16	08:49	07:58	06:52	06:36		05:33		20:32 (17)	05:03		20:36 (17)
	16:45	17:46	18:42	20:41		21:36	18	20:50 (17)	22:14	18	20:54 (17)
17	08:48	07:56	06:50	06:33		05:32		20:31 (17)	05:03		20:37 (17)
	16:47	17:49	18:44	20:42		21:37	20	20:51 (17)	22:14	17	20:54 (17)
18	08:47	07:54	06:47	06:31	19:46 (18)	05:30		20:30 (17)	05:03		20:37 (17)
	16:49	17:51	18:46	20:44	10 19:56 (18)	21:39	22	20:52 (17)	22:14	17	20:54 (17)
19	08:46	07:51	06:45	06:29	19:43 (18)	05:28		20:29 (17)	05:03		20:37 (17)
	16:51	17:53	18:48	20:46	16 19:59 (18)	21:41	23	20:52 (17)	22:15	17	20:54 (17)
20	08:45	07:49	06:42	06:26	19:40 (18)	05:27		20:29 (17)	05:03		20:37 (17)
	16:53	17:55	18:50	20:48	20 20:00 (18)	21:42	24	20:53 (17)	22:15	17	20:54 (17)
21	08:44	07:47	06:40	06:24	19:39 (18)	05:25		20:29 (17)	05:03		20:37 (17)
	16:54	17:57	18:51	20:50	22 20:01 (18)	21:44	25	20:54 (17)	22:15	17	20:54 (17)
22	08:42	07:45	06:37	06:22	19:38 (18)	05:24		20:28 (17)	05:03		20:38 (17)
	16:56	17:59	18:53	20:52	24 20:02 (18)	21:46	25	20:53 (17)	22:16	17	20:55 (17)
23	08:41	07:42	06:35	06:20	19:37 (18)	05:22		20:29 (17)	05:03		20:38 (17)
	16:58	18:01	18:55	20:54	26 20:03 (18)	21:47	25	20:54 (17)	22:16	17	20:55 (17)
24	08:40	07:40	06:32	06:17	19:36 (18)	05:21		20:29 (17)	05:04		20:38 (17)
	17:00	18:03	18:57	20:56	28 20:04 (18)	21:49	25	20:54 (17)	22:16	17	20:55 (17)
25	08:38	07:38	06:30	06:15	19:35 (18)	05:20		20:29 (17)	05:04		20:39 (17)
	17:02	18:05	18:59	20:58	28 20:03 (18)	21:50	26	20:55 (17)	22:16	17	20:56 (17)
26	08:37	07:36	06:27	06:13	19:35 (18)	05:18		20:29 (17)	05:04		20:38 (17)
	17:04	18:07	19:01	20:59	28 20:03 (18)	21:52	26	20:55 (17)	22:16	18	20:56 (17)
27	08:35	07:33	06:25	06:11	19:34 (18)	05:17		20:28 (17)	05:05		20:39 (17)
	17:06	18:09	19:03	21:01	29 20:03 (18)	21:53	26	20:54 (17)	22:16	18	20:57 (17)
28	08:34	07:31	06:22	06:08	19:34 (18)	05:16		20:28 (17)	05:05		20:38 (17)
	17:08	18:11	19:05	21:03	29 20:03 (18)	21:55	26	20:54 (17)	22:16	19	20:57 (17)
29	08:32		07:20	06:06	19:34 (18)	05:15		20:29 (17)	05:06		20:39 (17)
	17:10		20:07	21:05	29 20:03 (18)	21:56	25	20:54 (17)	22:15	19	20:58 (17)
30	08:30		07:17	06:04	19:34 (18)	05:14		20:29 (17)	05:07		20:38 (17)
	17:12		20:08	21:07	29 20:03 (18)	21:57	25	20:54 (17)	22:15	20	20:58 (17)
31	08:29		07:15			05:12		20:30 (17)			
	17:14		20:10			21:59	25	20:55 (17)			
Potential sun hours	248	272	367	421		496			513		
Total, worst case					318		617			588	
Sun reduction					0.34		0.36			0.26	
Oper. time red.					1.00		1.00			1.00	
Wind dir. red.					0.59		0.61			0.62	
Total reduction					0.20		0.22			0.16	
Total, real					64		137			95	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CK - H90

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October	November	December
1	05:07		05:48		06:44	07:38	07:37	08:33
	22:15	20	20:58 (17)	21:39		20:31	19:16	17:04	16:19
2	05:08		20:39 (17)	05:50		06:45	07:40	07:39	08:35
	22:14	20	20:59 (17)	21:37		20:28	19:13	17:02	16:18
3	05:09		20:39 (17)	05:52	19:55 (18)	06:47	07:42	07:41	08:36
	22:14	21	21:00 (17)	21:35	6	20:01 (18)	20:26	19:11	17:00	16:17
4	05:10		20:38 (17)	05:53		19:52 (18)	06:49	07:43	07:43	08:38
	22:13	21	20:59 (17)	21:33	12	20:04 (18)	20:23	19:09	16:58	16:17
5	05:11		20:38 (17)	05:55		19:50 (18)	06:51	07:45	07:45	08:39
	22:13	22	21:00 (17)	21:31	16	20:06 (18)	20:21	19:06	16:56	16:16
6	05:12		20:38 (17)	05:57		19:48 (18)	06:53	07:47	07:47	08:41
	22:12	22	21:00 (17)	21:29	19	20:07 (18)	20:19	19:04	16:54	16:16
7	05:12		20:38 (17)	05:59		19:47 (18)	06:54	07:49	07:49	08:42
	22:12	23	21:01 (17)	21:27	22	20:09 (18)	20:16	19:01	16:53	16:15
8	05:14		20:38 (17)	06:00		19:46 (18)	06:56	07:51	07:51	08:43
	22:11	23	21:01 (17)	21:25	23	20:09 (18)	20:14	18:59	16:51	16:15
9	05:15		20:38 (17)	06:02		19:45 (18)	06:58	07:53	07:53	08:45
	22:10	24	21:02 (17)	21:23	25	20:10 (18)	20:11	18:56	16:49	16:14
10	05:16		20:38 (17)	06:04		19:44 (18)	07:00	07:55	07:55	08:46
	22:09	24	21:02 (17)	21:21	27	20:11 (18)	20:09	18:54	16:47	16:14
11	05:17		20:38 (17)	06:06		19:43 (18)	07:02	07:57	07:57	08:47
	22:08	24	21:02 (17)	21:19	27	20:10 (18)	20:06	18:51	16:45	16:14
12	05:18		20:38 (17)	06:07		19:43 (18)	07:03	07:58	07:59	08:48
	22:07	25	21:03 (17)	21:17	28	20:11 (18)	20:04	18:49	16:44	16:14
13	05:19		20:37 (17)	06:09		19:43 (18)	07:05	08:00	08:01	08:49
	22:06	26	21:03 (17)	21:15	28	20:11 (18)	20:01	18:47	16:42	16:13
14	05:21		20:38 (17)	06:11		19:42 (18)	07:07	08:02	08:03	08:50
	22:05	26	21:04 (17)	21:12	29	20:11 (18)	19:59	18:44	16:40	16:13
15	05:22		20:38 (17)	06:13		19:42 (18)	07:09	08:04	08:05	08:51
	22:04	26	21:04 (17)	21:10	29	20:11 (18)	19:56	18:42	16:39	16:13
16	05:23		20:38 (17)	06:15		19:42 (18)	07:11	08:06	08:07	08:52
	22:03	26	21:04 (17)	21:08	29	20:11 (18)	19:54	18:40	16:37	16:13
17	05:25		20:38 (17)	06:16		19:42 (18)	07:12	08:08	08:09	08:53
	22:02	26	21:04 (17)	21:06	29	20:11 (18)	19:51	18:37	16:36	16:14
18	05:26		20:38 (17)	06:18		19:42 (18)	07:14	08:10	08:11	08:54
	22:01	26	21:04 (17)	21:04	27	20:09 (18)	19:49	18:35	16:34	16:14
19	05:27		20:38 (17)	06:20		19:42 (18)	07:16	08:12	08:12	08:55
	21:59	26	21:04 (17)	21:01	27	20:09 (18)	19:46	18:33	16:33	16:14
20	05:29		20:38 (17)	06:22		19:43 (18)	07:18	08:14	08:14	08:55
	21:58	26	21:04 (17)	20:59	25	20:08 (18)	19:44	18:30	16:31	16:14
21	05:30		20:39 (17)	06:24		19:43 (18)	07:20	08:16	08:16	08:56
	21:56	25	21:04 (17)	20:57	24	20:07 (18)	19:41	18:28	16:30	16:15
22	05:32		20:39 (17)	06:25		19:44 (18)	07:21	08:18	08:18	08:56
	21:55	25	21:04 (17)	20:55	22	20:06 (18)	19:39	18:26	16:29	16:15
23	05:33		20:39 (17)	06:27		19:45 (18)	07:23	08:20	08:20	08:57
	21:54	24	21:03 (17)	20:52	19	20:04 (18)	19:36	18:24	16:27	16:16
24	05:35		20:40 (17)	06:29		19:46 (18)	07:25	08:22	08:22	08:57
	21:52	23	21:03 (17)	20:50	15	20:01 (18)	19:33	18:21	16:26	16:16
25	05:37		20:40 (17)	06:31		19:49 (18)	07:27	07:24	08:23	08:58
	21:50	22	21:02 (17)	20:48	9	19:58 (18)	19:31	17:19	16:25	16:17
26	05:38		20:41 (17)	06:33			07:29	07:25	08:25	08:58
	21:49	21	21:02 (17)	20:45			19:28	17:17	16:24	16:18
27	05:40		20:41 (17)	06:35			07:31	07:27	08:27	08:58
	21:47	20	21:01 (17)	20:43			19:26	17:15	16:23	16:19
28	05:41		20:43 (17)	06:36			07:32	07:29	08:28	08:58
	21:46	17	21:00 (17)	20:40			19:23	17:13	16:22	16:19
29	05:43		20:43 (17)	06:38			07:34	07:31	08:30	08:58
	21:44	16	20:59 (17)	20:38			19:21	17:11	16:21	16:20
30	05:45		20:45 (17)	06:40			07:36	07:33	08:32	08:58
	21:42	12	20:57 (17)	20:36			19:18	17:08	16:20	16:21
31	05:46		20:47 (17)	06:42				07:35		08:58
	21:40	7	20:54 (17)	20:33				17:06		16:22
Potential sun hours	515			461		383	327	257	230
Total, worst case		689			517				
Sun reduction		0.27			0.27				
Oper. time red.		1.00			1.00				
Wind dir. red.		0.62			0.59				
Total reduction		0.17			0.16				
Total, real		114			83				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CL - H91

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27	16:15 (9)	07:29	16:56 (10)	07:12		06:02		05:12	21:10 (13)
	16:24		17:16 24	16:39 (9)	18:13 25	17:21 (10)	20:12		21:09		22:00 15	21:25 (13)
2	08:58		08:25	16:15 (9)	07:26	16:56 (10)	07:10		06:00	20:32 (12)	05:11	21:10 (13)
	16:25		17:18 24	16:39 (9)	18:15 23	17:19 (10)	20:14		21:11 7	20:39 (12)	22:01 16	21:26 (13)
3	08:58		08:24	16:15 (9)	07:24	16:58 (10)	07:07		05:58	20:29 (12)	05:10	21:09 (13)
	16:26		17:20 24	16:39 (9)	18:17 20	17:18 (10)	20:16		21:12 12	20:41 (12)	22:02 17	21:26 (13)
4	08:58		08:22	16:15 (9)	07:21	16:59 (10)	07:05		05:56	20:27 (12)	05:09	21:10 (13)
	16:27		17:22 25	16:40 (9)	18:19 17	17:16 (10)	20:18		21:14 16	20:43 (12)	22:03 18	21:28 (13)
5	08:57		08:20	16:15 (9)	07:19	17:02 (10)	07:03		05:54	20:27 (12)	05:08	21:10 (13)
	16:29		17:24 25	16:40 (9)	18:21 11	17:13 (10)	20:20		21:16 18	20:45 (12)	22:05 18	21:28 (13)
6	08:57		08:18	16:15 (9)	07:17		07:00		05:52	20:26 (12)	05:07	21:09 (13)
	16:30		17:26 25	16:40 (9)	18:23		20:22		21:18 19	20:45 (12)	22:06 18	21:27 (13)
7	08:56		08:16	16:16 (9)	07:14		06:58		05:50	20:25 (12)	05:07	21:10 (13)
	16:31		17:28 24	16:40 (9)	18:25		20:24		21:20 21	20:46 (12)	22:07 18	21:28 (13)
8	08:56		08:14	16:16 (9)	07:12		06:55		05:48	20:24 (12)	05:06	21:10 (13)
	16:33		17:30 24	16:40 (9)	18:26		20:26		21:22 22	20:46 (12)	22:08 18	21:28 (13)
9	08:55		08:12	16:16 (9)	07:09		06:53		05:46	20:24 (12)	05:05	21:10 (13)
	16:34		17:32 22	16:38 (9)	18:28		20:27		21:23 22	20:46 (12)	22:09 19	21:29 (13)
10	08:55		08:10	16:17 (9)	07:07		06:50		05:44	20:23 (12)	05:05	21:10 (13)
	16:36		17:34 21	16:38 (9)	18:30		20:29		21:25 23	20:46 (12)	22:09 18	21:28 (13)
11	08:54		08:08	16:18 (9)	07:05		06:48	19:52 (11)	05:42	20:24 (12)	05:04	21:10 (13)
	16:37		17:36 19	16:37 (9)	18:32		20:31 10	20:02 (11)	21:27 22	20:46 (12)	22:10 19	21:29 (13)
12	08:53		08:06	16:20 (9)	07:02		06:45	19:50 (11)	05:40	20:24 (12)	05:04	21:11 (13)
	16:39		17:38 16	16:36 (9)	18:34		20:33 15	20:05 (11)	21:29 22	20:46 (12)	22:11 18	21:29 (13)
13	08:52		08:04	16:22 (9)	07:00		06:43	19:48 (11)	05:39	20:23 (12)	05:04	21:11 (13)
	16:40		17:40 12	16:34 (9)	18:36		20:35 17	20:05 (11)	21:31 22	20:45 (12)	22:12 19	21:30 (13)
14	08:51		08:02	16:28 (9)	06:57		06:41	19:47 (11)	05:37	20:24 (12)	05:03	21:11 (13)
	16:42		17:42 1	16:29 (9)	18:38		20:37 19	20:06 (11)	21:32 22	20:46 (12)	22:12 18	21:29 (13)
15	08:50		08:00	17:06 (10)	06:55		06:38	19:46 (11)	05:35	20:24 (12)	05:03	21:11 (13)
	16:44		17:45 6	17:12 (10)	18:40		20:39 21	20:07 (11)	21:34 21	20:45 (12)	22:13 19	21:30 (13)
16	08:49		07:58	17:02 (10)	06:52		06:36	19:46 (11)	05:33	20:25 (12)	05:03	21:11 (13)
	16:45		17:47 14	17:16 (10)	18:42		20:41 21	20:07 (11)	21:36 20	20:45 (12)	22:14 19	21:30 (13)
17	08:48		07:56	17:00 (10)	06:50		06:34	19:44 (11)	05:32	20:25 (12)	05:03	21:11 (13)
	16:47		17:49 18	17:18 (10)	18:44		20:42 23	20:07 (11)	21:37 19	20:44 (12)	22:14 19	21:30 (13)
18	08:47		07:54	16:59 (10)	06:47		06:31	19:44 (11)	05:30	20:26 (12)	05:03	21:12 (13)
	16:49		17:51 21	17:20 (10)	18:46		20:44 23	20:07 (11)	21:39 18	20:44 (12)	22:14 18	21:30 (13)
19	08:46		07:51	16:57 (10)	06:45		06:29	19:45 (11)	05:28	20:27 (12)	05:03	21:12 (13)
	16:51		17:53 23	17:20 (10)	18:48		20:46 22	20:07 (11)	21:41 16	20:43 (12)	22:15 18	21:30 (13)
20	08:45		07:49	16:56 (10)	06:42		06:27	19:44 (11)	05:27	20:28 (12)	05:03	21:12 (13)
	16:53		17:55 26	17:22 (10)	18:50		20:48 21	20:05 (11)	21:42 14	20:42 (12)	22:15 18	21:30 (13)
21	08:44		07:47	16:56 (10)	06:40		06:24	19:44 (11)	05:25	20:30 (12)	05:03	21:13 (13)
	16:54		17:57 26	17:22 (10)	18:51		20:50 21	20:05 (11)	21:44 11	20:41 (12)	22:15 18	21:31 (13)
22	08:42		07:45	16:55 (10)	06:37		06:22	19:45 (11)	05:24	20:31 (12)	05:03	21:13 (13)
	16:56		17:59 27	17:22 (10)	18:53		20:52 19	20:04 (11)	21:46 8	20:39 (12)	22:16 18	21:31 (13)
23	08:41		07:42	16:55 (10)	06:35		06:20	19:46 (11)	05:22		05:03	21:13 (13)
	16:58		18:01 28	17:23 (10)	18:55		20:54 17	20:03 (11)	21:47		22:16 18	21:31 (13)
24	08:40		07:40	16:55 (10)	06:32		06:17	19:48 (11)	05:21		05:04	21:13 (13)
	17:00		18:03 28	17:23 (10)	18:57		20:56 13	20:01 (11)	21:49		22:16 18	21:31 (13)
25	08:38	16:24 (9)	07:38	16:54 (10)	06:30		06:15	19:50 (11)	05:20		05:04	21:14 (13)
	17:02 2	16:26 (9)	18:05 28	17:22 (10)	18:59		20:58 9	19:59 (11)	21:50		22:16 18	21:32 (13)
26	08:37	16:20 (9)	07:36	16:54 (10)	06:27		06:13		05:18	21:14 (13)	05:05	21:13 (13)
	17:04 10	16:30 (9)	18:07 29	17:23 (10)	19:01		20:59		21:52 4	21:18 (13)	22:16 19	21:32 (13)
27	08:35	16:19 (9)	07:33	16:54 (10)	06:25		06:11		05:17	21:13 (13)	05:05	21:14 (13)
	17:06 14	16:33 (9)	18:09 27	17:21 (10)	19:03		21:01		21:53 6	21:19 (13)	22:16 19	21:33 (13)
28	08:34	16:18 (9)	07:31	16:55 (10)	06:22		06:09		05:16	21:12 (13)	05:06	21:14 (13)
	17:08 16	16:34 (9)	18:11 26	17:21 (10)	19:05		21:03		21:55 8	21:20 (13)	22:16 18	21:32 (13)
29	08:32	16:16 (9)			07:20		06:06		05:15	21:11 (13)	05:06	21:14 (13)
	17:10 19	16:35 (9)			20:07		21:05		21:56 11	21:22 (13)	22:15 19	21:33 (13)
30	08:31	16:16 (9)			07:17		06:04		05:14	21:11 (13)	05:07	21:14 (13)
	17:12 20	16:36 (9)			20:09		21:07		21:57 12	21:23 (13)	22:15 19	21:33 (13)
31	08:29	16:15 (9)			07:15				05:13	21:11 (13)		
	17:14 22	16:37 (9)			20:10				21:59 13	21:24 (13)		
Potential sun hours	248		272		367		421		496		513	
Total, worst case	103		613		96		271		429		544	
Sun reduction	0.17		0.22		0.22		0.34		0.36		0.26	
Oper. time red.	1.00		1.00		1.00		1.00		1.00		1.00	
Wind dir. red.	0.59		0.59		0.58		0.59		0.62		0.63	
Total reduction	0.10		0.13		0.13		0.20		0.22		0.16	
Total, real	10		80		13		55		96		88	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CL - H91

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December
1	05:07		21:14 (13)	05:48		20:34 (12)	06:44		19:51 (11)	07:38			07:37		15:46 (9)	08:33
	22:15	19	21:33 (13)	21:39	22	20:56 (12)	20:31	10	20:01 (11)	19:16			17:04	21	16:07 (9)	16:19
2	05:08		21:15 (13)	05:50		20:34 (12)	06:45			07:40			07:39		15:45 (9)	08:35
	22:14	19	21:34 (13)	21:37	23	20:57 (12)	20:28			19:14			17:02	23	16:08 (9)	16:18
3	05:09		21:15 (13)	05:52		20:34 (12)	06:47			07:42			07:41		15:45 (9)	08:36
	22:14	19	21:34 (13)	21:35	22	20:56 (12)	20:26			19:11			17:00	23	16:08 (9)	16:18
4	05:10		21:15 (13)	05:53		20:34 (12)	06:49			07:44			07:43		15:45 (9)	08:38
	22:13	18	21:33 (13)	21:33	22	20:56 (12)	20:24			19:09			16:58	25	16:10 (9)	16:17
5	05:11		21:15 (13)	05:55		20:35 (12)	06:51			07:45			07:45		15:45 (9)	08:39
	22:13	19	21:34 (13)	21:31	21	20:56 (12)	20:21			19:06			16:56	25	16:10 (9)	16:16
6	05:12		21:16 (13)	05:57		20:35 (12)	06:53			07:47			07:47		15:45 (9)	08:41
	22:12	18	21:34 (13)	21:29	20	20:55 (12)	20:19			19:04			16:55	25	16:10 (9)	16:16
7	05:13		21:16 (13)	05:59		20:36 (12)	06:54			07:49			07:49		15:45 (9)	08:42
	22:12	18	21:34 (13)	21:27	18	20:54 (12)	20:16			19:01			16:53	24	16:09 (9)	16:15
8	05:14		21:16 (13)	06:00		20:37 (12)	06:56			07:51		17:39 (10)	07:51		15:45 (9)	08:43
	22:11	18	21:34 (13)	21:25	17	20:54 (12)	20:14			18:59	7	17:46 (10)	16:51	24	16:09 (9)	16:15
9	05:15		21:17 (13)	06:02		20:37 (12)	06:58			07:53		17:35 (10)	07:53		15:45 (9)	08:45
	22:10	17	21:34 (13)	21:23	15	20:52 (12)	20:11			18:56	15	17:50 (10)	16:49	24	16:09 (9)	16:14
10	05:16		21:17 (13)	06:04		20:39 (12)	07:00			07:55		17:33 (10)	07:55		15:46 (9)	08:46
	22:09	17	21:34 (13)	21:21	11	20:50 (12)	20:09			18:54	18	17:51 (10)	16:47	23	16:09 (9)	16:14
11	05:17		21:17 (13)	06:06		20:41 (12)	07:02			07:57		17:31 (10)	07:57		15:47 (9)	08:47
	22:08	16	21:33 (13)	21:19	5	20:46 (12)	20:06			18:52	22	17:53 (10)	16:45	22	16:09 (9)	16:14
12	05:18		21:18 (13)	06:08			07:03			07:59		17:30 (10)	07:59		15:48 (9)	08:48
	22:07	14	21:32 (13)	21:17			20:04			18:49	24	17:54 (10)	16:44	20	16:08 (9)	16:14
13	05:19		21:18 (13)	06:09			07:05			08:00		17:28 (10)	08:01		15:48 (9)	08:49
	22:06	13	21:31 (13)	21:15			20:01			18:47	26	17:54 (10)	16:42	19	16:07 (9)	16:14
14	05:21		21:20 (13)	06:11			07:07			08:02		17:28 (10)	08:03		15:49 (9)	08:50
	22:05	11	21:31 (13)	21:13			19:59			18:44	27	17:55 (10)	16:40	17	16:06 (9)	16:13
15	05:22		21:20 (13)	06:13			07:09			08:04		17:27 (10)	08:05		15:51 (9)	08:51
	22:04	10	21:30 (13)	21:10			19:56			18:42	28	17:55 (10)	16:39	14	16:05 (9)	16:13
16	05:23		21:21 (13)	06:15			07:11			08:06		17:26 (10)	08:07		15:53 (9)	08:52
	22:03	7	21:28 (13)	21:08			19:54			18:40	29	17:55 (10)	16:37	10	16:03 (9)	16:14
17	05:25		21:22 (13)	06:17			07:12			08:08		17:26 (10)	08:09		15:58 (9)	08:53
	22:02	5	21:27 (13)	21:06			19:51			18:37	29	17:55 (10)	16:36	2	16:00 (9)	16:14
18	05:26		21:25 (13)	06:18		19:55 (11)	07:14			08:10		17:26 (10)	08:11			08:54
	22:01	2	21:27 (13)	21:04	10	20:05 (11)	19:49			18:35	28	17:54 (10)	16:34			16:14
19	05:28			06:20		19:53 (11)	07:16			08:12		17:26 (10)	08:12			08:55
	21:59			21:01	14	20:07 (11)	19:46			18:33	28	17:54 (10)	16:33			16:14
20	05:29			06:22		19:52 (11)	07:18			08:14		17:26 (10)	08:14			08:55
	21:58			20:59	17	20:09 (11)	19:44			18:30	27	17:53 (10)	16:31			16:15
21	05:30		20:43 (12)	06:24		19:50 (11)	07:20			08:16		17:26 (10)	08:16			08:56
	21:56	5	20:48 (12)	20:57	19	20:09 (11)	19:41			18:28	27	17:53 (10)	16:30			16:15
22	05:32		20:40 (12)	06:26		19:49 (11)	07:22			08:18		17:27 (10)	08:18			08:56
	21:55	10	20:50 (12)	20:55	20	20:09 (11)	19:39			18:26	25	17:52 (10)	16:29			16:15
23	05:34		20:40 (12)	06:27		19:49 (11)	07:23			08:20		17:28 (10)	08:20			08:57
	21:54	12	20:52 (12)	20:52	21	20:10 (11)	19:36			18:24	22	17:50 (10)	16:27			16:16
24	05:35		20:38 (12)	06:29		19:48 (11)	07:25			08:22		17:29 (10)	08:22			08:57
	21:52	15	20:53 (12)	20:50	22	20:10 (11)	19:34			18:21	20	17:49 (10)	16:26			16:17
25	05:37		20:37 (12)	06:31		19:47 (11)	07:27			07:24		16:30 (10)	08:23			08:58
	21:51	16	20:53 (12)	20:48	22	20:09 (11)	19:31			17:19	17	16:47 (10)	16:25			16:17
26	05:38		20:36 (12)	06:33		19:47 (11)	07:29			07:26		16:32 (10)	08:25			08:58
	21:49	19	20:55 (12)	20:45	22	20:09 (11)	19:29			17:17	12	16:44 (10)	16:24			16:18
27	05:40		20:35 (12)	06:35		19:47 (11)	07:31			07:27		16:37 (10)	08:27			08:58
	21:47	20	20:55 (12)	20:43	22	20:09 (11)	19:26			17:15	2	16:39 (10)	16:23			16:19
28	05:41		20:35 (12)	06:36		19:47 (11)	07:32			07:29		15:55 (9)	08:28			08:58
	21:46	21	20:56 (12)	20:40	21	20:08 (11)	19:24			17:13	6	16:01 (9)	16:22			16:19
29	05:43		20:34 (12)	06:38		19:48 (11)	07:34			07:31		15:51 (9)	08:30			08:58
	21:44	22	20:56 (12)	20:38	19	20:07 (11)	19:21			17:11	13	16:04 (9)	16:21			16:20
30	05:45		20:34 (12)	06:40		19:49 (11)	07:36			07:33		15:49 (9)	08:32			08:58
	21:42	22	20:56 (12)	20:36	17	20:06 (11)	19:19			17:08	16	16:05 (9)	16:20			16:21
31	05:47		20:35 (12)	06:42		19:50 (11)				07:35		15:48 (9)				08:58
	21:40	22	20:57 (12)	20:33	15	20:05 (11)				17:06	19	16:07 (9)				16:22
Potential sun hours	515			461			382			328			257			231
Total, worst case		444			457			10			487			341		
Sun reduction		0.27			0.27			0.29			0.23			0.20		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.62			0.60			0.59			0.58			0.59		
Total reduction		0.17			0.16			0.17			0.14			0.12		
Total, real		74			75			2			67			40		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CM - H92

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March	April	May	June	July	August	September	October		November		December
1	08:58	08:27		07:29	07:12	06:02	05:12	05:08	05:48	06:44	07:38		07:37	16:16 (1)	08:33
	16:24	17:16		18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16		17:04	16:33 (1)	16:19
2	08:58	08:25		07:26	07:10	06:00	05:11	05:08	05:50	06:45	07:40		07:39	16:16 (1)	08:35
	16:25	17:18		18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14		17:02	16:30 (1)	16:18
3	08:58	08:24		07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42		07:41	16:17 (1)	08:36
	16:26	17:20		18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11		17:00	16:28 (1)	16:18
4	08:58	08:22		07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:44		07:43	16:18 (1)	08:38
	16:27	17:22		18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09		16:58	16:27 (1)	16:17
5	08:57	08:20	16:51 (1)	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45		07:45	16:19 (1)	08:39
	16:29	17:24	2 16:53 (1)	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06		16:56	16:25 (1)	16:16
6	08:57	08:18	16:50 (1)	07:17	07:00	05:52	05:07	05:12	05:57	06:53	07:47		07:47	16:21 (1)	08:41
	16:30	17:26	5 16:55 (1)	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04		16:55	16:22 (1)	16:16
7	08:56	08:16	16:49 (1)	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49		07:49		08:42
	16:31	17:28	9 16:58 (1)	18:25	20:24	21:20	22:07	22:11	21:27	20:16	19:01		16:53		16:15
8	08:56	08:14	16:47 (1)	07:12	06:55	05:48	05:06	05:14	06:00	06:56	07:51		07:51		08:43
	16:33	17:30	12 16:59 (1)	18:27	20:25	21:22	22:08	22:11	21:25	20:14	18:59		16:51		16:15
9	08:55	08:12	16:46 (1)	07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53		07:53		08:45
	16:34	17:32	15 17:01 (1)	18:28	20:27	21:23	22:08	22:10	21:23	20:11	18:56		16:49		16:14
10	08:55	08:10	16:46 (1)	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55		07:55		08:46
	16:36	17:34	18 17:04 (1)	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54		16:47		16:14
11	08:54	08:08	16:46 (1)	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57		07:57		08:47
	16:37	17:36	20 17:06 (1)	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52		16:45		16:14
12	08:53	08:06	16:46 (1)	07:02	06:46	05:40	05:04	05:18	06:08	07:04	07:59		07:59		08:48
	16:39	17:38	22 17:08 (1)	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49		16:44		16:14
13	08:52	08:04	16:46 (1)	07:00	06:43	05:39	05:04	05:20	06:09	07:05	08:00		08:01		08:49
	16:41	17:40	25 17:11 (1)	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47		16:42		16:14
14	08:51	08:02	16:46 (1)	06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02		08:03		08:50
	16:42	17:43	26 17:12 (1)	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:44		16:40		16:14
15	08:50	08:00	16:46 (1)	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04		08:05		08:51
	16:44	17:45	25 17:11 (1)	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42		16:39		16:14
16	08:49	07:58	16:46 (1)	06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06		08:07		08:52
	16:46	17:47	24 17:10 (1)	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40		16:37		16:14
17	08:48	07:56	16:47 (1)	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08		08:09		08:53
	16:47	17:49	23 17:10 (1)	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37		16:36		16:14
18	08:47	07:54	16:48 (1)	06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10		08:11		08:54
	16:49	17:51	21 17:09 (1)	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35		16:34		16:14
19	08:46	07:51	16:49 (1)	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12		08:12		08:54
	16:51	17:53	19 17:08 (1)	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33		16:33		16:14
20	08:45	07:49	16:51 (1)	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	17:27 (1)	08:14		08:55
	16:53	17:55	15 17:06 (1)	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	5 17:32 (1)	16:31		16:15
21	08:44	07:47	16:53 (1)	06:40	06:24	05:25	05:03	05:31	06:24	07:20	08:16	17:23 (1)	08:16		08:56
	16:55	17:57	11 17:04 (1)	18:51	20:50	21:44	22:15	21:56	20:57	19:41	18:28	12 17:35 (1)	16:30		16:15
22	08:42	07:45		06:37	06:22	05:24	05:03	05:32	06:26	07:22	08:18	17:20 (1)	08:18		08:56
	16:56	17:59		18:53	20:52	21:45	22:16	21:55	20:55	19:39	18:26	17 17:37 (1)	16:29		16:15
23	08:41	07:42		06:35	06:20	05:23	05:04	05:34	06:27	07:23	08:20	17:19 (1)	08:20		08:57
	16:58	18:01		18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	19 17:38 (1)	16:27		16:16
24	08:40	07:40		06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	17:17 (1)	08:22		08:57
	17:00	18:03		18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	22 17:39 (1)	16:26		16:17
25	08:38	07:38		06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	16:16 (1)	08:23		08:58
	17:02	18:05		18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	24 16:40 (1)	16:25		16:17
26	08:37	07:36		06:27	06:13	05:19	05:05	05:38	06:33	07:29	07:25	16:16 (1)	08:25		08:58
	17:04	18:07		19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	24 16:40 (1)	16:24		16:18
27	08:35	07:33		06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	16:15 (1)	08:27		08:58
	17:06	18:09		19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	25 16:40 (1)	16:23		16:19
28	08:34	07:31		06:22	06:09	05:16	05:06	05:42	06:36	07:32	07:29	16:16 (1)	08:28		08:58
	17:08	18:11		19:05	21:03	21:54	22:16	21:46	20:40	19:24	17:13	25 16:41 (1)	16:22		16:20
29	08:32			07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	16:15 (1)	08:30		08:58
	17:10			20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	25 16:40 (1)	16:21		16:20
30	08:30			07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	16:15 (1)	08:32		08:58
	17:12			20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	22 16:37 (1)	16:20		16:21
31	08:29			07:15		05:13		05:47	06:42		07:35	16:15 (1)			08:58
	17:14			20:10		21:58		21:40	20:33		17:06	20 16:35 (1)			16:22
Potential sun hours	248	272		367	421	496	513	515	461	382	328		257		231
Total, worst case			292									240		58	
Sun reduction			0.22									0.23		0.20	
Oper. time red.			1.00									1.00		1.00	
Wind dir. red.			0.58									0.58		0.58	
Total reduction			0.13									0.14		0.12	
Total, real			38									33		7	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CN - H93

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:38	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CO - H94

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June
1	08:58	08:27	07:29	07:12		06:02		05:11
	16:24	17:16	18:13	20:12		21:09		22:00
2	08:58	08:25	07:26	07:10		06:00		05:10
	16:25	17:18	18:15	20:14		21:11		22:01
3	08:58	08:24	07:24	07:07		05:58		05:10
	16:26	17:20	18:17	20:16		21:12		22:02
4	08:58	08:22	07:21	07:05		05:56	20:19 (17)	05:09
	16:27	17:22	18:19	20:18		21:14	10 20:29 (17)	22:03
5	08:57	08:20	07:19	07:02		05:54	20:16 (17)	05:08
	16:28	17:24	18:21	20:20		21:16	15 20:31 (17)	22:05
6	08:57	08:18	07:17	07:00		05:52	20:16 (17)	05:07
	16:30	17:26	18:23	20:22		21:18	17 20:33 (17)	22:06
7	08:56	08:16	07:14	06:58		05:50	20:14 (17)	05:06
	16:31	17:28	18:24	20:24		21:20	20 20:34 (17)	22:07
8	08:56	08:14	07:12	06:55		05:48	20:13 (17)	05:06
	16:33	17:30	18:26	20:25		21:22	22 20:35 (17)	22:08
9	08:55	08:12	07:09	06:53		05:46	20:12 (17)	05:05
	16:34	17:32	18:28	20:27		21:23	23 20:35 (17)	22:09
10	08:55	08:10	07:07	06:50	19:28 (18)	05:44	20:11 (17)	05:05
	16:36	17:34	18:30	20:29	13 19:41 (18)	21:25	24 20:35 (17)	22:09
11	08:54	08:08	07:04	06:48	19:26 (18)	05:42	20:12 (17)	05:04
	16:37	17:36	18:32	20:31	17 19:43 (18)	21:27	24 20:36 (17)	22:10
12	08:53	08:06	07:02	06:45	19:25 (18)	05:40	20:11 (17)	05:04
	16:39	17:38	18:34	20:33	20 19:45 (18)	21:29	25 20:36 (17)	22:11
13	08:52	08:04	07:00	06:43	19:23 (18)	05:38	20:11 (17)	05:04
	16:40	17:40	18:36	20:35	22 19:45 (18)	21:31	25 20:36 (17)	22:12
14	08:51	08:02	06:57	06:41	19:22 (18)	05:37	20:11 (17)	05:03
	16:42	17:42	18:38	20:37	24 19:46 (18)	21:32	26 20:37 (17)	22:12
15	08:50	08:00	06:55	06:38	19:21 (18)	05:35	20:11 (17)	05:03
	16:44	17:44	18:40	20:39	26 19:47 (18)	21:34	25 20:36 (17)	22:13
16	08:49	07:58	06:52	06:36	19:20 (18)	05:33	20:11 (17)	05:03
	16:45	17:46	18:42	20:41	27 19:47 (18)	21:36	26 20:37 (17)	22:14
17	08:48	07:56	06:50	06:33	19:19 (18)	05:32	20:11 (17)	05:03
	16:47	17:49	18:44	20:42	28 19:47 (18)	21:37	25 20:36 (17)	22:14
18	08:47	07:54	06:47	06:31	19:19 (18)	05:30	20:12 (17)	05:03
	16:49	17:51	18:46	20:44	28 19:47 (18)	21:39	24 20:36 (17)	22:14
19	08:46	07:51	06:45	06:29	19:19 (18)	05:28	20:12 (17)	05:03
	16:51	17:53	18:48	20:46	28 19:47 (18)	21:41	23 20:35 (17)	22:15
20	08:45	07:49	06:42	06:26	19:18 (18)	05:27	20:12 (17)	05:03
	16:53	17:55	18:50	20:48	28 19:46 (18)	21:42	24 20:36 (17)	22:15
21	08:44	07:47	06:40	06:24	19:19 (18)	05:25	20:13 (17)	05:03
	16:54	17:57	18:51	20:50	27 19:46 (18)	21:44	22 20:35 (17)	22:15
22	08:42	07:45	06:37	06:22	19:19 (18)	05:24	20:13 (17)	05:03
	16:56	17:59	18:53	20:52	26 19:45 (18)	21:46	21 20:34 (17)	22:16
23	08:41	07:42	06:35	06:20	19:20 (18)	05:22	20:14 (17)	05:03
	16:58	18:01	18:55	20:54	25 19:45 (18)	21:47	20 20:34 (17)	22:16
24	08:40	07:40	06:32	06:17	19:21 (18)	05:21	20:15 (17)	05:04
	17:00	18:03	18:57	20:56	23 19:44 (18)	21:49	19 20:34 (17)	22:16
25	08:38	07:38	06:30	06:15	19:21 (18)	05:20	20:16 (17)	05:04
	17:02	18:05	18:59	20:58	21 19:42 (18)	21:50	17 20:33 (17)	22:16
26	08:37	07:36	06:27	06:13	19:22 (18)	05:18	20:17 (17)	05:04
	17:04	18:07	19:01	20:59	19 19:41 (18)	21:52	16 20:33 (17)	22:16
27	08:35	07:33	06:25	06:11	19:23 (18)	05:17	20:18 (17)	05:05
	17:06	18:09	19:03	21:01	16 19:39 (18)	21:53	13 20:31 (17)	22:16
28	08:34	07:31	06:22	06:08	19:26 (18)	05:16	20:19 (17)	05:05
	17:08	18:11	19:05	21:03	11 19:37 (18)	21:55	11 20:30 (17)	22:16
29	08:32		07:20	06:06		05:15	20:21 (17)	05:06
	17:10		20:07	21:05		21:56	7 20:28 (17)	22:15
30	08:30		07:17	06:04		05:14		05:07
	17:12		20:08	21:07		21:57		22:15
31	08:29		07:15			05:12		
	17:14		20:10			21:59		
Potential sun hours	248	272	367	421		496		513
Total, worst case				429		524		
Sun reduction				0.34		0.36		
Oper. time red.				1.00		1.00		
Wind dir. red.				0.59		0.62		
Total reduction				0.20		0.22		
Total, real				87		117		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CO - H94

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07		05:48		20:22 (17)	06:44	19:25 (18)	07:38	07:37	08:33
	22:15		21:39	25	20:47 (17)	20:31	19:42 (18)	19:16	17:04	16:19
2	05:08		05:50		20:22 (17)	06:45	19:27 (18)	07:40	07:39	08:35
	22:14		21:37	25	20:47 (17)	20:28	19:40 (18)	19:13	17:02	16:18
3	05:09		05:52		20:22 (17)	06:47		07:42	07:41	08:36
	22:14		21:35	23	20:45 (17)	20:26		19:11	17:00	16:17
4	05:10		05:53		20:23 (17)	06:49		07:43	07:43	08:38
	22:13		21:33	22	20:45 (17)	20:23		19:09	16:58	16:17
5	05:11		05:55		20:23 (17)	06:51		07:45	07:45	08:39
	22:13		21:31	21	20:44 (17)	20:21		19:06	16:56	16:16
6	05:12		05:57		20:24 (17)	06:53		07:47	07:47	08:41
	22:12		21:29	19	20:43 (17)	20:19		19:04	16:54	16:16
7	05:12		05:59		20:26 (17)	06:54		07:49	07:49	08:42
	22:12		21:27	16	20:42 (17)	20:16		19:01	16:53	16:15
8	05:14		06:00		20:26 (17)	06:56		07:51	07:51	08:43
	22:11		21:25	14	20:40 (17)	20:14		18:59	16:51	16:15
9	05:15		06:02		20:29 (17)	06:58		07:53	07:53	08:45
	22:10		21:23	9	20:38 (17)	20:11		18:56	16:49	16:14
10	05:16		06:04			07:00		07:55	07:55	08:46
	22:09		21:21			20:09		18:54	16:47	16:14
11	05:17		06:06			07:02		07:57	07:57	08:47
	22:08		21:19			20:06		18:51	16:45	16:14
12	05:18		06:07			07:03		07:58	07:59	08:48
	22:07		21:17			20:04		18:49	16:44	16:14
13	05:19		06:09			07:05		08:00	08:01	08:49
	22:06		21:15			20:01		18:47	16:42	16:13
14	05:21		20:32 (17)	06:11		19:36 (18)	07:07	08:02	08:03	08:50
	22:05	4	20:36 (17)	21:12	5	19:41 (18)	19:59	18:44	16:40	16:13
15	05:22		20:30 (17)	06:13		19:33 (18)	07:09	08:04	08:05	08:51
	22:04	8	20:38 (17)	21:10	12	19:45 (18)	19:56	18:42	16:39	16:13
16	05:23		20:28 (17)	06:15		19:31 (18)	07:11	08:06	08:07	08:52
	22:03	12	20:40 (17)	21:08	16	19:47 (18)	19:54	18:40	16:37	16:13
17	05:25		20:27 (17)	06:16		19:29 (18)	07:12	08:08	08:09	08:53
	22:02	14	20:41 (17)	21:06	20	19:49 (18)	19:51	18:37	16:36	16:14
18	05:26		20:26 (17)	06:18		19:27 (18)	07:14	08:10	08:11	08:54
	22:01	16	20:42 (17)	21:04	22	19:49 (18)	19:49	18:35	16:34	16:14
19	05:27		20:25 (17)	06:20		19:26 (18)	07:16	08:12	08:12	08:55
	21:59	18	20:43 (17)	21:01	24	19:50 (18)	19:46	18:33	16:33	16:14
20	05:29		20:24 (17)	06:22		19:25 (18)	07:18	08:14	08:14	08:55
	21:58	19	20:43 (17)	20:59	26	19:51 (18)	19:44	18:30	16:31	16:14
21	05:30		20:24 (17)	06:24		19:24 (18)	07:20	08:16	08:16	08:56
	21:56	21	20:45 (17)	20:57	26	19:50 (18)	19:41	18:28	16:30	16:15
22	05:32		20:23 (17)	06:25		19:23 (18)	07:21	08:18	08:18	08:56
	21:55	22	20:45 (17)	20:55	28	19:51 (18)	19:38	18:26	16:29	16:15
23	05:33		20:22 (17)	06:27		19:23 (18)	07:23	08:20	08:20	08:57
	21:54	23	20:45 (17)	20:52	28	19:51 (18)	19:36	18:24	16:27	16:16
24	05:35		20:23 (17)	06:29		19:22 (18)	07:25	08:22	08:22	08:57
	21:52	23	20:46 (17)	20:50	28	19:50 (18)	19:33	18:21	16:26	16:16
25	05:37		20:22 (17)	06:31		19:22 (18)	07:27	07:24	08:23	08:58
	21:50	24	20:46 (17)	20:48	28	19:50 (18)	19:31	17:19	16:25	16:17
26	05:38		20:22 (17)	06:33		19:22 (18)	07:29	07:25	08:25	08:58
	21:49	25	20:47 (17)	20:45	28	19:50 (18)	19:28	17:17	16:24	16:18
27	05:40		20:21 (17)	06:35		19:22 (18)	07:31	07:27	08:27	08:58
	21:47	26	20:47 (17)	20:43	27	19:49 (18)	19:26	17:15	16:23	16:19
28	05:41		20:22 (17)	06:36		19:22 (18)	07:32	07:29	08:28	08:58
	21:46	25	20:47 (17)	20:40	26	19:48 (18)	19:23	17:13	16:22	16:19
29	05:43		20:21 (17)	06:38		19:23 (18)	07:34	07:31	08:30	08:58
	21:44	26	20:47 (17)	20:38	24	19:47 (18)	19:21	17:10	16:21	16:20
30	05:45		20:22 (17)	06:40		19:24 (18)	07:36	07:33	08:32	08:58
	21:42	25	20:47 (17)	20:36	22	19:46 (18)	19:18	17:08	16:20	16:21
31	05:46		20:21 (17)	06:42		19:24 (18)		07:35		08:58
	21:40	25	20:46 (17)	20:33	20	19:44 (18)		17:06		16:22
Potential sun hours	515			461			383	327	257	230
Total, worst case		356			584		30			
Sun reduction		0.27			0.27		0.29			
Oper. time red.		1.00			1.00		1.00			
Wind dir. red.		0.62			0.60		0.59			
Total reduction		0.16			0.16		0.17			
Total, real		58			96		5			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CP - H95

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May		June	July		August		September	October	November	December
1	08:58	08:27	07:29	07:12	06:02		05:12	05:08		05:48		20:38 (1)	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09		22:00	22:15		21:38	28	21:06 (1)	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	20:37 (1)	05:11	05:08		05:50		20:38 (1)	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	3 20:40 (1)	22:01	22:14		21:37	27	21:05 (1)	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:08	05:58	20:34 (1)	05:10	05:09		05:52		20:38 (1)	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	7 20:41 (1)	22:02	22:14		21:35	25	21:03 (1)	20:26	19:11	17:00	16:18
4	08:58	08:22	07:21	07:05	05:56	20:32 (1)	05:09	05:10		05:53		20:39 (1)	06:49	07:44	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	11 20:43 (1)	22:03	22:13		21:33	22	21:01 (1)	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:03	05:54	20:32 (1)	05:08	05:11		05:55		20:40 (1)	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	14 20:46 (1)	22:04	22:13		21:31	20	21:00 (1)	20:21	19:06	16:57	16:16
6	08:57	08:18	07:17	07:00	05:52	20:31 (1)	05:07	05:12		05:57		20:39 (1)	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	16 20:47 (1)	22:05	22:12		21:29	18	20:57 (1)	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	20:30 (1)	05:07	05:13		05:59		20:41 (1)	06:55	07:49	07:49	08:42
	16:31	17:28	18:25	20:24	21:20	19 20:49 (1)	22:06	22:11		21:27	15	20:56 (1)	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	20:29 (1)	05:06	05:14		06:01		20:42 (1)	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:25	21:22	21 20:50 (1)	22:07	22:11		21:25	12	20:54 (1)	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	20:28 (1)	05:06	05:15		06:02		20:42 (1)	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23	24 20:52 (1)	22:08	22:10		21:23	10	20:52 (1)	20:11	18:56	16:49	16:15
10	08:55	08:10	07:07	06:50	05:44	20:28 (1)	05:05	05:16		06:04		20:44 (1)	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	26 20:54 (1)	22:09	22:09		21:21	6	20:50 (1)	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	20:28 (1)	05:05	05:17		06:06		20:47 (1)	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27	27 20:55 (1)	22:10	22:08		21:19	2	20:49 (1)	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:40	20:27 (1)	05:04	05:18	20:49 (1)	06:08			07:04	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29	29 20:56 (1)	22:11	22:07	4 20:53 (1)	21:17			20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	20:28 (1)	05:04	05:20	20:48 (1)	06:09			07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	29 20:57 (1)	22:12	22:06	9 20:57 (1)	21:15			20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	20:27 (1)	05:04	05:21	20:46 (1)	06:11			07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	30 20:57 (1)	22:12	22:05	12 20:58 (1)	21:12			19:59	18:44	16:40	16:14
15	08:50	08:00	06:55	06:38	05:35	20:27 (1)	05:03	05:22	20:45 (1)	06:13			07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	29 20:56 (1)	22:13	22:04	14 20:59 (1)	21:10			19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:33	20:28 (1)	05:03	05:23	20:43 (1)	06:15			07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	29 20:57 (1)	22:13	22:03	17 21:00 (1)	21:08			19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	20:27 (1)	05:03	05:25	20:42 (1)	06:17			07:13	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	29 20:56 (1)	22:14	22:02	19 21:01 (1)	21:06			19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:28 (1)	05:03	05:26	20:42 (1)	06:18			07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	28 20:56 (1)	22:14	22:00	21 21:03 (1)	21:04			19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	20:29 (1)	05:03	05:28	20:41 (1)	06:20			07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	27 20:56 (1)	22:15	21:59	22 21:03 (1)	21:01			19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	20:29 (1)	05:03	05:29	20:40 (1)	06:22			07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	26 20:55 (1)	22:15	21:58	23 21:03 (1)	20:59			19:44	18:30	16:31	16:15
21	08:44	07:47	06:40	06:24	05:26	20:29 (1)	05:03	05:31	20:40 (1)	06:24			07:20	08:16	08:16	08:56
	16:55	17:57	18:51	20:50	21:44	26 20:55 (1)	22:15	21:56	25 21:05 (1)	20:57			19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:30 (1)	05:03	05:32	20:39 (1)	06:26			07:22	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:45	25 20:55 (1)	22:16	21:55	26 21:05 (1)	20:55			19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	20:30 (1)	05:04	05:34	20:40 (1)	06:27			07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	24 20:54 (1)	22:16	21:53	26 21:06 (1)	20:52			19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	20:31 (1)	05:04	05:35	20:39 (1)	06:29			07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	23 20:54 (1)	22:16	21:52	27 21:06 (1)	20:50			19:34	18:21	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	20:32 (1)	05:04	05:37	20:39 (1)	06:31			07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:57	21:50	21 20:53 (1)	22:16	21:50	28 21:07 (1)	20:48			19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	20:33 (1)	05:05	05:38	20:38 (1)	06:33			07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	20 20:53 (1)	22:16	21:49	29 21:07 (1)	20:45			19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:34 (1)	05:05	05:40	20:39 (1)	06:35			07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	18 20:52 (1)	22:16	21:47	28 21:07 (1)	20:43			19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	20:35 (1)	05:06	05:42	20:38 (1)	06:36			07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	16 20:51 (1)	22:15	21:46	29 21:07 (1)	20:40			19:24	17:13	16:22	16:20
29	08:32		07:20	06:06	05:15	20:37 (1)	05:06	05:43	20:38 (1)	06:38			07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	13 20:50 (1)	22:15	21:44	30 21:08 (1)	20:38			19:21	17:11	16:21	16:21
30	08:30		07:17	06:04	05:14	20:38 (1)	05:07	05:45	20:38 (1)	06:40			07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	11 20:49 (1)	22:15	21:42	29 21:07 (1)	20:36			19:19	17:09	16:20	16:21
31	08:29		07:15		05:13	20:40 (1)		05:47	20:38 (1)	06:42				07:35		08:58
	17:14		20:10		21:58	7 20:47 (1)		21:40	29 21:07 (1)	20:33				17:07		16:22
Potential sun hours	248	272	367	421	496		513	515		461			382	328	257	231
Total, worst case						628			447		185					
Sun reduction						0.36			0.27		0.27					
Oper. time red.						1.00			1.00		1.00					
Wind dir. red.						0.62			0.62		0.62					
Total reduction						0.23			0.17		0.17					
Total, real						141			74		32					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CQ - H96

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June	
1	08:58	08:27	07:29		07:12		19:06 (9)	06:02	19:52 (10)	05:12	21:03 (11)
	16:24	17:16	18:13		20:12	25	19:31 (9)	21:09	17 20:09 (10)	22:00	18 21:21 (11)
2	08:58	08:25	07:26		07:10		19:06 (9)	06:00	19:53 (10)	05:11	21:03 (11)
	16:25	17:18	18:15		20:14	25	19:31 (9)	21:11	15 20:08 (10)	22:01	18 21:21 (11)
3	08:58	08:24	07:24		07:07		19:05 (9)	05:58	19:56 (10)	05:10	21:03 (11)
	16:26	17:20	18:17		20:16	24	19:29 (9)	21:12	9 20:05 (10)	22:02	18 21:21 (11)
4	08:58	08:22	07:21		07:05		19:06 (9)	05:56		05:09	21:04 (11)
	16:27	17:22	18:19		20:18	23	19:29 (9)	21:14		22:03	17 21:21 (11)
5	08:57	08:20	07:19		07:03		19:07 (9)	05:54		05:08	21:04 (11)
	16:29	17:24	18:21		20:20	21	19:28 (9)	21:16		22:04	17 21:21 (11)
6	08:57	08:18	07:17		07:00		19:08 (9)	05:52		05:07	21:04 (11)
	16:30	17:26	18:23		20:22	18	19:26 (9)	21:18		22:06	17 21:21 (11)
7	08:56	08:16	07:14		06:58		19:10 (9)	05:50		05:07	21:05 (11)
	16:31	17:28	18:25		20:24	14	19:24 (9)	21:20		22:07	16 21:21 (11)
8	08:56	08:14	07:12		06:55		19:12 (9)	05:48		05:06	21:04 (11)
	16:33	17:30	18:26		20:25	8	19:20 (9)	21:22		22:08	17 21:21 (11)
9	08:55	08:12	07:09		06:53			05:46		05:05	21:05 (11)
	16:34	17:32	18:28		20:27			21:23		22:08	16 21:21 (11)
10	08:55	08:10	07:07		06:50			05:44		05:05	21:05 (11)
	16:36	17:34	18:30		20:29			21:25		22:09	16 21:21 (11)
11	08:54	08:08	07:05		06:48			05:42		05:04	21:06 (11)
	16:37	17:36	18:32		20:31			21:27		22:10	15 21:21 (11)
12	08:53	08:06	07:02		06:45			05:40		05:04	21:06 (11)
	16:39	17:38	18:34		20:33			21:29		22:11	15 21:21 (11)
13	08:52	08:04	07:00		06:43			05:39		05:04	21:07 (11)
	16:40	17:40	18:36		20:35			21:31		22:12	15 21:22 (11)
14	08:51	08:02	06:57		06:41			05:37		05:03	21:07 (11)
	16:42	17:42	18:38		20:37			21:32		22:12	14 21:21 (11)
15	08:50	08:00	06:55		06:38		20:01 (10)	05:35		05:03	21:07 (11)
	16:44	17:45	18:40		20:39	7	20:08 (10)	21:34		22:13	14 21:21 (11)
16	08:49	07:58	06:52		06:36		19:57 (10)	05:33		05:03	21:07 (11)
	16:46	17:47	18:42		20:41	13	20:10 (10)	21:36		22:13	14 21:21 (11)
17	08:48	07:56	06:50		06:34		19:55 (10)	05:32		05:03	21:08 (11)
	16:47	17:49	18:44		20:42	17	20:12 (10)	21:37		22:14	13 21:21 (11)
18	08:47	07:54	06:47		06:31		19:53 (10)	05:30		05:03	21:08 (11)
	16:49	17:51	18:46		20:44	20	20:13 (10)	21:39		22:14	14 21:22 (11)
19	08:46	07:51	06:45		06:29		19:52 (10)	05:28		05:03	21:08 (11)
	16:51	17:53	18:48		20:46	22	20:14 (10)	21:41		22:15	14 21:22 (11)
20	08:45	07:49	06:42		06:27		19:51 (10)	05:27		05:03	21:08 (11)
	16:53	17:55	18:50		20:48	23	20:14 (10)	21:42		22:15	14 21:22 (11)
21	08:44	07:47	06:40		06:24		19:50 (10)	05:25	21:08 (11)	05:03	21:10 (11)
	16:55	17:57	18:51		20:50	25	20:15 (10)	21:44	3 21:11 (11)	22:15	13 21:23 (11)
22	08:42	07:45	06:37		06:22		19:50 (10)	05:24	21:05 (11)	05:03	21:09 (11)
	16:56	17:59	18:53		20:52	25	20:15 (10)	21:46	7 21:12 (11)	22:16	14 21:23 (11)
23	08:41	07:42	06:35		06:20		19:50 (10)	05:22	21:05 (11)	05:03	21:09 (11)
	16:58	18:01	18:55		20:54	25	20:15 (10)	21:47	8 21:13 (11)	22:16	14 21:23 (11)
24	08:40	07:40	06:32	18:15 (9)	06:17		19:49 (10)	05:21	21:04 (11)	05:04	21:09 (11)
	17:00	18:03	18:57	11 18:26 (9)	20:56	26	20:15 (10)	21:49	11 21:15 (11)	22:16	14 21:23 (11)
25	08:38	07:38	06:30	18:13 (9)	06:15		19:49 (10)	05:20	21:04 (11)	05:04	21:10 (11)
	17:02	18:05	18:59	16 18:29 (9)	20:58	26	20:15 (10)	21:50	12 21:16 (11)	22:16	14 21:24 (11)
26	08:37	07:36	06:27	18:11 (9)	06:13		19:49 (10)	05:18	21:04 (11)	05:05	21:10 (11)
	17:04	18:07	19:01	18 18:29 (9)	20:59	25	20:14 (10)	21:52	14 21:18 (11)	22:16	13 21:23 (11)
27	08:35	07:33	06:25	18:10 (9)	06:11		19:49 (10)	05:17	21:03 (11)	05:05	21:10 (11)
	17:06	18:09	19:03	21 18:31 (9)	21:01	24	20:13 (10)	21:53	16 21:19 (11)	22:16	14 21:24 (11)
28	08:34	07:31	06:22	18:08 (9)	06:09		19:49 (10)	05:16	21:03 (11)	05:06	21:10 (11)
	17:08	18:11	19:05	23 18:31 (9)	21:03	24	20:13 (10)	21:54	17 21:20 (11)	22:16	14 21:24 (11)
29	08:32		07:20	19:08 (9)	06:06		19:50 (10)	05:15	21:03 (11)	05:06	21:10 (11)
	17:10		20:07	24 19:32 (9)	21:05	22	20:12 (10)	21:56	17 21:20 (11)	22:15	15 21:25 (11)
30	08:30		07:17	19:06 (9)	06:04		19:51 (10)	05:14	21:03 (11)	05:07	21:10 (11)
	17:12		20:09	25 19:31 (9)	21:07	20	20:11 (10)	21:57	18 21:21 (11)	22:15	15 21:25 (11)
31	08:29		07:15	19:06 (9)				05:13	21:03 (11)		
	17:14		20:10	25 19:31 (9)				21:59	18 21:21 (11)		
Potential sun hours	248	272	367		421			496		513	
Total, worst case				163		502			182		452
Sun reduction				0.22		0.34			0.36		0.26
Oper. time red.				1.00		1.00			1.00		1.00
Wind dir. red.				0.59		0.59			0.62		0.63
Total reduction				0.13		0.20			0.22		0.16
Total, real				21		102			41		73

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CQ - H96

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07		21:10 (11)	05:48		06:44		07:38	07:37	08:33
	22:15	15	21:25 (11)	21:39		20:31		19:16	17:04	16:19
2	05:08		21:10 (11)	05:50		06:45		07:40	07:39	08:35
	22:14	16	21:26 (11)	21:37		20:28		19:14	17:02	16:18
3	05:09		21:11 (11)	05:52		06:47		07:42	07:41	08:36
	22:14	16	21:27 (11)	21:35		20:26		19:11	17:00	16:18
4	05:10		21:10 (11)	05:53		06:49	19:09 (9)	07:44	07:43	08:38
	22:13	16	21:26 (11)	21:33		20:23	8	19:17 (9)	19:09	16:58	16:17
5	05:11		21:10 (11)	05:55		06:51	19:06 (9)	07:45	07:45	08:39
	22:13	17	21:27 (11)	21:31		20:21	14	19:20 (9)	19:06	16:56	16:16
6	05:12		21:10 (11)	05:57		06:53	19:04 (9)	07:47	07:47	08:41
	22:12	17	21:27 (11)	21:29		20:19	18	19:22 (9)	19:04	16:55	16:16
7	05:13		21:10 (11)	05:59		06:54	19:03 (9)	07:49	07:49	08:42
	22:12	17	21:27 (11)	21:27		20:16	20	19:23 (9)	19:01	16:53	16:15
8	05:14		21:10 (11)	06:00		06:56	19:01 (9)	07:51	07:51	08:43
	22:11	18	21:28 (11)	21:25		20:14	22	19:23 (9)	18:59	16:51	16:15
9	05:15		21:10 (11)	06:02	20:08 (10)	06:58	19:00 (9)	07:53	07:53	08:45
	22:10	18	21:28 (11)	21:23	4	20:12 (10)	20:11	23	19:23 (9)	18:56	16:49	16:14
10	05:16		21:10 (11)	06:04	20:04 (10)	07:00	18:59 (9)	07:55	07:55	08:46
	22:09	18	21:28 (11)	21:21	12	20:16 (10)	20:09	25	19:24 (9)	18:54	16:47	16:14
11	05:17		21:11 (11)	06:06	20:01 (10)	07:02	18:59 (9)	07:57	07:57	08:47
	22:08	17	21:28 (11)	21:19	16	20:17 (10)	20:06	25	19:24 (9)	18:52	16:45	16:14
12	05:18		21:11 (11)	06:08	20:00 (10)	07:03	18:58 (9)	07:58	07:59	08:48
	22:07	17	21:28 (11)	21:17	18	20:18 (10)	20:04	25	19:23 (9)	18:49	16:44	16:14
13	05:19		21:11 (11)	06:09	19:59 (10)	07:05	18:58 (9)	08:00	08:01	08:49
	22:06	17	21:28 (11)	21:15	21	20:20 (10)	20:01	25	19:23 (9)	18:47	16:42	16:14
14	05:21		21:12 (11)	06:11	19:58 (10)	07:07	18:58 (9)	08:02	08:03	08:50
	22:05	17	21:29 (11)	21:12	23	20:21 (10)	19:59	24	19:22 (9)	18:44	16:40	16:13
15	05:22		21:12 (11)	06:13	19:57 (10)	07:09	18:58 (9)	08:04	08:05	08:51
	22:04	17	21:29 (11)	21:10	23	20:20 (10)	19:56	23	19:21 (9)	18:42	16:39	16:14
16	05:23		21:12 (11)	06:15	19:56 (10)	07:11	18:58 (9)	08:06	08:07	08:52
	22:03	16	21:28 (11)	21:08	25	20:21 (10)	19:54	21	19:19 (9)	18:40	16:37	16:14
17	05:25		21:12 (11)	06:17	19:56 (10)	07:12	18:59 (9)	08:08	08:09	08:53
	22:02	15	21:27 (11)	21:06	25	20:21 (10)	19:51	19	19:18 (9)	18:37	16:36	16:14
18	05:26		21:13 (11)	06:18	19:55 (10)	07:14	19:00 (9)	08:10	08:11	08:54
	22:00	14	21:27 (11)	21:04	26	20:21 (10)	19:49	16	19:16 (9)	18:35	16:34	16:14
19	05:28		21:14 (11)	06:20	19:55 (10)	07:16	19:02 (9)	08:12	08:12	08:54
	21:59	11	21:25 (11)	21:01	26	20:21 (10)	19:46	12	19:14 (9)	18:33	16:33	16:14
20	05:29		21:14 (11)	06:22	19:55 (10)	07:18		08:14	08:14	08:55
	21:58	10	21:24 (11)	20:59	26	20:21 (10)	19:44			18:30	16:31	16:15
21	05:30		21:16 (11)	06:24	19:54 (10)	07:20		08:16	08:16	08:56
	21:56	7	21:23 (11)	20:57	26	20:20 (10)	19:41			18:28	16:30	16:15
22	05:32		21:16 (11)	06:26	19:55 (10)	07:22		08:18	08:18	08:56
	21:55	5	21:21 (11)	20:55	24	20:19 (10)	19:39			18:26	16:29	16:15
23	05:34		21:19 (11)	06:27	19:55 (10)	07:23		08:20	08:20	08:57
	21:54	2	21:21 (11)	20:52	24	20:19 (10)	19:36			18:24	16:27	16:16
24	05:35			06:29	19:56 (10)	07:25		08:22	08:22	08:57
	21:52			20:50	22	20:18 (10)	19:34			18:21	16:26	16:17
25	05:37			06:31	19:56 (10)	07:27		07:24	08:23	08:58
	21:50			20:48	20	20:16 (10)	19:31			17:19	16:25	16:17
26	05:38			06:33	19:58 (10)	07:29		07:25	08:25	08:58
	21:49			20:45	17	20:15 (10)	19:29			17:17	16:24	16:18
27	05:40			06:35	20:00 (10)	07:31		07:27	08:27	08:58
	21:47			20:43	13	20:13 (10)	19:26			17:15	16:23	16:19
28	05:42			06:36	20:02 (10)	07:32		07:29	08:28	08:58
	21:46			20:40	6	20:08 (10)	19:24			17:13	16:22	16:20
29	05:43			06:38		07:34		07:31	08:30	08:58
	21:44			20:38		19:21		17:11	16:21	16:20
30	05:45			06:40		07:36		07:33	08:32	08:58
	21:42			20:36		19:19		17:09	16:20	16:21
31	05:47			06:42				07:35		08:58
	21:40			20:33				17:06		16:22
Potential sun hours	515			461		382		328	257	231
Total, worst case		333			397		320				
Sun reduction		0.27			0.27		0.29				
Oper. time red.		1.00			1.00		1.00				
Wind dir. red.		0.63			0.59		0.59				
Total reduction		0.17			0.16		0.17				
Total, real		56			65		55				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CR - H97

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June
1	08:59	15:29 (14)	08:27		07:29	07:12	06:02	05:12
	16:24	16 15:45 (14)	17:16		18:13	20:12	21:09	22:00
2	08:58	15:29 (14)	08:26		07:26	07:10	06:00	05:11
	16:25	17 15:46 (14)	17:18		18:15	20:14	21:11	22:01
3	08:58	15:30 (14)	08:24	08:52 (17)	07:24	07:07	05:58	05:10
	16:26	18 15:48 (14)	17:20	1 08:53 (17)	18:17	20:16	21:13	22:02
4	08:58	15:29 (14)	08:22	08:50 (17)	07:22	07:05	05:56	05:09
	16:27	20 15:49 (14)	17:22	4 08:54 (17)	18:19	20:18	21:14	22:04
5	08:57	15:30 (14)	08:20	08:48 (17)	07:19	07:03	05:54	05:08
	16:29	21 15:51 (14)	17:24	7 08:55 (17)	18:21	20:20	21:16	22:05
6	08:57	15:30 (14)	08:18	08:46 (17)	07:17	07:00	05:52	05:07
	16:30	22 15:52 (14)	17:26	10 08:56 (17)	18:23	20:22	21:18	22:06
7	08:57	15:30 (14)	08:16	08:44 (17)	07:14	06:58	05:50	05:07
	16:31	23 15:53 (14)	17:28	12 08:56 (17)	18:25	20:24	21:20	22:07
8	08:56	15:31 (14)	08:14	08:42 (17)	07:12	06:55	05:48	05:06
	16:33	24 15:55 (14)	17:30	15 08:57 (17)	18:27	20:26	21:22	22:08
9	08:55	15:30 (14)	08:12	08:40 (17)	07:10	06:53	05:46	05:05
	16:34	26 15:56 (14)	17:32	17 08:57 (17)	18:28	20:27	21:24	22:09
10	08:55	15:31 (14)	08:10	08:37 (17)	07:07	06:50	05:44	05:05
	16:36	25 15:56 (14)	17:34	19 08:56 (17)	18:30	20:29	21:25	22:10
11	08:54	15:31 (14)	08:08	08:35 (17)	07:05	06:48	05:42	05:04
	16:37	26 15:57 (14)	17:36	21 08:56 (17)	18:32	20:31	21:27	22:10
12	08:53	15:31 (14)	08:06	08:33 (17)	07:02	06:45	05:40	05:04
	16:39	26 15:57 (14)	17:38	23 08:56 (17)	18:34	20:33	21:29	22:11
13	08:52	15:31 (14)	08:04	08:32 (17)	07:00	06:43	05:39	05:04
	16:40	27 15:58 (14)	17:40	23 08:55 (17)	18:36	20:35	21:31	22:12
14	08:52	15:32 (14)	08:02	08:33 (17)	06:57	06:41	05:37	05:03
	16:42	27 15:59 (14)	17:42	22 08:55 (17)	18:38	20:37	21:32	22:13
15	08:51	15:32 (14)	08:00	08:34 (17)	06:55	06:38	05:35	05:03
	16:44	27 15:59 (14)	17:45	19 08:53 (17)	18:40	20:39	21:34	22:13
16	08:50	15:32 (14)	07:58	08:35 (17)	06:52	06:36	05:33	05:03
	16:45	27 15:59 (14)	17:47	17 08:52 (17)	18:42	20:41	21:36	22:14
17	08:49	09:20 (18)	07:56	08:37 (17)	06:50	06:34	05:32	05:03
	16:47	30 15:59 (14)	17:49	13 08:50 (17)	18:44	20:43	21:38	22:14
18	08:47	09:19 (18)	07:54	08:42 (17)	06:47	06:31	05:30	05:03
	16:49	32 16:00 (14)	17:51	4 08:46 (17)	18:46	20:44	21:39	22:15
19	08:46	09:17 (18)	07:52		06:45	06:29	05:28	05:03
	16:51	32 15:59 (14)	17:53		18:48	20:46	21:41	22:15
20	08:45	09:16 (18)	07:49		06:42	06:27	05:27	05:03
	16:53	34 16:00 (14)	17:55		18:50	20:48	21:43	22:15
21	08:44	09:14 (18)	07:47		06:40	06:24	05:25	05:03
	16:54	35 15:59 (14)	17:57		18:52	20:50	21:44	22:16
22	08:43	09:13 (18)	07:45		06:37	06:22	05:24	05:03
	16:56	37 16:00 (14)	17:59		18:53	20:52	21:46	22:16
23	08:41	09:11 (18)	07:43		06:35	06:20	05:22	05:03
	16:58	38 15:59 (14)	18:01		18:55	20:54	21:47	22:16
24	08:40	09:10 (18)	07:40		06:32	06:17	05:21	05:04
	17:00	39 16:00 (14)	18:03		18:57	20:56	21:49	22:16
25	08:38	09:08 (18)	07:38		06:30	06:15	05:20	05:04
	17:02	39 15:59 (14)	18:05		18:59	20:58	21:50	22:16
26	08:37	09:07 (18)	07:36		06:27	06:13	05:18	05:04
	17:04	39 15:59 (14)	18:07		19:01	21:00	21:52	22:16
27	08:35	09:06 (18)	07:33		06:25	06:11	05:17	05:05
	17:06	37 15:58 (14)	18:09		19:03	21:01	21:53	22:16
28	08:34	09:07 (18)	07:31		06:22	06:09	05:16	05:05
	17:08	31 15:56 (14)	18:11		19:05	21:03	21:55	22:16
29	08:32	09:08 (18)			07:20	06:06	05:15	05:06
	17:10	24 15:54 (14)			20:07	21:05	21:56	22:16
30	08:31	09:09 (18)			07:17	06:04	05:14	05:07
	17:12	13 09:22 (18)			20:09	21:07	21:57	22:15
31	08:29	09:12 (18)			07:15		05:13	
	17:14	9 09:21 (18)			20:10		21:59	
Potential sun hours	248		272		367	421	496	513
Total, worst case		841		227				
Sun reduction		0.17		0.22				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.63		0.63				
Total reduction		0.11		0.14				
Total, real		90		32				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CR - H97

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October			November			December		
1	05:07		05:48		06:44		07:38			07:37		08:07 (17)	08:34		15:13 (14)
	22:15		21:39		20:31		19:16			17:04	19	08:26 (17)	16:19	26	15:39 (14)
2	05:08		05:50		06:45		07:40			07:39		08:09 (17)	08:35		15:14 (14)
	22:15		21:37		20:29		19:14			17:02	16	08:25 (17)	16:18	25	15:39 (14)
3	05:09		05:52		06:47		07:42			07:41		08:12 (17)	08:37		15:14 (14)
	22:14		21:35		20:26		19:11			17:00	14	08:26 (17)	16:18	25	15:39 (14)
4	05:10		05:53		06:49		07:44			07:43		08:14 (17)	08:38		15:15 (14)
	22:14		21:33		20:24		19:09			16:58	12	08:26 (17)	16:17	24	15:39 (14)
5	05:11		05:55		06:51		07:45			07:45		08:16 (17)	08:40		15:15 (14)
	22:13		21:31		20:21		19:06			16:56	9	08:25 (17)	16:16	23	15:38 (14)
6	05:12		05:57		06:53		07:47			07:47		08:18 (17)	08:41		15:16 (14)
	22:12		21:29		20:19		19:04			16:55	7	08:25 (17)	16:16	22	15:38 (14)
7	05:13		05:59		06:55		07:49			07:49		08:20 (17)	08:42		15:16 (14)
	22:12		21:27		20:16		19:01			16:53	4	08:24 (17)	16:15	21	15:37 (14)
8	05:14		06:00		06:56		07:51			07:51		08:22 (17)	08:44		15:17 (14)
	22:11		21:25		20:14		18:59			16:51	1	08:23 (17)	16:15	20	15:37 (14)
9	05:15		06:02		06:58		07:53			07:53			08:45		15:18 (14)
	22:10		21:23		20:11		18:56			16:49			16:14	18	15:36 (14)
10	05:16		06:04		07:00		07:55			07:55			08:46		15:18 (14)
	22:09		21:21		20:09		18:54			16:47			16:14	17	15:35 (14)
11	05:17		06:06		07:02		07:57			07:57		08:43 (18)	08:47		15:20 (14)
	22:08		21:19		20:06		18:52			16:45	9	08:52 (18)	16:14	16	15:36 (14)
12	05:18		06:08		07:04		07:59			07:59		08:41 (18)	08:48		15:20 (14)
	22:08		21:17		20:04		18:49			16:44	13	08:54 (18)	16:14	15	15:35 (14)
13	05:19		06:09		07:05		08:00			08:01		08:40 (18)	08:49		15:21 (14)
	22:06		21:15		20:01		18:47			16:42	25	15:26 (14)	16:13	14	15:35 (14)
14	05:21		06:11		07:07		08:02			08:03		08:39 (18)	08:50		15:22 (14)
	22:05		21:13		19:59		18:44			16:40	31	15:28 (14)	16:13	13	15:35 (14)
15	05:22		06:13		07:09		08:04			08:05		08:38 (18)	08:51		15:22 (14)
	22:04		21:10		19:56		18:42			16:39	37	15:30 (14)	16:13	13	15:35 (14)
16	05:23		06:15		07:11		08:06			08:07		08:40 (18)	08:52		15:23 (14)
	22:03		21:08		19:54		18:40			16:37	39	15:32 (14)	16:13	12	15:35 (14)
17	05:25		06:16		07:13		08:08			08:09		08:42 (18)	08:53		15:24 (14)
	22:02		21:06		19:51		18:37			16:36	39	15:33 (14)	16:14	11	15:35 (14)
18	05:26		06:18		07:14		08:10			08:11		08:44 (18)	08:54		15:24 (14)
	22:01		21:04		19:49		18:35			16:34	38	15:33 (14)	16:14	11	15:35 (14)
19	05:27		06:20		07:16		08:12			08:13		08:46 (18)	08:55		15:25 (14)
	21:59		21:02		19:46		18:33			16:33	38	15:34 (14)	16:14	10	15:35 (14)
20	05:29		06:22		07:18		08:14			08:14		08:48 (18)	08:55		15:26 (14)
	21:58		20:59		19:44		18:30			16:31	37	15:35 (14)	16:14	10	15:36 (14)
21	05:30		06:24		07:20		08:16			08:16		08:50 (18)	08:56		15:26 (14)
	21:57		20:57		19:41		18:28			16:30	35	15:35 (14)	16:15	10	15:36 (14)
22	05:32		06:26		07:22		08:18			08:18		08:52 (18)	08:57		15:27 (14)
	21:55		20:55		19:39		18:26			16:29	34	15:36 (14)	16:15	10	15:37 (14)
23	05:33		06:27		07:23		08:20			08:20		08:54 (18)	08:57		15:27 (14)
	21:54		20:52		19:36		18:24			16:27	33	15:36 (14)	16:16	10	15:37 (14)
24	05:35		06:29		07:25		08:22		09:09 (17)	08:22		08:56 (18)	08:57		15:28 (14)
	21:52		20:50		19:34		18:21	8	09:17 (17)	16:26	32	15:37 (14)	16:16	10	15:38 (14)
25	05:37		06:31		07:27		07:24		08:06 (17)	08:24		08:58 (18)	08:58		15:28 (14)
	21:51		20:48		19:31		17:19	14	08:20 (17)	16:25	30	15:37 (14)	16:17	10	15:38 (14)
26	05:38		06:33		07:29		07:26		08:04 (17)	08:25		09:00 (18)	08:58		15:28 (14)
	21:49		20:45		19:29		17:17	18	08:22 (17)	16:24	28	15:38 (14)	16:18	11	15:39 (14)
27	05:40		06:35		07:31		07:28		08:04 (17)	08:27		15:11 (14)	08:58		15:28 (14)
	21:47		20:43		19:26		17:15	20	08:24 (17)	16:23	27	15:38 (14)	16:19	12	15:40 (14)
28	05:41		06:36		07:33		07:30		08:03 (17)	08:29		15:12 (14)	08:58		15:28 (14)
	21:46		20:41		19:24		17:13	21	08:24 (17)	16:22	27	15:39 (14)	16:19	12	15:40 (14)
29	05:43		06:38		07:34		07:32		08:02 (17)	08:30		15:11 (14)	08:59		15:28 (14)
	21:44		20:38		19:21		17:11	23	08:25 (17)	16:21	27	15:38 (14)	16:20	13	15:41 (14)
30	05:45		06:40		07:36		07:34		08:03 (17)	08:32		15:12 (14)	08:59		15:29 (14)
	21:42		20:36		19:19		17:08	22	08:25 (17)	16:20	26	15:38 (14)	16:21	14	15:43 (14)
31	05:46		06:42				07:36		08:05 (17)				08:59		15:29 (14)
	21:41		20:33				17:06	21	08:26 (17)				16:22	15	15:44 (14)
Potential sun hours	515		461		383		327			257			230		
Total, worst case								147			687			473	
Sun reduction								0.23			0.20			0.12	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.63			0.63			0.62	
Total reduction								0.15			0.13			0.07	
Total, real								22			87			35	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CS - H98

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June
1	08:59		08:27		08:29	07:12	06:02	05:12
	16:24	1	15:44 (14)		08:56 (17)	18:13	20:12	21:09	22:00
			17:16	8	09:04 (17)			
2	08:58		08:26		08:54 (17)	07:26	07:10	06:00	05:11
	16:25	3	15:43 (14)		09:04 (17)	18:15	20:14	21:11	22:01
			17:18	10				
3	08:58		08:24		08:52 (17)	07:24	07:07	05:58	05:10
	16:26	4	15:44 (14)		09:05 (17)	18:17	20:16	21:13	22:02
			17:20	13				
4	08:58		08:22		08:50 (17)	07:22	07:05	05:56	05:09
	16:27	6	15:43 (14)		09:05 (17)	18:19	20:18	21:14	22:04
			17:22	15				
5	08:57		08:20		08:48 (17)	07:19	07:03	05:54	05:08
	16:29	8	15:43 (14)		09:05 (17)	18:21	20:20	21:16	22:05
			17:24	17				
6	08:57		08:18		08:46 (17)	07:17	07:00	05:52	05:07
	16:30	9	15:52 (14)		09:05 (17)	18:23	20:22	21:18	22:06
			17:26	19				
7	08:57		08:16		08:44 (17)	07:14	06:58	05:50	05:07
	16:31	11	15:42 (14)		09:06 (17)	18:25	20:24	21:20	22:07
			17:28	22				
8	08:56		08:14		08:42 (17)	07:12	06:55	05:48	05:06
	16:33	13	15:43 (14)		09:05 (17)	18:27	20:26	21:22	22:08
			17:30	23				
9	08:55		08:12		08:40 (17)	07:09	06:53	05:46	05:05
	16:34	14	15:56 (14)		09:05 (17)	18:28	20:27	21:24	22:09
			17:32	25				
10	08:55		08:10		08:40 (17)	07:07	06:50	05:44	05:05
	16:36	18	09:28 (18)		09:04 (17)	18:30	20:29	21:25	22:10
			15:59 (14)					
			17:34	24				
11	08:54		08:08		08:41 (17)	07:05	06:48	05:42	05:04
	16:37	20	09:27 (18)		09:03 (17)	18:32	20:31	21:27	22:10
			16:00 (14)					
			17:36	22				
12	08:53		08:06		08:42 (17)	07:02	06:45	05:40	05:04
	16:39	24	09:26 (18)		09:02 (17)	18:34	20:33	21:29	22:11
			16:02 (14)					
			17:38	20				
13	08:52		08:04		08:43 (17)	07:00	06:43	05:39	05:04
	16:40	28	09:25 (18)		09:01 (17)	18:36	20:35	21:31	22:12
			16:04 (14)					
			17:40	18				
14	08:52		08:02		08:45 (17)	06:57	06:41	05:37	05:03
	16:42	31	09:24 (18)		08:59 (17)	18:38	20:37	21:32	22:13
			16:06 (14)					
			17:42	14				
15	08:51		08:00		08:48 (17)	06:55	06:38	05:35	05:03
	16:44	33	09:23 (18)		08:56 (17)	18:40	20:39	21:34	22:13
			16:07 (14)					
			17:45	8				
16	08:50		09:21 (18)			06:52	06:36	05:33	05:03
	16:45	36	07:58			18:42	20:41	21:36	22:14
			16:07 (14)					
			17:47					
17	08:49		09:20 (18)			06:50	06:34	05:32	05:03
	16:47	38	07:56			18:44	20:43	21:38	22:14
			16:08 (14)					
			17:49					
18	08:47		09:19 (18)			06:47	06:31	05:30	05:03
	16:49	40	07:54			18:46	20:44	21:39	22:15
			16:09 (14)					
			17:51					
19	08:46		09:17 (18)			06:45	06:29	05:28	05:03
	16:51	42	07:52			18:48	20:46	21:41	22:15
			16:09 (14)					
			17:53					
20	08:45		09:16 (18)			06:42	06:27	05:27	05:03
	16:53	42	07:49			18:50	20:48	21:43	22:15
			16:09 (14)					
			17:55					
21	08:44		09:14 (18)			06:40	06:24	05:25	05:03
	16:54	45	07:47			18:52	20:50	21:44	22:16
			16:09 (14)					
			17:57					
22	08:43		09:13 (18)			06:37	06:22	05:24	05:03
	16:56	46	07:45			18:53	20:52	21:46	22:16
			16:10 (14)					
			17:59					
23	08:41		09:13 (18)			06:35	06:20	05:22	05:03
	16:58	45	07:43			18:55	20:54	21:47	22:16
			16:09 (14)					
			18:01					
24	08:40		09:14 (18)			06:32	06:17	05:21	05:04
	17:00	43	07:40			18:57	20:56	21:49	22:16
			16:10 (14)					
			18:03					
25	08:38		09:15 (18)			06:30	06:15	05:20	05:04
	17:02	40	07:38			18:59	20:58	21:50	22:16
			16:09 (14)					
			18:05					
26	08:37		09:17 (18)			06:27	06:13	05:18	05:04
	17:04	38	07:36			19:01	21:00	21:52	22:16
			16:10 (14)					
			18:07					
27	08:35		09:19 (18)			06:25	06:11	05:17	05:05
	17:06	32	07:33			19:03	21:01	21:53	22:16
			16:09 (14)					
			18:09					
28	08:34		09:21 (18)			06:22	06:09	05:16	05:05
	17:08	26	07:31			19:05	21:03	21:55	22:16
			16:08 (14)					
			18:11					
29	08:32		15:50 (14)			07:20	06:06	05:15	05:06
	17:10	17	16:07 (14)			20:07	21:05	21:56	22:16
30	08:31		08:59 (17)			07:17	06:04	05:14	05:07
	17:12	15	16:05 (14)			20:09	21:07	21:57	22:15
31	08:29		08:58 (17)			07:15		05:13	
	17:14	14	16:04 (14)			20:10		21:59	
Potential sun hours	248		272		367	421	496	513
Total, worst case		782		258				
Sun reduction		0.17		0.22				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.63		0.63				
Total reduction		0.11		0.14				
Total, real		84		36				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CS - H98

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October			November			December		
1	05:07	05:48	06:44	07:38			07:37		08:09 (17)	08:34		09:09 (18)
	22:15	21:39	20:31	19:16			17:04	24	08:33 (17)	16:19	21	15:42 (14)
2	05:08	05:50	06:45	07:40			07:39		08:09 (17)	08:35		09:11 (18)
	22:15	21:37	20:29	19:14			17:02	25	08:34 (17)	16:18	18	15:42 (14)
3	05:09	05:52	06:47	07:42			07:41		08:12 (17)	08:37		15:26 (14)
	22:14	21:35	20:26	19:11			17:00	23	08:35 (17)	16:17	14	15:40 (14)
4	05:10	05:53	06:49	07:44			07:43		08:14 (17)	08:38		15:27 (14)
	22:14	21:33	20:24	19:09			16:58	21	08:35 (17)	16:17	13	15:40 (14)
5	05:11	05:55	06:51	07:45			07:45		08:16 (17)	08:40		15:27 (14)
	22:13	21:31	20:21	19:06			16:56	19	08:35 (17)	16:16	11	15:38 (14)
6	05:12	05:57	06:53	07:47			07:47		08:18 (17)	08:41		15:29 (14)
	22:12	21:29	20:19	19:04			16:55	17	08:35 (17)	16:16	9	15:38 (14)
7	05:13	05:59	06:55	07:49			07:49		08:20 (17)	08:42		15:29 (14)
	22:12	21:27	20:16	19:01			16:53	15	08:35 (17)	16:15	8	15:37 (14)
8	05:14	06:00	06:56	07:51			07:51		08:22 (17)	08:44		15:31 (14)
	22:11	21:25	20:14	18:59			16:51	12	08:34 (17)	16:15	6	15:37 (14)
9	05:15	06:02	06:58	07:53			07:53		08:25 (17)	08:45		15:32 (14)
	22:10	21:23	20:11	18:56			16:49	10	08:35 (17)	16:14	4	15:36 (14)
10	05:16	06:04	07:00	07:55			07:55		08:27 (17)	08:46		15:33 (14)
	22:09	21:21	20:09	18:54			16:47	7	08:34 (17)	16:14	2	15:35 (14)
11	05:17	06:06	07:02	07:57			07:57		08:29 (17)	08:47		15:34 (14)
	22:08	21:19	20:06	18:52			16:45	14	15:35 (14)	16:14	2	15:36 (14)
12	05:18	06:07	07:04	07:59			07:59		08:31 (17)	08:48		
	22:08	21:17	20:04	18:49			16:44	15	15:37 (14)	16:14		
13	05:19	06:09	07:05	08:00			08:01		15:22 (14)	08:49		
	22:06	21:15	20:01	18:47			16:42	17	15:39 (14)	16:13		
14	05:21	06:11	07:07	08:02			08:03		08:53 (18)	08:50		
	22:05	21:13	19:59	18:44			16:40	26	15:40 (14)	16:13		
15	05:22	06:13	07:09	08:04			08:05		08:50 (18)	08:51		
	22:04	21:10	19:56	18:42			16:39	33	15:41 (14)	16:13		
16	05:23	06:15	07:11	08:06			08:07		08:50 (18)	08:52		
	22:03	21:08	19:54	18:40			16:37	38	15:43 (14)	16:13		
17	05:25	06:16	07:13	08:08			08:09		08:49 (18)	08:53		
	22:02	21:06	19:51	18:37			16:36	40	15:43 (14)	16:14		
18	05:26	06:18	07:14	08:10			08:11		08:48 (18)	08:54		
	22:01	21:04	19:49	18:35			16:34	43	15:44 (14)	16:14		
19	05:27	06:20	07:16	08:12			08:13		08:48 (18)	08:55		
	21:59	21:02	19:46	18:33			16:33	45	15:44 (14)	16:14		
20	05:29	06:22	07:18	08:14			08:14		08:48 (18)	08:55		
	21:58	20:59	19:44	18:30			16:31	46	15:45 (14)	16:14		
21	05:30	06:24	07:20	08:16			08:16		08:50 (18)	08:56		
	21:57	20:57	19:41	18:28			16:30	45	15:45 (14)	16:15		
22	05:32	06:26	07:22	08:18			08:18		08:52 (18)	08:57		
	21:55	20:55	19:39	18:26			16:29	42	15:45 (14)	16:15		
23	05:33	06:27	07:23	08:20			08:20		08:54 (18)	08:57		
	21:54	20:52	19:36	18:24			16:27	42	15:46 (14)	16:16		
24	05:35	06:29	07:25	08:22			08:22		08:56 (18)	08:57		
	21:52	20:50	19:34	18:21			16:26	40	15:46 (14)	16:16		
25	05:37	06:31	07:27	07:24			08:23		08:58 (18)	08:58		
	21:51	20:48	19:31	17:19			16:25	38	15:46 (14)	16:17		
26	05:38	06:33	07:29	07:26			08:25		09:00 (18)	08:58		
	21:49	20:45	19:29	17:17			16:24	36	15:46 (14)	16:18		
27	05:40	06:35	07:31	07:28		08:17 (17)	08:27		09:02 (18)	08:58		
	21:47	20:43	19:26	17:15	10	08:27 (17)	16:23	34	15:47 (14)	16:19		
28	05:41	06:36	07:33	07:30		08:14 (17)	08:29		09:04 (18)	08:58		
	21:46	20:41	19:24	17:13	15	08:29 (17)	16:22	31	15:46 (14)	16:19		
29	05:43	06:38	07:34	07:32		08:13 (17)	08:30		09:05 (18)	08:59		
	21:44	20:38	19:21	17:11	18	08:31 (17)	16:21	27	15:44 (14)	16:20		
30	05:45	06:40	07:36	07:34		08:11 (17)	08:32		09:07 (18)	08:59		
	21:42	20:36	19:19	17:08	21	08:32 (17)	16:20	24	15:43 (14)	16:21		
31	05:46	06:42		07:35		08:10 (17)				08:59		
	21:41	20:33		17:06	23	08:33 (17)				16:22		
Potential sun hours	515	461	383	327			257			230		
Total, worst case					87			849			108	
Sun reduction					0.23			0.20			0.12	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.63			0.63			0.62	
Total reduction					0.15			0.13			0.07	
Total, real					13			107			8	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CT - H99

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April		May	June
1	08:58			08:27		15:56 (18)	07:29		16:53 (17)	07:12		06:02	05:11
	16:24			17:16	23	16:19 (18)	18:13	16	17:09 (17)	20:12		21:09	22:00
2	08:58			08:25		15:56 (18)	07:26		16:55 (17)	07:10		06:00	05:10
	16:25			17:18	23	16:19 (18)	18:15	11	17:06 (17)	20:14		21:11	22:01
3	08:58			08:24		15:57 (18)	07:24			07:07		05:58	05:10
	16:26			17:20	22	16:19 (18)	18:17			20:16		21:13	22:02
4	08:58			08:22		15:58 (18)	07:21			07:05		05:56	05:09
	16:27			17:22	20	16:18 (18)	18:19			20:18		21:14	22:03
5	08:57			08:20		15:59 (18)	07:19			07:02		05:54	05:08
	16:28			17:24	18	16:17 (18)	18:21			20:20		21:16	22:05
6	08:57			08:18		16:01 (18)	07:17			07:00		05:52	05:07
	16:30			17:26	15	16:16 (18)	18:23			20:22		21:18	22:06
7	08:56			08:16		16:03 (18)	07:14			06:58		05:50	05:06
	16:31			17:28	11	16:14 (18)	18:24			20:24		21:20	22:07
8	08:56			08:14			07:12			06:55		05:48	05:06
	16:33			17:30			18:26			20:25		21:22	22:08
9	08:55			08:12			07:09			06:53		05:46	05:05
	16:34			17:32			18:28			20:27		21:23	22:09
10	08:55			08:10			07:07			06:50		05:44	05:05
	16:36			17:34			18:30			20:29		21:25	22:09
11	08:54			08:08			07:05			06:48		05:42	05:04
	16:37			17:36			18:32			20:31		21:27	22:10
12	08:53			08:06			07:02			06:45		05:40	05:04
	16:39			17:38			18:34			20:33		21:29	22:11
13	08:52			08:04		16:57 (17)	07:00			06:43		05:38	05:03
	16:40			17:40	9	17:06 (17)	18:36			20:35		21:31	22:12
14	08:51			08:02		16:55 (17)	06:57			06:41		05:37	05:03
	16:42			17:42	14	17:09 (17)	18:38			20:37		21:32	22:12
15	08:51			08:00		16:52 (17)	06:55			06:38		05:35	05:03
	16:44			17:44	18	17:10 (17)	18:40			20:39		21:34	22:13
16	08:50		16:02 (18)	07:58		16:51 (17)	06:52			06:36		05:33	05:03
	16:45	1	16:03 (18)	17:46	21	17:12 (17)	18:42			20:41		21:36	22:14
17	08:48		15:59 (18)	07:56		16:50 (17)	06:50			06:33		05:32	05:03
	16:47	9	16:08 (18)	17:48	23	17:13 (17)	18:44			20:42		21:37	22:14
18	08:47		15:58 (18)	07:54		16:50 (17)	06:47			06:31		05:30	05:03
	16:49	12	16:10 (18)	17:51	24	17:14 (17)	18:46			20:44		21:39	22:15
19	08:46		15:56 (18)	07:51		16:48 (17)	06:45			06:29		05:28	05:03
	16:51	15	16:11 (18)	17:53	26	17:14 (17)	18:48			20:46		21:41	22:15
20	08:45		15:56 (18)	07:49		16:48 (17)	06:42			06:26		05:27	05:03
	16:52	17	16:13 (18)	17:55	27	17:15 (17)	18:50			20:48		21:42	22:15
21	08:44		15:55 (18)	07:47		16:48 (17)	06:40			06:24		05:25	05:03
	16:54	19	16:14 (18)	17:57	27	17:15 (17)	18:51			20:50		21:44	22:16
22	08:42		15:55 (18)	07:45		16:47 (17)	06:37			06:22		05:24	05:03
	16:56	20	16:15 (18)	17:59	27	17:14 (17)	18:53			20:52		21:46	22:16
23	08:41		15:54 (18)	07:42		16:48 (17)	06:35			06:20		05:22	05:03
	16:58	22	16:16 (18)	18:01	27	17:15 (17)	18:55			20:54		21:47	22:16
24	08:40		15:54 (18)	07:40		16:48 (17)	06:32			06:17		05:21	05:04
	17:00	23	16:17 (18)	18:03	27	17:15 (17)	18:57			20:56		21:49	22:16
25	08:38		15:54 (18)	07:38		16:48 (17)	06:30			06:15		05:20	05:04
	17:02	23	16:17 (18)	18:05	25	17:13 (17)	18:59			20:58		21:50	22:16
26	08:37		15:53 (18)	07:36		16:49 (17)	06:27			06:13		05:18	05:04
	17:04	25	16:18 (18)	18:07	24	17:13 (17)	19:01			20:59		21:52	22:16
27	08:35		15:54 (18)	07:33		16:49 (17)	06:25			06:11		05:17	05:05
	17:06	25	16:19 (18)	18:09	22	17:11 (17)	19:03			21:01		21:53	22:16
28	08:34		15:54 (18)	07:31		16:51 (17)	06:22			06:08		05:16	05:05
	17:08	25	16:19 (18)	18:11	19	17:10 (17)	19:05			21:03		21:55	22:16
29	08:32		15:54 (18)				07:20			06:06		05:15	05:06
	17:10	25	16:19 (18)				20:07			21:05		21:56	22:15
30	08:31		15:54 (18)				07:17			06:04		05:14	05:07
	17:12	25	16:19 (18)				20:08			21:07		21:57	22:15
31	08:29		15:54 (18)				07:15					05:12	
	17:14	25	16:19 (18)				20:10					21:59	
Potential sun hours	248			272			367			421		496	513
Total, worst case		311			492			27					
Sun reduction		0.17			0.22			0.22					
Oper. time red.		1.00			1.00			1.00					
Wind dir. red.		0.61			0.59			0.58					
Total reduction		0.10			0.13			0.13					
Total, real		32			64			4					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CT - H99

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October			November			December
1	05:07		05:48		06:44		07:38			07:37			08:33
	22:15		21:39		20:31		19:16			17:04			16:19
2	05:08		05:50		06:45		07:40			07:39			08:35
	22:14		21:37		20:28		19:14			17:02			16:18
3	05:09		05:52		06:47		07:42			07:41		15:35 (18)	08:36
	22:14		21:35		20:26		19:11			17:00	4	15:39 (18)	16:17
4	05:10		05:53		06:49		07:43			07:43		15:32 (18)	08:38
	22:14		21:33		20:23		19:09			16:58	12	15:44 (18)	16:17
5	05:11		05:55		06:51		07:45			07:45		15:30 (18)	08:39
	22:13		21:31		20:21		19:06			16:56	16	15:46 (18)	16:16
6	05:11		05:57		06:53		07:47			07:47		15:29 (18)	08:41
	22:12		21:29		20:19		19:04			16:54	18	15:47 (18)	16:16
7	05:12		05:58		06:54		07:49			07:49		15:27 (18)	08:42
	22:12		21:27		20:16		19:01			16:53	21	15:48 (18)	16:15
8	05:13		06:00		06:56		07:51			07:51		15:27 (18)	08:43
	22:11		21:25		20:14		18:59			16:51	21	15:48 (18)	16:15
9	05:15		06:02		06:58		07:53			07:53		15:26 (18)	08:45
	22:10		21:23		20:11		18:56			16:49	23	15:49 (18)	16:14
10	05:16		06:04		07:00		07:55			07:55		15:26 (18)	08:46
	22:09		21:21		20:09		18:54			16:47	24	15:50 (18)	16:14
11	05:17		06:06		07:02		07:57		17:31 (17)	07:57		15:26 (18)	08:47
	22:08		21:19		20:06		18:51	7	17:38 (17)	16:45	25	15:51 (18)	16:14
12	05:18		06:07		07:03		07:58		17:27 (17)	07:59		15:26 (18)	08:48
	22:07		21:17		20:04		18:49	14	17:41 (17)	16:44	25	15:51 (18)	16:13
13	05:19		06:09		07:05		08:00		17:25 (17)	08:01		15:26 (18)	08:49
	22:06		21:15		20:01		18:47	18	17:43 (17)	16:42	25	15:51 (18)	16:13
14	05:21		06:11		07:07		08:02		17:23 (17)	08:03		15:26 (18)	08:50
	22:05		21:13		19:59		18:44	21	17:44 (17)	16:40	25	15:51 (18)	16:13
15	05:22		06:13		07:09		08:04		17:22 (17)	08:05		15:26 (18)	08:51
	22:04		21:10		19:56		18:42	23	17:45 (17)	16:39	25	15:51 (18)	16:13
16	05:23		06:15		07:11		08:06		17:21 (17)	08:07		15:26 (18)	08:52
	22:03		21:08		19:54		18:40	24	17:45 (17)	16:37	25	15:51 (18)	16:13
17	05:25		06:16		07:12		08:08		17:20 (17)	08:09		15:28 (18)	08:53
	22:02		21:06		19:51		18:37	26	17:46 (17)	16:36	23	15:51 (18)	16:14
18	05:26		06:18		07:14		08:10		17:19 (17)	08:11		15:28 (18)	08:54
	22:01		21:04		19:49		18:35	27	17:46 (17)	16:34	23	15:51 (18)	16:14
19	05:27		06:20		07:16		08:12		17:19 (17)	08:12		15:29 (18)	08:55
	21:59		21:01		19:46		18:33	27	17:46 (17)	16:33	22	15:51 (18)	16:14
20	05:29		06:22		07:18		08:14		17:19 (17)	08:14		15:30 (18)	08:55
	21:58		20:59		19:44		18:30	27	17:46 (17)	16:31	20	15:50 (18)	16:14
21	05:30		06:24		07:20		08:16		17:19 (17)	08:16		15:31 (18)	08:56
	21:57		20:57		19:41		18:28	26	17:45 (17)	16:30	19	15:50 (18)	16:15
22	05:32		06:25		07:21		08:18		17:19 (17)	08:18		15:32 (18)	08:56
	21:55		20:55		19:39		18:26	26	17:45 (17)	16:28	17	15:49 (18)	16:15
23	05:33		06:27		07:23		08:20		17:19 (17)	08:20		15:33 (18)	08:57
	21:54		20:52		19:36		18:24	25	17:44 (17)	16:27	15	15:48 (18)	16:16
24	05:35		06:29		07:25		08:22		17:19 (17)	08:22		15:35 (18)	08:57
	21:52		20:50		19:33		18:21	24	17:43 (17)	16:26	12	15:47 (18)	16:16
25	05:36		06:31		07:27		07:24		16:20 (17)	08:23		15:37 (18)	08:58
	21:51		20:48		19:31		17:19	22	16:42 (17)	16:25	9	15:46 (18)	16:17
26	05:38		06:33		07:29		07:26		16:21 (17)	08:25		15:41 (18)	08:58
	21:49		20:45		19:28		17:17	20	16:41 (17)	16:24	2	15:43 (18)	16:18
27	05:40		06:34		07:31		07:27		16:22 (17)	08:27			08:58
	21:47		20:43		19:26		17:15	17	16:39 (17)	16:23			16:18
28	05:41		06:36		07:32		07:29		16:25 (17)	08:29			08:58
	21:46		20:40		19:23		17:13	13	16:38 (17)	16:22			16:19
29	05:43		06:38		07:34		07:31		16:28 (17)	08:30			08:58
	21:44		20:38		19:21		17:10	7	16:35 (17)	16:21			16:20
30	05:45		06:40		07:36		07:33			08:32			08:59
	21:42		20:36		19:18		17:08			16:20			16:21
31	05:46		06:42				07:35						08:58
	21:40		20:33				17:06						16:22
Potential sun hours	515		461		383		327			257			230
Total, worst case								394			451		
Sun reduction								0.23			0.20		
Oper. time red.								1.00			1.00		
Wind dir. red.								0.58			0.61		
Total reduction								0.14			0.12		
Total, real								54			55		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CU - H100

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May	June
1	08:58			08:27		15:51 (18)	07:29	07:12	06:02	05:11
	16:24			17:16	17	16:08 (18)	18:13	20:12	21:09	22:00
2	08:58			08:25		15:53 (18)	07:26	07:10	06:00	05:10
	16:25			17:18	14	16:07 (18)	18:15	20:14	21:11	22:01
3	08:58			08:24		15:55 (18)	07:24	07:07	05:58	05:10
	16:26			17:20	10	16:05 (18)	18:17	20:16	21:13	22:02
4	08:58			08:22			07:21	07:05	05:56	05:09
	16:27			17:22			18:19	20:18	21:14	22:03
5	08:57			08:20			07:19	07:02	05:54	05:08
	16:28			17:24			18:21	20:20	21:16	22:05
6	08:57			08:18			07:17	07:00	05:52	05:07
	16:30			17:26			18:23	20:22	21:18	22:06
7	08:56			08:16			07:14	06:58	05:50	05:06
	16:31			17:28			18:24	20:24	21:20	22:07
8	08:56			08:14		16:50 (17)	07:12	06:55	05:48	05:06
	16:33			17:30	6	16:56 (17)	18:26	20:25	21:22	22:08
9	08:55		15:52 (18)	08:12		16:46 (17)	07:09	06:53	05:46	05:05
	16:34	2	15:54 (18)	17:32	13	16:59 (17)	18:28	20:27	21:23	22:09
10	08:55		15:49 (18)	08:10		16:44 (17)	07:07	06:50	05:44	05:05
	16:36	8	15:57 (18)	17:34	17	17:01 (17)	18:30	20:29	21:25	22:09
11	08:54		15:48 (18)	08:08		16:43 (17)	07:05	06:48	05:42	05:04
	16:37	11	15:59 (18)	17:36	20	17:03 (17)	18:32	20:31	21:27	22:10
12	08:53		15:47 (18)	08:06		16:42 (17)	07:02	06:45	05:40	05:04
	16:39	14	16:01 (18)	17:38	22	17:04 (17)	18:34	20:33	21:29	22:11
13	08:52		15:46 (18)	08:04		16:41 (17)	07:00	06:43	05:38	05:03
	16:40	16	16:02 (18)	17:40	24	17:05 (17)	18:36	20:35	21:31	22:12
14	08:51		15:46 (18)	08:02		16:41 (17)	06:57	06:41	05:37	05:03
	16:42	17	16:03 (18)	17:42	25	17:06 (17)	18:38	20:37	21:32	22:12
15	08:51		15:45 (18)	08:00		16:39 (17)	06:55	06:38	05:35	05:03
	16:44	19	16:04 (18)	17:44	27	17:06 (17)	18:40	20:39	21:34	22:13
16	08:50		15:45 (18)	07:58		16:39 (17)	06:52	06:36	05:33	05:03
	16:45	20	16:05 (18)	17:46	27	17:06 (17)	18:42	20:41	21:36	22:14
17	08:48		15:45 (18)	07:56		16:39 (17)	06:50	06:33	05:32	05:03
	16:47	21	16:06 (18)	17:48	28	17:07 (17)	18:44	20:42	21:37	22:14
18	08:47		15:45 (18)	07:54		16:40 (17)	06:47	06:31	05:30	05:03
	16:49	22	16:07 (18)	17:51	27	17:07 (17)	18:46	20:44	21:39	22:15
19	08:46		15:44 (18)	07:51		16:39 (17)	06:45	06:29	05:28	05:03
	16:51	23	16:07 (18)	17:53	27	17:06 (17)	18:48	20:46	21:41	22:15
20	08:45		15:45 (18)	07:49		16:40 (17)	06:42	06:26	05:27	05:03
	16:52	23	16:08 (18)	17:55	26	17:06 (17)	18:50	20:48	21:42	22:15
21	08:44		15:44 (18)	07:47		16:40 (17)	06:40	06:24	05:25	05:03
	16:54	24	16:08 (18)	17:57	26	17:06 (17)	18:51	20:50	21:44	22:16
22	08:42		15:45 (18)	07:45		16:40 (17)	06:37	06:22	05:24	05:03
	16:56	24	16:09 (18)	17:59	24	17:04 (17)	18:53	20:52	21:46	22:16
23	08:41		15:45 (18)	07:42		16:42 (17)	06:35	06:20	05:22	05:03
	16:58	24	16:09 (18)	18:01	21	17:03 (17)	18:55	20:54	21:47	22:16
24	08:40		15:45 (18)	07:40		16:43 (17)	06:32	06:17	05:21	05:04
	17:00	25	16:10 (18)	18:03	19	17:02 (17)	18:57	20:56	21:49	22:16
25	08:38		15:45 (18)	07:38		16:44 (17)	06:30	06:15	05:20	05:04
	17:02	25	16:10 (18)	18:05	16	17:00 (17)	18:59	20:58	21:50	22:16
26	08:37		15:45 (18)	07:36		16:48 (17)	06:27	06:13	05:18	05:04
	17:04	25	16:10 (18)	18:07	9	16:57 (17)	19:01	20:59	21:52	22:16
27	08:35		15:47 (18)	07:33			06:25	06:11	05:17	05:05
	17:06	24	16:11 (18)	18:09			19:03	21:01	21:53	22:16
28	08:34		15:47 (18)	07:31			06:22	06:08	05:16	05:05
	17:08	23	16:10 (18)	18:11			19:05	21:03	21:55	22:16
29	08:32		15:47 (18)				07:20	06:06	05:15	05:06
	17:10	23	16:10 (18)				20:07	21:05	21:56	22:15
30	08:31		15:48 (18)				07:17	06:04	05:14	05:07
	17:12	21	16:09 (18)				20:08	21:07	21:57	22:15
31	08:29		15:49 (18)				07:15		05:12	
	17:14	19	16:08 (18)				20:10		21:59	
Potential sun hours	248			272			367	421	496	513
Total, worst case		453			445					
Sun reduction		0.17			0.22					
Oper. time red.		1.00			1.00					
Wind dir. red.		0.62			0.58					
Total reduction		0.11			0.13					
Total, real		48			58					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CU - H100

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October		November		December	
1	05:07	05:48	06:44	07:38		07:37		08:33	
	22:15	21:39	20:31	19:16		17:04	16	16:30 (17)	16:19	11	15:30 (18)
2	05:08	05:50	06:45	07:40		07:39		16:16 (17)	08:35		15:41 (18)
	22:14	21:37	20:28	19:14		17:02	12	16:28 (17)	16:18	8	15:31 (18)
3	05:09	05:51	06:47	07:42		07:41		16:19 (17)	08:36		15:39 (18)
	22:14	21:35	20:26	19:11		17:00	5	16:24 (17)	16:17	3	15:34 (18)
4	05:10	05:53	06:49	07:43		07:43			08:38		15:37 (18)
	22:14	21:33	20:23	19:09		16:58			16:17		
5	05:11	05:55	06:51	07:45		07:45			08:39		
	22:13	21:31	20:21	19:06		16:56			16:16		
6	05:11	05:57	06:53	07:47		07:47			08:41		
	22:12	21:29	20:19	19:04		16:54			16:16		
7	05:12	05:58	06:54	07:49		07:49			08:42		
	22:12	21:27	20:16	19:01		16:53			16:15		
8	05:13	06:00	06:56	07:51		07:51		15:25 (18)	08:43		
	22:11	21:25	20:14	18:59		16:51	10	15:35 (18)	16:15		
9	05:15	06:02	06:58	07:53		07:53		15:22 (18)	08:45		
	22:10	21:23	20:11	18:56		16:49	15	15:37 (18)	16:14		
10	05:16	06:04	07:00	07:55		07:55		15:22 (18)	08:46		
	22:09	21:21	20:09	18:54		16:47	17	15:39 (18)	16:14		
11	05:17	06:06	07:02	07:57		07:57		15:21 (18)	08:47		
	22:08	21:19	20:06	18:51		16:45	19	15:40 (18)	16:14		
12	05:18	06:07	07:03	07:58		07:59		15:20 (18)	08:48		
	22:07	21:17	20:04	18:49		16:44	21	15:41 (18)	16:13		
13	05:19	06:09	07:05	08:00		08:01		15:19 (18)	08:49		
	22:06	21:15	20:01	18:47		16:42	23	15:42 (18)	16:13		
14	05:21	06:11	07:07	08:02		08:03		15:19 (18)	08:50		
	22:05	21:13	19:59	18:44		16:40	23	15:42 (18)	16:13		
15	05:22	06:13	07:09	08:04	17:24 (17)	08:05		15:19 (18)	08:51		
	22:04	21:10	19:56	18:42	2	17:26 (17)	16:39	24	15:43 (18)	16:13		
16	05:23	06:15	07:11	08:06	17:19 (17)	08:07		15:18 (18)	08:52		
	22:03	21:08	19:54	18:40	12	17:31 (17)	16:37	25	15:43 (18)	16:13		
17	05:25	06:16	07:12	08:08	17:16 (17)	08:09		15:19 (18)	08:53		
	22:02	21:06	19:51	18:37	17	17:33 (17)	16:36	25	15:44 (18)	16:14		
18	05:26	06:18	07:14	08:10	17:14 (17)	08:11		15:19 (18)	08:54		
	22:01	21:04	19:49	18:35	20	17:34 (17)	16:34	25	15:44 (18)	16:14		
19	05:27	06:20	07:16	08:12	17:13 (17)	08:12		15:20 (18)	08:55		
	21:59	21:01	19:46	18:33	22	17:35 (17)	16:33	24	15:44 (18)	16:14		
20	05:29	06:22	07:18	08:14	17:11 (17)	08:14		15:20 (18)	08:55		
	21:58	20:59	19:44	18:30	25	17:36 (17)	16:31	24	15:44 (18)	16:14		
21	05:30	06:24	07:20	08:16	17:11 (17)	08:16		15:20 (18)	08:56		
	21:57	20:57	19:41	18:28	25	17:36 (17)	16:30	24	15:44 (18)	16:15		
22	05:32	06:25	07:21	08:18	17:10 (17)	08:18		15:21 (18)	08:56		
	21:55	20:55	19:39	18:26	26	17:36 (17)	16:28	23	15:44 (18)	16:15		
23	05:33	06:27	07:23	08:20	17:09 (17)	08:20		15:21 (18)	08:57		
	21:54	20:52	19:36	18:24	27	17:36 (17)	16:27	23	15:44 (18)	16:16		
24	05:35	06:29	07:25	08:22	17:09 (17)	08:22		15:22 (18)	08:57		
	21:52	20:50	19:33	18:21	27	17:36 (17)	16:26	22	15:44 (18)	16:16		
25	05:36	06:31	07:27	07:24	16:09 (17)	08:23		15:23 (18)	08:58		
	21:51	20:48	19:31	17:19	27	16:36 (17)	16:25	21	15:44 (18)	16:17		
26	05:38	06:33	07:29	07:26	16:09 (17)	08:25		15:24 (18)	08:58		
	21:49	20:45	19:28	17:17	27	16:36 (17)	16:24	20	15:44 (18)	16:18		
27	05:40	06:34	07:31	07:27	16:09 (17)	08:27		15:25 (18)	08:58		
	21:47	20:43	19:26	17:15	26	16:35 (17)	16:23	19	15:44 (18)	16:18		
28	05:41	06:36	07:32	07:29	16:10 (17)	08:29		15:25 (18)	08:58		
	21:46	20:40	19:23	17:13	25	16:35 (17)	16:22	17	15:42 (18)	16:19		
29	05:43	06:38	07:34	07:31	16:11 (17)	08:30		15:27 (18)	08:58		
	21:44	20:38	19:21	17:10	23	16:34 (17)	16:21	15	15:42 (18)	16:20		
30	05:45	06:40	07:36	07:33	16:12 (17)	08:32		15:28 (18)	08:59		
	21:42	20:36	19:18	17:08	21	16:33 (17)	16:20	14	15:42 (18)	16:21		
31	05:46	06:42		07:35	16:12 (17)				08:59		
	21:40	20:33		17:06	20	16:32 (17)			16:22		
Potential sun hours	515	461	383	327		257		230			
Total, worst case					372		506		22		
Sun reduction					0.23		0.20		0.12		
Oper. time red.					1.00		1.00		1.00		
Wind dir. red.					0.58		0.62		0.62		
Total reduction					0.14		0.12		0.07		
Total, real					51		62		2		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CV - H101

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February			March			April			May			June		
1	08:58		08:27		16:39 (9)	07:29		17:08 (10)	07:12			06:02		20:33 (12)	05:12		21:07 (13)
	16:24		17:16	4	16:43 (9)	18:13	26	17:34 (10)	20:12			21:09	5	20:38 (12)	22:00	17	21:24 (13)
2	08:58		08:25		16:35 (9)	07:26		17:07 (10)	07:10			06:00		20:29 (12)	05:11		21:07 (13)
	16:25		17:18	11	16:46 (9)	18:15	27	17:34 (10)	20:14			21:11	11	20:40 (12)	22:01	17	21:24 (13)
3	08:58		08:24		16:34 (9)	07:24		17:08 (10)	07:07			05:58		20:28 (12)	05:10		21:06 (13)
	16:26		17:20	14	16:48 (9)	18:17	26	17:34 (10)	20:16			21:12	14	20:42 (12)	22:02	18	21:24 (13)
4	08:58		08:22		16:32 (9)	07:21		17:07 (10)	07:05			05:56		20:26 (12)	05:09		21:07 (13)
	16:27		17:22	18	16:50 (9)	18:19	25	17:32 (10)	20:18			21:14	17	20:43 (12)	22:03	18	21:25 (13)
5	08:57		08:20		16:32 (9)	07:19		17:08 (10)	07:03			05:54		20:25 (12)	05:08		21:07 (13)
	16:29		17:24	19	16:51 (9)	18:21	24	17:32 (10)	20:20			21:16	18	20:43 (12)	22:05	18	21:25 (13)
6	08:57		08:18		16:31 (9)	07:17		17:09 (10)	07:00			05:52		20:26 (12)	05:07		21:07 (13)
	16:30		17:26	21	16:52 (9)	18:23	21	17:30 (10)	20:22			21:18	19	20:45 (12)	22:06	17	21:24 (13)
7	08:56		08:16		16:30 (9)	07:14		17:10 (10)	06:58			05:50		20:25 (12)	05:07		21:08 (13)
	16:31		17:28	23	16:53 (9)	18:25	19	17:29 (10)	20:24			21:20	20	20:45 (12)	22:07	17	21:25 (13)
8	08:56		08:14		16:30 (9)	07:12		17:12 (10)	06:55			05:48		20:24 (12)	05:06		21:07 (13)
	16:33		17:30	23	16:53 (9)	18:26	15	17:27 (10)	20:26			21:22	21	20:45 (12)	22:08	18	21:25 (13)
9	08:55		08:12		16:29 (9)	07:09		17:15 (10)	06:53			05:46		20:24 (12)	05:05		21:08 (13)
	16:34		17:32	24	16:53 (9)	18:28	9	17:24 (10)	20:27			21:23	21	20:45 (12)	22:09	17	21:25 (13)
10	08:55		08:10		16:29 (9)	07:07			06:50			05:44		20:24 (12)	05:05		21:08 (13)
	16:36		17:34	24	16:53 (9)	18:30			20:29			21:25	21	20:45 (12)	22:09	17	21:25 (13)
11	08:54		08:08		16:29 (9)	07:05			06:48		19:58 (11)	05:42		20:24 (12)	05:04		21:08 (13)
	16:37		17:36	24	16:53 (9)	18:32			20:31	4	20:02 (11)	21:27	21	20:45 (12)	22:10	17	21:25 (13)
12	08:53		08:06		16:30 (9)	07:02			06:45		19:54 (11)	05:40		20:24 (12)	05:04		21:09 (13)
	16:39		17:38	23	16:53 (9)	18:34			20:33	11	20:05 (11)	21:29	21	20:45 (12)	22:11	17	21:26 (13)
13	08:52		08:04		16:31 (9)	07:00			06:43		19:51 (11)	05:39		20:24 (12)	05:04		21:09 (13)
	16:40		17:40	22	16:53 (9)	18:36			20:35	15	20:06 (11)	21:31	20	20:44 (12)	22:12	17	21:26 (13)
14	08:51		08:02		16:31 (9)	06:57			06:41		19:50 (11)	05:37		20:25 (12)	05:03		21:09 (13)
	16:42		17:42	21	16:52 (9)	18:38			20:37	18	20:08 (11)	21:32	19	20:44 (12)	22:12	16	21:25 (13)
15	08:50		08:00		16:31 (9)	06:55			06:38		19:50 (11)	05:35		20:26 (12)	05:03		21:09 (13)
	16:44		17:45	20	16:51 (9)	18:40			20:39	18	20:08 (11)	21:34	17	20:43 (12)	22:13	17	21:26 (13)
16	08:49		07:58		16:33 (9)	06:52			06:36		19:48 (11)	05:33		20:27 (12)	05:03		21:10 (13)
	16:45		17:47	17	16:50 (9)	18:42			20:41	20	20:08 (11)	21:36	16	20:43 (12)	22:14	16	21:26 (13)
17	08:48		07:56		16:35 (9)	06:50			06:34		19:48 (11)	05:32		20:27 (12)	05:03		21:10 (13)
	16:47		17:49	13	16:48 (9)	18:44			20:42	20	20:08 (11)	21:37	14	20:41 (12)	22:14	16	21:26 (13)
18	08:47		07:54		16:38 (9)	06:47			06:31		19:48 (11)	05:30		20:29 (12)	05:03		21:10 (13)
	16:49		17:51	8	16:46 (9)	18:46			20:44	21	20:09 (11)	21:39	12	20:41 (12)	22:14	16	21:26 (13)
19	08:46		07:51			06:45			06:29		19:48 (11)	05:28		20:30 (12)	05:03		21:10 (13)
	16:51		17:53			18:48			20:46	20	20:08 (11)	21:41	8	20:38 (12)	22:15	16	21:26 (13)
20	08:45		07:49			06:42			06:27		19:47 (11)	05:27			05:03		21:11 (13)
	16:53		17:55			18:50			20:48	20	20:07 (11)	21:42			22:15	15	21:26 (13)
21	08:44		07:47		17:17 (10)	06:40			06:24		19:48 (11)	05:25			05:03		21:12 (13)
	16:54		17:57	10	17:27 (10)	18:51			20:50	19	20:07 (11)	21:44			22:15	15	21:27 (13)
22	08:42		07:45		17:13 (10)	06:37			06:22		19:48 (11)	05:24			05:03		21:12 (13)
	16:56		17:59	16	17:29 (10)	18:53			20:52	18	20:06 (11)	21:46			22:16	15	21:27 (13)
23	08:41		07:42		17:12 (10)	06:35			06:20		19:50 (11)	05:22		21:12 (13)	05:03		21:11 (13)
	16:58		18:01	19	17:31 (10)	18:55			20:54	15	20:05 (11)	21:47	1	21:13 (13)	22:16	16	21:27 (13)
24	08:40		07:40		17:11 (10)	06:32			06:17		19:51 (11)	05:21		21:10 (13)	05:04		21:11 (13)
	17:00		18:03	22	17:33 (10)	18:57			20:56	12	20:03 (11)	21:49	5	21:15 (13)	22:16	16	21:27 (13)
25	08:38		07:38		17:09 (10)	06:30			06:15		19:53 (11)	05:20		21:09 (13)	05:04		21:12 (13)
	17:02		18:05	24	17:33 (10)	18:59			20:58	8	20:01 (11)	21:50	7	21:16 (13)	22:16	16	21:28 (13)
26	08:37		07:36		17:09 (10)	06:27			06:13			05:18		21:09 (13)	05:05		21:12 (13)
	17:04		18:07	25	17:34 (10)	19:01			20:59			21:52	9	21:18 (13)	22:16	16	21:28 (13)
27	08:35		07:33		17:08 (10)	06:25			06:11			05:17		21:08 (13)	05:05		21:12 (13)
	17:06		18:09	26	17:34 (10)	19:03			21:01			21:53	11	21:19 (13)	22:16	17	21:29 (13)
28	08:34		07:31		17:08 (10)	06:22			06:09			05:16		21:08 (13)	05:06		21:12 (13)
	17:08		18:11	26	17:34 (10)	19:05			21:03			21:55	12	21:20 (13)	22:16	16	21:28 (13)
29	08:32					07:20			06:06			05:15		21:08 (13)	05:06		21:13 (13)
	17:10					20:07			21:05			21:56	14	21:22 (13)	22:15	16	21:29 (13)
30	08:30					07:17			06:04			05:14		21:07 (13)	05:07		21:12 (13)
	17:12					20:09			21:07			21:57	16	21:23 (13)	22:15	17	21:29 (13)
31	08:29					07:15						05:13		21:07 (13)			
	17:14					20:10						21:59	17	21:24 (13)			
Potential sun hours	248		272			367			421			496			513		
Total, worst case				497			192			239			407			497	
Sun reduction				0.22			0.22			0.34			0.36			0.26	
Oper. time red.				1.00			1.00			1.00			1.00			1.00	
Wind dir. red.				0.58			0.58			0.59			0.62			0.63	
Total reduction				0.13			0.13			0.20			0.22			0.16	
Total, real				64			25			48			91			80	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CV - H101

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December
1	05:07		21:13 (13)	05:48		20:35 (12)	06:44		19:57 (11)	07:38			07:37		15:59 (9)	08:33
	22:15	16	21:29 (13)	21:39	20	20:55 (12)	20:31	4	20:01 (11)	19:16			17:04	23	16:22 (9)	16:19
2	05:08		21:13 (13)	05:50		20:35 (12)	06:45			07:40			07:39		15:59 (9)	08:35
	22:14	17	21:30 (13)	21:37	21	20:56 (12)	20:28			19:14			17:02	23	16:22 (9)	16:18
3	05:09		21:13 (13)	05:52		20:34 (12)	06:47			07:42			07:41		15:59 (9)	08:36
	22:14	18	21:31 (13)	21:35	21	20:55 (12)	20:26			19:11			17:00	23	16:22 (9)	16:18
4	05:10		21:13 (13)	05:53		20:34 (12)	06:49			07:44		17:54 (10)	07:43		16:00 (9)	08:38
	22:13	17	21:30 (13)	21:33	21	20:55 (12)	20:24			19:09	5	17:59 (10)	16:58	22	16:22 (9)	16:17
5	05:11		21:13 (13)	05:55		20:35 (12)	06:51			07:45		17:50 (10)	07:45		16:01 (9)	08:39
	22:13	17	21:30 (13)	21:31	20	20:55 (12)	20:21			19:06	13	18:03 (10)	16:56	20	16:21 (9)	16:16
6	05:12		21:13 (13)	05:57		20:34 (12)	06:53			07:47		17:47 (10)	07:47		16:01 (9)	08:41
	22:12	18	21:31 (13)	21:29	20	20:54 (12)	20:19			19:04	18	18:05 (10)	16:55	20	16:21 (9)	16:16
7	05:13		21:13 (13)	05:59		20:35 (12)	06:54			07:49		17:45 (10)	07:49		16:02 (9)	08:42
	22:12	18	21:31 (13)	21:27	19	20:54 (12)	20:16			19:01	21	18:06 (10)	16:53	17	16:19 (9)	16:15
8	05:14		21:14 (13)	06:00		20:36 (12)	06:56			07:51		17:44 (10)	07:51		16:04 (9)	08:43
	22:11	17	21:31 (13)	21:25	18	20:54 (12)	20:14			18:59	23	18:07 (10)	16:51	14	16:18 (9)	16:15
9	05:15		21:14 (13)	06:02		20:36 (12)	06:58			07:53		17:43 (10)	07:53		16:05 (9)	08:45
	22:10	17	21:31 (13)	21:23	16	20:52 (12)	20:11			18:56	24	18:07 (10)	16:49	11	16:16 (9)	16:14
10	05:16		21:14 (13)	06:04		20:38 (12)	07:00			07:55		17:42 (10)	07:55		16:10 (9)	08:46
	22:09	17	21:31 (13)	21:21	12	20:50 (12)	20:09			18:54	26	18:08 (10)	16:47	3	16:13 (9)	16:14
11	05:17		21:14 (13)	06:06		20:39 (12)	07:02			07:57		17:42 (10)	07:57			08:47
	22:08	17	21:31 (13)	21:19	9	20:48 (12)	20:06			18:52	26	18:08 (10)	16:45			16:14
12	05:18		21:14 (13)	06:08			07:03			07:59		17:41 (10)	07:59			08:48
	22:07	17	21:31 (13)	21:17			20:04			18:49	27	18:08 (10)	16:44			16:14
13	05:19		21:15 (13)	06:09			07:05			08:00		17:41 (10)	08:01			08:49
	22:06	16	21:31 (13)	21:15			20:01			18:47	26	18:07 (10)	16:42			16:14
14	05:21		21:16 (13)	06:11			07:07			08:02		17:41 (10)	08:03			08:50
	22:05	15	21:31 (13)	21:12			19:59			18:44	26	18:07 (10)	16:40			16:13
15	05:22		21:16 (13)	06:13			07:09			08:04		17:41 (10)	08:05			08:51
	22:04	14	21:30 (13)	21:10			19:56			18:42	26	18:07 (10)	16:39			16:13
16	05:23		21:16 (13)	06:15			07:11			08:06		17:41 (10)	08:07			08:52
	22:03	12	21:28 (13)	21:08			19:54			18:40	25	18:06 (10)	16:37			16:14
17	05:25		21:17 (13)	06:17			07:12			08:08		17:42 (10)	08:09			08:53
	22:02	10	21:27 (13)	21:06			19:51			18:37	23	18:05 (10)	16:36			16:14
18	05:26		21:18 (13)	06:18		19:58 (11)	07:14			08:10		17:43 (10)	08:11			08:54
	22:01	9	21:27 (13)	21:04	9	20:07 (11)	19:49			18:35	21	18:04 (10)	16:34			16:14
19	05:28		21:19 (13)	06:20		19:56 (11)	07:16			08:12		17:44 (10)	08:12			08:55
	21:59	6	21:25 (13)	21:01	13	20:09 (11)	19:46			18:33	18	18:02 (10)	16:33			16:14
20	05:29		21:20 (13)	06:22		19:55 (11)	07:18			08:14		17:45 (10)	08:14			08:55
	21:58	4	21:24 (13)	20:59	16	20:11 (11)	19:44			18:30	15	18:00 (10)	16:31			16:15
21	05:30			06:24		19:53 (11)	07:20			08:16		17:48 (10)	08:16			08:56
	21:56			20:57	18	20:11 (11)	19:41			18:28	9	17:57 (10)	16:30			16:15
22	05:32			06:26		19:52 (11)	07:22			08:18			08:18			08:56
	21:55			20:55	19	20:11 (11)	19:39			18:26			16:29			16:15
23	05:34			06:27		19:52 (11)	07:23			08:20			08:20			08:57
	21:54			20:52	20	20:12 (11)	19:36			18:24			16:27			16:16
24	05:35		20:42 (12)	06:29		19:52 (11)	07:25			08:22		17:06 (9)	08:22			08:57
	21:52	6	20:48 (12)	20:50	20	20:12 (11)	19:34			18:21	10	17:16 (9)	16:26			16:16
25	05:37		20:40 (12)	06:31		19:50 (11)	07:27			07:24		16:04 (9)	08:23			08:58
	21:50	10	20:50 (12)	20:48	21	20:11 (11)	19:31			17:19	14	16:18 (9)	16:25			16:17
26	05:38		20:39 (12)	06:33		19:51 (11)	07:29			07:26		16:02 (9)	08:25			08:58
	21:49	13	20:52 (12)	20:45	20	20:11 (11)	19:29			17:17	18	16:20 (9)	16:24			16:18
27	05:40		20:37 (12)	06:35		19:51 (11)	07:31			07:27		16:01 (9)	08:27			08:58
	21:47	15	20:52 (12)	20:43	20	20:11 (11)	19:26			17:15	19	16:20 (9)	16:23			16:19
28	05:41		20:37 (12)	06:36		19:50 (11)	07:32			07:29		16:01 (9)	08:28			08:58
	21:46	16	20:53 (12)	20:40	19	20:09 (11)	19:24			17:13	21	16:22 (9)	16:22			16:19
29	05:43		20:36 (12)	06:38		19:51 (11)	07:34			07:31		16:00 (9)	08:30			08:58
	21:44	17	20:53 (12)	20:38	17	20:08 (11)	19:21			17:11	22	16:22 (9)	16:21			16:20
30	05:45		20:35 (12)	06:40		19:52 (11)	07:36			07:33		15:59 (9)	08:32			08:58
	21:42	19	20:54 (12)	20:36	15	20:07 (11)	19:19			17:08	24	16:23 (9)	16:20			16:21
31	05:47		20:35 (12)	06:42		19:54 (11)				07:35		15:59 (9)				08:58
	21:40	20	20:55 (12)	20:33	11	20:05 (11)				17:06	24	16:23 (9)				16:22
Potential sun hours	515			461			382			328			257			231
Total, worst case		408			435			4			524			176		
Sun reduction		0.27			0.27			0.29			0.23			0.20		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.62			0.60			0.59			0.58			0.58		
Total reduction		0.17			0.16			0.17			0.14			0.12		
Total, real		68			72			1			71			20		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CW - H102

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April	May	June	July	August	September	October		November	December
1	08:59	08:27		07:29	07:59 (6)	07:13	06:02	05:12	05:08	05:48	06:44	07:38		07:38	08:34
	16:24	17:16		18:13	23 08:22 (6)	20:13	21:09	22:00	22:15	21:39	20:31	19:16		17:05	16:19
2	08:58	08:26		07:26	07:51 (5)	07:10	06:00	05:11	05:08	05:50	06:46	07:40	08:18 (5)	07:40	08:35
	16:25	17:18		18:15	24 08:20 (6)	20:14	21:11	22:01	22:15	21:37	20:29	19:14	10 08:28 (5)	17:03	16:19
3	08:58	08:24		07:24	07:49 (5)	07:08	05:58	05:10	05:09	05:52	06:48	07:42	08:16 (5)	07:42	08:37
	16:26	17:20		18:17	26 08:19 (6)	20:16	21:13	22:02	22:14	21:35	20:26	19:11	14 08:30 (5)	17:01	16:18
4	08:58	08:22		07:22	07:46 (5)	07:05	05:56	05:09	05:10	05:54	06:49	07:44	08:14 (5)	07:43	08:38
	16:28	17:22		18:19	25 08:17 (6)	20:18	21:15	22:04	22:14	21:33	20:24	19:09	16 08:30 (5)	16:59	16:17
5	08:57	08:20		07:19	07:44 (5)	07:03	05:54	05:08	05:11	05:55	06:51	07:46	08:12 (5)	07:45	08:40
	16:29	17:24		18:21	22 08:14 (6)	20:20	21:16	22:05	22:13	21:31	20:21	19:06	19 08:31 (5)	16:57	16:17
6	08:57	08:18		07:17	07:42 (5)	07:00	05:52	05:08	05:12	05:57	06:53	07:47	08:14 (5)	07:47	08:41
	16:30	17:26		18:23	14 07:56 (5)	20:22	21:18	22:06	22:12	21:29	20:19	19:04	17 08:31 (5)	16:55	16:16
7	08:57	08:16		07:14	07:39 (5)	06:58	05:50	05:07	05:13	05:59	06:55	07:49	08:16 (5)	07:49	08:42
	16:32	17:28		18:25	16 07:55 (5)	20:24	21:20	22:07	22:12	21:27	20:16	19:01	15 08:31 (5)	16:53	16:15
8	08:56	08:14		07:12	07:37 (5)	06:55	05:48	05:06	05:14	06:01	06:57	07:51	08:18 (5)	07:51	08:44
	16:33	17:30		18:27	18 07:55 (5)	20:26	21:22	22:08	22:11	21:25	20:14	18:59	19 08:47 (6)	16:51	16:15
9	08:55	08:13		07:10	07:36 (5)	06:53	05:46	05:06	05:15	06:02	06:58	07:53	08:20 (5)	07:53	08:45
	16:34	17:32		18:29	17 07:53 (5)	20:28	21:24	22:09	22:10	21:23	20:11	18:57	25 08:51 (6)	16:49	16:15
10	08:55	08:11		07:07	07:37 (5)	06:51	05:44	05:05	05:16	06:04	07:00	07:55	08:22 (5)	07:55	08:46
	16:36	17:35		18:31	16 07:53 (5)	20:29	21:25	22:10	22:09	21:21	20:09	18:54	25 08:52 (6)	16:47	16:14
11	08:54	08:09		07:05	07:38 (5)	06:48	05:42	05:05	05:17	06:06	07:02	07:57	08:24 (5)	07:57	08:47
	16:38	17:37		18:33	12 07:50 (5)	20:31	21:27	22:10	22:08	21:19	20:06	18:52	25 08:54 (6)	16:46	16:14
12	08:53	08:06		07:02	07:42 (5)	06:46	05:41	05:04	05:18	06:08	07:04	07:59	08:26 (5)	07:59	08:48
	16:39	17:39		18:34	5 07:47 (5)	20:33	21:29	22:11	22:07	21:17	20:04	18:49	23 08:54 (6)	16:44	16:14
13	08:52	08:04		07:00		06:43	05:39	05:04	05:20	06:10	07:06	08:01	08:32 (6)	08:01	08:49
	16:41	17:41		18:36		20:35	21:31	22:12	22:06	21:15	20:01	18:47	23 08:55 (6)	16:42	16:14
14	08:52	08:02		06:57		06:41	05:37	05:04	05:21	06:11	07:07	08:03	08:31 (6)	08:03	08:50
	16:42	17:43		18:38		20:37	21:32	22:13	22:05	21:13	19:59	18:45	24 08:55 (6)	16:41	16:14
15	08:51	08:00		06:55		06:39	05:35	05:03	05:22	06:13	07:09	08:04	08:32 (6)	08:05	08:51
	16:44	17:45		18:40		20:39	21:34	22:13	22:04	21:11	19:56	18:42	23 08:55 (6)	16:39	16:14
16	08:50	07:58		06:52		06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:34 (6)	08:07	08:52
	16:46	17:47		18:42		20:41	21:36	22:14	22:03	21:08	19:54	18:40	21 08:55 (6)	16:37	16:14
17	08:49	07:56		06:50		06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:36 (6)	08:09	08:53
	16:48	17:49		18:44		20:43	21:38	22:14	22:02	21:06	19:51	18:38	19 08:55 (6)	16:36	16:14
18	08:47	07:54		06:47		06:31	05:30	05:03	05:26	06:19	07:15	08:10	08:38 (6)	08:11	08:54
	16:49	17:51		18:46		20:45	21:39	22:15	22:01	21:04	19:49	18:35	16 08:54 (6)	16:34	16:14
19	08:46	07:52		08:17 (6)	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:40 (6)	08:13	08:55
	16:51	17:53	1	08:18 (6)	18:48	20:46	21:41	22:15	21:59	21:02	19:46	18:33	14 08:54 (6)	16:33	16:14
20	08:45	07:49		08:15 (6)	06:43	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:42 (6)	08:14	08:55
	16:53	17:55	5	08:20 (6)	18:50	20:48	21:43	22:15	21:58	20:59	19:44	18:31	11 08:53 (6)	16:32	16:15
21	08:44	07:47		08:13 (6)	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:44 (6)	08:16	08:56
	16:55	17:57	8	08:21 (6)	18:52	20:50	21:44	22:16	21:57	20:57	19:41	18:28	7 08:51 (6)	16:30	16:15
22	08:43	07:45		08:10 (6)	06:38	06:22	05:24	05:03	05:32	06:26	07:22	08:18	08:46 (6)	08:18	08:56
	16:57	17:59	12	08:22 (6)	18:54	20:52	21:46	22:16	21:55	20:55	19:39	18:26	4 08:50 (6)	16:29	16:16
23	08:41	07:43		08:08 (6)	06:35	06:20	05:23	05:04	05:34	06:28	07:24	08:20		08:20	08:57
	16:59	18:01	14	08:22 (6)	18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24		16:28	16:16
24	08:40	07:40		08:06 (6)	06:33	06:18	05:21	05:04	05:35	06:29	07:25	08:22		08:22	08:57
	17:00	18:03	17	08:23 (6)	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22		16:26	16:17
25	08:38	07:38		08:03 (6)	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24		08:24	08:58
	17:02	18:05	20	08:23 (6)	18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19		16:25	16:17
26	08:37	07:36		08:01 (6)	06:28	06:13	05:19	05:05	05:39	06:33	07:29	07:26		08:25	08:58
	17:04	18:07	22	08:23 (6)	19:01	21:00	21:52	22:16	21:49	20:45	19:29	17:17		16:24	16:18
27	08:35	07:33		07:59 (6)	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28		08:27	08:58
	17:06	18:09	24	08:23 (6)	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15		16:23	16:19
28	08:34	07:31		07:58 (6)	06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:30		08:29	08:58
	17:08	18:11	24	08:22 (6)	19:05	21:03	21:55	22:16	21:46	20:41	19:24	17:13		16:22	16:20
29	08:32				07:20	06:07	05:15	05:06	05:43	06:38	07:35	07:32		08:30	08:59
	17:10				20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11		16:21	16:21
30	08:31				07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:34		08:32	08:59
	17:12				20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09		16:20	16:22
31	08:29				07:15		05:13		05:47	06:42		07:36			08:59
	17:14				20:11		21:59		21:41	20:33		17:07			16:23
Potential sun hours	248	272		367		421	496	513	515	461	382	328		257	231
Total, worst case			147		218								370		
Sun reduction			0.22		0.22								0.23		
Oper. time red.			1.00		1.00								1.00		
Wind dir. red.			0.62		0.61								0.61		
Total reduction			0.14		0.14								0.14		
Total, real			20		30								53		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CX - H103

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:12	20:47 (1)	05:08	20:55 (1)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	28 21:15 (1)	22:15	23 21:18 (1)	21:38	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	20:48 (1)	05:08	20:56 (1)	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	26 21:14 (1)	22:14	23 21:19 (1)	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:08	05:58	05:10	20:48 (1)	05:09	20:56 (1)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	26 21:14 (1)	22:14	23 21:19 (1)	21:35	20:26	19:11	17:00	16:18
4	08:58	08:22	07:21	07:05	05:56	05:09	20:49 (1)	05:10	20:56 (1)	05:53	06:49	07:44	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03	26 21:15 (1)	22:13	24 21:20 (1)	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	20:49 (1)	05:11	20:55 (1)	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	25 21:14 (1)	22:13	25 21:20 (1)	21:31	20:21	19:06	16:57	16:16
6	08:57	08:18	07:17	07:00	05:52	05:07	20:49 (1)	05:12	20:55 (1)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	25 21:14 (1)	22:12	25 21:20 (1)	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	20:50 (1)	05:13	20:55 (1)	05:59	06:55	07:49	07:49	08:42
	16:31	17:28	18:25	20:24	21:20	22:06	24 21:14 (1)	22:11	26 21:21 (1)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	20:50 (1)	05:14	20:55 (1)	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:25	21:22	22:07	24 21:14 (1)	22:11	26 21:21 (1)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	20:51 (1)	05:15	20:55 (1)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23	22:08	23 21:14 (1)	22:10	26 21:21 (1)	21:23	20:11	18:56	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	05:05	20:51 (1)	05:16	20:55 (1)	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	24 21:15 (1)	22:09	27 21:22 (1)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	20:51 (1)	05:17	20:55 (1)	06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27	22:10	23 21:14 (1)	22:08	27 21:22 (1)	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:40	20:55 (1) 05:04	20:52 (1)	05:18	20:55 (1)	06:08	07:04	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29	2 20:57 (1) 22:11	22 21:14 (1)	22:07	27 21:22 (1)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	20:53 (1) 05:04	20:52 (1)	05:20	20:56 (1)	06:09	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	6 20:59 (1) 22:12	23 21:15 (1)	22:06	27 21:23 (1)	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	20:51 (1) 05:04	20:53 (1)	05:21	20:56 (1)	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	9 21:00 (1) 22:12	22 21:15 (1)	22:05	27 21:23 (1)	21:12	19:59	18:44	16:40	16:14
15	08:50	08:00	06:55	06:38	05:35	20:50 (1) 05:03	20:53 (1)	05:22	20:55 (1)	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	11 21:01 (1) 22:13	21 21:14 (1)	22:04	28 21:23 (1)	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:33	20:49 (1) 05:03	20:53 (1)	05:23	20:55 (1)	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	14 21:03 (1) 22:13	21 21:14 (1)	22:03	28 21:23 (1)	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	20:48 (1) 05:03	20:53 (1)	05:25	20:55 (1)	06:17	07:13	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	16 21:04 (1) 22:14	21 21:14 (1)	22:02	28 21:23 (1)	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:48 (1) 05:03	20:54 (1)	05:26	20:56 (1)	06:18	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	18 21:06 (1) 22:14	20 21:14 (1)	22:00	28 21:24 (1)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	20:48 (1) 05:03	20:54 (1)	05:28	20:56 (1)	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	20 21:08 (1) 22:15	20 21:14 (1)	21:59	28 21:24 (1)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	20:47 (1) 05:03	20:55 (1)	05:29	20:56 (1)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22 21:09 (1) 22:15	20 21:15 (1)	21:58	27 21:23 (1)	20:59	19:44	18:30	16:31	16:15
21	08:44	07:47	06:40	06:24	05:26	20:47 (1) 05:03	20:55 (1)	05:31	20:56 (1)	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:51	20:50	21:44	24 21:11 (1) 22:15	20 21:15 (1)	21:56	27 21:23 (1)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:47 (1) 05:03	20:55 (1)	05:32	20:56 (1)	06:26	07:22	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:45	25 21:12 (1) 22:15	20 21:15 (1)	21:55	25 21:21 (1)	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	20:46 (1) 05:04	20:55 (1)	05:34	20:57 (1)	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	27 21:13 (1) 22:16	20 21:15 (1)	21:53	23 21:20 (1)	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	20:46 (1) 05:04	20:56 (1)	05:35	20:57 (1)	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	28 21:14 (1) 22:16	20 21:16 (1)	21:52	22 21:19 (1)	20:50	19:34	18:21	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	20:46 (1) 05:04	20:56 (1)	05:37	20:58 (1)	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:57	21:50	28 21:14 (1) 22:16	20 21:16 (1)	21:50	20 21:18 (1)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	20:46 (1) 05:05	20:55 (1)	05:38	20:58 (1)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	29 21:15 (1) 22:16	21 21:16 (1)	21:49	18 21:16 (1)	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:47 (1) 05:05	20:56 (1)	05:40	21:00 (1)	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	28 21:15 (1) 22:16	21 21:17 (1)	21:47	15 21:15 (1)	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	20:47 (1) 05:06	20:55 (1)	05:42	21:00 (1)	06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	28 21:15 (1) 22:15	22 21:17 (1)	21:45	13 21:13 (1)	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:06	05:15	20:47 (1) 05:06	20:56 (1)	05:43	21:01 (1)	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	28 21:15 (1) 22:15	22 21:18 (1)	21:44	11 21:12 (1)	20:38	19:21	17:11	16:21	16:21
30	08:30		07:17	06:04	05:14	20:47 (1) 05:07	20:56 (1)	05:45	21:02 (1)	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	28 21:15 (1) 22:15	22 21:18 (1)	21:42	8 21:10 (1)	20:36	19:19	17:09	16:20	16:21
31	08:29		07:15		05:13	20:47 (1)		05:47	21:04 (1)	06:42		07:35		08:58
	17:14		20:10		21:58	28 21:15 (1)		21:40	4 21:08 (1)	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case					419	672	709					
Sun reduction					0.36	0.26	0.27					
Oper. time red.					1.00	1.00	1.00					
Wind dir. red.					0.63	0.63	0.63					
Total reduction					0.23	0.16	0.17					
Total, real					95	109	118					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CY - H104

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:38	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:51	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:45	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: CZ - H105

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:49	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:46	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:33	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:43	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:13	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:39	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:25	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:54	20:52	21:45	22:16	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:24	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:27	16:17
25	08:38	07:38	06:30	06:15	05:20	05:05	05:37	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:18	05:05	05:40	06:35	07:31	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:41	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:07	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:11		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DA - H106

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March	April		May			June		
1	08:58	08:27		07:29	07:12			06:02			05:12	20:55 (16)
	16:24	17:16		18:13	20:12			21:09			22:00	17	21:12 (16)
2	08:58	08:25		07:26	07:10			06:00			05:11	20:55 (16)
	16:25	17:18		18:15	20:14			21:11			22:01	17	21:12 (16)
3	08:58	08:24		07:24	07:07		19:37 (12)	05:58			05:10	20:55 (16)
	16:26	17:20		18:17	20:16	9	19:46 (12)	21:12			22:02	17	21:12 (16)
4	08:58	08:22		07:21	07:05		19:35 (12)	05:56			05:09	20:56 (16)
	16:27	17:22		18:19	20:18	13	19:48 (12)	21:14			22:03	17	21:13 (16)
5	08:57	08:20		07:19	07:02		19:34 (12)	05:54			05:08	20:56 (16)
	16:29	17:24		18:21	20:20	15	19:49 (12)	21:16			22:05	16	21:12 (16)
6	08:57	08:18		07:17	07:00		19:33 (12)	05:52			05:07	20:56 (16)
	16:30	17:26		18:23	20:22	16	19:49 (12)	21:18			22:06	16	21:12 (16)
7	08:56	08:16		07:14	06:58		19:33 (12)	05:50			05:07	20:57 (16)
	16:31	17:28		18:25	20:24	16	19:49 (12)	21:20			22:07	16	21:13 (16)
8	08:56	08:14		07:12	06:55		19:32 (12)	05:48			05:06	20:56 (16)
	16:33	17:30		18:26	20:25	16	19:48 (12)	21:22			22:08	16	21:12 (16)
9	08:55	08:12		07:09	06:53		19:32 (12)	05:46			05:05	20:57 (16)
	16:34	17:32		18:28	20:27	16	19:48 (12)	21:23			22:09	15	21:12 (16)
10	08:55	08:10	16:55 (10)	07:07	06:50		19:32 (12)	05:44			05:05	20:57 (16)
	16:36	17:34	8	17:03 (10)	18:30	20:29	14	19:46 (12)	21:25			22:09	15	21:12 (16)
11	08:54	08:08	16:53 (10)	07:05	06:48		19:33 (12)	05:42			05:04	20:58 (16)
	16:37	17:36	12	17:05 (10)	18:32	20:31	12	19:45 (12)	21:27			22:10	14	21:12 (16)
12	08:53	08:06	16:52 (10)	07:02	06:45		19:35 (12)	05:40			05:04	20:59 (16)
	16:39	17:38	14	17:06 (10)	18:34	20:33	8	19:43 (12)	21:29			22:11	14	21:13 (16)
13	08:52	08:04	16:51 (10)	07:00	06:43			05:39			05:04	20:59 (16)
	16:40	17:40	16	17:07 (10)	18:36	20:35			21:31			22:12	14	21:13 (16)
14	08:51	08:02	16:51 (10)	06:57	06:41			05:37			05:03	20:59 (16)
	16:42	17:42	17	17:08 (10)	18:38	20:37			21:32			22:12	13	21:12 (16)
15	08:50	08:00	16:50 (10)	06:55	06:38			05:35			05:03	20:59 (16)
	16:44	17:44	18	17:08 (10)	18:40	20:39			21:34			22:13	13	21:12 (16)
16	08:49	07:58	16:50 (10)	06:52	06:36			05:33			05:03	21:00 (16)
	16:45	17:47	18	17:08 (10)	18:42	20:41			21:36			22:14	12	21:12 (16)
17	08:48	07:56	16:51 (10)	06:50	06:34			05:32			05:03	21:00 (16)
	16:47	17:49	17	17:08 (10)	18:44	20:42			21:37			22:14	12	21:12 (16)
18	08:47	07:54	16:52 (10)	06:47	06:31			05:30			05:03	21:01 (16)
	16:49	17:51	16	17:08 (10)	18:46	20:44			21:39			22:14	11	21:12 (16)
19	08:46	07:51	16:52 (10)	06:45	06:29			05:28			05:03	21:01 (16)
	16:51	17:53	14	17:06 (10)	18:48	20:46			21:41			22:15	12	21:13 (16)
20	08:45	07:49	16:53 (10)	06:42	06:27			05:27		21:00 (16)	05:03	21:01 (16)
	16:53	17:55	12	17:05 (10)	18:50	20:48			21:42	4	21:04 (16)	22:15	12	21:13 (16)
21	08:44	07:47	16:55 (10)	06:40	06:24			05:25		20:58 (16)	05:03	21:02 (16)
	16:54	17:57	8	17:03 (10)	18:51	20:50			21:44	9	21:07 (16)	22:15	12	21:14 (16)
22	08:42	07:45		06:37	06:22			05:24		20:56 (16)	05:03	21:02 (16)
	16:56	17:59		18:53	20:52			21:46	11	21:07 (16)	22:16	12	21:14 (16)
23	08:41	07:42		06:35	06:20			05:22		20:56 (16)	05:03	21:02 (16)
	16:58	18:01		18:55	20:54			21:47	12	21:08 (16)	22:16	12	21:14 (16)
24	08:40	07:40		06:32	06:17			05:21		20:56 (16)	05:04	21:02 (16)
	17:00	18:03		18:57	20:56			21:49	13	21:09 (16)	22:16	11	21:13 (16)
25	08:38	07:38		06:30	06:15			05:20		20:55 (16)	05:04	21:02 (16)
	17:02	18:05		18:59	20:58			21:50	15	21:10 (16)	22:16	12	21:14 (16)
26	08:37	07:36		06:27	06:13			05:18		20:55 (16)	05:04	21:02 (16)
	17:04	18:07		19:01	20:59			21:52	16	21:11 (16)	22:16	12	21:14 (16)
27	08:35	07:33		06:25	06:11			05:17		20:54 (16)	05:05	21:03 (16)
	17:06	18:09		19:03	21:01			21:53	16	21:10 (16)	22:16	12	21:15 (16)
28	08:34	07:31		06:22	06:09			05:16		20:54 (16)	05:05	21:02 (16)
	17:08	18:11		19:05	21:03			21:54	17	21:11 (16)	22:16	13	21:15 (16)
29	08:32			07:20	06:06			05:15		20:54 (16)	05:06	21:02 (16)
	17:10			20:07	21:05			21:56	17	21:11 (16)	22:15	14	21:16 (16)
30	08:30			07:17	06:04			05:14		20:55 (16)	05:07	21:02 (16)
	17:12			20:08	21:07			21:57	17	21:12 (16)	22:15	14	21:16 (16)
31	08:29			07:15				05:13		20:55 (16)		
	17:14			20:10				21:59	17	21:12 (16)		
Potential sun hours	248	272		367	421			496			513	
Total, worst case			170			135			164			413
Sun reduction			0.22			0.34			0.36			0.26
Oper. time red.			1.00			1.00			1.00			1.00
Wind dir. red.			0.58			0.59			0.63			0.63
Total reduction			0.13			0.20			0.23			0.16
Total, real			22			27			37			67

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DA - H106

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December
1	05:07	21:02 (16)	05:48		06:44	19:32 (12)	07:38		07:37	16:25 (10)	08:33
	22:15	14 21:16 (16)	21:39		20:31	12 19:44 (12)	19:16		17:04	7 16:32 (10)	16:19
2	05:08	21:02 (16)	05:50		06:45	19:31 (12)	07:40		07:39		08:35
	22:14	15 21:17 (16)	21:37		20:28	14 19:45 (12)	19:14		17:02		16:18
3	05:09	21:03 (16)	05:52		06:47	19:30 (12)	07:42		07:41		08:36
	22:14	15 21:18 (16)	21:35		20:26	16 19:46 (12)	19:11		17:00		16:18
4	05:10	21:02 (16)	05:53		06:49	19:29 (12)	07:44		07:43		08:38
	22:13	15 21:17 (16)	21:33		20:23	16 19:45 (12)	19:09		16:58		16:17
5	05:11	21:02 (16)	05:55		06:51	19:29 (12)	07:45		07:45		08:39
	22:13	16 21:18 (16)	21:31		20:21	16 19:45 (12)	19:06		16:56		16:16
6	05:12	21:02 (16)	05:57		06:53	19:29 (12)	07:47		07:47		08:41
	22:12	16 21:18 (16)	21:29		20:19	16 19:45 (12)	19:04		16:54		16:16
7	05:13	21:02 (16)	05:59		06:54	19:29 (12)	07:49		07:49		08:42
	22:12	17 21:19 (16)	21:27		20:16	15 19:44 (12)	19:01		16:53		16:15
8	05:14	21:02 (16)	06:00		06:56	19:29 (12)	07:51		07:51		08:43
	22:11	17 21:19 (16)	21:25		20:14	13 19:42 (12)	18:59		16:51		16:15
9	05:15	21:02 (16)	06:02		06:58	19:31 (12)	07:53		07:53		08:45
	22:10	17 21:19 (16)	21:23		20:11	9 19:40 (12)	18:56		16:49		16:14
10	05:16	21:02 (16)	06:04		07:00	19:34 (12)	07:55		07:55		08:46
	22:09	18 21:20 (16)	21:21		20:09	3 19:37 (12)	18:54		16:47		16:14
11	05:17	21:02 (16)	06:06		07:02		07:57		07:57		08:47
	22:08	18 21:20 (16)	21:19		20:06		18:52		16:45		16:14
12	05:18	21:02 (16)	06:07		07:03		07:58		07:59		08:48
	22:07	18 21:20 (16)	21:17		20:04		18:49		16:44		16:14
13	05:19	21:02 (16)	06:09		07:05		08:00		08:01		08:49
	22:06	18 21:20 (16)	21:15		20:01		18:47		16:42		16:13
14	05:21	21:03 (16)	06:11		07:07		08:02		08:03		08:50
	22:05	18 21:21 (16)	21:12		19:59		18:44		16:40		16:13
15	05:22	21:03 (16)	06:13		07:09		08:04		08:05		08:51
	22:04	17 21:20 (16)	21:10		19:56		18:42		16:39		16:13
16	05:23	21:03 (16)	06:15		07:11		08:06		08:07		08:52
	22:03	17 21:20 (16)	21:08		19:54		18:40		16:37		16:14
17	05:25	21:04 (16)	06:16		07:12		08:08		08:09		08:53
	22:02	16 21:20 (16)	21:06		19:51		18:37		16:36		16:14
18	05:26	21:05 (16)	06:18		07:14		08:10		08:11		08:54
	22:01	15 21:20 (16)	21:04		19:49		18:35		16:34		16:14
19	05:27	21:05 (16)	06:20		07:16		08:12		08:12		08:54
	21:59	14 21:19 (16)	21:01		19:46		18:33		16:33		16:14
20	05:29	21:05 (16)	06:22		07:18		08:14		08:14		08:55
	21:58	14 21:19 (16)	20:59		19:44		18:30		16:31		16:14
21	05:30	21:07 (16)	06:24		07:20		08:16	17:25 (10)	08:16		08:56
	21:56	11 21:18 (16)	20:57		19:41		18:28	10 17:35 (10)	16:30		16:15
22	05:32	21:07 (16)	06:26		07:22		08:18	17:23 (10)	08:18		08:56
	21:55	10 21:17 (16)	20:55		19:39		18:26	13 17:36 (10)	16:29		16:15
23	05:33	21:09 (16)	06:27		07:23		08:20	17:22 (10)	08:20		08:57
	21:54	6 21:15 (16)	20:52		19:36		18:24	15 17:37 (10)	16:27		16:16
24	05:35		06:29		07:25		08:22	17:21 (10)	08:22		08:57
	21:52		20:50		19:34		18:21	16 17:37 (10)	16:26		16:16
25	05:37		06:31		07:27		07:24	16:20 (10)	08:23		08:58
	21:50		20:48		19:31		17:19	17 16:37 (10)	16:25		16:17
26	05:38		06:33		07:29		07:25	16:20 (10)	08:25		08:58
	21:49		20:45		19:28		17:17	17 16:37 (10)	16:24		16:18
27	05:40		06:35		07:31		07:27	16:20 (10)	08:27		08:58
	21:47		20:43		19:26		17:15	17 16:37 (10)	16:23		16:19
28	05:41		06:36		07:32		07:29	16:21 (10)	08:28		08:58
	21:46		20:40		19:23		17:13	17 16:38 (10)	16:22		16:19
29	05:43		06:38		07:34		07:31	16:21 (10)	08:30		08:58
	21:44		20:38		19:21		17:11	16 16:37 (10)	16:21		16:20
30	05:45		06:40		07:36		07:33	16:22 (10)	08:32		08:58
	21:42		20:36		19:19		17:08	14 16:36 (10)	16:20		16:21
31	05:46		06:42	19:35 (12)			07:35	16:23 (10)			08:58
	21:40		20:33	8 19:43 (12)			17:06	11 16:34 (10)			16:22
Potential sun hours	515		461		383		328		257		231
Total, worst case		352		8		130		163		7	
Sun reduction		0.27		0.27		0.29		0.23		0.20	
Oper. time red.		1.00		1.00		1.00		1.00		1.00	
Wind dir. red.		0.63		0.59		0.59		0.58		0.58	
Total reduction		0.17		0.16		0.17		0.14		0.12	
Total, real		59		1		22		22		1	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DB - H109

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:59	08:27	07:29	08:22 (7)	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:38	08:34
	16:24	17:16	18:13	19 08:41 (7)	20:13	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:26	07:26	08:22 (7)	07:10	06:00	05:11	05:08	05:50	06:46	07:40	07:40	08:35
	16:25	17:18	18:15	16 08:38 (7)	20:14	21:11	22:01	22:15	21:37	20:29	19:14	17:03	16:19
3	08:58	08:24	07:24	08:25 (7)	07:08	05:58	05:10	05:09	05:52	06:48	07:42	07:42	08:37
	16:26	17:20	18:17	11 08:36 (7)	20:16	21:13	22:03	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:44	08:38
	16:28	17:22	18:19		20:18	21:15	22:04	22:14	21:33	20:24	19:09	16:59	16:17
5	08:58	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51	07:46	07:46	08:40
	16:29	17:24	18:21		20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:57	16:16
6	08:57	08:18	07:17		07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:48	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55	16:16
7	08:57	08:16	07:15		06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	16:15
8	08:56	08:15	07:12		06:55	05:48	05:06	05:14	06:01	06:57	07:51	07:51	08:44
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	16:15
9	08:56	08:13	07:10		06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29		20:28	21:24	22:09	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:11	07:07		06:51	05:44	05:05	05:16	06:04	07:00	07:55	09:01 (7)	07:55	08:46
	16:36	17:35	18:31		20:30	21:25	22:10	22:09	21:21	20:09	18:54	7 09:08 (7)	16:47	16:14
11	08:54	08:09	07:05		06:48	05:42	05:05	05:17	06:06	07:02	07:57	08:58 (7)	07:57	08:47
	16:37	17:37	18:33		20:31	21:27	22:10	22:09	21:19	20:06	18:52	13 09:11 (7)	16:46	16:14
12	08:53	08:07	07:02		06:46	05:41	05:04	05:18	06:08	07:04	07:59	08:56 (7)	07:59	08:48
	16:39	17:39	18:34		20:33	21:29	22:11	22:08	21:17	20:04	9 08:11 (8)	18:49	17 09:13 (7)	16:44	16:14
13	08:53	08:04	07:00		06:43	05:39	05:04	05:20	06:10	07:06	07:58 (8)	08:01	08:54 (7)	08:01	08:49
	16:41	17:41	18:36		20:35	21:31	22:12	22:07	21:15	20:01	14 08:12 (8)	18:47	20 09:14 (7)	16:42	16:14
14	08:52	08:02	06:57		06:41	05:37	05:04	05:21	06:11	07:07	07:56 (8)	08:03	08:53 (7)	08:03	08:51
	16:42	17:43	18:38		20:37	21:33	22:13	22:05	21:13	19:59	18 08:14 (8)	18:45	22 09:15 (7)	16:41	16:14
15	08:51	08:00	06:55		06:39	05:35	05:03	05:22	06:13	07:09	07:55 (8)	08:04	08:52 (7)	08:05	08:51
	16:44	17:45	18:40		20:39	21:34	22:13	22:04	21:11	19:56	20 08:15 (8)	18:42	23 09:15 (7)	16:39	16:14
16	08:50	07:58	08:28 (7)	06:52	07:17 (8)	06:36	05:34	05:03	05:24	06:15	07:11	07:54 (8)	08:06	08:52 (7)	08:07	08:52
	16:46	17:47	8 08:36 (7)	18:42	6 07:23 (8)	20:41	21:36	22:14	22:03	21:08	19:54	22 08:16 (8)	18:40	24 09:16 (7)	16:37	16:14
17	08:49	07:56	08:25 (7)	06:50	07:14 (8)	06:34	05:32	05:03	05:25	06:17	07:13	07:52 (8)	08:08	08:51 (7)	08:09	08:53
	16:47	17:49	14 08:39 (7)	18:44	12 07:26 (8)	20:43	21:38	22:14	22:02	21:06	19:51	24 08:16 (8)	18:38	25 09:16 (7)	16:36	16:14
18	08:48	07:54	08:24 (7)	06:48	07:12 (8)	06:31	05:30	05:03	05:26	06:19	07:15	07:52 (8)	08:10	08:51 (7)	08:11	08:54
	16:49	17:51	17 08:41 (7)	18:46	16 07:28 (8)	20:45	21:39	22:15	22:01	21:04	19:49	24 08:16 (8)	18:35	24 09:15 (7)	16:34	16:14
19	08:46	07:52	08:23 (7)	06:45	07:09 (8)	06:29	05:29	05:03	05:28	06:20	07:16	07:51 (8)	08:12	08:51 (7)	08:13	08:55
	16:51	17:53	19 08:42 (7)	18:48	19 07:28 (8)	20:46	21:41	22:15	21:59	21:02	19:46	25 08:16 (8)	18:33	24 09:15 (7)	16:33	16:14
20	08:45	07:49	08:21 (7)	06:43	07:07 (8)	06:27	05:27	05:03	05:29	06:22	07:18	07:51 (8)	08:14	08:51 (7)	08:15	08:55
	16:53	17:55	22 08:43 (7)	18:50	23 07:30 (8)	20:48	21:43	22:15	21:58	20:59	19:44	25 08:16 (8)	18:31	23 09:14 (7)	16:32	16:15
21	08:44	07:47	08:21 (7)	06:40	07:06 (8)	06:24	05:26	05:03	05:31	06:24	07:20	07:51 (8)	08:16	08:51 (7)	08:16	08:56
	16:55	17:57	23 08:44 (7)	18:52	23 07:29 (8)	20:50	21:44	22:16	21:57	20:57	19:41	25 08:16 (8)	18:28	23 09:14 (7)	16:30	16:15
22	08:43	07:45	08:20 (7)	06:38	07:05 (8)	06:22	05:24	05:03	05:32	06:26	07:22	07:50 (8)	08:18	08:52 (7)	08:18	08:57
	16:57	17:59	24 08:44 (7)	18:54	25 07:30 (8)	20:52	21:46	22:16	21:55	20:55	19:39	24 08:14 (8)	18:26	21 09:13 (7)	16:29	16:16
23	08:41	07:43	08:19 (7)	06:35	07:04 (8)	06:20	05:23	05:04	05:34	06:28	07:24	07:51 (8)	08:20	08:52 (7)	08:20	08:57
	16:58	18:01	25 08:44 (7)	18:56	25 07:29 (8)	20:54	21:47	22:16	21:54	20:52	19:36	22 08:13 (8)	18:24	20 09:12 (7)	16:28	16:16
24	08:40	07:40	08:20 (7)	06:33	07:05 (8)	06:18	05:21	05:04	05:35	06:29	07:25	07:52 (8)	08:22	08:54 (7)	08:22	08:57
	17:00	18:03	24 08:44 (7)	18:57	25 07:30 (8)	20:56	21:49	22:16	21:52	20:50	19:34	20 08:12 (8)	18:22	16 09:10 (7)	16:26	16:17
25	08:38	07:38	08:19 (7)	06:30	07:04 (8)	06:15	05:20	05:04	05:37	06:31	07:27	07:54 (8)	07:24	07:55 (7)	08:24	08:58
	17:02	18:05	24 08:43 (7)	18:59	25 07:29 (8)	20:58	21:50	22:16	21:51	20:48	19:31	17 08:11 (8)	17:19	13 08:08 (7)	16:25	16:17
26	08:37	07:36	08:20 (7)	06:28	07:05 (8)	06:13	05:19	05:05	05:38	06:33	07:29	07:56 (8)	07:26	08:00 (7)	08:25	08:58
	17:04	18:07	23 08:43 (7)	19:01	23 07:28 (8)	21:00	21:52	22:16	21:49	20:45	19:29	13 08:09 (8)	17:17	5 08:05 (7)	16:24	16:18
27	08:36	07:34	08:20 (7)	06:25	07:04 (8)	06:11	05:17	05:05	05:40	06:35	07:31	07:57 (8)	07:28		08:27	08:58
	17:06	18:09	23 08:43 (7)	19:03	23 07:27 (8)	21:02	21:53	22:16	21:48	20:43	19:26	8 08:05 (8)	17:15		16:23	16:19
28	08:34	07:31	08:20 (7)	06:23	07:05 (8)	06:09	05:16	05:06	05:42	06:37	07:33		07:30		08:29	08:59
	17:08	18:11	21 08:41 (7)	19:05	21 07:26 (8)	21:03	21:55	22:16	21:46	20:41	19:24		17:13		16:22	16:20
29	08:32			07:20	08:06 (8)	06:07	05:15	05:06	05:43	06:38	07:35		07:32		08:30	08:59
	17:10			20:07	18 08:24 (8)	21:05	21:56	22:16	21:44	20:38	19:21		17:11		16:21	16:21
30	08:31			07:18	08:08 (8)	06:04	05:14	05:07	05:45	06:40	07:36		07:34		08:32	08:59
	17:12			20:09	14 08:22 (8)	21:07	21:57	22:15	21:42	20:36	19:19		17:09		16:20	16:22
31	08:29			07:15	08:09 (8)		05:13		05:47	06:42			07:36			08:59
	17:14			20:11	10 08:19 (8)		21:59		21:41	20:34			17:07			16:23
Potential sun hours	248	272	367		421	496	513	515	461	382		328		257	231	
Total, worst case		267	354							310		320				
Sun reduction		0.22	0.22							0.29		0.23				
Oper. time red.		1.00	1.00							1.00		1.00				
Wind dir. red.		0.62	0.59							0.59		0.62				
Total reduction		0.14	0.13							0.17		0.15				
Total, real		37	47							54		47				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DC - H110

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April	May	June		July	August	September		October		November	December
1	08:58	08:27		07:29		07:12	06:02	05:12		05:08	05:48	06:44		07:38		07:37	08:33
	16:24	17:16		18:13		20:12	21:09	22:00		22:15	21:38	20:31		19:16		17:04	16:19
2	08:58	08:25		07:26		07:10	06:00	05:11		05:08	05:50	06:46		07:40		07:39	08:35
	16:25	17:18		18:15		20:14	21:11	22:01		22:14	21:37	20:28		19:14		17:02	16:18
3	08:58	08:24		07:24		07:08	05:58	05:10		05:09	05:52	06:47		07:42		07:41	08:36
	16:26	17:20		18:17		20:16	21:12	22:02		22:14	21:35	20:26		19:11		17:00	16:18
4	08:58	08:22		07:21		07:05	05:56	05:09		05:10	05:54	06:49		07:44		07:43	08:38
	16:27	17:22		18:19		20:18	21:14	22:03		22:13	21:33	20:23		19:09		16:58	16:17
5	08:57	08:20		07:19		07:03	05:54	05:08		05:11	05:55	06:51		07:45		07:45	08:39
	16:29	17:24		18:21		20:20	21:16	22:04		22:13	21:31	20:21		19:06		16:57	16:16
6	08:57	08:18		07:17		07:00	05:52	05:07		05:12	05:57	06:53		07:47		07:47	08:41
	16:30	17:26		18:23		20:22	21:18	22:05		22:12	21:29	20:19		19:04		16:55	16:16
7	08:56	08:16		07:14		06:58	05:50	05:07		05:13	05:59	06:55		07:49		07:49	08:42
	16:31	17:28		18:25		20:24	21:20	22:06		22:11	21:27	20:16		19:01		16:53	16:15
8	08:56	08:14		07:12		06:55	05:48	05:06		05:14	06:01	06:56		07:51		07:51	08:43
	16:33	17:30		18:27		20:25	21:22	22:07		22:11	21:25	20:14		18:59		16:51	16:15
9	08:55	08:12		07:09		06:53	05:46	05:06		05:15	06:02	06:58		07:53		07:53	08:45
	16:34	17:32		18:28		20:27	21:23	22:08		22:10	21:23	20:11		18:56		16:49	16:15
10	08:54	08:10		07:07		06:50	05:44	05:05		05:16	06:04	07:00		07:55		07:55	08:46
	16:36	17:34		18:30		20:29	21:25	22:09		22:09	21:21	20:09		18:54		16:47	16:14
11	08:54	08:08		07:05		06:48	05:42	05:05		05:17	06:06	07:02		07:57		07:57	08:47
	16:37	17:36		18:32		20:31	21:27	22:10		22:08	21:19	20:06		18:52		16:46	16:14
12	08:53	08:06		07:02		06:46	05:41	05:04		05:18	06:08	07:04		07:58		07:59	08:48
	16:39	17:38		18:34		20:33	21:29	22:11		22:07	21:17	20:04		18:49		16:44	16:14
13	08:52	08:04		07:00		06:43	05:39	05:04		05:20	06:09	07:05		08:00		08:01	08:49
	16:41	17:41		18:36		20:35	21:30	22:12		22:06	21:15	20:01		18:47		16:42	16:14
14	08:51	08:02		06:57		06:41	05:37	05:04		05:21	06:11	07:07		08:02		08:03	08:50
	16:42	17:43		18:38		20:37	21:32	22:12		22:05	21:12	19:59		18:44		16:40	16:14
15	08:50	08:00	17:11 (2)	06:55		06:38	05:35	05:03		05:22	06:13	07:09		08:04		08:05	08:51
	16:44	17:45 4	17:15 (2)	18:40		20:39	21:34	22:13		22:04	21:10	19:56		18:42		16:39	16:14
16	08:49	07:58	17:10 (2)	06:52	18:14 (4)	06:36	05:33	05:03		05:23	06:15	07:11		08:06		08:07	08:52
	16:46	17:47 7	17:17 (2)	18:42 1	18:15 (4)	20:41	21:36	22:13		22:03	21:08	19:54		18:40		16:37	16:14
17	08:48	07:56	17:10 (2)	06:50	18:13 (4)	06:34	05:32	05:03		05:25	06:17	07:13		08:08		08:09	08:53
	16:47	17:49 10	17:20 (2)	18:44 4	18:17 (4)	20:42	21:37	22:14		22:02	21:06	19:51		18:37		16:36	16:14
18	08:47	07:54	17:10 (2)	06:47	18:11 (4)	06:31	05:30	05:03		05:26	06:18	07:14	19:04 (4)	08:10		08:10	08:54
	16:49	17:51 12	17:22 (2)	18:46 8	18:19 (4)	20:44	21:39	22:14		22:00	21:04	19:49 1	19:05 (4)	18:35		16:34	16:14
19	08:46	07:51	17:10 (2)	06:45	18:11 (4)	06:29	05:29	05:03	21:37 (1)	05:28	06:20	07:16	19:00 (4)	08:12	17:45 (2)	08:12	08:54
	16:51	17:53 14	17:24 (2)	18:48 10	18:21 (4)	20:46	21:41	22:15 1	21:38 (1)	21:59	21:01	19:46 9	19:09 (4)	18:33 8	17:53 (2)	16:33	16:14
20	08:45	07:49	17:10 (2)	06:42	18:10 (4)	06:27	05:27	05:03	21:38 (1)	05:29	06:22	07:18	18:58 (4)	08:14	17:43 (2)	08:14	08:55
	16:53	17:55 15	17:25 (2)	18:50 12	18:22 (4)	20:48	21:42	22:15 1	21:39 (1)	21:58	20:59	19:44 13	19:11 (4)	18:30 12	17:55 (2)	16:31	16:15
21	08:44	07:47	17:11 (2)	06:40	18:10 (4)	06:24	05:26	05:03	21:38 (1)	05:31	06:24	07:20	18:56 (4)	08:16	17:41 (2)	08:16	08:56
	16:55	17:57 14	17:25 (2)	18:51 15	18:25 (4)	20:50	21:44	22:15 1	21:39 (1)	21:56	20:57	19:41 14	19:10 (4)	18:28 14	17:55 (2)	16:30	16:15
22	08:42	07:45	17:12 (2)	06:37	18:10 (4)	06:22	05:24	05:03	21:38 (1)	05:32	06:26	07:22	18:55 (4)	08:18	17:41 (2)	08:18	08:56
	16:56	17:59 11	17:23 (2)	18:53 15	18:25 (4)	20:52	21:45	22:15 1	21:39 (1)	21:55	20:55	19:39 15	19:10 (4)	18:26 15	17:56 (2)	16:29	16:16
23	08:41	07:42	17:15 (2)	06:35	18:11 (4)	06:20	05:23	05:04	21:38 (1)	05:34	06:27	07:23	18:54 (4)	08:20	17:40 (2)	08:20	08:57
	16:58	18:01 6	17:21 (2)	18:55 13	18:24 (4)	20:54	21:47	22:16 1	21:39 (1)	21:53	20:52	19:36 14	19:08 (4)	18:24 13	17:53 (2)	16:28	16:16
24	08:40	07:40		06:32	18:12 (4)	06:18	05:21	05:04		05:35	06:29	07:25	18:54 (4)	08:22	17:40 (2)	08:21	08:57
	17:00	18:03		18:57 10	18:22 (4)	20:56	21:49	22:16		21:52	20:50	19:34 11	19:05 (4)	18:21 11	17:51 (2)	16:26	16:17
25	08:38	07:38		06:30	18:15 (4)	06:15	05:20	05:04		05:37	06:31	07:27	18:55 (4)	07:24	16:40 (2)	08:23	08:57
	17:02	18:05		18:59 4	18:19 (4)	20:57	21:50	22:16		21:50	20:48	19:31 8	19:03 (4)	17:19 8	16:48 (2)	16:25	16:17
26	08:37	07:36		06:27		06:13	05:19	05:05		05:38	06:33	07:29	18:54 (4)	07:25	16:40 (2)	08:25	08:58
	17:04	18:07		19:01		20:59	21:52	22:16		21:49	20:45	19:29 6	19:00 (4)	17:17 6	16:46 (2)	16:24	16:18
27	08:35	07:33		06:25		06:11	05:17	05:05		05:40	06:35	07:31	18:55 (4)	07:27	16:41 (2)	08:27	08:58
	17:06	18:09		19:03		21:01	21:53	22:16		21:47	20:43	19:26 2	18:57 (4)	17:15 3	16:44 (2)	16:23	16:19
28	08:34	07:31		06:22		06:09	05:16	05:06		05:42	06:36	07:32		07:29		08:28	08:58
	17:08	18:11		19:05		21:03	21:54	22:15		21:45	20:40	19:24		17:13		16:22	16:20
29	08:32			07:20		06:06	05:15	05:06		05:43	06:38	07:34		07:31		08:30	08:58
	17:10			20:07		21:05	21:56	22:15		21:44	20:38	19:21		17:11		16:21	16:21
30	08:30			07:17		06:04	05:14	05:07		05:45	06:40	07:36		07:33		08:32	08:58
	17:12			20:09		21:07	21:57	22:15		21:42	20:36	19:19		17:09		16:20	16:22
31	08:29			07:15			05:13			05:47	06:42			07:35			08:58
	17:14			20:10			21:58			21:40	20:33			17:07			16:23
Potential sun hours	248	272		367		421	496	513		515	461	382		328		257	231
Total, worst case			93		92				5				93		90		
Sun reduction			0.22		0.22				0.26				0.29		0.23		
Oper. time red.			1.00		1.00				1.00				1.00		1.00		
Wind dir. red.			0.58		0.58				0.65				0.58		0.58		
Total reduction			0.13		0.13				0.17				0.17		0.14		
Total, real			12		12				1				16		12		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DD - H111

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May	June	July	August	September	October	November			December		
1	08:59		09:33 (18)	08:27		08:56 (17)	07:29	07:12	06:02	05:12	05:07	05:48	06:44	07:38	07:37			08:34		09:09 (18)
	16:24	19	15:45 (14)	17:16	22	09:18 (17)	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04			16:19	38	15:37 (14)
2	08:58		09:33 (18)	08:26		08:54 (17)	07:26	07:10	06:00	05:11	05:08	05:50	06:45	07:40	07:39		08:30 (17)	08:35		09:11 (18)
	16:25	21	15:46 (14)	17:18	23	09:17 (17)	18:15	20:14	21:11	22:01	22:15	21:37	20:29	19:14	17:02	9	08:39 (17)	16:18	36	15:37 (14)
3	08:58		09:33 (18)	08:24		08:53 (17)	07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41		08:28 (17)	08:37		09:12 (18)
	16:26	23	15:48 (14)	17:20	24	09:17 (17)	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	17:00	14	08:42 (17)	16:17	35	15:37 (14)
4	08:58		09:32 (18)	08:22		08:54 (17)	07:22	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43		08:27 (17)	08:38		09:14 (18)
	16:27	25	15:49 (14)	17:22	23	09:17 (17)	18:19	20:18	21:14	22:04	22:14	21:33	20:24	19:09	16:58	17	08:44 (17)	16:17	33	15:38 (14)
5	08:57		09:32 (18)	08:20		08:55 (17)	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45		08:25 (17)	08:40		09:15 (18)
	16:29	28	15:51 (14)	17:24	21	09:16 (17)	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:56	20	08:45 (17)	16:16	31	15:37 (14)
6	08:57		09:31 (18)	08:18		08:56 (17)	07:17	07:00	05:52	05:07	05:12	05:57	06:53	07:47	07:47		08:24 (17)	08:41		09:17 (18)
	16:30	31	15:52 (14)	17:26	19	09:15 (17)	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55	22	08:46 (17)	16:16	30	15:38 (14)
7	08:57		09:30 (18)	08:16		08:57 (17)	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49		08:23 (17)	08:42		09:18 (18)
	16:31	32	15:52 (14)	17:28	17	09:14 (17)	18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	23	08:46 (17)	16:15	28	15:37 (14)
8	08:56		09:30 (18)	08:14		08:59 (17)	07:12	06:55	05:48	05:06	05:14	06:00	06:56	07:51	07:51		08:23 (17)	08:44		09:20 (18)
	16:33	33	15:53 (14)	17:30	13	09:12 (17)	18:27	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	24	08:47 (17)	16:15	26	15:37 (14)
9	08:55		09:29 (18)	08:12		09:02 (17)	07:09	06:53	05:46	05:05	05:15	06:02	06:58	07:53	07:53		08:25 (17)	08:45		09:21 (18)
	16:34	35	15:54 (14)	17:32	7	09:09 (17)	18:28	20:27	21:24	22:09	22:10	21:23	20:11	18:56	16:49	23	08:48 (17)	16:14	23	15:36 (14)
10	08:55		09:28 (18)	08:10			07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55		08:27 (17)	08:46		09:22 (18)
	16:36	36	15:54 (14)	17:34			18:30	20:29	21:25	22:10	22:09	21:21	20:09	18:54	16:47	21	08:48 (17)	16:14	21	15:35 (14)
11	08:54		09:27 (18)	08:08			07:05	06:48	05:42	05:04	05:17	06:06	07:02	07:57	07:57		08:29 (17)	08:47		09:24 (18)
	16:37	38	15:55 (14)	17:36			18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:45	20	08:49 (17)	16:14	19	15:36 (14)
12	08:53		09:26 (18)	08:06			07:02	06:45	05:40	05:04	05:18	06:07	07:04	07:59	07:59		08:31 (17)	08:48		09:25 (18)
	16:39	40	15:55 (14)	17:38			18:34	20:33	21:29	22:11	22:08	21:17	20:04	18:49	16:44	18	08:49 (17)	16:14	18	15:35 (14)
13	08:52		09:25 (18)	08:04			07:00	06:43	05:39	05:04	05:19	06:09	07:05	08:00	08:01		08:33 (17)	08:49		15:19 (14)
	16:40	40	15:55 (14)	17:40			18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16	08:49 (17)	16:13	16	15:35 (14)
14	08:52		09:24 (18)	08:02			06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03		08:35 (17)	08:50		15:19 (14)
	16:42	42	15:56 (14)	17:42			18:38	20:37	21:32	22:13	22:05	21:13	19:59	18:44	16:40	13	08:48 (17)	16:13	16	15:35 (14)
15	08:51		09:23 (18)	08:00			06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05		08:37 (17)	08:51		15:20 (14)
	16:44	42	15:56 (14)	17:45			18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	11	08:48 (17)	16:13	15	15:35 (14)
16	08:50		09:21 (18)	07:58			06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07		08:40 (17)	08:52		15:21 (14)
	16:45	44	15:56 (14)	17:47			18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	9	08:49 (17)	16:13	14	15:35 (14)
17	08:49		09:22 (18)	07:56			06:50	06:34	05:32	05:03	05:25	06:16	07:13	08:08	08:09		08:42 (17)	08:53		15:22 (14)
	16:47	42	15:56 (14)	17:49			18:44	20:43	21:38	22:14	22:02	21:06	19:51	18:37	16:36	17	15:26 (14)	16:14	13	15:35 (14)
18	08:47		09:23 (18)	07:54			06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11		08:44 (17)	08:54		15:21 (14)
	16:49	40	15:56 (14)	17:51			18:46	20:44	21:39	22:15	22:01	21:04	19:49	18:35	16:34	18	15:28 (14)	16:14	14	15:35 (14)
19	08:46		09:23 (18)	07:52			06:45	06:29	05:28	05:03	05:27	06:20	07:16	08:12	08:13		08:46 (17)	08:55		15:22 (14)
	16:51	39	15:56 (14)	17:53			18:48	20:46	21:41	22:15	21:59	21:02	19:46	18:33	16:33	21	15:29 (14)	16:14	13	15:35 (14)
20	08:45		09:25 (18)	07:49			06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14		09:03 (18)	08:55		15:23 (14)
	16:53	36	15:56 (14)	17:55			18:50	20:48	21:43	22:15	21:58	20:59	19:44	18:30	16:31	28	15:30 (14)	16:14	13	15:36 (14)
21	08:44		09:26 (18)	07:47			06:40	06:24	05:25	05:03	05:30	06:24	07:20	08:16	08:16		09:02 (18)	08:56		15:23 (14)
	16:54	33	15:55 (14)	17:57			18:52	20:50	21:44	22:16	21:57	20:57	19:41	18:28	16:30	33	15:31 (14)	16:15	13	15:36 (14)
22	08:43		09:28 (18)	07:45			06:37	06:22	05:24	05:03	05:32	06:26	07:22	08:18	08:18		09:01 (18)	08:57		15:24 (14)
	16:56	28	15:55 (14)	17:59			18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	36	15:32 (14)	16:15	13	15:37 (14)
23	08:41		09:11 (17)	07:43			06:35	06:20	05:22	05:03	05:33	06:27	07:23	08:20	08:20		09:00 (18)	08:57		15:24 (14)
	16:58	21	15:54 (14)	18:01			18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	39	15:33 (14)	16:16	13	15:37 (14)
24	08:40		09:10 (17)	07:40			06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22		09:00 (18)	08:57		15:25 (14)
	17:00	18	15:54 (14)	18:03			18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	16:26	40	15:33 (14)	16:16	13	15:38 (14)
25	08:38		09:08 (17)	07:38			06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:24		09:00 (18)	08:58		15:25 (14)
	17:02	17	15:52 (14)	18:05			18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19	16:25	42	15:34 (14)	16:17	13	15:38 (14)
26	08:37		09:07 (17)	07:36			06:27	06:13	05:18	05:04	05:38	06:33	07:29	07:26	08:25		09:00 (18)	08:58		15:25 (14)
	17:04	9	09:16 (17)	18:07			19:01	21:00	21:52	22:16	21:49	20:45	19:29	17:17	16:24	44	15:35 (14)	16:18	14	15:39 (14)
27	08:35		09:05 (17)	07:33			06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28	08:27		09:02 (18)	08:58		15:26 (14)
	17:06	11	09:16 (17)	18:09			19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	43	15:35 (14)	16:19	14	15:40 (14)
28	08:34		09:03 (17)	07:31			06:22	06:09	05:16	05:05	05:41	06:36	07:33	07:30	08:29		09:04 (18)	08:58		15:26 (14)
	17:08	14	09:17 (17)	18:11			19:05	21:03	21:55	22:16	21:46	20:41	19:24	17:13	16:22	42	15:36 (14)	16:19	14	15:40 (14)
29	08:32		09:01 (17)				07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:32	08:30		09:05 (18)	08:59		15:26 (14)
	17:10	16	09:17 (17)				20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11	16:21	41	15:36 (14)	16:20	15	15:41 (14)
30	08:31		08:59 (17)				07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:34	08:32		09:07 (18)	08:59		15:27 (14)
	17:12	18	09:17 (17)				20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:08	16:20	40	15:36 (14)	16:21	16	15:43 (14)
31	08:29		08:58 (17)				07:15		05:13		05:46	06:42		07:36				08:59		15:27 (14)
	17:14	20	09:18 (17)				20:10		21:59		21:41	20:33		17:06				16:22	17	15:44 (14)
Potential sun hours	248			272			367	421	496	513	515	461	383	327	257			230		
Total, worst case		891			169											744			607	
Sun reduction		0.17			0.22											0.20			0.12	
Oper. time red.		1.00			1.00											1.00			1.00	
Wind dir. red.		0.64			0.64											0.64			0.63	
Total reduction		0.11			0.14											0.13			0.08	
Total, real		97			24											95			46	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DE - H112

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April	May	June	July	August	September		October		November	December
1	08:59	08:27		07:29	07:54 (6)	07:13	06:02	05:12	05:08	05:48	06:44		07:38	08:05 (5)	07:38	08:34
	16:24	17:16		18:13	10 08:04 (6)	20:13	21:09	22:00	22:15	21:39	20:31		19:16	23 08:34 (6)	17:05	16:19
2	08:58	08:26		07:26	07:51 (6)	07:10	06:00	05:11	05:08	05:50	06:46		07:40	08:07 (5)	07:40	08:35
	16:25	17:18		18:15	13 08:04 (6)	20:14	21:11	22:01	22:15	21:37	20:29		19:14	27 08:37 (6)	17:03	16:19
3	08:58	08:24		07:24	07:49 (6)	07:08	05:58	05:10	05:09	05:52	06:48		07:42	08:09 (5)	07:42	08:37
	16:26	17:20		18:17	16 08:05 (6)	20:16	21:13	22:02	22:14	21:35	20:26		19:11	28 08:38 (6)	17:01	16:18
4	08:58	08:22		07:22	07:46 (6)	07:05	05:56	05:09	05:10	05:54	06:49		07:44	08:10 (5)	07:43	08:38
	16:28	17:22		18:19	18 08:04 (6)	20:18	21:15	22:04	22:14	21:33	20:24		19:09	27 08:38 (6)	16:59	16:17
5	08:57	08:20		07:19	07:44 (6)	07:03	05:54	05:08	05:11	05:55	06:51		07:46	08:12 (5)	07:45	08:40
	16:29	17:24		18:21	20 08:04 (6)	20:20	21:16	22:05	22:13	21:31	20:21		19:06	27 08:39 (6)	16:57	16:17
6	08:57	08:18		07:17	07:42 (6)	07:00	05:52	05:08	05:12	05:57	06:53		07:47	08:14 (5)	07:47	08:41
	16:30	17:26		18:23	23 08:05 (6)	20:22	21:18	22:06	22:12	21:29	20:19		19:04	24 08:39 (6)	16:55	16:16
7	08:57	08:16		07:14	07:39 (6)	06:58	05:50	05:07	05:13	05:59	06:55		07:49	08:16 (6)	07:49	08:42
	16:32	17:28		18:25	25 08:04 (6)	20:24	21:20	22:07	22:12	21:27	20:16		19:01	24 08:40 (6)	16:53	16:15
8	08:56	08:14		07:12	07:37 (5)	06:55	05:48	05:06	05:14	06:01	06:57		07:51	08:18 (6)	07:51	08:44
	16:33	17:30		18:27	26 08:03 (6)	20:26	21:22	22:08	22:11	21:25	20:14		18:59	22 08:40 (6)	16:51	16:15
9	08:55	08:13		07:10	07:34 (5)	06:53	05:46	05:06	05:15	06:02	06:58		07:53	08:20 (6)	07:53	08:45
	16:34	17:33		18:29	28 08:02 (6)	20:28	21:24	22:09	22:10	21:23	20:11		18:57	19 08:39 (6)	16:49	16:15
10	08:55	08:11		07:07	07:32 (5)	06:51	05:44	05:05	05:16	06:04	07:00		07:55	08:22 (6)	07:55	08:46
	16:36	17:35		18:31	29 08:01 (6)	20:29	21:25	22:10	22:09	21:21	20:09		18:54	17 08:39 (6)	16:47	16:14
11	08:54	08:09		07:05	07:29 (5)	06:48	05:42	05:05	05:17	06:06	07:02		07:57	08:24 (6)	07:57	08:47
	16:38	17:37		18:33	28 07:59 (6)	20:31	21:27	22:10	22:08	21:19	20:06		18:52	14 08:38 (6)	16:46	16:14
12	08:53	08:06		07:02	07:27 (5)	06:46	05:41	05:04	05:18	06:08	07:04		07:59	08:26 (6)	07:59	08:48
	16:39	17:39		18:34	26 07:57 (6)	20:33	21:29	22:11	22:07	21:17	20:04		18:49	11 08:37 (6)	16:44	16:14
13	08:52	08:04		07:00	07:24 (5)	06:43	05:39	05:04	05:20	06:10	07:06		08:01	08:28 (6)	08:01	08:49
	16:41	17:41		18:36	17 07:51 (6)	20:35	21:31	22:12	22:06	21:15	20:01		18:47	8 08:36 (6)	16:42	16:14
14	08:52	08:02		06:57	07:22 (5)	06:41	05:37	05:04	05:21	06:11	07:07		08:03	08:30 (6)	08:03	08:50
	16:42	17:43		18:38	17 07:39 (5)	20:37	21:32	22:13	22:05	21:13	19:59		18:45	5 08:35 (6)	16:41	16:14
15	08:51	08:00		06:55	07:20 (5)	06:39	05:35	05:03	05:22	06:13	07:09		08:04	08:32 (6)	08:05	08:51
	16:44	17:45		18:40	18 07:38 (5)	20:39	21:34	22:13	22:04	21:10	19:56		18:42	1 08:33 (6)	16:39	16:14
16	08:50	07:58		06:52	07:22 (5)	06:36	05:34	05:03	05:24	06:15	07:11		08:06		08:07	08:52
	16:46	17:47		18:42	15 07:37 (5)	20:41	21:36	22:14	22:03	21:08	19:54		18:40		16:37	16:14
17	08:49	07:56		06:50	07:23 (5)	06:34	05:32	05:03	05:25	06:17	07:13		08:08		08:09	08:53
	16:48	17:49		18:44	11 07:34 (5)	20:43	21:38	22:14	22:02	21:06	19:51		18:38		16:36	16:14
18	08:47	07:54		06:47	07:27 (5)	06:31	05:30	05:03	05:26	06:19	07:15		08:10		08:11	08:54
	16:49	17:51		18:46	4 07:31 (5)	20:45	21:39	22:15	22:01	21:04	19:49		18:35		16:34	16:14
19	08:46	07:52		06:45		06:29	05:29	05:03	05:28	06:20	07:16		08:12		08:13	08:55
	16:51	17:53		18:48		20:46	21:41	22:15	21:59	21:02	19:46		18:33		16:33	16:14
20	08:45	07:49		06:43		06:27	05:27	05:03	05:29	06:22	07:18		08:14		08:14	08:55
	16:53	17:55		18:50		20:48	21:43	22:15	21:58	20:59	19:44		18:31		16:32	16:15
21	08:44	07:47		06:40		06:25	05:26	05:03	05:31	06:24	07:20		08:16		08:16	08:56
	16:55	17:57		18:52		20:50	21:44	22:16	21:57	20:57	19:41		18:28		16:30	16:15
22	08:43	07:45		06:38		06:22	05:24	05:03	05:32	06:26	07:22		08:18		08:18	08:56
	16:57	17:59		18:54		20:52	21:46	22:16	21:55	20:55	19:39		18:26		16:29	16:16
23	08:41	07:43		06:35		06:20	05:23	05:04	05:34	06:28	07:24		08:20		08:20	08:57
	16:59	18:01		18:55		20:54	21:47	22:16	21:54	20:52	19:36		18:24		16:28	16:16
24	08:40	07:40		06:33		06:18	05:21	05:04	05:35	06:29	07:25		08:22		08:22	08:57
	17:00	18:03		18:57		20:56	21:49	22:16	21:52	20:50	19:34		18:22		16:26	16:17
25	08:38	07:38		06:30		06:15	05:20	05:04	05:37	06:31	07:27		07:24		08:23	08:58
	17:02	18:05		18:59		20:58	21:50	22:16	21:51	20:48	19:31		17:19		16:25	16:17
26	08:37	07:36		06:28		06:13	05:19	05:05	05:39	06:33	07:29	08:06 (5)	07:26		08:25	08:58
	17:04	18:07		19:01		21:00	21:52	22:16	21:49	20:45	19:29	10 08:16 (5)	17:17		16:24	16:18
27	08:35	07:33	07:59 (6)	06:25		06:11	05:17	05:05	05:40	06:35	07:31	08:03 (5)	07:28		08:27	08:58
	17:06	18:09	3 08:02 (6)	19:03		21:01	21:53	22:16	21:47	20:43	19:26	14 08:17 (5)	17:15		16:23	16:19
28	08:34	07:31	07:56 (6)	06:23		06:09	05:16	05:06	05:42	06:37	07:33	08:01 (5)	07:30		08:29	08:58
	17:08	18:11	6 08:02 (6)	19:05		21:03	21:55	22:16	21:46	20:41	19:24	17 08:18 (5)	17:13		16:22	16:20
29	08:32			07:20		06:07	05:15	05:06	05:43	06:38	07:35	08:01 (5)	07:32		08:30	08:59
	17:10			20:07		21:05	21:56	22:16	21:44	20:38	19:21	18 08:19 (5)	17:11		16:21	16:21
30	08:31			07:18		06:05	05:14	05:07	05:45	06:40	07:36	08:03 (5)	07:34		08:32	08:59
	17:12			20:09		21:07	21:57	22:15	21:42	20:36	19:19	16 08:19 (5)	17:09		16:20	16:22
31	08:29			07:15			05:13		05:47	06:42			07:36			08:59
	17:14			20:11			21:59		21:41	20:33			17:07			16:23
Potential sun hours	248	272		367		421	496	513	515	461	382		328		257	231
Total, worst case		9		344							75		277			
Sun reduction		0.22		0.22							0.29		0.23			
Oper. time red.		1.00		1.00							1.00		1.00			
Wind dir. red.		0.61		0.60							0.59		0.60			
Total reduction		0.13		0.13							0.17		0.14			
Total, real		1		46							13		39			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DF - H113

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:49	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:33	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:43	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:39	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:25	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:54	20:52	21:45	22:16	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:27	16:17
25	08:38	07:38	06:30	06:15	05:20	05:05	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:18	05:05	05:40	06:35	07:31	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:41	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:07	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:11		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DG - H114

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March	April		May			June		
1	08:58	08:27		07:29	07:12			06:02			05:12	20:57 (16)
	16:24	17:16		18:13	20:12			21:09			22:00	17 21:14 (16)
2	08:58	08:25		07:26	07:10			06:00			05:11	20:56 (16)
	16:25	17:18		18:15	20:14			21:11			22:01	17 21:13 (16)
3	08:58	08:24		07:24	07:07			05:58			05:10	20:56 (16)
	16:26	17:20		18:17	20:16			21:12			22:02	17 21:13 (16)
4	08:58	08:22		07:21	07:05		19:41 (12)	05:56			05:09	20:57 (16)
	16:27	17:22		18:19	20:18	7	19:48 (12)	21:14			22:03	17 21:14 (16)
5	08:57	08:20		07:19	07:02		19:39 (12)	05:54			05:08	20:57 (16)
	16:29	17:24		18:21	20:20	11	19:50 (12)	21:16			22:05	17 21:14 (16)
6	08:57	08:18		07:17	07:00		19:37 (12)	05:52			05:07	20:57 (16)
	16:30	17:26		18:23	20:22	14	19:51 (12)	21:18			22:06	17 21:14 (16)
7	08:56	08:16		07:14	06:58		19:36 (12)	05:50			05:07	20:58 (16)
	16:31	17:28		18:24	20:24	15	19:51 (12)	21:20			22:07	16 21:14 (16)
8	08:56	08:14		07:12	06:55		19:35 (12)	05:48			05:06	20:58 (16)
	16:33	17:30		18:26	20:25	16	19:51 (12)	21:22			22:08	16 21:14 (16)
9	08:55	08:12		07:09	06:53		19:35 (12)	05:46			05:05	20:59 (16)
	16:34	17:32		18:28	20:27	16	19:51 (12)	21:23			22:09	15 21:14 (16)
10	08:55	08:10		07:07	06:50		19:34 (12)	05:44			05:05	20:58 (16)
	16:36	17:34		18:30	20:29	16	19:50 (12)	21:25			22:09	16 21:14 (16)
11	08:54	08:08		07:05	06:48		19:35 (12)	05:42			05:04	20:59 (16)
	16:37	17:36		18:32	20:31	14	19:49 (12)	21:27			22:10	15 21:14 (16)
12	08:53	08:06	17:01 (10)	07:02	06:45		19:36 (12)	05:40			05:04	21:00 (16)
	16:39	17:38	6 17:07 (10)	18:34	20:33	13	19:49 (12)	21:29			22:11	14 21:14 (16)
13	08:52	08:04	16:59 (10)	07:00	06:43		19:37 (12)	05:39			05:04	21:00 (16)
	16:40	17:40	11 17:10 (10)	18:36	20:35	9	19:46 (12)	21:31			22:12	15 21:15 (16)
14	08:51	08:02	16:58 (10)	06:57	06:41		19:40 (12)	05:37			05:03	21:00 (16)
	16:42	17:42	13 17:11 (10)	18:38	20:37	3	19:43 (12)	21:32			22:12	14 21:14 (16)
15	08:50	08:00	16:56 (10)	06:55	06:38			05:35			05:03	21:00 (16)
	16:44	17:44	15 17:11 (10)	18:40	20:39			21:34			22:13	14 21:14 (16)
16	08:49	07:58	16:56 (10)	06:52	06:36			05:33			05:03	21:01 (16)
	16:45	17:47	16 17:12 (10)	18:42	20:41			21:36			22:14	13 21:14 (16)
17	08:48	07:56	16:56 (10)	06:50	06:34			05:32			05:03	21:01 (16)
	16:47	17:49	17 17:13 (10)	18:44	20:42			21:37			22:14	13 21:14 (16)
18	08:47	07:54	16:56 (10)	06:47	06:31			05:30			05:03	21:02 (16)
	16:49	17:51	17 17:13 (10)	18:46	20:44			21:39			22:14	12 21:14 (16)
19	08:46	07:51	16:55 (10)	06:45	06:29			05:28			05:03	21:02 (16)
	16:51	17:53	17 17:12 (10)	18:48	20:46			21:41			22:15	12 21:14 (16)
20	08:45	07:49	16:56 (10)	06:42	06:27			05:27			05:03	21:02 (16)
	16:53	17:55	16 17:12 (10)	18:50	20:48			21:42			22:15	12 21:14 (16)
21	08:44	07:47	16:57 (10)	06:40	06:24			05:25		21:02 (16)	05:03	21:03 (16)
	16:54	17:57	14 17:11 (10)	18:51	20:50			21:44	4	21:06 (16)	22:15	12 21:15 (16)
22	08:42	07:45	16:57 (10)	06:37	06:22			05:24		20:59 (16)	05:03	21:03 (16)
	16:56	17:59	13 17:10 (10)	18:53	20:52			21:46	8	21:07 (16)	22:16	12 21:15 (16)
23	08:41	07:42	17:00 (10)	06:35	06:20			05:22		20:58 (16)	05:03	21:03 (16)
	16:58	18:01	8 17:08 (10)	18:55	20:54			21:47	11	21:09 (16)	22:16	12 21:15 (16)
24	08:40	07:40		06:32	06:17			05:21		20:58 (16)	05:04	21:03 (16)
	17:00	18:03		18:57	20:56			21:49	12	21:10 (16)	22:16	12 21:15 (16)
25	08:38	07:38		06:30	06:15			05:20		20:57 (16)	05:04	21:03 (16)
	17:02	18:05		18:59	20:58			21:50	14	21:11 (16)	22:16	13 21:16 (16)
26	08:37	07:36		06:27	06:13			05:18		20:57 (16)	05:04	21:03 (16)
	17:04	18:07		19:01	20:59			21:52	15	21:12 (16)	22:16	13 21:16 (16)
27	08:35	07:33		06:25	06:11			05:17		20:56 (16)	05:05	21:04 (16)
	17:06	18:09		19:03	21:01			21:53	15	21:11 (16)	22:16	13 21:17 (16)
28	08:34	07:31		06:22	06:09			05:16		20:56 (16)	05:05	21:03 (16)
	17:08	18:11		19:05	21:03			21:54	16	21:12 (16)	22:16	14 21:17 (16)
29	08:32			07:20	06:06			05:15		20:56 (16)	05:06	21:04 (16)
	17:10			20:07	21:05			21:56	16	21:12 (16)	22:15	14 21:18 (16)
30	08:30			07:17	06:04			05:14		20:57 (16)	05:07	21:03 (16)
	17:12			20:08	21:07			21:57	16	21:13 (16)	22:15	14 21:17 (16)
31	08:29			07:15				05:13		20:57 (16)		
	17:14			20:10				21:59	17	21:14 (16)		
Potential sun hours	248	272		367	421			496			513	
Total, worst case			163			134			144			428
Sun reduction			0.22			0.34			0.36			0.26
Oper. time red.			1.00			1.00			1.00			1.00
Wind dir. red.			0.58			0.59			0.63			0.63
Total reduction			0.13			0.20			0.23			0.16
Total, real			21			27			33			69

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DG - H114

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November	December
1	05:07		21:03 (16)	05:48			06:44		19:34 (12)	07:38			07:37	08:33
	22:15	15	21:18 (16)	21:39			20:31	14	19:48 (12)	19:16			17:04	16:19
2	05:08		21:04 (16)	05:50			06:45		19:33 (12)	07:40			07:39	08:35
	22:14	15	21:19 (16)	21:37			20:28	16	19:49 (12)	19:14			17:02	16:18
3	05:09		21:04 (16)	05:52			06:47		19:33 (12)	07:42			07:41	08:36
	22:14	15	21:19 (16)	21:35			20:26	16	19:49 (12)	19:11			17:00	16:18
4	05:10		21:03 (16)	05:53			06:49		19:32 (12)	07:44			07:43	08:38
	22:13	16	21:19 (16)	21:33			20:23	16	19:48 (12)	19:09			16:58	16:17
5	05:11		21:03 (16)	05:55			06:51		19:32 (12)	07:45			07:45	08:39
	22:13	16	21:19 (16)	21:31			20:21	15	19:47 (12)	19:06			16:56	16:16
6	05:12		21:04 (16)	05:57			06:53		19:33 (12)	07:47			07:47	08:41
	22:12	16	21:20 (16)	21:29			20:19	14	19:47 (12)	19:04			16:54	16:16
7	05:13		21:04 (16)	05:59			06:54		19:34 (12)	07:49			07:49	08:42
	22:12	16	21:20 (16)	21:27			20:16	11	19:45 (12)	19:01			16:53	16:15
8	05:14		21:04 (16)	06:00			06:56		19:35 (12)	07:51			07:51	08:43
	22:11	16	21:20 (16)	21:25			20:14	7	19:42 (12)	18:59			16:51	16:15
9	05:15		21:04 (16)	06:02			06:58			07:53			07:53	08:45
	22:10	17	21:21 (16)	21:23			20:11			18:56			16:49	16:14
10	05:16		21:04 (16)	06:04			07:00			07:55			07:55	08:46
	22:09	17	21:21 (16)	21:21			20:09			18:54			16:47	16:14
11	05:17		21:04 (16)	06:06			07:02			07:57			07:57	08:47
	22:08	17	21:21 (16)	21:19			20:06			18:52			16:45	16:14
12	05:18		21:04 (16)	06:07			07:03			07:58			07:59	08:48
	22:07	17	21:21 (16)	21:17			20:04			18:49			16:44	16:14
13	05:19		21:04 (16)	06:09			07:05			08:00			08:01	08:49
	22:06	17	21:21 (16)	21:15			20:01			18:47			16:42	16:13
14	05:21		21:05 (16)	06:11			07:07			08:02			08:03	08:50
	22:05	17	21:22 (16)	21:12			19:59			18:44			16:40	16:13
15	05:22		21:05 (16)	06:13			07:09			08:04			08:05	08:51
	22:04	16	21:21 (16)	21:10			19:56			18:42			16:39	16:13
16	05:23		21:05 (16)	06:15			07:11			08:06			08:07	08:52
	22:03	16	21:21 (16)	21:08			19:54			18:40			16:37	16:14
17	05:25		21:06 (16)	06:16			07:12			08:08			08:09	08:53
	22:02	15	21:21 (16)	21:06			19:51			18:37			16:36	16:14
18	05:26		21:07 (16)	06:18			07:14			08:10		17:34 (10)	08:11	08:54
	22:01	14	21:21 (16)	21:04			19:49			18:35	3	17:37 (10)	16:34	16:14
19	05:27		21:07 (16)	06:20			07:16			08:12		17:30 (10)	08:12	08:54
	21:59	13	21:20 (16)	21:01			19:46			18:33	10	17:40 (10)	16:33	16:14
20	05:29		21:08 (16)	06:22			07:18			08:14		17:28 (10)	08:14	08:55
	21:58	11	21:19 (16)	20:59			19:44			18:30	13	17:41 (10)	16:31	16:14
21	05:30		21:09 (16)	06:24			07:20			08:16		17:27 (10)	08:16	08:56
	21:56	10	21:19 (16)	20:57			19:41			18:28	15	17:42 (10)	16:30	16:15
22	05:32		21:11 (16)	06:25			07:22			08:18		17:26 (10)	08:18	08:56
	21:55	6	21:17 (16)	20:55			19:39			18:26	16	17:42 (10)	16:29	16:15
23	05:33			06:27			07:23			08:20		17:25 (10)	08:20	08:57
	21:54			20:52			19:36			18:24	18	17:43 (10)	16:27	16:16
24	05:35			06:29			07:25			08:22		17:25 (10)	08:22	08:57
	21:52			20:50			19:34			18:21	18	17:43 (10)	16:26	16:16
25	05:37			06:31			07:27			07:24		16:25 (10)	08:23	08:58
	21:50			20:48			19:31			17:19	17	16:42 (10)	16:25	16:17
26	05:38			06:33			07:29			07:25		16:25 (10)	08:25	08:58
	21:49			20:45			19:28			17:17	17	16:42 (10)	16:24	16:18
27	05:40			06:35			07:31			07:27		16:26 (10)	08:27	08:58
	21:47			20:43			19:26			17:15	15	16:41 (10)	16:23	16:19
28	05:41			06:36			07:32			07:29		16:27 (10)	08:28	08:58
	21:46			20:40			19:23			17:13	13	16:40 (10)	16:22	16:19
29	05:43			06:38		19:40 (12)	07:34			07:31		16:29 (10)	08:30	08:58
	21:44			20:38	4	19:44 (12)	19:21			17:11	10	16:39 (10)	16:21	16:20
30	05:45			06:40		19:37 (12)	07:36			07:33		16:32 (10)	08:32	08:58
	21:42			20:36	10	19:47 (12)	19:19			17:08	4	16:36 (10)	16:20	16:21
31	05:46			06:42		19:36 (12)				07:35				08:58
	21:40			20:33	12	19:48 (12)				17:06				16:22
Potential sun hours	515			461			383			328			257	231
Total, worst case		328			26			109			169			
Sun reduction		0.27			0.27			0.29			0.23			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.63			0.59			0.59			0.58			
Total reduction		0.17			0.16			0.17			0.14			
Total, real		55			4			19			23			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DH - H115

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June
1	08:58		08:27		15:55 (18)	07:29	07:12	06:02	05:11
	16:24		17:16	8	16:03 (18)	18:13	20:12	21:09	22:00
2	08:58		08:25			07:26	07:10	06:00	05:10
	16:25		17:18			18:15	20:14	21:11	22:01
3	08:58		08:24			07:24	07:07	05:58	05:10
	16:26		17:20			18:17	20:16	21:13	22:02
4	08:58		08:22			07:21	07:05	05:56	05:09
	16:27		17:22			18:19	20:18	21:14	22:03
5	08:57		08:20		16:46 (17)	07:19	07:02	05:54	05:08
	16:28		17:24	4	16:50 (17)	18:21	20:20	21:16	22:05
6	08:57		08:18		16:42 (17)	07:17	07:00	05:52	05:07
	16:30		17:26	12	16:54 (17)	18:22	20:22	21:18	22:06
7	08:56		15:50 (18)	08:16		16:41 (17)	07:14	06:58	05:50	05:06
	16:31	1	15:51 (18)	17:28	15	16:56 (17)	18:24	20:24	21:20	22:07
8	08:56		15:47 (18)	08:14		16:39 (17)	07:12	06:55	05:48	05:06
	16:33	7	15:54 (18)	17:30	19	16:58 (17)	18:26	20:25	21:22	22:08
9	08:55		15:47 (18)	08:12		16:37 (17)	07:09	06:53	05:46	05:05
	16:34	10	15:57 (18)	17:32	21	16:58 (17)	18:28	20:27	21:23	22:09
10	08:55		15:46 (18)	08:10		16:37 (17)	07:07	06:50	05:44	05:05
	16:36	12	15:58 (18)	17:34	22	16:59 (17)	18:30	20:29	21:25	22:09
11	08:54		15:45 (18)	08:08		16:36 (17)	07:05	06:48	05:42	05:04
	16:37	15	16:00 (18)	17:36	24	17:00 (17)	18:32	20:31	21:27	22:10
12	08:53		15:45 (18)	08:06		16:36 (17)	07:02	06:45	05:40	05:04
	16:39	16	16:01 (18)	17:38	24	17:00 (17)	18:34	20:33	21:29	22:11
13	08:52		15:45 (18)	08:04		16:36 (17)	07:00	06:43	05:38	05:03
	16:40	17	16:02 (18)	17:40	25	17:01 (17)	18:36	20:35	21:31	22:12
14	08:51		15:44 (18)	08:02		16:36 (17)	06:57	06:41	05:37	05:03
	16:42	19	16:03 (18)	17:42	25	17:01 (17)	18:38	20:37	21:32	22:12
15	08:51		15:43 (18)	08:00		16:35 (17)	06:55	06:38	05:35	05:03
	16:44	20	16:03 (18)	17:44	26	17:01 (17)	18:40	20:39	21:34	22:13
16	08:50		15:44 (18)	07:58		16:36 (17)	06:52	06:36	05:33	05:03
	16:45	20	16:04 (18)	17:46	25	17:01 (17)	18:42	20:41	21:36	22:14
17	08:48		15:44 (18)	07:56		16:36 (17)	06:50	06:33	05:32	05:03
	16:47	21	16:05 (18)	17:48	24	17:00 (17)	18:44	20:42	21:37	22:14
18	08:47		15:44 (18)	07:54		16:37 (17)	06:47	06:31	05:30	05:03
	16:49	22	16:06 (18)	17:51	23	17:00 (17)	18:46	20:44	21:39	22:15
19	08:46		15:44 (18)	07:51		16:37 (17)	06:45	06:29	05:28	05:03
	16:51	22	16:06 (18)	17:53	22	16:59 (17)	18:48	20:46	21:41	22:15
20	08:45		15:44 (18)	07:49		16:38 (17)	06:42	06:26	05:27	05:03
	16:52	23	16:07 (18)	17:55	20	16:58 (17)	18:50	20:48	21:42	22:15
21	08:44		15:44 (18)	07:47		16:40 (17)	06:40	06:24	05:25	05:03
	16:54	23	16:07 (18)	17:57	17	16:57 (17)	18:51	20:50	21:44	22:16
22	08:42		15:44 (18)	07:45		16:42 (17)	06:37	06:22	05:24	05:03
	16:56	24	16:08 (18)	17:59	12	16:54 (17)	18:53	20:52	21:46	22:16
23	08:41		15:44 (18)	07:42		16:46 (17)	06:35	06:20	05:22	05:03
	16:58	24	16:08 (18)	18:01	4	16:50 (17)	18:55	20:54	21:47	22:16
24	08:40		15:45 (18)	07:40			06:32	06:17	05:21	05:04
	17:00	23	16:08 (18)	18:03			18:57	20:56	21:49	22:16
25	08:38		15:45 (18)	07:38			06:30	06:15	05:20	05:04
	17:02	23	16:08 (18)	18:05			18:59	20:58	21:50	22:16
26	08:37		15:46 (18)	07:36			06:27	06:13	05:18	05:04
	17:04	22	16:08 (18)	18:07			19:01	20:59	21:52	22:16
27	08:35		15:47 (18)	07:33			06:25	06:11	05:17	05:05
	17:06	21	16:08 (18)	18:09			19:03	21:01	21:53	22:16
28	08:34		15:48 (18)	07:31			06:22	06:08	05:16	05:05
	17:08	19	16:07 (18)	18:11			19:05	21:03	21:55	22:16
29	08:32		15:49 (18)				07:20	06:06	05:15	05:06
	17:10	18	16:07 (18)				20:07	21:05	21:56	22:15
30	08:31		15:50 (18)				07:17	06:04	05:13	05:07
	17:12	16	16:06 (18)				20:08	21:07	21:57	22:15
31	08:29		15:51 (18)				07:15		05:12	
	17:14	13	16:04 (18)				20:10		21:59	
Potential sun hours	248		272			367	421	496	513
Total, worst case		451		372					
Sun reduction		0.17		0.22					
Oper. time red.		1.00		1.00					
Wind dir. red.		0.62		0.58					
Total reduction		0.11		0.13					
Total, real		48		48					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DH - H115

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October			November			December		
1	05:07	05:48	06:44	07:38			07:37		16:07 (17)	08:33		15:27 (18)
	22:15	21:39	20:31	19:16			17:04	21	16:28 (17)	16:19	15	15:42 (18)
2	05:08	05:50	06:45	07:40			07:39		16:07 (17)	08:35		15:28 (18)
	22:14	21:37	20:28	19:13			17:02	20	16:27 (17)	16:18	12	15:40 (18)
3	05:09	05:51	06:47	07:42			07:41		16:08 (17)	08:36		15:30 (18)
	22:14	21:35	20:26	19:11			17:00	18	16:26 (17)	16:17	10	15:40 (18)
4	05:10	05:53	06:49	07:43			07:43		16:10 (17)	08:38		15:32 (18)
	22:14	21:33	20:23	19:09			16:58	15	16:25 (17)	16:17	7	15:39 (18)
5	05:11	05:55	06:51	07:45			07:45		16:12 (17)	08:39		15:34 (18)
	22:13	21:31	20:21	19:06			16:56	11	16:23 (17)	16:16	3	15:37 (18)
6	05:11	05:57	06:53	07:47			07:47			08:41		
	22:12	21:29	20:19	19:04			16:54			16:16		
7	05:12	05:58	06:54	07:49			07:49			08:42		
	22:12	21:27	20:16	19:01			16:53			16:15		
8	05:13	06:00	06:56	07:51			07:51			08:43		
	22:11	21:25	20:14	18:59			16:51			16:15		
9	05:15	06:02	06:58	07:53			07:53			08:45		
	22:10	21:23	20:11	18:56			16:49			16:14		
10	05:16	06:04	07:00	07:55			07:55		15:25 (18)	08:46		
	22:09	21:21	20:09	18:54			16:47	9	15:34 (18)	16:14		
11	05:17	06:06	07:02	07:57			07:57		15:23 (18)	08:47		
	22:08	21:19	20:06	18:51			16:45	13	15:36 (18)	16:14		
12	05:18	06:07	07:03	07:58			07:59		15:21 (18)	08:48		
	22:07	21:17	20:04	18:49			16:44	17	15:38 (18)	16:13		
13	05:19	06:09	07:05	08:00			08:01		15:20 (18)	08:49		
	22:06	21:15	20:01	18:47			16:42	19	15:39 (18)	16:13		
14	05:21	06:11	07:07	08:02			08:03		15:20 (18)	08:50		
	22:05	21:13	19:59	18:44			16:40	19	15:39 (18)	16:13		
15	05:22	06:13	07:09	08:04			08:05		15:19 (18)	08:51		
	22:04	21:10	19:56	18:42			16:39	21	15:40 (18)	16:13		
16	05:23	06:15	07:11	08:06			08:07		15:19 (18)	08:52		
	22:03	21:08	19:54	18:40			16:37	22	15:41 (18)	16:13		
17	05:25	06:16	07:12	08:08			08:09		15:19 (18)	08:53		
	22:02	21:06	19:51	18:37			16:36	23	15:42 (18)	16:14		
18	05:26	06:18	07:14	08:10			08:11		15:19 (18)	08:54		
	22:01	21:04	19:49	18:35			16:34	23	15:42 (18)	16:14		
19	05:27	06:20	07:16	08:12		17:15 (17)	08:12		15:19 (18)	08:55		
	21:59	21:01	19:46	18:33	8	17:23 (17)	16:33	24	15:43 (18)	16:14		
20	05:29	06:22	07:18	08:14		17:12 (17)	08:14		15:19 (18)	08:55		
	21:58	20:59	19:44	18:30	14	17:26 (17)	16:31	24	15:43 (18)	16:14		
21	05:30	06:24	07:20	08:16		17:10 (17)	08:16		15:20 (18)	08:56		
	21:57	20:57	19:41	18:28	18	17:28 (17)	16:30	23	15:43 (18)	16:15		
22	05:32	06:25	07:21	08:18		17:08 (17)	08:18		15:20 (18)	08:56		
	21:55	20:55	19:39	18:26	21	17:29 (17)	16:28	23	15:43 (18)	16:15		
23	05:33	06:27	07:23	08:20		17:07 (17)	08:20		15:21 (18)	08:57		
	21:54	20:52	19:36	18:24	22	17:29 (17)	16:27	22	15:43 (18)	16:16		
24	05:35	06:29	07:25	08:22		17:06 (17)	08:22		15:21 (18)	08:57		
	21:52	20:50	19:33	18:21	24	17:30 (17)	16:26	22	15:43 (18)	16:16		
25	05:36	06:31	07:27	07:24		16:06 (17)	08:23		15:22 (18)	08:58		
	21:51	20:48	19:31	17:19	24	16:30 (17)	16:25	21	15:43 (18)	16:17		
26	05:38	06:33	07:29	07:26		16:05 (17)	08:25		15:23 (18)	08:58		
	21:49	20:45	19:28	17:17	25	16:30 (17)	16:24	20	15:43 (18)	16:18		
27	05:40	06:34	07:31	07:27		16:05 (17)	08:27		15:24 (18)	08:58		
	21:47	20:43	19:26	17:15	25	16:30 (17)	16:23	19	15:43 (18)	16:18		
28	05:41	06:36	07:32	07:29		16:06 (17)	08:29		15:24 (18)	08:58		
	21:46	20:40	19:23	17:13	25	16:31 (17)	16:22	18	15:42 (18)	16:19		
29	05:43	06:38	07:34	07:31		16:06 (17)	08:30		15:25 (18)	08:58		
	21:44	20:38	19:21	17:10	24	16:30 (17)	16:21	17	15:42 (18)	16:20		
30	05:45	06:40	07:36	07:33		16:06 (17)	08:32		15:26 (18)	08:59		
	21:42	20:36	19:18	17:08	24	16:30 (17)	16:20	16	15:42 (18)	16:21		
31	05:46	06:42		07:35		16:06 (17)				08:59		
	21:40	20:33		17:06	23	16:29 (17)				16:22		
Potential sun hours	515	461	383	327			257			230		
Total, worst case					277			500			47	
Sun reduction					0.23			0.20			0.12	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.58			0.61			0.62	
Total reduction					0.14			0.12			0.07	
Total, real					38			61			3	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DI - H116

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June
1	08:58	08:27	07:29		07:12		18:53 (18)	06:02	19:44 (17)	05:11
	16:24	17:16	18:13		20:12	24	19:17 (18)	21:09	8	19:52 (17)	22:00
2	08:58	08:25	07:26		07:10		18:53 (18)	06:00		05:10
	16:25	17:18	18:15		20:14	24	19:17 (18)	21:11		22:01
3	08:58	08:24	07:24		07:07		18:52 (18)	05:58		05:10
	16:26	17:20	18:17		20:16	24	19:16 (18)	21:12		22:02
4	08:58	08:22	07:21		07:05		18:53 (18)	05:56		05:09
	16:27	17:22	18:19		20:18	22	19:15 (18)	21:14		22:03
5	08:57	08:20	07:19		07:02		18:53 (18)	05:54		05:08
	16:28	17:24	18:21		20:20	21	19:14 (18)	21:16		22:05
6	08:57	08:18	07:17		07:00		18:54 (18)	05:52		05:07
	16:30	17:26	18:22		20:22	19	19:13 (18)	21:18		22:06
7	08:56	08:16	07:14		06:58		18:56 (18)	05:50		05:06
	16:31	17:28	18:24		20:24	15	19:11 (18)	21:20		22:07
8	08:56	08:14	07:12		06:55		18:58 (18)	05:48		05:06
	16:33	17:30	18:26		20:25	10	19:08 (18)	21:22		22:08
9	08:55	08:12	07:09		06:53			05:46		05:05
	16:34	17:32	18:28		20:27			21:23		22:09
10	08:55	08:10	07:07		06:50			05:44		05:05
	16:36	17:34	18:30		20:29			21:25		22:09
11	08:54	08:08	07:04		06:48			05:42		05:04
	16:37	17:36	18:32		20:31			21:27		22:10
12	08:53	08:06	07:02		06:45			05:40		05:04
	16:39	17:38	18:34		20:33			21:29		22:11
13	08:52	08:04	07:00		06:43			05:38		05:04
	16:40	17:40	18:36		20:35			21:31		22:12
14	08:51	08:02	06:57		06:41			05:37		05:03
	16:42	17:42	18:38		20:37			21:32		22:12
15	08:50	08:00	06:55		06:38		19:48 (17)	05:35		05:03
	16:44	17:44	18:40		20:39	7	19:55 (17)	21:34		22:13
16	08:49	07:58	06:52		06:36		19:44 (17)	05:33		05:03
	16:45	17:46	18:42		20:41	13	19:57 (17)	21:36		22:14
17	08:48	07:56	06:50		06:33		19:42 (17)	05:32		05:03
	16:47	17:48	18:44		20:42	16	19:58 (17)	21:37		22:14
18	08:47	07:54	06:47		06:31		19:41 (17)	05:30		05:03
	16:49	17:51	18:46		20:44	19	20:00 (17)	21:39		22:14
19	08:46	07:51	06:45		06:29		19:40 (17)	05:28		05:03
	16:51	17:53	18:48		20:46	21	20:01 (17)	21:41		22:15
20	08:45	07:49	06:42		06:26		19:39 (17)	05:27		05:03
	16:53	17:55	18:50		20:48	21	20:00 (17)	21:42		22:15
21	08:44	07:47	06:40		06:24		19:38 (17)	05:25		05:03
	16:54	17:57	18:51		20:50	23	20:01 (17)	21:44		22:15
22	08:42	07:45	06:37		06:22		19:38 (17)	05:24		05:03
	16:56	17:59	18:53		20:52	23	20:01 (17)	21:46		22:16
23	08:41	07:42	06:35		06:20		19:38 (17)	05:22		05:03
	16:58	18:01	18:55		20:54	23	20:01 (17)	21:47		22:16
24	08:40	07:40	06:32		06:17		19:38 (17)	05:21		05:04
	17:00	18:03	18:57		20:56	23	20:01 (17)	21:49		22:16
25	08:38	07:38	06:30	18:02 (18)	06:15		19:37 (17)	05:20		05:04
	17:02	18:05	18:59	11	18:13 (18)	20:58	22	19:59 (17)	21:50		22:16
26	08:37	07:36	06:27	17:59 (18)	06:13		19:38 (17)	05:18		05:04
	17:04	18:07	19:01	15	18:14 (18)	20:59	21	19:59 (17)	21:52		22:16
27	08:35	07:33	06:25	17:58 (18)	06:11		19:38 (17)	05:17		05:05
	17:06	18:09	19:03	18	18:16 (18)	21:01	20	19:58 (17)	21:53		22:16
28	08:34	07:31	06:22	17:56 (18)	06:08		19:39 (17)	05:16		05:05
	17:08	18:11	19:05	21	18:17 (18)	21:03	18	19:57 (17)	21:55		22:16
29	08:32		07:20	18:55 (18)	06:06		19:40 (17)	05:15		05:06
	17:10		20:07	22	19:17 (18)	21:05	16	19:56 (17)	21:56		22:15
30	08:30		07:17	18:54 (18)	06:04		19:41 (17)	05:14		05:07
	17:12		20:08	23	19:17 (18)	21:07	14	19:55 (17)	21:57		22:15
31	08:29		07:15	18:54 (18)				05:12		
	17:14		20:10	24	19:18 (18)				21:59		
Potential sun hours	248	272	367		421			496		513
Total, worst case				134		459			8	
Sun reduction				0.22		0.34			0.36	
Oper. time red.				1.00		1.00			1.00	
Wind dir. red.				0.58		0.59			0.59	
Total reduction				0.13		0.20			0.21	
Total, real				17		92			2	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DI - H116

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October	November	December
1	05:07	05:48		06:44		07:38	07:37	08:33
	22:15	21:39		20:31		19:16	17:04	16:19
2	05:08	05:50		06:45		07:40	07:39	08:35
	22:14	21:37		20:28		19:13	17:02	16:18
3	05:09	05:52		06:47		07:42	07:41	08:36
	22:14	21:35		20:26		19:11	17:00	16:17
4	05:10	05:53		06:49	18:55 (18)	07:43	07:43	08:38
	22:13	21:33		20:23	10 19:05 (18)	19:09	16:58	16:17
5	05:11	05:55		06:51	18:52 (18)	07:45	07:45	08:39
	22:13	21:31		20:21	15 19:07 (18)	19:06	16:56	16:16
6	05:11	05:57		06:53	18:51 (18)	07:47	07:47	08:41
	22:12	21:29		20:19	18 19:09 (18)	19:04	16:54	16:16
7	05:12	05:59		06:54	18:49 (18)	07:49	07:49	08:42
	22:12	21:27		20:16	21 19:10 (18)	19:01	16:53	16:15
8	05:14	06:00		06:56	18:47 (18)	07:51	07:51	08:43
	22:11	21:25		20:14	22 19:09 (18)	18:59	16:51	16:15
9	05:15	06:02		06:58	18:47 (18)	07:53	07:53	08:45
	22:10	21:23		20:11	23 19:10 (18)	18:56	16:49	16:14
10	05:16	06:04		07:00	18:46 (18)	07:55	07:55	08:46
	22:09	21:21		20:09	24 19:10 (18)	18:54	16:47	16:14
11	05:17	06:06		07:02	18:46 (18)	07:57	07:57	08:47
	22:08	21:19		20:06	24 19:10 (18)	18:51	16:45	16:14
12	05:18	06:07	19:51 (17)	07:03	18:45 (18)	07:58	07:59	08:48
	22:07	21:17	10 20:01 (17)	20:04	24 19:09 (18)	18:49	16:44	16:13
13	05:19	06:09	19:50 (17)	07:05	18:45 (18)	08:00	08:01	08:49
	22:06	21:15	13 20:03 (17)	20:01	24 19:09 (18)	18:47	16:42	16:13
14	05:21	06:11	19:47 (17)	07:07	18:45 (18)	08:02	08:03	08:50
	22:05	21:12	17 20:04 (17)	19:59	23 19:08 (18)	18:44	16:40	16:13
15	05:22	06:13	19:46 (17)	07:09	18:46 (18)	08:04	08:05	08:51
	22:04	21:10	19 20:05 (17)	19:56	21 19:07 (18)	18:42	16:39	16:13
16	05:23	06:15	19:46 (17)	07:11	18:46 (18)	08:06	08:07	08:52
	22:03	21:08	20 20:06 (17)	19:54	19 19:05 (18)	18:40	16:37	16:13
17	05:25	06:16	19:44 (17)	07:12	18:47 (18)	08:08	08:09	08:53
	22:02	21:06	22 20:06 (17)	19:51	16 19:03 (18)	18:37	16:36	16:14
18	05:26	06:18	19:44 (17)	07:14	18:49 (18)	08:10	08:11	08:54
	22:01	21:04	22 20:06 (17)	19:49	12 19:01 (18)	18:35	16:34	16:14
19	05:27	06:20	19:43 (17)	07:16	18:53 (18)	08:12	08:12	08:55
	21:59	21:01	23 20:06 (17)	19:46	3 18:56 (18)	18:33	16:33	16:14
20	05:29	06:22	19:43 (17)	07:18		08:14	08:14	08:55
	21:58	20:59	24 20:07 (17)	19:44		18:30	16:31	16:14
21	05:30	06:24	19:43 (17)	07:20		08:16	08:16	08:56
	21:56	20:57	23 20:06 (17)	19:41		18:28	16:30	16:15
22	05:32	06:25	19:43 (17)	07:21		08:18	08:18	08:56
	21:55	20:55	22 20:05 (17)	19:38		18:26	16:29	16:15
23	05:33	06:27	19:43 (17)	07:23		08:20	08:20	08:57
	21:54	20:52	22 20:05 (17)	19:36		18:24	16:27	16:16
24	05:35	06:29	19:43 (17)	07:25		08:22	08:22	08:57
	21:52	20:50	20 20:03 (17)	19:33		18:21	16:26	16:16
25	05:37	06:31	19:44 (17)	07:27		07:24	08:23	08:58
	21:50	20:48	18 20:02 (17)	19:31		17:19	16:25	16:17
26	05:38	06:33	19:45 (17)	07:29		07:25	08:25	08:58
	21:49	20:45	16 20:01 (17)	19:28		17:17	16:24	16:18
27	05:40	06:34	19:47 (17)	07:31		07:27	08:27	08:58
	21:47	20:43	12 19:59 (17)	19:26		17:15	16:23	16:18
28	05:41	06:36	19:49 (17)	07:32		07:29	08:28	08:58
	21:46	20:40	6 19:55 (17)	19:23		17:13	16:22	16:19
29	05:43	06:38		07:34		07:31	08:30	08:58
	21:44	20:38		19:21		17:10	16:21	16:20
30	05:45	06:40		07:36		07:33	08:32	08:58
	21:42	20:36		19:18		17:08	16:20	16:21
31	05:46	06:42				07:35		08:58
	21:40	20:33				17:06		16:22
Potential sun hours	515	461		383		327	257	230
Total, worst case			309		299			
Sun reduction			0.27		0.29			
Oper. time red.			1.00		1.00			
Wind dir. red.			0.59		0.58			
Total reduction			0.16		0.17			
Total, real			50		51			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DJ - H117

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:59	08:27	07:29	08:25 (7)	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:38	08:34
	16:24	17:16	18:13 (14)	08:39 (7)	20:13	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:26	07:26	08:27 (7)	07:10	06:00	05:11	05:08	05:50	06:46	07:40	07:40	08:35
	16:25	17:18	18:15 (9)	08:36 (7)	20:14	21:11	22:01	22:15	21:37	20:29	19:14	17:03	16:19
3	08:58	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:48	07:42	07:42	08:37
	16:26	17:20	18:17		20:16	21:13	22:03	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:44	08:38
	16:28	17:22	18:19		20:18	21:15	22:04	22:14	21:33	20:24	19:09	16:59	16:17
5	08:58	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51	07:46	07:46	08:40
	16:29	17:24	18:21		20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:57	16:16
6	08:57	08:18	07:17		07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:48	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55	16:16
7	08:57	08:16	07:15		06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	16:15
8	08:56	08:15	07:12		06:55	05:48	05:06	05:14	06:01	06:57	07:51	07:51	08:44
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	16:15
9	08:56	08:13	07:10		06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29		20:28	21:24	22:09	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:11	07:07		06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31		20:30	21:25	22:10	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:09	07:05		06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:37	17:37	18:33		20:31	21:27	22:10	22:09	21:19	20:06	18:52	16:46	16:14
12	08:53	08:07	07:02		06:46	05:41	05:04	05:18	06:08	07:04	07:59	09:00 (7)	07:59	08:48
	16:39	17:39	18:34		20:33	21:29	22:11	22:08	21:17	20:04	18:49 (11)	09:11 (7)	16:44	16:14
13	08:53	08:04	07:00		06:43	05:39	05:04	05:20	06:10	07:06	08:01	08:58 (7)	08:01	08:50
	16:41	17:41	18:36		20:35	21:31	22:12	22:07	21:15	20:01	18:47 (15)	09:13 (7)	16:42	16:14
14	08:52	08:02	06:57	07:22 (8)	06:41	05:37	05:04	05:21	06:11	07:07	08:06 (8)	08:03	08:56 (7)	08:03	08:51
	16:42	17:43	18:38 (4)	07:26 (8)	20:37	21:33	22:13	22:05	21:13	19:59 (5)	08:11 (8)	18:45 (19)	09:15 (7)	16:41	16:14
15	08:51	08:00	08:30 (7)	07:19 (8)	06:39	05:35	05:03	05:22	06:13	07:09	08:02 (8)	08:04	08:55 (7)	08:05	08:51
	16:44	17:45 (8)	08:38 (7)	07:29 (8)	20:39	21:34	22:13	22:04	21:11	19:56 (13)	08:15 (8)	18:42 (20)	09:15 (7)	16:39	16:14
16	08:50	07:58	08:27 (7)	07:17 (8)	06:36	05:34	05:03	05:24	06:15	07:11	08:00 (8)	08:06	08:54 (7)	08:07	08:52
	16:46	17:47 (13)	08:40 (7)	07:31 (8)	20:41	21:36	22:14	22:03	21:08	19:54 (17)	08:17 (8)	18:40 (22)	09:16 (7)	16:37	16:14
17	08:49	07:56	08:25 (7)	07:14 (8)	06:34	05:32	05:03	05:25	06:17	07:13	07:58 (8)	08:08	08:53 (7)	08:09	08:53
	16:47	17:49 (17)	08:42 (7)	07:32 (8)	20:43	21:38	22:14	22:02	21:06	19:51 (19)	08:17 (8)	18:38 (23)	09:16 (7)	16:36	16:14
18	08:48	07:54	08:24 (7)	07:12 (8)	06:31	05:30	05:03	05:26	06:19	07:15	07:56 (8)	08:10	08:53 (7)	08:11	08:54
	16:49	17:51 (19)	08:43 (7)	18:46 (21)	07:33 (8)	20:45	21:39	22:15	22:01	21:04	19:49 (22)	08:18 (8)	18:35 (23)	09:16 (7)	16:34	16:14
19	08:46	07:52	08:23 (7)	06:45	07:10 (8)	06:29	05:29	05:03	05:28	06:20	07:16	07:56 (8)	08:12	08:52 (7)	08:13	08:55
	16:51	17:53 (22)	08:45 (7)	18:48 (23)	07:33 (8)	20:46	21:41	22:15	21:59	21:02	19:46 (22)	08:18 (8)	18:33 (24)	09:16 (7)	16:33	16:14
20	08:45	07:49	08:22 (7)	06:43	07:10 (8)	06:27	05:27	05:03	05:29	06:22	07:18	07:55 (8)	08:14	08:52 (7)	08:15	08:55
	16:53	17:55 (22)	08:44 (7)	18:50 (24)	07:34 (8)	20:48	21:43	22:15	21:58	20:59	19:44 (24)	08:19 (8)	18:31 (24)	09:16 (7)	16:32	16:15
21	08:44	07:47	08:22 (7)	06:40	07:09 (8)	06:24	05:26	05:03	05:31	06:24	07:20	07:55 (8)	08:16	08:52 (7)	08:16	08:56
	16:55	17:57 (23)	08:45 (7)	18:52 (24)	07:33 (8)	20:50	21:44	22:16	21:57	20:57	19:41 (24)	08:19 (8)	18:28 (23)	09:15 (7)	16:30	16:15
22	08:43	07:45	08:22 (7)	06:38	07:09 (8)	06:22	05:24	05:03	05:32	06:26	07:22	07:53 (8)	08:18	08:53 (7)	08:18	08:57
	16:57	17:59 (24)	08:46 (7)	18:54 (24)	07:33 (8)	20:52	21:46	22:16	21:55	20:55	19:39 (25)	08:18 (8)	18:26 (22)	09:15 (7)	16:29	16:16
23	08:41	07:43	08:21 (7)	06:35	07:08 (8)	06:20	05:23	05:04	05:34	06:28	07:24	07:53 (8)	08:20	08:53 (7)	08:20	08:57
	16:58	18:01 (24)	08:45 (7)	18:56 (24)	07:32 (8)	20:54	21:47	22:16	21:54	20:52	19:36 (24)	08:17 (8)	18:24 (21)	09:14 (7)	16:28	16:16
24	08:40	07:40	08:22 (7)	06:33	07:09 (8)	06:18	05:21	05:04	05:35	06:29	07:25	07:54 (8)	08:22	08:54 (7)	08:22	08:57
	17:00	18:03 (23)	08:45 (7)	18:57 (23)	07:32 (8)	20:56	21:49	22:16	21:52	20:50	19:34 (23)	08:17 (8)	18:22 (19)	09:13 (7)	16:26	16:17
25	08:39	07:38	08:21 (7)	06:30	07:09 (8)	06:15	05:20	05:04	05:37	06:31	07:27	07:54 (8)	07:24	07:55 (7)	08:24	08:58
	17:02	18:05 (23)	08:44 (7)	18:59 (22)	07:31 (8)	20:58	21:50	22:16	21:51	20:48	19:31 (22)	08:16 (8)	17:19 (16)	08:11 (7)	16:25	16:17
26	08:37	07:36	08:22 (7)	06:28	07:10 (8)	06:13	05:19	05:05	05:38	06:33	07:29	07:56 (8)	07:26	07:58 (7)	08:25	08:58
	17:04	18:07 (22)	08:44 (7)	19:01 (20)	07:30 (8)	21:00	21:52	22:16	21:49	20:45	19:29 (19)	08:15 (8)	17:17 (12)	08:10 (7)	16:24	16:18
27	08:36	07:34	08:23 (7)	06:25	07:10 (8)	06:11	05:17	05:05	05:40	06:35	07:31	07:57 (8)	07:28	08:01 (7)	08:27	08:58
	17:06	18:09 (20)	08:43 (7)	19:03 (18)	07:28 (8)	21:02	21:53	22:16	21:48	20:43	19:26 (16)	08:13 (8)	17:15 (6)	08:07 (7)	16:23	16:19
28	08:34	07:31	08:24 (7)	06:23	07:12 (8)	06:09	05:16	05:06	05:42	06:37	07:33	07:59 (8)	07:30		08:29	08:59
	17:08	18:11 (17)	08:41 (7)	19:05 (14)	07:26 (8)	21:03	21:55	22:16	21:46	20:41	19:24 (12)	08:11 (8)	17:13		16:22	16:20
29	08:32		07:20	08:15 (8)	06:07	05:15	05:06	05:43	06:38	07:35	08:01 (8)	07:32			08:30	08:59
	17:10		20:07 (7)	08:22 (8)	21:05	21:56	22:16	21:44	20:38	19:21 (7)	08:08 (8)	17:11			16:21	16:21
30	08:31		07:18		06:04	05:14	05:07	05:45	06:40	07:36		07:34			08:32	08:59
	17:12		20:09		21:07	21:57	22:15	21:42	20:36	19:19		17:09			16:20	16:22
31	08:29		07:15			05:13		05:47	06:42			07:36				08:59
	17:14		20:11			21:59		21:41	20:34			17:07				16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case		277	313						294	300		
Sun reduction		0.22	0.22						0.29	0.23		
Oper. time red.		1.00	1.00						1.00	1.00		
Wind dir. red.		0.62	0.59						0.59	0.62		
Total reduction		0.14	0.13						0.17	0.15		
Total, real		38	42						51	44		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DK - H119

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May			June		
1	08:58			08:27		16:23 (9)	07:29		17:01 (10)	07:12			06:02		20:09 (12)	05:12		20:55 (13)
	16:24			17:16	19	16:42 (9)	18:13	16	17:17 (10)	20:12			21:09	20	20:29 (12)	22:00	12	21:07 (13)
2	08:58			08:25		16:23 (9)	07:26		17:03 (10)	07:10			06:00		20:09 (12)	05:11		20:56 (13)
	16:25			17:18	20	16:43 (9)	18:15	11	17:14 (10)	20:14			21:11	20	20:29 (12)	22:01	10	21:06 (13)
3	08:58			08:24		16:23 (9)	07:24			07:07			05:58		20:09 (12)	05:10		20:56 (13)
	16:26			17:20	21	16:44 (9)	18:17			20:16			21:12	19	20:28 (12)	22:02	9	21:05 (13)
4	08:58			08:22		16:22 (9)	07:21			07:05		19:45 (11)	05:56		20:09 (12)	05:09		20:58 (13)
	16:27			17:22	22	16:44 (9)	18:19			20:18	4	19:49 (11)	21:14	18	20:27 (12)	22:03	7	21:05 (13)
5	08:57			08:20		16:22 (9)	07:19			07:03		19:41 (11)	05:54		20:10 (12)	05:08		20:59 (13)
	16:29			17:24	22	16:44 (9)	18:21			20:20	12	19:53 (11)	21:16	17	20:27 (12)	22:05	5	21:04 (13)
6	08:57			08:18		16:22 (9)	07:17			07:00		19:39 (11)	05:52		20:12 (12)	05:07		
	16:30			17:26	22	16:44 (9)	18:23			20:22	15	19:54 (11)	21:18	14	20:26 (12)	22:06		
7	08:56			08:16		16:23 (9)	07:14			06:58		19:38 (11)	05:50		20:13 (12)	05:07		
	16:31			17:28	21	16:44 (9)	18:25			20:24	17	19:55 (11)	21:20	12	20:25 (12)	22:07		
8	08:56			08:14		16:23 (9)	07:12			06:55		19:36 (11)	05:48		20:14 (12)	05:06		
	16:33			17:30	21	16:44 (9)	18:26			20:26	19	19:55 (11)	21:22	9	20:23 (12)	22:08		
9	08:55			08:12		16:23 (9)	07:09			06:53		19:36 (11)	05:46			05:05		
	16:34			17:32	20	16:43 (9)	18:28			20:27	19	19:55 (11)	21:23			22:09		
10	08:55			08:10		16:24 (9)	07:07			06:50		19:36 (11)	05:44			05:05		
	16:36			17:34	18	16:42 (9)	18:30			20:29	20	19:56 (11)	21:25			22:09		
11	08:54			08:08		16:25 (9)	07:05			06:48		19:35 (11)	05:42			05:04		
	16:37			17:36	16	16:41 (9)	18:32			20:31	20	19:55 (11)	21:27			22:10		
12	08:53			08:06		16:27 (9)	07:02			06:45		19:35 (11)	05:40			05:04		
	16:39			17:38	13	16:40 (9)	18:34			20:33	20	19:55 (11)	21:29			22:11		
13	08:52			08:04		16:29 (9)	07:00			06:43		19:35 (11)	05:39			05:04		
	16:40			17:40	9	16:38 (9)	18:36			20:35	18	19:53 (11)	21:31			22:12		
14	08:51			08:02			06:57			06:41		19:35 (11)	05:37		20:57 (13)	05:03		
	16:42			17:42			18:38			20:37	18	19:53 (11)	21:32	3	21:00 (13)	22:12		
15	08:50			08:00		17:05 (10)	06:55			06:38		19:37 (11)	05:35		20:54 (13)	05:03		
	16:44			17:45	9	17:14 (10)	18:40			20:39	15	19:52 (11)	21:34	7	21:01 (13)	22:13		
16	08:49			07:58		17:03 (10)	06:52			06:36		19:37 (11)	05:33		20:54 (13)	05:03		
	16:45			17:47	14	17:17 (10)	18:42			20:41	12	19:49 (11)	21:36	9	21:03 (13)	22:14		
17	08:48			07:56		17:01 (10)	06:50			06:34		19:40 (11)	05:32		20:52 (13)	05:03		
	16:47			17:49	18	17:19 (10)	18:44			20:42	6	19:46 (11)	21:37	12	21:04 (13)	22:14		
18	08:47			07:54		17:00 (10)	06:47			06:31			05:30		20:52 (13)	05:03		
	16:49			17:51	20	17:20 (10)	18:46			20:44			21:39	14	21:06 (13)	22:14		
19	08:46			07:51		16:59 (10)	06:45			06:29			05:28		20:51 (13)	05:03		
	16:51			17:53	22	17:21 (10)	18:48			20:46			21:41	16	21:07 (13)	22:15		
20	08:45			07:49		16:58 (10)	06:42			06:27			05:27		20:51 (13)	05:03		
	16:53			17:55	23	17:21 (10)	18:50			20:48			21:42	17	21:08 (13)	22:15		
21	08:44			07:47		16:58 (10)	06:40			06:24			05:25		20:51 (13)	05:03		
	16:54			17:57	24	17:22 (10)	18:51			20:50			21:44	17	21:08 (13)	22:15		
22	08:42			07:45		16:57 (10)	06:37			06:22			05:24		20:51 (13)	05:03		
	16:56			17:59	25	17:22 (10)	18:53			20:52			21:46	17	21:08 (13)	22:16		
23	08:41			07:42		16:57 (10)	06:35			06:20		20:17 (12)	05:22		20:51 (13)	05:03		
	16:58			18:01	25	17:22 (10)	18:55			20:54	7	20:24 (12)	21:47	17	21:08 (13)	22:16		
24	08:40			07:40		16:58 (10)	06:32			06:17		20:15 (12)	05:21		20:51 (13)	05:04		
	17:00			18:03	24	17:22 (10)	18:57			20:56	11	20:26 (12)	21:49	18	21:09 (13)	22:16		
25	08:38			07:38		16:57 (10)	06:30			06:15		20:13 (12)	05:20		20:52 (13)	05:04		
	17:02			18:05	24	17:21 (10)	18:59			20:58	15	20:28 (12)	21:50	17	21:09 (13)	22:16		
26	08:37			07:36		16:58 (10)	06:27			06:13		20:11 (12)	05:18		20:52 (13)	05:04		
	17:04			18:07	23	17:21 (10)	19:01			20:59	17	20:28 (12)	21:52	17	21:09 (13)	22:16		
27	08:35			07:33		16:58 (10)	06:25			06:11		20:10 (12)	05:17		20:52 (13)	05:05		
	17:06			18:09	21	17:19 (10)	19:03			21:01	19	20:29 (12)	21:53	17	21:09 (13)	22:16		
28	08:34		16:28 (9)	07:31		16:59 (10)	06:22			06:09		20:09 (12)	05:16		20:52 (13)	05:05		
	17:08	7	16:35 (9)	18:11	19	17:18 (10)	19:05			21:03	20	20:29 (12)	21:55	16	21:08 (13)	22:16		
29	08:32		16:26 (9)				07:20			06:06		20:09 (12)	05:15		20:53 (13)	05:06		
	17:10	11	16:37 (9)				20:07			21:05	20	20:29 (12)	21:56	15	21:08 (13)	22:15		
30	08:30		16:24 (9)				07:17			06:04		20:09 (12)	05:14		20:54 (13)	05:07		
	17:12	15	16:39 (9)				20:09			21:07	20	20:29 (12)	21:57	14	21:08 (13)	22:15		
31	08:29		16:23 (9)				07:15						05:13		20:54 (13)			
	17:14	17	16:40 (9)				20:10						21:59	14	21:08 (13)			
Potential sun hours	248			272			367			421			496			513		
Total, worst case		50			535			27			344			386			43	
Sun reduction		0.17			0.22			0.22			0.34			0.36			0.26	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.59			0.59			0.58			0.60			0.62			0.63	
Total reduction		0.10			0.13			0.13			0.21			0.22			0.16	
Total, real		5			70			4			71			87			7	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DK - H119

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December
1	05:07			05:48			06:44		19:34 (11)	07:38			07:37		15:53 (9)	08:33
	22:15			21:39			20:31	20	19:54 (11)	19:16			17:04	19	16:12 (9)	16:19
2	05:08			05:50			06:45		19:34 (11)	07:40			07:39		15:52 (9)	08:35
	22:14			21:37			20:28	20	19:54 (11)	19:14			17:02	21	16:13 (9)	16:18
3	05:09			05:52			06:47		19:34 (11)	07:42			07:41		15:52 (9)	08:36
	22:14			21:35			20:26	19	19:53 (11)	19:11			17:00	21	16:13 (9)	16:18
4	05:10			05:53		20:26 (12)	06:49		19:33 (11)	07:44			07:43		15:52 (9)	08:38
	22:13			21:33	5	20:31 (12)	20:24	19	19:52 (11)	19:09			16:58	22	16:14 (9)	16:17
5	05:11			05:55		20:24 (12)	06:51		19:34 (11)	07:45			07:45		15:52 (9)	08:39
	22:13			21:31	10	20:34 (12)	20:21	17	19:51 (11)	19:06			16:56	22	16:14 (9)	16:16
6	05:12			05:57		20:22 (12)	06:53		19:35 (11)	07:47			07:47		15:52 (9)	08:41
	22:12			21:29	13	20:35 (12)	20:19	15	19:50 (11)	19:04			16:55	22	16:14 (9)	16:16
7	05:13		21:07 (13)	05:59		20:21 (12)	06:54		19:36 (11)	07:49			07:49		15:52 (9)	08:42
	22:12	2	21:09 (13)	21:27	15	20:36 (12)	20:16	12	19:48 (11)	19:01			16:53	22	16:14 (9)	16:15
8	05:14		21:05 (13)	06:00		20:19 (12)	06:56		19:39 (11)	07:51			07:51		15:52 (9)	08:43
	22:11	6	21:11 (13)	21:25	17	20:36 (12)	20:14	5	19:44 (11)	18:59			16:51	21	16:13 (9)	16:15
9	05:15		21:04 (13)	06:02		20:19 (12)	06:58			07:53			07:53		15:53 (9)	08:45
	22:10	8	21:12 (13)	21:23	18	20:37 (12)	20:11			18:56			16:49	20	16:13 (9)	16:14
10	05:16		21:03 (13)	06:04		20:18 (12)	07:00			07:55			07:55		15:54 (9)	08:46
	22:09	10	21:13 (13)	21:21	20	20:38 (12)	20:09			18:54			16:47	19	16:13 (9)	16:14
11	05:17		21:03 (13)	06:06		20:17 (12)	07:02			07:57		17:39 (10)	07:57		15:55 (9)	08:47
	22:08	11	21:14 (13)	21:19	20	20:37 (12)	20:06			18:52	7	17:46 (10)	16:45	17	16:12 (9)	16:14
12	05:18		21:02 (13)	06:08		20:17 (12)	07:03			07:59		17:36 (10)	07:59		15:56 (9)	08:48
	22:07	13	21:15 (13)	21:17	21	20:38 (12)	20:04			18:49	13	17:49 (10)	16:44	15	16:11 (9)	16:14
13	05:19		21:02 (13)	06:09		20:17 (12)	07:05			08:00		17:34 (10)	08:01		15:58 (9)	08:49
	22:06	13	21:15 (13)	21:15	21	20:38 (12)	20:01			18:47	17	17:51 (10)	16:42	11	16:09 (9)	16:14
14	05:21		21:02 (13)	06:11		20:18 (12)	07:07			08:02		17:32 (10)	08:03		16:00 (9)	08:50
	22:05	15	21:17 (13)	21:12	20	20:38 (12)	19:59			18:44	20	17:52 (10)	16:40	7	16:07 (9)	16:13
15	05:22		21:02 (13)	06:13		20:17 (12)	07:09			08:04		17:31 (10)	08:05			08:51
	22:04	15	21:17 (13)	21:10	19	20:36 (12)	19:56			18:42	22	17:53 (10)	16:39			16:13
16	05:23		21:01 (13)	06:15		20:18 (12)	07:11			08:06		17:30 (10)	08:07			08:52
	22:03	16	21:17 (13)	21:08	18	20:36 (12)	19:54			18:40	23	17:53 (10)	16:37			16:14
17	05:25		21:01 (13)	06:16		20:19 (12)	07:12			08:08		17:29 (10)	08:09			08:53
	22:02	16	21:17 (13)	21:06	16	20:35 (12)	19:51			18:37	24	17:53 (10)	16:36			16:14
18	05:26		21:01 (13)	06:18		20:19 (12)	07:14			08:10		17:29 (10)	08:11			08:54
	22:01	17	21:18 (13)	21:04	14	20:33 (12)	19:49			18:35	24	17:53 (10)	16:34			16:14
19	05:28		21:01 (13)	06:20		20:21 (12)	07:16			08:12		17:29 (10)	08:12			08:55
	21:59	17	21:18 (13)	21:01	11	20:32 (12)	19:46			18:33	24	17:53 (10)	16:33			16:14
20	05:29		21:01 (13)	06:22		20:24 (12)	07:18			08:14		17:28 (10)	08:14			08:55
	21:58	17	21:18 (13)	20:59	5	20:29 (12)	19:44			18:30	25	17:53 (10)	16:31			16:14
21	05:30		21:01 (13)	06:24			07:20			08:16		17:28 (10)	08:16			08:56
	21:56	18	21:19 (13)	20:57			19:41			18:28	24	17:52 (10)	16:30			16:15
22	05:32		21:01 (13)	06:26			07:22			08:18		17:29 (10)	08:18			08:56
	21:55	17	21:18 (13)	20:55			19:39			18:26	23	17:52 (10)	16:29			16:15
23	05:33		21:02 (13)	06:27			07:23			08:20		17:29 (10)	08:20			08:57
	21:54	17	21:19 (13)	20:52			19:36			18:24	22	17:51 (10)	16:27			16:16
24	05:35		21:02 (13)	06:29			07:25			08:22		17:30 (10)	08:22			08:57
	21:52	16	21:18 (13)	20:50			19:34			18:21	19	17:49 (10)	16:26			16:16
25	05:37		21:02 (13)	06:31			07:27			07:24		16:31 (10)	08:23			08:58
	21:50	15	21:17 (13)	20:48			19:31			17:19	17	16:48 (10)	16:25			16:17
26	05:38		21:03 (13)	06:33		19:43 (11)	07:29			07:26		16:33 (10)	08:25			08:58
	21:49	13	21:16 (13)	20:45	6	19:49 (11)	19:29			17:17	13	16:46 (10)	16:24			16:18
27	05:40		21:03 (13)	06:35		19:40 (11)	07:31			07:27		16:35 (10)	08:27			08:58
	21:47	11	21:14 (13)	20:43	12	19:52 (11)	19:26			17:15	8	16:43 (10)	16:23			16:19
28	05:41		21:05 (13)	06:36		19:37 (11)	07:32			07:29			08:28			08:58
	21:46	8	21:13 (13)	20:40	15	19:52 (11)	19:24			17:13			16:22			16:19
29	05:43		21:06 (13)	06:38		19:36 (11)	07:34			07:31		15:58 (9)	08:30			08:58
	21:44	5	21:11 (13)	20:38	17	19:53 (11)	19:21			17:11	10	16:08 (9)	16:21			16:20
30	05:45			06:40		19:36 (11)	07:36			07:33		15:56 (9)	08:32			08:58
	21:42			20:36	18	19:54 (11)	19:19			17:08	14	16:10 (9)	16:20			16:21
31	05:46			06:42		19:35 (11)				07:35		15:54 (9)				08:58
	21:40			20:33	20	19:55 (11)				17:06	17	16:11 (9)				16:22
Potential sun hours	515			461			382			328			257			231
Total, worst case		296			351			127			366			259		
Sun reduction		0.27			0.27			0.29			0.23			0.20		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.63			0.60			0.59			0.58			0.59		
Total reduction		0.17			0.17			0.17			0.14			0.12		
Total, real		49			58			22			50			30		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DL - H121

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April	May	June	July	August	September		October		November	December
1	08:59	08:27		07:29	07:54 (6)	07:13	06:02	05:12	05:08	05:48	06:44		07:38	08:10 (5)	07:38	08:34
	16:24	17:16		18:13	17 08:11 (6)	20:13	21:09	22:00	22:15	21:39	20:31		19:16	13 08:23 (5)	17:05	16:19
2	08:58	08:26		07:26	07:51 (6)	07:10	06:00	05:11	05:08	05:50	06:46		07:40	08:08 (5)	07:40	08:35
	16:25	17:18		18:15	19 08:10 (6)	20:14	21:11	22:01	22:15	21:37	20:29		19:14	16 08:24 (5)	17:03	16:19
3	08:58	08:24		07:24	07:49 (6)	07:08	05:58	05:10	05:09	05:52	06:48		07:42	08:09 (5)	07:42	08:37
	16:26	17:20		18:17	21 08:10 (6)	20:16	21:13	22:02	22:14	21:35	20:26		19:11	16 08:25 (5)	17:01	16:18
4	08:58	08:22		07:22	07:48 (6)	07:05	05:56	05:09	05:10	05:54	06:49		07:44	08:10 (5)	07:43	08:38
	16:28	17:22		18:19	21 08:09 (6)	20:18	21:15	22:04	22:14	21:33	20:24		19:09	14 08:24 (5)	16:59	16:17
5	08:57	08:20		07:19	07:44 (5)	07:03	05:54	05:08	05:11	05:55	06:51		07:46	08:12 (5)	07:45	08:40
	16:29	17:24		18:21	23 08:09 (6)	20:20	21:16	22:05	22:13	21:31	20:21		19:06	18 08:37 (6)	16:57	16:17
6	08:57	08:18		07:17	07:42 (5)	07:00	05:52	05:08	05:12	05:57	06:53		07:47	08:14 (5)	07:47	08:41
	16:30	17:26		18:23	24 08:08 (6)	20:22	21:18	22:06	22:12	21:29	20:19		19:04	22 08:40 (6)	16:55	16:16
7	08:57	08:16		07:14	07:39 (5)	06:58	05:50	05:07	05:13	05:59	06:55		07:49	08:16 (5)	07:49	08:42
	16:32	17:28		18:25	23 08:05 (6)	20:24	21:20	22:07	22:12	21:27	20:16		19:01	23 08:42 (6)	16:53	16:15
8	08:56	08:14		07:12	07:37 (5)	06:55	05:48	05:06	05:14	06:01	06:57		07:51	08:18 (5)	07:51	08:44
	16:33	17:30		18:27	21 08:03 (6)	20:26	21:22	22:08	22:11	21:25	20:14		18:59	22 08:43 (6)	16:51	16:15
9	08:55	08:13		07:10	07:34 (5)	06:53	05:46	05:06	05:15	06:02	06:58		07:53	08:20 (5)	07:53	08:45
	16:34	17:33		18:29	13 07:47 (5)	20:28	21:24	22:09	22:10	21:23	20:11		18:57	22 08:44 (6)	16:49	16:15
10	08:55	08:11		07:07	07:32 (5)	06:51	05:44	05:05	05:16	06:04	07:00		07:55	08:23 (6)	07:55	08:46
	16:36	17:35		18:31	15 07:47 (5)	20:29	21:25	22:10	22:09	21:21	20:09		18:54	21 08:44 (6)	16:47	16:14
11	08:54	08:09		07:05	07:29 (5)	06:48	05:42	05:05	05:17	06:06	07:02		07:57	08:24 (6)	07:57	08:47
	16:38	17:37		18:33	17 07:46 (5)	20:31	21:27	22:10	22:08	21:19	20:06		18:52	20 08:44 (6)	16:46	16:14
12	08:53	08:07		07:02	07:30 (5)	06:46	05:41	05:04	05:18	06:08	07:04		07:59	08:26 (6)	07:59	08:48
	16:39	17:39		18:34	15 07:45 (5)	20:33	21:29	22:11	22:07	21:17	20:04		18:49	18 08:44 (6)	16:44	16:14
13	08:52	08:04		07:00	07:31 (5)	06:43	05:39	05:04	05:20	06:10	07:06		08:01	08:28 (6)	08:01	08:49
	16:41	17:41		18:36	11 07:42 (5)	20:35	21:31	22:12	22:06	21:15	20:01		18:47	16 08:44 (6)	16:42	16:14
14	08:52	08:02		06:57	07:35 (5)	06:41	05:37	05:04	05:21	06:11	07:07		08:03	08:30 (6)	08:03	08:50
	16:42	17:43		18:38	4 07:39 (5)	20:37	21:32	22:13	22:05	21:13	19:59		18:45	13 08:43 (6)	16:41	16:14
15	08:51	08:00		06:55		06:39	05:35	05:03	05:22	06:13	07:09		08:04	08:32 (6)	08:05	08:51
	16:44	17:45		18:40		20:39	21:34	22:13	22:04	21:11	19:56		18:42	11 08:43 (6)	16:39	16:14
16	08:50	07:58		06:52		06:36	05:34	05:03	05:24	06:15	07:11		08:06	08:34 (6)	08:07	08:52
	16:46	17:47		18:42		20:41	21:36	22:14	22:03	21:08	19:54		18:40	8 08:42 (6)	16:37	16:14
17	08:49	07:56		06:50		06:34	05:32	05:03	05:25	06:17	07:13		08:08	08:36 (6)	08:09	08:53
	16:48	17:49		18:44		20:43	21:38	22:14	22:02	21:06	19:51		18:38	4 08:40 (6)	16:36	16:14
18	08:47	07:54		06:47		06:31	05:30	05:03	05:26	06:19	07:15		08:10	08:38 (6)	08:11	08:54
	16:49	17:51		18:46		20:45	21:39	22:15	22:01	21:04	19:49		18:35	1 08:39 (6)	16:34	16:14
19	08:46	07:52		06:45		06:29	05:29	05:03	05:28	06:20	07:16		08:12		08:13	08:55
	16:51	17:53		18:48		20:46	21:41	22:15	21:59	21:02	19:46		18:33		16:33	16:14
20	08:45	07:49		06:43		06:27	05:27	05:03	05:29	06:22	07:18		08:14		08:14	08:55
	16:53	17:55		18:50		20:48	21:43	22:15	21:58	20:59	19:44		18:31		16:32	16:15
21	08:44	07:47		06:40		06:25	05:26	05:03	05:31	06:24	07:20		08:16		08:16	08:56
	16:55	17:57		18:52		20:50	21:44	22:16	21:57	20:57	19:41		18:28		16:30	16:15
22	08:43	07:45		06:38		06:22	05:24	05:03	05:32	06:26	07:22		08:18		08:18	08:56
	16:57	17:59		18:54		20:52	21:46	22:16	21:55	20:55	19:39		18:26		16:29	16:16
23	08:41	07:43		06:35		06:20	05:23	05:04	05:34	06:28	07:24		08:20		08:20	08:57
	16:59	18:01		18:56		20:54	21:47	22:16	21:54	20:52	19:36		18:24		16:28	16:16
24	08:40	07:40	08:06 (6)	06:33		06:18	05:21	05:04	05:35	06:29	07:25		08:22		08:22	08:57
	17:00	18:03	2 08:08 (6)	18:57		20:56	21:49	22:16	21:52	20:50	19:34		18:22		16:26	16:17
25	08:38	07:38	08:03 (6)	06:30		06:15	05:20	05:04	05:37	06:31	07:27		07:24		08:24	08:58
	17:02	18:05	6 08:09 (6)	18:59		20:58	21:50	22:16	21:51	20:48	19:31		17:19		16:25	16:17
26	08:37	07:36	08:01 (6)	06:28		06:13	05:19	05:05	05:39	06:33	07:29		07:26		08:25	08:58
	17:04	18:07	9 08:10 (6)	19:01		21:00	21:52	22:16	21:49	20:45	19:29		17:17		16:24	16:18
27	08:35	07:33	07:59 (6)	06:25		06:11	05:17	05:05	05:40	06:35	07:31		07:28		08:27	08:58
	17:06	18:09	12 08:11 (6)	19:03		21:01	21:53	22:16	21:47	20:43	19:26		17:15		16:23	16:19
28	08:34	07:31	07:56 (6)	06:23		06:09	05:16	05:06	05:42	06:37	07:33		07:30		08:29	08:58
	17:08	18:11	15 08:11 (6)	19:05		21:03	21:55	22:16	21:46	20:41	19:24		17:13		16:22	16:20
29	08:32			07:20		06:07	05:15	05:06	05:43	06:38	07:35		07:32		08:30	08:59
	17:10			20:07		21:05	21:56	22:16	21:44	20:38	19:21		17:11		16:21	16:21
30	08:31			07:18		06:05	05:14	05:07	05:45	06:40	07:36	08:12 (5)	07:34		08:32	08:59
	17:12			20:09		21:07	21:57	22:15	21:42	20:36	19:19	9 08:21 (5)	17:09		16:20	16:22
31	08:29			07:15			05:13		05:47	06:42			07:36			08:59
	17:14			20:11			21:59		21:41	20:33			17:07			16:23
Potential sun hours	248	272		367		421	496	513	515	461	382		328		257	231
Total, worst case		44		244							9		278			
Sun reduction		0.22		0.22							0.29		0.23			
Oper. time red.		1.00		1.00							1.00		1.00			
Wind dir. red.		0.61		0.60							0.59		0.61			
Total reduction		0.14		0.14							0.17		0.14			
Total, real		6		33							2		40			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DM - H122

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02		05:12		20:54 (2)	05:08	21:00 (2)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09		22:00	26	21:20 (2)	22:15	33	21:38 (3)	21:38	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00		05:11		20:54 (2)	05:08		21:01 (2)	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11		22:01	26	21:20 (2)	22:14	31	21:38 (3)	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58		05:10		20:55 (2)	05:09		21:01 (2)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12		22:02	26	21:21 (2)	22:14	31	21:38 (3)	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:21	07:05	05:56		05:09		20:55 (2)	05:10		21:01 (2)	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14		22:03	25	21:20 (2)	22:13	31	21:38 (3)	21:33	20:24	19:09	16:59	16:17
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	16:29	17:24	18:21	20:20	21:16		22:04	25	21:20 (2)	22:13	29	21:37 (3)	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52		05:08		20:56 (2)	05:12		21:01 (2)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18		22:05	27	21:30 (3)	22:12	28	21:36 (3)	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50		05:07		20:55 (2)	05:13		21:01 (2)	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20		22:06	30	21:31 (3)	22:11	27	21:35 (3)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48		05:06		20:56 (2)	05:14		21:01 (2)	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22		22:07	30	21:32 (3)	22:11	26	21:27 (2)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46		05:06		20:56 (2)	05:15		21:01 (2)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23		22:08	31	21:32 (3)	22:10	26	21:27 (2)	21:23	20:11	18:56	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44		05:05		20:56 (2)	05:16		21:01 (2)	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25		22:09	31	21:33 (3)	22:09	26	21:27 (2)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42		05:05		20:56 (2)	05:17		21:01 (2)	06:06	07:02	07:57	07:57	08:47
	16:37	17:37	18:32	20:31	21:27		22:10	32	21:33 (3)	22:08	26	21:27 (2)	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41		05:04		20:57 (2)	05:18		21:03 (2)	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29		22:11	32	21:34 (3)	22:07	25	21:28 (2)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39		05:04		20:57 (2)	05:20		21:03 (2)	06:09	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30		22:12	33	21:35 (3)	22:06	25	21:28 (2)	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37		05:04		20:58 (2)	05:21		21:03 (2)	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32		22:12	34	21:36 (3)	22:05	25	21:28 (2)	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35		05:03		20:58 (2)	05:22		21:03 (2)	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34		22:13	34	21:37 (3)	22:04	25	21:28 (2)	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34		05:03		20:58 (2)	05:24		21:03 (2)	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36		22:13	33	21:36 (3)	22:03	25	21:28 (2)	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	21:02 (2)	05:03		20:58 (2)	05:25		21:04 (2)	06:17	07:13	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	2 21:04 (2)	22:14	34	21:37 (3)	22:02	24	21:28 (2)	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	21:00 (2)	05:03		20:58 (2)	05:26		21:04 (2)	06:18	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	6 21:06 (2)	22:14	35	21:37 (3)	22:00	22	21:26 (2)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	20:59 (2)	05:03		20:59 (2)	05:28		21:04 (2)	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	9 21:08 (2)	22:15	36	21:39 (3)	21:59	21	21:25 (2)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	20:57 (2)	05:03		20:59 (2)	05:29		21:05 (2)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	12 21:09 (2)	22:15	36	21:39 (3)	21:58	19	21:24 (2)	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	20:56 (2)	05:03		20:59 (2)	05:31		21:06 (2)	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	15 21:11 (2)	22:15	36	21:39 (3)	21:56	17	21:23 (2)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:56 (2)	05:03		20:59 (2)	05:32		21:06 (2)	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	16 21:12 (2)	22:15	36	21:39 (3)	21:55	15	21:21 (2)	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	20:55 (2)	05:04		20:59 (2)	05:34		21:07 (2)	06:28	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	18 21:13 (2)	22:16	36	21:39 (3)	21:53	13	21:20 (2)	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	20:55 (2)	05:04		21:00 (2)	05:35		21:08 (2)	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	19 21:14 (2)	22:16	35	21:39 (3)	21:52	10	21:18 (2)	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	20:55 (2)	05:04		21:00 (2)	05:37		21:10 (2)	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:57	21:50	21 21:16 (2)	22:16	34	21:39 (3)	21:50	8	21:18 (2)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	20:54 (2)	05:05		21:01 (2)	05:38		21:11 (2)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:51	23 21:17 (2)	22:16	34	21:40 (3)	21:49	5	21:16 (2)	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:54 (2)	05:05		21:00 (2)	05:40			06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	25 21:19 (2)	22:16	34	21:39 (3)	21:47			20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	20:54 (2)	05:06		21:01 (2)	05:42			06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	25 21:19 (2)	22:15	33	21:39 (3)	21:45			20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	20:54 (2)	05:06		21:00 (2)	05:43			06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	25 21:19 (2)	22:15	35	21:39 (3)	21:44			20:38	19:21	17:11	16:21	16:21
30	08:30		07:17	06:04	05:14	20:54 (2)	05:07		21:01 (2)	05:45			06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	26 21:20 (2)	22:15	33	21:39 (3)	21:42			20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13	20:54 (2)				05:47			06:42		07:35		08:58
	17:14		20:10		21:58	26 21:20 (2)				21:40			20:33		17:07		16:23
Potential sun hours	248	272	367	421	496		513			515	461	382	328	257	231
Total, worst case						268		962		593					
Sun reduction						0.36		0.26		0.27					
Oper. time red.						1.00		1.00		1.00					
Wind dir. red.						0.63		0.63		0.63					
Total reduction						0.23		0.16		0.17					
Total, real						61		156		99					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DN - H123

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	20:16 (2) 05:12	20:52 (3) 05:08	05:48	20:28 (2) 06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09 22	20:38 (2) 22:00	12 21:04 (3) 22:15	21:38 23	21:06 (3) 20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	20:15 (2) 05:11	20:53 (3) 05:08	05:50	20:28 (2) 06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11 24	20:39 (2) 22:01	10 21:03 (3) 22:14	21:37 21	21:05 (3) 20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	20:15 (2) 05:10	20:54 (3) 05:09	05:52	20:27 (2) 06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12 24	20:39 (2) 22:02	8 21:02 (3) 22:14	21:35 21	20:48 (2) 20:26	19:11	17:01	16:18
4	08:58	08:22	07:21	07:05	05:56	20:16 (2) 05:09	20:56 (3) 05:10	05:54	20:26 (2) 06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14 24	20:40 (2) 22:03	6 21:02 (3) 22:13	21:33 22	20:48 (2) 20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	20:15 (2) 05:08	05:11	05:55	20:26 (2) 06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16 25	20:40 (2) 22:04	22:13	21:31 23	20:49 (2) 20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	20:15 (2) 05:08	05:12	05:57	20:25 (2) 06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18 25	20:40 (2) 22:05	22:12	21:29 24	20:49 (2) 20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	20:15 (2) 05:07	05:13	05:59	20:25 (2) 06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20 24	20:39 (2) 22:06	22:11	21:27 24	20:49 (2) 20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	20:15 (2) 05:06	05:14 21:04 (3)	06:01	20:25 (2) 06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:25	21:22 23	20:38 (2) 22:07	22:11 3 21:07 (3)	21:25 24	20:49 (2) 20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	20:16 (2) 05:06	05:15 21:02 (3)	06:02	20:24 (2) 06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23 22	20:38 (2) 22:08	22:10 7 21:09 (3)	21:23 25	20:49 (2) 20:11	18:56	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	20:17 (2) 05:05	05:16 21:01 (3)	06:04	20:24 (2) 07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25 21	20:38 (2) 22:09	22:09 9 21:10 (3)	21:21 25	20:49 (2) 20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	20:18 (2) 05:05	05:17 21:00 (3)	06:06	20:25 (2) 07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27 21	20:55 (3) 22:10	22:08 11 21:11 (3)	21:19 24	20:49 (2) 20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	20:18 (2) 05:04	05:18 21:00 (3)	06:08	20:24 (2) 07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29 23	20:56 (3) 22:11	22:07 13 21:13 (3)	21:17 22	20:46 (2) 20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	20:20 (2) 05:04	05:20 20:59 (3)	06:09	20:25 (2) 07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30 24	20:59 (3) 22:12	22:06 15 21:14 (3)	21:15 19	20:44 (2) 20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	20:22 (2) 05:04	05:21 20:59 (3)	06:11	20:26 (2) 07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32 22	21:00 (3) 22:12	22:05 15 21:14 (3)	21:12 17	20:43 (2) 19:59	18:44	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	20:24 (2) 05:03	05:22 20:58 (3)	06:13	20:26 (2) 07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34 19	21:01 (3) 22:13	22:04 17 21:15 (3)	21:10 14	20:40 (2) 19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	20:47 (3) 05:03	05:24 20:57 (3)	06:15	20:27 (2) 07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36 16	21:03 (3) 22:13	22:03 18 21:15 (3)	21:08 11	20:38 (2) 19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	20:46 (3) 05:03	05:25 20:58 (3)	06:17	20:29 (2) 07:13	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37 18	21:04 (3) 22:14	22:02 19 21:17 (3)	21:06 7	20:36 (2) 19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:47 (3) 05:03	05:26 20:57 (3)	06:18	20:31 (2) 07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39 19	21:06 (3) 22:14	22:00 20 21:17 (3)	21:04 3	20:34 (2) 19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	20:47 (3) 05:03	05:28 20:57 (3)	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41 21	21:08 (3) 22:15	21:59 20 21:17 (3)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	20:46 (3) 05:03	05:29 20:57 (3)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42 21	21:07 (3) 22:15	21:58 21 21:18 (3)	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	20:47 (3) 05:03	05:31 20:57 (3)	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44 21	21:08 (3) 22:15	21:56 21 21:18 (3)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:47 (3) 05:03	05:32 20:56 (3)	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45 21	21:08 (3) 22:15	21:55 21 21:17 (3)	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	20:46 (3) 05:04	05:34 20:57 (3)	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47 21	21:07 (3) 22:16	21:53 21 21:18 (3)	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	20:47 (3) 05:04	05:35 20:57 (3)	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49 20	21:07 (3) 22:16	21:52 21 21:18 (3)	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15 20:25 (2)	05:20	20:48 (3) 05:04	05:37 20:57 (3)	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:57 3 20:28 (2)	21:50 19	21:07 (3) 22:16	21:50 21 21:18 (3)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13 20:22 (2)	05:19	20:48 (3) 05:05	05:38 20:57 (3)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59 8 20:30 (2)	21:51 19	21:07 (3) 22:16	21:49 19 21:16 (3)	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11 20:20 (2)	05:17	20:49 (3) 05:05	05:40 20:58 (3)	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01 11 20:31 (2)	21:53 18	21:07 (3) 22:16	21:47 17 21:15 (3)	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09 20:18 (2)	05:16	20:49 (3) 05:06	05:42 20:58 (3)	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03 15 20:33 (2)	21:54 18	21:07 (3) 22:15	21:45 15 21:13 (3)	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07 20:17 (2)	05:15	20:50 (3) 05:06	05:43 20:34 (2)	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05 18 20:35 (2)	21:56 16	21:06 (3) 22:15	21:44 21 21:12 (3)	20:38	19:21	17:11	16:21	16:21
30	08:30		07:17	06:04 20:16 (2)	05:14	20:51 (3) 05:07	05:45 20:31 (2)	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07 20 20:36 (2)	21:57 15	21:06 (3) 22:15	21:42 24 21:10 (3)	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13	20:51 (3)	05:47 20:30 (2)	06:42		07:35		08:58
	17:14		20:10		21:58 14	21:05 (3)	21:40 23 21:08 (3)	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case				75	640	36	412	349				
Sun reduction				0.34	0.36	0.26	0.27	0.27				
Oper. time red.				1.00	1.00	1.00	1.00	1.00				
Wind dir. red.				0.61	0.62	0.63	0.63	0.62				
Total reduction				0.21	0.22	0.16	0.17	0.17				
Total, real				16	144	6	69	59				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DO - H284

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May	June
1	08:58			08:27		16:12 (18)	07:29		17:32 (16)	07:12		18:27 (17)	06:02	05:11
	16:24			17:16	23	16:35 (18)	18:13	13	17:45 (16)	20:12	39	19:06 (17)	21:09	22:00
2	08:58			08:25		16:10 (18)	07:26		17:32 (16)	07:10		18:28 (17)	06:00	05:10
	16:25			17:18	26	16:36 (18)	18:15	15	17:47 (16)	20:14	38	19:06 (17)	21:11	22:01
3	08:58			08:24		16:09 (18)	07:24		17:32 (16)	07:07		18:28 (17)	05:58	05:10
	16:26			17:20	29	16:38 (18)	18:17	15	17:47 (16)	20:16	36	19:04 (17)	21:13	22:02
4	08:58			08:22		16:08 (18)	07:21		17:33 (16)	07:05		18:30 (17)	05:56	05:09
	16:27			17:22	31	16:39 (18)	18:19	13	17:46 (16)	20:18	33	19:03 (17)	21:14	22:03
5	08:57			08:20		16:07 (18)	07:19		17:35 (16)	07:02		18:31 (17)	05:54	05:08
	16:28			17:24	33	16:40 (18)	18:21	9	17:44 (16)	20:20	31	19:02 (17)	21:16	22:05
6	08:57			08:18		16:06 (18)	07:17		17:38 (16)	07:00		18:32 (17)	05:52	05:07
	16:30			17:26	35	16:41 (18)	18:23	2	17:40 (16)	20:22	27	18:59 (17)	21:18	22:06
7	08:56			08:16		16:06 (18)	07:14			06:58		18:35 (17)	05:50	05:06
	16:31			17:28	36	16:42 (18)	18:24			20:24	22	18:57 (17)	21:20	22:07
8	08:56			08:14		16:05 (18)	07:12			06:55		18:37 (17)	05:48	05:06
	16:33			17:30	38	16:43 (18)	18:26			20:26	16	18:53 (17)	21:22	22:08
9	08:55			08:12		16:04 (18)	07:09			06:53		18:44 (17)	05:46	05:05
	16:34			17:32	38	16:42 (18)	18:28			20:27	3	18:47 (17)	21:23	22:09
10	08:55			08:10		16:03 (18)	07:07			06:50			05:44	05:05
	16:36			17:34	40	16:43 (18)	18:30			20:29			21:25	22:09
11	08:54			08:08		16:03 (18)	07:05			06:48			05:42	05:04
	16:37			17:36	41	16:44 (18)	18:32			20:31			21:27	22:10
12	08:53			08:06		16:03 (18)	07:02		17:49 (17)	06:45			05:40	05:04
	16:39			17:38	41	16:44 (18)	18:34	7	17:56 (17)	20:33			21:29	22:11
13	08:52			08:04		16:03 (18)	07:00		17:44 (17)	06:43			05:38	05:04
	16:40			17:40	41	16:44 (18)	18:36	18	18:02 (17)	20:35			21:31	22:12
14	08:51			08:02		16:03 (18)	06:57		17:40 (17)	06:41			05:37	05:03
	16:42			17:42	42	16:45 (18)	18:38	24	18:04 (17)	20:37			21:32	22:12
15	08:51			08:00		16:03 (18)	06:55		17:38 (17)	06:38			05:35	05:03
	16:44			17:44	41	16:44 (18)	18:40	28	18:06 (17)	20:39			21:34	22:13
16	08:50			07:58		16:03 (18)	06:52		17:36 (17)	06:36			05:33	05:03
	16:45			17:46	41	16:44 (18)	18:42	31	18:07 (17)	20:41			21:36	22:14
17	08:48			07:56		16:04 (18)	06:50		17:34 (17)	06:33			05:32	05:03
	16:47			17:49	40	16:44 (18)	18:44	35	18:09 (17)	20:42			21:37	22:14
18	08:47			07:54		16:04 (18)	06:47		17:33 (17)	06:31			05:30	05:03
	16:49			17:51	40	16:44 (18)	18:46	36	18:09 (17)	20:44			21:39	22:15
19	08:46			07:51		16:04 (18)	06:45		17:32 (17)	06:29			05:28	05:03
	16:51			17:53	39	16:43 (18)	18:48	38	18:10 (17)	20:46			21:41	22:15
20	08:45			07:49		16:05 (18)	06:42		17:30 (17)	06:26			05:27	05:03
	16:53			17:55	37	16:42 (18)	18:50	40	18:10 (17)	20:48			21:42	22:15
21	08:44			07:47		16:06 (18)	06:40		17:30 (17)	06:24			05:25	05:03
	16:54			17:57	36	16:42 (18)	18:51	41	18:11 (17)	20:50			21:44	22:16
22	08:42			07:45		16:06 (18)	06:37		17:28 (17)	06:22			05:24	05:03
	16:56			17:59	34	16:40 (18)	18:53	43	18:11 (17)	20:52			21:46	22:16
23	08:41			07:42		16:07 (18)	06:35		17:28 (17)	06:20			05:22	05:03
	16:58			18:01	33	16:40 (18)	18:55	44	18:12 (17)	20:54			21:47	22:16
24	08:40			07:40		16:09 (18)	06:32		17:27 (17)	06:17			05:21	05:04
	17:00			18:03	29	16:38 (18)	18:57	44	18:11 (17)	20:56			21:49	22:16
25	08:38			07:38		16:10 (18)	06:30		17:27 (17)	06:15			05:20	05:04
	17:02			18:05	28	17:36 (16)	18:59	44	18:11 (17)	20:58			21:50	22:16
26	08:37			07:36		16:13 (18)	06:27		17:26 (17)	06:13			05:18	05:04
	17:04			18:07	26	17:39 (16)	19:01	45	18:11 (17)	20:59			21:52	22:16
27	08:35			07:33		16:15 (18)	06:25		17:27 (17)	06:11			05:17	05:05
	17:06			18:09	24	17:40 (16)	19:03	44	18:11 (17)	21:01			21:53	22:16
28	08:34			07:31		16:22 (18)	06:22		17:26 (17)	06:08			05:16	05:05
	17:08			18:11	14	17:43 (16)	19:05	44	18:10 (17)	21:03			21:55	22:16
29	08:32		16:21 (18)				07:20		18:27 (17)	06:06			05:15	05:06
	17:10	1	16:22 (18)				20:07	43	19:10 (17)	21:05			21:56	22:15
30	08:31		16:15 (18)				07:17		18:26 (17)	06:04			05:14	05:07
	17:12	14	16:29 (18)				20:08	42	19:08 (17)	21:07			21:57	22:15
31	08:29		16:12 (18)				07:15		18:27 (17)				05:12	
	17:14	19	16:31 (18)				20:10	41	19:08 (17)				21:59	
Potential sun hours	248			272			367			421			496	513
Total, worst case		34			956			799			245			
Sun reduction		0.17			0.22			0.22			0.34			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.59			0.59			0.57			0.57			
Total reduction		0.10			0.13			0.13			0.20			
Total, real		3			126			102			48			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Real Case Shadow receptor: DO - H284

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October		November		December
1	05:07	05:48	06:44		07:38		18:26 (17)	07:37	15:33 (18)	08:33
	22:15	21:39	20:31		19:16	13	18:39 (17)	17:04	40	16:13 (18)	16:19
2	05:08	05:50	06:45		07:40			07:39		15:33 (18)	08:35
	22:14	21:37	20:28		19:14			17:02	39	16:12 (18)	16:18
3	05:09	05:52	06:47		18:42 (17)	07:42		07:41		15:34 (18)	08:36
	22:14	21:35	20:26	2	18:44 (17)	19:11		17:00	37	16:11 (18)	16:17
4	05:10	05:53	06:49		18:34 (17)	07:44		07:43		15:35 (18)	08:38
	22:14	21:33	20:24	16	18:50 (17)	19:09		16:58	37	16:12 (18)	16:17
5	05:11	05:55	06:51		18:31 (17)	07:45		07:45		15:36 (18)	08:39
	22:13	21:31	20:21	22	18:53 (17)	19:06		16:56	35	16:11 (18)	16:16
6	05:12	05:57	06:53		18:28 (17)	07:47		07:47		15:37 (18)	08:41
	22:12	21:29	20:19	27	18:55 (17)	19:04		16:54	33	16:10 (18)	16:16
7	05:12	05:59	06:54		18:26 (17)	07:49		07:49		15:38 (18)	08:42
	22:12	21:27	20:16	31	18:57 (17)	19:01		16:53	31	16:09 (18)	16:15
8	05:14	06:00	06:56		18:24 (17)	07:51	18:11 (16)	07:51		15:39 (18)	08:43
	22:11	21:25	20:14	33	18:57 (17)	18:59	7	18:18 (16)	16:51	28	16:07 (18)	16:15
9	05:15	06:02	06:58		18:22 (17)	07:53	18:09 (16)	07:53		15:40 (18)	08:45
	22:10	21:23	20:11	36	18:58 (17)	18:56	11	18:20 (16)	16:49	26	16:06 (18)	16:14
10	05:16	06:04	07:00		18:21 (17)	07:55	18:07 (16)	07:55		15:43 (18)	08:46
	22:09	21:21	20:09	38	18:59 (17)	18:54	14	18:21 (16)	16:47	22	16:05 (18)	16:14
11	05:17	06:06	07:02		18:20 (17)	07:57	18:06 (16)	07:57		15:44 (18)	08:47
	22:08	21:19	20:06	40	19:00 (17)	18:51	16	18:22 (16)	16:45	19	16:03 (18)	16:14
12	05:18	06:07	07:03		18:18 (17)	07:58	18:06 (16)	07:59		15:47 (18)	08:48
	22:07	21:17	20:04	41	18:59 (17)	18:49	14	18:20 (16)	16:44	13	16:00 (18)	16:14
13	05:19	06:09	07:05		18:18 (17)	08:00	18:05 (16)	08:01				08:49
	22:06	21:15	20:01	42	19:00 (17)	18:47	12	18:17 (16)	16:42			16:13
14	05:21	06:11	07:07		18:17 (17)	08:02	16:51 (18)	08:03				08:50
	22:05	21:13	19:59	43	19:00 (17)	18:44	20	18:15 (16)	16:40			16:13
15	05:22	06:13	07:09		18:17 (17)	08:04	16:47 (18)	08:05				08:51
	22:04	21:10	19:56	43	19:00 (17)	18:42	26	18:13 (16)	16:39			16:13
16	05:23	06:15	07:11		18:15 (17)	08:06	16:44 (18)	08:07				08:52
	22:03	21:08	19:54	44	18:59 (17)	18:40	27	18:10 (16)	16:37			16:13
17	05:25	06:16	07:12		18:15 (17)	08:08	16:42 (18)	08:09				08:53
	22:02	21:06	19:51	44	18:59 (17)	18:37	28	18:08 (16)	16:36			16:14
18	05:26	06:18	07:14		18:15 (17)	08:10	16:40 (18)	08:11				08:54
	22:01	21:04	19:49	44	18:59 (17)	18:35	30	17:10 (18)	16:34			16:14
19	05:27	06:20	07:16		18:15 (17)	08:12	16:38 (18)	08:12				08:55
	21:59	21:01	19:46	44	18:59 (17)	18:33	33	17:11 (18)	16:33			16:14
20	05:29	06:22	07:18		18:14 (17)	08:14	16:37 (18)	08:14				08:55
	21:58	20:59	19:44	43	18:57 (17)	18:30	35	17:12 (18)	16:31			16:14
21	05:30	06:24	07:20		18:14 (17)	08:16	16:36 (18)	08:16				08:56
	21:57	20:57	19:41	43	18:57 (17)	18:28	36	17:12 (18)	16:30			16:15
22	05:32	06:25	07:21		18:14 (17)	08:18	16:35 (18)	08:18				08:56
	21:55	20:55	19:39	42	18:56 (17)	18:26	38	17:13 (18)	16:29			16:15
23	05:33	06:27	07:23		18:15 (17)	08:20	16:34 (18)	08:20				08:57
	21:54	20:52	19:36	40	18:55 (17)	18:24	39	17:13 (18)	16:27			16:16
24	05:35	06:29	07:25		18:15 (17)	08:22	16:33 (18)	08:22				08:57
	21:52	20:50	19:34	39	18:54 (17)	18:21	40	17:13 (18)	16:26			16:16
25	05:37	06:31	07:27		18:16 (17)	07:24	15:33 (18)	08:23				08:58
	21:51	20:48	19:31	37	18:53 (17)	17:19	41	16:14 (18)	16:25			16:17
26	05:38	06:33	07:29		18:16 (17)	07:26	15:32 (18)	08:25				08:58
	21:49	20:45	19:28	35	18:51 (17)	17:17	42	16:14 (18)	16:24			16:18
27	05:40	06:35	07:31		18:17 (17)	07:27	15:32 (18)	08:27				08:58
	21:47	20:43	19:26	33	18:50 (17)	17:15	41	16:13 (18)	16:23			16:19
28	05:41	06:36	07:32		18:18 (17)	07:29	15:33 (18)	08:29				08:58
	21:46	20:40	19:23	30	18:48 (17)	17:13	41	16:14 (18)	16:22			16:19
29	05:43	06:38	07:34		18:20 (17)	07:31	15:33 (18)	08:30				08:58
	21:44	20:38	19:21	26	18:46 (17)	17:11	41	16:14 (18)	16:21			16:20
30	05:45	06:40	07:36		18:22 (17)	07:33	15:33 (18)	08:32				08:59
	21:42	20:36	19:18	21	18:43 (17)	17:08	41	16:14 (18)	16:20			16:21
31	05:46	06:42				07:35	15:33 (18)					08:58
	21:40	20:33				17:06	40	16:13 (18)				16:22
Potential sun hours	515	461	383			327			257			230
Total, worst case				979			726			360		
Sun reduction				0.29			0.23			0.20		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.57			0.59			0.59		
Total reduction				0.17			0.14			0.12		
Total, real				163			101			43		

Table layout: For each day in each month the following matrix apply

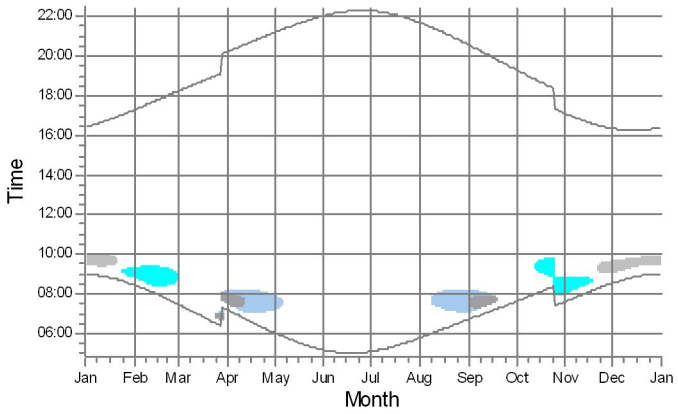
Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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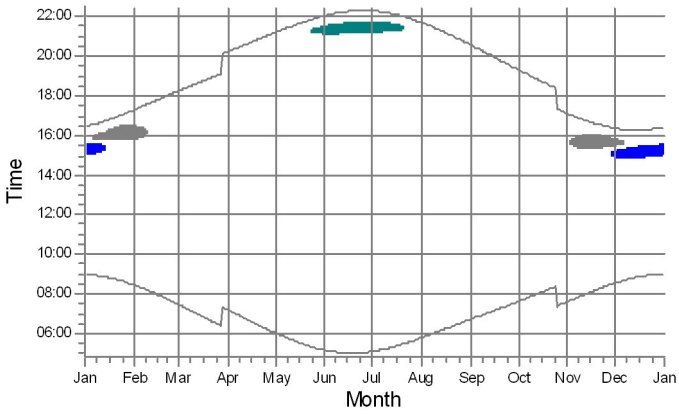
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

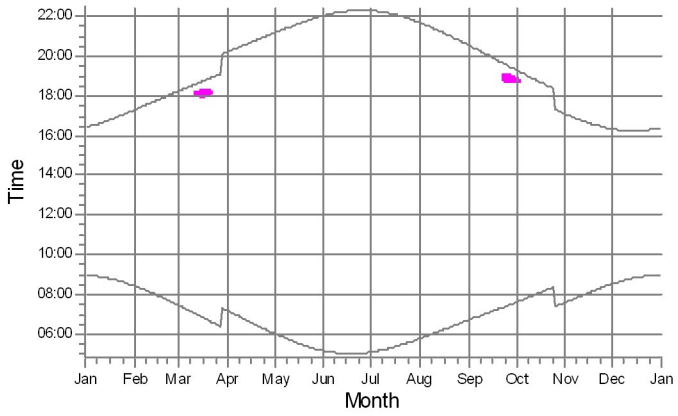
A: H1



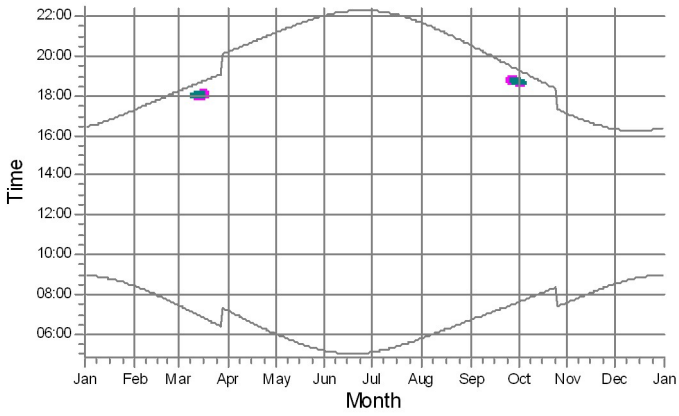
B: H2



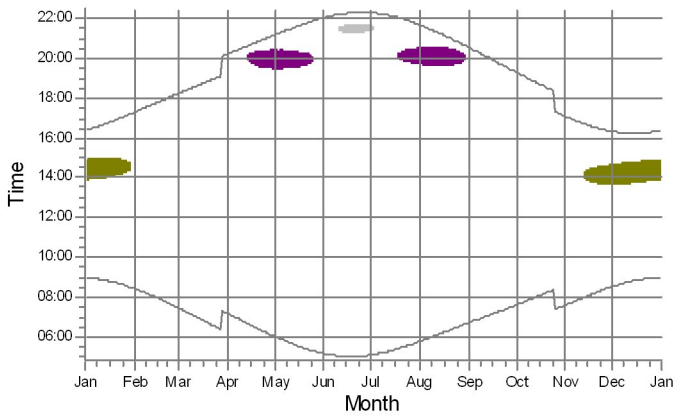
C: H3



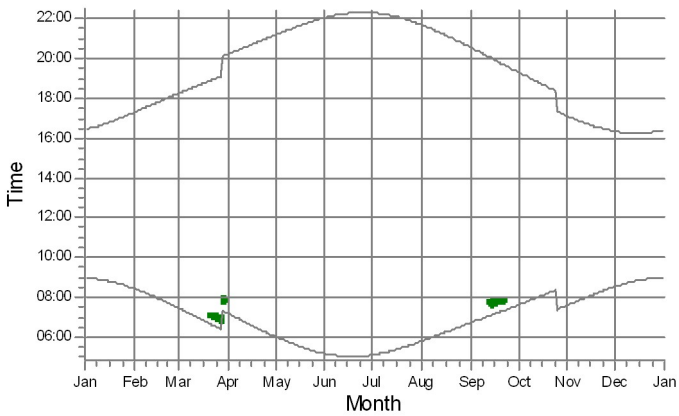
D: H4



E: H5



F: H6



WTGs

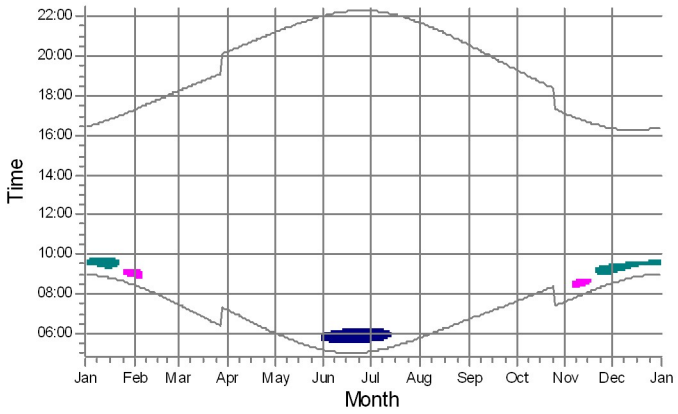
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3: AT03	6: AT06	12: AT12	16: AT16
4: AT04	10: AT10	13: AT13	

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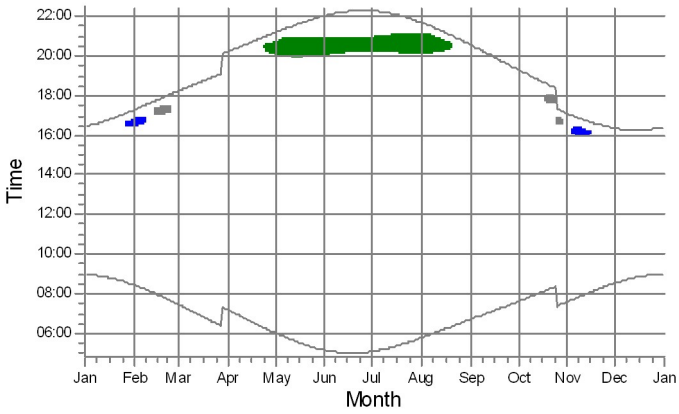
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

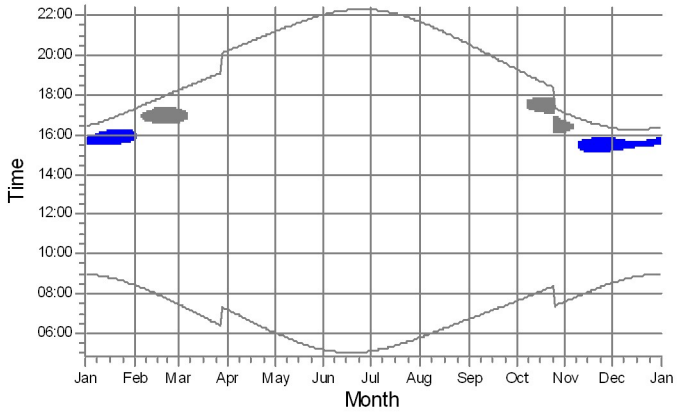
G: H7



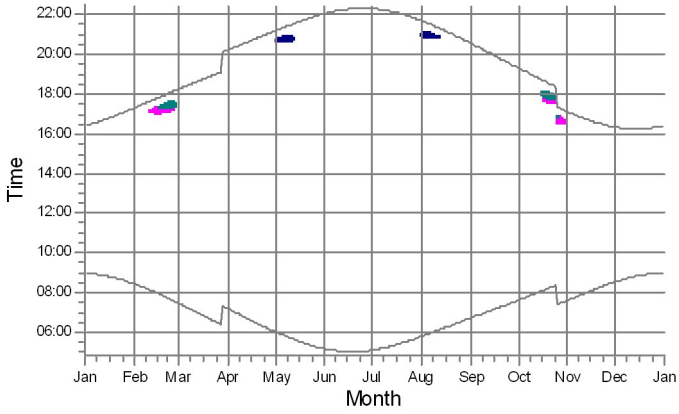
H: H8



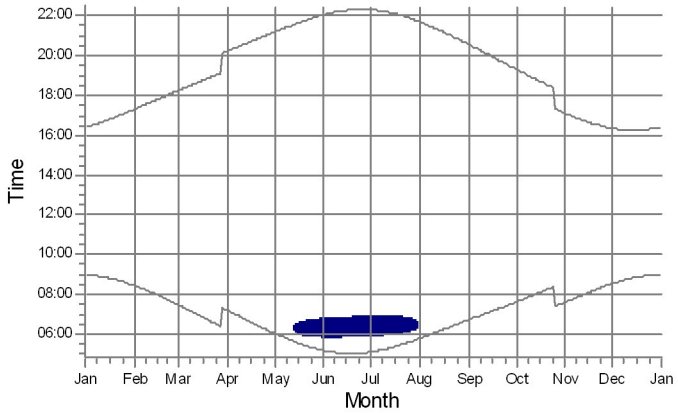
I: H9



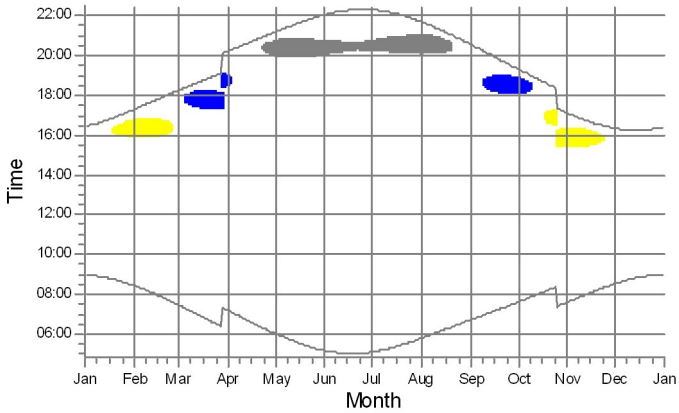
J: H10



K: H11



L: H12



WTGs

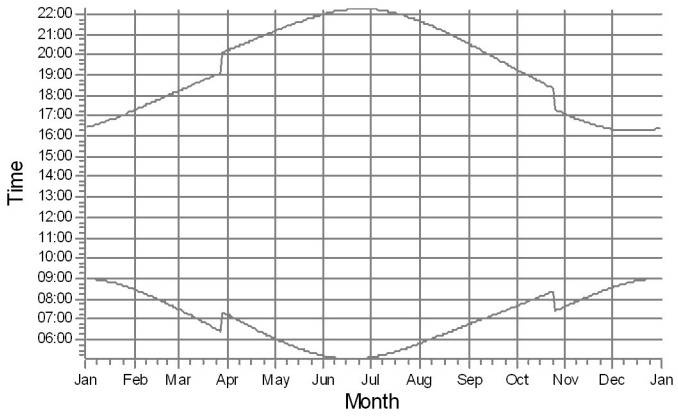
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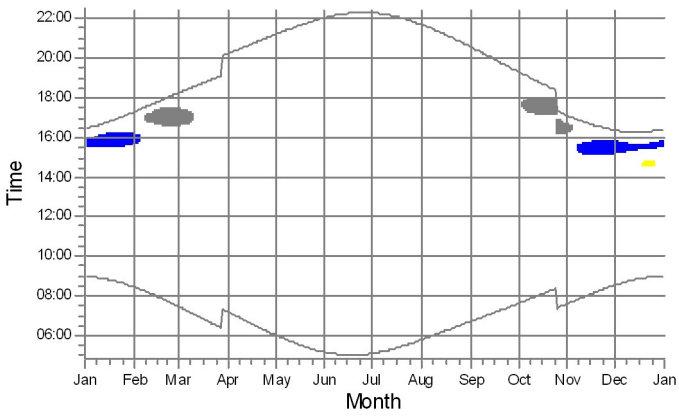
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

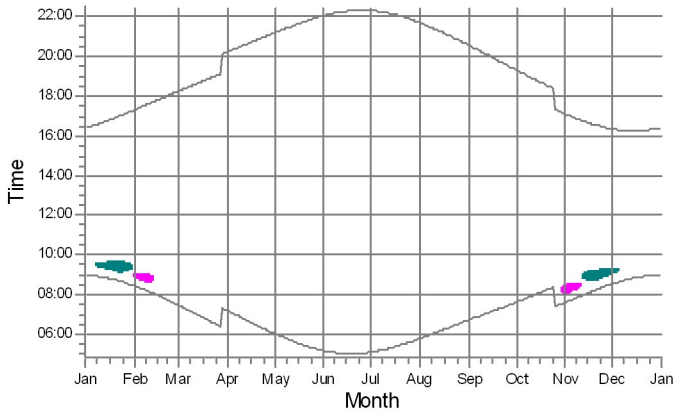
M: H13



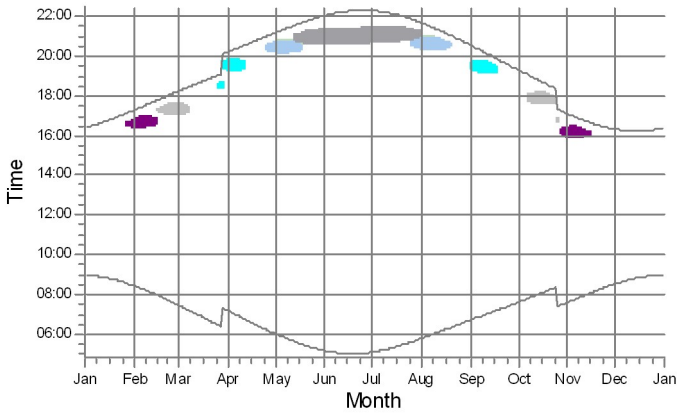
N: H14



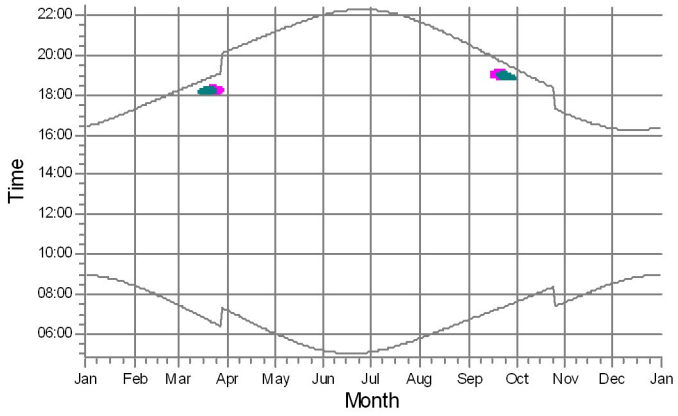
O: H15



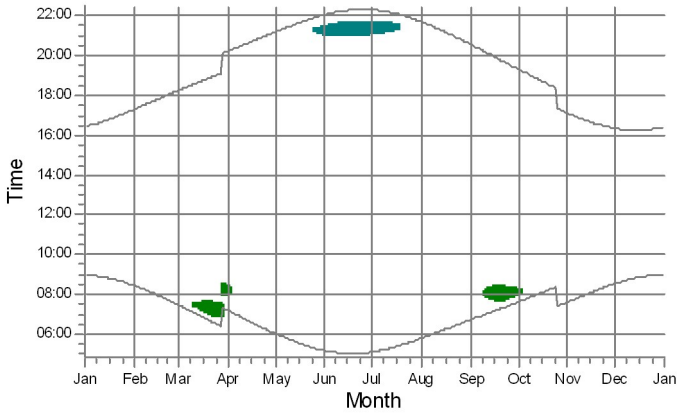
P: H16



Q: H17



R: H18



WTGs

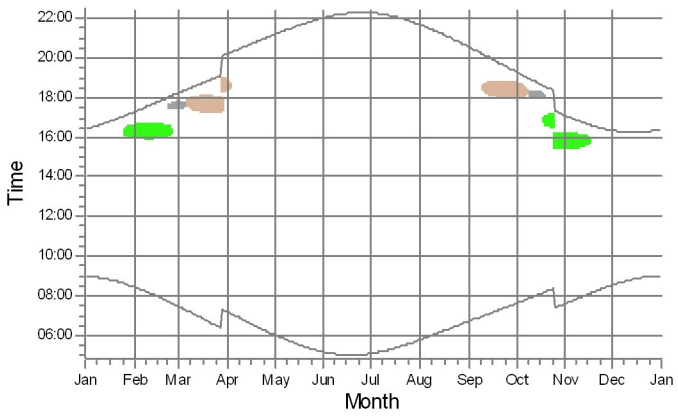
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2: AT02	5: AT05	12: AT12	15: AT15
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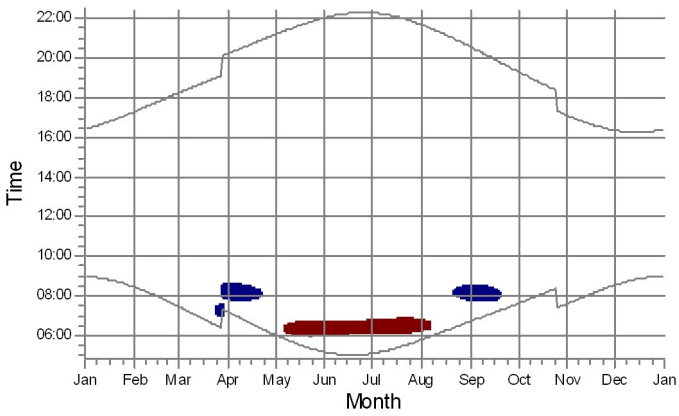
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

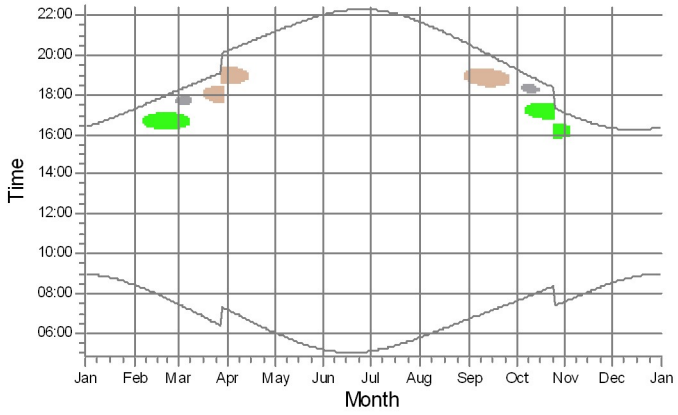
S: H19



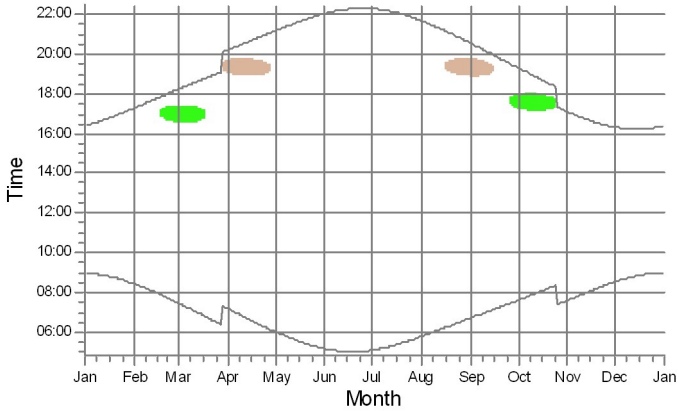
T: H20



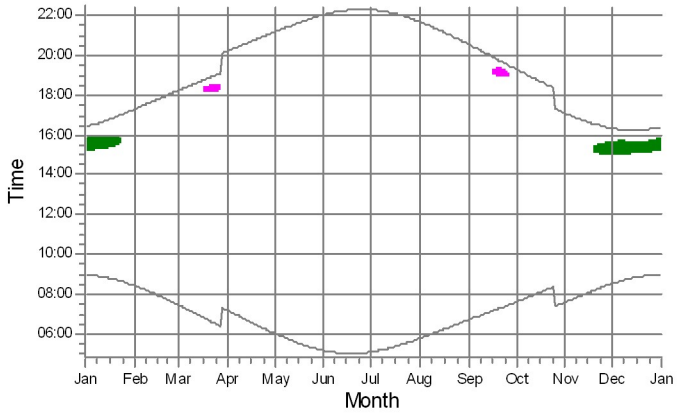
U: H21



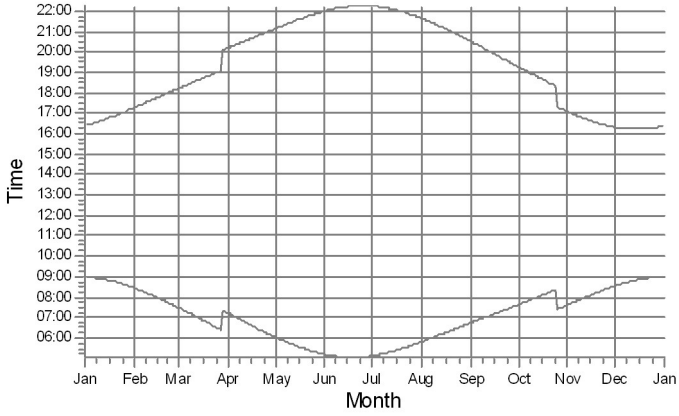
V: H22



W: H23



X: H24



WTGs

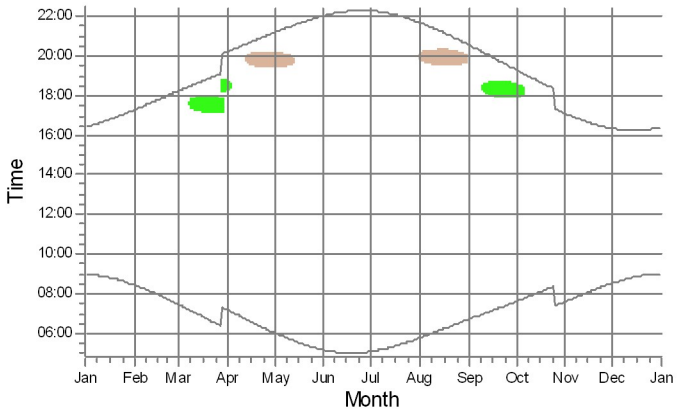
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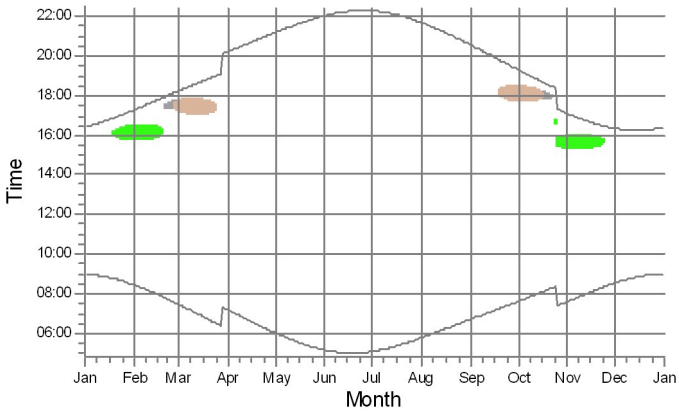
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

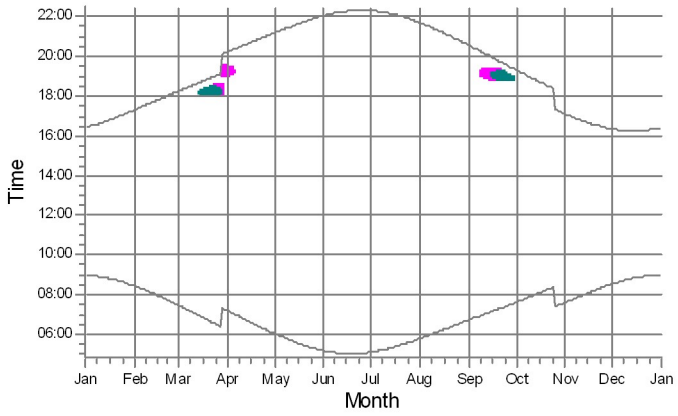
Y: H25



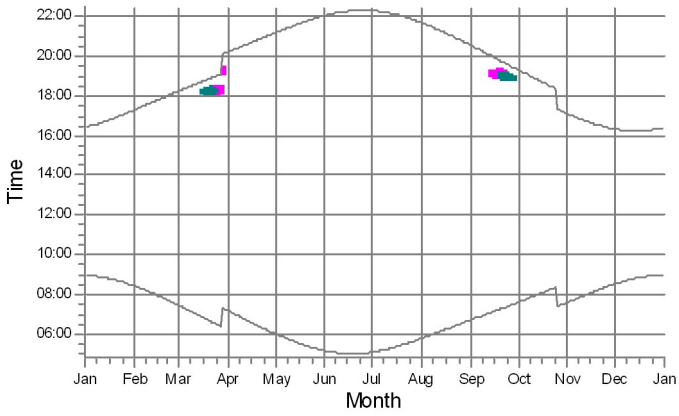
Z: H26



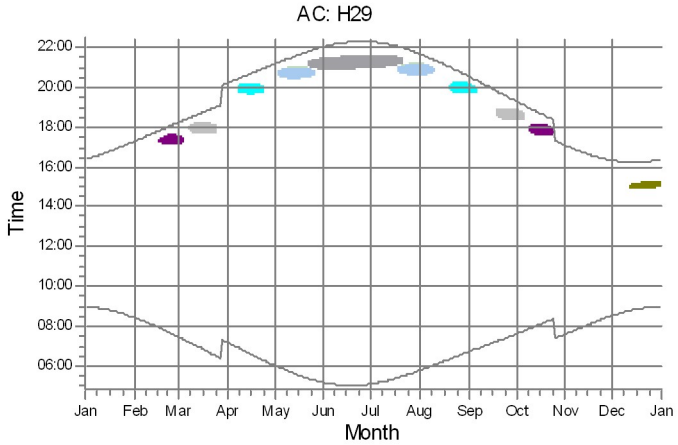
AA: H27



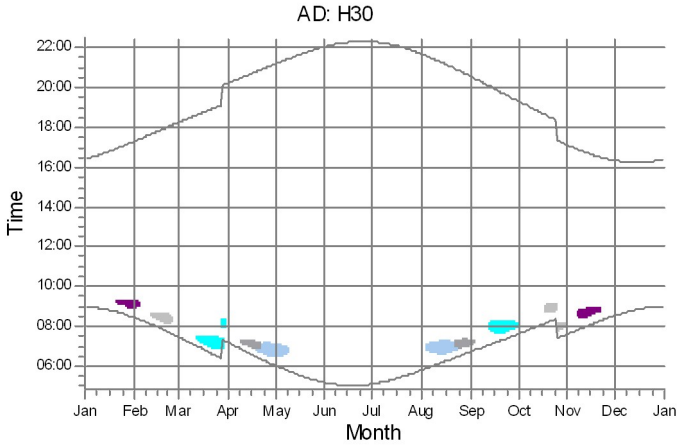
AB: H28



AC: H29



AD: H30



WTGs

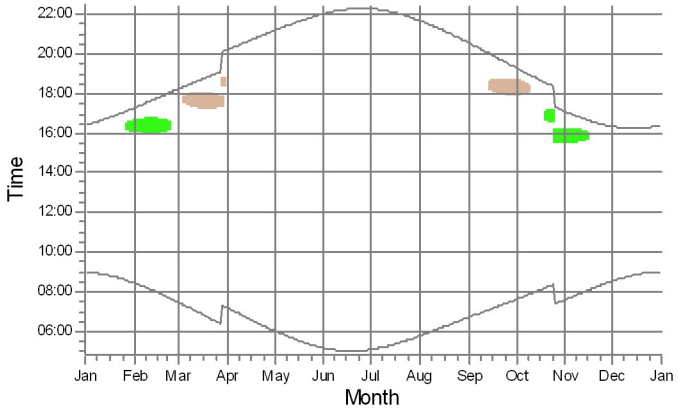
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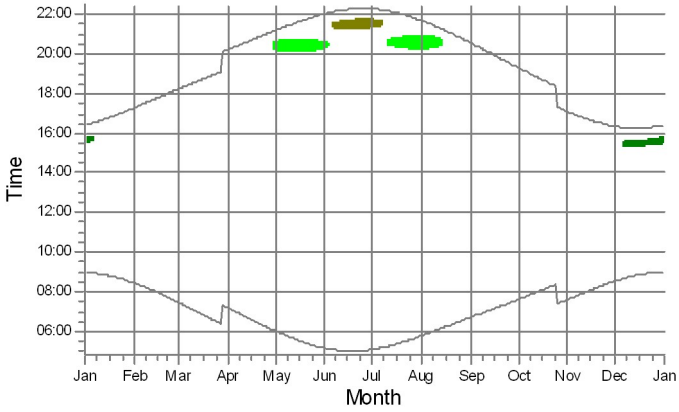
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

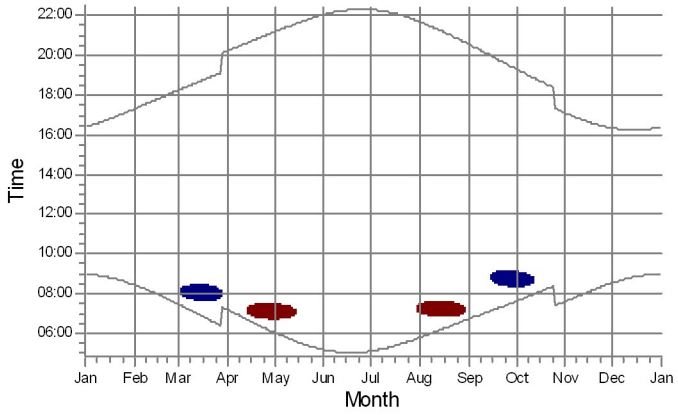
AE: H31



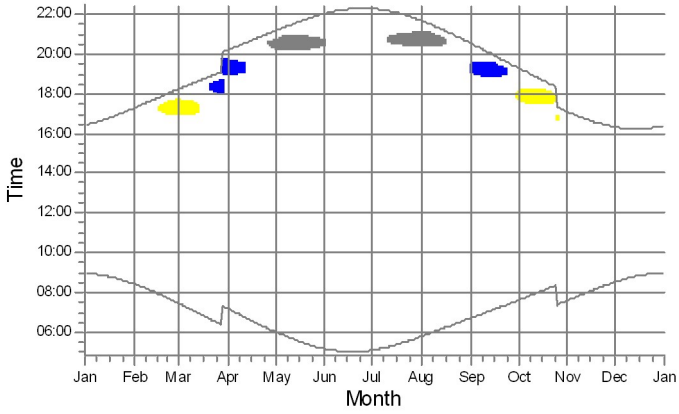
AF: H32



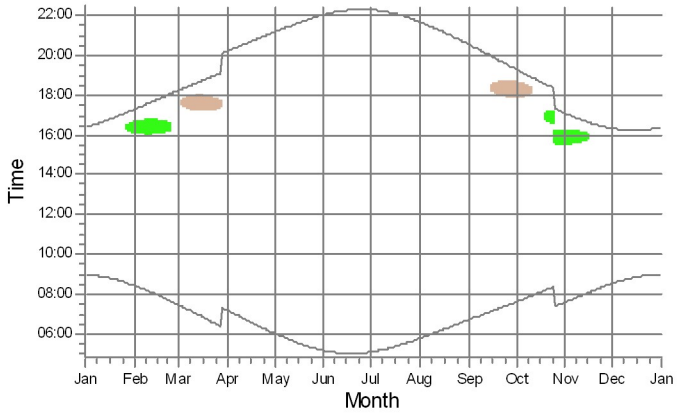
AG: H33



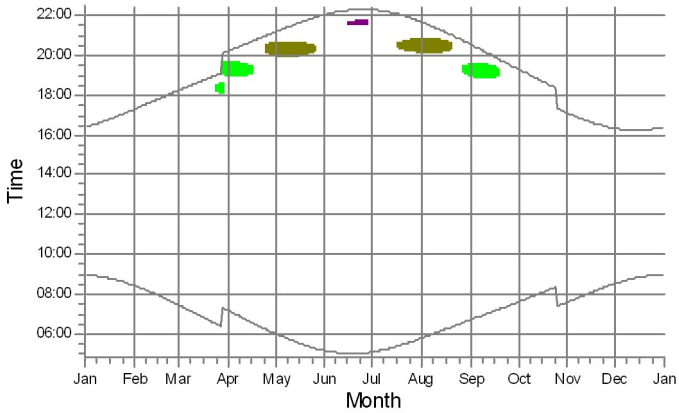
AH: H34



AI: H35



AJ: H36



WTGs

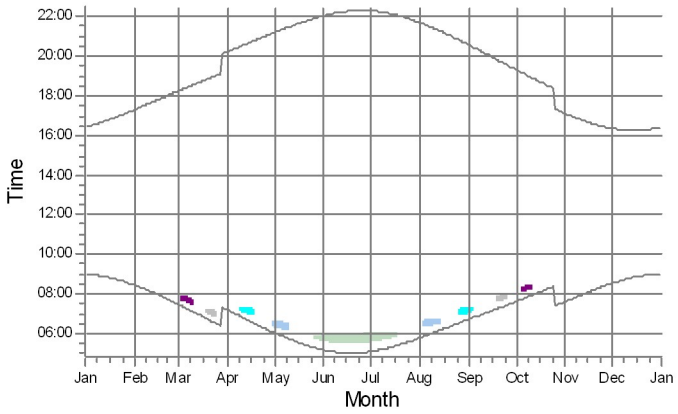
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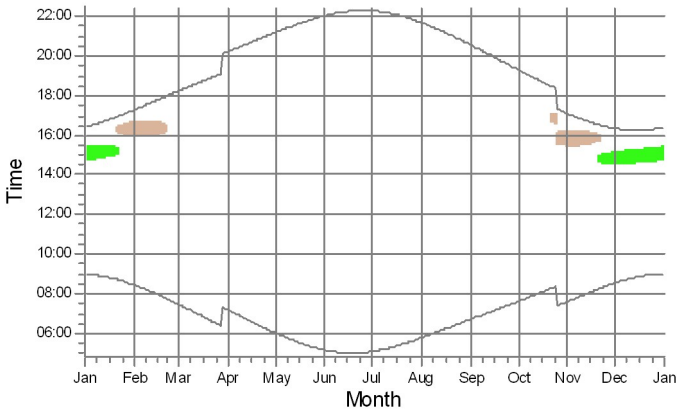
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

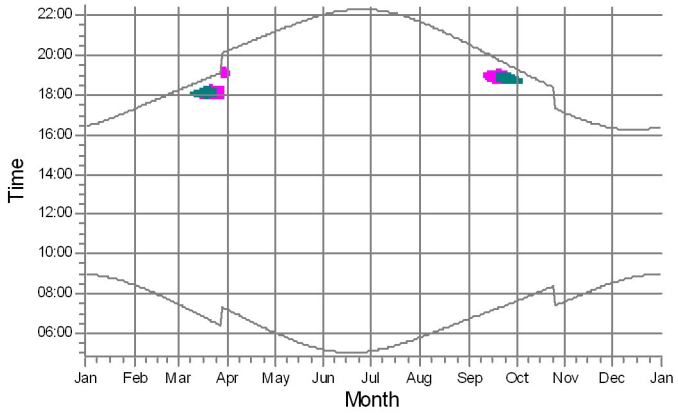
AK: H37



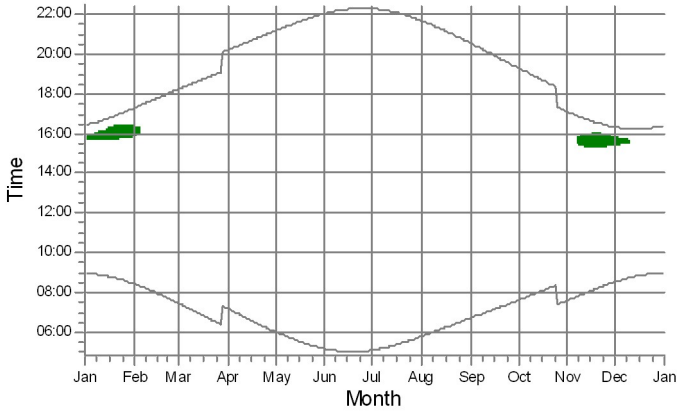
AL: H38



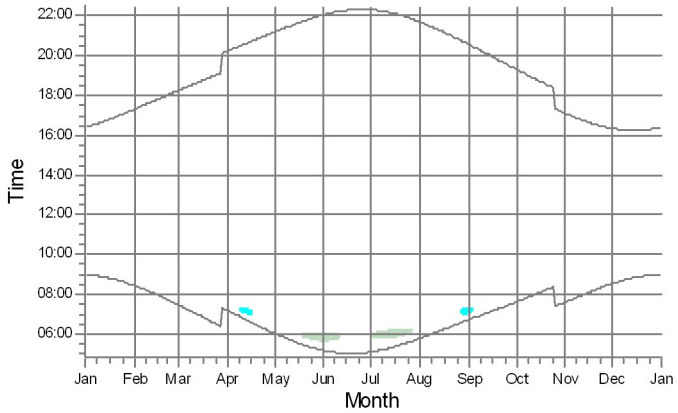
AM: H39



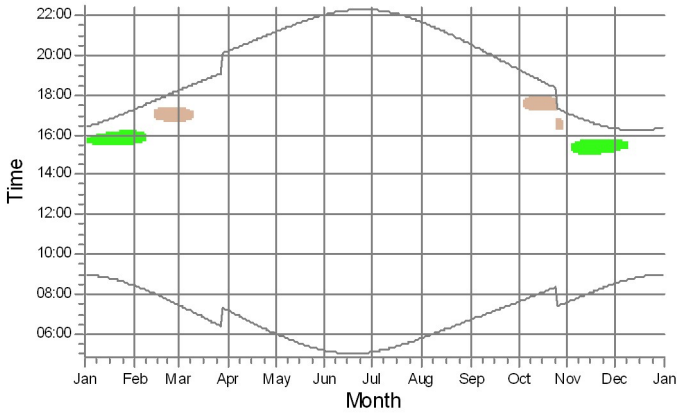
AN: H40



AO: H41



AP: H42



WTGs

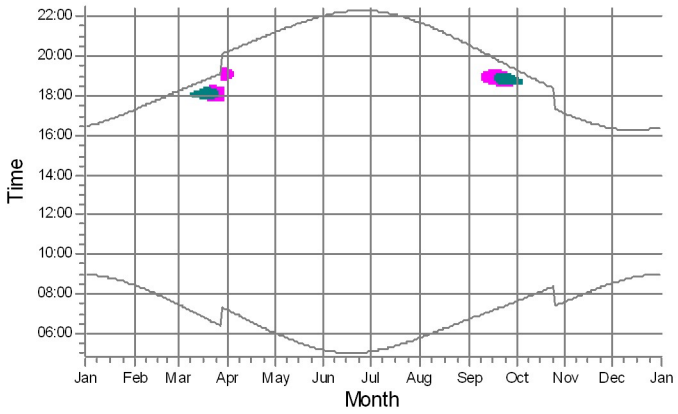
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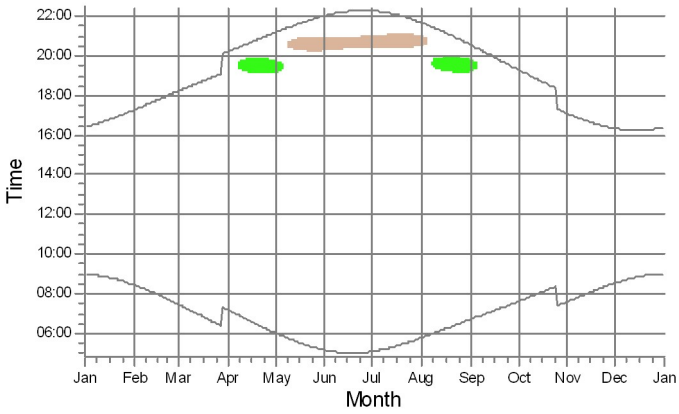
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

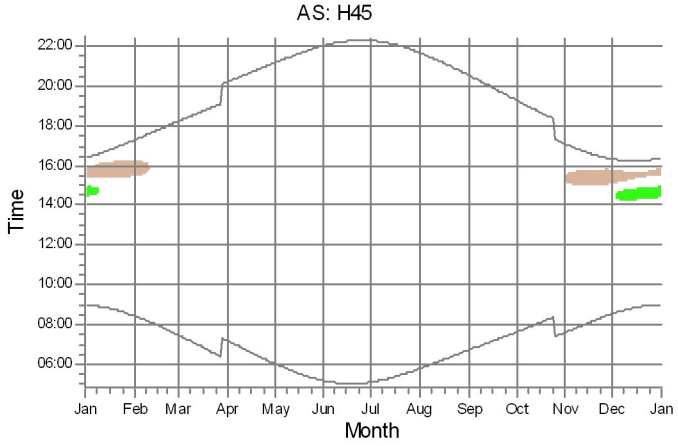
AQ: H43



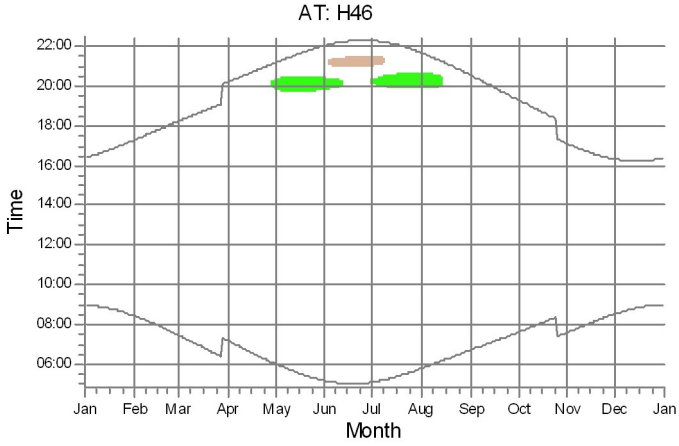
AR: H44



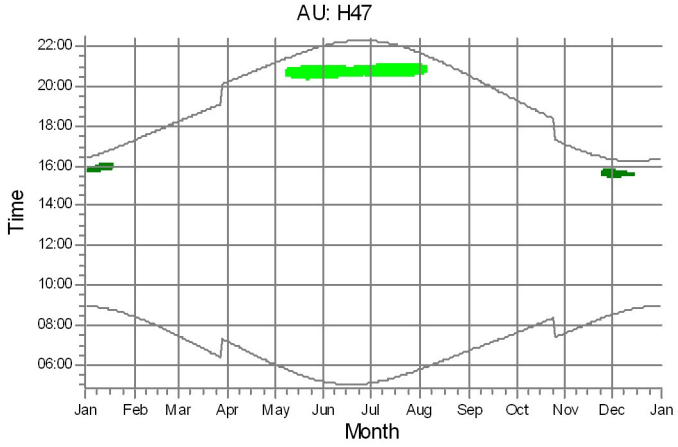
AS: H45



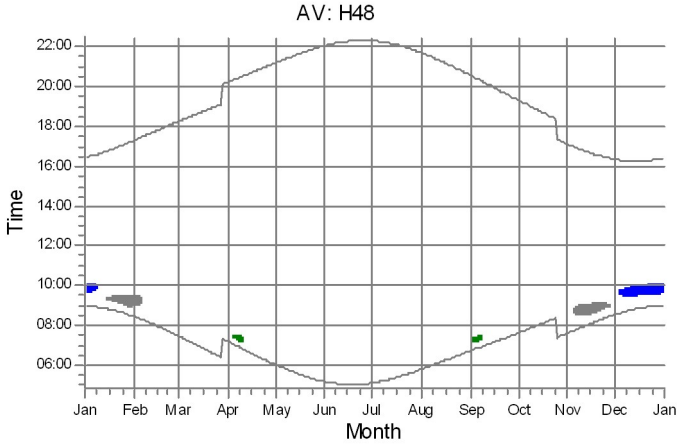
AT: H46



AU: H47



AV: H48



WTGs

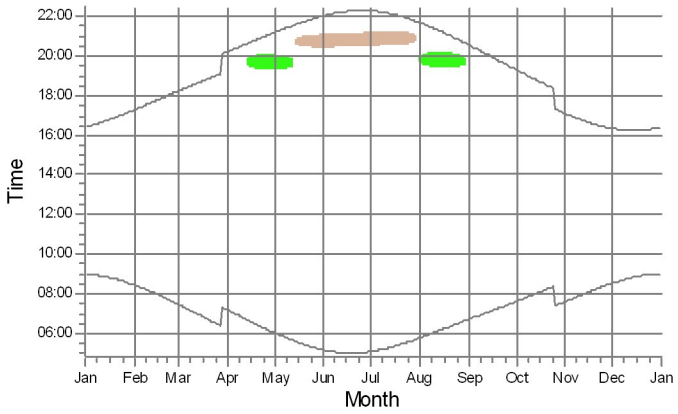
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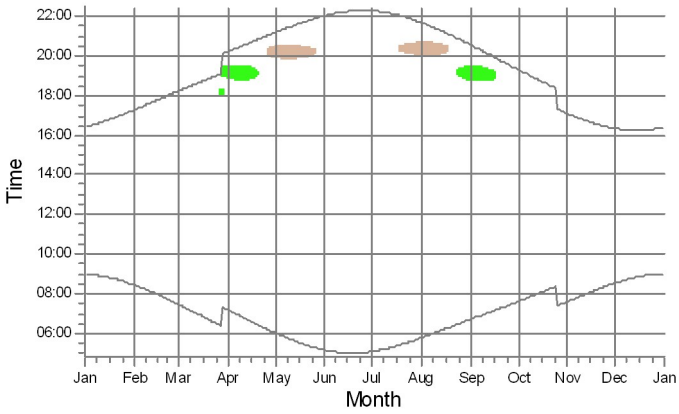
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

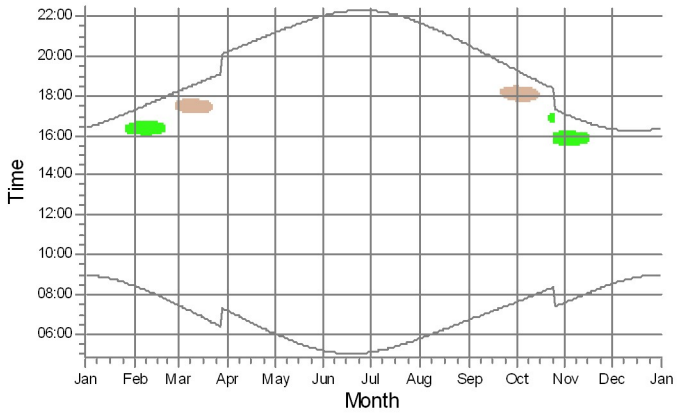
AW: H49



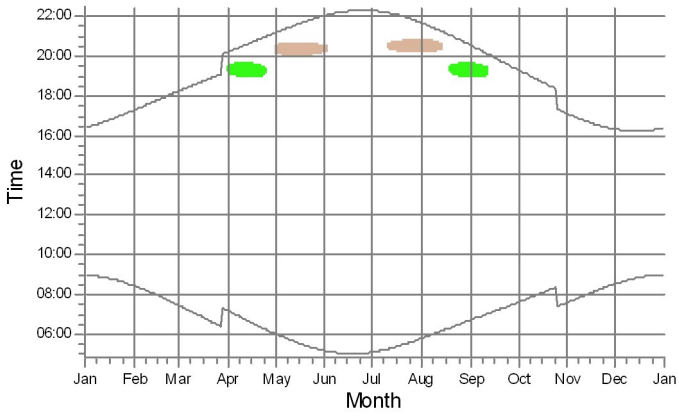
AX: H50



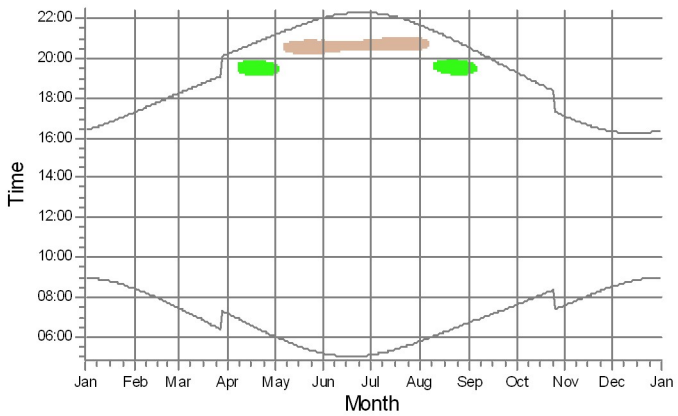
AY: H51



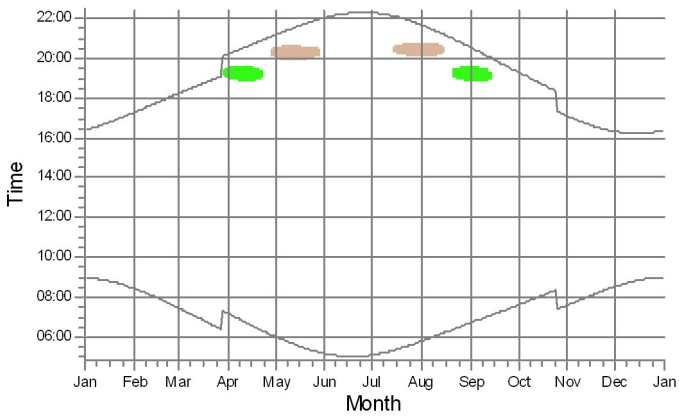
AZ: H52



BA: H53



BB: H54



WTGs

17: AT17

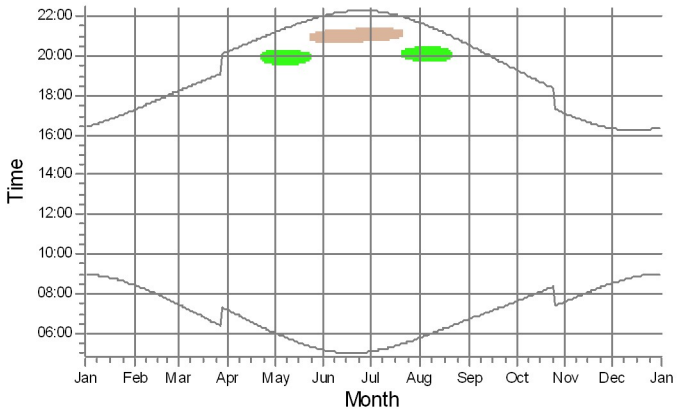
18: AT18

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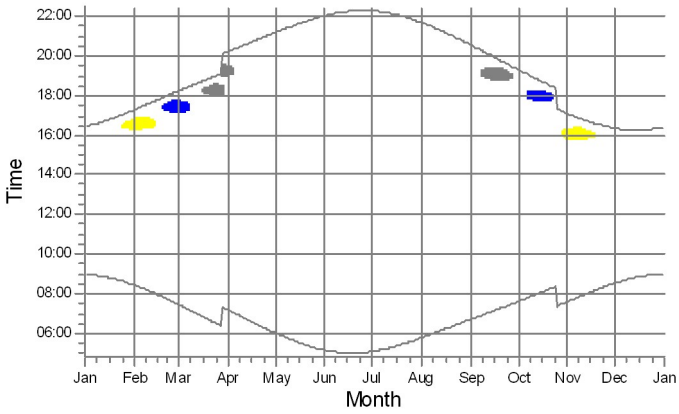
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

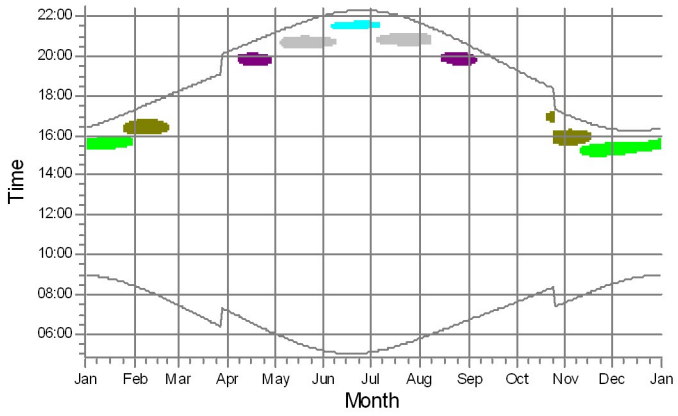
BC: H55



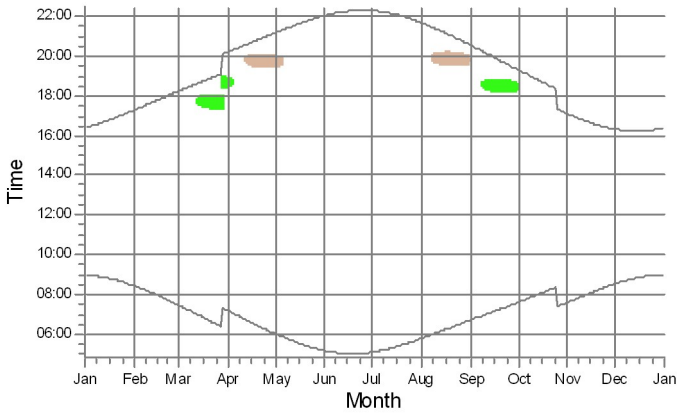
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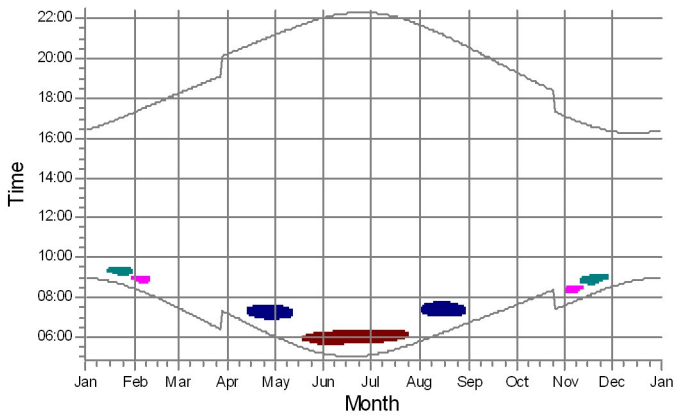
BE: H57



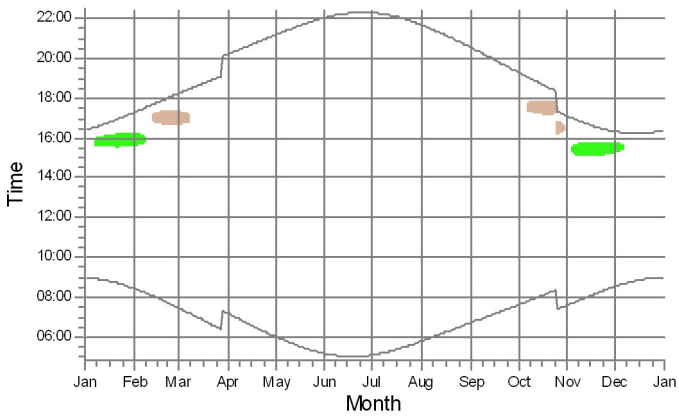
BF: H58



BG: H59



BH: H60



WTGs

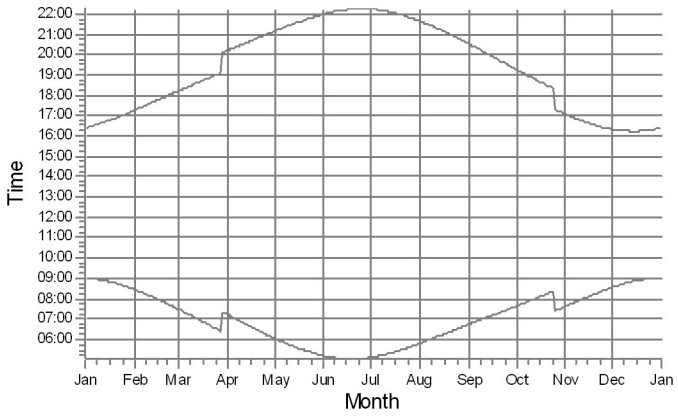
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	4: AT04		7: AT07		10: AT10		13: AT13		

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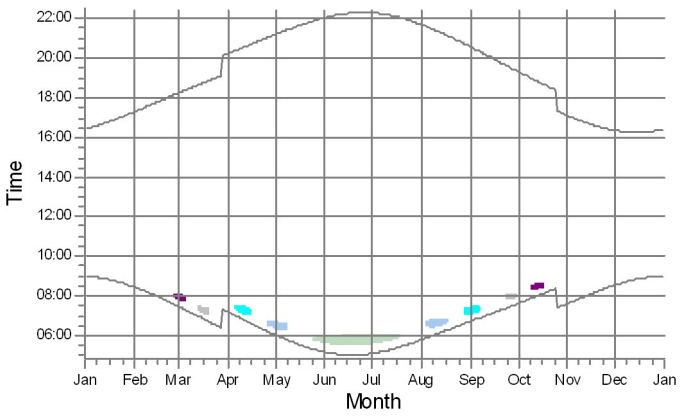
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

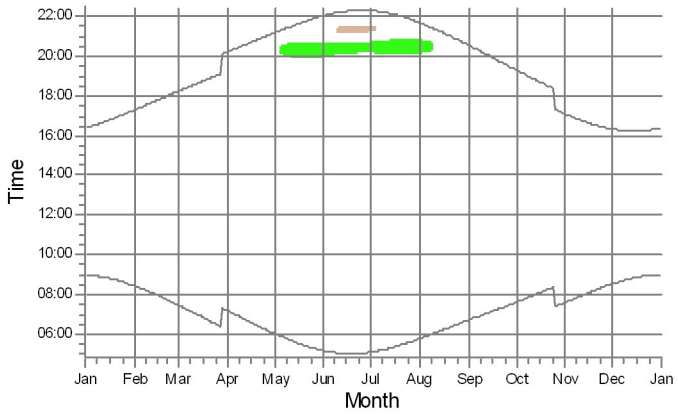
BI: H61



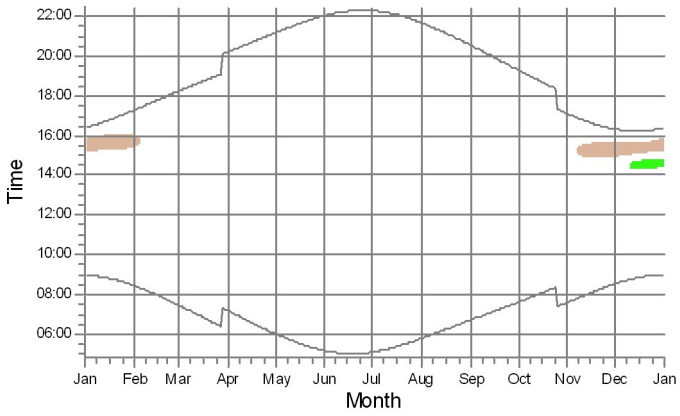
BJ: H62



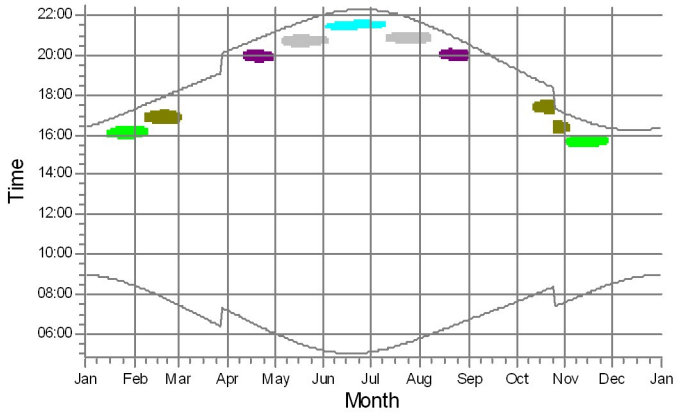
BK: H63



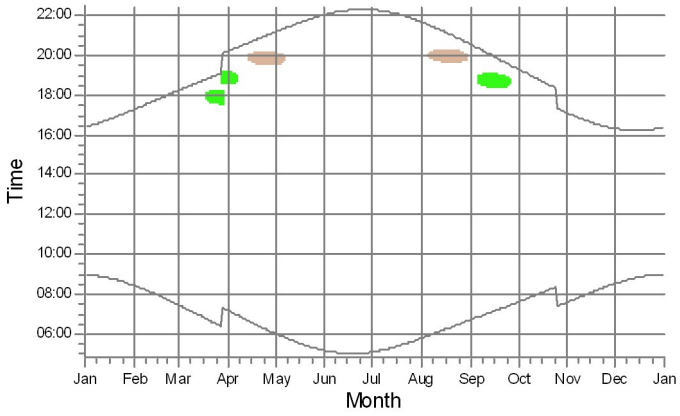
BL: H64



BM: H65



BN: H66



WTGs

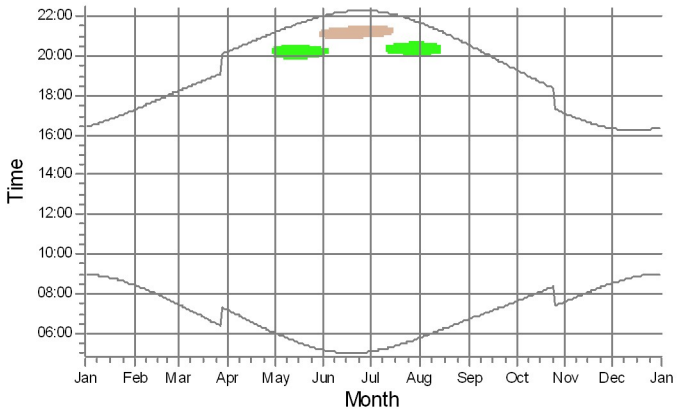
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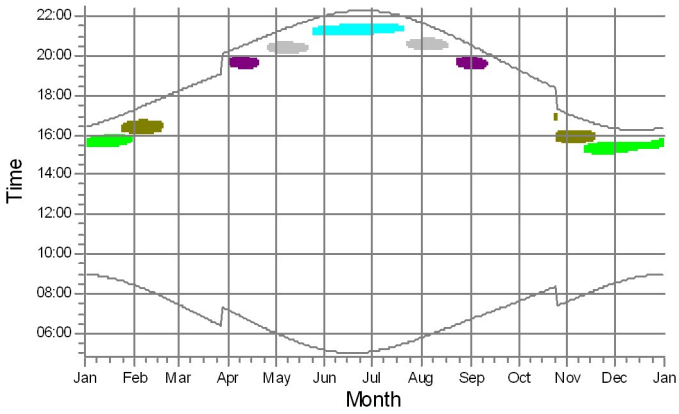
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

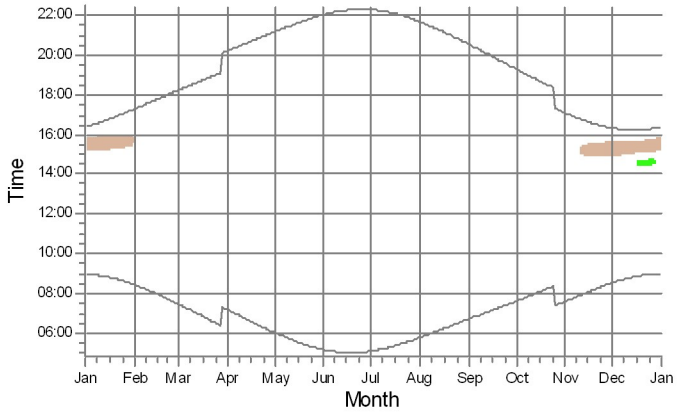
BO: H67



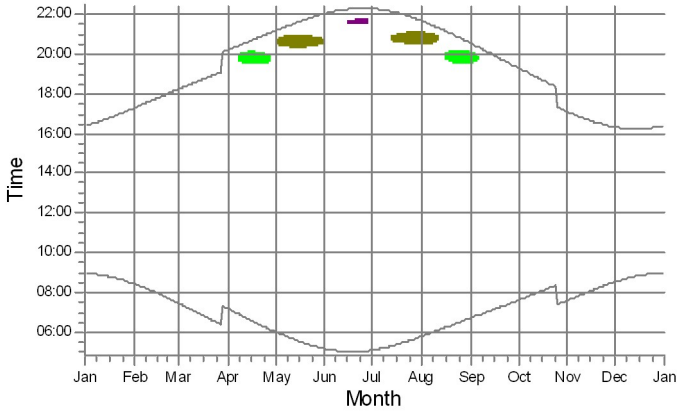
BP: H68



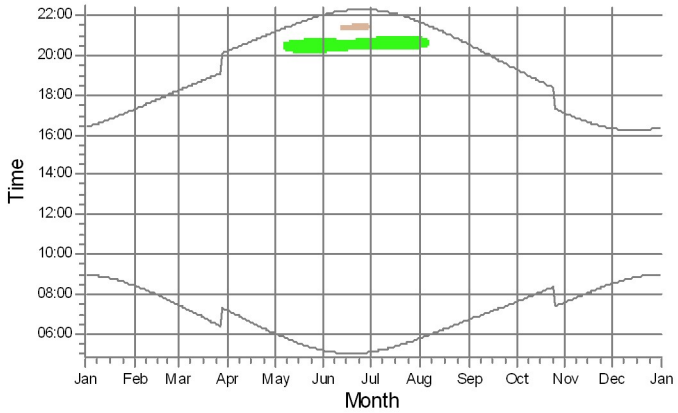
BQ: H69



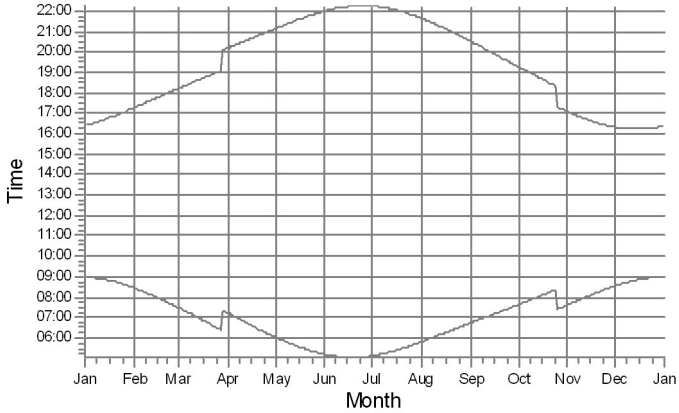
BR: H70



BS: H71



BT: H72



WTGs

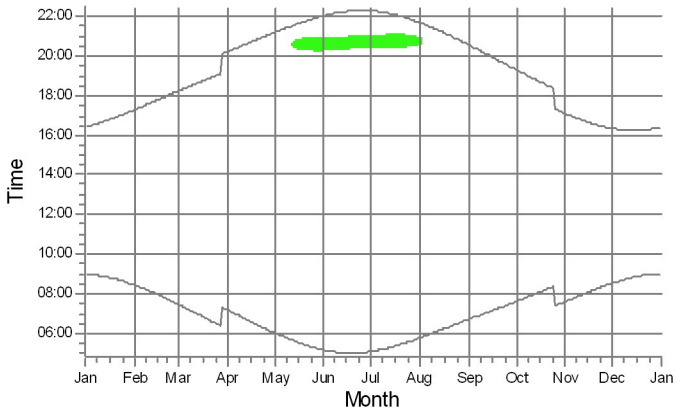
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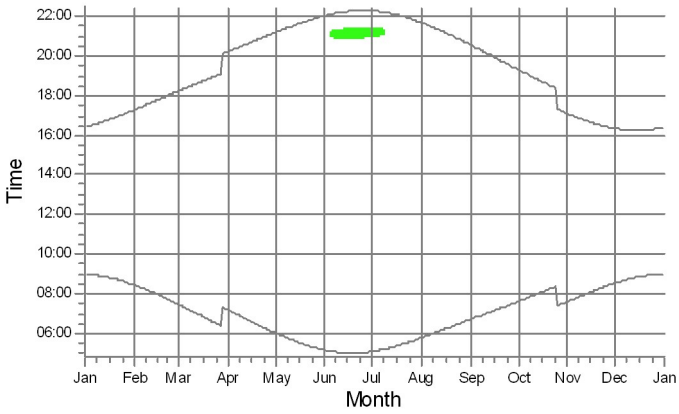
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

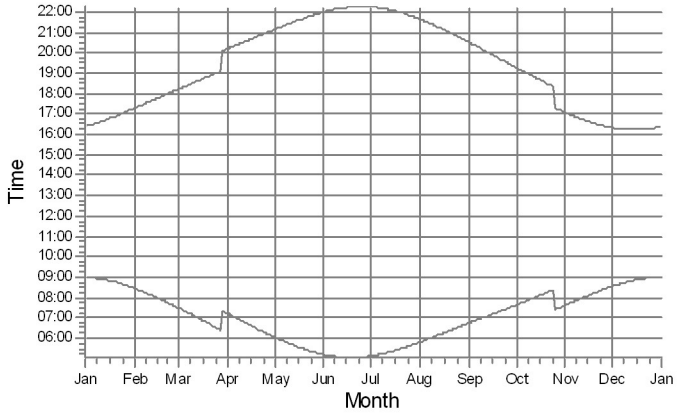
BU: H73



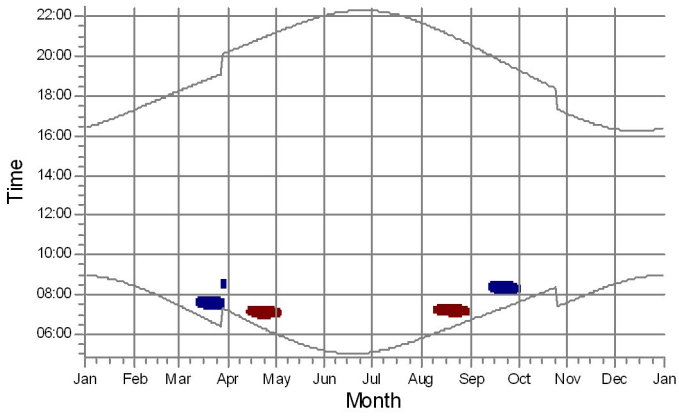
BV: H74



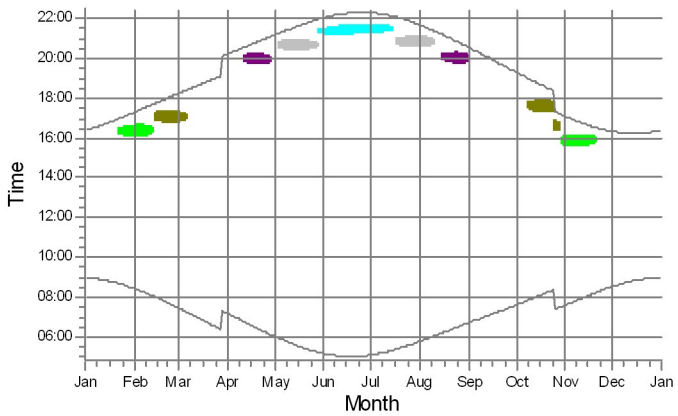
BW: H75



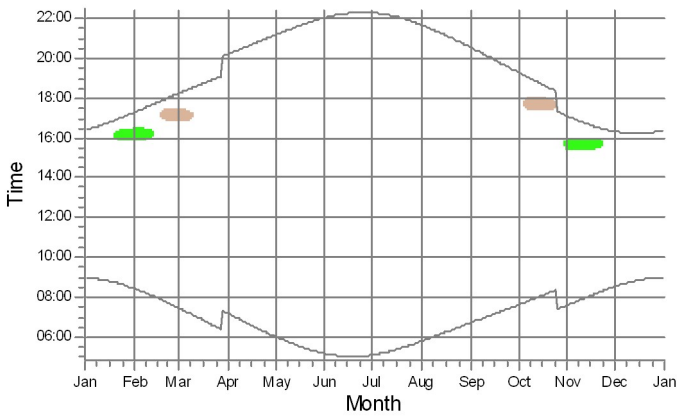
BX: H76



BY: H77



BZ: H78



WTGs

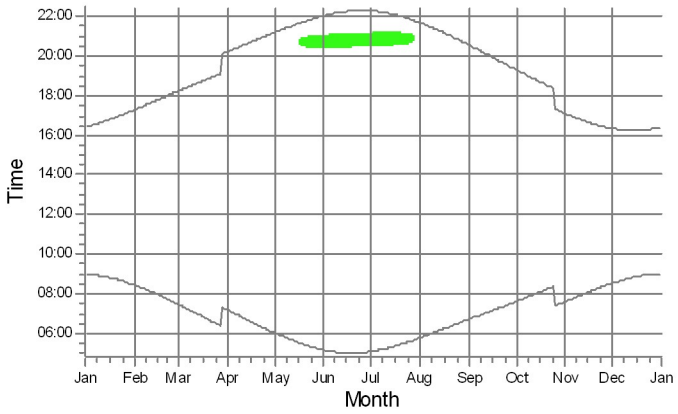
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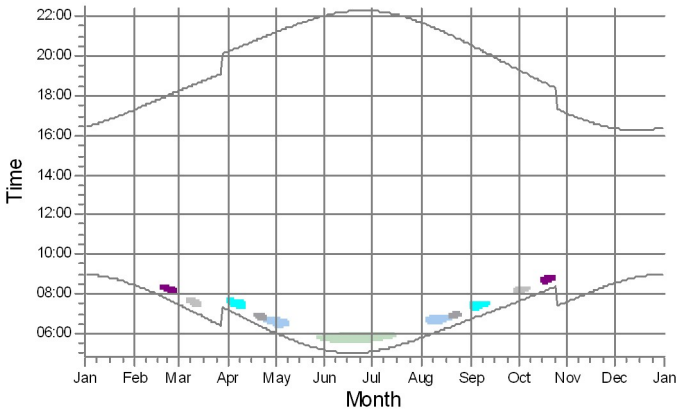
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

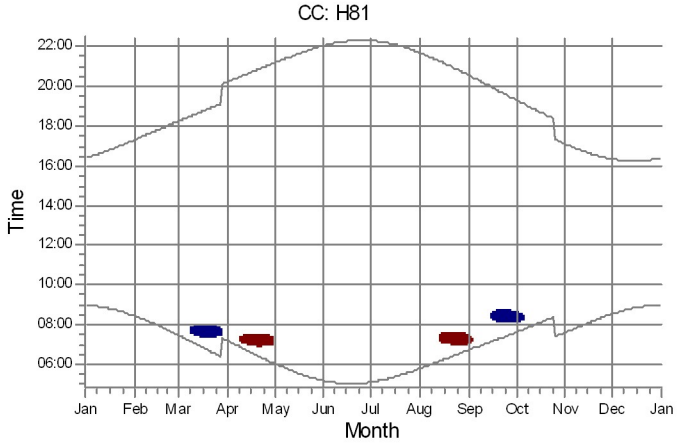
CA: H79



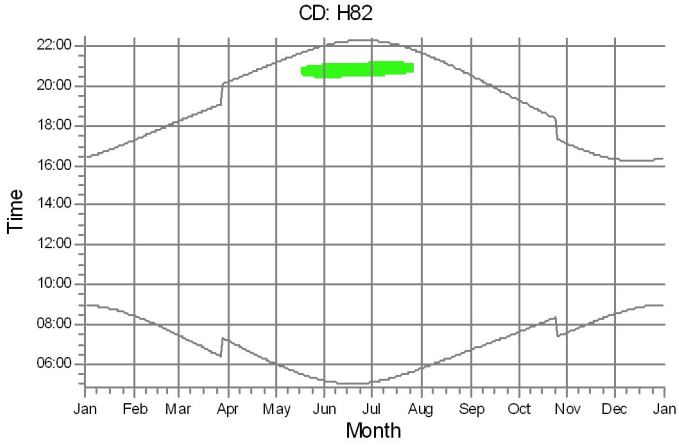
CB: H80



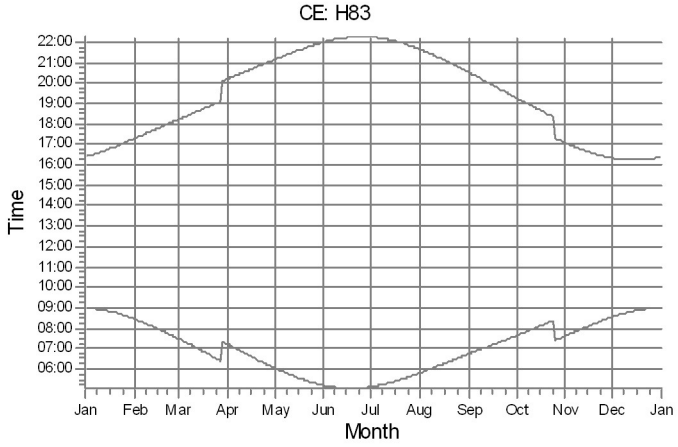
CC: H81



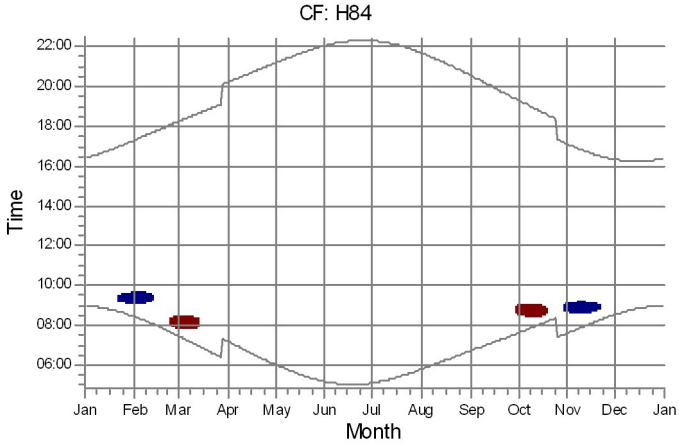
CD: H82



CE: H83



CF: H84



WTGs

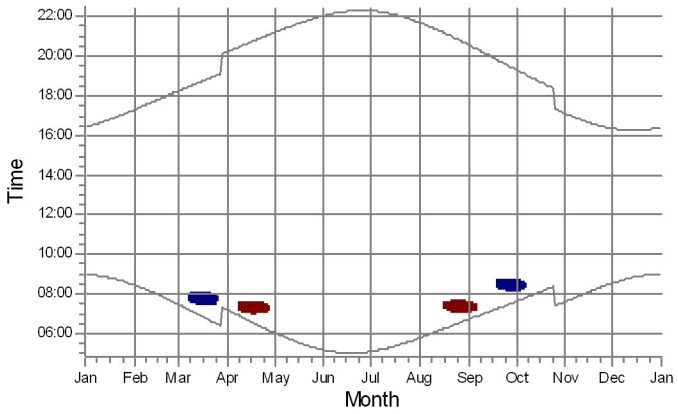
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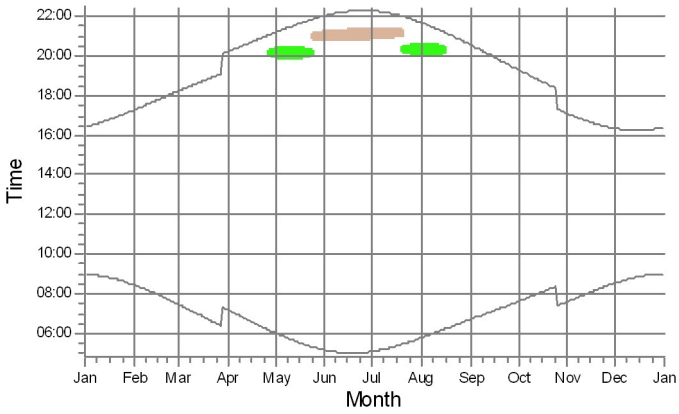
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

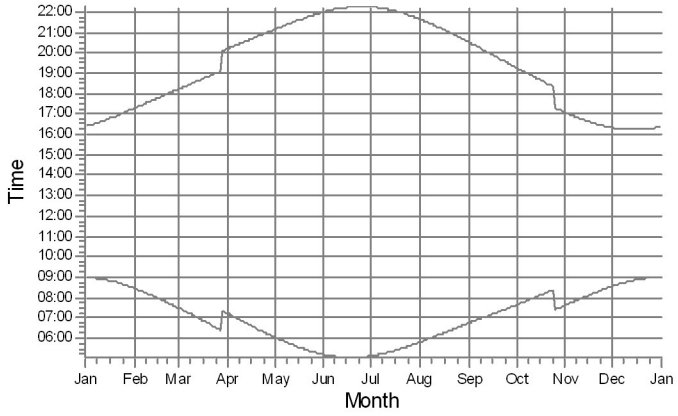
CG: H85



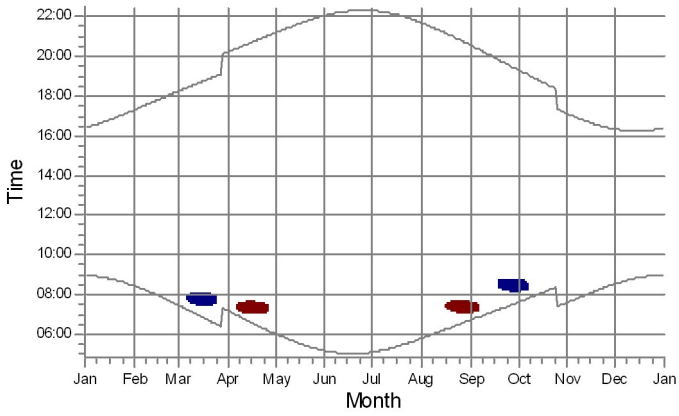
CH: H87



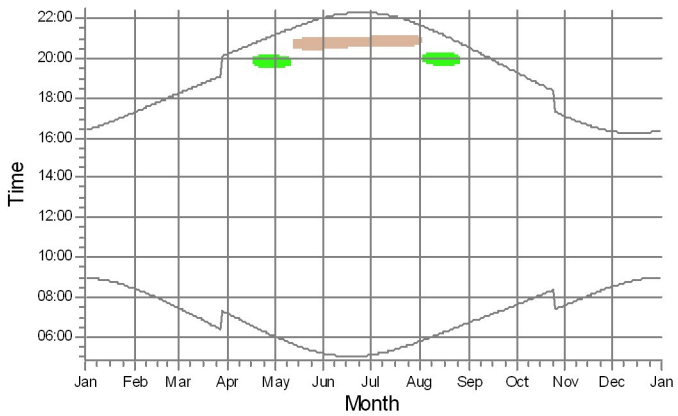
CI: H88



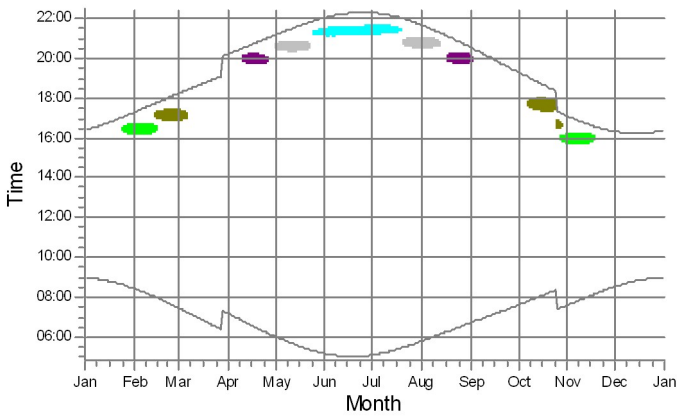
CJ: H89



CK: H90



CL: H91



WTGs

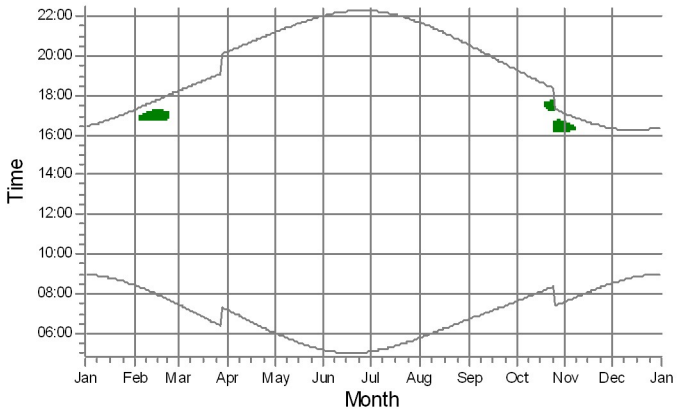
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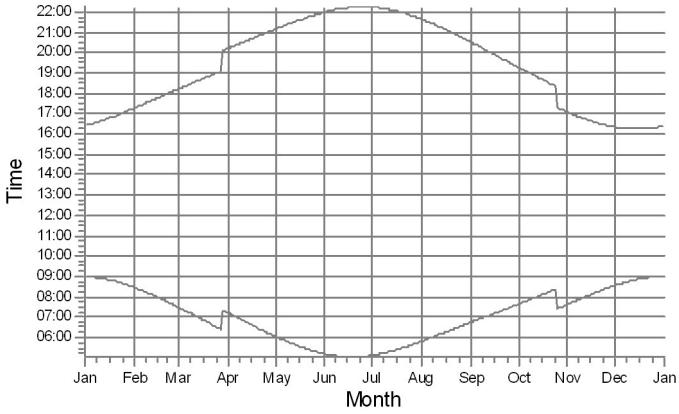
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

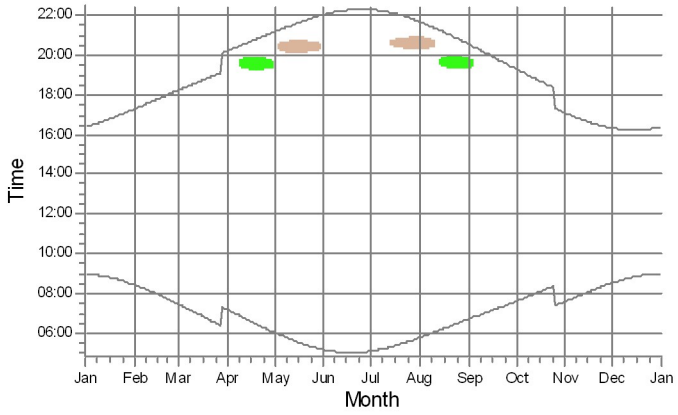
CM: H92



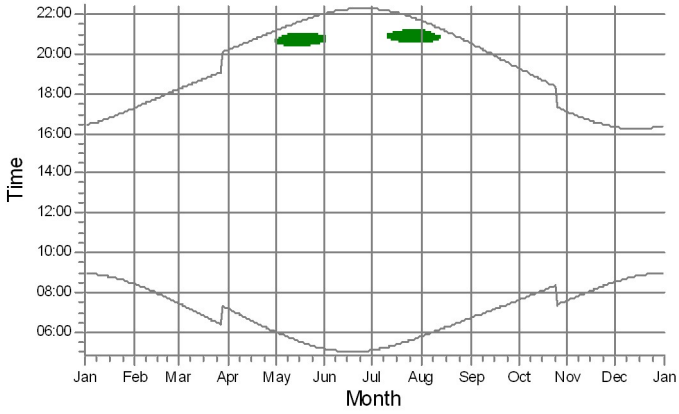
CN: H93



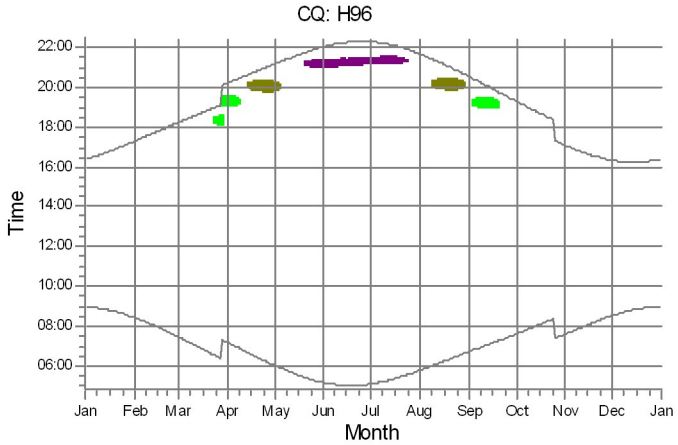
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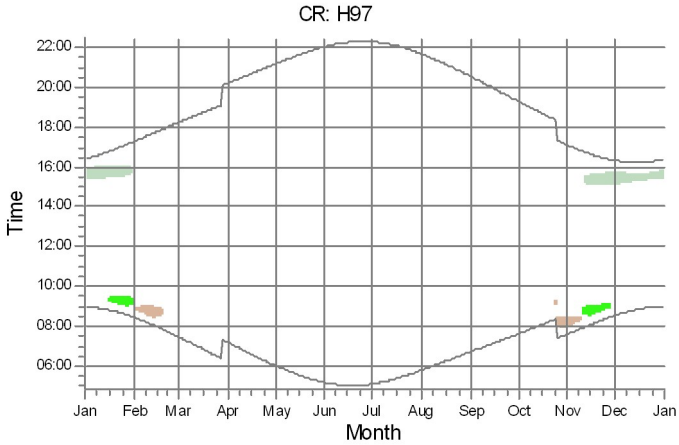
CP: H95



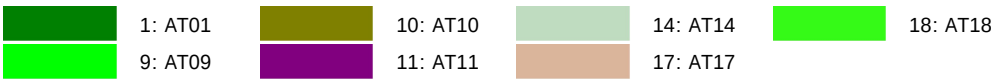
CQ: H96



CR: H97



WTGs

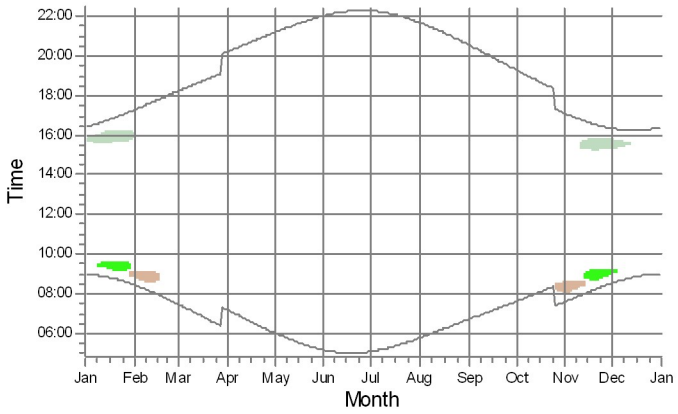


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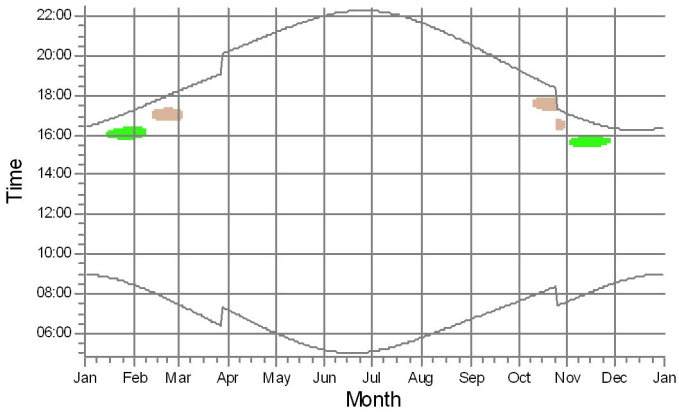
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

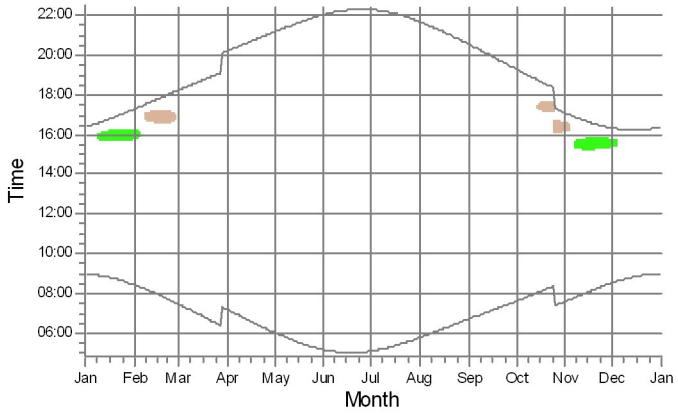
CS: H98



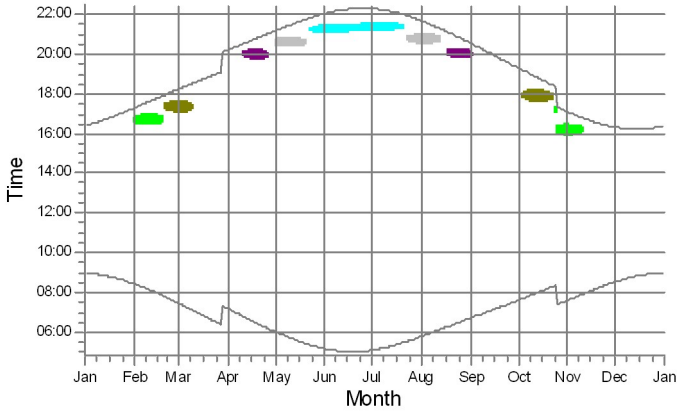
CT: H99



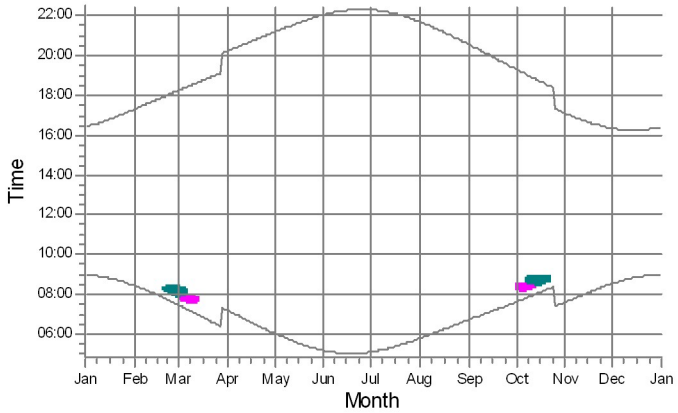
CU: H100



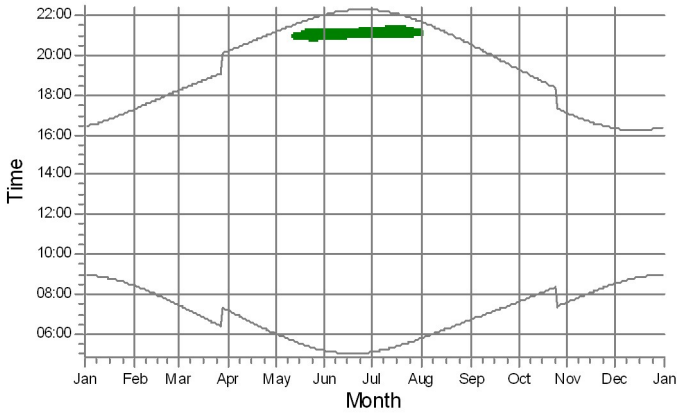
CV: H101



CW: H102



CX: H103



WTGs

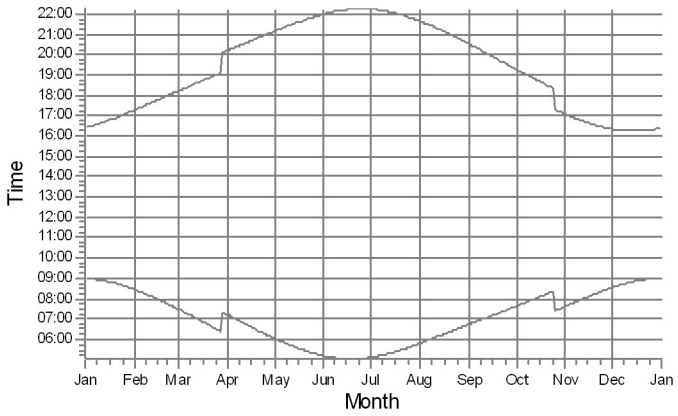
1: AT01	9: AT09	12: AT12	17: AT17
5: AT05	10: AT10	13: AT13	18: AT18
6: AT06	11: AT11	14: AT14	

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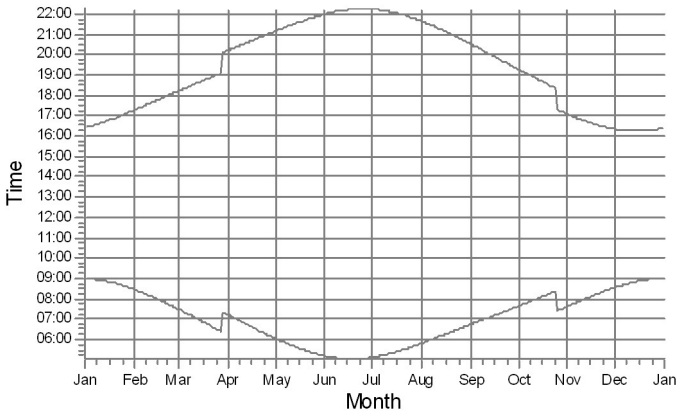
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

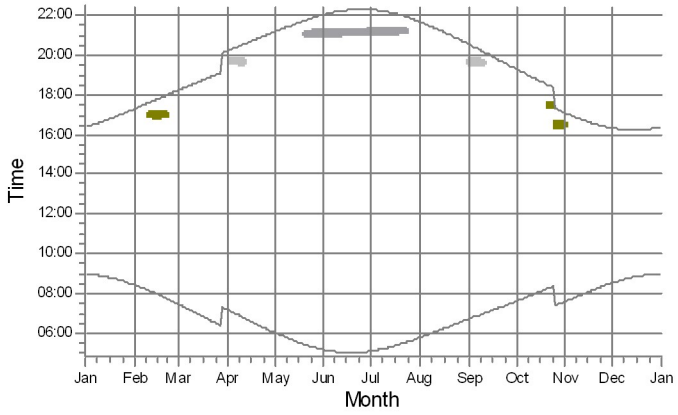
CY: H104



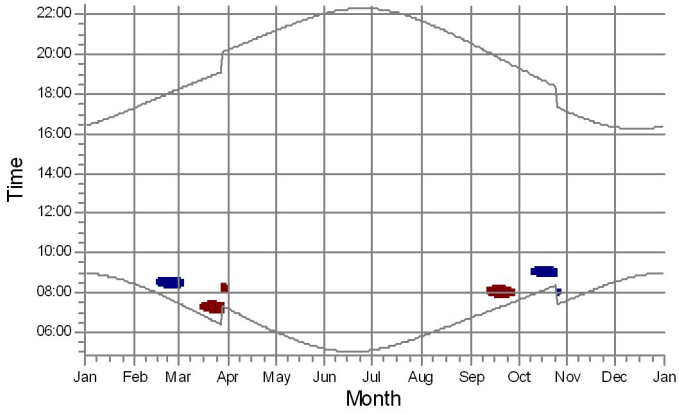
CZ: H105



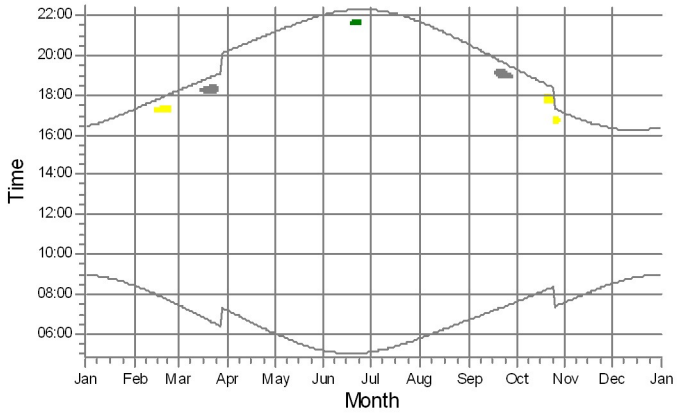
DA: H106



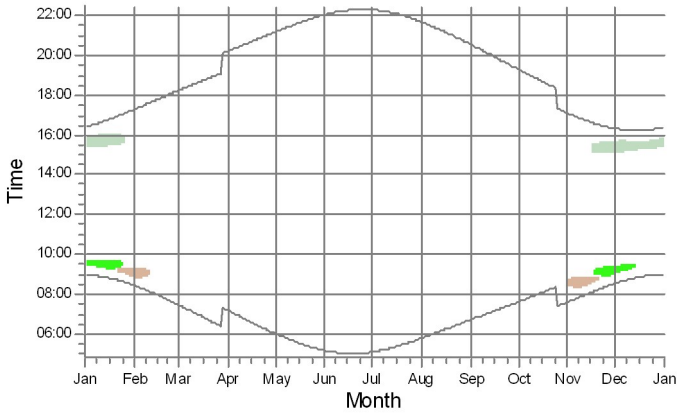
DB: H109



DC: H110



DD: H111



WTGs

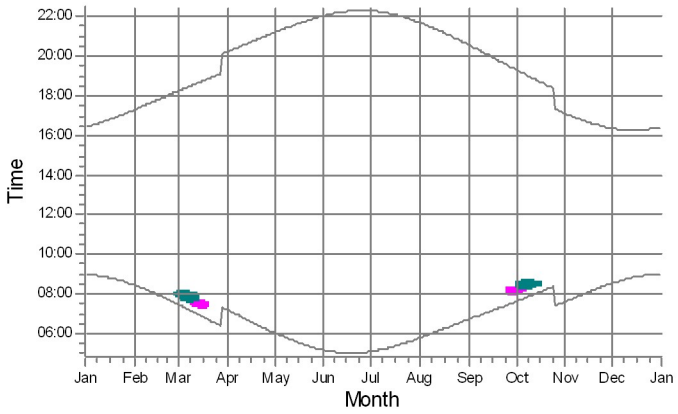
	1: AT01		7: AT07		12: AT12		17: AT17
	2: AT02		8: AT08		14: AT14		18: AT18
	4: AT04		10: AT10		16: AT16		

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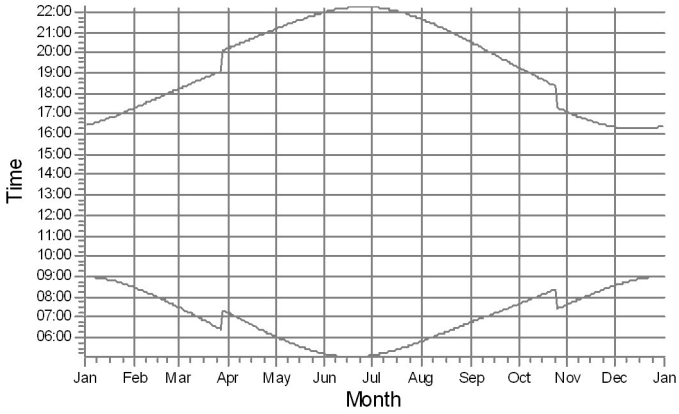
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

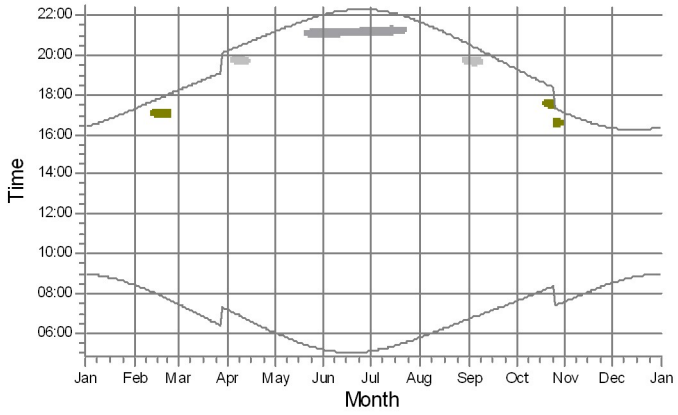
DE: H112



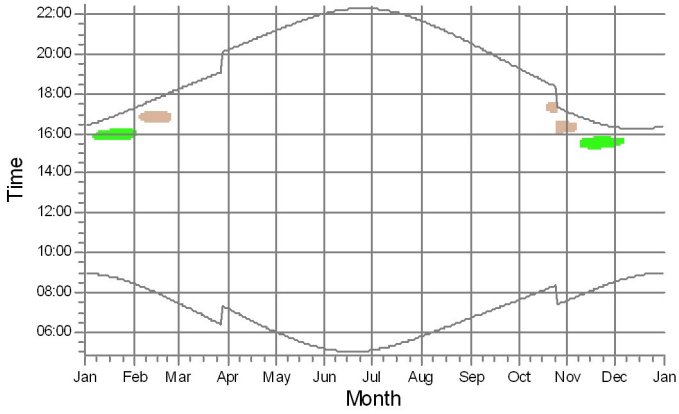
DF: H113



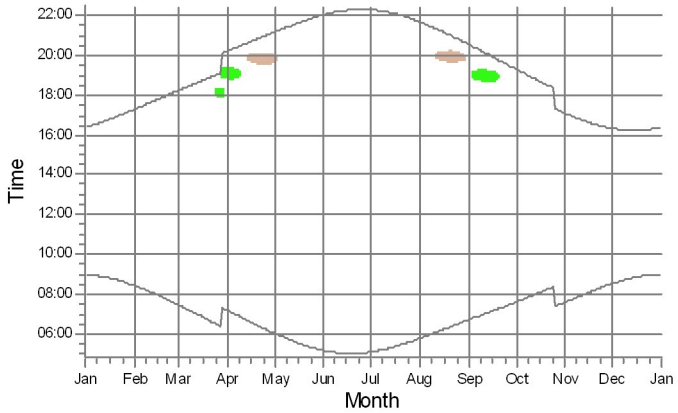
DG: H114



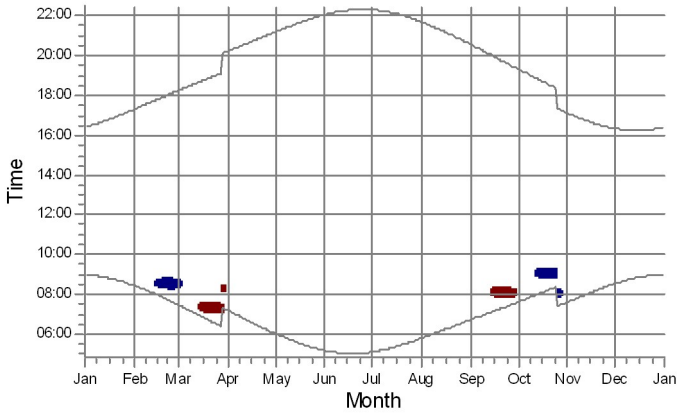
DH: H115



DI: H116



DJ: H117



WTGs

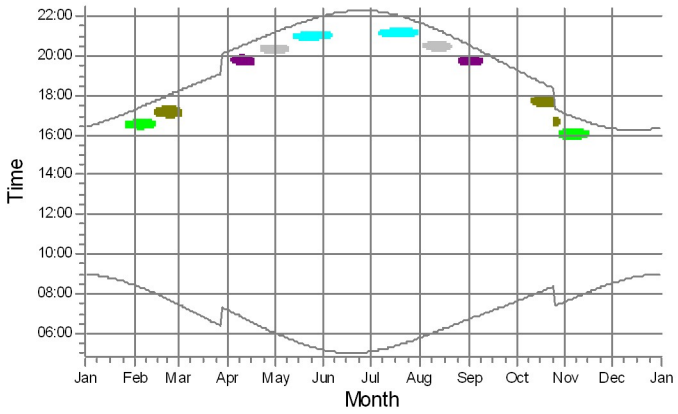
	5: AT05		7: AT07		10: AT10		16: AT16		18: AT18
	6: AT06		8: AT08		12: AT12		17: AT17		

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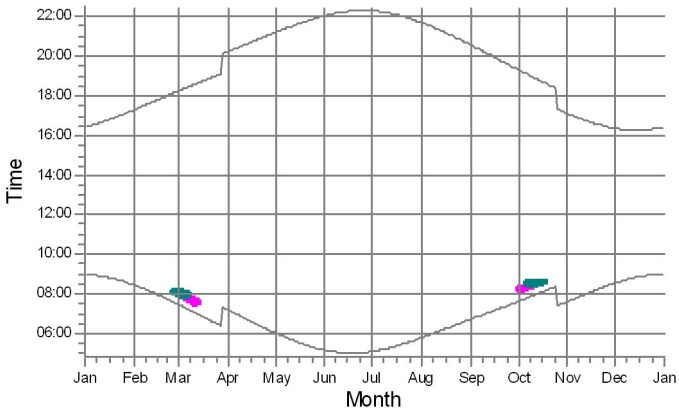
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Real Case

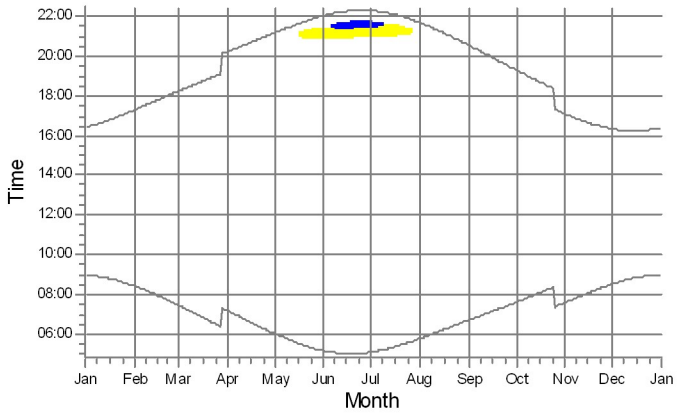
DK: H119



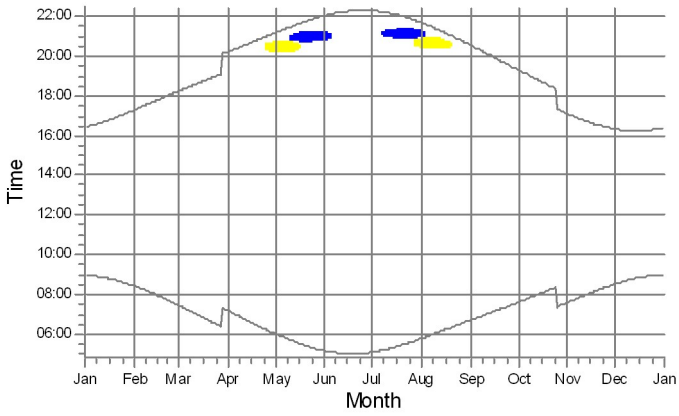
DL: H121



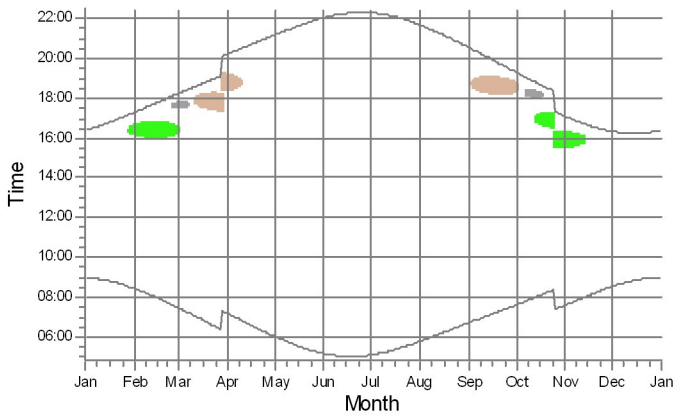
DM: H122



DN: H123



DO: H284



WTGs

	2: AT02		6: AT06		11: AT11		16: AT16
	3: AT03		9: AT09		12: AT12		17: AT17
	5: AT05		10: AT10		13: AT13		18: AT18

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 1 - AT01

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 15:17-15:45/28 16:24	08:27 15:57-16:17/20 17:16	07:29 18:13	07:12 08:04-08:21/17 20:12	06:02 20:07-20:38/31 21:09	05:12 20:06-21:15/69 22:00
2	08:58 15:18-15:47/29 16:25	08:25 16:00-16:16/16 17:18	07:26 18:15	07:10 08:09-08:16/7 20:14	06:00 20:06-20:40/34 21:11	05:11 20:06-21:14/68 22:01
3	08:58 15:18-15:48/30 16:26	08:24 16:03-16:14/11 17:20	07:24 18:17	07:08 20:16	05:58 20:05-20:41/36 21:12	05:10 20:07-21:14/67 22:02
4	08:58 15:19-15:49/30 16:27	08:22 17:22	07:22 18:19	07:05 20:18	05:56 20:04-20:43/39 21:14	05:09 20:08-21:15/67 22:03
5	08:57 15:19-15:50/31 16:29	08:20 16:51-16:53/2 17:24	07:19 18:21	07:03 07:27-07:29/2 20:20	05:54 20:04-20:46/42 21:16	05:08 20:49-21:14/25 22:04 20:08-20:48/40
6	08:57 15:20-15:52/32 16:30	08:18 16:50-16:55/5 17:26	07:17 18:23	07:00 07:24-07:28/4 20:22	05:52 20:03-20:47/44 21:18	05:08 20:49-21:14/25 22:06 20:08-20:48/40
7	08:56 15:21-15:54/33 16:31	08:16 16:49-16:58/9 17:28	07:14 18:25	06:58 07:22-07:27/5 20:24	05:50 20:02-20:49/47 21:20	05:07 20:50-21:14/24 22:07 20:09-20:48/39
8	08:56 15:21-15:55/34 16:33	08:14 16:47-16:59/12 17:30	07:12 18:27	06:55 07:20-07:26/6 20:26	05:48 20:02-20:50/48 21:22	05:06 20:50-21:14/24 22:08 20:10-20:48/38
9	08:55 15:21-15:56/35 16:34	08:12 16:46-17:01/15 17:32	07:09 18:29	06:53 07:17-07:23/6 20:27	05:46 20:01-20:52/51 21:23	05:06 20:51-21:14/23 22:08 20:11-20:48/37
10	08:55 15:23-15:59/36 16:36	08:10 16:46-17:04/18 17:34	07:07 18:30	06:50 20:29	05:44 20:02-20:54/52 21:25	05:05 20:51-21:15/24 22:09 20:11-20:48/37
11	08:54 15:23-16:01/38 16:37	08:08 16:46-17:06/20 17:36	07:05 07:29-07:30/1 18:32	06:48 20:31	05:42 20:01-20:55/54 21:27	05:05 20:51-21:14/23 22:10 20:11-20:48/37
12	08:53 15:24-16:02/38 16:39	08:06 16:46-17:08/22 17:39	07:02 07:26-07:32/6 18:34	06:46 20:33	05:41 20:00-20:57/57 21:29	05:04 20:52-21:14/22 22:11 20:12-20:48/36
13	08:52 15:25-16:04/39 16:41	08:04 16:46-17:11/25 17:41	07:00 07:24-07:33/9 18:36	06:43 20:35	05:39 20:01-20:59/58 21:31	05:04 20:52-21:15/23 22:12 20:13-20:48/35
14	08:51 15:25-16:05/40 16:42	08:02 16:46-17:12/26 17:43	06:57 07:21-07:34/13 18:38	06:41 20:37	05:37 20:01-21:00/59 21:32	05:04 20:53-21:15/22 22:12 20:14-20:48/34
15	08:50 15:26-16:07/41 16:44	08:00 16:46-17:11/25 17:45	06:55 07:19-07:35/16 18:40	06:38 20:39	05:35 20:00-21:01/61 21:34	05:03 20:53-21:14/21 22:13 20:13-20:47/34
16	08:49 15:27-16:10/43 16:46	07:58 16:46-17:10/24 17:47	06:52 07:16-07:35/19 18:42	06:36 20:41	05:34 20:01-21:03/62 21:36	05:03 20:53-21:14/21 22:13 20:14-20:47/33
17	08:48 15:28-16:12/44 16:47	07:56 16:47-17:10/23 17:49	06:50 07:14-07:36/22 18:44	06:34 20:43	05:32 20:00-21:04/64 21:37	05:03 20:53-21:14/21 22:14 20:14-20:47/33
18	08:47 15:30-16:14/44 16:49	07:54 16:48-17:09/21 17:51	06:47 07:11-07:36/25 18:46	06:31 20:44	05:30 20:01-21:06/65 21:39	05:03 20:54-21:14/20 22:14 20:14-20:47/33
19	08:46 15:31-16:15/44 16:51	07:51 16:49-17:08/19 17:53	06:45 07:09-07:36/27 18:48	06:29 20:46	05:29 20:01-21:08/67 21:41	05:03 21:37-21:38/1 20:15-20:48/33 22:15 20:54-21:14/20
20	08:45 15:33-16:18/45 16:53	07:49 16:51-17:06/15 17:55	06:42 07:06-07:36/30 18:50	06:27 20:48	05:27 20:01-21:09/68 21:42	05:03 21:38-21:39/1 20:16-20:49/33 22:15 20:55-21:15/20
21	08:44 15:34-16:19/45 16:55	07:47 16:53-17:04/11 17:57	06:40 07:04-07:36/32 18:52	06:24 20:50	05:26 20:02-21:11/69 21:44	05:03 21:38-21:39/1 20:16-20:49/33 22:15 20:55-21:15/20
22	08:42 15:49-16:21/32 16:57 15:38-15:47/9	07:45 17:59	06:37 07:01-07:35/34 18:53	06:22 20:52	05:24 20:02-21:12/70 21:46	05:03 21:38-21:39/1 20:16-20:49/33 22:16 20:55-21:15/20
23	08:41 15:49-16:21/32 16:58	07:43 18:01	06:35 06:59-07:35/36 18:55	06:20 20:54	05:23 20:02-21:13/71 21:47	05:04 21:38-21:39/1 20:16-20:49/33 22:16 20:55-21:15/20
24	08:40 15:50-16:22/32 17:00	07:40 18:03	06:32 06:56-07:34/38 18:57	06:18 20:24-20:27/3 20:56	05:21 20:02-21:14/72 21:49	05:04 20:56-21:16/20 22:16 20:16-20:49/33
25	08:38 15:51-16:21/30 17:02	07:38 18:05	06:30 06:54-07:33/39 18:59	06:15 20:19-20:28/9 20:58	05:20 20:03-21:14/71 21:50	05:04 20:56-21:16/20 22:16 20:16-20:49/33
26	08:37 15:51-16:21/30 17:04	07:36 18:07	06:27 06:51-07:32/41 19:01	06:13 20:16-20:30/14 20:59	05:19 20:03-21:15/72 21:52	05:05 20:55-21:16/21 22:16 20:16-20:49/33
27	08:35 15:52-16:21/29 17:06	07:33 18:09	06:25 06:49-07:31/42 19:03	06:11 20:13-20:31/18 21:01	05:17 20:04-21:15/71 21:53	05:05 20:56-21:17/21 22:16 20:16-20:50/34
28	08:34 15:53-16:21/28 17:08	07:31 18:11	06:22 06:46-07:29/43 19:05	06:09 20:11-20:33/22 21:03	05:16 20:04-21:15/71 21:54	05:06 20:55-21:17/22 22:16 20:16-20:50/34
29	08:32 15:54-16:20/26 17:10		07:20 07:45-08:28/43 20:07	06:07 20:09-20:35/26 21:05	05:15 20:05-21:15/70 21:56	05:06 20:56-21:18/22 22:15 20:16-20:51/35
30	08:30 15:55-16:19/24 17:12		07:17 07:46-08:26/40 20:09	06:04 20:08-20:36/28 21:07	05:14 20:05-21:15/70 21:57	05:07 20:56-21:18/22 22:15 20:16-20:52/36
31	08:29 15:56-16:18/22 17:14		07:15 08:02-08:24/22 20:10 07:48-07:58/10		05:13 20:06-21:15/69 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	1073	339	588	167	1815	1751

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 1 - AT01

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 20:55-21:18/23 22:15 20:16-20:52/36	05:48 20:11-21:06/55 21:39	06:44 20:31	07:38 08:05-08:12/7 19:16	07:37 16:16-16:33/17 17:05	08:33 15:06-15:43/37 16:19
2	05:08 20:56-21:19/23 22:14 20:16-20:52/36	05:50 20:11-21:05/54 21:37	06:46 20:28	07:40 08:07-08:10/3 19:14	07:39 16:16-16:30/14 17:02	08:35 15:05-15:41/36 16:18
3	05:09 20:56-21:19/23 22:14 20:16-20:53/37	05:52 20:11-21:03/52 21:35	06:47 07:15-07:21/6 20:26	07:42 19:11	07:41 16:17-16:28/11 17:00	08:36 15:05-15:41/36 16:18
4	05:10 20:56-21:20/24 22:13 20:16-20:54/38	05:54 20:12-21:01/49 21:33	06:49 07:17-07:23/6 20:24	07:44 19:09	07:43 16:18-16:27/9 16:59	08:38 15:06-15:40/34 16:17
5	05:11 20:55-21:20/25 22:13 20:15-20:53/38	05:55 20:12-21:00/48 21:31	06:51 07:18-07:23/5 20:21	07:45 19:06	07:45 16:19-16:25/6 16:57	08:39 15:06-15:39/33 16:16
6	05:12 20:55-21:20/25 22:12 20:15-20:54/39	05:57 20:12-20:57/45 21:29	06:53 07:20-07:24/4 20:19	07:47 19:04	07:47 16:21-16:22/1 16:55	08:41 15:06-15:39/33 16:16
7	05:13 20:15-21:21/66 22:12	05:59 20:13-20:56/43 21:27	06:55 07:22-07:24/2 20:16	07:49 19:01	07:49 16:53	08:42 15:06-15:38/32 16:15
8	05:14 20:15-21:21/66 22:11	06:01 20:14-20:55/41 21:25	06:56 20:14	07:51 18:59	07:51 15:32-15:44/12 16:51	08:43 15:07-15:38/31 16:15
9	05:15 20:14-21:21/67 22:10	06:02 20:13-20:52/39 21:23	06:58 20:11	07:53 18:56	07:53 15:30-15:46/16 16:49	08:45 15:07-15:37/30 16:15
10	05:16 20:14-21:22/68 22:09	06:04 20:14-20:50/36 21:21	07:00 08:03-08:08/5 20:09	07:55 18:54	07:55 15:29-15:49/20 16:47	08:46 15:07-15:36/29 16:14
11	05:17 20:14-21:22/68 22:08	06:06 20:16-20:49/33 21:19	07:02 07:58-08:13/15 20:06	07:57 18:52	07:57 15:27-15:50/23 16:46	08:47 15:07-15:35/28 16:14
12	05:18 20:13-21:22/69 22:07	06:08 20:16-20:46/30 21:17	07:04 07:55-08:16/21 20:04 07:41-07:50/9	07:59 18:49	07:59 15:26-15:51/25 16:44	08:48 15:09-15:36/27 16:14
13	05:20 20:14-21:23/69 22:06	06:09 20:17-20:44/27 21:15	07:05 07:52-08:17/25 20:01 07:37-07:51/14	08:00 18:47	08:01 15:25-15:52/27 16:42	08:49 15:09-15:36/27 16:14
14	05:21 20:14-21:23/69 22:05	06:11 20:18-20:43/25 21:13	07:07 07:35-08:18/43 19:59	08:02 18:44	08:03 15:25-15:52/27 16:41	08:50 15:09-15:35/26 16:14
15	05:22 20:13-21:23/70 22:04	06:13 20:19-20:40/21 21:10	07:09 07:36-08:20/44 19:56	08:04 18:42	08:05 15:24-15:53/29 16:39	08:51 15:10-15:35/25 16:14
16	05:24 20:13-21:23/70 22:03	06:15 20:21-20:38/17 21:08	07:11 07:38-08:21/43 19:54	08:06 18:40	08:07 15:24-15:54/30 16:37	08:52 15:10-15:35/25 16:14
17	05:25 20:13-21:23/70 22:02	06:17 20:23-20:36/13 21:06	07:13 07:39-08:20/41 19:51	08:08 18:37	08:09 15:24-15:54/30 16:36	08:53 15:10-15:35/25 16:14
18	05:26 20:13-21:24/71 22:00	06:18 20:25-20:34/9 21:04	07:14 07:41-08:21/40 19:49	08:10 18:35	08:11 15:24-15:56/32 16:34	08:54 15:11-15:35/24 16:14
19	05:28 20:12-21:24/72 21:59	06:20 20:31-20:32/1 21:01	07:16 07:43-08:21/38 19:46	08:12 18:33	08:12 15:24-15:56/32 16:33	08:54 15:12-15:36/24 16:14
20	05:29 20:12-21:23/71 21:58	06:22 20:59	07:18 07:45-08:21/36 19:44	08:14 17:27-17:32/5 18:31	08:14 15:24-15:56/32 16:31 15:13-15:22/9	08:55 15:12-15:36/24 16:15
21	05:31 20:12-21:23/71 21:56	06:24 20:57	07:20 07:46-08:21/35 19:41	08:16 17:23-17:35/12 18:28	08:16 15:10-15:56/46 16:30	08:56 15:12-15:36/24 16:15
22	05:32 20:11-21:21/70 21:55	06:26 20:55	07:22 07:48-08:20/32 19:39	08:18 17:20-17:37/17 18:26	08:18 15:09-15:54/45 16:29	08:56 15:13-15:37/24 16:16
23	05:34 20:12-21:20/68 21:54	06:27 20:52	07:23 07:50-08:20/30 19:36	08:20 17:19-17:38/19 18:24	08:20 15:08-15:53/45 16:28	08:57 15:13-15:37/24 16:16
24	05:35 20:11-21:19/68 21:52	06:29 20:50	07:25 07:52-08:20/28 19:34	08:22 17:17-17:39/22 18:22	08:22 15:07-15:51/44 16:26	08:57 15:13-15:37/24 16:17
25	05:37 20:12-21:18/66 21:50	06:31 20:48	07:27 07:54-08:19/25 19:31	07:24 16:16-16:40/24 17:19	08:23 15:07-15:50/43 16:25	08:58 15:15-15:39/24 16:17
26	05:38 20:11-21:16/65 21:49	06:33 20:45	07:29 07:55-08:18/23 19:29	07:26 16:16-16:40/24 17:17	08:25 15:06-15:49/43 16:24	08:58 15:15-15:39/24 16:18
27	05:40 20:12-21:15/63 21:47	06:35 20:43	07:31 07:57-08:17/20 19:26	07:28 16:15-16:40/25 17:15	08:27 15:05-15:47/42 16:23	08:58 15:15-15:40/25 16:19
28	05:42 20:11-21:13/62 21:46	06:37 20:41	07:33 07:59-08:16/17 19:24	07:29 16:16-16:41/25 17:13	08:28 15:05-15:45/40 16:22	08:58 15:16-15:41/25 16:20
29	05:43 20:11-21:12/61 21:44	06:38 20:38	07:34 08:01-08:15/14 19:21	07:31 16:15-16:40/25 17:11	08:30 15:05-15:45/40 16:21	08:58 15:16-15:42/26 16:21
30	05:45 20:11-21:10/59 21:42	06:40 20:36	07:36 08:03-08:14/11 19:19	07:33 16:15-16:37/22 17:09	08:32 15:05-15:44/39 16:20	08:58 15:17-15:43/26 16:22
31	05:47 20:11-21:08/57 21:40	06:42 20:33		07:35 16:15-16:35/20 17:07		08:58 15:17-15:44/27 16:23
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	2043	638	632	250	829	859

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 2 - AT02

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 16:24	08:27 15:58-16:43/45 17:16	07:29 17:00-17:38/38 18:13	07:13 20:12	06:02 20:16-20:38/22 21:09	05:12 20:54-21:20/26 22:00
2	08:58 16:25	08:25 15:58-16:46/48 17:18	07:26 16:59-17:37/38 18:15	07:10 20:14	06:00 20:15-20:39/24 21:11	05:11 20:54-21:20/26 22:01
3	08:58 16:26	08:24 15:58-16:48/50 17:20	07:24 16:59-17:37/38 18:17	07:08 20:16	05:58 20:15-20:39/24 21:12	05:10 20:55-21:21/26 22:02
4	08:58 16:28	08:22 15:58-16:48/50 17:22	07:22 16:59-17:36/37 18:19	07:05 20:18	05:56 20:16-20:40/24 21:14	05:09 20:55-21:20/25 22:03
5	08:57 16:29	08:20 15:57-16:48/51 17:24	07:19 16:59-17:36/37 18:21	07:03 20:20	05:54 20:15-20:40/25 21:16	05:08 20:55-21:20/25 22:04
6	08:57 16:30	08:18 15:57-16:48/51 17:26	07:17 16:59-17:35/36 18:23	07:00 20:22	05:52 20:15-20:40/25 21:18	05:08 20:56-21:21/25 22:06
7	08:56 16:32	08:16 15:57-16:48/51 17:28	07:14 17:00-17:34/34 18:25	06:58 20:24	05:50 20:15-20:39/24 21:20	05:07 20:55-21:21/26 22:07
8	08:56 16:33	08:14 15:57-16:46/49 17:30	07:12 17:00-17:33/33 18:27	06:55 20:26	05:48 20:15-20:38/23 21:22	05:06 20:56-21:21/25 22:07
9	08:55 16:34	08:12 15:57-16:46/49 17:32	07:10 17:02-17:32/30 18:29	06:53 20:27	05:46 20:16-20:38/22 21:23	05:06 20:56-21:21/25 22:08
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13	08:52 16:41	08:04 15:59-16:43/44 17:41	07:00 17:10-17:22/12 18:36	06:43 20:35	05:39 20:20-20:34/14 21:31	05:04 20:57-21:21/24 22:12
14	08:51 16:42	08:02 15:59-16:43/44 17:43	06:57 18:38	06:41 20:37	05:37 20:22-20:32/10 21:32	05:04 20:58-21:22/24 22:12
15	08:50 16:44	08:00 17:11-17:15/4 17:45 15:59-16:42/43	06:55 18:40	06:38 20:39	05:35 20:24-20:29/5 21:34	05:03 20:58-21:22/24 22:13
16	08:49 16:46	07:58 17:10-17:17/7 17:47 16:00-16:41/41	06:52 18:42	06:36 20:41	05:34 21:36	05:03 20:58-21:21/23 22:13
17	08:48 16:48	07:56 17:10-17:20/10 17:49 16:01-16:41/40	06:50 18:44	06:34 20:43	05:32 21:02-21:04/2 21:37	05:03 20:58-21:21/23 22:14
18	08:47 16:49	07:54 17:10-17:22/12 17:51 16:03-16:40/37	06:47 18:46	06:31 20:44	05:30 21:00-21:06/6 21:39	05:03 20:58-21:22/24 22:14
19	08:46 16:10-16:16/6 16:51	07:51 17:08-17:24/16 17:53 16:03-16:38/35	06:45 18:48	06:29 20:46	05:29 20:59-21:08/9 21:41	05:03 20:59-21:23/24 22:15
20	08:45 16:08-16:18/10 16:53	07:49 17:06-17:26/20 17:55 16:05-16:37/32	06:42 18:50	06:27 20:48	05:27 20:57-21:09/12 21:42	05:03 20:59-21:23/24 22:15
21	08:44 16:06-16:20/14 16:55	07:47 17:05-17:29/24 17:57 16:07-16:36/29	06:40 18:52	06:24 20:50	05:26 20:56-21:11/15 21:44	05:03 20:59-21:23/24 22:15
22	08:42 16:05-16:22/17 16:57	07:45 17:03-17:30/27 17:59 16:08-16:33/25	06:37 18:53	06:22 20:52	05:24 20:56-21:12/16 21:46	05:04 20:59-21:23/24 22:16
23	08:41 16:03-16:24/21 16:59	07:43 17:03-17:33/30 18:01 16:12-16:30/18	06:35 18:55	06:20 20:54	05:23 20:55-21:13/18 21:47	05:04 20:59-21:23/24 22:16
24	08:40 16:03-16:27/24 17:00	07:40 17:02-17:35/33 18:03 16:17-16:26/9	06:32 18:57	06:18 20:56	05:21 20:55-21:14/19 21:49	05:04 21:00-21:24/24 22:16
25	08:38 16:02-16:28/26 17:02	07:38 17:01-17:37/36 18:05	06:30 18:59	06:15 20:25-20:28/3 20:58	05:20 20:55-21:16/21 21:50	05:04 21:00-21:23/23 22:16
26	08:37 16:01-16:30/29 17:04	07:36 17:00-17:37/37 18:07	06:27 19:01	06:13 20:22-20:30/8 20:59	05:19 20:54-21:17/23 21:52	05:05 21:01-21:24/23 22:16
27	08:35 16:01-16:33/32 17:06	07:33 16:59-17:37/38 18:09	06:25 19:03	06:11 20:20-20:31/11 21:01	05:17 20:54-21:19/25 21:53	05:05 21:00-21:24/24 22:16
28	08:34 16:00-16:35/35 17:08	07:31 16:59-17:38/39 18:11	06:22 19:05	06:09 20:18-20:33/15 21:03	05:16 20:54-21:19/25 21:54	05:06 21:01-21:25/24 22:16
29	08:32 15:59-16:37/38 17:10		07:20 20:07	06:07 20:17-20:35/18 21:05	05:15 20:54-21:19/25 21:56	05:06 21:00-21:25/25 22:15
30	08:30 15:59-16:39/40 17:12		07:18 20:09	06:04 20:16-20:36/20 21:07	05:14 20:54-21:20/26 21:57	05:07 21:01-21:25/24 22:15
31	08:29 15:58-16:41/43 17:14		07:15 20:10		05:13 20:54-21:20/26 21:58	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	335	1313	402	75	566	732

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 2 - AT02

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 21:00-21:25/25 22:15	05:48 20:28-20:46/18 21:39	06:44 20:31	07:38 17:48-18:04/16 19:16	07:37 15:27-16:15/48 17:05	08:33 16:19
2	05:08 21:01-21:25/24 22:14	05:50 20:28-20:47/19 21:37	06:46 20:28	07:40 17:44-18:05/21 19:14	07:39 15:26-16:15/49 17:03	08:35 16:19
3	05:09 21:01-21:26/25 22:14	05:52 20:27-20:48/21 21:35	06:47 20:26	07:42 17:41-18:07/26 19:11	07:41 15:26-16:16/50 17:01	08:36 16:18
4	05:10 21:01-21:26/25 22:13	05:54 20:26-20:48/22 21:33	06:49 20:24	07:44 17:40-18:08/28 19:09	07:43 15:27-16:17/50 16:59	08:38 16:17
5	05:11 21:02-21:27/25 22:13	05:55 20:26-20:49/23 21:31	06:51 20:21	07:45 17:38-18:09/31 19:06	07:45 15:27-16:18/51 16:57	08:39 16:17
6	05:12 21:01-21:26/25 22:12	05:57 20:25-20:49/24 21:29	06:53 20:19	07:47 17:37-18:10/33 19:04	07:47 15:27-16:18/51 16:55	08:41 16:16
7	05:13 21:01-21:27/26 22:11	05:59 20:25-20:49/24 21:27	06:55 20:16	07:49 17:36-18:11/35 19:01	07:49 15:27-16:18/51 16:53	08:42 16:15
8	05:14 21:01-21:27/26 22:11	06:01 20:25-20:49/24 21:25	06:56 20:14	07:51 17:35-18:11/36 18:59	07:51 15:28-16:18/50 16:51	08:43 16:15
9	05:15 21:01-21:27/26 22:10	06:02 20:24-20:49/25 21:23	06:58 20:11	07:53 17:34-18:11/37 18:57	07:53 15:28-16:16/48 16:49	08:45 16:15
10	05:16 21:01-21:27/26 22:09	06:04 20:24-20:49/25 21:21	07:00 20:09	07:55 17:34-18:11/37 18:54	07:55 15:29-16:15/46 16:47	08:46 16:14
11	05:17 21:01-21:27/26 22:08	06:06 20:25-20:49/24 21:19	07:02 20:06	07:57 17:33-18:11/38 18:52	07:57 15:30-16:13/43 16:46	08:47 16:14
12	05:19 21:03-21:28/25 22:07	06:08 20:24-20:46/22 21:17	07:04 20:04	07:59 17:33-18:11/38 18:49	07:59 15:30-16:11/41 16:44	08:48 16:14
13	05:20 21:03-21:28/25 22:06	06:10 20:25-20:44/19 21:15	07:05 20:01	08:00 17:33-18:11/38 18:47	08:01 15:31-16:09/38 16:42	08:49 16:14
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15	05:22 21:03-21:28/25 22:04	06:13 20:26-20:40/14 21:10	07:09 19:56	08:04 17:33-18:10/37 18:42	08:05 15:33-16:05/32 16:39	08:51 16:14
16	05:24 21:03-21:28/25 22:03	06:15 20:27-20:38/11 21:08	07:11 19:54	08:06 17:33-18:09/36 18:40	08:07 15:34-16:03/29 16:37	08:52 16:14
17	05:25 21:04-21:28/24 22:02	06:17 20:29-20:36/7 21:06	07:13 19:51	08:08 17:33-18:08/35 18:38	08:09 15:35-16:01/26 16:36	08:53 16:14
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19	05:28 21:04-21:25/21 21:59	06:20 21:01	07:16 19:46	08:12 17:34-18:03/29 18:33 16:42-17:03/21	08:12 15:38-15:59/21 16:33	08:54 14:37-14:39/2 16:14
20	05:29 21:05-21:24/19 21:58	06:22 20:59	07:18 19:44	08:14 17:35-18:01/26 18:31 16:39-17:05/26	08:14 15:40-15:57/17 16:32	08:55 14:36-14:40/4 16:15
21	05:31 21:06-21:23/17 21:56	06:24 20:57	07:20 19:41	08:16 17:36-17:58/22 18:28 16:37-17:06/29	08:16 15:42-15:56/14 16:30	08:56 14:37-14:41/4 16:15
22	05:32 21:06-21:21/15 21:55	06:26 20:55	07:22 19:39	08:18 17:37-17:56/19 18:26 16:35-17:08/33	08:18 15:44-15:54/10 16:29	08:56 14:37-14:41/4 16:16
23	05:34 21:07-21:20/13 21:54	06:28 20:52	07:23 19:36	08:20 17:39-17:53/14 18:24 16:33-17:09/36	08:20 15:47-15:53/6 16:28	08:57 14:38-14:42/4 16:16
24	05:35 21:08-21:18/10 21:52	06:29 20:50	07:25 19:34	08:22 17:40-17:51/11 18:22 16:32-17:10/38	08:22 16:26	08:57 14:39-14:41/2 16:17
25	05:37 21:10-21:18/8 21:50	06:31 20:48	07:27 19:31	07:24 16:40-16:48/8 17:19 15:30-16:10/40	08:23 16:25	08:58 16:17
26	05:39 21:11-21:16/5 21:49	06:33 20:45	07:29 19:29	07:26 16:40-16:46/6 17:17 15:29-16:11/42	08:25 16:24	08:58 16:18
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28	05:42 21:46	06:37 20:41	07:33 19:24	07:29 15:29-16:13/44 17:13	08:28 16:22	08:58 16:20
29	05:43 20:34-20:42/8 21:44	06:38 20:38	07:34 19:21	07:31 15:28-16:13/45 17:11	08:30 16:21	08:58 16:21
30	05:45 20:31-20:44/13 21:42	06:40 20:36	07:36 17:52-18:00/8 19:19	07:33 15:28-16:13/45 17:09	08:32 16:20	08:58 16:22
31	05:47 20:30-20:45/15 21:40	06:42 20:33		07:35 15:27-16:14/47 17:07		08:58 16:23
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	594	342	8	1230	830	20

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 3 - AT03

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 09:44-10:01/17 15:04-15:26/22	08:27 15:44-16:05/21	07:29 17:13-17:38/25	07:13 19:02-19:37/35	06:02	05:12 20:52-21:04/12
	16:24 15:32-15:45/13	17:16 16:33-16:43/10	18:13	20:12 18:32-18:53/21	21:09	22:00
2	08:58 09:45-10:01/16 15:05-15:27/22	08:25 15:47-16:04/17	07:26 17:13-17:37/24	07:10 19:02-19:37/35	06:00	05:11 20:53-21:03/10
	16:25 15:33-15:47/14	17:18 16:34-16:46/12	18:15	20:14 18:36-18:50/14	21:11	22:01
3	08:58 09:46-10:01/15 15:05-15:26/21	08:24 15:50-16:01/11	07:24 17:14-17:36/22	07:08 19:03-19:37/34	05:58	05:10 20:54-21:02/8
	16:26 15:32-15:48/16	17:20 16:35-16:49/14	18:17	20:16	21:12	22:02
4	08:58 09:47-10:01/14 15:06-15:27/21	08:22 16:36-16:50/14	07:22 17:14-17:34/20	07:05 19:02-19:35/33	05:56	05:09 20:56-21:02/6
	16:28 15:33-15:50/17	17:22	18:19	20:18	21:14	22:03
5	08:57 09:48-10:00/12 15:07-15:27/20	08:20 16:37-16:49/12	07:19 17:16-17:33/17	07:03 19:03-19:35/32	05:54	05:08
	16:29 15:32-15:51/19	17:24	18:21	20:20	21:16	22:04
6	08:57 09:50-10:00/10 15:08-15:27/19	08:18 16:38-16:48/10	07:17 17:17-17:31/14	07:00 19:03-19:33/30	05:52	05:08 21:28-21:30/2
	16:30 15:33-15:53/20	17:26	18:23 17:43-17:55/12	20:22	21:18	22:06
7	08:56 09:51-09:59/8 15:09-15:27/18	08:16 16:41-16:46/5	07:14 17:21-17:27/6	06:58 19:04-19:32/28	05:50	05:07 21:27-21:31/4
	16:32 15:33-15:54/21	17:28	18:25 17:40-17:58/18	20:24	21:20	22:07
8	08:56 09:54-09:57/3 15:10-15:26/16	08:14	07:12 17:36-17:59/23	06:55 19:04-19:30/26	05:48	05:06 21:27-21:32/5
	16:33 15:33-15:55/22	17:30	18:27	20:26	21:22	22:08
9	08:55 15:33-15:57/24	08:12	07:10 17:35-18:02/27	06:53 19:06-19:29/23	05:46	05:06 21:26-21:32/6
	16:34 15:11-15:26/15	17:32	18:29	20:27	21:23	22:08
10	08:55 15:34-15:59/25	08:10	07:07 17:32-18:03/31	06:50 19:08-19:27/19	05:44	05:05 21:27-21:33/6
	16:36 15:13-15:26/13	17:35	18:31	20:29	21:25	22:09
11	08:54 15:34-16:01/27	08:08	07:05 17:31-18:05/34	06:48 19:10-19:24/14	05:42 20:52-20:55/3	05:05 21:26-21:33/7
	16:38 15:15-15:25/10	17:37	18:32	20:31	21:27	22:10
12	08:53 15:34-16:03/29	08:06	07:02 17:29-18:07/38	06:46	05:41 20:50-20:56/6	05:04 21:26-21:34/8
	16:39 15:17-15:23/6	17:39	18:34	20:33	21:29	22:11
13	08:52 15:34-16:05/31	08:04	07:00 17:29-18:08/39	06:43	05:39 20:49-20:59/10	05:04 21:26-21:35/9
	16:41	17:41	18:36	20:35	21:31	22:12
14	08:51 15:33-16:05/32	08:02	06:57 17:27-18:08/41	06:41	05:37 20:48-21:00/12	05:04 21:26-21:36/10
	16:42	17:43	18:38	20:37	21:32	22:12
15	08:50 15:33-16:06/33	08:00	06:55 17:27-18:09/42	06:38	05:35 20:47-21:01/14	05:03 21:27-21:37/10
	16:44	17:45	18:40	20:39	21:34	22:13
16	08:49 15:34-16:07/33	07:58	06:52 17:26-18:09/43	06:36	05:34 20:47-21:03/16	05:03 21:26-21:36/10
	16:46	17:47	18:42	20:41	21:36	22:13
17	08:48 15:34-16:08/34	07:56	06:50 17:25-18:10/45	06:34	05:32 20:46-21:04/18	05:03 21:26-21:37/11
	16:48	17:49	18:44	20:43	21:37	22:14
18	08:47 15:34-16:08/34	07:54	06:47 17:24-18:09/45	06:31	05:30 20:47-21:06/19	05:03 21:26-21:37/11
	16:49	17:51	18:46	20:44	21:39	22:14
19	08:46 15:35-16:08/33	07:51 17:22-17:24/2	06:45 17:25-18:09/44	06:29	05:29 20:47-21:08/21	05:03 21:27-21:39/12
	16:51	17:53	18:48	20:46	21:41	22:15
20	08:45 15:35-16:09/34	07:49 17:19-17:26/7	06:42 17:24-18:09/45	06:27	05:27 20:46-21:07/21	05:03 21:27-21:39/12
	16:53	17:55	18:50	20:48	21:42	22:15
21	08:44 15:35-16:09/34	07:47 17:18-17:29/11	06:40 18:18-18:25/7	06:24	05:26 20:47-21:08/21	05:03 21:27-21:39/12
	16:55	17:57	18:52 17:24-18:09/45	20:50	21:44	22:15
22	08:42 15:36-16:09/33	07:45 17:16-17:30/14	06:37 18:14-18:26/12	06:22	05:24 20:47-21:08/21	05:04 21:27-21:39/12
	16:57	17:59	18:53 17:24-18:08/44	20:52	21:46	22:16
23	08:41 15:36-16:09/33	07:43 17:15-17:33/18	06:35 18:12-18:29/17	06:20	05:23 20:46-21:07/21	05:04 21:27-21:39/12
	16:59	18:01	18:55 17:24-18:08/44	20:54	21:47	22:16
24	08:40 15:37-16:10/33	07:40 17:14-17:35/21	06:32 18:09-18:30/21	06:18	05:21 20:47-21:07/20	05:04 21:28-21:39/11
	17:00	18:03	18:57 17:24-18:06/42	20:56	21:49	22:16
25	08:38 15:37-16:09/32	07:38 17:13-17:37/24	06:30 18:08-18:32/24	06:15	05:20 20:48-21:07/19	05:04 21:28-21:39/11
	17:02	18:05	18:59 17:25-18:06/41	20:58	21:50	22:16
26	08:37 15:38-16:09/31	07:36 17:13-17:38/25	06:27 18:06-18:34/28	06:13	05:19 20:48-21:07/19	05:05 21:29-21:40/11
	17:04	18:07	19:01 17:25-18:04/39	20:59	21:52	22:16
27	08:35 15:39-16:09/30	07:33 17:12-17:38/26	06:25 18:06-18:36/30	06:11	05:17 20:49-21:07/18	05:05 21:29-21:39/10
	17:06	18:09	19:03 17:26-18:04/38	21:01	21:53	22:16
28	08:34 15:40-16:09/29	07:31 17:13-17:38/25	06:22 18:04-18:37/33	06:09	05:16 20:49-21:07/18	05:06 21:30-21:39/9
	17:08 16:34-16:35/1	18:11	19:05 17:26-18:02/36	21:03	21:54	22:16
29	08:32 15:41-16:08/27		07:20 19:04-19:38/34	06:07	05:15 20:50-21:06/16	05:06 21:29-21:39/10
	17:10 16:34-16:37/3		20:07 18:28-19:01/33	21:05	21:56	22:15
30	08:31 15:42-16:07/25		07:18 19:03-19:37/34	06:04	05:14 20:51-21:06/15	05:07 21:30-21:39/9
	17:12 16:33-16:39/6		20:09 18:28-18:58/30	21:07	21:57	22:15
31	08:29 15:43-16:06/23		07:15 19:03-19:38/35		05:13 20:51-21:05/14	
	17:14 16:33-16:41/8		20:10 18:31-18:57/26		21:58	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	1157	299	1348	344	342	266

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 3 - AT03

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 21:30-21:38/8 22:15	05:48 21:01-21:06/5 21:39	06:44 19:09-19:23/14 20:31	07:38 18:09-18:48/39 19:16	07:37 17:05	08:33 15:16-15:43/27 16:19 14:57-15:07/10
2	05:08 21:31-21:38/7 22:14	05:50 21:03-21:05/2 21:37	06:46 19:06-19:25/19 20:28	07:40 18:10-18:45/35 19:14	07:39 17:03	08:35 15:16-15:41/25 16:19 14:55-15:08/13
3	05:09 21:32-21:38/6 22:14	05:52 21:35	06:47 19:04-19:27/23 20:26	07:42 18:10-18:42/32 19:11	07:41 17:01	08:36 15:17-15:41/24 16:18 14:55-15:10/15
4	05:10 21:32-21:38/6 22:13	05:54 21:33	06:49 19:02-19:28/26 20:24	07:44 18:11-18:40/29 19:09	07:43 16:10-16:16/6 16:59	08:38 09:39-09:42/3 14:55-15:11/16 16:17 15:18-15:40/22
5	05:11 21:33-21:37/4 22:13	05:55 21:31	06:51 19:00-19:28/28 20:21	07:45 18:12-18:37/25 19:06	07:45 16:08-16:18/10 16:57	08:39 09:36-09:44/8 14:54-15:12/18 16:17 15:18-15:39/21
6	05:12 21:33-21:36/3 22:12	05:57 21:29	06:53 18:59-19:29/30 20:19	07:47 18:14-18:35/21 19:04	07:47 16:06-16:19/13 16:55	08:41 09:36-09:46/10 14:54-15:13/19 16:16 15:19-15:39/20
7	05:13 21:34-21:35/1 22:11	05:59 21:27	06:55 18:58-19:30/32 20:16	07:49 17:55-18:05/10 19:01 18:17-18:32/15	07:49 16:05-16:20/15 16:53	08:42 09:35-09:47/12 14:54-15:14/20 16:15 15:20-15:38/18
8	05:14 21:04-21:07/3 22:11	06:01 21:25	06:56 18:57-19:30/33 20:14	07:51 17:52-18:08/16 18:59 18:22-18:30/8	07:51 15:20-15:32/12 16:51 16:05-16:18/13	08:43 09:35-09:49/14 14:53-15:14/21 16:15 15:20-15:37/17
9	05:15 21:02-21:09/7 22:10	06:02 21:23	06:58 18:56-19:30/34 20:11	07:53 17:50-18:09/19 18:57	07:53 15:17-15:34/17 16:49 16:04-16:16/12	08:45 09:35-09:50/15 14:54-15:15/21 16:15 15:21-15:37/16
10	05:16 21:01-21:10/9 22:09	06:04 21:21	07:00 18:55-19:30/35 20:09 18:30-18:43/13	07:55 17:49-18:10/21 18:54	07:55 15:16-15:37/21 16:47 16:05-16:15/10	08:46 09:34-09:50/16 14:54-15:16/22 16:14 15:22-15:36/14
11	05:17 21:00-21:11/11 22:08	06:06 21:19	07:02 18:55-19:30/35 20:06 18:26-18:46/20	07:57 17:48-18:11/23 18:52	07:57 15:15-15:38/23 16:46 16:05-16:13/8	08:47 09:34-09:51/17 14:54-15:16/22 16:14 15:22-15:36/14
12	05:18 21:00-21:13/13 22:07	06:08 21:17	07:04 18:54-19:29/35 20:04 18:22-18:48/26	07:59 17:47-18:11/24 18:49	07:59 15:13-15:39/26 16:44 16:05-16:11/6	08:48 09:35-09:53/18 14:55-15:18/23 16:14 15:24-15:36/12
13	05:20 20:59-21:14/15 22:06	06:10 21:15	07:05 18:54-19:29/35 20:01 18:20-18:49/29	08:00 17:46-18:11/25 18:47	08:01 15:12-15:40/28 16:42 16:05-16:09/4	08:49 09:35-09:53/18 14:55-15:18/23 16:14 15:24-15:36/12
14	05:21 20:59-21:14/15 22:05	06:11 21:13	07:07 18:54-19:28/34 19:59 18:18-18:51/33	08:02 17:46-18:11/25 18:45	08:03 15:12-15:40/28 16:41 16:06-16:07/1	08:50 09:35-09:54/19 14:55-15:19/24 16:14 15:25-15:36/11
15	05:22 20:58-21:15/17 22:04	06:13 21:10	07:09 18:54-19:28/34 19:56 18:17-18:52/35	08:04 17:45-18:11/26 18:42	08:05 15:11-15:41/30 16:39	08:51 09:36-09:55/19 14:56-15:19/23 16:14 15:26-15:36/10
16	05:24 20:57-21:15/18 22:03	06:15 21:08	07:11 18:54-19:25/31 19:54 18:15-18:53/38	08:06 17:45-18:10/25 18:40	08:07 15:11-15:42/31 16:37	08:52 09:36-09:55/19 14:56-15:20/24 16:14 15:27-15:36/9
17	05:25 20:58-21:17/19 22:02	06:17 21:06	07:13 18:55-19:23/28 19:51 18:13-18:53/40	08:08 17:46-18:08/22 18:38	08:09 15:10-15:42/32 16:36	08:53 09:36-09:55/19 14:56-15:20/24 16:14 15:26-15:35/9
18	05:26 20:57-21:17/20 22:00	06:19 21:04	07:14 18:55-19:20/25 19:49 18:12-18:53/41	08:10 17:46-18:05/19 18:35	08:11 15:11-15:44/33 16:34	08:54 09:36-09:56/20 14:56-15:20/24 16:14 15:27-15:35/8
19	05:28 20:57-21:17/20 21:59	06:20 21:01	07:16 18:56-19:18/22 19:46 18:11-18:54/43	08:12 17:47-18:03/16 18:33	08:12 15:11-15:44/33 16:33	08:54 09:37-09:57/20 14:57-15:21/24 16:14 15:28-15:36/8
20	05:29 20:57-21:18/21 21:58	06:22 20:59	07:18 18:58-19:16/18 19:44 18:11-18:54/43	08:14 17:47-18:01/14 18:31	08:14 15:11-15:44/33 16:32	08:55 09:38-09:58/20 14:57-15:21/24 16:15 15:28-15:35/7
21	05:31 20:57-21:18/21 21:56	06:24 20:57	07:20 18:59-19:12/13 19:41 18:09-18:53/44	08:16 17:49-17:58/9 18:28	08:16 15:11-15:45/34 16:30	08:56 09:37-09:58/21 14:58-15:22/24 16:15 15:29-15:36/7
22	05:32 20:56-21:17/21 21:55	06:26 20:55	07:22 19:01-19:10/9 19:39 18:09-18:53/44	08:18 17:50-17:56/6 18:26	08:18 15:11-15:45/34 16:29	08:56 09:38-09:59/21 14:59-15:23/24 16:16 15:29-15:36/7
23	05:34 20:57-21:18/21 21:54	06:28 20:52	07:23 18:08-18:53/45 19:36	08:20 18:24	08:20 15:12-15:45/33 16:28	08:57 09:39-09:59/20 14:59-15:23/24 16:16 15:30-15:37/7
24	05:35 20:57-21:18/21 21:52	06:29 20:50	07:25 18:08-18:53/45 19:34	08:22 18:22	08:22 15:12-15:46/34 16:26	08:57 09:39-09:59/20 14:59-15:23/24 16:17 15:30-15:38/8
25	05:37 20:57-21:18/21 21:50	06:31 20:48	07:27 18:08-18:53/45 19:31	07:24 17:19	08:23 15:12-15:46/34 16:25	08:58 09:40-10:00/20 15:00-15:24/24 16:17 15:30-15:38/8
26	05:39 20:57-21:16/19 21:49	06:33 20:45	07:29 18:07-18:51/44 19:29	07:26 17:17	08:25 15:13-15:46/33 16:24	08:58 09:40-10:00/20 15:01-15:25/24 16:18 15:31-15:40/9
27	05:40 20:58-21:15/17 21:47	06:35 20:43	07:31 18:07-18:51/44 19:26	07:28 17:15	08:27 15:13-15:45/32 16:23	08:58 09:41-10:00/19 15:01-15:25/24 16:19 15:32-15:40/8
28	05:42 20:58-21:13/15 21:46	06:37 20:41	07:33 18:07-18:50/43 19:24	07:29 17:13	08:28 15:13-15:46/33 16:22	08:58 09:41-10:01/20 15:02-15:25/23 16:20 15:32-15:41/9
29	05:43 20:59-21:12/13 21:44	06:38 20:38	07:34 18:08-18:50/42 19:21	07:31 17:11	08:30 15:14-15:45/31 16:21	08:58 09:42-10:01/19 15:02-15:26/24 16:21 15:32-15:42/10
30	05:45 20:59-21:10/11 21:42	06:40 20:36	07:36 18:08-18:49/41 19:19	07:33 17:09	08:32 15:15-15:44/29 16:20 14:59-15:04/5	08:58 09:43-10:01/18 15:03-15:26/23 16:22 15:32-15:43/11
31	05:47 21:00-21:08/8 21:40	06:42 20:33		07:35 17:07		08:58 09:44-10:02/18 15:04-15:27/23 16:23 15:32-15:44/12
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	411	7	1391	504	777	1554

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 4 - AT04

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27	09:04-09:27/23	07:29	16:41-17:21/40	07:13	19:04-19:23/19	06:02	20:01-20:38/37	05:12	20:05-20:39/34
	16:24		17:16	15:53-16:23/30	18:13		20:12		21:09		22:00	
2	08:58		08:25	09:04-09:26/22	07:26	16:41-17:19/38	07:10	19:06-19:21/15	06:00	20:00-20:40/40	05:11	20:05-20:38/33
	16:25		17:18	15:54-16:22/28	18:15		20:14		21:11		22:01	
3	08:58		08:24	09:06-09:25/19	07:24	16:42-17:18/36	07:08	19:09-19:18/9	05:58	19:59-20:41/42	05:10	20:07-20:39/32
	16:26		17:20	15:55-16:21/26	18:17		20:16		21:13		22:02	
4	08:58		08:22	09:07-09:23/16	07:22	16:42-17:17/35	07:05		05:56	19:59-20:44/45	05:09	20:07-20:38/31
	16:28		17:22	15:56-16:21/25	18:19		20:18		21:14		22:03	
5	08:57		08:20	09:10-09:21/11	07:19	16:44-17:16/32	07:03		05:54	19:59-20:46/47	05:08	20:08-20:37/29
	16:29		17:24	15:58-16:19/21	18:21		20:20		21:16		22:04	
6	08:57		08:18	16:52-16:55/3	07:17	16:45-17:13/28	07:00		05:52	19:58-20:47/49	05:08	20:09-20:37/28
	16:30		17:26	16:00-16:18/18	18:23		20:22		21:18		22:06	
7	08:56	15:52-15:54/2	08:16	16:49-16:58/9	07:14	16:47-17:12/25	06:58		05:50	19:57-20:49/52	05:07	20:10-20:36/26
	16:32		17:28	16:02-16:16/14	18:25		20:24		21:20		22:07	
8	08:56	15:51-15:55/4	08:14	16:46-17:00/14	07:12	16:49-17:09/20	06:55		05:48	19:57-20:49/52	05:06	20:11-20:37/26
	16:33		17:30	16:07-16:11/4	18:27		20:26		21:22		22:08	
9	08:55	15:51-15:57/6	08:12	16:44-17:01/17	07:10	16:53-17:05/12	06:53		05:46	19:56-20:49/53	05:06	20:11-20:36/25
	16:34		17:32		18:29		20:27		21:23		22:08	
10	08:55	15:51-15:59/8	08:10	16:43-17:04/21	07:07		06:50		05:44	19:57-20:50/53	05:05	20:12-20:36/24
	16:36		17:34		18:31		20:29		21:25		22:09	
11	08:54	15:51-16:01/10	08:08	16:42-17:06/24	07:05		06:48		05:42	19:57-20:49/52	05:05	20:12-20:35/23
	16:37		17:37		18:32		20:31		21:27		22:10	
12	08:53	15:50-16:03/13	08:06	16:41-17:08/27	07:02		06:46		05:41	19:56-20:49/53	05:04	20:13-20:35/22
	16:39		17:39		18:34		20:33		21:29		22:11	
13	08:52	15:50-16:04/14	08:04	16:40-17:11/31	07:00		06:43		05:39	19:57-20:49/52	05:04	20:14-20:35/21
	16:41		17:41		18:36		20:35		21:31		22:12	
14	08:51	15:49-16:05/16	08:02	16:40-17:13/33	06:57		06:41		05:37	19:56-20:49/53	05:04	20:15-20:34/19
	16:42		17:43		18:38		20:37		21:32		22:12	
15	08:50	15:49-16:07/18	08:00	16:38-17:15/37	06:55		06:38		05:35	19:56-20:48/52	05:03	20:15-20:33/18
	16:44		17:45		18:40		20:39		21:34		22:13	
16	08:49	09:21-09:22/1	07:58	16:38-17:17/39	06:52	18:14-18:15/1	06:36		05:34	19:57-20:48/51	05:03	20:16-20:33/17
	16:46	15:49-16:10/21	17:47		18:42		20:41		21:36		22:13	
17	08:48	09:20-09:23/3	07:56	16:38-17:20/42	06:50	18:13-18:17/4	06:34		05:32	19:56-20:48/52	05:03	20:16-20:33/17
	16:47	15:49-16:12/23	17:49		18:44		20:43		21:37		22:14	
18	08:47	09:19-09:24/5	07:54	16:38-17:22/44	06:47	18:11-18:19/8	06:31		05:30	19:57-20:48/51	05:03	20:17-20:33/16
	16:49	15:50-16:14/24	17:51		18:46		20:44		21:39		22:14	
19	08:46	09:17-09:25/8	07:51	16:37-17:24/47	06:45	18:09-18:21/12	06:29		05:29	19:58-20:48/50	05:03	20:17-20:33/16
	16:51	15:49-16:16/27	17:53		18:48		20:46		21:41		22:15	
20	08:45	09:16-09:26/10	07:49	16:37-17:26/49	06:42	18:07-18:22/15	06:27		05:27	19:58-20:47/49	05:03	20:19-20:34/15
	16:53	15:49-16:18/29	17:55		18:50		20:48		21:42		22:15	
21	08:44	09:14-09:26/12	07:47	16:37-17:25/48	06:40	18:06-18:25/19	06:24		05:26	19:58-20:46/48	05:03	20:19-20:34/15
	16:55	15:49-16:20/31	17:57		18:52		20:50		21:44		22:15	
22	08:42	09:13-09:27/14	07:45	16:37-17:23/46	06:37	18:04-18:26/22	06:22		05:24	19:59-20:46/47	05:03	20:19-20:34/15
	16:57	15:49-16:22/33	17:59		18:53		20:52		21:46		22:16	
23	08:41	09:11-09:27/16	07:43	16:37-17:23/46	06:35	18:04-18:29/25	06:20	20:21-20:23/2	05:23	19:59-20:45/46	05:04	20:18-20:34/16
	16:58	15:49-16:22/33	18:01		18:55		20:54		21:47		22:16	
24	08:40	09:10-09:28/18	07:40	16:38-17:23/45	06:32	18:02-18:30/28	06:18	20:14-20:26/12	05:21	20:00-20:45/45	05:04	20:19-20:35/16
	17:00	15:50-16:23/33	18:03		18:57		20:56		21:49		22:16	
25	08:38	09:08-09:28/20	07:38	16:38-17:22/44	06:30	18:02-18:30/28	06:15	20:11-20:28/17	05:20	20:00-20:44/44	05:04	20:19-20:35/16
	17:02	15:50-16:23/33	18:05		18:59		20:58		21:50		22:16	
26	08:37	09:06-09:27/21	07:36	16:39-17:22/43	06:27	18:02-18:29/27	06:13	20:09-20:30/21	05:19	20:01-20:43/42	05:05	20:18-20:35/17
	17:04	15:49-16:23/34	18:07		19:01		20:59		21:52		22:16	
27	08:35	09:05-09:28/23	07:33	16:39-17:21/42	06:25	18:02-18:29/27	06:11	20:07-20:32/25	05:17	20:02-20:43/41	05:05	20:18-20:36/18
	17:06	15:50-16:24/34	18:09		19:03		21:01		21:53		22:16	
28	08:34	09:03-09:28/25	07:31	16:40-17:21/41	06:22	18:01-18:28/27	06:09	20:05-20:33/28	05:16	20:02-20:42/40	05:06	20:19-20:37/18
	17:08	15:51-16:23/32	18:11		19:05		21:03		21:54		22:16	
29	08:32	09:01-09:28/27			07:20	19:02-19:28/26	06:07	20:03-20:35/32	05:15	20:03-20:41/38	05:06	20:18-20:37/19
	17:10	15:51-16:23/32			20:07		21:05		21:56		22:15	
30	08:31	09:01-09:27/26			07:18	19:02-19:26/24	06:04	20:02-20:36/34	05:14	20:04-20:40/36	05:07	20:18-20:39/21
	17:12	15:51-16:23/32			20:09		21:07		21:57		22:15	
31	08:29	09:02-09:27/25			07:15	19:03-19:25/22			05:13	20:04-20:39/35		
	17:14	15:52-16:22/30			20:11				21:59			
Potential sun hours	248		272		367		421		496		513	
Sum of minutes with flicker	826		1049		581		214		1447		643	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 4 - AT04

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 20:17-20:39/22 22:15	05:48 20:06-20:59/53 21:39	06:44 20:31	07:38 19:16	07:37 16:12-16:33/21 17:05	08:33 15:33-15:43/10 16:19
2	05:08 20:17-20:40/23 22:14	05:50 20:07-21:00/53 21:37	06:46 20:28	07:40 19:14	07:39 16:14-16:31/17 17:03	08:35 15:33-15:41/8 16:19
3	05:09 20:17-20:41/24 22:14	05:52 20:07-21:00/53 21:35	06:47 20:26	07:42 19:11	07:41 16:15-16:28/13 17:01 15:35-15:41/6	08:36 15:35-15:41/6 16:18
4	05:10 20:16-20:42/26 22:13	05:54 20:07-20:59/52 21:33	06:49 20:24	07:44 17:34-17:39/5 19:09	07:43 16:19-16:27/8 16:59 15:32-15:46/14	08:38 15:36-15:40/4 16:17
5	05:11 20:16-20:42/26 22:13	05:55 20:07-20:59/52 21:31	06:51 20:21	07:45 17:28-17:44/16 19:06	07:45 08:43-08:47/4 15:29-15:48/19 16:57 16:22-16:25/3	08:39 15:37-15:39/2 16:17
6	05:12 20:15-20:42/27 22:12	05:57 20:07-20:57/50 21:29	06:53 20:19	07:47 17:24-17:47/23 19:04	07:47 08:39-08:51/12 16:55 15:27-15:49/22	08:41 16:16
7	05:13 20:15-20:43/28 22:12	05:59 20:08-20:56/48 21:27	06:55 20:16	07:49 17:22-17:49/27 19:01	07:49 08:37-08:53/16 16:53 15:26-15:50/24	08:42 16:15
8	05:14 20:14-20:44/30 22:11	06:01 20:08-20:54/46 21:25	06:56 20:14	07:51 17:20-17:50/30 18:59	07:51 08:35-08:55/20 16:51 15:25-15:51/26	08:43 16:15
9	05:15 20:14-20:45/31 22:10	06:02 20:08-20:52/44 21:23	06:58 19:03-19:11/8 20:11	07:53 17:18-17:51/33 18:57	07:53 08:35-08:57/22 16:49 15:24-15:52/28	08:45 16:15
10	05:16 20:13-20:45/32 22:09	06:04 20:09-20:50/41 21:21	07:00 19:00-19:14/14 20:09	07:55 17:17-17:52/35 18:54	07:55 08:34-08:58/24 16:47 15:24-15:54/30	08:46 16:14
11	05:17 20:13-20:46/33 22:08	06:06 20:10-20:49/39 21:19	07:02 18:57-19:16/19 20:06	07:57 17:15-17:53/38 18:52	07:57 08:34-08:59/25 16:46 15:24-15:54/30	08:47 16:14
12	05:18 20:13-20:48/35 22:07	06:08 20:10-20:46/36 21:17	07:04 18:55-19:16/21 20:04	07:59 17:14-17:53/39 18:49	07:59 08:33-08:59/26 16:44 15:23-15:55/32	08:48 16:14
13	05:20 20:12-20:48/36 22:06	06:10 20:11-20:44/33 21:15	07:05 18:54-19:17/23 20:01	08:00 17:13-17:54/41 18:47	08:01 08:33-09:00/27 16:42 15:23-15:55/32	08:49 16:14
14	05:21 20:12-20:48/36 22:05	06:11 20:12-20:43/31 21:13	07:07 18:53-19:18/25 19:59	08:02 17:13-17:54/41 18:45	08:03 08:35-09:00/25 16:41 15:23-15:55/32	08:50 16:14
15	05:22 20:11-20:50/39 22:04	06:13 20:12-20:40/28 21:10	07:09 18:52-19:18/26 19:56	08:04 17:11-17:54/43 18:42	08:05 08:37-09:00/23 16:39 15:22-15:55/33	08:51 16:14
16	05:24 20:10-20:51/41 22:03	06:15 20:14-20:38/24 21:08	07:11 18:50-19:18/28 19:54	08:06 17:10-17:54/44 18:40	08:07 08:39-09:00/21 16:37 15:22-15:56/34	08:52 16:14
17	05:25 20:11-20:53/42 22:02	06:17 20:16-20:36/20 21:06	07:13 18:50-19:18/28 19:51	08:08 17:10-17:54/44 18:38	08:09 08:42-09:02/20 16:36 15:22-15:56/34	08:53 16:14
18	05:26 20:10-20:53/43 22:00	06:19 20:17-20:34/17 21:04	07:14 18:50-19:17/27 19:49	08:10 17:09-17:54/45 18:35	08:11 08:44-09:02/18 16:34 15:24-15:57/33	08:54 16:14
19	05:28 20:09-20:54/45 21:59	06:20 20:21-20:32/11 21:01	07:16 18:50-19:17/27 19:46	08:12 17:08-17:54/46 18:33	08:12 08:46-09:02/16 16:33 15:24-15:57/33	08:54 16:14
20	05:29 20:10-20:55/45 21:58	06:22 20:59	07:18 18:50-19:16/26 19:44	08:14 17:08-17:55/47 18:31	08:14 08:48-09:02/14 16:32 15:24-15:57/33	08:55 16:15
21	05:31 20:09-20:56/47 21:56	06:24 20:57	07:20 18:49-19:12/23 19:41	08:16 17:07-17:56/49 18:28	08:16 08:50-09:02/12 16:30 15:25-15:56/31	08:56 16:15
22	05:32 20:08-20:56/48 21:55	06:26 20:55	07:22 18:50-19:10/20 19:39	08:18 17:07-17:56/49 18:26	08:18 08:52-09:02/10 16:29 15:25-15:54/29	08:56 16:16
23	05:34 20:09-20:57/48 21:54	06:28 20:52	07:23 18:51-19:08/17 19:36	08:20 17:07-17:53/46 18:24	08:20 08:54-09:02/8 16:28 15:26-15:53/27	08:57 16:16
24	05:35 20:08-20:57/49 21:52	06:29 20:50	07:25 18:52-19:05/13 19:34	08:22 17:07-17:51/44 18:22	08:22 08:56-09:02/6 16:26 15:27-15:51/24	08:57 16:17
25	05:37 20:08-20:58/50 21:50	06:31 20:48	07:27 18:54-19:03/9 19:31	07:24 16:07-16:48/41 17:19	08:23 08:58-09:01/3 16:25 15:27-15:50/23	08:58 16:17
26	05:39 20:07-20:58/51 21:49	06:33 20:45	07:29 18:54-19:00/6 19:29	07:26 16:07-16:46/39 17:17	08:25 09:00-09:01/1 16:24 15:28-15:49/21	08:58 16:18
27	05:40 20:08-20:59/51 21:47	06:35 20:43	07:31 18:55-18:57/2 19:26	07:28 16:08-16:44/36 17:15	08:27 15:28-15:47/19 16:23	08:58 16:19
28	05:42 20:07-20:59/52 21:46	06:37 20:41	07:33 19:24	07:30 16:09-16:42/33 17:13	08:28 15:29-15:46/17 16:22	08:58 16:20
29	05:43 20:07-21:00/53 21:44	06:38 20:38	07:34 19:21	07:31 16:10-16:40/30 17:11	08:30 15:30-15:45/15 16:21	08:58 16:21
30	05:45 20:07-20:59/52 21:42	06:40 20:36	07:36 19:19	07:33 16:11-16:37/26 17:09	08:32 15:31-15:44/13 16:20	08:58 16:22
31	05:47 20:07-21:00/53 21:40	06:42 20:33		07:35 16:11-16:35/24 17:07		08:58 16:23
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	1218	731	362	1014	1129	30

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 5 - AT05

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58	08:27 08:56-09:09/13	07:29	07:13 18:53-19:25/32	06:02	05:12
	16:24	17:16	18:13	20:12	21:09	22:00
2	08:58	08:25 08:54-09:09/15	07:26 07:51-07:54/3	07:10 18:55-19:23/28	06:00	05:11
	16:25	17:18	18:15	20:14	21:11	22:01
3	08:58	08:24 08:52-09:08/16	07:24 07:49-07:56/7	07:08 19:01-19:05/4	05:58	05:10
	16:26	17:20	18:17	20:16 19:08-19:21/13	21:13	22:02
4	08:58	08:22 08:50-09:06/16	07:22 07:46-07:55/9	07:05 19:12-19:15/3	05:56	05:09
	16:28	17:22	18:19	20:18	21:14	22:03
5	08:57	08:20 08:48-09:04/16	07:19 07:44-07:56/12	07:03	05:54	05:08
	16:29	17:24	18:21	20:20	21:16	22:05
6	08:57	08:18 08:46-09:00/14	07:17 07:42-07:56/14	07:00	05:52	05:08
	16:30	17:26	18:23	20:22	21:18	22:06
7	08:56	08:16 08:44-09:00/16	07:14 07:39-07:55/16	06:58	05:50	05:07
	16:32	17:28	18:25	20:24	21:20	22:07
8	08:56	08:14 08:42-08:58/16	07:12 07:37-07:55/18	06:55	05:48	05:06
	16:33	17:30	18:27	20:26	21:22	22:08
9	08:55	08:12 08:40-08:57/17	07:10 07:34-07:53/19	06:53	05:46	05:06
	16:34	17:32	18:29 17:58-18:01/3	20:28	21:24	22:09
10	08:55	08:10 08:40-08:55/15	07:07 07:32-07:53/21	06:50	05:44	05:05
	16:36	17:34	18:31 17:56-18:03/7	20:29	21:25	22:09
11	08:54	08:08 08:42-08:54/12	07:05 07:29-07:50/21	06:48	05:42	05:05
	16:37	17:37 17:05-17:06/1	18:32 17:56-18:05/9	20:31	21:27	22:10
12	08:53	08:06 08:45-08:51/6	07:02 07:27-07:47/20	06:46	05:41	05:04
	16:39	17:39 17:05-17:08/3	18:34 17:54-18:07/13	20:33	21:29	22:11
13	08:52	08:04 17:04-17:11/7	07:00 07:24-07:42/18	06:43	05:39	05:04
	16:41	17:41	18:36 17:54-18:09/15	20:35	21:31	22:12
14	08:51	08:02 17:04-17:13/9	06:57 07:22-07:39/17	06:41	05:37	05:04
	16:42	17:43	18:38 17:54-18:11/17	20:37	21:32	22:12
15	08:51	08:00 17:03-17:15/12	06:55 07:20-07:38/18	06:38	05:35	05:03
	16:44	17:45	18:40 17:54-18:13/19	20:39	21:34	22:13
16	08:50	07:58 17:03-17:17/14	06:52 07:22-07:37/15	06:36	05:34	05:03
	16:46	17:47	18:42 17:53-18:15/22	20:41	21:36	22:14
17	08:48	07:56 17:04-17:19/15	06:50 07:23-07:34/11	06:34	05:32	05:03
	16:47	17:49	18:44 17:52-18:17/25	20:43	21:37	22:14
18	08:47	07:54 17:04-17:22/18	06:47 07:27-07:31/4	06:31	05:30	05:03
	16:49	17:51	18:46 17:50-18:19/29	20:44	21:39	22:15
19	08:46	07:52 17:04-17:23/19	06:45 17:50-18:21/31	06:29	05:29	05:03
	16:51	17:53	18:48	20:46	21:41	22:15
20	08:45	07:49 17:04-17:26/22	06:42 17:49-18:22/33	06:27	05:27	05:03
	16:53	17:55	18:50	20:48	21:42	22:15
21	08:44	07:47 17:05-17:28/23	06:40 17:49-18:25/36	06:24	05:26	05:03
	16:55	17:57	18:52	20:50	21:44	22:15
22	08:42	07:45 17:06-17:27/21	06:37 17:48-18:26/38	06:22	05:24	05:03
	16:57	17:59	18:54	20:52	21:46	22:16
23	08:41	07:43 17:07-17:26/19	06:35 17:48-18:29/41	06:20	05:23	05:04
	16:58	18:01	18:55	20:54	21:47	22:16
24	08:40	07:40 17:10-17:25/15	06:32 17:47-18:30/43	06:18	05:21	05:04
	17:00	18:03	18:57	20:56	21:49	22:16
25	08:38	07:38 17:12-17:21/9	06:30 17:48-18:32/44	06:15	05:20	05:04
	17:02	18:05	18:59	20:58	21:50	22:16
26	08:37 09:06-09:08/2	07:36	06:27 17:47-18:31/44	06:13	05:19	05:05
	17:04	18:07	19:01	21:00	21:52	22:16
27	08:35 09:05-09:09/4	07:33	06:25 17:48-18:31/43	06:11	05:17	05:05
	17:06	18:09	19:03	21:01	21:53	22:16
28	08:34 09:03-09:09/6	07:31	06:22 17:48-18:30/42	06:09	05:16	05:06
	17:08	18:11	19:05	21:03	21:55	22:16
29	08:32 09:01-09:09/8		07:20 18:49-19:29/40	06:07	05:15	05:06
	17:10		20:07	21:05	21:56	22:15
30	08:31 08:59-09:09/10		07:18 18:50-19:28/38	06:04	05:14	05:07
	17:12		20:09	21:07	21:57	22:15
31	08:29 08:58-09:10/12		07:15 18:51-19:27/36		05:13	
	17:14		20:11		21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	42	379	911	80	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 5 - AT05

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October		November		December
1	05:08	05:48	06:44		07:38	08:05-08:23/18	07:37	08:09-08:25/16	08:33
	22:15	21:39	20:31		19:16	18:34-18:48/14	17:05		16:19
2	05:08	05:50	06:46		07:40	08:07-08:28/21	07:39	08:09-08:26/17	08:35
	22:14	21:37	20:29		19:14	18:34-18:45/11	17:03		16:19
3	05:09	05:52	06:47		07:42	08:09-08:30/21	07:41	08:12-08:28/16	08:36
	22:14	21:35	20:26		19:11	18:34-18:42/8	17:01		16:18
4	05:10	05:54	06:49		07:44	08:10-08:30/20	07:43	08:14-08:29/15	08:38
	22:13	21:33	20:24		19:09	18:35-18:40/5	16:59		16:17
5	05:11	05:55	06:51		07:46	08:12-08:31/19	07:45	08:16-08:30/14	08:39
	22:13	21:31	20:21		19:06	18:36-18:37/1	16:57		16:16
6	05:12	05:57	06:53		07:47	08:14-08:31/17	07:47	08:18-08:34/16	08:41
	22:12	21:29	20:19		19:04		16:55		16:16
7	05:13	05:59	06:55		07:49	08:16-08:31/15	07:49	08:20-08:36/16	08:42
	22:12	21:27	20:16		19:01		16:53		16:15
8	05:14	06:01	06:56		07:51	08:18-08:31/13	07:51	08:22-08:38/16	08:43
	22:11	21:25	20:14		18:59		16:51		16:15
9	05:15	06:02	06:58	19:01-19:14/13	07:53	08:20-08:31/11	07:53	08:25-08:39/14	08:45
	22:10	21:23	20:11		18:57		16:49		16:15
10	05:16	06:04	07:00	18:49-19:16/27	07:55	08:22-08:30/8	07:55	08:27-08:40/13	08:46
	22:09	21:21	20:09		18:54		16:47		16:14
11	05:17	06:06	07:02	18:46-19:18/32	07:57	08:24-08:29/5	07:57	08:29-08:41/12	08:47
	22:08	21:19	20:06		18:52		16:46		16:14
12	05:18	06:08	07:04	18:43-19:18/35	07:59	08:26-08:28/2	07:59	08:31-08:41/10	08:48
	22:07	21:17	20:04		18:49		16:44		16:14
13	05:20	06:09	07:05	18:41-19:19/38	08:01		08:01	08:33-08:41/8	08:49
	22:06	21:15	20:01		18:47		16:42		16:14
14	05:21	06:11	07:07	18:40-19:20/40	08:02		08:03	08:35-08:41/6	08:50
	22:05	21:13	19:59		18:45		16:41		16:14
15	05:22	06:13	07:09	18:39-19:20/41	08:04		08:05	08:37-08:41/4	08:51
	22:04	21:10	19:56		18:42		16:39		16:14
16	05:24	06:15	07:11	18:38-19:19/41	08:06		08:07	08:40-08:42/2	08:52
	22:03	21:08	19:54		18:40		16:37		16:14
17	05:25	06:17	07:13	18:36-19:19/43	08:08	17:43-17:54/11	08:09		08:53
	22:02	21:06	19:51		18:37		16:36		16:14
18	05:26	06:18	07:14	18:35-19:19/44	08:10	17:40-17:56/16	08:11		08:54
	22:01	21:04	19:49		18:35		16:34		16:14
19	05:28	06:20	07:16	18:35-19:18/43	08:12	17:38-17:58/20	08:13		08:55
	21:59	21:02	19:46		18:33		16:33		16:14
20	05:29	06:22	07:18	18:34-19:16/42	08:14	17:37-17:59/22	08:14		08:55
	21:58	20:59	19:44		18:31		16:32		16:15
21	05:31	06:24	07:20	18:33-19:12/39	08:16	17:35-17:58/23	08:16		08:56
	21:57	20:57	19:41		18:28		16:30		16:15
22	05:32	06:26	07:22	18:33-19:10/37	08:18	17:35-17:56/21	08:18		08:56
	21:55	20:55	19:39		18:26		16:29		16:16
23	05:34	06:28	07:23	18:33-19:08/35	08:20	17:34-17:53/19	08:20		08:57
	21:54	20:52	19:36		18:24		16:28		16:16
24	05:35	06:29	07:25	18:33-19:05/32	08:22	17:33-17:51/18	08:22		08:57
	21:52	20:50	19:34		18:22		16:26		16:17
25	05:37	06:31	07:27	18:34-19:03/29	07:24	16:33-16:48/15	08:23		08:58
	21:51	20:48	19:31		17:19		16:25		16:17
26	05:38	06:33	07:29	08:06-08:16/10	07:26	16:33-16:46/13	08:25		08:58
	21:49	20:45	19:29	18:33-19:00/27	17:17		16:24		16:18
27	05:40	06:35	07:31	08:03-08:17/14	07:28	16:34-16:45/11	08:27		08:58
	21:47	20:43	19:26	18:34-18:57/23	17:15		16:23		16:19
28	05:42	06:37	07:33	08:01-08:18/17	07:30	16:34-16:42/8	08:29		08:58
	21:46	20:41	19:24	18:35-18:55/20	17:13		16:22		16:20
29	05:43	06:38	07:34	08:01-08:19/18	07:32	16:34-16:40/6	08:30		08:58
	21:44	20:38	19:21	18:35-18:53/18	17:11		16:21		16:21
30	05:45	06:40	07:36	08:03-08:21/18	07:34	08:14-08:21/7	08:32		08:59
	21:42	20:36	19:19	18:34-18:50/16	17:09	16:34-16:37/3	16:20		16:22
31	05:47	06:42			07:35	08:11-08:24/13			08:58
	21:40	20:33			17:07				16:23
Potential sun hours	515	461	382		328		257		231
Sum of minutes with flicker	0	0	792		435		195		0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 6 - AT06

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 09:33-09:40/7 16:24	08:27 17:16	07:29 07:54-08:22/28 18:13	07:13 20:12	06:02 21:09	05:12 21:04-21:25/21 22:00
2	08:58 09:33-09:40/7 16:25	08:25 17:18	07:26 07:51-08:20/29 18:15	07:10 20:14	06:00 21:11	05:11 21:03-21:26/23 22:01
3	08:58 09:33-09:41/8 16:26	08:24 17:20	07:24 07:49-08:19/30 18:17	07:08 20:16	05:58 21:13	05:10 21:03-21:26/23 22:02
4	08:58 09:32-09:41/9 16:28	08:22 17:22	07:22 07:46-08:17/31 18:19	07:05 20:18	05:56 21:14	05:09 21:03-21:28/25 22:03
5	08:57 09:32-09:42/10 16:29	08:20 17:24	07:19 07:44-08:14/30 18:21	07:03 20:20	05:54 21:16	05:08 21:02-21:29/27 22:05
6	08:57 09:31-09:42/11 16:30	08:18 17:26	07:17 07:42-08:08/26 18:23	07:00 20:22	05:52 21:18	05:08 21:03-21:30/27 22:06
7	08:56 09:30-09:42/12 16:32	08:16 17:28	07:14 07:39-08:05/26 18:25	06:58 20:24	05:50 21:20	05:07 21:02-21:31/29 22:07
8	08:56 09:30-09:43/13 16:33	08:14 17:30	07:12 07:40-08:03/23 18:27	06:55 20:26	05:48 21:22	05:06 21:01-21:31/30 22:08
9	08:55 09:29-09:44/15 16:34	08:12 17:32	07:10 07:40-08:02/22 18:29 17:58-18:01/3	06:53 20:28	05:46 21:24	05:06 21:02-21:32/30 22:09
10	08:55 09:28-09:44/16 16:36	08:10 17:34	07:07 07:41-08:01/20 18:31 17:57-18:03/6	06:50 20:29	05:44 21:25	05:05 21:02-21:34/32 22:09
11	08:54 09:27-09:44/17 16:37	08:08 17:37	07:05 07:42-07:59/17 18:32 17:57-18:05/8	06:48 20:31	05:42 21:27	05:05 21:01-21:33/32 22:10
12	08:53 09:26-09:44/18 16:39	08:06 17:39	07:02 07:44-07:57/13 18:34 17:56-18:07/11	06:46 20:33	05:41 21:29	05:04 21:02-21:34/32 22:11
13	08:52 09:25-09:44/19 16:41	08:04 17:41	07:00 07:49-07:51/2 18:36 17:56-18:09/13	06:43 20:35	05:39 21:31	05:04 21:02-21:35/33 22:12
14	08:51 09:24-09:44/20 16:42	08:02 17:43	06:57 17:55-18:11/16 18:38	06:41 20:37	05:37 21:32	05:04 21:02-21:35/33 22:12
15	08:51 09:23-09:44/21 16:44	08:00 17:45	06:55 17:54-18:13/19 18:40	06:38 20:39	05:35 21:34	05:03 21:01-21:35/34 22:13
16	08:50 09:21-09:43/22 16:46	07:58 17:47	06:52 17:53-18:15/22 18:42	06:36 20:41	05:34 21:36	05:03 21:02-21:35/33 22:14
17	08:48 09:20-09:43/23 16:47	07:56 17:18-17:19/1 17:49	06:50 17:53-18:17/24 18:44	06:34 20:43	05:32 21:37	05:03 21:02-21:35/33 22:14
18	08:47 09:19-09:43/24 16:49	07:54 17:18-17:22/4 17:51	06:47 17:53-18:19/26 18:46	06:31 20:44	05:30 21:39	05:03 21:02-21:36/34 22:15
19	08:46 09:17-09:42/25 16:51	07:52 08:17-08:18/1 17:53 17:17-17:23/6	06:45 17:53-18:21/28 18:48	06:29 20:46	05:29 21:41	05:03 21:02-21:36/34 22:15
20	08:45 09:16-09:41/25 16:53	07:49 08:15-08:20/5 17:55 17:17-17:26/9	06:42 17:53-18:22/29 18:50	06:27 20:48	05:27 21:42	05:03 21:03-21:37/34 22:15
21	08:44 09:14-09:39/25 16:55	07:47 08:13-08:21/8 17:57 17:18-17:28/10	06:40 17:54-18:25/31 18:52	06:24 20:50	05:26 21:44	05:03 21:03-21:37/34 22:15
22	08:43 09:13-09:36/23 16:57	07:45 08:10-08:22/12 17:59 17:18-17:30/12	06:37 17:54-18:25/31 18:54	06:22 20:52	05:24 21:46	05:03 21:03-21:37/34 22:16
23	08:41 09:11-09:36/25 16:58	07:43 08:08-08:22/14 18:01 17:19-17:32/13	06:35 17:56-18:25/29 18:55	06:20 20:54	05:23 21:47	05:04 21:03-21:37/34 22:16
24	08:40 09:10-09:36/26 17:00	07:40 08:06-08:23/17 18:03 17:20-17:35/15	06:32 17:57-18:23/26 18:57	06:18 20:56	05:21 21:13-21:15/2 21:49	05:04 21:04-21:38/34 22:16
25	08:38 09:10-09:35/25 17:02	07:38 08:03-08:23/20 18:05 17:21-17:34/13	06:30 18:00-18:22/22 18:59	06:15 20:58	05:20 21:12-21:16/4 21:50	05:04 21:04-21:37/33 22:16
26	08:37 09:11-09:34/23 17:04	07:36 08:01-08:23/22 18:07 17:24-17:31/7	06:27 18:06-18:19/13 19:01	06:13 21:00	05:19 21:11-21:18/7 21:52	05:05 21:04-21:37/33 22:16
27	08:35 09:12-09:34/22 17:06	07:33 07:59-08:23/24 18:09	06:25 18:09-18:17/8 19:03	06:11 21:01	05:17 21:10-21:19/9 21:53	05:05 21:05-21:38/33 22:16
28	08:34 09:13-09:32/19 17:08	07:31 07:56-08:22/26 18:11	06:23 19:05	06:09 21:03	05:16 21:08-21:20/12 21:55	05:06 21:04-21:37/33 22:16
29	08:32 09:15-09:29/14 17:10		07:20 20:07	06:07 21:05	05:15 21:07-21:21/14 21:56	05:06 21:05-21:38/33 22:15
30	08:31 09:18-09:21/3 17:12		07:18 20:09	06:04 21:07	05:14 21:06-21:23/17 21:57	05:07 21:06-21:38/32 22:15
31	08:29 17:14		07:15 20:11		05:13 21:05-21:24/19 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	527	239	662	0	84	932

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 6 - AT06

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 21:06-21:38/32	05:48	06:44	07:38 08:25-08:34/9	07:37	08:33 09:09-09:26/17
	22:15	21:39	20:31	19:16 18:36-18:48/12	17:05	16:19
2	05:08 21:06-21:38/32	05:50	06:46	07:40 08:22-08:37/15	07:39	08:35 09:11-09:27/16
	22:14	21:37	20:29	19:14 18:36-18:45/9	17:03	16:19
3	05:09 21:07-21:38/31	05:52	06:47	07:42 08:20-08:38/18	07:41	08:36 09:12-09:27/15
	22:14	21:35	20:26	19:11 18:35-18:42/7	17:01	16:18
4	05:10 21:08-21:38/30	05:54	06:49	07:44 08:18-08:38/20	07:43	08:38 09:14-09:28/14
	22:14	21:33	20:24	19:09 18:35-18:40/5	16:59	16:17
5	05:11 21:07-21:36/29	05:55	06:51	07:46 08:16-08:39/23	07:45	08:39 09:15-09:27/12
	22:13	21:31	20:21	19:06 18:36-18:37/1	16:57	16:16
6	05:12 21:08-21:36/28	05:57	06:53	07:47 08:16-08:40/24	07:47	08:41 09:17-09:28/11
	22:12	21:29	20:19	19:04	16:55	16:16
7	05:13 21:08-21:35/27	05:59	06:55	07:49 08:16-08:42/26	07:49	08:42 09:18-09:28/10
	22:12	21:27	20:16	19:01	16:53	16:15
8	05:14 21:09-21:35/26	06:01	06:56	07:51 08:18-08:47/29	07:51	08:43 09:20-09:29/9
	22:11	21:25	20:14	18:59	16:51	16:15
9	05:15 21:10-21:34/24	06:02	06:58	07:53 08:20-08:51/31	07:53	08:45 09:21-09:29/8
	22:10	21:23	20:11	18:57	16:49	16:15
10	05:16 21:10-21:33/23	06:04	07:00	07:55 08:22-08:52/30	07:55	08:46 09:22-09:30/8
	22:09	21:21	20:09	18:54	16:47	16:14
11	05:17 21:11-21:33/22	06:06	07:02	07:57 08:24-08:54/30	07:57	08:47 09:24-09:31/7
	22:08	21:19	20:06	18:52	16:46	16:14
12	05:18 21:13-21:33/20	06:08	07:04	07:59 08:26-08:54/28	07:59 08:49-08:53/4	08:48 09:25-09:31/6
	22:07	21:17	20:04	18:49	16:44	16:14
13	05:20 21:14-21:32/18	06:10	07:05	08:01 08:28-08:55/27	08:01 08:46-09:01/15	08:49 09:26-09:31/5
	22:06	21:15	20:01	18:47	16:42	16:14
14	05:21 21:15-21:31/16	06:11	07:07	08:02 08:30-08:55/25	08:03 08:45-09:04/19	08:50 09:27-09:32/5
	22:05	21:13	19:59	18:45	16:41	16:14
15	05:22 21:16-21:29/13	06:13	07:09	08:04 08:32-08:55/23	08:05 08:45-09:06/21	08:51 09:28-09:32/4
	22:04	21:10	19:56	18:42	16:39	16:14
16	05:24 21:17-21:28/11	06:15	07:11 18:59-19:04/5	08:06 08:34-08:55/21	08:07 08:44-09:08/24	08:52 09:29-09:32/3
	22:03	21:08	19:54	18:40 17:55-18:04/9	16:37	16:14
17	05:25 21:20-21:28/8	06:17	07:13 18:55-19:07/12	08:08 08:36-08:55/19	08:09 08:44-09:09/25	08:53 09:30-09:33/3
	22:02	21:06	19:51	18:38 17:53-18:06/13	16:36	16:14
18	05:26 21:21-21:26/5	06:19	07:14 18:49-19:09/20	08:10 08:38-08:54/16	08:11 08:44-09:10/26	08:54 09:30-09:33/3
	22:01	21:04	19:49	18:35 17:51-18:05/14	16:34	16:14
19	05:28 21:22-21:25/3	06:20	07:16 18:45-19:10/25	08:12 08:40-08:54/14	08:13 08:46-09:11/25	08:55 09:31-09:33/2
	21:59	21:02	19:46	18:33 17:50-18:03/13	16:33	16:14
20	05:29	06:22	07:18 18:43-19:11/28	08:14 08:42-08:53/11	08:14 08:48-09:11/23	08:55 09:32-09:34/2
	21:58	20:59	19:44	18:31 17:49-18:00/11	16:32	16:15
21	05:31	06:24	07:20 18:40-19:10/30	08:16 08:44-08:51/7	08:16 08:50-09:15/25	08:56 09:32-09:34/2
	21:57	20:57	19:41	18:28 17:48-17:58/10	16:30	16:15
22	05:32	06:26	07:22 18:39-19:10/31	08:18 08:46-08:50/4	08:18 08:52-09:17/25	08:56 09:33-09:35/2
	21:55	20:55	19:39	18:26 17:48-17:56/8	16:29	16:16
23	05:34	06:28	07:24 18:38-19:08/30	08:20 17:47-17:53/6	08:20 08:54-09:19/25	08:57 09:33-09:35/2
	21:54	20:52	19:36	18:24	16:28	16:16
24	05:35	06:29	07:25 18:37-19:05/28	08:22 17:47-17:51/4	08:22 08:56-09:20/24	08:57 09:33-09:35/2
	21:52	20:50	19:34	18:22	16:26	16:17
25	05:37	06:31	07:27 18:36-19:03/27	07:24 16:47-16:48/1	08:23 08:58-09:21/23	08:58 09:34-09:37/3
	21:51	20:48	19:31	17:19	16:25	16:17
26	05:38	06:33	07:29 18:35-19:00/25	07:26	08:25 09:00-09:23/23	08:58 09:34-09:37/3
	21:49	20:45	19:29	17:17	16:24	16:18
27	05:40	06:35	07:31 18:35-18:57/22	07:28	08:27 09:02-09:24/22	08:58 09:34-09:37/3
	21:47	20:43	19:26	17:15	16:23	16:19
28	05:42	06:37	07:33 18:35-18:55/20	07:30	08:29 09:04-09:24/20	08:58 09:34-09:38/4
	21:46	20:41	19:24	17:13	16:22	16:20
29	05:43	06:38	07:34 18:35-18:53/18	07:32	08:30 09:05-09:24/19	08:58 09:34-09:38/4
	21:44	20:38	19:21	17:11	16:21	16:21
30	05:45	06:40	07:36 18:36-18:50/14	07:34	08:32 09:07-09:25/18	08:59 09:34-09:39/5
	21:42	20:36	19:19	17:09	16:20	16:22
31	05:47	06:42		07:35		08:58 09:34-09:40/6
	21:40	20:33		17:07		16:23
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	398	0	335	573	406	196

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 7 - AT07

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:59		08:27	09:10-09:36/26	07:29	08:22-08:41/19	07:13	07:55-08:34/39	06:02	07:00-07:32/32	05:12	05:57-06:44/47
	16:24		17:16		18:13		20:12		21:09		22:00	05:46-05:56/10
2	08:58		08:26	09:10-09:36/26	07:26	08:22-08:38/16	07:10	07:54-08:33/39	06:00	07:00-07:31/31	05:11	05:43-06:44/61
	16:25		17:18		18:15		20:14		21:11	20:38-20:40/2	22:01	
3	08:58		08:24	09:10-09:37/27	07:24	08:25-08:36/11	07:08	07:54-08:34/40	05:58	07:01-07:32/31	05:10	05:43-06:46/63
	16:26		17:20		18:17		20:16		21:13	20:38-20:42/4	22:02	
4	08:58		08:22	09:11-09:37/26	07:22	07:59-08:12/13	07:05	07:52-08:34/42	05:56	07:02-07:31/29	05:09	05:41-06:46/65
	16:27		17:22		18:19		20:18		21:14	20:38-20:44/6	22:04	
5	08:57		08:20	09:11-09:36/25	07:19	07:56-08:16/20	07:03	07:52-08:34/42	05:54	07:02-07:30/28	05:08	05:40-06:46/66
	16:29		17:24		18:21		20:20		21:16	20:38-20:46/8	22:05	
6	08:57		08:18	09:12-09:36/24	07:17	07:54-08:18/24	07:00	07:51-08:33/42	05:52	07:03-07:28/25	05:08	05:40-06:47/67
	16:30		17:26		18:23		20:22		21:18	20:38-20:47/9	22:06	
7	08:57		08:16	09:12-09:36/24	07:14	07:47-08:19/32	06:58	07:51-08:33/42	05:50	07:04-07:27/23	05:07	05:39-06:46/67
	16:31		17:28		18:25		20:24		21:20	20:38-20:49/11	22:07	
8	08:56		08:14	09:13-09:35/22	07:12	07:43-08:21/38	06:55	07:51-08:33/42	05:48	07:05-07:25/20	05:06	05:39-06:47/68
	16:33		17:30		18:27		20:26		21:22	20:38-20:50/12	22:08	
9	08:55		08:12	09:14-09:35/21	07:10	07:40-08:21/41	06:53	07:51-08:32/41	05:46	07:06-07:23/17	05:06	05:38-06:47/69
	16:34		17:32		18:29		20:28		21:24	20:39-20:52/13	22:09	
10	08:55		08:11	09:15-09:34/19	07:07	07:39-08:22/43	06:50	07:51-08:32/41	05:44	07:09-07:21/12	05:05	05:38-06:48/70
	16:36		17:34		18:31		20:29		21:25	20:40-20:52/12	22:10	
11	08:54		08:09	09:16-09:31/15	07:05	07:36-08:22/46	06:48	07:51-08:31/40	05:42	20:41-20:50/9	05:05	05:37-06:47/70
	16:37		17:37		18:32		20:31		21:27		22:10	
12	08:53		08:06	09:19-09:29/10	07:02	07:34-08:23/49	06:46	07:51-08:30/39	05:41	20:44-20:46/2	05:04	05:37-06:48/71
	16:39		17:39		18:34		20:33		21:29		22:11	
13	08:52		08:04		07:00	07:31-08:23/52	06:43	07:52-08:29/37	05:39		05:04	05:37-06:48/71
	16:41		17:41		18:36		20:35		21:31		22:12	
14	08:52		08:02		06:57	07:29-08:23/54	06:41	07:52-08:27/35	05:37	06:15-06:24/9	05:04	05:37-06:49/72
	16:42		17:43		18:38		20:37		21:32		22:13	
15	08:51		08:00	08:30-08:38/8	06:55	07:27-08:23/56	06:38	07:15-07:25/10	05:35	06:12-06:28/16	05:03	05:36-06:48/72
	16:44		17:45		18:40		20:39	07:53-08:26/33	21:34		22:13	
16	08:50		07:58	08:27-08:40/13	06:52	07:26-08:23/57	06:36	07:11-07:28/17	05:34	06:09-06:30/21	05:03	05:36-06:49/73
	16:46		17:47		18:42		20:41	07:54-08:25/31	21:36		22:14	
17	08:49		07:56	08:25-08:42/17	06:50	07:24-08:22/58	06:34	07:08-07:29/21	05:32	06:08-06:33/25	05:03	05:36-06:49/73
	16:47		17:49		18:44		20:43	07:54-08:23/29	21:38		22:14	
18	08:47		07:54	08:24-08:43/19	06:47	07:23-08:22/59	06:31	07:07-07:31/24	05:30	06:06-06:34/28	05:03	05:36-06:49/73
	16:49		17:51		18:46		20:45	07:56-08:21/25	21:39		22:15	
19	08:46		07:52	08:23-08:45/22	06:45	07:22-08:20/58	06:29	07:05-07:32/27	05:29	06:05-06:35/30	05:03	05:36-06:49/73
	16:51		17:53		18:48		20:46	07:58-08:19/21	21:41		22:15	
20	08:45		07:49	08:21-08:44/23	06:42	07:22-08:20/58	06:27	07:04-07:33/29	05:27	06:03-06:36/33	05:03	05:37-06:50/73
	16:53		17:55		18:50		20:48	08:01-08:16/15	21:43		22:15	
21	08:44		07:47	08:21-08:45/24	06:40	07:21-08:18/57	06:24	07:02-07:33/31	05:26	06:02-06:37/35	05:03	05:37-06:50/73
	16:55		17:57		18:52		20:50	08:05-08:09/4	21:44		22:16	
22	08:43		07:45	08:20-08:46/26	06:37	07:21-08:18/57	06:22	07:02-07:34/32	05:24	06:02-06:39/37	05:03	05:37-06:50/73
	16:57		17:59		18:54		20:52		21:46		22:16	
23	08:41	09:16-09:26/10	07:43	08:19-08:45/26	06:35	07:21-08:16/55	06:20	07:01-07:34/33	05:23	06:00-06:39/39	05:04	05:37-06:50/73
	16:58		18:01		18:55		20:54		21:47		22:16	
24	08:40	09:15-09:28/13	07:40	08:20-08:45/25	06:32	07:21-08:13/52	06:18	07:01-07:34/33	05:21	06:00-06:40/40	05:04	05:38-06:51/73
	17:00		18:03		18:57		20:56		21:49		22:16	
25	08:38	09:13-09:30/17	07:38	08:19-08:44/25	06:30	07:09-08:12/63	06:15	07:01-07:35/34	05:20	05:59-06:41/42	05:04	05:38-06:51/73
	17:02		18:05		18:59		20:58		21:50		22:16	
26	08:37	09:13-09:32/19	07:36	08:20-08:44/24	06:28	07:05-07:48/43	06:13	07:00-07:35/35	05:19	05:59-06:41/42	05:05	05:38-06:51/73
	17:04		18:07		19:01	07:50-08:08/18	21:00		21:52		22:16	
27	08:35	09:12-09:33/21	07:33	08:20-08:43/23	06:25	07:03-07:45/42	06:11	07:00-07:35/35	05:17	05:59-06:42/43	05:05	05:39-06:51/72
	17:06		18:09		19:03	07:53-08:05/12	21:01		21:53		22:16	
28	08:34	09:11-09:33/22	07:31	08:20-08:41/21	06:23	07:01-07:44/43	06:09	07:00-07:34/34	05:16	05:58-06:43/45	05:06	05:40-06:52/72
	17:08		18:11		19:05		21:03		21:55		22:16	
29	08:32	09:10-09:34/24			07:20	07:59-08:41/42	06:07	06:59-07:33/34	05:15	05:58-06:43/45	05:06	05:40-06:52/72
	17:10				20:07		21:05		21:56		22:16	
30	08:31	09:11-09:35/24			07:18	07:58-08:38/40	06:04	06:59-07:33/34	05:14	05:58-06:44/46	05:07	05:41-06:52/71
	17:12				20:09		21:07		21:57		22:15	
31	08:29	09:11-09:36/25			07:15	07:56-08:33/37			05:13	05:58-06:44/46		
	17:14				20:11				21:59			
Potential sun hours	248		272		367		421		496		513	
Sum of minutes with flicker	175		561		1365		1182		958		2099	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 7 - AT07

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 05:41-06:52/71 22:15	05:48 20:53-20:58/5 21:39	06:44 07:51-08:30/39 20:31	07:38 08:12-09:02/50 19:16	07:38 08:44-09:02/18 17:05	08:34 16:19
2	05:08 05:42-06:52/70 22:15	05:50 07:22-07:29/7 21:37 20:51-21:01/10	06:46 07:49-08:30/41 20:29	07:40 08:14-09:01/47 19:14	07:40 08:44-09:04/20 17:03	08:35 16:18
3	05:09 05:43-06:52/69 22:14	05:52 07:19-07:33/14 21:35 20:49-21:01/12	06:47 07:49-08:30/41 20:26	07:42 08:16-09:01/45 19:11	07:41 08:43-09:05/22 17:01	08:37 16:18
4	05:10 05:44-06:53/69 22:14	05:54 07:16-07:34/18 21:33 20:49-21:01/12	06:49 07:48-08:30/42 20:24	07:44 08:16-08:59/43 19:09	07:43 08:42-09:06/24 16:59	08:38 16:17
5	05:11 05:45-06:53/68 22:13	05:55 07:15-07:36/21 21:31 20:48-21:00/12	06:51 07:47-08:29/42 20:21	07:46 08:18-08:57/39 19:06	07:45 08:41-09:06/25 16:57	08:40 16:16
6	05:12 05:45-06:52/67 22:12	05:57 07:13-07:37/24 21:29 20:47-20:58/11	06:53 07:47-08:29/42 20:19	07:47 08:21-08:56/35 19:04	07:47 08:41-09:06/25 16:55	08:41 16:16
7	05:13 05:46-06:52/66 22:12	05:59 07:12-07:38/26 21:27 20:47-20:56/9	06:55 07:47-08:29/42 20:16	07:49 08:28-08:54/26 19:01	07:49 08:40-09:06/26 16:53	08:42 16:15
8	05:14 05:47-06:52/65 22:11	06:01 07:12-07:39/27 21:25 20:47-20:55/8	06:56 07:47-08:29/42 20:14	07:51 08:30-08:52/22 18:59	07:51 08:41-09:07/26 16:51	08:44 16:15
9	05:15 05:48-06:52/64 22:10	06:02 07:10-07:39/29 21:23 20:47-20:52/5	06:58 07:47-08:27/40 20:11	07:53 08:33-08:49/16 18:57	07:53 08:41-09:07/26 16:49	08:45 16:15
10	05:16 05:50-06:52/62 22:09	06:04 07:10-07:40/30 21:21 20:47-20:50/3	07:00 07:47-08:27/40 20:09	07:55 09:01-09:08/7 18:54 08:37-08:45/8	07:55 08:41-09:07/26 16:47	08:46 16:14
11	05:17 06:05-06:52/47 22:08 05:52-06:04/12	06:06 07:09-07:41/32 21:19 20:48-20:49/1	07:02 07:48-08:26/38 20:06	07:57 08:58-09:11/13 18:52	07:57 08:42-09:07/25 16:46	08:47 16:14
12	05:18 06:06-06:53/47 22:07 05:56-06:02/6	06:08 07:08-07:41/33 21:17	07:04 07:48-08:25/37 20:04	07:59 08:56-09:13/17 18:49	07:59 08:42-09:06/24 16:44	08:48 16:14
13	05:20 06:06-06:52/46 22:06	06:09 07:08-07:41/33 21:15	07:05 07:48-08:28/40 20:01	08:01 08:54-09:14/20 18:47	08:01 08:42-09:06/24 16:42	08:49 16:14
14	05:21 06:06-06:52/46 22:05	06:11 07:08-07:42/34 21:13	07:07 07:49-08:31/42 19:59	08:02 08:53-09:15/22 18:45	08:03 08:43-09:05/22 16:41	08:50 16:14
15	05:22 06:07-06:51/44 22:04	06:13 07:07-07:41/34 21:10	07:09 07:50-08:33/43 19:56	08:04 08:52-09:15/23 18:42	08:05 08:45-09:06/21 16:39	08:51 16:14
16	05:24 06:07-06:51/44 22:03	06:15 07:07-07:41/34 21:08	07:11 07:52-08:34/42 19:54 08:44-08:53/9	08:06 08:52-09:16/24 18:40	08:07 08:46-09:05/19 16:37	08:52 16:14
17	05:25 06:08-06:51/43 22:02	06:17 07:07-07:41/34 21:06	07:13 07:53-08:35/42 19:51 08:39-08:56/17	08:08 08:51-09:16/25 18:38	08:09 08:47-09:04/17 16:36	08:53 16:14
18	05:26 06:09-06:50/41 22:01	06:18 07:07-07:41/34 21:04	07:14 07:56-08:59/63 19:49	08:10 08:51-09:16/25 18:35	08:11 08:49-09:02/13 16:34	08:54 16:14
19	05:28 06:09-06:50/41 21:59	06:20 07:07-07:40/33 21:02	07:16 08:08-09:00/52 19:46 08:02-08:06/4	08:12 08:51-09:16/25 18:33	08:13 08:51-09:01/10 16:33	08:55 16:14
20	05:29 06:10-06:50/40 21:58	06:22 07:07-07:40/33 20:59	07:18 08:07-09:02/55 19:44	08:14 08:51-09:16/25 18:31	08:14 08:55-08:56/1 16:32	08:55 16:15
21	05:31 06:11-06:49/38 21:57	06:24 07:08-07:39/31 20:57	07:20 08:07-09:03/56 19:41	08:16 08:51-09:15/24 18:28	08:16 16:30	08:56 16:15
22	05:32 06:11-06:48/37 21:55	06:26 07:07-07:38/31 20:55 08:09-08:15/6	07:22 08:06-09:03/57 19:39	08:18 08:52-09:15/23 18:26	08:18 16:29	08:56 16:16
23	05:34 06:13-06:47/34 21:54	06:28 07:08-07:37/29 20:52 08:04-08:20/16	07:24 08:05-09:03/58 19:36	08:20 08:52-09:14/22 18:24	08:20 16:28	08:57 16:16
24	05:35 06:14-06:46/32 21:52	06:29 07:09-07:36/27 20:50 08:01-08:23/22	07:25 08:06-09:04/58 19:34	08:22 08:54-09:13/19 18:22	08:22 16:26	08:57 16:17
25	05:37 06:16-06:45/29 21:51	06:31 07:10-07:33/23 20:48 07:59-08:24/25	07:27 08:06-09:04/58 19:31	07:24 07:55-08:11/16 17:19	08:23 16:25	08:58 16:17
26	05:38 06:17-06:43/26 21:49	06:33 07:11-07:32/21 20:45 07:57-08:26/29	07:29 08:06-09:04/58 19:29	07:26 07:58-08:10/12 17:17	08:25 16:24	08:58 16:18
27	05:40 06:19-06:42/23 21:47	06:35 07:13-07:30/17 20:43 07:56-08:27/31	07:31 08:06-09:03/57 19:26	07:28 08:01-08:07/6 17:15	08:27 16:23	08:58 16:19
28	05:42 06:20-06:40/20 21:46	06:37 07:17-07:26/9 20:41 07:55-08:28/33	07:33 08:07-09:03/56 19:24	07:30 17:13	08:29 16:22	08:58 16:20
29	05:43 06:24-06:37/13 21:44	06:38 07:53-08:28/35 20:38	07:34 08:08-09:03/55 19:21	07:32 17:11	08:30 16:21	08:59 16:21
30	05:45 21:42	06:40 07:52-08:29/37 20:36	07:36 08:10-09:03/53 19:19	07:34 08:48-08:59/11 17:09	08:32 16:20	08:59 16:22
31	05:47 21:41	06:42 07:51-08:30/39 20:33		07:36 08:45-09:01/16 17:07		08:59 16:23
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	1380	1079	1461	706	414	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 8 - AT08

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April		May		June	
1	08:59	08:27		07:29	07:58-08:24/26	07:13		06:02	06:49-07:24/35	05:12	05:45-06:41/56
	16:24	17:16		18:13		20:12		21:09		22:00	
2	08:58	08:26		07:26	07:56-08:24/28	07:10		06:00	06:49-07:24/35	05:11	05:45-06:40/55
	16:25	17:18		18:15		20:14		21:11		22:01	
3	08:58	08:24		07:24	07:56-08:24/28	07:08		05:58	06:50-07:24/34	05:10	05:46-06:41/55
	16:26	17:20		18:17		20:16		21:13		22:02	
4	08:58	08:22		07:22	07:55-08:24/29	07:05		05:56	06:50-07:23/33	05:09	05:45-06:41/56
	16:27	17:22		18:19		20:18		21:15		22:04	
5	08:57	08:20		07:19	07:56-08:24/28	07:03		05:54	06:51-07:23/32	05:08	05:45-06:40/55
	16:29	17:24		18:21		20:20		21:16		22:05	
6	08:57	08:18		07:17	07:56-08:24/28	07:00		05:52	06:51-07:22/31	05:07	05:46-06:41/55
	16:30	17:26		18:23		20:22		21:18		22:06	
7	08:57	08:16		07:14	07:55-08:23/28	06:58	07:22-07:27/5	05:50	06:52-07:20/28	05:07	05:45-06:41/56
	16:31	17:28		18:25		20:24		21:20	06:19-06:25/6	22:07	
8	08:56	08:14		07:12	07:56-08:23/27	06:55	07:20-07:31/11	05:48	06:52-07:19/27	05:06	05:46-06:41/55
	16:33	17:30		18:27		20:26		21:22	06:15-06:29/14	22:08	
9	08:55	08:13		07:10	07:56-08:22/26	06:53	07:17-07:33/16	05:46	06:53-07:18/25	05:06	05:46-06:41/55
	16:34	17:32		18:29		20:28		21:24	06:13-06:31/18	22:09	
10	08:55	08:11		07:07	07:57-08:21/24	06:50	07:15-07:34/19	05:44	06:55-07:17/22	05:05	05:46-06:41/55
	16:36	17:34		18:31		20:29		21:25	06:12-06:33/21	22:10	
11	08:54	08:09		07:05	07:58-08:19/21	06:48	07:12-07:34/22	05:42	06:56-07:15/19	05:05	05:46-06:40/54
	16:37	17:37		18:32		20:31		21:27	06:10-06:34/24	22:10	
12	08:53	08:06		07:02	08:00-08:17/17	06:46	07:10-07:35/25	05:41	06:58-07:12/14	05:04	05:46-06:41/55
	16:39	17:39		18:34		20:33		21:29	06:08-06:35/27	22:11	
13	08:52	08:04		07:00	08:01-08:14/13	06:43	07:08-07:36/28	05:39	07:02-07:10/8	05:04	05:47-06:41/54
	16:41	17:41		18:36		20:35		21:31	06:08-06:36/28	22:12	
14	08:52	08:02		06:57	07:22-07:26/4	06:41	07:05-07:36/31	05:37	06:06-06:36/30	05:04	05:47-06:41/54
	16:42	17:43		18:38		20:37		21:32		22:13	
15	08:51	08:00		06:55	07:19-07:29/10	06:38	07:03-07:36/33	05:35	06:06-06:38/32	05:03	05:47-06:40/53
	16:44	17:45		18:40		20:39		21:34		22:13	
16	08:50	07:58		06:52	07:17-07:31/14	06:36	07:01-07:36/35	05:34	06:05-06:38/33	05:03	05:47-06:41/54
	16:46	17:47		18:42		20:41		21:36		22:14	
17	08:49	07:56		06:50	07:14-07:32/18	06:34	06:58-07:35/37	05:32	06:05-06:39/34	05:03	05:47-06:41/54
	16:47	17:49		18:44		20:43		21:38		22:14	
18	08:47	07:54		06:47	07:12-07:33/21	06:31	06:57-07:35/38	05:30	06:04-06:39/35	05:03	05:47-06:41/54
	16:49	17:51		18:46		20:45		21:39		22:15	
19	08:46	07:52		06:45	07:09-07:33/24	06:29	06:55-07:34/39	05:29	06:05-06:39/34	05:03	05:48-06:41/53
	16:51	17:53		18:48		20:46		21:41		22:15	
20	08:45	07:49		06:42	07:07-07:34/27	06:27	06:54-07:34/40	05:27	05:56-06:00/4	05:03	05:48-06:42/54
	16:53	17:55		18:50		20:48		21:43	06:04-06:39/35	22:15	
21	08:44	07:47		06:40	07:06-07:33/27	06:24	06:52-07:32/40	05:26	05:55-06:03/8	05:03	05:48-06:42/54
	16:55	17:57		18:52		20:50		21:44	06:04-06:40/36	22:16	
22	08:43	07:45		06:37	07:05-07:33/28	06:22	06:52-07:31/39	05:24	05:54-06:40/46	05:03	05:48-06:42/54
	16:57	17:59		18:54		20:52		21:46		22:16	
23	08:41	07:43		06:35	07:04-07:32/28	06:20	06:51-07:30/39	05:23	05:52-06:40/48	05:04	05:48-06:42/54
	16:58	18:01		18:55		20:54		21:47		22:16	
24	08:40	07:40	08:07-08:17/10	06:32	07:05-07:32/27	06:18	06:51-07:28/37	05:21	05:51-06:40/49	05:04	05:49-06:43/54
	17:00	18:03		18:57		20:56		21:49		22:16	
25	08:38	07:38	08:03-08:19/16	06:30	07:04-07:31/27	06:15	06:50-07:26/36	05:20	05:50-06:40/50	05:04	05:49-06:43/54
	17:02	18:05		18:59		20:58		21:50		22:16	
26	08:37	07:36	08:01-08:21/20	06:28	07:05-07:30/25	06:13	06:50-07:26/36	05:19	05:49-06:41/52	05:05	05:50-06:43/53
	17:04	18:07		19:01		21:00		21:52		22:16	
27	08:35	07:33	08:00-08:23/23	06:25	07:04-07:28/24	06:11	06:50-07:26/36	05:17	05:48-06:41/53	05:05	05:49-06:43/54
	17:06	18:09		19:03		21:01		21:53		22:16	
28	08:34	07:31	07:58-08:23/25	06:23	07:05-07:26/21	06:09	06:49-07:26/37	05:16	05:47-06:41/54	05:06	05:50-06:44/54
	17:08	18:11		19:05		21:03		21:55		22:16	
29	08:32			07:20	08:06-08:24/18	06:07	06:48-07:25/37	05:15	05:46-06:41/55	05:06	05:50-06:44/54
	17:10			20:07		21:05		21:56		22:16	
30	08:31			07:18	08:08-08:22/14	06:04	06:48-07:25/37	05:14	05:46-06:41/55	05:07	05:50-06:45/55
	17:12			20:09		21:07		21:57		22:15	
31	08:29			07:15	08:09-08:19/10			05:13	05:45-06:41/56		
	17:14			20:11				21:59			
Potential sun hours	248	272		367		421		496		513	
Sum of minutes with flicker	0	94		690		753		1280		1632	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 8 - AT08

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:08	05:50-06:44/54	05:48	07:08-07:24/16	06:44	07:12-07:34/22	07:38	08:39-08:55/16	07:38	08:34
	22:15		21:39	06:19-06:45/26	20:31		19:16		17:05	16:19
2	05:08	05:50-06:45/55	05:50	07:06-07:26/20	06:46	07:13-07:32/19	07:40	08:37-08:57/20	07:40	08:35
	22:15		21:37	06:21-06:44/23	20:29		19:14		17:03	16:18
3	05:09	05:51-06:46/55	05:52	07:05-07:28/23	06:47	07:15-07:31/16	07:42	08:36-08:58/22	07:41	08:37
	22:14		21:35	06:23-06:43/20	20:26		19:11		17:01	16:18
4	05:10	05:51-06:46/55	05:54	07:03-07:28/25	06:49	07:17-07:29/12	07:44	08:34-08:58/24	07:43	08:38
	22:14		21:33	06:24-06:40/16	20:24		19:09		16:59	16:17
5	05:11	05:52-06:47/55	05:55	07:02-07:30/28	06:51	07:18-07:24/6	07:46	08:33-08:59/26	07:45	08:40
	22:13		21:31	06:26-06:38/12	20:21		19:06		16:57	16:16
6	05:12	05:51-06:46/55	05:57	07:01-07:30/29	06:53		07:47	08:32-08:59/27	07:47	08:41
	22:12		21:29		20:19		19:04		16:55	16:16
7	05:13	05:51-06:47/56	05:59	07:00-07:31/31	06:55		07:49	08:31-08:59/28	07:49	08:42
	22:12		21:27		20:16		19:01		16:53	16:15
8	05:14	05:52-06:47/55	06:01	07:00-07:32/32	06:56		07:51	08:31-08:59/28	07:51	08:44
	22:11		21:25		20:14		18:59		16:51	16:15
9	05:15	05:52-06:47/55	06:02	06:59-07:32/33	06:58		07:53	08:30-08:59/29	07:53	08:45
	22:10		21:23		20:11		18:57		16:49	16:15
10	05:16	05:52-06:48/56	06:04	06:58-07:33/35	07:00		07:55	08:30-08:59/29	07:55	08:46
	22:09		21:21		20:09		18:54		16:47	16:14
11	05:17	05:52-06:48/56	06:06	06:58-07:33/35	07:02		07:57	08:30-08:58/28	07:57	08:47
	22:08		21:19		20:06		18:52		16:46	16:14
12	05:18	05:54-06:49/55	06:08	06:57-07:33/36	07:04	08:02-08:11/9	07:59	08:31-08:58/27	07:59	08:48
	22:07		21:17		20:04		18:49		16:44	16:14
13	05:20	05:54-06:49/55	06:09	06:57-07:33/36	07:05	07:58-08:12/14	08:01	08:31-08:57/26	08:01	08:49
	22:06		21:15		20:01		18:47		16:42	16:14
14	05:21	05:54-06:49/55	06:11	06:57-07:34/37	07:07	07:56-08:14/18	08:02	08:32-08:56/24	08:03	08:50
	22:05		21:13		19:59		18:45		16:41	16:14
15	05:22	05:55-06:49/54	06:13	06:56-07:33/37	07:09	07:55-08:15/20	08:04	08:33-08:54/21	08:05	08:51
	22:04		21:10		19:56		18:42		16:39	16:14
16	05:24	05:56-06:49/53	06:15	06:56-07:33/37	07:11	07:54-08:17/23	08:06	08:34-08:52/18	08:07	08:52
	22:03		21:08		19:54		18:40		16:37	16:14
17	05:25	05:58-06:50/52	06:17	06:56-07:33/37	07:13	07:52-08:17/25	08:08	08:36-08:50/14	08:09	08:53
	22:02		21:06		19:51		18:38		16:36	16:14
18	05:26	05:59-06:50/51	06:18	06:57-07:33/36	07:14	07:52-08:18/26	08:10	08:40-08:46/6	08:11	08:54
	22:01		21:04		19:49		18:35		16:34	16:14
19	05:28	06:00-06:50/50	06:20	06:56-07:34/38	07:16	07:51-08:18/27	08:12		08:13	08:55
	21:59		21:02		19:46		18:33		16:33	16:14
20	05:29	06:02-06:50/48	06:22	06:57-07:36/39	07:18	07:51-08:19/28	08:14		08:14	08:55
	21:58		20:59		19:44		18:31		16:31	16:15
21	05:31	06:03-06:50/47	06:24	06:57-07:37/40	07:20	07:51-08:19/28	08:16		08:16	08:56
	21:57		20:57		19:41		18:28		16:30	16:15
22	05:32	06:04-06:50/46	06:26	06:57-07:37/40	07:22	07:50-08:18/28	08:18		08:18	08:57
	21:55		20:55		19:39		18:26		16:29	16:16
23	05:34	06:06-06:13/7	06:28	06:58-07:38/40	07:24	07:51-08:17/26	08:20		08:20	08:57
	21:54	06:14-06:50/36	20:52		19:36		18:24		16:28	16:16
24	05:35	06:14-06:49/35	06:29	06:59-07:38/39	07:25	07:52-08:17/25	08:22		08:22	08:57
	21:52		20:50		19:34		18:22		16:26	16:17
25	05:37	06:15-06:50/35	06:31	06:59-07:38/39	07:27	07:54-08:16/22	07:24		08:24	08:58
	21:51		20:48		19:31		17:19		16:25	16:17
26	05:38	06:15-06:49/34	06:33	07:01-07:38/37	07:29	07:56-08:15/19	07:26		08:25	08:58
	21:49		20:45		19:29		17:17		16:24	16:18
27	05:40	06:16-06:49/33	06:35	07:03-07:38/35	07:31	07:57-08:13/16	07:28		08:27	08:58
	21:47		20:43		19:26		17:15		16:23	16:19
28	05:42	06:16-06:48/32	06:37	07:05-07:38/33	07:33	07:59-08:11/12	07:30		08:29	08:58
	21:46		20:41		19:24		17:13		16:22	16:20
29	05:43	06:17-06:48/31	06:38	07:06-07:36/30	07:34	08:01-08:08/7	07:32		08:30	08:59
	21:44		20:38		19:21		17:11		16:21	16:21
30	05:45	06:17-06:47/30	06:40	07:08-07:36/28	07:36	08:43-08:52/9	07:34		08:32	08:59
	21:42		20:36		19:19		17:09		16:20	16:22
31	05:47	07:11-07:22/11	06:42	07:10-07:35/25			07:36			08:59
	21:41	06:18-06:46/28	20:33				17:07			16:23
Potential sun hours	515		461		382		328		257	231
Sum of minutes with flicker	1485		1123		457		413		0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 9 - AT09

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58	15:21-15:45/24	08:27	15:56-16:43/47	07:29		07:12	19:02-19:34/32	06:02	20:16-20:32/16	05:12	20:21-20:54/33
	16:24		17:16		18:13		20:12		21:09		22:00	
2	08:58	15:21-15:47/26	08:25	15:56-16:46/50	07:26		07:10	19:02-19:35/33	06:00	20:14-20:34/20	05:11	20:27-20:54/27
	16:25		17:18		18:15		20:14		21:11		22:01	20:24-20:26/2
3	08:58	15:22-15:48/26	08:24	15:57-16:48/51	07:24		07:08	19:00-19:34/34	05:58	20:12-20:35/23	05:10	20:27-20:53/26
	16:26		17:20		18:17		20:16		21:13		22:02	
4	08:58	15:21-15:48/27	08:22	15:58-16:50/52	07:22		07:05	19:00-19:34/34	05:56	20:11-20:36/25	05:09	20:28-20:54/26
	16:27		17:22		18:19		20:18		21:14		22:03	
5	08:57	15:21-15:48/27	08:20	15:59-16:51/52	07:19		07:03	19:01-19:34/33	05:54	20:11-20:38/27	05:08	20:28-20:53/25
	16:29		17:24		18:21		20:20		21:16		22:05	
6	08:57	15:22-15:50/28	08:18	16:00-16:52/52	07:17		07:00	19:00-19:33/33	05:52	20:10-20:38/28	05:07	20:28-20:53/25
	16:30		17:26		18:23		20:22		21:18		22:06	
7	08:56	15:22-15:50/28	08:16	16:02-16:53/51	07:14		06:58	19:00-19:33/33	05:50	20:09-20:39/30	05:07	20:29-20:53/24
	16:31		17:28		18:25		20:24		21:20		22:07	
8	08:56	15:22-15:51/29	08:14	16:05-16:53/48	07:12		06:55	19:00-19:32/32	05:48	20:08-20:39/31	05:06	20:29-20:53/24
	16:33		17:30		18:27		20:26	19:47-19:51/4	21:22		22:08	
9	08:55	15:23-15:52/29	08:12	16:12-16:53/41	07:09		06:53	19:43-19:55/12	05:46	20:08-20:44/36	05:06	20:30-20:53/23
	16:34		17:32		18:28		20:27	19:01-19:31/30	21:23		22:09	
10	08:55	15:23-15:53/30	08:10	16:13-16:53/40	07:07		06:50	19:41-19:58/17	05:44	20:08-20:47/39	05:05	20:30-20:52/22
	16:36		17:34		18:30		20:29	19:02-19:31/29	21:25		22:09	
11	08:54	15:23-15:53/30	08:08	16:15-16:53/38	07:05		06:48	19:38-19:58/20	05:42	20:07-20:48/41	05:05	20:31-20:52/21
	16:37		17:36		18:32		20:31	19:02-19:29/27	21:27		22:10	
12	08:53	15:23-15:54/31	08:06	16:18-16:53/35	07:02		06:46	19:37-20:00/23	05:40	20:07-20:49/42	05:04	20:32-20:53/21
	16:39		17:38		18:34		20:33	19:03-19:28/25	21:29		22:11	
13	08:52	15:23-15:54/31	08:04	16:22-16:53/31	07:00		06:43	19:36-20:00/24	05:39	20:08-20:51/43	05:04	20:33-20:53/20
	16:41		17:41		18:36		20:35	19:04-19:25/21	21:31		22:12	
14	08:51	15:24-15:55/31	08:02	16:31-16:52/21	06:57		06:41	19:35-20:00/25	05:37	20:07-20:51/44	05:03	20:32-20:52/20
	16:42		17:43	16:28-16:29/1	18:38		20:37	19:06-19:23/17	21:32		22:12	
15	08:50	15:23-15:54/31	08:00	16:31-16:51/20	06:55		06:38	19:35-20:01/26	05:35	20:07-20:51/44	05:03	20:33-20:52/19
	16:44	16:01-16:06/5	17:45		18:40		20:39	19:09-19:21/12	21:34		22:13	
16	08:49	15:24-15:55/31	07:58	16:33-16:50/17	06:52		06:36	19:34-20:01/27	05:33	20:08-20:52/44	05:03	20:33-20:52/19
	16:46	15:59-16:09/10	17:47		18:42		20:41		21:36		22:14	
17	08:48	15:24-15:56/32	07:56	16:35-16:48/13	06:50		06:34	19:33-20:00/27	05:32	20:07-20:52/45	05:03	20:34-20:52/18
	16:47	15:58-16:11/13	17:49		18:44		20:43		21:37		22:14	
18	08:47	15:25-15:56/31	07:54	16:38-16:46/8	06:47		06:31	19:33-20:00/27	05:30	20:08-20:53/45	05:03	20:34-20:52/18
	16:49	15:57-16:13/16	17:51		18:46		20:44		21:39		22:14	
19	08:46	15:25-16:14/49	07:51		06:45		06:29	19:34-20:00/26	05:29	20:08-20:53/45	05:03	20:34-20:52/18
	16:51		17:53		18:48		20:46		21:41		22:15	
20	08:45	15:26-16:16/50	07:49		06:42		06:27	19:33-19:59/26	05:27	20:09-20:53/44	05:03	20:35-20:52/17
	16:53		17:55		18:50		20:48		21:42		22:15	
21	08:44	15:26-16:16/50	07:47		06:40		06:24	19:34-19:58/24	05:25	20:10-20:54/44	05:03	20:36-20:53/17
	16:55		17:57		18:52		20:50		21:44		22:15	
22	08:42	15:27-16:18/51	07:45		06:37		06:22	19:34-19:57/23	05:24	20:09-20:53/44	05:03	20:36-20:53/17
	16:56		17:59		18:53		20:52		21:46		22:16	
23	08:41	15:27-16:23/56	07:43		06:35		06:20	19:35-19:56/21	05:23	20:10-20:54/44	05:04	20:35-20:53/18
	16:58		18:01		18:55		20:54		21:47		22:16	
24	08:40	15:28-16:26/58	07:40		06:32	18:15-18:26/11	06:17	19:37-19:55/18	05:21	20:11-20:54/43	05:04	20:35-20:53/18
	17:00		18:03		18:57		20:56		21:49		22:16	
25	08:38	15:29-16:28/59	07:38		06:30	18:13-18:29/16	06:15	19:38-19:53/15	05:20	20:12-20:54/42	05:04	20:36-20:54/18
	17:02		18:05		18:59		20:58		21:50		22:16	
26	08:37	15:30-16:30/60	07:36		06:27	18:11-18:29/18	06:13	19:40-19:50/10	05:19	20:13-20:55/42	05:05	20:36-20:54/18
	17:04		18:07		19:01		20:59		21:52		22:16	
27	08:35	15:32-16:33/61	07:33		06:25	18:09-18:31/22	06:11		05:17	20:14-20:55/41	05:05	20:36-20:55/19
	17:06		18:09		19:03		21:01		21:53		22:16	
28	08:34	15:54-16:35/41	07:31		06:22	18:07-18:32/25	06:09		05:16	20:15-20:55/40	05:06	20:35-20:55/20
	17:08	15:33-15:52/19	18:11		19:05		21:03		21:55		22:16	
29	08:32	15:54-16:37/43			07:20	19:06-19:33/27	06:06		05:15	20:16-20:55/39	05:06	20:36-20:56/20
	17:10	15:35-15:49/14			20:07		21:05		21:56		22:15	
30	08:31	15:54-16:39/45			07:17	19:04-19:33/29	06:04	20:18-20:30/12	05:14	20:18-20:54/36	05:07	20:36-20:57/21
	17:12	15:38-15:46/8			20:09		21:07		21:57		22:15	
31	08:29	15:54-16:40/46			07:15	19:03-19:34/31			05:13	20:19-20:54/35		
	17:14				20:10				21:59			
Potential sun hours	248		272		367		421		496		513	
Sum of minutes with flicker	1276		668		179		832		1162		634	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 9 - AT09

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 20:35-20:57/22 22:15	05:48 20:17-20:59/42 21:39	06:44 19:37-19:57/20 20:31 19:01-19:28/27	07:38 19:16	07:37 15:42-16:22/40 17:04	08:33 15:05-15:35/30 16:19
2	05:08 20:36-20:57/21 22:14	05:50 20:18-20:58/40 21:37	06:46 19:39-19:56/17 20:28 19:00-19:29/29	07:40 19:14	07:39 15:41-16:22/41 17:02 15:38-15:39/1	08:35 15:05-15:35/30 16:18
3	05:09 20:36-20:58/22 22:14	05:52 20:17-20:55/38 21:35	06:47 19:41-19:53/12 20:26 18:59-19:29/30	07:42 19:11	07:41 15:33-16:22/49 17:00	08:36 15:06-15:35/29 16:18
4	05:10 20:35-20:58/23 22:13	05:53 20:18-20:53/35 21:33	06:49 18:57-19:29/32 20:24 19:44-19:48/4	07:44 19:09	07:43 15:31-16:22/51 16:58	08:38 15:07-15:36/29 16:17
5	05:11 20:35-20:58/23 22:13	05:55 20:19-20:49/30 21:31	06:51 18:56-19:29/33 20:21	07:45 19:06	07:45 15:30-16:21/51 16:57	08:39 15:07-15:35/28 16:16
6	05:12 20:35-20:59/24 22:12	05:57 20:19-20:48/29 21:29	06:53 18:56-19:29/33 20:19	07:47 19:04	07:47 15:28-16:21/53 16:55	08:41 15:08-15:36/28 16:16
7	05:13 20:35-21:00/25 22:12	05:59 20:19-20:47/28 21:27	06:55 18:56-19:30/34 20:16	07:49 19:01	07:49 15:27-16:19/52 16:53	08:42 15:08-15:35/27 16:15
8	05:14 20:35-21:00/25 22:11	06:00 20:21-20:47/26 21:25	06:56 18:55-19:28/33 20:14	07:51 18:59	07:51 15:26-16:18/52 16:51	08:43 15:09-15:36/27 16:15
9	05:15 20:34-21:01/27 22:10	06:02 20:21-20:45/24 21:23	06:58 18:55-19:28/33 20:11	07:53 18:56	07:53 15:26-16:16/50 16:49	08:45 15:10-15:36/26 16:14
10	05:16 20:34-21:01/27 22:09	06:04 20:22-20:44/22 21:21	07:00 18:55-19:28/33 20:09	07:55 18:54	07:55 15:26-16:13/47 16:47	08:46 15:10-15:36/26 16:14
11	05:17 20:29-21:01/32 22:08	06:06 20:24-20:43/19 21:19	07:02 18:55-19:27/32 20:06	07:57 18:52	07:57 15:26-16:12/46 16:45	08:47 15:11-15:35/24 16:14
12	05:18 20:27-21:02/35 22:07	06:08 20:25-20:40/15 21:17	07:04 18:55-19:26/31 20:04	07:59 18:49	07:59 15:26-16:11/45 16:44 15:10-15:18/8	08:48 15:12-15:36/24 16:14
13	05:20 20:27-21:03/36 22:06	06:09 20:28-20:37/9 21:15	07:05 18:55-19:25/30 20:01	08:00 18:47	08:01 15:26-16:09/43 16:42 15:07-15:21/14	08:49 15:13-15:35/22 16:14
14	05:21 20:26-21:03/37 22:05	06:11 21:13	07:07 18:56-19:24/28 19:59	08:02 18:44	08:03 15:26-16:07/41 16:40 15:05-15:24/19	08:50 15:13-15:35/22 16:14
15	05:22 20:24-21:03/39 22:04	06:13 21:10	07:09 18:57-19:22/25 19:56	08:04 18:42	08:05 15:04-16:05/61 16:39	08:51 15:14-15:35/21 16:14
16	05:23 20:23-21:03/40 22:03	06:15 21:08	07:11 18:58-19:19/21 19:54	08:06 18:40	08:07 15:03-16:03/60 16:37	08:52 15:15-15:35/20 16:14
17	05:25 20:22-21:03/41 22:02	06:17 19:47-19:58/11 21:06	07:13 18:59-19:18/19 19:51	08:08 18:37	08:09 15:03-16:02/59 16:36	08:53 15:16-15:35/19 16:14
18	05:26 20:22-21:04/42 22:01	06:18 19:44-19:59/15 21:04	07:14 19:00-19:16/16 19:49	08:10 18:35	08:11 15:02-16:00/58 16:34	08:54 15:16-15:35/19 16:14
19	05:28 20:21-21:04/43 21:59	06:20 19:42-20:01/19 21:01	07:16 19:02-19:14/12 19:46	08:12 18:33	08:12 15:02-15:58/56 16:33	08:55 15:16-15:35/19 16:14
20	05:29 20:20-21:04/44 21:58	06:22 19:41-20:02/21 20:59	07:18 19:44	08:14 18:30	08:14 15:02-15:53/51 16:31	08:55 15:17-15:36/19 16:15
21	05:31 20:20-21:04/44 21:57	06:24 19:39-20:02/23 20:57	07:20 19:41	08:16 18:28	08:16 15:02-15:52/50 16:30	08:56 15:17-15:36/19 16:15
22	05:32 20:20-21:04/44 21:55	06:26 19:38-20:03/25 20:55	07:22 19:39	08:18 18:26	08:18 15:02-15:52/50 16:29	08:56 15:18-15:37/19 16:15
23	05:34 20:20-21:04/44 21:54	06:27 19:38-20:03/25 20:52	07:23 19:36	08:20 18:24	08:20 15:02-15:51/49 16:27	08:57 15:18-15:37/19 16:16
24	05:35 20:19-21:04/45 21:52	06:29 19:37-20:04/27 20:50	07:25 19:34	08:22 17:06-17:16/10 18:21	08:22 15:02-15:33/31 16:26 15:34-15:50/16	08:57 15:18-15:37/19 16:17
25	05:37 20:18-21:03/45 21:51	06:31 19:36-20:03/27 20:48	07:27 19:31	07:24 16:04-16:18/14 17:19	08:23 15:02-15:34/32 16:25 15:36-15:49/13	08:58 15:20-15:39/19 16:17
26	05:38 20:18-21:03/45 21:49	06:33 19:36-20:03/27 20:45	07:29 19:29	07:26 16:02-16:20/18 17:17	08:25 15:03-15:34/31 16:24 15:38-15:48/10	08:58 15:20-15:39/19 16:18
27	05:40 20:18-21:02/44 21:47	06:35 19:36-20:03/27 20:43	07:31 19:26	07:28 16:01-16:20/19 17:15	08:27 15:03-15:35/32 16:23 15:41-15:46/5	08:58 15:20-15:40/20 16:19
28	05:42 20:18-21:02/44 21:46	06:36 19:35-20:02/27 20:41 19:10-19:22/12	07:33 19:24	07:29 15:55-16:22/27 17:13	08:29 15:03-15:34/31 16:22	08:58 15:20-15:41/21 16:20
29	05:43 20:18-21:02/44 21:44	06:38 19:36-20:01/25 20:38 19:07-19:24/17	07:34 19:21	07:31 15:51-16:22/31 17:11	08:30 15:03-15:34/31 16:21	08:58 15:20-15:42/22 16:20
30	05:45 20:18-21:01/43 21:42	06:40 19:36-20:00/24 20:36 19:05-19:26/21	07:36 19:19	07:33 15:47-16:23/36 17:09	08:32 15:04-15:35/31 16:20	08:58 15:21-15:43/22 16:21
31	05:47 20:18-21:01/43 21:40	06:42 19:37-20:00/23 20:33 19:03-19:28/25		07:35 15:44-16:23/39 17:06		08:58 15:21-15:44/23 16:22
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	1113	778	584	194	1460	711

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 10 - AT10

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 13:58-14:51/53 16:24	08:27 16:09-16:39/30 17:16	07:29 16:45-17:34/49 18:13	07:12 20:12	06:02 19:52-20:33/41 21:09	05:12 22:00
2	08:58 13:59-14:51/52 16:25	08:25 16:09-16:39/30 17:18	07:26 16:49-17:34/45 18:15	07:10 20:14	06:00 19:53-20:33/40 21:11	05:11 22:01
3	08:58 14:00-14:52/52 16:26	08:24 16:08-16:40/32 17:20	07:24 16:54-17:34/40 18:17	07:08 20:16	05:58 19:56-20:40/44 21:13	05:10 22:02
4	08:58 14:00-14:52/52 16:27	08:22 16:08-16:41/33 17:22	07:22 16:56-17:32/36 18:19	07:05 20:18	05:56 20:01-20:42/41 21:14	05:09 22:03
5	08:57 14:00-14:52/52 16:29	08:20 16:07-16:41/34 17:24	07:19 17:00-17:32/32 18:21	07:03 20:20	05:54 20:01-20:45/44 21:16	05:08 22:05
6	08:57 14:01-14:53/52 16:30	08:18 16:07-16:42/35 17:26	07:17 17:09-17:30/21 18:23	07:00 20:22	05:52 20:01-20:46/45 21:18	05:07 22:06
7	08:56 14:01-14:53/52 16:31	08:16 16:07-16:42/35 17:28	07:14 17:10-17:29/19 18:25	06:58 20:24	05:50 20:00-20:47/47 21:20	05:07 21:23-21:29/6 22:07
8	08:56 14:02-14:53/51 16:33	08:14 16:07-16:42/35 17:30 16:51-16:55/4	07:12 17:12-17:27/15 18:27	06:55 20:26	05:48 20:00-20:47/47 21:22	05:06 21:21-21:30/9 22:08
9	08:55 14:03-14:54/51 16:34	08:12 16:06-16:41/35 17:32 16:45-16:59/14	07:09 17:15-17:24/9 18:28	06:53 20:27	05:46 20:00-20:48/48 21:23	05:05 21:21-21:32/11 22:09
10	08:55 14:04-14:54/50 16:36	08:10 16:43-17:03/20 17:34 16:07-16:42/35	07:07 18:30	06:50 20:29	05:44 20:01-20:49/48 21:25	05:05 21:20-21:32/12 22:09
11	08:54 14:04-14:54/50 16:37	08:08 16:07-17:05/58 17:36	07:05 18:32	06:48 20:31	05:42 20:01-20:49/48 21:27	05:04 21:19-21:34/15 22:10
12	08:53 14:05-14:54/49 16:39	08:06 16:07-17:07/60 17:38	07:02 18:34	06:46 20:33	05:40 20:01-20:49/48 21:29	05:04 21:19-21:35/16 22:11
13	08:52 14:06-14:54/48 16:41	08:04 16:08-17:10/62 17:40	07:00 18:36	06:43 20:35	05:39 20:01-20:49/48 21:31	05:04 21:19-21:36/17 22:12
14	08:51 14:07-14:54/47 16:42	08:02 16:09-17:11/62 17:43	06:57 18:38	06:41 20:37	05:37 20:01-20:49/48 21:32	05:03 21:18-21:35/17 22:12
15	08:50 14:06-14:53/47 16:44	08:00 16:09-17:14/65 17:45	06:55 18:40	06:38 20:01-20:08/7 20:39	05:35 20:02-20:49/47 21:34	05:03 21:19-21:36/17 22:13
16	08:50 14:08-14:53/45 16:46	07:58 16:10-17:17/67 17:47	06:52 18:42	06:36 19:57-20:10/13 20:41	05:33 20:03-20:49/46 21:36	05:03 21:19-21:36/17 22:14
17	08:48 14:09-14:54/45 16:47	07:56 16:11-17:19/68 17:49	06:50 18:44	06:34 19:55-20:12/17 20:43	05:32 20:03-20:49/46 21:37	05:03 21:19-21:37/18 22:14
18	08:47 14:10-14:54/44 16:49	07:54 16:13-17:20/67 17:51	06:47 18:46	06:31 19:53-20:13/20 20:44	05:30 20:04-20:49/45 21:39	05:03 21:19-21:37/18 22:15
19	08:46 14:10-14:53/43 16:51	07:51 16:36-17:21/45 17:53 16:14-16:34/20	06:45 18:48	06:29 19:52-20:14/22 20:46	05:29 20:04-20:48/44 21:41	05:03 21:19-21:38/19 22:15
20	08:45 14:12-14:53/41 16:53	07:49 16:36-17:22/46 17:55 16:17-16:32/15	06:42 18:50	06:27 19:51-20:14/23 20:48	05:27 20:06-20:48/42 21:42	05:03 21:19-21:38/19 22:15
21	08:44 14:13-14:52/39 16:55	07:47 16:37-17:27/50 17:57 16:22-16:28/6	06:40 18:52	06:24 19:50-20:15/25 20:50	05:25 20:07-20:48/41 21:44	05:03 21:20-21:39/19 22:15
22	08:42 14:14-14:52/38 16:56	07:45 16:36-17:29/53 17:59	06:37 18:53	06:22 19:50-20:15/25 20:52	05:24 20:08-20:47/39 21:46	05:03 21:20-21:39/19 22:16
23	08:41 14:15-14:50/35 16:58	07:43 16:37-17:31/54 18:01	06:35 18:55	06:20 19:50-20:15/25 20:54	05:23 20:09-20:47/38 21:47	05:04 21:20-21:39/19 22:16
24	08:40 14:18-14:50/32 17:00	07:40 16:38-17:33/55 18:03	06:32 18:57	06:17 19:49-20:15/26 20:56	05:21 20:26-20:46/20 21:49 20:11-20:25/14	05:04 21:20-21:38/18 22:16
25	08:38 16:17-16:28/11 17:02 14:19-14:48/29	07:38 16:38-17:33/55 18:05	06:30 18:59	06:15 19:49-20:26/37 20:58	05:20 20:28-20:46/18 21:50 20:13-20:23/10	05:04 21:21-21:39/18 22:16
26	08:37 16:15-16:30/15 17:04 14:21-14:47/26	07:36 16:39-17:34/55 18:07	06:27 19:01	06:13 19:49-20:27/38 20:59	05:18 20:29-20:45/16 21:52	05:05 21:21-21:39/18 22:16
27	08:35 16:14-16:33/19 17:06 14:24-14:45/21	07:33 16:40-17:34/54 18:09	06:25 19:03	06:11 19:49-20:29/40 21:01	05:17 20:30-20:44/14 21:53	05:05 21:22-21:39/17 22:16
28	08:34 16:13-16:34/21 17:08 14:28-14:42/14	07:31 16:42-17:34/52 18:11	06:22 19:05	06:09 19:49-20:30/41 21:03	05:16 20:31-20:43/12 21:55	05:06 21:21-21:39/18 22:16
29	08:32 16:11-16:35/24 17:10		07:20 20:07	06:06 19:50-20:32/42 21:05	05:15 20:33-20:42/9 21:56	05:06 21:22-21:39/17 22:15
30	08:31 16:10-16:36/26 17:12		07:17 20:09	06:04 19:51-20:32/41 21:07	05:14 20:35-20:40/5 21:57	05:07 21:23-21:39/16 22:15
31	08:29 16:09-16:37/28 17:14		07:15 20:10		05:13 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	1354	1441	266	442	1143	390

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 10 - AT10

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 21:23-21:38/15 22:15	05:48 20:11-20:59/48 21:39	06:44 20:31	07:38 19:16	07:37 16:13-16:32/19 17:04 15:36-16:11/35	08:33 13:46-14:36/50 16:19
2	05:08 21:24-21:38/14 22:14	05:50 20:11-20:59/48 21:37	06:46 20:28	07:40 19:14	07:39 15:36-16:11/35 17:02 16:15-16:28/13	08:35 13:46-14:36/50 16:18
3	05:09 21:26-21:38/12 22:14	05:52 20:10-20:58/48 21:35	06:47 20:26	07:42 19:11	07:41 15:36-16:11/35 17:00	08:36 13:46-14:37/51 16:18
4	05:10 21:26-21:36/10 22:13	05:53 20:10-20:58/48 21:33	06:49 20:24	07:44 17:54-17:59/5 19:09	07:43 15:37-16:12/35 16:58	08:38 13:47-14:38/51 16:17
5	05:11 21:27-21:35/8 22:13	05:55 20:11-20:58/47 21:31	06:51 20:21	07:45 17:50-18:03/13 19:06	07:45 15:37-16:11/34 16:57	08:39 13:46-14:38/52 16:16
6	05:12 21:30-21:33/3 22:12	05:57 20:10-20:56/46 21:29	06:53 20:19	07:47 17:47-18:05/18 19:04	07:47 15:37-16:11/34 16:55	08:41 13:47-14:39/52 16:16
7	05:13 22:12	05:59 20:10-20:55/45 21:27	06:55 20:16	07:49 17:45-18:06/21 19:01	07:49 15:37-16:10/33 16:53	08:42 13:47-14:39/52 16:15
8	05:14 22:11	06:00 20:11-20:54/43 21:25	06:56 20:14	07:51 17:39-18:07/28 18:59	07:51 15:38-16:10/32 16:51	08:43 13:48-14:40/52 16:15
9	05:15 22:10	06:02 20:08-20:51/43 21:23	06:58 20:11	07:53 17:33-18:07/34 18:56	07:53 15:38-16:09/31 16:49	08:45 13:48-14:40/52 16:14
10	05:16 22:09	06:04 20:04-20:48/44 21:21	07:00 20:09	07:55 17:30-18:08/38 18:54	07:55 15:40-16:09/29 16:47	08:46 13:48-14:40/52 16:14
11	05:17 22:08	06:06 20:01-20:43/42 21:19	07:02 20:06	07:57 17:27-18:08/41 18:52	07:57 15:41-16:09/28 16:45	08:47 13:48-14:41/53 16:14
12	05:18 22:07	06:08 20:00-20:41/41 21:17	07:04 20:04	07:59 17:20-18:08/48 18:49	07:59 15:42-16:08/26 16:44	08:48 13:49-14:42/53 16:14
13	05:19 22:06	06:09 19:59-20:41/42 21:15	07:05 20:01	08:00 17:17-18:07/50 18:47	08:01 15:43-16:07/24 16:42	08:49 14:58-15:02/4 16:14 13:49-14:42/53
14	05:21 20:42-20:50/8 22:05	06:11 19:58-20:40/42 21:13	07:07 19:59	08:02 17:14-18:07/53 18:44	08:03 15:45-16:06/21 16:40 14:00-14:14/14	08:50 14:57-15:03/6 16:14 13:50-14:43/53
15	05:22 20:40-20:51/11 22:04	06:13 19:57-20:38/41 21:10	07:09 19:56	08:04 17:12-18:07/55 18:42	08:05 15:46-16:04/18 16:39 13:56-14:17/21	08:51 14:57-15:05/8 16:14 13:50-14:43/53
16	05:23 20:39-20:52/13 22:03	06:15 19:56-20:36/40 21:08	07:11 19:54	08:06 17:11-18:06/55 18:40	08:07 15:48-16:03/15 16:37 13:54-14:20/26	08:52 14:57-15:06/9 16:14 13:51-14:44/53
17	05:25 20:38-20:53/15 22:02	06:17 19:56-20:34/38 21:06	07:13 19:51	08:08 17:10-18:05/55 18:37	08:09 15:51-16:01/10 16:36 13:53-14:22/29	08:53 14:57-15:07/10 16:14 13:51-14:45/54
18	05:26 20:38-20:55/17 22:01 20:24-20:31/7	06:18 19:55-20:31/36 21:04	07:14 19:49	08:10 17:09-18:04/55 18:35	08:11 13:52-14:24/32 16:34	08:54 14:57-15:07/10 16:14 13:51-14:44/53
19	05:28 20:37-20:56/19 21:59 20:22-20:34/12	06:20 19:55-20:21/26 21:01	07:16 19:46	08:12 17:08-18:02/54 18:33	08:12 13:50-14:25/35 16:33	08:55 14:57-15:08/11 16:14 13:52-14:45/53
20	05:29 20:36-20:56/20 21:58 20:20-20:35/15	06:22 19:55-20:21/26 20:59	07:18 19:44	08:14 17:07-18:00/53 18:30	08:14 13:49-14:27/38 16:31	08:55 14:58-15:09/11 16:15 13:53-14:46/53
21	05:31 20:19-20:57/38 21:57	06:24 19:54-20:20/26 20:57	07:20 19:41	08:16 17:07-17:57/50 18:28 16:50-17:00/10	08:16 13:49-14:28/39 16:30	08:56 14:58-15:09/11 16:15 13:53-14:46/53
22	05:32 20:17-20:57/40 21:55	06:26 19:55-20:19/24 20:55	07:22 19:39	08:18 17:07-17:52/45 18:26 16:47-17:03/16	08:18 13:48-14:29/41 16:29	08:56 14:59-15:10/11 16:15 13:54-14:47/53
23	05:34 20:17-20:59/42 21:54	06:27 19:55-20:19/24 20:52	07:23 19:36	08:20 17:06-17:51/45 18:24 16:44-17:05/21	08:20 13:47-14:30/43 16:27	08:57 14:59-15:10/11 16:16 13:54-14:47/53
24	05:35 20:16-20:59/43 21:52	06:29 19:56-20:18/22 20:50	07:25 19:34	08:22 16:42-17:49/67 18:21	08:22 13:47-14:31/44 16:26	08:57 14:59-15:10/11 16:17 13:54-14:47/53
25	05:37 20:14-20:58/44 21:51	06:31 19:56-20:16/20 20:48	07:27 19:31	07:24 15:40-16:48/68 17:19	08:23 13:47-14:32/45 16:25	08:58 15:00-15:11/11 16:17 13:55-14:48/53
26	05:38 20:14-20:59/45 21:49	06:33 19:58-20:15/17 20:45	07:29 19:29	07:26 15:39-16:46/67 17:17	08:25 13:47-14:33/46 16:24	08:58 15:01-15:11/10 16:18 13:55-14:48/53
27	05:40 20:13-20:59/46 21:47	06:35 20:00-20:13/13 20:43	07:31 19:26	07:28 15:38-16:43/65 17:15	08:27 13:47-14:33/46 16:23	08:58 15:02-15:11/9 16:19 13:56-14:49/53
28	05:42 20:13-21:00/47 21:46	06:36 20:02-20:08/6 20:41	07:33 19:24	07:30 15:38-16:40/62 17:13	08:29 13:46-14:33/47 16:22	08:58 15:03-15:11/8 16:20 13:56-14:49/53
29	05:43 20:13-21:00/47 21:44	06:38 20:38	07:34 19:21	07:31 15:37-16:39/62 17:11	08:30 13:46-14:34/48 16:21	08:58 15:04-15:10/6 16:20 13:57-14:50/53
30	05:45 20:12-21:00/48 21:42	06:40 20:36	07:36 19:19	07:33 15:37-16:36/59 17:09	08:32 13:46-14:35/49 16:20	08:58 15:06-15:10/4 16:21 13:57-14:50/53
31	05:47 20:12-21:00/48 21:40	06:42 20:33		07:35 16:12-16:34/22 17:06 15:36-16:11/35		08:58 13:58-14:51/53 16:22
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	687	986	0	1370	1150	1789

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 11 - AT11

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27	09:00-09:15/15	07:29	07:54-08:00/6	07:12		06:02	19:32-20:19/47	05:12	21:03-21:21/18
	16:24		17:16	16:29-16:44/15	18:13	17:11-17:30/19	20:12		21:09		22:00	
2	08:58		08:25	09:02-09:14/12	07:26	07:51-07:58/7	07:10		06:00	19:32-20:18/46	05:11	21:03-21:21/18
	16:25		17:18	16:28-16:46/18	18:15	17:12-17:28/16	20:14		21:11		22:01	
3	08:58		08:24	09:05-09:11/6	07:24	07:49-07:57/8	07:08	19:34-19:46/12	05:58	19:32-20:18/46	05:10	21:03-21:21/18
	16:26		17:20	16:28-16:48/20	18:17	17:15-17:26/11	20:16		21:13		22:02	
4	08:58		08:22	16:28-16:50/22	07:22	07:46-07:54/8	07:05	19:32-19:49/17	05:56	19:32-20:18/46	05:09	21:04-21:21/17
	16:27		17:22		18:19		20:18		21:14		22:04	
5	08:57		08:20	16:28-16:53/25	07:19	07:44-07:47/3	07:03	19:31-19:53/22	05:54	19:33-20:19/46	05:08	21:04-21:21/17
	16:29		17:24		18:21		20:20		21:16		22:05	
6	08:57		08:18	16:28-16:54/26	07:17	07:41-07:46/5	07:00	19:29-19:54/25	05:52	19:33-20:18/45	05:07	21:04-21:21/17
	16:30		17:26		18:23		20:22		21:18		22:06	
7	08:57		08:16	16:28-16:54/26	07:14	07:39-07:45/6	06:58	19:28-19:55/27	05:50	19:33-20:18/45	05:07	21:05-21:21/16
	16:31		17:28		18:25		20:24		21:20		22:07	
8	08:56		08:14	16:29-16:53/24	07:12	07:37-07:44/7	06:55	19:27-19:55/28	05:48	19:33-20:17/44	05:06	21:04-21:21/17
	16:33		17:30		18:27		20:26		21:22		22:08	
9	08:55		08:12	16:29-16:52/23	07:10	07:35-07:40/5	06:53	19:26-19:57/31	05:46	19:33-20:16/43	05:05	21:05-21:21/16
	16:34		17:32		18:29		20:27		21:24		22:09	
10	08:55		08:10	16:30-16:52/22	07:07		06:50	19:26-19:59/33	05:44	19:34-20:17/43	05:05	21:05-21:21/16
	16:36		17:34		18:30		20:29		21:25		22:09	
11	08:54		08:08	16:31-16:51/20	07:05		06:48	19:25-20:02/37	05:42	19:34-20:16/42	05:04	21:06-21:21/15
	16:37		17:36		18:32		20:31		21:27		22:10	
12	08:53		08:06	16:32-16:50/18	07:02		06:46	19:26-20:05/39	05:40	19:35-20:15/40	05:04	21:06-21:21/15
	16:39		17:38		18:34		20:33		21:29		22:11	
13	08:52		08:04	16:34-16:48/14	07:00		06:43	19:25-20:06/41	05:39	19:36-20:15/39	05:04	21:07-21:22/15
	16:41		17:41		18:36		20:35		21:31		22:12	
14	08:51		08:02	16:37-16:46/9	06:57		06:41	19:26-20:08/42	05:37	19:36-20:14/38	05:03	21:07-21:21/14
	16:42		17:43		18:38		20:37		21:32		22:12	
15	08:51		08:00		06:55		06:38	19:26-20:08/42	05:35	19:37-20:12/35	05:03	21:07-21:21/14
	16:44		17:45		18:40		20:39		21:34		22:13	
16	08:50		07:58		06:52		06:36	19:27-20:09/42	05:33	19:38-20:12/34	05:03	21:07-21:21/14
	16:46		17:47		18:42		20:41		21:36		22:14	21:36-21:37/1
17	08:49		07:56	17:17-17:19/2	06:50		06:34	19:28-20:09/41	05:32	19:39-20:11/32	05:03	21:08-21:21/13
	16:47		17:49		18:44		20:43		21:38		22:14	21:35-21:37/2
18	08:47		07:54	08:20-08:21/1	06:47		06:31	19:30-20:12/42	05:30	19:40-20:10/30	05:03	21:08-21:22/14
	16:49		17:51	17:15-17:22/7	18:46		20:44		21:39		22:15	21:35-21:38/3
19	08:46		07:52	08:17-08:21/4	06:45		06:29	19:33-20:13/40	05:29	19:41-20:09/28	05:03	21:08-21:22/14
	16:51		17:53	17:13-17:23/10	18:48		20:46		21:41		22:15	21:35-21:38/3
20	08:45		07:49	08:15-08:21/6	06:42		06:27	19:34-20:14/40	05:27	19:43-20:08/25	05:03	21:08-21:22/14
	16:53		17:55	17:12-17:26/14	18:50		20:48		21:42		22:15	21:35-21:38/3
21	08:44	09:14-09:16/2	07:47	08:13-08:21/8	06:40		06:24	19:34-20:15/41	05:25	21:08-21:11/3	05:03	21:10-21:23/13
	16:55		17:57	17:11-17:28/17	18:52		20:50		21:44	19:45-20:07/22	22:16	21:36-21:39/3
22	08:43	09:13-09:17/4	07:45	08:10-08:20/10	06:37		06:22	19:35-20:16/41	05:24	21:05-21:12/7	05:03	21:09-21:23/14
	16:56		17:59	17:10-17:30/20	18:53		20:52		21:46	19:46-20:05/19	22:16	21:36-21:39/3
23	08:41	09:11-09:17/6	07:43	08:08-08:19/11	06:35		06:20	19:36-20:17/41	05:23	21:05-21:13/8	05:03	21:09-21:23/14
	16:58		18:01	17:10-17:32/22	18:55		20:54		21:47	19:48-20:03/15	22:16	21:36-21:39/3
24	08:40	09:10-09:18/8	07:40	08:06-08:18/12	06:32		06:17	19:36-20:18/42	05:21	21:04-21:15/11	05:04	21:09-21:23/14
	17:00		18:03	17:10-17:33/23	18:57		20:56		21:49	19:51-20:01/10	22:16	21:36-21:39/3
25	08:38	09:08-09:18/10	07:38	08:05-08:16/11	06:30		06:15	19:35-20:18/43	05:20	21:04-21:16/12	05:04	21:10-21:24/14
	17:02		18:05	17:09-17:32/23	18:59		20:58		21:50		22:16	21:37-21:39/2
26	08:37	09:07-09:18/11	07:36	08:09-08:12/3	06:27		06:13	19:34-20:18/44	05:18	21:04-21:18/14	05:05	21:10-21:23/13
	17:04		18:07	17:09-17:32/23	19:01		21:00		21:52		22:16	21:37-21:39/2
27	08:35	09:05-09:18/13	07:33	07:59-08:01/2	06:25		06:11	19:33-20:18/45	05:17	21:03-21:19/16	05:05	21:10-21:24/14
	17:06	16:32-16:33/1	18:09	17:09-17:31/22	19:03		21:01		21:53		22:16	
28	08:34	09:03-09:18/15	07:31	07:56-08:00/4	06:22		06:09	19:33-20:18/45	05:16	21:03-21:20/17	05:06	21:10-21:24/14
	17:08	16:31-16:35/4	18:11	17:10-17:31/21	19:05		21:03		21:55		22:16	
29	08:32	09:01-09:17/16			07:20		06:06	19:33-20:19/46	05:15	21:03-21:20/17	05:06	21:10-21:25/15
	17:10	16:30-16:37/7			20:07		21:05		21:56		22:16	
30	08:31	08:59-09:16/17			07:17		06:04	19:32-20:19/47	05:14	21:03-21:21/18	05:07	21:10-21:25/15
	17:12	16:29-16:39/10			20:09		21:07		21:57		22:15	
31	08:29	08:59-09:17/18			07:15				05:13	21:03-21:21/18		
	17:14	16:28-16:41/13			20:10				21:59			
Potential sun hours	248		272		367		421		496		513	
Sum of minutes with flicker	155		591		101		1036		1001		480	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 11 - AT11

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:07 21:10-21:25/15 22:15	05:48 19:45-20:25/40 21:39	06:44 19:24-20:01/37 20:31	07:38 19:16	07:37 15:59-16:21/22 17:04	08:33 16:19
2	05:08 21:10-21:26/16 22:15	05:50 19:45-20:26/41 21:37	06:46 19:24-19:57/33 20:28	07:40 19:14	07:39 15:58-16:22/24 17:02	08:35 16:18
3	05:09 21:11-21:27/16 22:14	05:52 19:43-20:26/43 21:35	06:47 19:24-19:55/31 20:26	07:42 19:11	07:41 15:59-16:23/24 17:00	08:37 16:18
4	05:10 21:10-21:26/16 22:14	05:53 19:43-20:27/44 21:33	06:49 19:24-19:52/28 20:24	07:44 19:09	07:43 15:58-16:23/25 16:58	08:38 16:17
5	05:11 21:10-21:27/17 22:13	05:55 19:43-20:28/45 21:31	06:51 19:24-19:51/27 20:21	07:45 08:12-08:18/6 19:06	07:45 15:58-16:23/25 16:57	08:39 16:16
6	05:12 21:10-21:27/17 22:12	05:57 19:42-20:27/45 21:29	06:53 19:25-19:50/25 20:19	07:47 08:14-08:20/6 19:04	07:47 15:58-16:22/24 16:55	08:41 16:16
7	05:13 21:10-21:27/17 22:12	05:59 19:42-20:28/46 21:27	06:55 19:26-19:48/22 20:16	07:49 08:16-08:21/5 19:01	07:49 15:58-16:20/22 16:53	08:42 16:15
8	05:14 21:10-21:28/18 22:11	06:00 19:42-20:28/46 21:25	06:56 19:26-19:44/18 20:14	07:51 08:18-08:22/4 18:59	07:51 08:34-08:41/7 16:51 15:58-16:18/20	08:44 16:15
9	05:15 21:10-21:28/18 22:10	06:02 19:41-20:27/46 21:23	06:58 19:28-19:41/13 20:11	07:53 08:20-08:22/2 18:56	07:53 08:32-08:45/13 16:49 15:59-16:17/18	08:45 16:14
10	05:16 21:10-21:28/18 22:09	06:04 19:41-20:28/47 21:21	07:00 19:33-19:36/3 20:09	07:55 08:22-08:30/8 18:54 17:51-17:58/7	07:55 08:31-08:46/15 16:47 15:59-16:15/16	08:46 16:14
11	05:17 21:11-21:28/17 22:08	06:06 19:41-20:28/47 21:19	07:02 20:06	07:57 08:24-08:32/8 18:52 17:47-18:01/14	07:57 08:29-08:47/18 16:45 16:00-16:12/12	08:47 16:14
12	05:18 21:11-21:28/17 22:07	06:08 19:41-20:27/46 21:17	07:04 20:04	07:59 08:26-08:33/7 18:49 17:45-18:02/17	07:59 08:31-08:48/17 16:44 16:01-16:10/9	08:48 16:14
13	05:19 21:11-21:28/17 22:06	06:09 19:41-20:27/46 21:15	07:05 20:01	08:00 08:28-08:33/5 18:47 17:44-18:03/19	08:01 08:33-08:49/16 16:42 16:02-16:08/6	08:49 16:14
14	05:21 21:12-21:29/17 22:05	06:11 19:41-20:27/46 21:13	07:07 19:59	08:02 08:30-08:34/4 18:44 17:43-18:04/21	08:03 08:35-08:50/15 16:40 16:03-16:07/4	08:50 16:14
15	05:22 21:12-21:29/17 22:04	06:13 19:40-20:26/46 21:10	07:09 19:56	08:04 08:32-08:33/1 18:42 17:42-18:04/22	08:05 08:38-08:51/13 16:39 16:04-16:05/1	08:51 16:14
16	05:23 21:12-21:28/16 22:03	06:15 19:41-20:26/45 21:08	07:11 19:54	08:06 08:39-08:46/7 18:40 17:41-18:04/23	08:07 08:40-08:51/11 16:37	08:52 16:14
17	05:25 21:12-21:27/15 22:02	06:17 19:41-20:25/44 21:06	07:13 19:51	08:08 08:36-08:49/13 18:37 17:41-18:04/23	08:09 08:42-08:52/10 16:36	08:53 16:14
18	05:26 21:13-21:27/14 22:01	06:18 19:41-20:24/43 21:04	07:14 19:49	08:10 08:38-08:50/12 18:35 17:41-18:04/23	08:11 08:44-08:52/8 16:34	08:54 16:14
19	05:28 21:14-21:25/11 21:59 20:04-20:08/4	06:20 19:42-20:23/41 21:02	07:16 19:46	08:12 08:40-08:51/11 18:33 17:41-18:03/22	08:13 08:46-08:52/6 16:33	08:55 16:14
20	05:29 21:14-21:24/10 21:58 19:59-20:11/12	06:22 19:41-20:23/42 20:59	07:18 19:44	08:14 08:42-08:51/9 18:30 17:41-18:00/19	08:14 08:48-08:52/4 16:31	08:55 16:15
21	05:31 21:16-21:23/7 21:57 19:57-20:14/17	06:24 19:39-20:21/42 20:57	07:20 19:41	08:16 08:44-08:51/7 18:28 17:42-17:58/16	08:16 08:50-08:52/2 16:30	08:56 16:15
22	05:32 21:16-21:21/5 21:55 19:55-20:16/21	06:26 19:39-20:20/41 20:55	07:22 19:39	08:18 08:46-08:51/5 18:26 17:42-17:55/13	08:18 16:29	08:56 16:15
23	05:34 21:19-21:21/2 21:54 19:54-20:18/24	06:27 19:38-20:18/40 20:52	07:23 19:36	08:20 08:48-08:51/3 18:24 17:43-17:53/10	08:20 16:27	08:57 16:16
24	05:35 19:52-20:19/27 21:52	06:29 19:36-20:17/41 20:50	07:25 19:34	08:22 17:45-17:51/6 18:21	08:22 16:26	08:57 16:17
25	05:37 19:51-20:20/29 21:51	06:31 19:32-20:14/42 20:48	07:27 19:31	07:24 17:19	08:23 16:25	08:58 16:17
26	05:38 19:50-20:21/31 21:49	06:33 19:30-20:12/42 20:45	07:29 19:29	07:26 17:17	08:25 16:24	08:58 16:18
27	05:40 19:49-20:22/33 21:47	06:35 19:29-20:11/42 20:43	07:31 19:26	07:28 17:15	08:27 16:23	08:58 16:19
28	05:42 19:48-20:23/35 21:46	06:36 19:27-20:09/42 20:41	07:33 19:24	07:30 16:06-16:16/10 17:13	08:29 16:22	08:58 16:20
29	05:43 19:48-20:24/36 21:44	06:38 19:26-20:08/42 20:38	07:34 19:21	07:32 16:03-16:18/15 17:11	08:30 16:21	08:59 16:20
30	05:45 19:46-20:24/38 21:42	06:40 19:26-20:07/41 20:36	07:36 19:19	07:33 16:01-16:20/19 17:09	08:32 16:20	08:59 16:21
31	05:47 19:46-20:25/39 21:40	06:42 19:25-20:05/40 20:33		07:35 16:00-16:21/21 17:06		08:59 16:22
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	679	1344	237	443	407	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 12 - AT12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 09:33-09:52/19 16:24	08:27 17:16	07:29 17:06-17:34/28 18:13	07:12 20:12	06:02 20:09-20:38/29 21:09	05:12 20:31-20:49/18 22:00
2	08:58 09:33-09:53/20 16:25	08:25 17:18	07:26 17:06-17:33/27 18:15	07:10 20:14	06:00 20:09-20:40/31 21:11	05:11 20:32-20:48/16 22:01
3	08:58 09:33-09:53/20 16:26	08:24 17:20	07:24 17:08-17:32/24 18:17	07:08 19:37-19:46/9 20:16	05:58 20:09-20:42/33 21:13	05:10 20:32-20:47/15 22:02
4	08:58 09:32-09:53/21 16:27	08:22 17:22	07:22 17:08-17:30/22 18:19	07:05 19:35-19:48/13 20:18	05:56 20:09-20:43/34 21:14	05:09 20:34-20:47/13 22:04
5	08:57 09:32-09:54/22 16:29	08:20 17:24	07:19 17:10-17:29/19 18:21	07:03 19:34-19:50/16 20:20	05:54 20:10-20:45/35 21:16	05:08 20:35-20:46/11 22:05
6	08:57 09:31-09:54/23 16:30	08:18 17:26	07:17 17:12-17:26/14 18:23	07:00 19:33-19:51/18 20:22	05:52 20:11-20:47/36 21:18	05:07 20:36-20:45/9 22:06
7	08:57 09:30-09:54/24 16:31	08:16 17:28	07:14 07:39-07:41/2 18:25 17:16-17:22/6	06:58 19:33-19:51/18 20:24	05:50 20:10-20:48/38 21:20	05:07 20:38-20:44/6 22:07
8	08:56 09:30-09:55/25 16:33	08:14 17:30	07:12 07:37-07:41/4 18:27 17:56-17:59/3	06:55 19:32-19:51/19 20:26	05:48 20:10-20:49/39 21:22	05:06 22:08
9	08:55 09:29-09:54/25 16:34	08:12 17:32	07:10 07:34-07:41/7 18:29 17:52-18:01/9	06:53 19:32-19:51/19 20:27	05:46 20:10-20:50/40 21:24	05:05 22:09
10	08:55 09:28-09:54/26 16:36	08:10 17:34	07:07 07:32-07:41/9 18:30 17:50-18:03/13	06:50 19:32-19:50/18 20:29	05:44 20:11-20:51/40 21:25	05:05 22:09
11	08:54 09:27-09:54/27 16:37	08:08 17:36	07:05 07:29-07:39/10 18:32 17:48-18:05/17	06:48 19:33-19:49/16 20:31	05:42 20:11-20:52/41 21:27	05:04 22:10
12	08:53 09:28-09:54/26 16:39	08:06 08:33-08:34/1 17:38	07:02 07:27-07:39/12 18:34 17:47-18:07/20	06:46 19:35-19:49/14 20:33	05:40 20:11-20:52/41 21:29	05:04 21:23-21:30/7 22:11
13	08:52 09:29-09:54/25 16:40	08:04 08:31-08:35/4 17:40	07:00 07:24-07:37/13 18:36 17:46-18:09/23	06:43 19:37-19:46/9 20:35	05:39 20:11-20:52/41 21:31	05:04 21:22-21:31/9 22:12
14	08:52 09:30-09:54/24 16:42	08:02 08:29-08:36/7 17:43	06:57 07:25-07:35/10 17:45-18:10/25 18:38 07:22-07:24/2	06:41 19:40-19:43/3 20:37	05:37 20:12-20:53/41 21:32	05:03 21:20-21:32/12 22:12
15	08:51 09:31-09:54/23 16:44	08:00 08:27-08:36/9 17:45	06:55 07:19-07:23/4 18:40 17:45-18:10/25	06:38 20:39	05:35 20:13-20:53/40 21:34	05:03 21:20-21:33/13 22:13
16	08:50 09:32-09:52/20 16:46	07:58 08:24-08:35/11 17:47 17:16-17:17/1	06:52 07:17-07:22/5 18:42 17:44-18:10/26	06:36 20:41	05:33 20:14-20:53/39 21:36	05:03 21:20-21:34/14 22:14
17	08:49 09:33-09:52/19 16:47	07:56 08:22-08:35/13 17:49 17:13-17:19/6	06:50 07:14-07:21/7 18:44 17:44-18:10/26	06:34 20:43	05:32 20:15-20:53/38 21:38	05:03 21:19-21:34/15 22:14
18	08:47 09:35-09:51/16 16:49	07:54 08:20-08:35/15 17:51 17:12-17:22/10	06:47 07:12-07:20/8 18:46 17:44-18:09/25	06:31 20:44	05:30 20:17-20:53/36 21:39	05:03 21:19-21:35/16 22:15
19	08:46 09:37-09:49/12 16:51	07:52 08:17-08:34/17 17:53 17:10-17:23/13	06:45 07:09-07:17/8 18:48 17:44-18:08/24	06:29 20:46	05:28 20:18-20:53/35 21:41	05:03 21:19-21:35/16 22:15
20	08:45 09:41-09:46/5 16:53	07:49 08:15-08:34/19 17:55 17:09-17:26/17	06:42 07:06-07:10/4 18:50 17:44-18:07/23	06:27 20:48	05:27 20:21-20:53/32 21:42	05:03 21:19-21:35/16 22:15
21	08:44 16:55	07:47 08:13-08:33/20 17:57 17:08-17:28/20	06:40 07:04-07:09/5 18:52 17:46-18:06/20	06:24 20:50	05:25 20:25-20:53/28 21:44	05:03 21:20-21:36/16 22:16
22	08:43 16:56	07:45 08:13-08:31/18 17:59 17:07-17:30/23	06:37 07:01-07:07/6 18:53 17:47-18:04/17	06:22 20:52	05:24 20:24-20:52/28 21:46	05:03 21:20-21:36/16 22:16
23	08:41 16:58	07:43 08:15-08:29/14 18:01 17:06-17:32/26	06:35 06:59-07:05/6 18:55 17:49-18:02/13	06:20 20:17-20:24/7 20:54	05:23 20:25-20:52/27 21:47	05:03 21:20-21:36/16 22:16
24	08:40 17:00	07:40 08:18-08:26/8 18:03 17:06-17:35/29	06:32 17:52-17:57/5 18:57	06:17 20:15-20:26/11 20:56	05:21 20:26-20:52/26 21:49	05:04 21:20-21:36/16 22:16
25	08:38 17:02	07:38 17:05-17:35/30 18:05	06:30 18:59	06:15 20:13-20:28/15 20:58	05:20 20:26-20:52/26 21:50	05:04 21:21-21:37/16 22:16
26	08:37 17:04	07:36 17:06-17:35/29 18:07	06:27 19:01	06:13 20:11-20:28/17 21:00	05:18 20:27-20:52/25 21:52	05:05 21:22-21:36/14 22:16
27	08:35 17:06	07:33 17:05-17:34/29 18:09	06:25 19:03	06:11 20:10-20:29/19 21:01	05:17 20:28-20:51/23 21:53	05:05 21:23-21:36/13 22:16
28	08:34 17:08	07:31 17:06-17:34/28 18:11	06:22 19:05	06:09 20:09-20:31/22 21:03	05:16 20:28-20:51/23 21:55	05:06 21:23-21:35/12 22:16
29	08:32 17:10		07:20 20:07	06:06 20:09-20:33/24 21:05	05:15 20:29-20:51/22 21:56	05:06 21:25-21:35/10 22:16
30	08:31 17:12		07:17 20:09	06:04 20:09-20:34/25 21:07	05:14 20:29-20:50/21 21:57	05:07 21:26-21:34/8 22:15
31	08:29 17:14		07:15 20:10		05:13 20:30-20:50/20 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	422	417	576	312	1008	343

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 12 - AT12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December	
1	05:07	21:28-21:32/4	05:48	20:21-21:02/41	06:44	19:32-19:48/16	07:38	08:05-08:17/12	07:37		08:33	09:09-09:36/27
	22:15		21:39		20:31		19:16	18:26-18:48/22	17:04		16:19	
2	05:08		05:50	20:21-21:02/41	06:46	19:31-19:49/18	07:40	08:07-08:18/11	07:39		08:35	09:11-09:38/27
	22:15		21:37		20:28		19:14	18:26-18:44/18	17:02		16:18	
3	05:09		05:52	20:20-21:00/40	06:47	19:30-19:49/19	07:42	08:09-08:19/10	07:41		08:37	09:12-09:38/26
	22:14		21:35		20:26		19:11	18:27-18:42/15	17:00		16:18	
4	05:10		05:53	20:20-21:00/40	06:49	19:29-19:48/19	07:44	08:10-08:18/8	07:43		08:38	09:14-09:39/25
	22:14		21:33		20:24		19:09	18:28-18:39/11	16:58		16:17	
5	05:11	20:44-20:49/5	05:55	20:21-20:59/38	06:51	19:29-19:47/18	07:45	08:12-08:18/6	07:45		08:39	09:15-09:39/24
	22:13		21:31		20:21		19:06	18:31-18:37/6	16:56		16:16	
6	05:12	20:43-20:51/8	05:57	20:20-20:57/37	06:53	19:29-19:47/18	07:47	08:14-08:17/3	07:47		08:41	09:17-09:40/23
	22:12		21:29		20:19		19:04		16:55		16:16	
7	05:13	20:42-20:52/10	05:59	20:20-20:56/36	06:55	19:29-19:45/16	07:49	08:16-08:17/1	07:49		08:42	09:18-09:40/22
	22:12		21:27		20:16		19:01	17:49-18:00/11	16:53		16:15	
8	05:14	20:41-20:53/12	06:00	20:19-20:54/35	06:56	19:29-19:42/13	07:51	17:46-18:03/17	07:51		08:44	09:20-09:41/21
	22:11		21:25		20:14		18:59		16:51		16:15	
9	05:15	20:40-20:54/14	06:02	20:19-20:52/33	06:58	19:31-19:40/9	07:53	17:44-18:04/20	07:53		08:45	09:21-09:41/20
	22:10		21:23		20:11		18:56		16:49		16:14	
10	05:16	20:39-20:55/16	06:04	20:18-20:50/32	07:00	19:34-19:37/3	07:55	17:42-18:06/24	07:55		08:46	09:22-09:42/20
	22:09		21:21		20:09		18:54		16:47		16:14	
11	05:17	20:39-20:56/17	06:06	20:17-20:48/31	07:02		07:57	17:41-18:06/25	07:57		08:47	09:24-09:43/19
	22:08		21:19		20:06		18:52		16:45		16:14	
12	05:18	20:38-20:57/19	06:08	20:17-20:43/26	07:04		07:59	17:40-18:07/27	07:59		08:48	09:25-09:43/18
	22:07		21:17		20:04		18:49		16:44		16:14	
13	05:19	20:37-20:57/20	06:09	20:17-20:42/25	07:05		08:00	17:39-18:07/28	08:01		08:49	09:26-09:44/18
	22:06		21:15		20:01		18:47		16:42		16:14	
14	05:21	20:38-20:59/21	06:11	20:18-20:41/23	07:07		08:02	17:39-18:08/29	08:03		08:50	09:27-09:44/17
	22:05		21:13		19:59		18:44		16:40		16:14	
15	05:22	20:37-20:59/22	06:13	20:17-20:38/21	07:09		08:04	17:38-18:08/30	08:05		08:51	09:28-09:45/17
	22:04		21:10		19:56		18:42		16:39		16:14	
16	05:23	20:36-21:00/24	06:15	20:18-20:36/18	07:11		08:06	17:38-18:07/29	08:07		08:52	09:29-09:45/16
	22:03		21:08		19:54		18:40		16:37		16:14	
17	05:25	20:36-21:00/24	06:17	20:19-20:35/16	07:13		08:08	17:38-18:07/29	08:09		08:53	09:30-09:46/16
	22:02		21:06		19:51		18:37		16:36		16:14	
18	05:26	20:36-21:01/25	06:18	20:19-20:33/14	07:14		08:10	08:48-08:59/11	08:11		08:54	09:30-09:46/16
	22:01		21:04		19:49		18:35	17:38-18:05/27	16:34		16:14	
19	05:28	20:35-21:01/26	06:20	20:21-20:32/11	07:16		08:12	08:46-09:01/15	08:13		08:55	09:31-09:46/15
	21:59		21:02		19:46		18:33	17:38-18:03/25	16:33		16:14	
20	05:29	20:35-21:02/27	06:22	20:24-20:29/5	07:18	07:45-07:51/6	08:14	08:44-09:03/19	08:14		08:55	09:32-09:47/15
	21:58		20:59		19:44	18:36-18:48/12	18:30	17:38-18:00/22	16:31		16:15	
21	05:31	20:35-21:03/28	06:24		07:20	07:46-07:52/6	08:16	08:44-09:04/20	08:16		08:56	09:32-09:47/15
	21:57		20:57		19:41	18:33-18:49/16	18:28	17:39-17:58/19	16:30		16:15	
22	05:32	20:35-21:03/28	06:26		07:22	07:48-07:53/5	08:18	08:46-09:04/18	08:18	09:17-09:22/5	08:56	09:33-09:48/15
	21:55		20:55		19:39	18:31-18:50/19	18:26	17:39-17:55/16	16:29		16:15	
23	05:34	20:35-21:04/29	06:27		07:23	07:50-07:54/4	08:20	08:48-09:05/17	08:20	09:14-09:26/12	08:57	09:33-09:48/15
	21:54		20:52		19:36	18:29-18:51/22	18:24	17:40-17:53/13	16:27		16:16	
24	05:35	20:30-21:03/33	06:29		07:25	07:52-08:00/8	08:22	08:50-09:05/15	08:22	09:12-09:28/16	08:57	09:34-09:49/15
	21:52		20:50		19:34	18:28-18:52/24	18:21	17:42-17:51/9	16:26		16:17	
25	05:37	20:27-21:03/36	06:31		07:27	07:54-08:02/8	07:24	07:52-08:05/13	08:23	09:11-09:30/19	08:58	09:34-09:49/15
	21:51		20:48		19:31	18:28-18:52/24	17:19	16:43-16:48/5	16:25		16:17	
26	05:38	20:26-21:04/38	06:33		07:29	07:56-08:03/7	07:26	07:55-08:06/11	08:25	09:11-09:31/20	08:58	09:34-09:50/16
	21:49		20:45		19:29	18:26-18:51/25	17:17		16:24		16:18	
27	05:40	20:25-21:03/38	06:35		07:31	07:57-08:03/6	07:28	07:57-08:05/8	08:27	09:10-09:33/23	08:58	09:34-09:50/16
	21:47		20:43		19:26	18:26-18:51/25	17:15		16:23		16:19	
28	05:42	20:24-21:04/40	06:36		07:33	07:59-08:03/4	07:30	07:59-08:05/6	08:29	09:10-09:34/24	08:58	09:34-09:50/16
	21:46		20:41		19:24	18:25-18:51/26	17:13		16:22		16:20	
29	05:43	20:23-21:03/40	06:38	19:40-19:44/4	07:34	08:06-08:13/7 18:26-18:51/25	07:32	08:01-08:04/3	08:30	09:09-09:34/25	08:59	09:34-09:51/17
	21:44		20:38		19:21	08:01-08:03/2	17:11		16:21		16:20	
30	05:45	20:22-21:03/41	06:40	19:37-19:47/10	07:36	08:04-08:16/12	07:33	08:03-08:04/1	08:32	09:09-09:35/26	08:59	09:34-09:51/17
	21:42		20:36		19:19	18:26-18:50/24	17:09		16:20		16:21	
31	05:47	20:22-21:03/41	06:42	19:35-19:48/13			07:35				08:59	09:34-09:52/18
	21:40		20:33				17:06				16:22	
Potential sun hours	515		461		383		328		257		231	
Sum of minutes with flicker		686		590		466		685		170		577

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 13 - AT13

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 16:24	08:27 08:56-09:16/20 17:16	07:29 18:13	07:12 07:37-07:41/4 20:12 19:19-19:45/26	06:02 21:09	05:12 20:55-21:25/30 22:00
2	08:58 16:25	08:26 08:54-09:17/23 17:18	07:26 18:15	07:10 07:34-07:40/6 20:14 19:19-19:47/28	06:00 21:11	05:11 20:56-21:26/30 22:01
3	08:58 16:26	08:24 08:52-09:17/25 17:20	07:24 18:17	07:08 07:32-07:41/9 20:16 19:18-19:46/28	05:58 21:13	05:10 20:56-21:27/31 22:02
4	08:58 16:27	08:22 08:50-09:18/28 17:22	07:22 18:19	07:05 07:29-07:40/11 20:18 19:19-19:46/27	05:56 21:14	05:09 20:58-21:05/7 22:04 21:06-21:28/22
5	08:57 16:29	08:20 08:48-09:18/30 17:24	07:19 18:21	07:03 07:27-07:40/13 20:20 19:19-19:46/27	05:54 21:16	05:08 20:59-21:04/5 22:05 21:05-21:29/24
6	08:57 16:30	08:18 08:46-09:19/33 17:26	07:17 18:23	07:00 07:24-07:39/15 20:22 19:19-19:44/25	05:52 21:18	05:07 21:05-21:30/25 22:06
7	08:57 16:31	08:16 08:44-09:19/35 17:28	07:14 18:25	06:58 07:22-07:39/17 20:24 19:20-19:44/24	05:50 21:20	05:07 21:06-21:31/25 22:07
8	08:56 16:33	08:14 08:42-09:19/37 17:30	07:12 18:27	06:55 07:19-07:37/18 19:20-19:42/22 20:26 19:51-19:58/7	05:48 21:22	05:06 21:05-21:31/26 22:08
9	08:55 16:34	08:12 08:40-09:20/40 17:32	07:10 18:29	06:53 07:17-07:36/19 19:21-19:41/20 20:27 19:49-20:00/11	05:46 21:24	05:05 21:06-21:33/27 22:09
10	08:55 16:36	08:10 08:37-09:19/42 17:34	07:07 18:30	06:50 07:15-07:34/19 19:23-19:39/16 20:29 19:48-20:02/14	05:44 21:25	05:05 21:05-21:33/28 22:10
11	08:54 16:37	08:08 08:35-09:19/44 17:36	07:05 18:32	06:48 07:12-07:31/19 19:25-19:36/11 20:31 19:46-20:03/17	05:42 21:27	05:04 21:06-21:34/28 22:10
12	08:53 16:39	08:06 08:33-09:19/46 17:38	07:02 18:34	06:46 07:10-07:23/13 20:33 19:45-20:05/20	05:40 21:29	05:04 21:06-21:35/29 22:11
13	08:52 16:40	08:04 08:31-09:19/48 17:40	07:00 07:24-07:25/1 18:36	06:43 07:08-07:21/13 20:35 19:44-20:06/22	05:39 21:31	05:04 21:07-21:36/29 22:12
14	08:52 16:42	08:02 08:29-09:19/50 17:43	06:57 07:22-07:27/5 18:38	06:41 07:05-07:17/12 20:37 19:43-20:06/23	05:37 20:57-21:00/3 21:32	05:03 21:06-21:36/30 22:13
15	08:51 16:44	08:00 08:29-09:19/50 17:45	06:55 07:19-07:27/8 18:40	06:38 07:03-07:13/10 20:39 19:43-20:06/23	05:35 20:54-21:01/7 21:34	05:03 21:06-21:36/30 22:13
16	08:50 16:46	07:58 08:28-09:18/50 17:47	06:52 07:17-07:29/12 18:42	06:36 07:01-07:11/10 20:41 19:43-20:05/22	05:33 20:54-21:03/9 21:36	05:03 21:07-21:37/30 22:14
17	08:49 16:47	07:56 08:29-09:17/48 17:49	06:50 07:14-07:28/14 18:44	06:34 07:03-07:07/4 20:43 19:43-20:05/22	05:32 20:52-21:04/12 21:38	05:03 21:07-21:37/30 22:14
18	08:47 16:49	07:54 08:30-09:17/47 17:51	06:47 07:11-07:28/17 18:46	06:31 19:44-20:05/21 20:44	05:30 20:52-21:06/14 21:39	05:03 21:07-21:38/31 22:15
19	08:46 16:51	07:52 08:30-09:15/45 17:53	06:45 07:09-07:29/20 18:48	06:29 19:44-20:04/20 20:46	05:28 20:51-21:07/16 21:41	05:03 21:07-21:38/31 22:15
20	08:45 16:53	07:49 08:31-09:15/44 17:55	06:42 07:06-07:28/22 18:50	06:27 19:44-20:02/18 20:48	05:27 20:51-21:08/17 21:43	05:03 21:07-21:38/31 22:15
21	08:44 16:55	07:47 08:33-09:14/41 17:57	06:40 07:04-07:28/24 18:52	06:24 19:46-20:00/14 20:50	05:25 20:51-21:08/17 21:44	05:03 21:08-21:39/31 22:16
22	08:43 16:56	07:45 08:33-09:12/39 17:59	06:37 07:01-07:27/26 18:53	06:22 19:48-19:58/10 20:52	05:24 20:51-21:08/17 21:46	05:03 21:08-21:39/31 22:16
23	08:41 16:58	07:43 08:35-09:10/35 18:01	06:35 06:59-07:27/28 18:55	06:20 20:54	05:22 20:51-21:08/17 21:47 21:12-21:13/1	05:03 21:08-21:39/31 22:16
24	08:40 17:00	07:40 08:37-09:09/32 18:03	06:32 06:56-07:26/30 18:57	06:17 20:56	05:21 20:51-21:09/18 21:49 21:10-21:15/5	05:04 21:08-21:39/31 22:16
25	08:38 09:08-09:09/1 17:02	07:38 08:38-09:06/28 18:05	06:30 06:56-07:25/29 18:59	06:15 20:58	05:20 20:52-21:16/24 21:50	05:04 21:09-21:39/30 22:16
26	08:37 09:07-09:11/4 17:04	07:36 08:41-09:03/22 18:07	06:27 06:56-07:23/27 19:01 18:29-18:34/5	06:13 21:00	05:18 20:52-21:18/26 21:52	05:05 21:09-21:39/30 22:16
27	08:35 09:05-09:11/6 17:06	07:33 08:45-09:00/15 18:09	06:25 06:58-07:22/24 19:03 18:26-18:36/10	06:11 21:01	05:17 20:52-21:19/27 21:53	05:05 21:10-21:39/29 22:16
28	08:34 09:03-09:12/9 17:08	07:31 18:11	06:22 06:58-07:20/22 19:05 18:24-18:37/13	06:09 21:03	05:16 20:52-21:20/28 21:55	05:06 21:09-21:39/30 22:16
29	08:32 09:01-09:13/12 17:10		07:20 08:00-08:18/18 20:07 19:23-19:40/17	06:06 21:05	05:15 20:53-21:22/29 21:56	05:06 21:10-21:39/29 22:16
30	08:31 08:59-09:14/15 17:12		07:17 08:02-08:14/12 20:09 19:21-19:41/20	06:04 21:07	05:14 20:54-21:23/29 21:57	05:07 21:09-21:38/29 22:15
31	08:29 08:58-09:15/17 17:14		07:15 19:21-19:43/22 20:10		05:13 20:54-21:24/30 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	64	997	426	730	346	880

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 13 - AT13

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:07 21:10-21:38/28 22:15	05:48 21:39	06:44 07:11-07:30/19 19:23-19:35/12 20:31 19:45-20:02/17	07:38 19:16	07:37 08:07-08:49/42 17:04	08:33 16:19
2	05:08 21:11-21:38/27 22:15	05:50 21:37	06:46 07:13-07:32/19 19:21-19:37/16 20:29 19:46-20:00/14	07:40 19:14	07:39 08:09-08:48/39 17:02	08:35 16:18
3	05:09 21:11-21:38/27 22:14	05:52 21:35	06:47 07:15-07:34/19 19:19-19:39/20 20:26 19:47-19:58/11	07:42 19:11	07:41 08:12-08:49/37 17:00	08:37 16:18
4	05:10 21:10-21:37/27 22:14	05:53 21:33	06:49 07:17-07:35/18 19:17-19:39/22 20:24 19:48-19:55/7	07:44 19:09	07:43 08:14-08:49/35 16:58	08:38 16:17
5	05:11 21:11-21:37/26 22:13	05:55 21:31	06:51 07:18-07:35/17 20:21 19:16-19:40/24	07:45 19:06	07:45 08:16-08:48/32 16:56	08:39 16:16
6	05:12 21:11-21:36/25 22:12	05:57 21:29	06:53 07:20-07:35/15 20:19 19:15-19:40/25	07:47 19:04	07:47 08:18-08:48/30 16:55	08:41 16:16
7	05:13 21:07-21:09/2 22:12 21:12-21:36/24	05:59 21:27	06:55 07:22-07:35/13 20:16 19:14-19:41/27	07:49 19:01	07:49 08:20-08:48/28 16:53	08:42 16:15
8	05:14 21:05-21:11/6 22:11 21:12-21:35/23	06:00 21:25	06:56 07:24-07:35/11 20:14 19:13-19:40/27	07:51 18:59	07:51 08:22-08:47/25 16:51	08:44 16:15
9	05:15 21:04-21:34/30 22:10	06:02 21:23	06:58 07:25-07:34/9 20:11 19:13-19:40/27	07:53 18:56	07:53 08:25-08:47/22 16:49	08:45 16:14
10	05:16 21:03-21:34/31 22:09	06:04 21:21	07:00 07:27-07:34/7 20:09 19:13-19:40/27	07:55 18:54	07:55 08:27-08:47/20 16:47	08:46 16:14
11	05:17 21:03-21:33/30 22:08	06:06 21:19	07:02 07:29-07:33/4 20:06 19:13-19:38/25	07:57 18:52	07:57 08:29-08:46/17 16:45	08:47 16:14
12	05:18 21:02-21:32/30 22:07	06:08 21:17	07:04 07:31-07:32/1 20:04 19:12-19:35/23	07:59 18:49	07:59 08:31-08:46/15 16:44	08:48 16:14
13	05:19 21:02-21:31/29 22:06	06:09 21:15	07:05 07:54-08:05/11 20:01 19:12-19:33/21	08:01 18:47	08:01 08:33-08:45/12 16:42	08:49 16:14
14	05:21 21:02-21:31/29 22:05	06:11 21:13	07:07 07:51-08:08/17 19:59 19:13-19:31/18	08:02 09:21-09:28/7 18:44	08:03 08:35-08:44/9 16:40	08:50 16:14
15	05:22 21:02-21:30/28 22:04	06:13 21:10	07:09 07:49-08:10/21 19:56 19:14-19:28/14	08:04 09:15-09:33/18 18:42	08:05 08:37-08:43/6 16:39	08:51 16:14
16	05:23 21:01-21:28/27 22:03	06:15 21:08	07:11 07:47-08:12/25 19:54 19:15-19:25/10	08:06 09:12-09:37/25 18:40	08:07 08:40-08:43/3 16:37	08:52 16:14
17	05:25 21:01-21:27/26 22:02	06:17 21:06	07:13 07:45-08:12/27 19:51 19:17-19:23/6	08:08 09:09-09:39/30 18:37	08:09 08:42-08:43/1 16:36	08:53 16:14
18	05:26 21:01-21:27/26 22:01	06:18 21:04	07:14 07:44-08:13/29 19:49	08:10 09:07-09:41/34 18:35	08:11 16:34	08:54 16:14
19	05:28 21:01-21:18/17 21:59 21:19-21:25/6	06:20 21:02	07:16 07:43-08:13/30 19:46	08:12 09:05-09:42/37 18:33	08:13 16:33	08:55 16:14
20	05:29 21:01-21:18/17 21:58 21:20-21:24/4	06:22 19:57-20:01/4 20:59	07:18 07:45-08:14/29 19:44	08:14 09:04-09:43/39 18:30	08:14 16:31	08:55 16:15
21	05:31 21:01-21:19/18 21:57	06:24 19:52-20:03/11 20:57	07:20 07:46-08:13/27 19:41	08:16 09:03-09:44/41 18:28	08:16 16:30	08:56 16:15
22	05:32 21:01-21:18/17 21:55	06:26 19:50-20:05/15 20:55	07:22 07:48-08:13/25 19:39	08:18 09:01-09:45/44 18:26	08:18 16:29	08:56 16:15
23	05:34 21:02-21:19/17 21:54	06:27 19:49-20:07/18 20:52	07:23 07:50-08:13/23 19:36	08:20 09:00-09:46/46 18:24	08:20 16:27	08:57 16:16
24	05:35 21:02-21:18/16 21:52	06:29 19:48-20:08/20 20:50	07:25 07:52-08:12/20 19:34	08:22 08:59-09:46/47 18:21	08:22 16:26	08:57 16:17
25	05:37 21:02-21:17/15 21:51	06:31 19:46-20:07/21 20:48	07:27 07:54-08:12/18 19:31	07:24 07:58-08:47/49 17:19	08:23 16:25	08:58 16:17
26	05:38 21:03-21:16/13 21:49	06:33 07:05-07:11/6 20:45 19:46-20:08/22	07:29 07:55-08:10/15 19:29	07:26 07:58-08:47/49 17:17	08:25 16:24	08:58 16:18
27	05:40 21:03-21:14/11 21:47	06:35 07:03-07:13/10 20:43 19:45-20:08/23	07:31 07:57-08:10/13 19:26	07:28 07:58-08:48/50 17:15	08:27 16:23	08:58 16:19
28	05:42 21:05-21:13/8 21:46	06:36 07:05-07:15/10 20:41 19:44-20:07/23	07:33 07:59-08:09/10 19:24	07:30 07:59-08:49/50 17:13	08:29 16:22	08:58 16:20
29	05:43 21:06-21:11/5 21:44	06:38 07:06-07:18/12 20:38 19:44-20:07/23	07:34 08:01-08:07/6 19:21	07:32 08:01-08:49/48 17:11	08:30 16:21	08:59 16:20
30	05:45 21:42	06:40 07:08-07:21/13 20:36 19:45-20:07/22	07:36 08:03-08:06/3 19:19	07:34 08:03-08:49/46 17:09	08:32 16:20	08:59 16:21
31	05:47 21:41	06:42 07:10-07:23/13 20:33 19:45-20:05/20		07:35 08:05-08:49/44 17:06		08:59 16:22
Potential sun hours	515	461	383	327	257	230
Sum of minutes with flicker	665	286	894	704	373	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 14 - AT14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February	March	April	May		June	
1	08:59	15:27-15:45/18	08:27	07:29	07:12	06:02	20:32-20:38/6	05:12	05:43-06:01/18
	16:24		17:16	18:13	20:12	21:09		22:00	
2	08:58	15:27-15:46/19	08:26	07:26	07:10	06:00	20:30-20:40/10	05:11	05:42-06:00/18
	16:25		17:18	18:15	20:14	21:11		22:01	
3	08:58	15:28-15:48/20	08:24	07:24	07:08	05:58	20:29-20:42/13	05:10	05:41-06:00/19
	16:26		17:20	18:17	20:16	21:13		22:02	
4	08:58	15:28-15:49/21	08:22	07:22	07:05	05:56	20:27-20:43/16	05:09	05:41-06:00/19
	16:27		17:22	18:19	20:18	21:14		22:04	
5	08:57	15:29-15:51/22	08:20	07:19	07:03	05:54	20:27-20:45/18	05:08	05:40-05:59/19
	16:29		17:24	18:21	20:20	21:16		22:05	
6	08:57	15:28-15:52/24	08:18	07:17	07:00	05:52	20:27-20:46/19	05:07	05:39-05:59/20
	16:30		17:26	18:23	20:22	21:18		22:06	
7	08:57	15:28-15:53/25	08:16	07:14	06:58	05:50	20:26-20:49/23	05:07	05:39-05:59/20
	16:31		17:28	18:25	20:24	21:20		22:07	
8	08:56	15:29-15:56/27	08:14	07:12	06:55	05:48	20:26-20:50/24	05:06	05:38-05:58/20
	16:33		17:30	18:27	20:26	21:22		22:08	
9	08:55	15:30-15:57/27	08:12	07:10	06:53	05:46	20:26-20:52/26	05:05	05:38-05:57/19
	16:34		17:32	18:29	20:28	21:24		22:09	
10	08:55	15:30-15:59/29	08:10	07:07	06:50	05:44	20:26-20:53/27	05:05	05:38-05:57/19
	16:36		17:34	18:30	20:29	21:25		22:10	
11	08:54	15:30-16:00/30	08:08	07:05	06:48	05:42	20:27-20:54/27	05:04	05:37-05:57/20
	16:37		17:36	18:32	20:31	21:27		22:10	
12	08:53	15:30-16:02/32	08:06	07:02	06:46	05:40	20:27-20:54/27	05:04	05:37-05:58/21
	16:39		17:38	18:34	20:33	21:29		22:11	
13	08:52	15:31-16:04/33	08:04	07:00	06:43	05:39	20:27-20:54/27	05:04	05:37-05:58/21
	16:40		17:41	18:36	20:35	21:31		22:12	
14	08:52	15:31-16:06/35	08:02	06:57	06:41	05:37	20:28-20:55/27	05:03	05:37-05:59/22
	16:42		17:43	18:38	20:37	21:32		22:13	
15	08:51	15:32-16:07/35	08:00	06:55	06:38	05:35	20:29-20:54/25	05:03	05:36-05:58/22
	16:44		17:45	18:40	20:39	21:34		22:13	
16	08:50	15:32-16:07/35	07:58	06:52	06:36	05:33	20:31-20:55/24	05:03	05:36-05:59/23
	16:46		17:47	18:42	20:41	21:36		22:14	
17	08:49	15:32-16:08/36	07:56	06:50	06:34	05:32	20:32-20:54/22	05:03	05:36-05:59/23
	16:47		17:49	18:44	20:43	21:38		22:14	
18	08:47	15:33-16:09/36	07:54	06:47	06:31	05:30	20:39-20:54/15	05:03	05:36-05:59/23
	16:49		17:51	18:46	20:45	21:39		22:15	
19	08:46	15:33-16:09/36	07:52	06:45	06:29	05:28	05:58-06:00/2	05:03	05:36-05:59/23
	16:51		17:53	18:48	20:46	21:41	20:39-20:53/14	22:15	
20	08:45	15:34-16:09/35	07:49	06:42	06:27	05:27	05:56-06:00/4	05:03	05:37-06:00/23
	16:53		17:55	18:50	20:48	21:43	20:40-20:53/13	22:15	
21	08:44	15:34-16:09/35	07:47	06:40	06:24	05:25	05:55-06:01/6	05:03	05:37-06:00/23
	16:55		17:57	18:52	20:50	21:44	20:41-20:52/11	22:16	
22	08:43	15:35-16:10/35	07:45	06:37	06:22	05:24	05:54-06:01/7	05:03	05:37-06:00/23
	16:56		17:59	18:53	20:52	21:46	20:42-20:50/8	22:16	
23	08:41	15:35-16:09/34	07:43	06:35	06:20	05:22	05:52-06:01/9	05:03	05:37-06:00/23
	16:58		18:01	18:55	20:54	21:47	20:44-20:49/5	22:16	
24	08:40	15:37-16:10/33	07:40	06:32	06:17	05:21	05:51-06:01/10	05:04	05:38-06:01/23
	17:00		18:03	18:57	20:56	21:49		22:16	
25	08:38	15:37-16:09/32	07:38	06:30	06:15	05:20	05:50-06:02/12	05:04	05:38-06:01/23
	17:02		18:05	18:59	20:58	21:50		22:16	
26	08:37	15:39-16:10/31	07:36	06:27	06:13	05:18	05:49-06:02/13	05:05	05:38-06:01/23
	17:04		18:07	19:01	21:00	21:52		22:16	
27	08:35	15:40-16:09/29	07:33	06:25	06:11	05:17	05:48-06:02/14	05:05	05:39-06:01/22
	17:06		18:09	19:03	21:01	21:53		22:16	
28	08:34	15:42-16:08/26	07:31	06:22	06:09	05:16	05:47-06:02/15	05:06	05:39-06:01/22
	17:08		18:11	19:05	21:03	21:55		22:16	
29	08:32	15:45-16:07/22		07:20	06:06	05:15	05:46-06:02/16	05:06	05:40-06:02/22
	17:10			20:07	21:05	21:56		22:16	
30	08:31	15:52-16:05/13		07:17	06:04	05:14	05:45-06:01/16	05:07	05:41-06:02/21
	17:12			20:09	21:07	21:57		22:15	
31	08:29	15:55-16:04/9		07:15		05:13	05:44-06:01/17		
	17:14			20:11		21:59			
Potential sun hours	248		272	367	421	496		513	
Sum of minutes with flicker		874		0	0	0	568		637

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 14 - AT14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October	November		December	
1	05:07	05:41-06:01/20	05:48	20:37-21:05/28	06:44	07:38	07:38		08:34	15:12-15:42/30
	22:15		21:39		20:31	19:16	17:04		16:19	
2	05:08	05:42-06:02/20	05:50	20:37-21:05/28	06:46	07:40	07:39		08:35	15:13-15:42/29
	22:15		21:37		20:29	19:14	17:02		16:18	
3	05:09	05:43-06:02/19	05:52	20:36-21:03/27	06:47	07:42	07:41		08:37	15:13-15:40/27
	22:14		21:35		20:26	19:11	17:00		16:18	
4	05:10	05:44-06:03/19	05:53	20:36-21:02/26	06:49	07:44	07:43		08:38	15:14-15:40/26
	22:14		21:33		20:24	19:09	16:58		16:17	
5	05:11	05:44-06:04/20	05:55	20:37-21:00/23	06:51	07:46	07:45		08:40	15:14-15:38/24
	22:13		21:31		20:21	19:06	16:56		16:16	
6	05:12	05:45-06:05/20	05:57	20:36-20:58/22	06:53	07:47	07:47		08:41	15:15-15:38/23
	22:12		21:29		20:19	19:04	16:55		16:16	
7	05:13	05:46-06:05/19	05:59	20:37-20:55/18	06:55	07:49	07:49		08:42	15:15-15:37/22
	22:12		21:27		20:16	19:01	16:53		16:15	
8	05:14	05:47-06:06/19	06:00	20:37-20:55/18	06:56	07:51	07:51		08:44	15:16-15:37/21
	22:11		21:25		20:14	18:59	16:51		16:15	
9	05:15	05:48-06:07/19	06:02	20:37-20:52/15	06:58	07:53	07:53		08:45	15:16-15:36/20
	22:10		21:23		20:11	18:56	16:49		16:14	
10	05:16	05:49-06:08/19	06:04	20:38-20:51/13	07:00	07:55	07:55		08:46	15:16-15:35/19
	22:09		21:21		20:09	18:54	16:47		16:14	
11	05:17	05:50-06:08/18	06:06	20:39-20:48/9	07:02	07:57	07:57	15:26-15:35/9	08:47	15:18-15:36/18
	22:08		21:19		20:06	18:52	16:45		16:14	
12	05:18	05:51-06:08/17	06:08	20:41-20:46/5	07:04	07:59	07:59	15:24-15:37/13	08:48	15:18-15:35/17
	22:08		21:17		20:04	18:49	16:44		16:14	
13	05:19	05:53-06:10/17	06:09		07:05	08:01	08:01	15:16-15:39/23	08:49	15:19-15:35/16
	22:06		21:15		20:01	18:47	16:42		16:14	
14	05:21	05:54-06:10/16	06:11		07:07	08:02	08:03	15:14-15:40/26	08:50	15:19-15:35/16
	22:05		21:13		19:59	18:44	16:40		16:13	
15	05:22	05:55-06:10/15	06:13		07:09	08:04	08:05	15:12-15:41/29	08:51	15:20-15:35/15
	22:04		21:10		19:56	18:42	16:39		16:14	
16	05:23	05:56-06:10/14	06:15		07:11	08:06	08:07	15:12-15:43/31	08:52	15:21-15:35/14
	22:03		21:08		19:54	18:40	16:37		16:14	
17	05:25	05:58-06:11/13	06:17		07:13	08:08	08:09	15:11-15:43/32	08:53	15:22-15:35/13
	22:02		21:06		19:51	18:37	16:36		16:14	
18	05:26	05:59-06:11/12	06:18		07:14	08:10	08:11	15:11-15:44/33	08:54	15:21-15:35/14
	22:01		21:04		19:49	18:35	16:34		16:14	
19	05:28	06:00-06:11/11	06:20		07:16	08:12	08:13	15:10-15:44/34	08:55	15:22-15:35/13
	21:59		21:02		19:46	18:33	16:33		16:14	
20	05:29	06:02-06:12/10	06:22		07:18	08:14	08:14	15:10-15:45/35	08:55	15:23-15:36/13
	21:58		20:59		19:44	18:30	16:31		16:15	
21	05:30	06:03-06:11/8	06:24		07:20	08:16	08:16	15:10-15:45/35	08:56	15:23-15:36/13
	21:57	20:53-21:00/7	20:57		19:41	18:28	16:30		16:15	
22	05:32	06:04-06:11/7	06:26		07:22	08:18	08:18	15:10-15:45/35	08:57	15:24-15:37/13
	21:55	20:52-21:01/9	20:55		19:39	18:26	16:29		16:15	
23	05:34	06:06-06:11/5	06:27		07:23	08:20	08:20	15:10-15:46/36	08:57	15:24-15:37/13
	21:54	20:51-21:03/12	20:52		19:36	18:24	16:27		16:16	
24	05:35	06:07-06:10/3	06:29		07:25	08:22	08:22	15:10-15:46/36	08:57	15:25-15:38/13
	21:52	20:50-21:03/13	20:50		19:34	18:21	16:26		16:17	
25	05:37	06:09-06:10/1	06:31		07:27	07:24	08:24	15:10-15:46/36	08:58	15:25-15:38/13
	21:51	20:49-21:04/15	20:48		19:31	17:19	16:25		16:17	
26	05:38	20:44-21:05/21	06:33		07:29	07:26	08:25	15:11-15:46/35	08:58	15:25-15:39/14
	21:49		20:45		19:29	17:17	16:24		16:18	
27	05:40	20:41-21:04/23	06:35		07:31	07:28	08:27	15:11-15:47/36	08:58	15:26-15:40/14
	21:47		20:43		19:26	17:15	16:23		16:19	
28	05:42	20:40-21:05/25	06:36		07:33	07:30	08:29	15:11-15:46/35	08:58	15:26-15:40/14
	21:46		20:41		19:24	17:13	16:22		16:20	
29	05:43	20:39-21:05/26	06:38		07:34	07:32	08:30	15:11-15:44/33	08:59	15:26-15:41/15
	21:44		20:38		19:21	17:11	16:21		16:20	
30	05:45	20:38-21:05/27	06:40		07:36	07:34	08:32	15:11-15:43/32	08:59	15:27-15:43/16
	21:42		20:36		19:19	17:09	16:20		16:21	
31	05:47	20:38-21:06/28	06:42			07:36			08:59	15:27-15:44/17
	21:41		20:33			17:06			16:22	
Potential sun hours	515		461		383	327	257		230	
Sum of minutes with flicker		567		232	0	0		614		545

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 15 - AT15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:59	08:27	07:29	07:12 07:36-08:05/29	06:02 06:28-07:03/35 07:19-07:47/28	05:12
	16:24	17:16	18:13	20:12	21:09 20:14-20:38/24	22:00
2	08:58	08:26	07:26	07:10 07:34-08:06/32	06:00 06:26-07:02/36 07:21-07:45/24	05:11
	16:25	17:18	18:15	20:14	21:11 20:13-20:39/26	22:01
3	08:58	08:24	07:24	07:08 07:32-08:08/36	05:58 06:24-07:01/37 07:24-07:41/17	05:10
	16:26	17:20	18:17	20:16	21:13 20:12-20:39/27	22:02
4	08:58	08:22	07:22	07:05 07:29-08:07/38	05:56 06:23-07:00/37 07:30-07:35/5	05:09
	16:27	17:22	18:19	20:18	21:14 20:12-20:43/31	22:04
5	08:57	08:20	07:19	07:03 07:27-08:08/41	05:54 06:21-07:00/39	05:08
	16:29	17:24	18:21	20:20	21:16 20:12-20:45/33	22:05
6	08:57	08:18	07:17	07:00 07:24-08:08/44	05:52 06:19-06:58/39	05:07
	16:30	17:26	18:23	20:22	21:18 20:13-20:47/34	22:06
7	08:57	08:16	07:14	06:58 07:22-08:09/47	05:50 06:17-06:39/22 20:12-20:49/37	05:07
	16:31	17:28	18:25	20:24	21:20 06:42-06:56/14	22:07
8	08:56	08:14	07:12	06:55 07:19-08:08/49	05:48 06:31-06:35/4 06:44-06:53/9	05:06
	16:33	17:30	18:27	20:26	21:22 06:19-06:27/8 20:12-20:50/38	22:08
9	08:55	08:12	07:10	06:53 07:17-08:08/51	05:46 20:13-20:51/38	05:05
	16:34	17:32	18:29	20:27	21:24	22:09
10	08:55	08:10	07:07	06:50 07:15-08:09/54	05:44 20:13-20:51/38	05:05
	16:36	17:34	18:30	20:29	21:25	22:10
11	08:54	08:08	07:05	06:48 07:12-08:08/56	05:42 20:14-20:52/38	05:04
	16:37	17:36	18:32	20:31	21:27	22:10
12	08:53	08:06	07:02	06:46 07:10-08:08/58	05:40 20:14-20:51/37	05:04
	16:39	17:38	18:34	20:33	21:29	22:11
13	08:52	08:04	07:00	06:43 07:09-08:08/59	05:39 20:15-20:51/36	05:04
	16:40	17:40	18:36	20:35	21:31	22:12
14	08:52	08:02	06:57	06:41 07:08-08:07/59	05:37 20:16-20:52/36	05:03
	16:42	17:43	18:38	20:37	21:32	22:13
15	08:51	08:00	06:55	06:38 07:08-08:07/59	05:35 20:17-20:51/34	05:03
	16:44	17:45	18:40	20:39	21:34	22:13
16	08:50	07:58	06:52	06:36 07:09-08:07/58	05:33 20:19-20:51/32	05:03
	16:46	17:47	18:42	20:41	21:36	22:14
17	08:49	07:56	06:50	06:34 06:58-07:02/4	05:32 20:30-20:51/21	05:03
	16:47	17:49	18:44	20:43 07:08-08:05/57	21:38 20:21-20:29/8	22:14
18	08:47	07:54	06:47	06:31 06:56-07:04/8	05:30 20:31-20:51/20	05:03
	16:49	17:51	18:46	20:44 07:08-08:05/57	21:39	22:15
19	08:46	07:52	06:45	06:29 06:54-07:05/11	05:28 20:31-20:50/19	05:03
	16:51	17:53	18:48	20:46 07:09-08:04/55	21:41	22:15
20	08:45	07:49	06:42	06:27 06:52-07:06/14	05:27 20:32-20:49/17	05:03
	16:53	17:55	18:50	20:48 07:09-08:04/55	21:43	22:15
21	08:44	07:47	06:40	06:24 06:49-07:05/16	05:25 20:33-20:49/16	05:03
	16:55	17:57	18:52	20:50 07:09-08:02/53	21:44	22:16
22	08:43	07:45	06:37	06:22 06:47-07:06/19	05:24 20:33-20:48/15	05:03
	16:56	17:59	18:53	20:52 07:10-08:01/51	21:46	22:16
23	08:41	07:43	06:35	06:20 06:45-07:06/21	05:22 20:35-20:47/12	05:03
	16:58	18:01	18:55	20:54 07:10-08:01/51	21:47	22:16
24	08:40	07:40	06:32	06:17 06:43-07:07/24	05:21 20:36-20:46/10	05:04
	17:00	18:03	18:57	20:56 07:11-08:00/49	21:49	22:16
25	08:38	07:38	06:30	06:15 06:41-07:07/26 07:12-07:58/46	05:20 20:39-20:44/5	05:04
	17:02	18:05	18:59	20:58 20:24-20:29/5	21:50	22:16
26	08:37	07:36	06:27 06:51-06:56/5	06:13 06:39-07:07/28 07:13-07:57/44	05:18	05:05
	17:04	18:07	19:01	21:00 20:20-20:29/9	21:52	22:16
27	08:35	07:33	06:25 06:49-06:59/10	06:11 06:36-07:05/29 07:13-07:55/42	05:17	05:05
	17:06	18:09	19:03	21:01 20:18-20:31/13	21:53	22:16
28	08:34	07:31	06:22 06:46-07:01/15	06:09 06:34-07:05/31 07:14-07:53/39	05:16	05:06
	17:08	18:11	19:05	21:03 20:16-20:33/17	21:55	22:16
29	08:32		07:20 07:44-08:03/19	06:06 06:32-07:05/33 07:16-07:51/35	05:15	05:06
	17:10		20:07	21:05 20:15-20:35/20	21:56	22:16
30	08:31		07:17 07:41-08:03/22	06:04 06:30-07:04/34 07:17-07:50/33	05:14	05:07
	17:12		20:09	21:07 20:14-20:37/23	21:57	22:15
31	08:29		07:15 07:39-08:05/26		05:13	
	17:14		20:11		21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	0	0	97	1822	1036	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 15 - AT15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:07	05:48 20:24-21:02/38	06:44 07:11-08:07/56	07:38	07:37	08:33
	22:15	21:39	20:31	19:16	17:04	16:19
2	05:08	05:50 20:24-21:02/38	06:46 07:13-08:07/54	07:40	07:39	08:35
	22:15	21:37	20:29	19:14	17:02	16:18
3	05:09	05:52 20:23-21:01/38	06:47 07:15-08:06/51	07:42	07:41	08:37
	22:14	21:35	20:26	19:11	17:00	16:18
4	05:10	05:53 06:30-06:35/5	06:49 07:17-08:06/49	07:44	07:43	08:38
	22:14	21:33 20:23-21:01/38	20:24	19:09	16:58	16:17
5	05:11	05:55 06:40-06:47/7 06:53-07:04/11	06:51 07:18-08:05/47	07:45	07:45	08:39
	22:13	21:31 06:28-06:39/11 20:23-21:00/37	20:21	19:06	16:56	16:16
6	05:12	05:57 06:27-06:49/22 20:22-20:58/36	06:53 07:20-08:04/44	07:47	07:47	08:41
	22:12	21:29 06:50-07:06/16	20:19	19:04	16:55	16:16
7	05:13	05:59 06:29-07:08/39	06:55 07:22-08:03/41	07:49	07:49	08:42
	22:12	21:27 20:22-20:56/34	20:16	19:01	16:53	16:15
8	05:14	06:00 06:31-07:10/39	06:56 07:24-08:03/39	07:51	07:51	08:44
	22:11	21:25 20:22-20:54/32	20:14	18:59	16:51	16:15
9	05:15	06:02 06:32-07:10/38 07:37-07:47/10	06:58 07:25-08:01/36	07:53	07:53	08:45
	22:10	21:23 20:22-20:52/30	20:11	18:56	16:49	16:14
10	05:16	06:04 06:34-07:11/37 07:33-07:52/19	07:00 07:27-08:00/33	07:55	07:55	08:46
	22:09	21:21 20:22-20:48/26	20:09	18:54	16:47	16:14
11	05:17	06:06 06:36-07:12/36 07:30-07:55/25	07:02 07:29-07:59/30	07:57	07:57	08:47
	22:08	21:19 20:21-20:47/26	20:06	18:52	16:45	16:14
12	05:18	06:08 06:37-07:12/35 07:27-07:56/29	07:04 07:30-07:56/26	07:59	07:59	08:48
	22:07	21:17 20:22-20:46/24	20:04	18:49	16:44	16:14
13	05:19	06:09 06:39-07:13/34 07:25-07:59/34	07:05 07:32-07:55/23	08:01	08:01	08:49
	22:06	21:15 20:23-20:45/22	20:01	18:47	16:42	16:14
14	05:21	06:11 06:41-07:13/32 07:24-08:00/36	07:07 07:34-07:53/19	08:02	08:03	08:50
	22:05	21:13 20:24-20:43/19	19:59	18:44	16:40	16:13
15	05:22	06:13 06:42-07:13/31 07:21-08:01/40	07:09 07:36-07:51/15	08:04	08:05	08:51
	22:04	21:10 20:24-20:40/16	19:56	18:42	16:39	16:13
16	05:23	06:15 06:44-07:13/29 07:20-08:03/43	07:11 07:38-07:49/11	08:06	08:07	08:52
	22:03	21:08 20:26-20:38/12	19:54	18:40	16:37	16:14
17	05:25	06:17 06:46-07:13/27 07:19-08:04/45	07:13 07:39-07:46/7	08:08	08:09	08:53
	22:02	21:06 20:28-20:37/9	19:51	18:37	16:36	16:14
18	05:26	06:18 06:47-07:12/25 07:17-08:04/47	07:14 07:41-07:42/1	08:10	08:11	08:54
	22:01	21:04 20:30-20:34/4	19:49	18:35	16:34	16:14
19	05:28 20:47-20:54/7	06:20 06:49-07:12/23	07:16	08:12	08:13	08:55
	21:59	21:02 07:17-08:05/48	19:46	18:33	16:33	16:14
20	05:29 20:45-20:56/11	06:22 06:51-07:12/21	07:18	08:14	08:14	08:55
	21:58	20:59 07:16-08:06/50	19:44	18:30	16:31	16:15
21	05:30 20:45-20:58/13	06:24 06:53-07:12/19	07:20	08:16	08:16	08:56
	21:57	20:57 07:14-08:06/52	19:41	18:28	16:30	16:15
22	05:32 20:43-20:58/15	06:26 06:54-07:10/16	07:22	08:18	08:18	08:56
	21:55	20:55 07:14-08:07/53	19:39	18:26	16:29	16:15
23	05:34 20:43-21:00/17	06:27 06:56-07:09/13	07:23	08:20	08:20	08:57
	21:54	20:52 07:13-08:08/55	19:36	18:24	16:27	16:16
24	05:35 20:42-21:00/18	06:29 06:58-07:08/10	07:25	08:22	08:22	08:57
	21:52	20:50 07:12-08:08/56	19:34	18:21	16:26	16:17
25	05:37 20:41-21:00/19	06:31 06:59-07:06/7	07:27	07:24	08:23	08:58
	21:51	20:48 07:11-08:08/57	19:31	17:19	16:25	16:17
26	05:38 20:41-21:01/20	06:33 07:01-07:05/4	07:29	07:26	08:25	08:58
	21:49 20:34-20:38/4	20:45 07:11-08:08/57	19:29	17:17	16:24	16:18
27	05:40 20:30-21:01/31	06:35 07:10-08:09/59	07:31	07:28	08:27	08:58
	21:47	20:43	19:26	17:15	16:23	16:19
28	05:42 20:29-21:02/33	06:36 07:09-08:08/59	07:33	07:30	08:29	08:58
	21:46	20:41	19:24	17:13	16:22	16:20
29	05:43 20:27-21:01/34	06:38 07:09-08:08/59	07:34	07:32	08:30	08:59
	21:44	20:38	19:21	17:11	16:21	16:20
30	05:45 20:26-21:02/36	06:40 07:09-08:08/59	07:36	07:34	08:32	08:59
	21:42	20:36	19:19	17:09	16:20	16:21
31	05:47 20:26-21:02/36	06:42 07:10-08:08/58		07:35		08:59
	21:41	20:33		17:06		16:22
Potential sun hours	515	461	383	327	257	230
Sum of minutes with flicker	294	2116	582	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 16 - AT16

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58	08:27	07:29 17:28-17:45/17	07:12 07:36-07:56/20	06:02	05:12 20:37-21:23/46
	16:24	17:16	18:13	20:12	21:09	22:00
2	08:58	08:25	07:26 17:29-17:47/18	07:10 07:34-07:56/22	06:00	05:11 20:37-21:23/46
	16:25	17:18	18:15	20:14	21:11	22:01
3	08:58	08:24	07:24 17:31-17:49/18	07:08 07:32-07:56/24	05:58	05:10 20:37-21:24/47
	16:26	17:20	18:17	20:16	21:13	22:02
4	08:58	08:22	07:22 17:33-17:51/18	07:05 07:29-07:54/25	05:56	05:09 20:37-21:25/48
	16:27	17:22	18:19	20:18	21:14	22:04
5	08:57	08:20	07:19 17:35-17:52/17	07:03 07:27-07:54/27	05:54	05:08 20:37-21:25/48
	16:29	17:24	18:21	20:20	21:16	22:05
6	08:57	08:18	07:17 17:37-17:51/14	07:00 07:25-07:52/27	05:52	05:07 20:37-21:25/48
	16:30	17:26	18:23	20:22	21:18	22:06
7	08:57	08:16	07:14 17:38-17:50/12	06:58 07:26-07:51/25	05:50	05:07 20:37-21:26/49
	16:31	17:28	18:25	20:24	21:20	22:07
8	08:56	08:14	07:12 17:40-17:47/7	06:55 07:27-07:48/21	05:48	05:06 20:37-21:26/49
	16:33	17:30	18:27	20:26	21:22	22:08
9	08:55	08:12	07:09	06:53 07:29-07:46/17	05:46	05:05 20:38-21:26/48
	16:34	17:32	18:28	20:27	21:24	22:09
10	08:55	08:10	07:07	06:50 07:15-07:17/2	05:44	05:05 20:37-21:26/49
	16:36	17:34	18:30	20:29 07:32-07:43/11	21:25	22:10
11	08:54	08:08	07:05	06:48 07:12-07:17/5	05:42	05:04 20:38-21:27/49
	16:37	17:36	18:32	20:31	21:27	22:10
12	08:53	08:06	07:02	06:46 07:10-07:17/7	05:40	05:04 20:38-21:27/49
	16:39	17:38	18:34	20:33	21:29	22:11
13	08:52	08:04	07:00	06:43 07:08-07:17/9	05:39 20:53-20:56/3	05:04 20:39-21:28/49
	16:40	17:40	18:36	20:35	21:31	22:12
14	08:52	08:02	06:57	06:41 07:05-07:16/11	05:37 20:49-21:00/11	05:03 20:38-21:27/49
	16:42	17:43	18:38	20:37	21:32	22:13
15	08:51	08:00	06:55	06:38 07:03-07:16/13	05:35 20:46-21:01/15	05:03 20:39-21:28/49
	16:44	17:45	18:40	20:39	21:34	22:13
16	08:50	07:58	06:52	06:36 07:01-07:15/14	05:33 20:45-21:03/18	05:03 20:39-21:28/49
	16:45	17:47	18:42	20:41	21:36	22:14
17	08:49	07:56	06:50	06:34 06:58-07:14/16	05:32 20:43-21:04/21	05:03 20:39-21:28/49
	16:47	17:49	18:44	20:43	21:38	22:14
18	08:47	07:54	06:47	06:31 06:56-07:12/16	05:30 20:42-21:06/24	05:03 20:39-21:29/50
	16:49	17:51	18:46	20:44	21:39	22:15
19	08:46	07:52	06:45	06:29 06:54-07:11/17	05:28 20:41-21:07/26	05:03 20:39-21:29/50
	16:51	17:53	18:48	20:46	21:41	22:15
20	08:45	07:49 17:25-17:26/1	06:42	06:27 06:52-06:57/5	05:27 20:40-21:09/29	05:03 20:40-21:29/49
	16:53	17:55	18:50	20:48 07:00-07:08/8	21:42	22:15
21	08:44	07:47 17:25-17:28/3	06:40	06:24 06:49-06:56/7	05:25 20:40-21:11/31	05:03 20:41-21:30/49
	16:54	17:57	18:52	20:50	21:44	22:16
22	08:43	07:45 17:23-17:30/7	06:37	06:22 06:47-06:55/8	05:24 20:39-21:12/33	05:03 20:41-21:30/49
	16:56	17:59	18:53	20:52	21:46	22:16
23	08:41	07:43 17:23-17:32/9	06:35	06:20 06:45-06:54/9	05:22 20:38-21:13/35	05:03 20:40-21:30/50
	16:58	18:01	18:55	20:54	21:47	22:16
24	08:40	07:40 17:23-17:35/12	06:32	06:17 06:44-06:52/8	05:21 20:38-21:15/37	05:04 20:40-21:30/50
	17:00	18:03	18:57	20:56	21:49	22:16
25	08:38	07:38 17:22-17:36/14	06:30 06:54-06:56/2	06:15	05:20 20:38-21:16/38	05:04 20:41-21:30/49
	17:02	18:05	18:59	20:58	21:50	22:16
26	08:37	07:36 17:23-17:39/16	06:27 06:51-06:56/5	06:13	05:18 20:38-21:18/40	05:04 20:41-21:30/49
	17:04	18:07	19:01	21:00	21:52	22:16
27	08:35	07:33 17:23-17:40/17	06:25 06:49-06:57/8	06:11	05:17 20:38-21:19/41	05:05 20:42-21:31/49
	17:06	18:09	19:03	21:01	21:53	22:16
28	08:34	07:31 17:25-17:43/18	06:22 06:46-06:57/11	06:09	05:16 20:36-21:20/44	05:05 20:41-21:31/50
	17:08	18:11	19:05	21:03	21:55	22:16
29	08:32		07:20 07:44-07:58/14	06:06	05:15 20:37-21:20/43	05:06 20:42-21:31/49
	17:10		20:07	21:05	21:56	22:16
30	08:31		07:17 07:41-07:57/16	06:04	05:14 20:37-21:22/45	05:07 20:42-21:31/49
	17:12		20:09	21:07	21:57	22:15
31	08:29		07:15 07:39-07:57/18		05:13 20:37-21:23/46	
	17:14		20:10		21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	0	97	195	374	580	1463

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 16 - AT16

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:07	20:42-21:31/49	05:48		06:44	07:11-07:16/5	07:38		07:37	08:33
	22:15		21:39		20:31		19:16		17:04	16:19
2	05:08	20:43-21:31/48	05:50		06:45	07:13-07:15/2	07:40		07:39	08:35
	22:15		21:37		20:28	07:30-07:42/12	19:14		17:02	16:18
3	05:09	20:43-21:32/49	05:52		06:47	07:27-07:44/17	07:42		07:41	08:37
	22:14		21:35		20:26		19:11		17:00	16:18
4	05:10	20:42-21:31/49	05:53		06:49	07:25-07:46/21	07:44		07:43	08:38
	22:14		21:33		20:24		19:09		16:58	16:17
5	05:11	20:43-21:31/48	05:55		06:51	07:22-07:47/25	07:45	18:18-18:22/4	07:45	08:39
	22:13		21:31		20:21		19:06		16:56	16:16
6	05:12	20:43-21:31/48	05:57		06:53	07:21-07:48/27	07:47	18:15-18:25/10	07:47	08:41
	22:12		21:29		20:19		19:04		16:55	16:16
7	05:13	20:43-21:31/48	05:59		06:55	07:22-07:49/27	07:49	18:13-18:26/13	07:49	08:42
	22:12		21:27		20:16		19:01		16:53	16:15
8	05:14	20:44-21:31/47	06:00		06:56	07:24-07:49/25	07:51	18:11-18:27/16	07:51	08:44
	22:11		21:25		20:14		18:59		16:51	16:15
9	05:15	20:44-21:31/47	06:02		06:58	07:25-07:49/24	07:53	18:09-18:27/18	07:53	08:45
	22:10		21:23		20:11		18:56		16:49	16:14
10	05:16	20:44-21:31/47	06:04		07:00	07:27-07:49/22	07:55	18:06-18:25/19	07:55	08:46
	22:09		21:21		20:09		18:54		16:47	16:14
11	05:17	20:44-21:31/47	06:06		07:02	07:29-07:49/20	07:57	18:04-18:22/18	07:57	08:47
	22:08		21:19		20:06		18:52		16:45	16:14
12	05:18	20:44-21:30/46	06:08		07:04	07:30-07:48/18	07:59	18:03-18:20/17	07:59	08:48
	22:07		21:17		20:04		18:49		16:44	16:14
13	05:19	20:45-21:30/45	06:09		07:05	07:32-07:48/16	08:00	18:00-18:17/17	08:01	08:49
	22:06		21:15		20:01		18:47		16:42	16:14
14	05:21	20:46-21:30/44	06:11		07:07	07:34-07:48/14	08:02	17:57-18:15/18	08:03	08:50
	22:05		21:13		19:59		18:44		16:40	16:13
15	05:22	20:46-21:29/43	06:13		07:09	07:36-07:47/11	08:04	17:56-18:13/17	08:05	08:51
	22:04		21:10		19:56		18:42		16:39	16:13
16	05:23	20:46-21:28/42	06:15		07:11	07:38-07:47/9	08:06	17:55-18:10/15	08:07	08:52
	22:03		21:08		19:54		18:40		16:37	16:14
17	05:25	20:46-21:27/41	06:17		07:13	07:39-07:45/6	08:08	17:54-18:08/14	08:09	08:53
	22:02		21:06		19:51		18:37		16:36	16:14
18	05:26	20:47-21:27/40	06:18		07:14	07:41-07:44/3	08:10	17:54-18:05/11	08:11	08:54
	22:01		21:04		19:49		18:35		16:34	16:14
19	05:28	20:48-21:25/37	06:20	06:50-06:58/8	07:16		08:12	17:54-18:03/9	08:13	08:55
	21:59		21:02		19:46		18:33		16:33	16:14
20	05:29	20:48-21:23/35	06:22	06:51-07:00/9	07:18		08:14	17:54-18:00/6	08:14	08:55
	21:58		20:59		19:44		18:30		16:31	16:15
21	05:30	20:49-21:23/34	06:24	06:53-07:01/8	07:20		08:16	17:55-17:58/3	08:16	08:56
	21:57		20:57		19:41		18:28		16:30	16:15
22	05:32	20:49-21:21/32	06:26	06:54-07:01/7	07:22		08:18		08:18	08:56
	21:55		20:55		19:39		18:26		16:29	16:15
23	05:34	20:51-21:21/30	06:27	06:56-07:01/5	07:23		08:20		08:20	08:57
	21:54		20:52	07:03-07:13/10	19:36		18:24		16:27	16:16
24	05:35	20:51-21:19/28	06:29	06:58-07:15/17	07:25		08:22		08:22	08:57
	21:52		20:50		19:34		18:21		16:26	16:16
25	05:37	20:51-21:17/26	06:31	06:59-07:15/16	07:27		07:24		08:23	08:58
	21:51		20:48		19:31		17:19		16:25	16:17
26	05:38	20:53-21:16/23	06:33	07:01-07:16/15	07:29		07:26		08:25	08:58
	21:49		20:45		19:29		17:17		16:24	16:18
27	05:40	20:54-21:14/20	06:35	07:03-07:17/14	07:31		07:28		08:27	08:58
	21:47		20:43		19:26		17:15		16:23	16:19
28	05:42	20:56-21:13/17	06:36	07:05-07:18/13	07:33		07:30		08:29	08:58
	21:46		20:41		19:24		17:13		16:22	16:19
29	05:43	20:57-21:11/14	06:38	07:06-07:17/11	07:34		07:32		08:30	08:59
	21:44		20:38		19:21		17:11		16:21	16:20
30	05:45	21:01-21:10/9	06:40	07:08-07:17/9	07:36		07:33		08:32	08:59
	21:42		20:36		19:19		17:09		16:20	16:21
31	05:47		06:42	07:10-07:17/7			07:35			08:59
	21:40		20:33				17:06			16:22
Potential sun hours	515		461		383		327		257	230
Sum of minutes with flicker	1133		149		304		225		0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 17 - AT17

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 15:16-15:45/29 16:24	08:27 08:56-09:18/22 17:16 15:33-16:37/64	07:29 16:44-17:40/56 18:13	07:12 18:27-19:35/68 20:12	06:02 19:28-20:25/57 21:09	05:12 20:17-21:13/56 22:00
2	08:58 15:16-15:46/30 16:25	08:25 08:54-09:17/23 17:18 15:35-16:38/63	07:26 16:43-17:41/58 18:15	07:10 18:28-19:37/69 20:14	06:00 19:28-20:27/59 21:11	05:11 20:19-21:14/55 22:01
3	08:58 15:17-15:48/31 16:26	08:24 08:52-09:17/25 17:20 15:36-16:38/62	07:24 16:44-17:43/59 18:17	07:07 18:28-19:38/70 20:16	05:58 19:28-20:29/61 21:13	05:10 20:19-21:14/55 22:02
4	08:58 15:17-15:49/32 16:27	08:22 08:50-09:17/27 17:22 15:37-16:39/62	07:22 16:45-17:44/59 18:19	07:05 18:30-19:39/69 20:18	05:56 19:29-20:30/61 21:14	05:09 20:19-21:15/56 22:04
5	08:57 15:17-15:51/34 16:28	08:20 16:46-16:50/4 15:38-16:39/61 17:24 08:48-09:16/28	07:19 16:46-17:46/60 18:21	07:03 18:31-19:40/69 20:20	05:54 19:29-20:31/62 21:16	05:08 20:21-21:16/55 22:05
6	08:57 15:17-15:52/35 16:30	08:18 16:42-16:54/12 15:40-16:39/59 17:26 08:46-09:15/29	07:17 16:47-17:48/61 18:23	07:00 18:32-19:40/68 20:22	05:52 19:31-20:33/62 21:18	05:07 20:21-21:17/56 22:06
7	08:57 15:17-15:53/36 16:31	08:16 16:41-16:56/15 15:42-16:40/58 17:28 08:44-09:14/30	07:14 16:49-17:51/62 18:25	06:58 18:35-19:41/66 20:24	05:50 19:32-20:34/62 21:20	05:07 20:22-21:18/56 22:07
8	08:56 15:17-15:55/38 16:33	08:14 16:02-16:58/56 15:45-16:00/15 17:30 08:42-09:12/30	07:12 16:51-17:53/62 18:26	06:55 18:37-19:40/63 20:26	05:48 19:33-20:36/63 21:22	05:06 20:22-21:18/56 22:08
9	08:55 15:18-15:57/39 16:34	08:12 16:01-16:59/58 15:49-15:54/5 17:32 08:40-09:09/29	07:09 17:05-17:56/51 18:28 16:55-17:04/9	06:53 18:41-19:41/60 20:27	05:46 19:34-20:38/64 21:24	05:05 20:23-21:19/56 22:09
10	08:55 15:18-15:59/41 16:36	08:10 16:02-17:01/59 17:34 08:37-09:04/27	07:07 17:06-17:57/51 18:30	06:50 18:42-19:40/58 20:29	05:44 19:36-20:40/64 21:25	05:05 20:23-21:19/56 22:09
11	08:54 15:19-16:00/41 16:37	08:08 16:02-17:03/61 17:36 08:35-09:03/28	07:05 17:06-17:59/53 18:32	06:48 18:44-19:40/56 20:31	05:42 19:55-20:42/47 21:27 19:38-19:53/15	05:04 20:23-21:20/57 22:10
12	08:53 15:19-16:01/42 16:39	08:06 16:03-17:04/61 17:38 08:33-09:02/29	07:02 17:05-17:59/54 18:34	06:45 19:44-19:50/6 20:33 18:47-19:40/53	05:40 19:55-20:43/48 21:29 19:42-19:49/7	05:04 20:24-21:22/58 22:11
13	08:52 15:19-16:02/43 16:40	08:04 16:04-17:06/62 17:40 08:32-09:01/29	07:00 17:06-18:02/56 18:36	06:43 18:49-19:53/64 20:35	05:38 19:55-20:45/50 21:31	05:04 20:24-21:22/58 22:12
14	08:51 15:20-16:02/42 16:42	08:02 16:05-17:09/64 17:42 08:33-08:59/26	06:57 17:05-18:04/59 18:38	06:41 18:58-19:57/59 20:37	05:37 19:56-20:48/52 21:32	05:03 20:24-21:24/60 22:12
15	08:51 15:19-16:02/43 16:44	08:00 16:05-17:11/66 17:44 08:34-08:56/22	06:55 17:06-18:06/60 18:40	06:38 18:58-19:59/61 20:39	05:35 19:56-20:49/53 21:34	05:03 20:25-21:25/60 22:13
16	08:50 15:20-16:03/43 16:45	07:58 16:36-17:13/37 16:06-16:35/29 17:47 08:35-08:52/17	06:52 17:06-18:07/61 18:42	06:36 18:58-20:00/62 20:41	05:33 19:57-20:50/53 21:36	05:03 20:25-21:26/61 22:14
17	08:48 15:20-16:04/44 16:47	07:56 16:36-17:15/39 16:08-16:34/26 17:49 08:37-08:50/13	06:50 17:07-18:09/62 18:44	06:34 18:58-20:02/64 20:43	05:32 19:57-20:51/54 21:37	05:03 20:25-21:27/62 22:14
18	08:47 15:21-16:05/44 16:49	07:54 16:37-17:16/39 16:10-16:33/23 17:51 08:42-08:46/4	06:47 17:07-18:09/62 18:46	06:31 18:59-20:03/64 20:44	05:30 19:59-20:52/53 21:39	05:03 20:26-21:27/61 22:15
19	08:46 15:21-16:05/44 16:51	07:51 16:37-17:17/40 17:53 16:11-16:30/19	06:45 17:08-18:12/64 18:48	06:29 19:00-20:04/64 20:46	05:28 19:59-20:53/54 21:41	05:03 20:26-21:27/61 22:15
20	08:45 15:22-16:06/44 16:53	07:49 16:38-17:19/41 17:55 16:15-16:27/12	06:42 17:09-18:14/65 18:50	06:27 19:00-20:04/64 20:48	05:27 20:00-20:54/54 21:42	05:03 20:26-21:28/62 22:15
21	08:44 15:22-16:06/44 16:54	07:47 16:40-17:21/41 17:57	06:40 17:11-18:16/65 18:51	06:24 19:01-20:05/64 20:50	05:25 20:02-20:56/54 21:44	05:03 20:26-21:28/62 22:16
22	08:42 15:23-16:07/44 16:56 16:13-16:21/8	07:45 16:40-17:21/41 17:59	06:37 17:12-18:17/65 18:53	06:22 19:02-20:05/63 20:52	05:24 20:02-20:56/54 21:46	05:03 20:27-21:29/62 22:16
23	08:41 09:11-09:13/2 16:10-16:23/13 16:58 15:23-16:07/44	07:43 16:42-17:22/40 18:01	06:35 17:15-18:18/63 18:55	06:20 19:04-20:06/62 20:54	05:22 20:04-20:56/52 21:47	05:03 20:27-21:28/61 22:16
24	08:40 09:10-09:14/4 16:09-16:26/17 17:00 15:25-16:08/43	07:40 16:43-17:23/40 18:03	06:32 17:18-18:19/61 18:57	06:17 19:06-20:06/60 20:56	05:21 20:06-21:04/58 21:49	05:04 20:27-21:28/61 22:16
25	08:38 09:08-09:15/7 17:02 15:25-16:28/63	07:38 16:42-17:23/41 18:05	06:30 17:19-18:20/61 18:59	06:15 19:27-20:05/38 20:58 19:07-19:25/18	05:20 20:07-21:05/58 21:50	05:04 20:28-21:29/61 22:16
26	08:37 09:07-09:16/9 17:04 15:25-16:30/65	07:36 16:43-17:24/41 18:07	06:27 17:19-18:20/61 19:01	06:13 19:27-20:05/38 20:59 19:10-19:22/12	05:18 20:09-21:07/58 21:52	05:04 20:27-21:28/61 22:16
27	08:35 09:05-09:16/11 17:06 15:27-16:32/65	07:33 16:42-17:33/51 18:09	06:25 17:20-18:20/60 19:03	06:11 19:27-20:18/51 21:01	05:17 20:09-21:07/58 21:53	05:05 20:28-21:28/60 22:16
28	08:34 09:03-09:17/14 17:08 15:27-16:33/66	07:31 16:43-17:37/54 18:11	06:22 17:21-18:20/59 19:05	06:09 19:27-20:20/53 21:03	05:16 20:10-21:08/58 21:55	05:05 20:27-21:28/61 22:16
29	08:32 09:01-09:17/16 17:10 15:28-16:34/66		07:20 18:22-19:20/58 20:07 19:22-19:25/3	06:06 19:27-20:22/55 21:05	05:15 20:12-21:09/57 21:56	05:06 20:28-21:27/59 22:16
30	08:31 08:59-09:17/18 17:12 15:29-16:35/66		07:17 18:23-19:31/68 20:09	06:04 19:27-20:24/57 21:07	05:14 20:13-21:09/56 21:57	05:07 20:27-21:25/58 22:15
31	08:29 08:58-09:18/20 17:14 15:31-16:36/65		07:15 18:26-19:34/68 20:10		05:13 20:15-21:11/56 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	1545	2059	1876	1848	1774	1763

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 17 - AT17

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:07 20:28-21:25/57 22:15	05:48 20:05-20:53/48 21:39 19:50-20:01/11	06:44 18:43-19:39/56 20:31	07:38 17:45-18:39/54 19:16	07:37 15:31-16:30/59 17:04 08:07-08:33/26	08:33 15:01-15:42/41 16:19
2	05:08 20:28-21:24/56 22:15	05:50 20:06-20:52/46 21:37 19:48-20:04/16	06:45 18:41-19:39/58 20:28	07:40 17:44-18:37/53 19:14	07:39 15:31-16:28/57 15:17-15:25/8 17:02 08:09-08:39/30	08:35 15:01-15:42/41 16:18
3	05:09 20:28-21:24/56 22:14	05:52 19:45-20:50/65 21:35	06:47 18:39-19:39/60 20:26	07:42 17:44-18:35/51 19:11	07:41 15:31-16:26/55 15:14-15:30/16 17:00 08:12-08:42/30	08:37 15:01-15:40/39 16:17
4	05:10 20:27-21:23/56 22:14	05:53 19:44-20:48/64 21:33	06:49 18:34-19:37/63 20:24	07:44 17:44-18:34/50 19:09	07:43 16:10-16:25/15 15:12-16:09/57 16:58 08:14-08:44/30	08:38 15:02-15:40/38 16:17
5	05:11 20:27-21:23/56 22:13	05:55 19:43-20:45/62 21:31	06:51 18:31-19:37/66 20:21	07:45 17:29-18:31/62 19:06	07:45 16:12-16:23/11 15:10-16:09/59 16:56 08:16-08:45/29	08:39 15:02-15:38/36 16:16
6	05:12 20:27-21:23/56 22:12	05:57 19:41-20:43/62 21:29	06:53 18:28-19:36/68 20:19	07:47 17:26-18:28/62 19:04	07:47 08:18-08:46/28 16:54 15:08-16:09/61	08:41 15:03-15:38/35 16:16
7	05:13 20:27-21:23/56 22:12	05:59 19:40-20:42/62 21:27	06:54 18:26-19:35/69 20:16	07:49 17:24-18:26/62 19:01	07:49 08:20-08:46/26 16:53 15:07-16:08/61	08:42 15:03-15:37/34 16:15
8	05:14 20:27-21:23/56 22:11	06:00 19:39-20:40/61 21:25	06:56 18:24-19:33/69 20:14	07:51 17:22-18:23/61 18:59	07:51 08:22-08:47/25 16:51 15:06-16:08/62	08:44 15:05-15:37/32 16:15
9	05:15 20:27-21:22/55 22:10	06:02 19:38-20:39/61 21:23	06:58 18:22-19:32/70 20:11	07:53 17:20-18:20/60 18:56	07:53 08:25-08:48/23 16:49 15:06-16:09/63	08:45 15:05-15:36/31 16:14
10	05:16 20:27-21:22/55 22:09	06:04 19:38-20:38/60 21:21	07:00 18:21-19:30/69 20:09	07:55 17:19-18:18/59 18:54	07:55 08:27-08:48/21 16:47 15:04-16:08/64	08:46 15:05-15:35/30 16:14
11	05:17 20:26-21:21/55 22:08	06:06 19:36-20:35/59 21:19	07:02 18:20-19:29/69 20:06	07:57 17:18-18:17/59 18:52	07:57 08:29-08:49/20 16:45 15:02-16:07/65	08:47 15:07-15:36/29 16:14
12	05:18 20:24-21:20/56 22:07	06:07 19:36-20:33/57 21:17	07:03 18:17-19:25/68 20:04	07:59 17:17-18:15/58 18:49	07:59 08:31-08:49/18 16:44 15:01-16:07/66	08:48 15:07-15:35/28 16:14
13	05:19 20:22-21:18/56 22:06	06:09 19:36-20:32/56 21:15	07:05 18:15-19:22/67 20:01	08:00 17:16-18:12/56 18:47	08:01 08:33-08:49/16 16:42 15:00-16:06/66	08:49 15:08-15:35/27 16:13
14	05:21 20:22-21:19/57 22:05	06:11 19:35-20:29/54 21:13	07:07 18:13-19:17/64 19:59	08:02 17:16-18:09/53 18:44	08:03 08:35-08:48/13 16:40 14:59-16:05/66	08:50 15:08-15:35/27 16:13
15	05:22 20:20-21:18/58 22:04	06:13 19:35-20:27/52 21:10	07:09 18:11-19:10/59 19:56	08:04 17:15-17:56/41 18:42 17:59-18:03/4	08:05 08:37-08:48/11 16:39 14:59-16:04/65	08:51 15:09-15:35/26 16:13
16	05:23 20:19-21:17/58 22:03	06:15 19:35-20:13/38 21:08 20:14-20:25/11	07:11 18:09-19:09/60 19:54	08:06 17:15-17:56/41 18:40	08:07 08:40-08:49/9 16:37 14:59-16:04/65	08:52 15:10-15:35/25 16:13
17	05:25 20:18-21:16/58 22:02	06:16 19:35-20:13/38 21:06 19:17-19:30/13	07:12 18:08-19:08/60 19:51	08:08 17:14-17:55/41 18:37	08:09 08:42-08:49/7 16:36 14:59-16:02/63	08:53 15:10-15:35/25 16:14
18	05:26 20:18-21:16/58 22:01	06:18 19:34-20:12/38 21:04 19:13-19:32/19	07:14 18:07-19:07/60 19:49	08:10 17:14-17:54/40 18:35	08:11 08:44-08:48/4 15:43-16:00/17 16:34 14:58-15:42/44	08:54 15:10-15:35/25 16:14
19	05:27 20:16-21:14/58 21:59	06:20 19:11-20:12/61 21:01	07:16 18:06-19:06/60 19:46	08:12 17:13-17:53/40 18:33	08:13 08:46-08:48/2 15:45-15:58/13 16:33 14:58-15:42/44	08:55 15:11-15:35/24 16:14
20	05:29 20:14-21:12/58 21:58	06:22 19:09-20:11/62 20:59	07:18 18:02-19:04/62 19:44	08:14 17:11-17:52/41 18:30	08:14 14:58-15:42/44 16:31 15:48-15:56/8	08:55 15:12-15:36/24 16:14
21	05:30 20:14-21:07/53 21:57	06:24 19:07-20:10/63 20:57	07:20 17:59-19:03/64 19:41	08:16 17:10-17:51/41 18:28	08:16 14:58-15:42/44 16:30	08:56 15:12-15:36/24 16:15
22	05:32 20:12-21:06/54 21:55	06:25 19:05-20:09/64 20:55	07:22 17:56-19:01/65 19:39	08:18 17:08-17:49/41 18:26 16:44-16:58/14	08:18 14:58-15:42/44 16:29	08:56 15:13-15:37/24 16:15
23	05:33 20:10-21:05/55 21:54	06:27 19:04-20:09/65 20:52	07:23 17:54-18:59/65 19:36	08:20 17:07-17:47/40 18:24 16:41-17:01/20	08:20 14:58-15:42/44 16:27	08:57 15:13-15:37/24 16:16
24	05:35 20:10-21:04/54 21:52	06:29 19:02-20:07/65 20:50	07:25 17:52-18:57/65 19:34	08:22 17:06-17:46/40 16:39-17:02/23 18:21 09:09-09:17/8	08:22 14:58-15:42/44 16:26	08:57 15:13-15:37/24 16:16
25	05:37 20:09-21:03/54 21:51	06:31 19:02-20:06/64 20:48	07:27 17:51-18:53/62 19:31	08:24 16:06-16:44/38 15:37-16:04/27 17:19 08:06-08:20/14	08:23 14:58-15:42/44 16:25	08:58 15:14-15:38/24 16:17
26	05:38 20:09-21:02/53 21:49	06:33 19:01-20:05/64 20:45	07:29 17:49-18:51/62 19:29	08:26 15:35-16:42/67 17:17 08:04-08:22/18	08:25 14:59-15:42/43 16:24	08:58 15:14-15:39/25 16:18
27	05:40 20:07-21:01/54 21:47	06:35 19:00-20:03/63 20:43	07:31 17:48-18:50/62 19:26	08:28 15:34-16:40/66 17:15 08:04-08:27/23	08:27 14:59-15:43/44 16:23	08:58 15:14-15:40/26 16:19
28	05:41 20:07-21:00/53 21:46	06:36 18:59-20:00/61 20:41	07:32 17:47-18:48/61 19:24	08:29 15:34-16:38/64 17:13 08:03-08:29/26	08:29 14:59-15:42/43 16:22	08:58 15:15-15:40/25 16:19
29	05:43 20:06-20:59/53 21:44	06:38 18:59-19:57/58 20:38	07:34 17:46-18:46/60 19:21	08:31 15:33-16:35/62 17:11 08:02-08:31/29	08:30 14:59-15:42/43 16:21	08:59 15:15-15:41/26 16:20
30	05:45 20:06-20:57/51 21:42	06:40 18:50-19:54/64 20:36	07:36 17:46-18:43/57 19:19	08:33 15:32-16:33/61 17:08 08:03-08:32/29	08:32 15:00-15:42/42 16:20	08:59 15:16-15:43/27 16:21
31	05:46 20:05-20:55/50 21:40	06:42 19:44-19:48/4 20:33 18:47-19:40/53		08:35 15:32-16:32/60 17:06 08:05-08:33/28		08:59 15:16-15:44/28 16:22
Potential sun hours	515	461	383	327	257	230
Sum of minutes with flicker	1715	1864	1900	1887	2077	894

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 18 - AT18

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 09:33-09:34/1	08:27 15:37-16:35/58	07:29 16:23-17:20/57	07:12 18:20-19:25/65	06:02 19:15-20:19/64	05:12 19:54-20:59/65
	16:24 14:31-15:20/49	17:16	18:13	20:12	21:09	22:00
2	08:58 09:33-09:35/2	08:25 15:38-16:36/58	07:26 16:24-17:20/56	07:10 18:25-19:27/62	06:00 19:16-20:20/64	05:11 19:55-20:59/64
	16:25 14:32-15:21/49	17:18	18:15	20:14	21:11	22:01
3	08:58 09:33-09:36/3	08:24 15:39-16:38/59	07:24 16:26-17:20/54	07:07 18:36-19:29/53	05:58 19:18-20:21/63	05:10 19:55-20:59/64
	16:26 14:34-15:21/47	17:20	18:17	20:16	21:13	22:02
4	08:58 09:32-09:36/4 15:40-15:44/4	08:22 15:41-16:39/58	07:21 16:27-17:20/53	07:05 18:40-19:31/51	05:56 19:21-20:22/61	05:09 19:56-20:59/63
	16:27 14:34-15:21/47	17:22	18:19	20:18	21:14	22:03
5	08:57 09:32-09:38/6 15:38-15:47/9	08:20 15:42-16:40/58	07:19 16:30-17:20/50	07:03 18:42-19:32/50	05:54 19:23-20:23/60	05:08 19:58-21:00/62
	16:29 14:36-15:22/46	17:24	18:21	20:20	21:16	22:05 21:03-21:06/3
6	08:57 09:31-09:38/7 15:37-15:49/12	08:18 15:44-16:41/57	07:17 16:34-17:19/45	07:00 18:44-19:33/49	05:52 19:25-20:25/60	05:07 19:58-20:59/61
	16:30 14:37-14:50/13 14:51-15:22/31	17:26	18:23	20:22	21:18	22:06 21:00-21:09/9
7	08:56 15:36-15:51/15 14:39-14:49/10	08:16 15:48-16:42/54	07:14 16:38-17:19/41	06:58 18:52-19:34/42	05:50 19:26-20:27/61	05:07 20:00-21:11/71
	16:31 09:30-09:38/8 14:51-15:22/31	17:28	18:25	20:24	21:20	22:07
8	08:56 15:35-15:54/19 14:41-14:47/6	08:14 15:52-16:47/55	07:12 17:34-17:37/3	06:55 18:51-19:34/43	05:48 19:27-20:30/63	05:06 20:01-21:11/70
	16:33 09:30-09:39/9 14:52-15:22/30	17:30	18:26 16:38-17:18/40	20:26	21:22	22:08
9	08:55 15:35-15:57/22 14:53-15:23/30	08:12 15:51-16:49/58	07:09 17:28-17:43/15	06:53 18:51-19:39/48	05:46 19:28-20:33/65	05:05 20:02-21:13/71
	16:34 09:29-09:40/11	17:32	18:28 16:39-17:17/38	20:27	21:24	22:09
10	08:55 15:35-15:58/23 14:54-15:23/29	08:10 15:52-16:51/59	07:07 17:24-17:46/22	06:50 18:50-19:41/51	05:44 19:30-20:34/64	05:05 20:03-21:13/70
	16:36 09:28-09:40/12	17:34	18:30 16:39-17:16/37	20:29	21:25	22:09
11	08:54 15:34-16:00/26 14:54-15:23/29	08:08 15:53-16:53/60	07:05 17:22-17:48/26	06:48 18:51-19:43/52	05:42 19:33-20:36/63	05:04 20:06-21:14/68
	16:37 09:27-09:40/13	17:36	18:32 16:40-17:15/35	20:31	21:27	22:10
12	08:53 15:34-16:01/27 14:55-15:23/28	08:06 15:54-16:55/61	07:02 17:20-17:49/29	06:45 18:52-19:45/53	05:40 19:37-20:37/60	05:04 20:09-21:15/66
	16:39 09:26-09:41/15	17:38	18:34 16:41-17:13/32	20:33	21:29	22:11
13	08:52 15:34-16:02/28 14:56-15:23/27	08:04 15:55-16:56/61	07:00 17:19-17:51/32	06:43 18:52-19:45/53	05:39 19:37-20:39/62	05:04 20:09-21:15/66
	16:40 09:25-09:41/16	17:40	18:36 16:43-17:12/29	20:35	21:31	22:12
14	08:51 15:34-16:03/29 14:57-15:23/26	08:02 15:57-16:57/60	06:57 17:17-17:52/35	06:41 18:53-19:46/53	05:37 19:38-20:41/63	05:03 20:10-21:16/66
	16:42 09:24-09:41/17	17:42	18:38 16:44-17:10/26	20:37	21:32	22:12
15	08:51 15:33-16:04/31 14:57-15:22/25	08:00 15:57-16:57/60	06:55 17:16-17:55/39	06:38 18:54-19:47/53	05:35 19:39-20:43/64	05:03 20:11-21:16/65
	16:44 09:23-09:41/18	17:44	18:40 16:46-17:08/22	20:39	21:34	22:13
16	08:50 15:33-16:05/32 14:58-15:22/24	07:58 16:00-16:58/58	06:52 17:15-17:56/41	06:36 18:54-19:50/56	05:33 19:40-20:44/64	05:03 20:11-21:17/66
	16:45 09:21-09:41/20	17:47	18:42 16:49-17:04/15	20:41	21:36	22:14
17	08:48 15:33-16:08/35 15:00-15:22/22	07:56 16:02-16:59/57	06:50 17:14-17:58/44	06:34 18:56-19:52/56	05:32 19:40-20:45/65	05:03 20:11-21:17/66
	16:47 09:20-09:41/21	17:49	18:44	20:43	21:37	22:14
18	08:47 15:33-16:10/37 15:01-15:22/21	07:54 16:03-17:05/62	06:47 17:13-17:58/45	06:31 18:59-19:56/57	05:30 19:42-20:48/66	05:03 20:12-21:18/66
	16:49 09:19-09:41/22	17:51	18:46	20:44	21:39	22:15
19	08:46 15:32-16:11/39 15:02-15:20/18	07:51 16:03-17:09/66	06:45 17:13-18:02/49	06:29 19:01-19:59/58	05:28 19:42-20:49/67	05:03 20:12-21:18/66
	16:51 09:17-09:40/23	17:53	18:48	20:46	21:41	22:15
20	08:45 15:33-16:13/40 15:05-15:19/14	07:49 16:05-17:12/67	06:42 17:12-18:04/52	06:27 19:02-20:00/58	05:27 19:44-20:51/67	05:03 20:12-21:18/66
	16:53 09:16-09:40/24	17:55	18:50	20:48	21:42	22:15
21	08:44 15:32-16:14/42 15:07-15:17/10	07:47 16:06-17:14/68	06:40 17:12-18:06/54	06:24 19:03-20:01/58	05:25 19:46-20:52/66	05:03 20:12-21:18/66
	16:54 09:14-09:39/25	17:57	18:51	20:50	21:44	22:16
22	08:42 15:33-16:16/43	07:45 16:06-17:15/69	06:37 17:12-18:07/55	06:22 19:05-20:02/57	05:24 19:47-20:53/66	05:03 20:13-21:19/66
	16:56 09:13-09:38/25	17:59	18:53	20:52	21:46	22:16
23	08:41 15:33-16:17/44	07:43 16:07-17:16/69	06:35 17:12-18:08/56	06:20 19:08-20:03/55	05:22 19:48-20:54/66	05:03 20:13-21:19/66
	16:58 09:11-09:34/23	18:01	18:55	20:54	21:47	22:16
24	08:40 15:33-16:19/46	07:40 16:09-17:18/69	06:32 17:12-18:08/56	06:17 19:10-20:04/54	05:21 19:48-20:55/67	05:04 20:13-21:19/66
	17:00 09:10-09:33/23	18:03	18:57	20:56	21:49	22:16
25	08:38 15:33-16:20/47	07:38 16:10-17:18/68	06:30 17:13-18:13/60	06:15 19:10-20:05/55	05:20 19:49-20:56/67	05:04 20:14-21:19/65
	17:02 09:08-09:32/24	18:05	18:59	20:58	21:50	22:16
26	08:37 15:33-16:21/48	07:36 16:13-17:19/66	06:27 17:12-18:14/62	06:13 19:10-20:06/56	05:18 19:50-20:56/66	05:04 20:13-21:19/66
	17:04 09:07-09:32/25	18:07	19:01	20:59	21:52	22:16
27	08:35 15:34-16:25/51	07:33 16:15-17:19/64	06:25 17:14-18:16/62	06:11 19:11-20:11/60	05:17 19:50-20:56/66	05:05 20:14-21:20/66
	17:06 09:06-09:30/24	18:09	19:03	21:01	21:53	22:16
28	08:34 15:34-16:27/53	07:31 16:22-17:20/58	06:22 17:14-18:17/63	06:09 19:12-20:15/63	05:16 19:50-20:57/67	05:05 20:13-21:19/66
	17:08 09:07-09:28/21	18:11	19:05	21:03	21:55	22:16
29	08:32 15:35-16:29/54		07:20 18:15-19:20/65	06:06 19:12-20:17/65	05:15 19:51-20:57/66	05:06 20:14-21:19/65
	17:10 09:08-09:23/15		20:07	21:05	21:56	22:15
30	08:31 15:35-16:31/56		07:17 18:16-19:22/66	06:04 19:13-20:18/65	05:14 19:52-20:57/65	05:07 20:13-21:19/66
	17:12 09:09-09:22/13		20:09	21:07	21:57	22:15
31	08:29 15:36-16:33/57		07:15 18:18-19:24/66		05:13 19:53-20:59/66	
	17:14 09:12-09:21/9		20:10		21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	2110	1717	1727	1651	1994	1992

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Real Case WTG: 18 - AT18

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:07 20:11-21:19/68 22:15	05:48 19:46-20:47/61 21:39	06:44 18:50-19:42/52 20:31	07:38 17:59-18:29/30 19:16 17:21-17:53/32	07:37 15:22-16:21/59 17:04	08:33 15:16-15:42/26 14:36-15:05/29 16:19 09:09-09:22/13
2	05:08 20:09-21:19/70 22:14	05:50 19:42-20:46/64 21:37	06:45 18:49-19:40/51 20:28	07:40 17:59-18:27/28 19:14 17:19-17:52/33	07:39 15:21-16:18/57 17:02	08:35 15:17-15:40/23 14:36-15:05/29 16:18 09:11-09:23/12
3	05:09 20:08-21:18/70 22:14	05:52 19:39-20:44/65 21:35	06:47 18:49-19:37/48 20:26	07:42 18:01-18:25/24 19:11 17:17-17:53/36	07:41 15:20-16:15/55 17:00	08:36 15:18-15:40/22 14:36-15:06/30 16:17 09:12-09:23/11
4	05:10 20:06-21:17/71 22:14	05:53 19:38-20:42/64 21:33	06:49 18:48-19:31/43 20:24	07:44 18:03-18:22/19 19:09 17:16-17:54/38	07:43 15:17-16:12/55 16:58	08:38 15:20-15:39/19 14:26-14:32/6 16:17 09:14-09:23/9 14:37-15:07/30
5	05:11 20:06-21:17/71 22:13	05:55 19:37-20:39/62 21:31	06:51 18:48-19:30/42 20:21	07:45 18:07-18:18/11 19:06 17:15-17:54/39	07:45 15:14-16:11/57 16:56	08:39 15:21-15:37/16 14:24-14:34/10 16:16 09:15-09:23/8 14:36-15:07/31
6	05:12 20:05-21:16/71 22:12	05:57 19:35-20:36/61 21:29	06:53 18:40-19:29/49 20:19	07:47 17:15-17:55/40 19:04	07:47 15:12-16:10/58 16:54	08:41 09:17-09:24/7 15:23-15:35/12 16:16 14:23-14:36/13 14:37-15:08/31
7	05:13 20:04-21:06/62 22:12 21:08-21:14/6	05:59 19:34-20:34/60 21:27	06:54 18:38-19:28/50 20:16	07:49 17:14-17:55/41 19:01	07:49 15:10-16:09/59 16:53	08:42 09:18-09:24/6 15:24-15:34/10 16:15 14:22-15:08/46
8	05:14 20:04-21:06/62 22:11	06:00 19:32-20:32/60 21:25	06:56 18:35-19:25/50 20:14	07:51 17:07-17:55/48 18:59	07:51 15:09-16:07/58 16:51	08:43 09:20-09:25/5 15:27-15:33/6 16:15 14:22-15:09/47
9	05:15 20:03-21:06/63 22:10	06:02 19:29-20:31/62 21:23	06:58 18:32-19:23/51 20:11	07:53 17:04-17:55/51 18:56	07:53 15:08-16:06/58 16:49	08:45 09:21-09:24/3 16:14 14:22-15:09/47
10	05:16 20:03-21:06/63 22:09	06:04 19:27-20:30/63 21:21	07:00 18:19-19:21/62 20:09	07:55 17:01-17:55/54 18:54	07:55 15:08-16:06/58 16:47	08:46 09:22-09:24/2 16:14 14:21-15:10/49
11	05:17 20:02-21:06/64 22:08	06:06 19:24-20:28/64 21:19	07:02 18:14-19:19/65 20:06	07:57 16:59-17:54/55 18:52	07:57 15:07-16:04/57 16:45 08:43-08:52/9	08:47 09:24-09:25/1 16:14 14:22-15:11/49
12	05:18 20:01-21:06/65 22:07	06:07 19:23-20:27/64 21:17	07:03 18:10-19:15/65 20:04	07:59 16:57-17:54/57 18:49	07:59 15:07-16:03/56 16:44 08:41-08:54/13	08:48 09:25-09:26/1 16:14 14:22-15:11/49
13	05:19 20:01-21:06/65 22:06	06:09 19:22-20:26/64 21:15	07:05 18:08-19:13/65 20:01	08:00 16:56-17:53/57 18:47	08:01 15:07-16:01/54 16:42 08:40-08:55/15	08:49 14:22-15:12/50 16:13
14	05:21 20:01-21:07/66 22:05	06:11 19:20-20:24/64 21:13	07:07 18:06-19:11/65 19:59	08:02 16:51-17:53/62 18:44	08:03 15:06-15:59/53 16:40 08:39-09:00/21	08:50 14:22-15:12/50 16:13
15	05:22 20:00-21:06/66 22:04	06:13 19:19-20:21/62 21:10	07:09 18:04-19:08/64 19:56	08:04 16:47-17:52/65 18:42	08:05 15:06-15:57/51 16:39 08:38-09:02/24	08:51 14:22-15:12/50 16:13
16	05:23 19:59-21:06/67 22:03	06:15 19:18-20:15/57 21:08	07:11 18:02-19:05/63 19:54	08:06 16:44-17:51/67 18:40	08:07 15:06-15:54/48 16:37 08:40-09:05/25	08:52 14:23-15:13/50 16:13
17	05:25 19:59-21:05/66 22:02	06:16 19:18-20:14/56 21:06	07:12 18:01-19:03/62 19:51	08:08 16:42-17:50/68 18:37	08:09 15:07-15:54/47 16:36 08:42-09:06/24	08:53 14:23-15:14/51 16:14
18	05:26 19:59-21:06/67 22:01	06:18 19:16-20:11/55 21:04	07:14 18:00-19:01/61 19:49	08:10 16:40-17:49/69 18:35	08:11 15:07-15:53/46 16:34 08:44-09:07/23	08:54 14:23-15:13/50 16:14
19	05:27 19:58-21:05/67 21:59	06:20 19:16-20:09/53 21:01	07:16 17:59-18:56/57 19:46	08:12 16:38-17:47/69 18:33	08:13 15:08-15:52/44 16:33 08:46-09:09/23	08:55 14:23-15:14/51 16:14
20	05:29 19:58-21:04/66 21:58	06:22 19:13-20:08/55 20:59	07:18 17:58-18:54/56 19:44	08:14 16:37-17:46/69 18:30	08:14 15:08-15:51/43 16:31 08:48-09:13/25	08:55 14:24-15:15/51 16:14
21	05:30 19:58-21:04/66 21:57	06:24 19:10-20:07/57 20:57	07:20 17:57-18:53/56 19:41	08:16 16:36-17:44/68 18:28	08:16 15:08-15:50/42 14:43-14:53/10 16:30 08:50-09:15/25	08:56 14:24-15:15/51 16:15
22	05:32 19:57-21:03/66 21:55	06:26 19:08-20:06/58 20:55	07:22 17:57-18:51/54 19:39	08:18 16:35-17:41/66 18:26	08:18 15:09-15:49/40 14:41-14:55/14 16:29 08:52-09:16/24	08:56 14:25-15:16/51 16:15
23	05:33 19:55-21:01/66 21:54	06:27 19:06-20:04/58 20:52	07:23 17:57-18:49/52 19:36	08:20 16:33-17:38/65 18:24	08:20 15:10-15:48/38 14:39-14:57/18 16:27 08:54-09:17/23	08:57 14:25-15:16/51 16:16
24	05:35 19:54-21:01/67 21:52	06:29 19:03-20:01/58 20:50	07:25 17:57-18:47/50 19:34	08:22 16:32-17:29/57 18:21	08:22 15:10-15:47/37 14:38-14:59/21 16:26 08:56-09:18/22	08:57 14:25-15:16/51 16:16
25	05:37 19:52-20:59/67 21:51	06:31 19:01-19:58/57 20:48	07:27 17:56-18:41/45 19:31	07:24 15:31-16:28/57 17:19	08:23 15:11-15:46/35 14:38-15:00/22 16:25 08:58-09:19/21	08:58 14:26-15:17/51 16:17
26	05:38 19:52-20:57/65 21:49	06:33 18:59-19:54/55 20:45	07:29 17:56-18:40/44 19:29	07:26 15:29-16:28/59 17:17	08:25 15:12-15:44/32 14:37-15:01/24 16:24 09:00-09:20/20	08:58 14:27-15:17/50 16:18
27	05:40 19:50-20:55/65 21:47	06:35 18:57-19:52/55 20:43	07:31 17:56-18:39/43 19:26 17:32-17:44/12	07:28 15:26-16:27/61 17:15	08:27 15:13-15:44/31 14:37-15:02/25 16:23 09:02-09:21/19	08:58 14:27-15:18/51 16:19
28	05:41 19:50-20:54/64 21:46	06:36 18:55-19:48/53 20:41	07:32 17:57-18:37/40 19:24 17:28-17:47/19	07:29 15:26-16:27/61 17:13	08:29 15:13-15:42/29 14:36-15:02/26 16:22 09:04-09:21/17	08:58 14:28-15:18/50 16:19
29	05:43 19:49-20:52/63 21:44	06:38 18:53-19:47/54 20:38	07:34 17:57-18:34/37 19:21 17:25-17:50/25	07:31 15:24-16:25/61 17:11	08:30 15:14-15:42/28 14:36-15:03/27 16:21 09:05-09:21/16	08:58 14:29-15:19/50 16:20
30	05:45 19:48-20:51/63 21:42	06:40 18:52-19:46/54 20:36	07:36 17:58-18:31/33 19:19 17:23-17:51/28	07:33 15:23-16:24/61 17:08	08:32 15:15-15:42/27 14:36-15:04/28 16:20 09:07-09:22/15	08:59 14:29-15:19/50 16:21
31	05:46 19:48-20:49/61 21:40	06:42 18:51-19:44/53 20:33		07:35 15:22-16:23/61 17:06		08:59 14:30-15:20/50 16:22
Potential sun hours	515	461	383	327	257	230
Sum of minutes with flicker	2049	1828	1659	1839	2031	1667

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

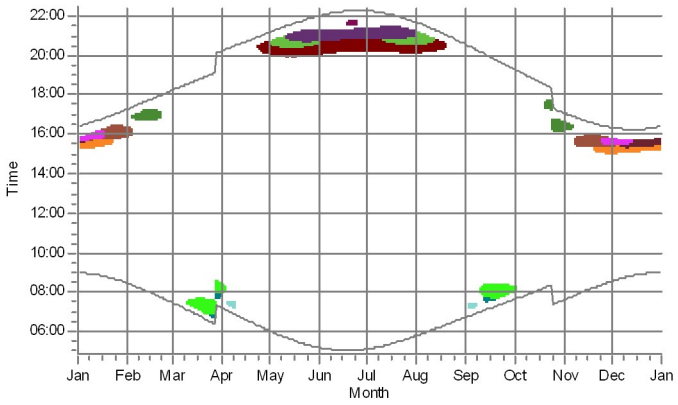
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Calculated:
15/09/2025 16:10/4.0.552

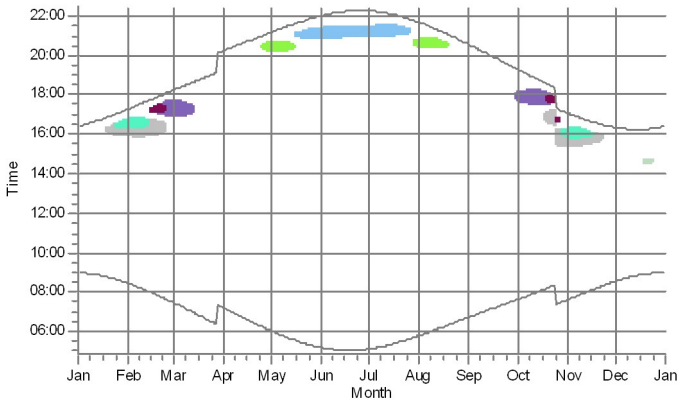
SHADOW - Calendar per WTG, graphical

Calculation: Tirawley Shadow Flicker Real Case

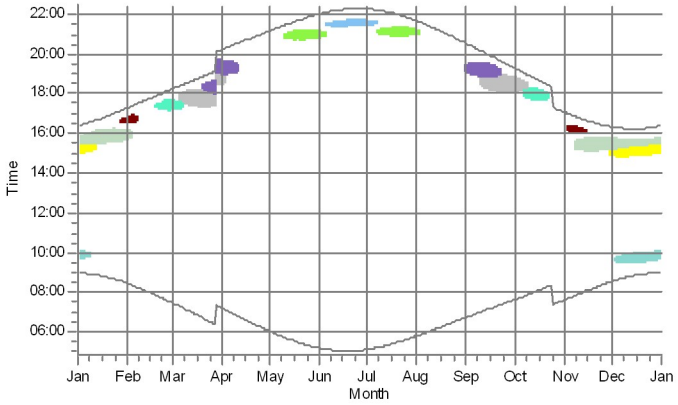
1: AT01



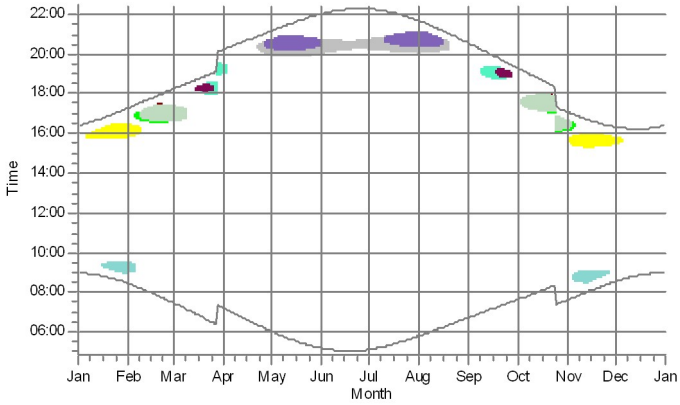
2: AT02



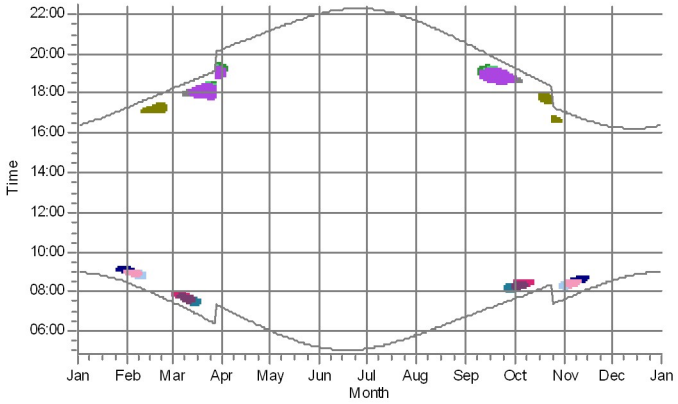
3: AT03



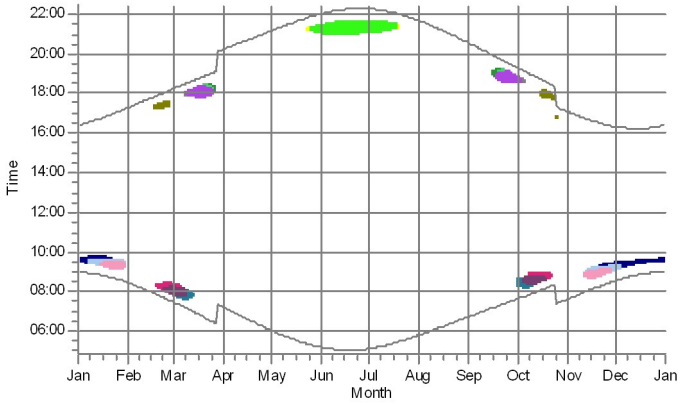
4: AT04



5: AT05



6: AT06



Shadow receptors

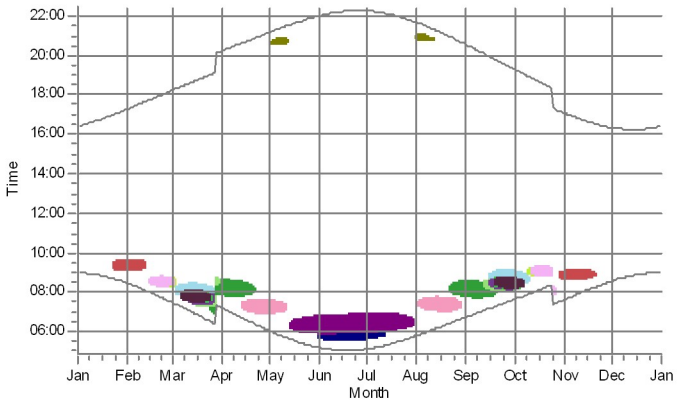
B: H2	G: H7	L: H12	R: H18	AF: H32	AQ: H43	BG: H59	CX: H103	DM: H122
C: H3	H: H8	N: H14	W: H23	AH: H34	AU: H47	CM: H92	DC: H110	DN: H123
D: H4	I: H9	O: H15	AA: H27	AM: H39	AV: H48	CP: H95	DE: H112	
F: H6	J: H10	Q: H17	AB: H28	AN: H40	BD: H56	CW: H102	DL: H121	

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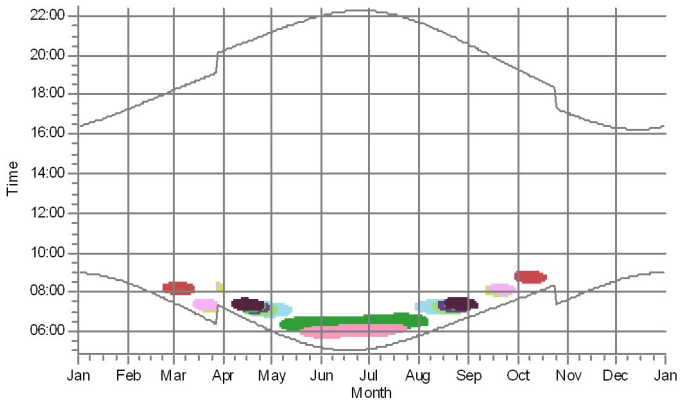
SHADOW - Calendar per WTG, graphical

Calculation: Tirawley Shadow Flicker Real Case

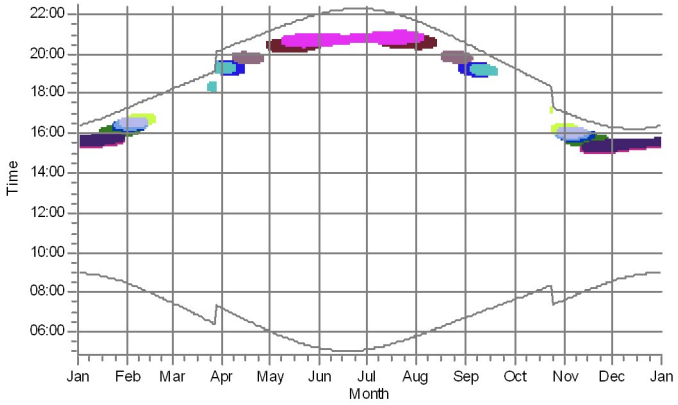
7: AT07



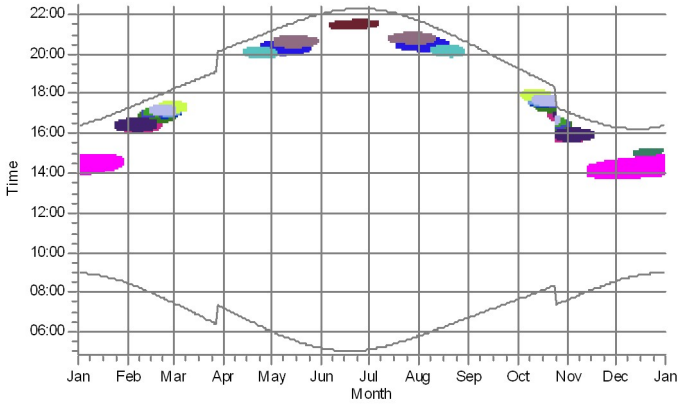
8: AT08



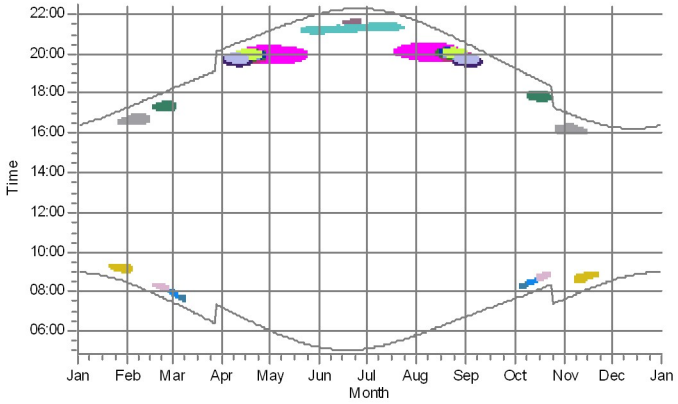
9: AT09



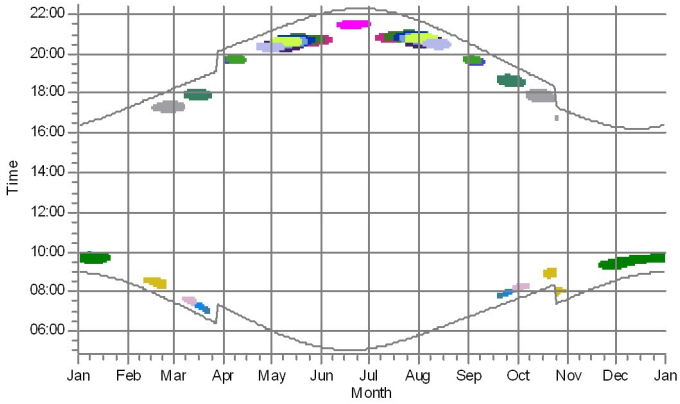
10: AT10



11: AT11



12: AT12



Shadow receptors

A: H1	K: H11	AD: H30	AK: H37	BJ: H62	BX: H76	CF: H84	CQ: H96	DG: H114
E: H5	P: H16	AF: H32	AU: H47	BM: H65	BY: H77	CG: H85	CV: H101	DJ: H117
G: H7	T: H20	AG: H33	BE: H57	BP: H68	CB: H80	CJ: H89	DA: H106	DK: H119
J: H10	AC: H29	AJ: H36	BG: H59	BR: H70	CC: H81	CL: H91	DB: H109	

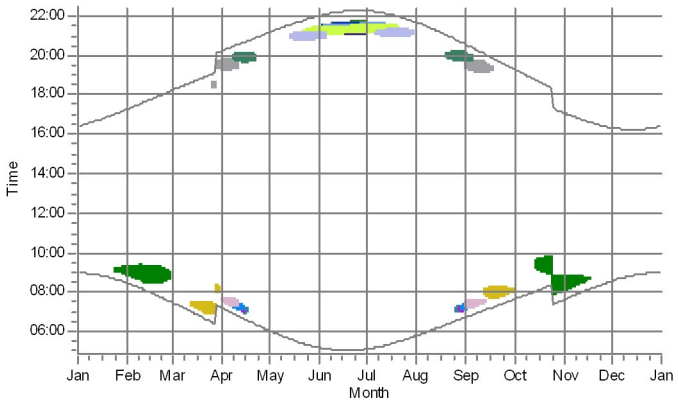
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:10/4.0.552

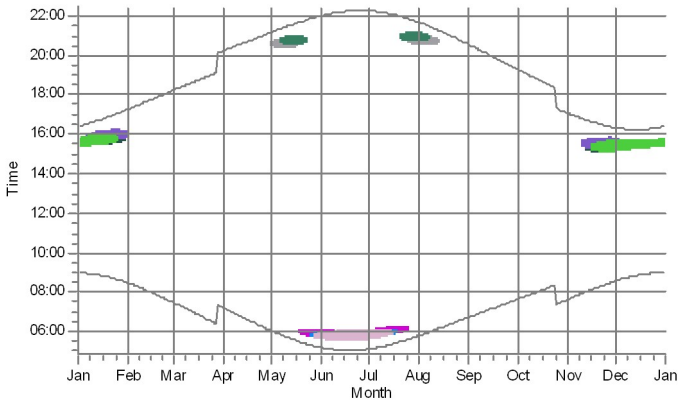
SHADOW - Calendar per WTG, graphical

Calculation: Tirawley Shadow Flicker Real Case

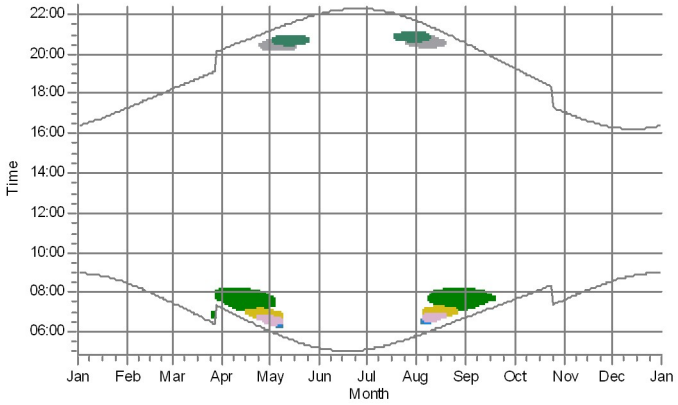
13: AT13



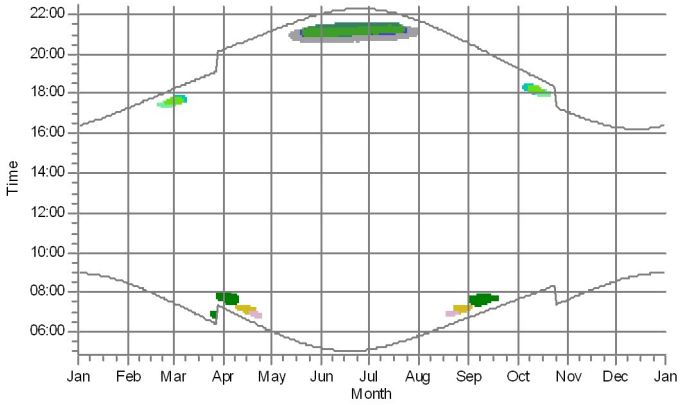
14: AT14



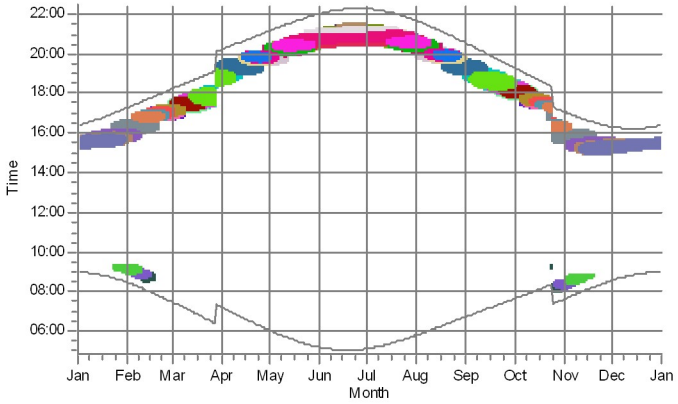
15: AT15



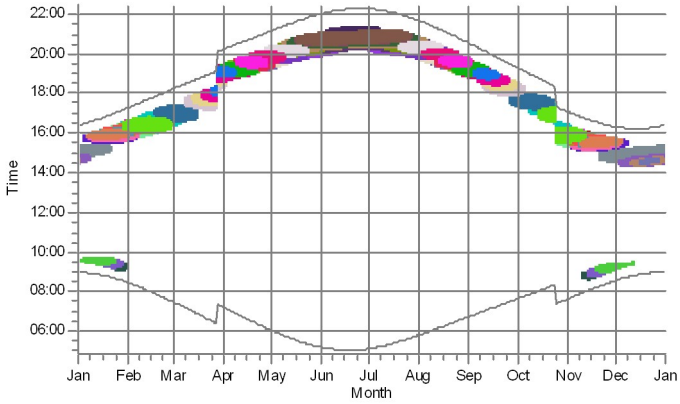
16: AT16



17: AT17



18: AT18



Shadow receptors

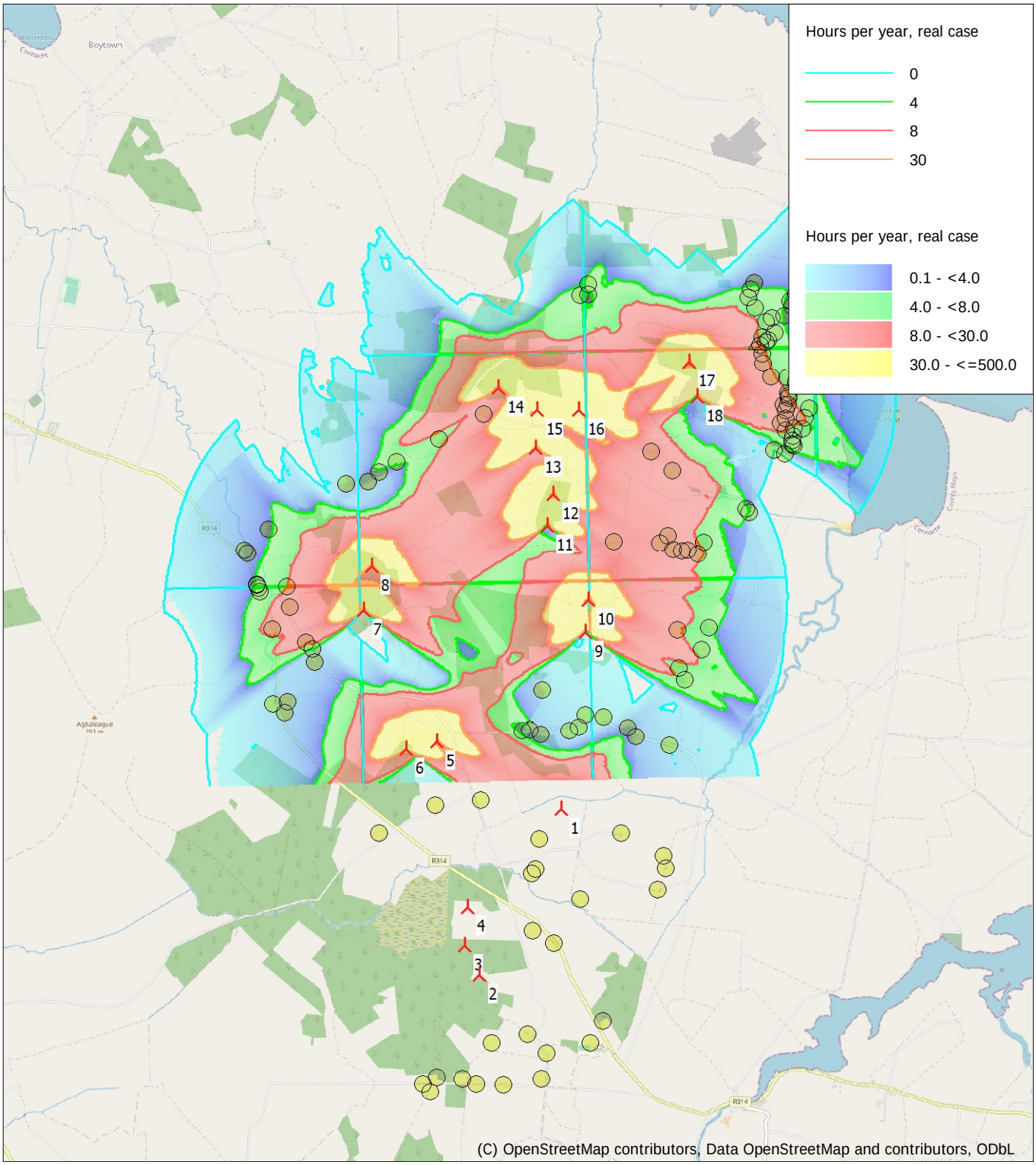
A: H1	Z: H26	AL: H38	AW: H49	BC: H55	BL: H64	BS: H71	CB: H80	CR: H97	DD: H111
P: H16	AC: H29	AO: H41	AX: H50	BE: H57	BM: H65	BU: H73	CD: H82	CS: H98	DG: H114
S: H19	AD: H30	AP: H42	AY: H51	BF: H58	BN: H66	BV: H74	CH: H87	CT: H99	DH: H115
U: H21	AE: H31	AR: H44	AZ: H52	BH: H60	BO: H67	BY: H77	CK: H90	CU: H100	DI: H116
V: H22	AI: H35	AS: H45	BA: H53	BJ: H62	BP: H68	BZ: H78	CL: H91	CV: H101	DK: H119
Y: H25	AK: H37	AT: H46	BB: H54	BK: H63	BQ: H69	CA: H79	CO: H94	DA: H106	DO: H284

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Calculated:
15/09/2025 16:10/4.0.552

SHADOW - Map

Calculation: Tirawley Shadow Flicker Real Case



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap , Print scale 1:50,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 515,390 North: 836,019

New WTG Shadow receptor

Flicker map level: Elevation Grid Data Object: 6289 Tirawley WF_EMDGrid_2.wpg (3)

Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Worst Case

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence	3 °
Day step for calculation	1 days
Time step for calculation	1 minutes

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

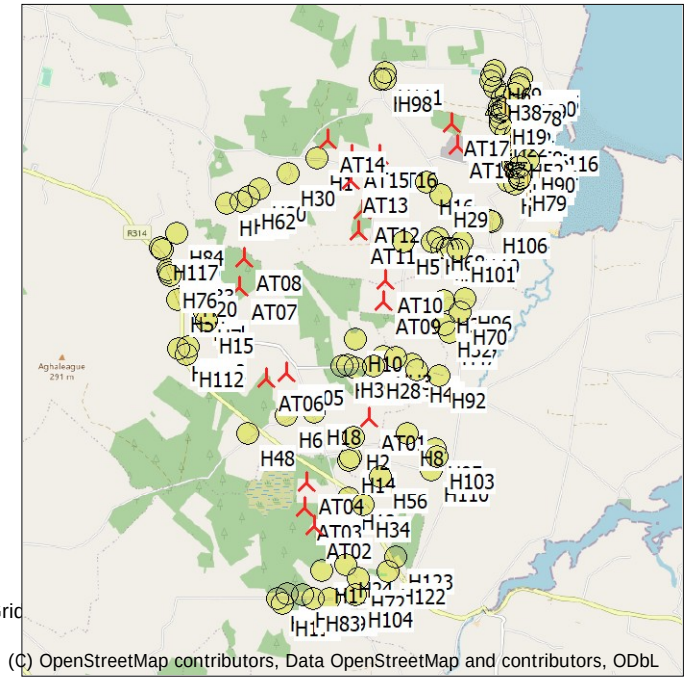
Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
263	305	173	263	215	192	359	1,103	1,091	912	892	828

W	WNW	NW	NNW	Sum
483	620	606	455	8,760

Monthly aggregation of real case reduction
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Elevation Grid Data Object: 6289 Tirawley WF_EMDGrid
Receptor grid resolution: 1.0 m

All coordinates are in
Irish ITM-IRENET95 (IE), geocentric, GRS80



Scale 1:100,000

New WTG Shadow receptor

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Shadow data Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
1	515,725	834,020	42.8	AT01	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
2	514,978	832,589	53.5	AT02	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
3	514,857	832,846	58.2	AT03	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
4	514,889	833,179	55.7	AT04	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
5	514,649	834,627	78.2	AT05	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
6	514,381	834,572	78.6	AT06	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
7	514,033	835,779	108.5	AT07	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
8	514,109	836,162	91.6	AT08	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
9	515,958	835,555	102.6	AT09	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
10	515,991	835,837	96.2	AT10	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
11	515,645	836,489	110.2	AT11	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
12	515,700	836,763	110.8	AT12	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
13	515,557	837,162	116.7	AT13	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
14	515,244	837,695	148.5	AT14	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
15	515,574	837,498	128.3	AT15	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
16	515,940	837,488	115.9	AT16	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
17	516,909	837,891	112.8	AT17	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6
18	516,972	837,587	118.1	AT18	Yes	VESTAS	V117-4.3-4,300	4,300	117.0	76.5	1,736	13.6

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Degrees from south cw	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]	[°]		[m]
A	H1	515,110	837,466	144.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
B	H2	515,526	833,767	46.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
C	H3	516,107	834,819	61.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
D	H4	515,947	834,836	64.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
E	H5	516,227	836,339	87.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
F	H6	514,628	834,072	64.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
G	H7	513,577	835,455	95.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
H	H8	516,241	833,804	41.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
I	H9	515,489	833,504	47.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5

To be continued on next page...

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SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Worst Case

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Degrees from south cw	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]	[°]		[m]
J	H10	515,575	835,060	97.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
K	H11	513,526	835,513	85.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
L	H12	515,450	832,962	46.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
M	H13	515,080	831,996	53.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
N	H14	515,456	833,467	47.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
O	H15	513,601	835,338	94.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
P	H16	516,561	837,118	97.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
Q	H17	515,886	834,729	56.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
R	H18	515,019	834,112	57.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
S	H19	517,530	838,028	85.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
T	H20	513,391	835,822	67.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
U	H21	517,553	837,950	79.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
V	H22	517,556	837,865	77.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
W	H23	516,320	834,718	54.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
X	H24	515,390	832,068	38.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
Y	H25	517,622	837,746	68.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
Z	H26	517,552	838,096	83.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AA	H27	515,559	834,678	65.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AB	H28	515,805	834,702	58.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AC	H29	516,744	836,946	80.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AD	H30	514,721	837,259	133.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AE	H31	517,581	838,054	80.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AF	H32	516,774	835,227	58.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AG	H33	513,365	835,996	66.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AH	H34	515,641	832,856	42.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AI	H35	517,606	838,071	77.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AJ	H36	516,764	835,557	63.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AK	H37	514,091	836,904	134.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AL	H38	517,490	838,353	90.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AM	H39	515,462	834,716	69.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AN	H40	516,384	834,641	46.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AO	H41	513,902	836,884	135.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AP	H42	517,583	838,226	81.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AQ	H43	515,398	834,709	70.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AR	H44	517,725	837,501	50.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AS	H45	517,434	838,443	92.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AT	H46	517,697	837,346	48.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AU	H47	516,822	835,130	50.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AV	H48	514,129	833,845	67.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AW	H49	517,741	837,449	48.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AX	H50	517,762	837,602	51.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AY	H51	517,663	838,130	72.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
AZ	H52	517,766	837,561	51.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BA	H53	517,762	837,501	49.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BB	H54	517,767	837,579	51.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BC	H55	517,742	837,383	46.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BD	H56	515,873	833,236	33.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BE	H57	516,625	836,322	65.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BF	H58	517,758	837,737	54.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BG	H59	513,235	835,631	60.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BH	H60	517,632	838,261	76.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BI	H61	517,638	837,109	52.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BJ	H62	514,190	836,978	133.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BK	H63	517,742	837,283	46.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BL	H64	517,457	838,516	91.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BM	H65	516,738	836,261	61.3	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BN	H66	517,836	837,697	46.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BO	H67	517,806	837,295	42.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BP	H68	516,697	836,380	64.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BQ	H69	517,489	838,569	90.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BR	H70	516,975	835,388	52.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BS	H71	517,798	837,225	45.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BT	H72	515,557	831,893	28.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BU	H73	517,792	837,189	45.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5

To be continued on next page...

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SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Worst Case

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Degrees from south cw	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]	[°]		[m]
BV	H74	517,729	837,077	47.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BW	H75	514,818	831,687	50.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BX	H76	513,130	835,959	59.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BY	H77	516,817	836,244	59.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
BZ	H78	517,748	838,272	65.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CA	H79	517,791	837,155	45.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CB	H80	514,340	837,065	127.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CC	H81	513,118	835,991	59.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CD	H82	517,804	837,142	44.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CE	H83	514,941	831,643	48.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CF	H84	513,221	836,506	57.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CG	H85	513,108	836,017	58.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CH	H87	517,884	837,289	39.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CI	H88	514,595	831,709	50.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CJ	H89	513,105	836,024	58.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CK	H90	517,910	837,382	36.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CL	H91	516,865	836,247	57.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CM	H92	516,678	834,560	29.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CN	H93	515,173	831,629	39.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CO	H94	517,945	837,469	31.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CP	H95	516,609	833,595	26.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CQ	H96	517,041	835,575	49.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CR	H97	515,971	838,486	119.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CS	H98	516,040	838,493	120.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CT	H99	517,816	838,358	65.0	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CU	H100	517,798	838,402	68.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CV	H101	516,953	836,216	54.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CW	H102	513,352	834,999	71.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CX	H103	516,624	833,488	21.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CY	H104	515,505	831,678	28.4	2.0	2.0	0.5		90.0	"Green house mode"	2.5
CZ	H105	514,472	831,653	49.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DA	H106	517,382	836,605	25.1	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DB	H109	513,032	836,295	56.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DC	H110	516,551	833,308	21.6	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DD	H111	516,041	838,580	118.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DE	H112	513,331	834,901	73.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DF	H113	514,539	831,580	45.5	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DG	H114	517,409	836,575	22.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DH	H115	517,850	838,466	66.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DI	H116	518,085	837,658	18.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DJ	H117	513,005	836,321	56.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DK	H119	517,007	836,317	51.7	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DL	H121	513,228	834,982	68.9	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DM	H122	515,945	831,977	21.8	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DN	H123	516,052	832,172	22.2	2.0	2.0	0.5		90.0	"Green house mode"	2.5
DO	H284	517,503	837,983	86.1	1.0	1.0	1.0	0.0	90.0	Fixed direction	2.0

Calculation Results

Shadow receptor

No.	Name	Shadow, worst case: Shadow hours per year [h/year]	Shadow, worst case: Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow, expected values: Shadow hours per year [h/year]
A	H1	109:11	211	0:59	16:33
B	H2	55:32	155	0:34	6:48
C	H3	3:38	20	0:17	0:32
D	H4	4:54	23	0:20	0:42
E	H5	110:08	177	0:54	15:30
F	H6	4:42	24	0:18	0:43
G	H7	34:02	126	0:35	4:36
H	H8	85:01	161	0:52	15:12
I	H9	57:21	140	0:41	6:45
J	H10	11:04	53	0:25	1:39

To be continued on next page...

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SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Worst Case

...continued from previous page

		Shadow, worst case			Shadow, expected values
No.	Name	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
K	H11	55:07	77	0:51	8:58
L	H12	142:45	250	0:48	22:34
M	H13	0:00	0	0:00	0:00
N	H14	64:39	147	0:44	7:42
O	H15	14:44	68	0:24	1:49
P	H16	101:23	227	0:41	17:06
Q	H17	6:57	30	0:22	1:02
R	H18	41:26	99	0:37	6:41
S	H19	63:38	131	0:43	8:42
T	H20	78:47	148	0:42	13:34
U	H21	61:26	114	0:42	9:05
V	H22	61:25	112	0:42	9:47
W	H23	30:13	82	0:32	2:58
X	H24	0:00	0	0:00	0:00
Y	H25	56:07	112	0:41	9:18
Z	H26	57:37	127	0:41	7:36
AA	H27	14:23	43	0:30	2:13
AB	H28	8:26	33	0:24	1:16
AC	H29	69:29	210	0:31	11:26
AD	H30	40:06	148	0:31	6:23
AE	H31	51:26	104	0:39	7:00
AF	H32	40:42	128	0:33	7:06
AG	H33	52:12	107	0:39	8:36
AH	H34	73:12	165	0:39	12:18
AI	H35	47:39	101	0:38	6:28
AJ	H36	48:17	118	0:35	8:57
AK	H37	17:27	107	0:19	2:46
AL	H38	58:39	122	0:38	6:24
AM	H39	16:56	46	0:34	2:31
AN	H40	20:56	64	0:32	2:21
AO	H41	9:08	59	0:17	1:32
AP	H42	52:03	118	0:37	6:23
AQ	H43	20:15	49	0:36	3:02
AR	H44	64:07	139	0:36	11:34
AS	H45	53:07	100	0:38	5:34
AT	H46	50:22	107	0:37	9:09
AU	H47	40:07	124	0:31	6:54
AV	H48	22:02	89	0:27	2:24
AW	H49	60:03	130	0:36	10:45
AX	H50	44:14	104	0:34	8:14
AY	H51	40:10	94	0:35	5:21
AZ	H52	46:55	113	0:34	8:52
BA	H53	58:45	140	0:35	10:41
BB	H54	44:59	107	0:35	8:28
BC	H55	52:31	120	0:36	9:25
BD	H56	33:48	109	0:28	4:37
BE	H57	99:27	259	0:37	14:20
BF	H58	38:48	92	0:34	6:26
BG	H59	59:20	170	0:35	9:32
BH	H60	44:35	109	0:34	5:30
BI	H61	0:00	0	0:00	0:00
BJ	H62	22:01	118	0:22	3:31
BK	H63	47:55	96	0:35	8:36
BL	H64	45:58	88	0:37	4:36
BM	H65	74:00	222	0:33	11:29
BN	H66	32:58	84	0:31	5:37
BO	H67	43:06	106	0:32	7:50
BP	H68	93:13	257	0:35	13:36
BQ	H69	38:54	82	0:33	3:51
BR	H70	32:44	105	0:27	6:13
BS	H71	41:41	90	0:32	7:28
BT	H72	0:00	0	0:00	0:00
BU	H73	37:51	81	0:32	6:42

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SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Worst Case

...continued from previous page

No.	Name	Shadow, worst case Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow, expected values Shadow hours per year [h/year]
BV	H74	9:20	33	0:21	1:30
BW	H75	0:00	0	0:00	0:00
BX	H76	29:10	78	0:30	4:47
BY	H77	66:36	209	0:30	10:27
BZ	H78	32:06	88	0:30	4:04
CA	H79	33:45	72	0:32	5:53
CB	H80	29:43	148	0:23	4:50
CC	H81	27:58	77	0:29	4:33
CD	H82	32:27	70	0:32	5:38
CE	H83	0:00	0	0:00	0:00
CF	H84	28:40	80	0:29	3:53
CG	H85	26:58	74	0:29	4:24
CH	H87	42:36	111	0:30	7:41
CI	H88	0:00	0	0:00	0:00
CJ	H89	26:43	75	0:28	4:21
CK	H90	45:29	125	0:29	8:13
CL	H91	63:15	208	0:29	10:00
CM	H92	9:50	35	0:26	1:16
CN	H93	0:00	0	0:00	0:00
CO	H94	32:03	92	0:28	6:03
CP	H95	21:00	61	0:30	4:07
CQ	H96	39:09	135	0:26	6:52
CR	H97	39:35	114	0:39	4:25
CS	H98	34:44	92	0:46	4:07
CT	H99	27:55	84	0:27	3:29
CU	H100	29:58	91	0:28	3:39
CV	H101	56:19	198	0:27	9:01
CW	H102	12:15	43	0:26	1:43
CX	H103	30:00	81	0:29	5:21
CY	H104	0:00	0	0:00	0:00
CZ	H105	0:00	0	0:00	0:00
DA	H106	25:42	110	0:18	4:18
DB	H109	20:51	65	0:25	3:04
DC	H110	6:13	43	0:15	0:52
DD	H111	40:11	100	0:44	4:21
DE	H112	11:45	40	0:29	1:39
DF	H113	0:00	0	0:00	0:00
DG	H114	25:01	110	0:18	4:10
DH	H115	27:27	89	0:26	3:17
DI	H116	20:09	65	0:24	3:32
DJ	H117	19:44	64	0:25	2:54
DK	H119	46:24	174	0:25	7:32
DL	H121	9:35	38	0:24	1:20
DM	H122	30:23	71	0:36	5:16
DN	H123	25:12	83	0:25	4:52
DO	H284	68:19	131	0:45	9:45

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
1	AT01	183:04	28:38
2	AT02	107:27	15:46
3	AT03	140:00	18:32
4	AT04	154:04	23:58
5	AT05	47:14	6:48
6	AT06	72:32	10:21
7	AT07	189:40	30:25
8	AT08	132:07	21:46
9	AT09	159:51	24:04
10	AT10	183:38	25:35
11	AT11	107:54	18:12
12	AT12	104:12	16:16

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SHADOW - Main Result

Calculation: Tirawley Shadow Flicker Worst Case

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
13	AT13	106:05	17:10
14	AT14	67:17	9:21
15	AT15	99:07	18:13
16	AT16	75:20	12:55
17	AT17	353:22	53:38
18	AT18	371:04	55:18

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: A - H1

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May			June
1	08:59		09:33 (12)	08:27		08:56 (13)	07:29			07:13		07:36 (16)	06:02		07:19 (15)	05:12
	16:24	19	09:52 (12)	17:16	20	09:16 (13)	18:13			20:12	29	08:05 (15)	21:09	28	07:47 (15)	22:00
2	08:58		09:33 (12)	08:26		08:54 (13)	07:26			07:10		07:34 (16)	06:00		07:21 (15)	05:11
	16:25	20	09:53 (12)	17:18	23	09:17 (13)	18:15			20:14	32	08:06 (15)	21:11	24	07:45 (15)	22:01
3	08:58		09:33 (12)	08:24		08:52 (13)	07:24			07:08		07:32 (16)	05:58		07:24 (15)	05:10
	16:26	20	09:53 (12)	17:20	25	09:17 (13)	18:17			20:16	36	08:08 (15)	21:13	17	07:41 (15)	22:02
4	08:58		09:32 (12)	08:22		08:50 (13)	07:22			07:05		07:29 (16)	05:56		07:30 (15)	05:09
	16:27	21	09:53 (12)	17:22	28	09:18 (13)	18:19			20:18	38	08:07 (15)	21:14	5	07:35 (15)	22:04
5	08:57		09:32 (12)	08:20		08:48 (13)	07:19			07:03		07:27 (16)	05:54			05:08
	16:29	22	09:54 (12)	17:24	30	09:18 (13)	18:21			20:20	41	08:08 (15)	21:16			22:05
6	08:57		09:31 (12)	08:18		08:46 (13)	07:17			07:00		07:24 (15)	05:52			05:07
	16:30	23	09:54 (12)	17:26	33	09:19 (13)	18:23			20:22	44	08:08 (15)	21:18			22:06
7	08:57		09:30 (12)	08:16		08:44 (13)	07:14			06:58		07:22 (15)	05:50			05:07
	16:31	24	09:54 (12)	17:28	35	09:19 (13)	18:25			20:24	47	08:09 (15)	21:20			22:07
8	08:56		09:30 (12)	08:14		08:42 (13)	07:12			06:55		07:19 (15)	05:48			05:06
	16:33	25	09:55 (12)	17:30	37	09:19 (13)	18:27			20:26	49	08:08 (15)	21:22			22:08
9	08:55		09:29 (12)	08:12		08:40 (13)	07:10			06:53		07:17 (15)	05:46			05:05
	16:34	25	09:54 (12)	17:32	40	09:20 (13)	18:29			20:28	51	08:08 (15)	21:24			22:09
10	08:55		09:28 (12)	08:10		08:37 (13)	07:07			06:50		07:15 (15)	05:44			05:05
	16:36	26	09:54 (12)	17:34	42	09:19 (13)	18:30			20:29	54	08:09 (15)	21:25			22:10
11	08:54		09:27 (12)	08:08		08:35 (13)	07:05			06:48		07:12 (15)	05:42			05:04
	16:37	27	09:54 (12)	17:36	44	09:19 (13)	18:32			20:31	56	08:08 (15)	21:27			22:10
12	08:53		09:28 (12)	08:06		08:33 (13)	07:02			06:46		07:10 (15)	05:40			05:04
	16:39	26	09:54 (12)	17:38	46	09:19 (13)	18:34			20:33	58	08:08 (15)	21:29			22:11
13	08:52		09:29 (12)	08:04		08:31 (13)	07:00			06:43		07:09 (15)	05:39			05:04
	16:40	25	09:54 (12)	17:41	48	09:19 (13)	18:36			20:35	59	08:08 (15)	21:31			22:12
14	08:52		09:30 (12)	08:02		08:29 (13)	06:57			06:41		07:08 (15)	05:37			05:03
	16:42	24	09:54 (12)	17:43	50	09:19 (13)	18:38			20:37	59	08:07 (15)	21:32			22:13
15	08:51		09:31 (12)	08:00		08:29 (13)	06:55			06:38		07:08 (15)	05:35			05:03
	16:44	23	09:54 (12)	17:45	50	09:19 (13)	18:40			20:39	59	08:07 (15)	21:34			22:13
16	08:50		09:32 (12)	07:58		08:28 (13)	06:52			06:36		07:09 (15)	05:33			05:03
	16:46	20	09:52 (12)	17:47	50	09:18 (13)	18:42			20:41	58	08:07 (15)	21:36			22:14
17	08:49		09:33 (12)	07:56		08:29 (13)	06:50			06:34		07:08 (15)	05:32			05:03
	16:47	19	09:52 (12)	17:49	48	09:17 (13)	18:44			20:43	57	08:05 (15)	21:38			22:14
18	08:47		09:35 (12)	07:54		08:30 (13)	06:47			06:31		07:08 (15)	05:30			05:03
	16:49	16	09:51 (12)	17:51	47	09:17 (13)	18:46			20:45	57	08:05 (15)	21:39			22:15
19	08:46		09:37 (12)	07:52		08:30 (13)	06:45			06:29		07:09 (15)	05:29			05:03
	16:51	12	09:49 (12)	17:53	45	09:15 (13)	18:48			20:46	55	08:04 (15)	21:41			22:15
20	08:45		09:41 (12)	07:49		08:31 (13)	06:42			06:27		07:09 (15)	05:27			05:03
	16:53	5	09:46 (12)	17:55	44	09:15 (13)	18:50			20:48	55	08:04 (15)	21:43			22:15
21	08:44			07:47		08:33 (13)	06:40			06:24		07:09 (15)	05:25			05:03
	16:55			17:57	41	09:14 (13)	18:52			20:50	53	08:02 (15)	21:44			22:16
22	08:43			07:45		08:33 (13)	06:37			06:22		07:10 (15)	05:24			05:03
	16:56			17:59	39	09:12 (13)	18:53			20:52	51	08:01 (15)	21:46			22:16
23	08:41			07:43		08:35 (13)	06:35			06:20		07:10 (15)	05:23			05:03
	16:58			18:01	35	09:10 (13)	18:55			20:54	51	08:01 (15)	21:47			22:16
24	08:40			07:40		08:37 (13)	06:32			06:18		07:11 (15)	05:21			05:04
	17:00			18:03	32	09:09 (13)	18:57			20:56	49	08:00 (15)	21:49			22:16
25	08:38		09:08 (13)	07:38		08:38 (13)	06:30		06:54 (16)	06:15		07:12 (15)	05:20			05:04
	17:02	1	09:09 (13)	18:05	28	09:06 (13)	18:59	2	06:56 (16)	20:58	46	07:58 (15)	21:50			22:16
26	08:37		09:07 (13)	07:36		08:41 (13)	06:27		06:51 (16)	06:13		07:13 (15)	05:18			05:05
	17:04	4	09:11 (13)	18:07	22	09:03 (13)	19:01	5	06:56 (16)	21:00	44	07:57 (15)	21:52			22:16
27	08:35		09:05 (13)	07:33		08:45 (13)	06:25		06:49 (16)	06:11		07:13 (15)	05:17			05:05
	17:06	6	09:11 (13)	18:09	15	09:00 (13)	19:03	10	06:59 (15)	21:01	42	07:55 (15)	21:53			22:16
28	08:34		09:03 (13)	07:31			06:22		06:46 (16)	06:09		07:14 (15)	05:16			05:06
	17:08	9	09:12 (13)	18:11			19:05	15	07:01 (15)	21:03	39	07:53 (15)	21:55			22:16
29	08:32		09:01 (13)				07:20		07:44 (16)	06:06		07:16 (15)	05:15			05:06
	17:10	12	09:13 (13)				20:07	19	08:03 (15)	21:05	35	07:51 (15)	21:56			22:16
30	08:31		08:59 (13)				07:17		07:41 (16)	06:04		07:17 (15)	05:14			05:07
	17:12	15	09:14 (13)				20:09	22	08:03 (15)	21:07	33	07:50 (15)	21:57			22:15
31	08:29		08:58 (13)				07:15		07:39 (16)				05:13			
	17:14	17	09:15 (13)				20:11	26	08:05 (15)				21:59			
Potential sun hours	248			272			367			421			496			513
Total, worst case		486			997			99			1437			74		
Sun reduction		0.17			0.22			0.22			0.34			0.36		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.66			0.63			0.58			0.58			0.58		
Total reduction		0.11			0.14			0.13			0.20			0.21		
Total, real		54			139			13			287			16		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: A - H1

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August			September			October			November			December		
1	05:07		05:48			06:44		07:11 (15)	07:38			07:38		08:07 (13)	08:34		09:09 (12)
	22:15		21:39			20:31	56	08:07 (15)	19:16			17:04	42	08:49 (13)	16:19	27	09:36 (12)
2	05:08		05:50			06:46		07:13 (15)	07:40			07:39		08:09 (13)	08:35		09:11 (12)
	22:15		21:37			20:29	54	08:07 (15)	19:14			17:02	39	08:48 (13)	16:18	27	09:38 (12)
3	05:09		05:52			06:47		07:15 (15)	07:42			07:41		08:12 (13)	08:37		09:12 (12)
	22:14		21:35			20:26	51	08:06 (15)	19:11			17:00	37	08:49 (13)	16:18	26	09:38 (12)
4	05:10		05:53			06:49		07:17 (15)	07:44			07:43		08:14 (13)	08:38		09:14 (12)
	22:14		21:33			20:24	49	08:06 (15)	19:09			16:58	35	08:49 (13)	16:17	25	09:39 (12)
5	05:11		05:55			06:51		07:18 (15)	07:46			07:45		08:16 (13)	08:40		09:15 (12)
	22:13		21:31			20:21	47	08:05 (15)	19:06			16:57	32	08:48 (13)	16:16	24	09:39 (12)
6	05:12		05:57			06:53		07:20 (15)	07:47			07:47		08:18 (13)	08:41		09:17 (12)
	22:12		21:29			20:19	44	08:04 (15)	19:04			16:55	30	08:48 (13)	16:16	23	09:40 (12)
7	05:13		05:59			06:55		07:22 (16)	07:49			07:49		08:20 (13)	08:42		09:18 (12)
	22:12		21:27			20:16	41	08:03 (15)	19:01			16:53	28	08:48 (13)	16:15	22	09:40 (12)
8	05:14		06:00			06:56		07:24 (16)	07:51			07:51		08:22 (13)	08:44		09:20 (12)
	22:11		21:25			20:14	39	08:03 (15)	18:59			16:51	25	08:47 (13)	16:15	21	09:41 (12)
9	05:15		06:02		07:37 (15)	06:58		07:25 (16)	07:53			07:53		08:25 (13)	08:45		09:21 (12)
	22:10		21:23	10	07:47 (15)	20:11	36	08:01 (15)	18:56			16:49	22	08:47 (13)	16:14	20	09:41 (12)
10	05:16		06:04		07:33 (15)	07:00		07:27 (16)	07:55			07:55		08:27 (13)	08:46		09:22 (12)
	22:09		21:21	19	07:52 (15)	20:09	33	08:00 (15)	18:54			16:47	20	08:47 (13)	16:14	20	09:42 (12)
11	05:17		06:06		07:30 (15)	07:02		07:29 (16)	07:57			07:57		08:29 (13)	08:47		09:24 (12)
	22:08		21:19	25	07:55 (15)	20:06	30	07:59 (15)	18:52			16:45	17	08:46 (13)	16:14	19	09:43 (12)
12	05:18		06:08		07:27 (15)	07:04		07:30 (16)	07:59			07:59		08:31 (13)	08:48		09:25 (12)
	22:08		21:17	29	07:56 (15)	20:04	26	07:56 (15)	18:49			16:44	15	08:46 (13)	16:14	18	09:43 (12)
13	05:19		06:09		07:25 (15)	07:05		07:32 (16)	08:01			08:01		08:33 (13)	08:49		09:26 (12)
	22:06		21:15	34	07:59 (15)	20:01	23	07:55 (15)	18:47			16:42	12	08:45 (13)	16:14	18	09:44 (12)
14	05:21		06:11		07:24 (15)	07:07		07:34 (16)	08:02		09:21 (13)	08:03		08:35 (13)	08:50		09:27 (12)
	22:05		21:13	36	08:00 (15)	19:59	19	07:53 (15)	18:44	7	09:28 (13)	16:40	9	08:44 (13)	16:14	17	09:44 (12)
15	05:22		06:13		07:21 (15)	07:09		07:36 (16)	08:04		09:15 (13)	08:05		08:37 (13)	08:51		09:28 (12)
	22:04		21:10	40	08:01 (15)	19:56	15	07:51 (15)	18:42	18	09:33 (13)	16:39	6	08:43 (13)	16:14	17	09:45 (12)
16	05:23		06:15		07:20 (15)	07:11		07:38 (16)	08:06		09:12 (13)	08:07		08:40 (13)	08:52		09:29 (12)
	22:03		21:08	43	08:03 (15)	19:54	11	07:49 (15)	18:40	25	09:37 (13)	16:37	3	08:43 (13)	16:14	16	09:45 (12)
17	05:25		06:17		07:19 (15)	07:13		07:39 (16)	08:08		09:09 (13)	08:09		08:42 (13)	08:53		09:30 (12)
	22:02		21:06	45	08:04 (15)	19:51	7	07:46 (15)	18:37	30	09:39 (13)	16:36	1	08:43 (13)	16:14	16	09:46 (12)
18	05:26		06:18		07:17 (15)	07:14		07:41 (16)	08:10		09:07 (13)	08:11			08:54		09:30 (12)
	22:01		21:04	47	08:04 (15)	19:49	3	07:44 (16)	18:35	34	09:41 (13)	16:34			16:14	16	09:46 (12)
19	05:28		06:20		07:17 (15)	07:16			08:12		09:05 (13)	08:13			08:55		09:31 (12)
	21:59		21:02	48	08:05 (15)	19:46			18:33	37	09:42 (13)	16:33			16:14	15	09:46 (12)
20	05:29		06:22		07:16 (15)	07:18			08:14		09:04 (13)	08:14			08:55		09:32 (12)
	21:58		20:59	50	08:06 (15)	19:44			18:30	39	09:43 (13)	16:31			16:15	15	09:47 (12)
21	05:31		06:24		07:14 (15)	07:20			08:16		09:03 (13)	08:16			08:56		09:32 (12)
	21:57		20:57	52	08:06 (15)	19:41			18:28	41	09:44 (13)	16:30			16:15	15	09:47 (12)
22	05:32		06:26		07:14 (15)	07:22			08:18		09:01 (13)	08:18		09:17 (12)	08:57		09:33 (12)
	21:55		20:55	53	08:07 (15)	19:39			18:26	44	09:45 (13)	16:29	5	09:22 (12)	16:15	15	09:48 (12)
23	05:34		06:27		07:13 (15)	07:23			08:20		09:00 (13)	08:20		09:14 (12)	08:57		09:33 (12)
	21:54		20:52	55	08:08 (15)	19:36			18:24	46	09:46 (13)	16:27	12	09:26 (12)	16:16	15	09:48 (12)
24	05:35		06:29		07:12 (15)	07:25			08:22		08:59 (13)	08:22		09:12 (12)	08:57		09:34 (12)
	21:52		20:50	56	08:08 (15)	19:34			18:21	47	09:46 (13)	16:26	16	09:28 (12)	16:17	15	09:49 (12)
25	05:37		06:31		07:11 (15)	07:27			07:24		07:58 (13)	08:24		09:11 (12)	08:58		09:34 (12)
	21:51		20:48	57	08:08 (15)	19:31			17:19	49	08:47 (13)	16:25	19	09:30 (12)	16:17	15	09:49 (12)
26	05:38		06:33		07:11 (15)	07:29			07:26		07:58 (13)	08:25		09:11 (12)	08:58		09:34 (12)
	21:49		20:45	57	08:08 (15)	19:29			17:17	49	08:47 (13)	16:24	20	09:31 (12)	16:18	16	09:50 (12)
27	05:40		06:35		07:10 (15)	07:31			07:28		07:58 (13)	08:27		09:10 (12)	08:58		09:34 (12)
	21:47		20:43	59	08:09 (15)	19:26			17:15	50	08:48 (13)	16:23	23	09:33 (12)	16:19	16	09:50 (12)
28	05:42		06:36		07:09 (15)	07:33			07:30		07:59 (13)	08:29		09:10 (12)	08:58		09:34 (12)
	21:46		20:41	59	08:08 (15)	19:24			17:13	50	08:49 (13)	16:22	24	09:34 (12)	16:20	16	09:50 (12)
29	05:43		06:38		07:09 (15)	07:34			07:32		08:01 (13)	08:30		09:09 (12)	08:59		09:34 (12)
	21:44		20:38	59	08:08 (15)	19:21			17:11	48	08:49 (13)	16:21	25	09:34 (12)	16:20	17	09:51 (12)
30	05:45		06:40		07:09 (15)	07:36			07:34		08:03 (13)	08:32		09:09 (12)	08:59		09:34 (12)
	21:42		20:36	59	08:08 (15)	19:19			17:09	46	08:49 (13)	16:20	26	09:35 (12)	16:21	17	09:51 (12)
31	05:47		06:42		07:10 (15)				07:36		08:05 (13)				08:59		09:34 (12)
	21:41		20:33	58	08:08 (15)				17:07	44	08:49 (13)				16:22	18	09:52 (12)
Potential sun hours	515		461			383			327			257			230		
Total, worst case				1050			584			704			543			577	
Sun reduction				0.27			0.29			0.23			0.20			0.12	
Oper. time red.				1.00			1.00			1.00			1.00			1.00	
Wind dir. red.				0.58			0.58			0.63			0.64			0.66	
Total reduction				0.16			0.17			0.15			0.13			0.08	
Total, real				167			99			104			69			46	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: B - H2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May			June		
1	08:58		15:04 (3)	08:27		15:53 (4)	07:29	07:13	06:02			05:12		21:09 (6)
	16:24	22	15:26 (3)	17:16	30	16:23 (4)	18:13	20:12	21:09			22:00	16	21:25 (6)
2	08:58		15:05 (3)	08:25		15:54 (4)	07:26	07:10	06:00			05:11		21:09 (6)
	16:25	22	15:27 (3)	17:18	28	16:22 (4)	18:15	20:14	21:11			22:01	17	21:26 (6)
3	08:58		15:05 (3)	08:24		15:55 (4)	07:24	07:08	05:58			05:10		21:09 (6)
	16:26	21	15:26 (3)	17:20	26	16:21 (4)	18:17	20:16	21:12			22:02	17	21:26 (6)
4	08:58		15:06 (3)	08:22		15:56 (4)	07:22	07:05	05:56			05:09		21:10 (6)
	16:27	21	15:27 (3)	17:22	25	16:21 (4)	18:19	20:18	21:14			22:03	18	21:28 (6)
5	08:57		15:07 (3)	08:20		15:58 (4)	07:19	07:03	05:54			05:08		21:09 (6)
	16:29	20	15:27 (3)	17:24	21	16:19 (4)	18:21	20:20	21:16			22:04	20	21:29 (6)
6	08:57		15:08 (3)	08:18		16:00 (4)	07:17	07:00	05:52			05:08		21:10 (6)
	16:30	19	15:27 (3)	17:26	18	16:18 (4)	18:23	20:22	21:18			22:06	20	21:30 (6)
7	08:56		15:09 (3)	08:16		16:02 (4)	07:14	06:58	05:50			05:07		21:10 (6)
	16:31	20	15:54 (4)	17:28	14	16:16 (4)	18:25	20:24	21:20			22:07	21	21:31 (6)
8	08:56		15:10 (3)	08:14		16:07 (4)	07:12	06:55	05:48			05:06		21:09 (6)
	16:33	20	15:55 (4)	17:30	4	16:11 (4)	18:27	20:26	21:22			22:08	22	21:31 (6)
9	08:55		15:11 (3)	08:12			07:09	06:53	05:46			05:06		21:10 (6)
	16:34	21	15:57 (4)	17:32			18:29	20:27	21:23			22:08	21	21:31 (6)
10	08:55		15:13 (3)	08:10			07:07	06:50	05:44			05:05		21:11 (6)
	16:36	21	15:59 (4)	17:34			18:30	20:29	21:25			22:09	21	21:32 (6)
11	08:54		15:15 (3)	08:08			07:05	06:48	05:42			05:05		21:10 (6)
	16:37	20	16:01 (4)	17:36			18:32	20:31	21:27			22:10	21	21:31 (6)
12	08:53		15:17 (3)	08:06			07:02	06:46	05:41			05:04		21:11 (6)
	16:39	19	16:03 (4)	17:39			18:34	20:33	21:29			22:11	21	21:32 (6)
13	08:52		15:50 (4)	08:04			07:00	06:43	05:39			05:04		21:11 (6)
	16:41	14	16:04 (4)	17:41			18:36	20:35	21:31			22:12	21	21:32 (6)
14	08:51		15:49 (4)	08:02			06:57	06:41	05:37			05:04		21:12 (6)
	16:42	16	16:05 (4)	17:43			18:38	20:37	21:32			22:12	21	21:33 (6)
15	08:50		15:49 (4)	08:00			06:55	06:38	05:35			05:03		21:11 (6)
	16:44	18	16:07 (4)	17:45			18:40	20:39	21:34			22:13	21	21:32 (6)
16	08:49		15:49 (4)	07:58			06:52	06:36	05:34			05:03		21:11 (6)
	16:46	21	16:10 (4)	17:47			18:42	20:41	21:36			22:13	21	21:32 (6)
17	08:48		15:49 (4)	07:56			06:50	06:34	05:32			05:03		21:12 (6)
	16:47	23	16:12 (4)	17:49			18:44	20:43	21:37			22:14	20	21:32 (6)
18	08:47		15:50 (4)	07:54			06:47	06:31	05:30			05:03		21:12 (6)
	16:49	24	16:14 (4)	17:51			18:46	20:44	21:39			22:14	21	21:33 (6)
19	08:46		15:49 (4)	07:51			06:45	06:29	05:29			05:03		21:12 (6)
	16:51	27	16:16 (4)	17:53			18:48	20:46	21:41			22:15	21	21:33 (6)
20	08:45		15:49 (4)	07:49			06:42	06:27	05:27			05:03		21:13 (6)
	16:53	29	16:18 (4)	17:55			18:50	20:48	21:42			22:15	21	21:34 (6)
21	08:44		15:49 (4)	07:47			06:40	06:24	05:26			05:03		21:13 (6)
	16:55	31	16:20 (4)	17:57			18:52	20:50	21:44			22:15	21	21:34 (6)
22	08:42		15:49 (4)	07:45			06:37	06:22	05:24			05:03		21:13 (6)
	16:57	33	16:22 (4)	17:59			18:53	20:52	21:46			22:16	21	21:34 (6)
23	08:41		15:49 (4)	07:43			06:35	06:20	05:23			05:04		21:13 (6)
	16:58	33	16:22 (4)	18:01			18:55	20:54	21:47			22:16	21	21:34 (6)
24	08:40		15:50 (4)	07:40			06:32	06:18	05:21		21:13 (6)	05:04		21:14 (6)
	17:00	33	16:23 (4)	18:03			18:57	20:56	21:49	2	21:15 (6)	22:16	21	21:35 (6)
25	08:38		15:50 (4)	07:38			06:30	06:15	05:20		21:12 (6)	05:04		21:14 (6)
	17:02	33	16:23 (4)	18:05			18:59	20:58	21:50	4	21:16 (6)	22:16	20	21:34 (6)
26	08:37		15:49 (4)	07:36			06:27	06:13	05:19		21:11 (6)	05:05		21:13 (6)
	17:04	34	16:23 (4)	18:07			19:01	20:59	21:52	7	21:18 (6)	22:16	21	21:34 (6)
27	08:35		15:50 (4)	07:33			06:25	06:11	05:17		21:11 (6)	05:05		21:14 (6)
	17:06	34	16:24 (4)	18:09			19:03	21:01	21:53	8	21:19 (6)	22:16	21	21:35 (6)
28	08:34		15:51 (4)	07:31			06:22	06:09	05:16		21:11 (6)	05:06		21:14 (6)
	17:08	32	16:23 (4)	18:11			19:05	21:03	21:54	9	21:20 (6)	22:16	21	21:35 (6)
29	08:32		15:51 (4)				07:20	06:07	05:15		21:10 (6)	05:06		21:14 (6)
	17:10	32	16:23 (4)				20:07	21:05	21:56	11	21:21 (6)	22:15	21	21:35 (6)
30	08:30		15:51 (4)				07:17	06:04	05:14		21:10 (6)	05:07		21:15 (6)
	17:12	32	16:23 (4)				20:09	21:07	21:57	13	21:23 (6)	22:15	21	21:36 (6)
31	08:29		15:52 (4)				07:15		05:13		21:10 (6)			
	17:14	30	16:22 (4)				20:10		21:59	14	21:24 (6)			
Potential sun hours	248			272			367	421	496			513		
Total, worst case		775			166					68			611	
Sun reduction		0.17			0.22					0.36			0.26	
Oper. time red.		1.00			1.00					1.00			1.00	
Wind dir. red.		0.62			0.61					0.63			0.63	
Total reduction		0.11			0.14					0.23			0.16	
Total, real		82			23					15			99	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: B - H2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August		September		October		November			December		
1	05:08		21:14 (6)	05:48		06:44		07:38		07:37			08:33		14:57 (3)
	22:15	22	21:36 (6)	21:39		20:31		19:16		17:05			16:19	20	15:43 (4)
2	05:08		21:15 (6)	05:50		06:46		07:40		07:39			08:35		14:55 (3)
	22:14	21	21:36 (6)	21:37		20:28		19:14		17:02			16:18	21	15:41 (4)
3	05:09		21:15 (6)	05:52		06:47		07:42		07:41		15:35 (4)	08:36		14:55 (3)
	22:14	22	21:37 (6)	21:35		20:26		19:11		17:01	6	15:41 (4)	16:18	21	15:41 (4)
4	05:10		21:16 (6)	05:54		06:49		07:44		07:43		15:32 (4)	08:38		14:55 (3)
	22:13	21	21:37 (6)	21:33		20:24		19:09		16:59	14	15:46 (4)	16:17	20	15:40 (4)
5	05:11		21:15 (6)	05:55		06:51		07:45		07:45		15:29 (4)	08:39		14:54 (3)
	22:13	21	21:36 (6)	21:31		20:21		19:06		16:57	19	15:48 (4)	16:16	20	15:39 (4)
6	05:12		21:15 (6)	05:57		06:53		07:47		07:47		15:27 (4)	08:41		14:54 (3)
	22:12	21	21:36 (6)	21:29		20:19		19:04		16:55	22	15:49 (4)	16:16	19	15:13 (3)
7	05:13		21:16 (6)	05:59		06:55		07:49		07:49		15:26 (4)	08:42		14:54 (3)
	22:12	19	21:35 (6)	21:27		20:16		19:01		16:53	24	15:50 (4)	16:15	20	15:14 (3)
8	05:14		21:16 (6)	06:01		06:56		07:51		07:51		15:25 (4)	08:43		14:53 (3)
	22:11	19	21:35 (6)	21:25		20:14		18:59		16:51	26	15:51 (4)	16:15	21	15:14 (3)
9	05:15		21:16 (6)	06:02		06:58		07:53		07:53		15:24 (4)	08:45		14:54 (3)
	22:10	18	21:34 (6)	21:23		20:11		18:56		16:49	28	15:52 (4)	16:15	21	15:15 (3)
10	05:16		21:16 (6)	06:04		07:00		07:55		07:55		15:24 (4)	08:46		14:54 (3)
	22:09	17	21:33 (6)	21:21		20:09		18:54		16:47	30	15:54 (4)	16:14	22	15:16 (3)
11	05:17		21:17 (6)	06:06		07:02		07:57		07:57		15:24 (4)	08:47		14:54 (3)
	22:08	16	21:33 (6)	21:19		20:06		18:52		16:46	30	15:54 (4)	16:14	22	15:16 (3)
12	05:18		21:17 (6)	06:08		07:04		07:59		07:59		15:23 (4)	08:48		14:55 (3)
	22:07	15	21:32 (6)	21:17		20:04		18:49		16:44	32	15:55 (4)	16:14	23	15:18 (3)
13	05:20		21:18 (6)	06:09		07:05		08:00		08:01		15:23 (4)	08:49		14:55 (3)
	22:06	14	21:32 (6)	21:15		20:01		18:47		16:42	32	15:55 (4)	16:14	23	15:18 (3)
14	05:21		21:19 (6)	06:11		07:07		08:02		08:03		15:23 (4)	08:50		14:55 (3)
	22:05	12	21:31 (6)	21:13		19:59		18:45		16:41	32	15:55 (4)	16:14	24	15:19 (3)
15	05:22		21:19 (6)	06:13		07:09		08:04		08:05		15:22 (4)	08:51		14:56 (3)
	22:04	10	21:29 (6)	21:10		19:56		18:42		16:39	33	15:55 (4)	16:14	23	15:19 (3)
16	05:24		21:19 (6)	06:15		07:11		08:06		08:07		15:22 (4)	08:52		14:56 (3)
	22:03	9	21:28 (6)	21:08		19:54		18:40		16:37	34	15:56 (4)	16:14	24	15:20 (3)
17	05:25		21:21 (6)	06:17		07:13		08:08		08:09		15:22 (4)	08:53		14:56 (3)
	22:02	7	21:28 (6)	21:06		19:51		18:37		16:36	34	15:56 (4)	16:14	24	15:20 (3)
18	05:26		21:21 (6)	06:18		07:14		08:10		08:11		15:24 (4)	08:54		14:56 (3)
	22:00	5	21:26 (6)	21:04		19:49		18:35		16:34	33	15:57 (4)	16:14	24	15:20 (3)
19	05:28		21:22 (6)	06:20		07:16		08:12		08:12		15:24 (4)	08:54		14:57 (3)
	21:59	3	21:25 (6)	21:01		19:46		18:33		16:33	33	15:57 (4)	16:14	24	15:21 (3)
20	05:29			06:22		07:18		08:14		08:14		15:24 (4)	08:55		14:57 (3)
	21:58			20:59		19:44		18:31		16:31	33	15:57 (4)	16:15	24	15:21 (3)
21	05:31			06:24		07:20		08:16		08:16		15:25 (4)	08:56		14:58 (3)
	21:56			20:57		19:41		18:28		16:30	31	15:56 (4)	16:15	24	15:22 (3)
22	05:32			06:26		07:22		08:18		08:18		15:25 (4)	08:56		14:59 (3)
	21:55			20:55		19:39		18:26		16:29	29	15:54 (4)	16:16	24	15:23 (3)
23	05:34			06:27		07:23		08:20		08:20		15:26 (4)	08:57		14:59 (3)
	21:54			20:52		19:36		18:24		16:28	27	15:53 (4)	16:16	24	15:23 (3)
24	05:35			06:29		07:25		08:22		08:22		15:27 (4)	08:57		14:59 (3)
	21:52			20:50		19:34		18:22		16:26	24	15:51 (4)	16:17	24	15:23 (3)
25	05:37			06:31		07:27		07:24		08:23		15:27 (4)	08:58		15:00 (3)
	21:50			20:48		19:31		17:19		16:25	23	15:50 (4)	16:17	24	15:24 (3)
26	05:38			06:33		07:29		07:26		08:25		15:28 (4)	08:58		15:01 (3)
	21:49			20:45		19:29		17:17		16:24	21	15:49 (4)	16:18	24	15:25 (3)
27	05:40			06:35		07:31		07:28		08:27		15:28 (4)	08:58		15:01 (3)
	21:47			20:43		19:26		17:15		16:23	19	15:47 (4)	16:19	24	15:25 (3)
28	05:42			06:37		07:33		07:29		08:28		15:29 (4)	08:58		15:02 (3)
	21:46			20:41		19:24		17:13		16:22	17	15:46 (4)	16:20	23	15:25 (3)
29	05:43			06:38		07:34		07:31		08:30		15:30 (4)	08:58		15:02 (3)
	21:44			20:38		19:21		17:11		16:21	15	15:45 (4)	16:21	24	15:26 (3)
30	05:45			06:40		07:36		07:33		08:32		14:59 (3)	08:58		15:03 (3)
	21:42			20:36		19:19		17:09		16:20	18	15:44 (4)	16:22	23	15:26 (3)
31	05:47			06:42				07:35					08:58		15:04 (3)
	21:40			20:33				17:07					16:23	23	15:27 (3)
Potential sun hours	515			461		382		328		257			231		
Total, worst case		292									719			701	
Sun reduction		0.27									0.20			0.12	
Oper. time red.		1.00									1.00			1.00	
Wind dir. red.		0.63									0.61			0.63	
Total reduction		0.17									0.12			0.08	
Total, real		49									88			53	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: C - H3

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April	May	June	July	August	September		October		November	December
1	08:58	08:27	07:29		07:12	06:02	05:12	05:08	05:48	06:44		07:38		18:42 (5)	07:37	08:33
	16:24	17:16	18:13		20:12	21:09	22:00	22:15	21:39	20:31		19:16	6	18:48 (5)	17:04	16:19
2	08:58	08:25	07:26		07:10	06:00	05:11	05:08	05:50	06:46		07:40		18:42 (5)	07:39	08:35
	16:25	17:18	18:15		20:14	21:11	22:01	22:14	21:37	20:28		19:14	2	18:44 (5)	17:02	16:18
3	08:58	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:47		07:42			07:41	08:36
	16:26	17:20	18:17		20:16	21:12	22:02	22:14	21:35	20:26		19:11			17:00	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:53	06:49		07:44			07:43	08:38
	16:27	17:22	18:19		20:18	21:14	22:03	22:13	21:33	20:24		19:09			16:58	16:17
5	08:57	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51		07:45			07:45	08:39
	16:29	17:24	18:21		20:20	21:16	22:04	22:13	21:31	20:21		19:06			16:57	16:16
6	08:57	08:18	07:17		07:00	05:52	05:07	05:12	05:57	06:53		07:47			07:47	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19		19:04			16:55	16:16
7	08:56	08:16	07:14		06:58	05:50	05:07	05:13	05:59	06:55		07:49			07:49	08:42
	16:31	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16		19:01			16:53	16:15
8	08:56	08:14	07:12		06:55	05:48	05:06	05:14	06:00	06:56		07:51			07:51	08:43
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14		18:59			16:51	16:15
9	08:55	08:12	07:09		06:53	05:46	05:06	05:15	06:02	06:58		07:53			07:53	08:45
	16:34	17:32	18:28		20:27	21:23	22:08	22:10	21:23	20:11		18:56			16:49	16:15
10	08:55	08:10	07:07		06:50	05:44	05:05	05:16	06:04	07:00		07:55			07:55	08:46
	16:36	17:34	18:30		20:29	21:25	22:09	22:09	21:21	20:09		18:54			16:47	16:14
11	08:54	08:08	07:05		06:48	05:42	05:05	05:17	06:06	07:02		07:57			07:57	08:47
	16:37	17:36	18:32		20:31	21:27	22:10	22:08	21:19	20:06		18:52			16:46	16:14
12	08:53	08:06	07:02		18:03 (5)	06:46	05:40	05:04	05:18	06:08		07:04			07:59	08:48
	16:39	17:38	18:34	4	18:07 (5)	20:33	21:29	22:11	22:07	21:17		20:04			16:44	16:14
13	08:52	08:04	07:00		18:02 (5)	06:43	05:39	05:04	05:20	06:09		07:05			08:01	08:49
	16:41	17:41	18:36	7	18:09 (5)	20:35	21:31	22:12	22:06	21:15		20:01			16:42	16:14
14	08:51	08:02	06:57		18:01 (5)	06:41	05:37	05:04	05:21	06:11		07:07			08:03	08:50
	16:42	17:43	18:38	10	18:11 (5)	20:37	21:32	22:12	22:05	21:13		19:59			16:40	16:14
15	08:50	08:00	06:55		18:01 (5)	06:38	05:35	05:03	05:22	06:13		07:09			08:05	08:51
	16:44	17:45	18:40	12	18:13 (5)	20:39	21:34	22:13	22:04	21:10		19:56			16:39	16:14
16	08:49	07:58	06:52		18:00 (5)	06:36	05:33	05:03	05:23	06:15		07:11			08:07	08:52
	16:46	17:47	18:42	15	18:15 (5)	20:41	21:36	22:13	22:03	21:08		19:54			16:37	16:14
17	08:48	07:56	06:50		18:01 (5)	06:34	05:32	05:03	05:25	06:17		07:13			08:09	08:53
	16:47	17:49	18:44	16	18:17 (5)	20:43	21:37	22:14	22:02	21:06		19:51			16:36	16:14
18	08:47	07:54	06:47		18:01 (5)	06:31	05:30	05:03	05:26	06:18		07:14			08:11	08:54
	16:49	17:51	18:46	16	18:17 (5)	20:44	21:39	22:14	22:00	21:04		19:49			16:34	16:14
19	08:46	07:51	06:45		18:02 (5)	06:29	05:29	05:03	05:28	06:20		07:16			08:12	08:54
	16:51	17:53	18:48	14	18:16 (5)	20:46	21:41	22:15	21:59	21:01		19:46			16:33	16:14
20	08:45	07:49	06:42		18:03 (5)	06:27	05:27	05:03	05:29	06:22		07:18			08:14	08:55
	16:53	17:55	18:50	11	18:14 (5)	20:48	21:42	22:15	21:58	20:59		19:44			16:31	16:15
21	08:44	07:47	06:40		18:07 (5)	06:24	05:25	05:03	05:31	06:24		07:20			08:16	08:56
	16:55	17:57	18:52	3	18:10 (5)	20:50	21:44	22:15	21:56	20:57		19:41			16:30	16:15
22	08:42	07:45	06:37			06:22	05:24	05:03	05:32	06:26		07:22			08:18	08:56
	16:56	17:59	18:53			20:52	21:46	22:16	21:55	20:55		19:39			16:29	16:16
23	08:41	07:43	06:35			06:20	05:23	05:04	05:34	06:27		07:23		18:49 (5)	08:20	08:57
	16:58	18:01	18:55			20:54	21:47	22:16	21:54	20:52		19:36	9	18:58 (5)	16:27	16:16
24	08:40	07:40	06:32			06:18	05:21	05:04	05:35	06:29		07:25		18:46 (5)	08:22	08:57
	17:00	18:03	18:57			20:56	21:49	22:16	21:52	20:50		19:34	13	18:59 (5)	16:26	16:17
25	08:38	07:38	06:30			06:15	05:20	05:04	05:37	06:31		07:27		18:45 (5)	07:24	08:58
	17:02	18:05	18:59			20:58	21:50	22:16	21:50	20:48		19:31	16	19:01 (5)	17:19	16:17
26	08:37	07:36	06:27			06:13	05:19	05:05	05:38	06:33		07:29		18:43 (5)	07:26	08:58
	17:04	18:07	19:01			20:59	21:52	22:16	21:49	20:45		19:29	17	19:00 (5)	17:17	16:18
27	08:35	07:33	06:25			06:11	05:17	05:05	05:40	06:35		07:31		18:42 (5)	07:27	08:58
	17:06	18:09	19:03			21:01	21:53	22:16	21:47	20:43		19:26	15	18:57 (5)	17:15	16:19
28	08:34	07:31	06:22			06:09	05:16	05:06	05:42	06:36		07:33		18:42 (5)	07:29	08:58
	17:08	18:11	19:05			21:03	21:54	22:16	21:46	20:40		19:24	13	18:55 (5)	17:13	16:20
29	08:32		07:20			06:06	05:15	05:06	05:43	06:38		07:34		18:42 (5)	07:31	08:58
	17:10		20:07			21:05	21:56	22:15	21:44	20:38		19:21	11	18:53 (5)	17:11	16:21
30	08:30		07:17			06:04	05:14	05:07	05:45	06:40		07:36		18:42 (5)	07:33	08:58
	17:12		20:09			21:07	21:57	22:15	21:42	20:36		19:19	8	18:50 (5)	17:09	16:21
31	08:29		07:15				05:13		05:47	06:42					07:35	08:58
	17:14		20:10				21:59		21:40	20:33					17:07	16:22
Potential sun hours	248	272	367		421	496	513	515	461	382		328		257	231	
Total, worst case				108							102		8			
Sun reduction				0.22							0.29		0.23			
Oper. time red.				1.00							1.00		1.00			
Wind dir. red.				0.57							0.57		0.57			
Total reduction				0.13							0.17		0.13			
Total, real				14							17		1			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: D - H4

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:12	05:08	05:48	06:44	07:38	18:34 (5)	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	18:48 (6)	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:08	05:50	06:46	07:40	18:34 (5)	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	18:45 (6)	17:02	16:18
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	18:34 (5)	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	18:42 (6)	17:00	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:53	06:49	07:44	18:35 (6)	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	18:40 (6)	16:58	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	18:36 (6)	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	18:37 (6)	16:57	16:16
6	08:57	08:18	07:17	07:00	05:52	05:07	05:12	05:57	06:53	07:47		07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04		16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49		07:49	08:42
	16:31	17:28	18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01		16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51		07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:08	22:11	21:25	20:14	18:59		16:51	16:15
9	08:55	08:12	07:09	17:58 (6)	06:53	05:46	05:06	05:15	06:02	06:58	07:53		07:53	08:45
	16:34	17:32	18:29	3 18:01 (6)	20:27	21:23	22:08	22:10	21:23	20:11	18:56		16:49	16:15
10	08:55	08:10	07:07	17:56 (5)	06:50	05:44	05:05	05:16	06:04	07:00	07:55		07:55	08:46
	16:36	17:34	18:30	7 18:03 (6)	20:29	21:25	22:09	22:09	21:21	20:09	18:54		16:47	16:14
11	08:54	08:08	07:05	17:56 (5)	06:48	05:42	05:05	05:17	06:06	07:02	07:57		07:57	08:47
	16:37	17:36	18:32	9 18:05 (6)	20:31	21:27	22:10	22:08	21:19	20:06	18:52		16:46	16:14
12	08:53	08:06	07:02	17:54 (5)	06:46	05:40	05:04	05:18	06:08	07:04	07:59		07:59	08:48
	16:39	17:38	18:34	13 18:07 (6)	20:33	21:29	22:11	22:07	21:17	20:04	18:49		16:44	16:14
13	08:52	08:04	07:00	17:54 (5)	06:43	05:39	05:04	05:20	06:09	07:05	08:00		08:01	08:49
	16:41	17:41	18:36	15 18:09 (6)	20:35	21:31	22:12	22:06	21:15	20:01	18:47		16:42	16:14
14	08:51	08:02	06:57	17:54 (5)	06:41	05:37	05:04	05:21	06:11	07:07	08:02		08:03	08:50
	16:42	17:43	18:38	17 18:11 (6)	20:37	21:32	22:12	22:05	21:13	19:59	18:44		16:40	16:14
15	08:50	08:00	06:55	17:54 (5)	06:38	05:35	05:03	05:22	06:13	07:09	08:04		08:05	08:51
	16:44	17:45	18:40	19 18:13 (5)	20:39	21:34	22:13	22:04	21:10	19:56	18:42		16:39	16:14
16	08:49	07:58	06:52	17:54 (5)	06:36	05:33	05:03	05:23	06:15	07:11	08:06		08:07	08:52
	16:46	17:47	18:42	19 18:13 (5)	20:41	21:36	22:14	22:03	21:08	19:54	18:40		16:37	16:14
17	08:48	07:56	06:50	17:55 (5)	06:34	05:32	05:03	05:25	06:17	07:13	08:08		08:09	08:53
	16:47	17:49	18:44	17 18:12 (5)	20:43	21:37	22:14	22:02	21:06	19:51	18:37		16:36	16:14
18	08:47	07:54	06:47	17:56 (5)	06:31	05:30	05:03	05:26	06:18	07:14	08:10		08:11	08:54
	16:49	17:51	18:46	14 18:10 (5)	20:44	21:39	22:14	22:01	21:04	19:49	18:35		16:34	16:14
19	08:46	07:51	06:45	17:58 (5)	06:29	05:29	05:03	05:28	06:20	07:16	08:12		08:12	08:54
	16:51	17:53	18:48	11 18:09 (5)	20:46	21:41	22:15	21:59	21:01	19:46	18:33		16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14		08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30		16:31	16:15
21	08:44	07:47	06:40	06:24	05:25	05:03	05:31	06:24	07:20	08:16		08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28		16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:03	05:32	06:26	07:22	08:18		08:18	08:56
	16:56	17:59	18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26		16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:27	07:23	08:20		08:20	08:57
	16:58	18:01	18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24		16:27	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	18:43 (5)	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	8 18:51 (5)	18:21	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	18:40 (5)	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	13 18:53 (5)	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	05:05	05:38	06:33	07:29	18:37 (5)	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17 18:54 (5)	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	18:36 (5)	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	19 18:55 (5)	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:36	07:33	18:35 (5)	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:16	21:46	20:41	19:24	20 18:55 (5)	17:13	16:22	16:20
29	08:32		07:20	06:06	05:15	05:06	05:43	06:38	07:34	18:35 (5)	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	18 18:53 (5)	17:11	16:21	16:21
30	08:31		07:17	06:04	05:14	05:07	05:45	06:40	07:36	18:34 (5)	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	16 18:50 (6)	17:09	16:20	16:21
31	08:29		07:15		05:13		05:47	06:42			07:35		08:58
	17:14		20:10		21:59		21:40	20:33			17:07		16:22
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231	
Total, worst case			144						111	39			
Sun reduction			0.22						0.29	0.23			
Oper. time red.			1.00						1.00	1.00			
Wind dir. red.			0.57						0.57	0.57			
Total reduction			0.13						0.17	0.13			
Total, real			18						18	5			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: E - H5

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February	March	April		May		June		
1	08:58		13:58 (10)	08:27	07:29		07:12		06:02		19:32 (11)	05:12	
	16:24	53	14:51 (10)	17:16	18:13		20:12		21:09	47	20:19 (11)	22:00	
2	08:58		13:59 (10)	08:25	07:26		07:10		06:00		19:32 (11)	05:11	
	16:25	52	14:51 (10)	17:18	18:15		20:14		21:11	46	20:18 (11)	22:01	
3	08:58		14:00 (10)	08:24	07:24		07:08		05:58		19:32 (11)	05:10	
	16:26	52	14:52 (10)	17:20	18:17		20:16		21:13	46	20:18 (11)	22:02	
4	08:58		14:00 (10)	08:22	07:22		07:05		05:56		19:32 (11)	05:09	
	16:27	52	14:52 (10)	17:22	18:19		20:18		21:14	46	20:18 (11)	22:03	
5	08:57		14:00 (10)	08:20	07:19		07:03		05:54		19:33 (11)	05:08	
	16:29	52	14:52 (10)	17:24	18:21		20:20		21:16	46	20:19 (11)	22:05	
6	08:57		14:01 (10)	08:18	07:17		07:00		05:52		19:33 (11)	05:07	
	16:30	52	14:53 (10)	17:26	18:23		20:22		21:18	45	20:18 (11)	22:06	
7	08:56		14:01 (10)	08:16	07:14		06:58		05:50		19:33 (11)	05:07	
	16:31	52	14:53 (10)	17:28	18:25		20:24		21:20	45	20:18 (11)	22:07	
8	08:56		14:02 (10)	08:14	07:12		06:55		05:48		19:33 (11)	05:06	
	16:33	51	14:53 (10)	17:30	18:27		20:26		21:22	44	20:17 (11)	22:08	
9	08:55		14:03 (10)	08:12	07:09		06:53		05:46		19:33 (11)	05:05	
	16:34	51	14:54 (10)	17:32	18:28		20:27		21:23	43	20:16 (11)	22:09	
10	08:55		14:04 (10)	08:10	07:07		06:50		05:44		19:34 (11)	05:05	
	16:36	50	14:54 (10)	17:34	18:30		20:29		21:25	43	20:17 (11)	22:09	
11	08:54		14:04 (10)	08:08	07:05		06:48		05:42		19:34 (11)	05:04	
	16:37	50	14:54 (10)	17:36	18:32		20:31		21:27	42	20:16 (11)	22:10	
12	08:53		14:05 (10)	08:06	07:02		06:46		05:40		19:35 (11)	05:04	21:23 (12)
	16:39	49	14:54 (10)	17:38	18:34		20:33		21:29	40	20:15 (11)	22:11	7	21:30 (12)
13	08:52		14:06 (10)	08:04	07:00		06:43		05:39		19:36 (11)	05:04		21:22 (12)
	16:40	48	14:54 (10)	17:40	18:36		20:35		21:31	39	20:15 (11)	22:12	9	21:31 (12)
14	08:51		14:07 (10)	08:02	06:57		06:41		05:37		19:36 (11)	05:03		21:20 (12)
	16:42	47	14:54 (10)	17:43	18:38		20:37		21:32	38	20:14 (11)	22:12	12	21:32 (12)
15	08:51		14:06 (10)	08:00	06:55		06:38		19:56 (11)	05:35		19:37 (11)	05:03		21:20 (12)
	16:44	47	14:53 (10)	17:45	18:40		20:39	6	20:02 (11)	21:34	35	20:12 (11)	22:13	13	21:33 (12)
16	08:50		14:08 (10)	07:58	06:52		06:36		19:50 (11)	05:33		19:38 (11)	05:03		21:20 (12)
	16:46	45	14:53 (10)	17:47	18:42		20:41	17	20:07 (11)	21:36	34	20:12 (11)	22:14	14	21:34 (12)
17	08:48		14:09 (10)	07:56	06:50		06:34		19:46 (11)	05:32		19:39 (11)	05:03		21:19 (12)
	16:47	45	14:54 (10)	17:49	18:44		20:43	23	20:09 (11)	21:37	32	20:11 (11)	22:14	15	21:34 (12)
18	08:47		14:10 (10)	07:54	06:47		06:31		19:44 (11)	05:30		19:40 (11)	05:03		21:19 (12)
	16:49	44	14:54 (10)	17:51	18:46		20:44	28	20:12 (11)	21:39	30	20:10 (11)	22:15	16	21:35 (12)
19	08:46		14:10 (10)	07:51	06:45		06:29		19:42 (11)	05:28		19:41 (11)	05:03		21:19 (12)
	16:51	43	14:53 (10)	17:53	18:48		20:46	31	20:13 (11)	21:41	28	20:09 (11)	22:15	16	21:35 (12)
20	08:45		14:12 (10)	07:49	06:42		06:27		19:40 (11)	05:27		19:43 (11)	05:03		21:19 (12)
	16:53	41	14:53 (10)	17:55	18:50		20:48	34	20:14 (11)	21:42	25	20:08 (11)	22:15	16	21:35 (12)
21	08:44		14:13 (10)	07:47	06:40		06:24		19:39 (11)	05:25		19:45 (11)	05:03		21:20 (12)
	16:55	39	14:52 (10)	17:57	18:52		20:50	36	20:15 (11)	21:44	22	20:07 (11)	22:15	16	21:36 (12)
22	08:42		14:14 (10)	07:45	06:37		06:22		19:38 (11)	05:24		19:46 (11)	05:03		21:20 (12)
	16:56	38	14:52 (10)	17:59	18:53		20:52	38	20:16 (11)	21:46	19	20:05 (11)	22:16	16	21:36 (12)
23	08:41		14:15 (10)	07:43	06:35		06:20		19:37 (11)	05:22		19:48 (11)	05:03		21:20 (12)
	16:58	35	14:50 (10)	18:01	18:55		20:54	40	20:17 (11)	21:47	15	20:03 (11)	22:16	16	21:36 (12)
24	08:40		14:18 (10)	07:40	06:32		06:17		19:36 (11)	05:21		19:51 (11)	05:04		21:20 (12)
	17:00	32	14:50 (10)	18:03	18:57		20:56	42	20:18 (11)	21:49	10	20:01 (11)	22:16	16	21:36 (12)
25	08:38		14:19 (10)	07:38	06:30		06:15		19:35 (11)	05:20			05:04		21:21 (12)
	17:02	29	14:48 (10)	18:05	18:59		20:58	43	20:18 (11)	21:50			22:16	16	21:37 (12)
26	08:37		14:21 (10)	07:36	06:27		06:13		19:34 (11)	05:18			05:05		21:22 (12)
	17:04	26	14:47 (10)	18:07	19:01		20:59	44	20:18 (11)	21:52			22:16	14	21:36 (12)
27	08:35		14:24 (10)	07:33	06:25		06:11		19:33 (11)	05:17			05:05		21:23 (12)
	17:06	21	14:45 (10)	18:09	19:03		21:01	45	20:18 (11)	21:53			22:16	13	21:36 (12)
28	08:34		14:28 (10)	07:31	06:22		06:09		19:33 (11)	05:16			05:06		21:23 (12)
	17:08	14	14:42 (10)	18:11	19:05		21:03	45	20:18 (11)	21:55			22:16	12	21:35 (12)
29	08:32				07:20		06:06		19:33 (11)	05:15			05:06		21:25 (12)
	17:10				20:07		21:05	46	20:19 (11)	21:56			22:15	10	21:35 (12)
30	08:31				07:17		06:04		19:32 (11)	05:14			05:07		21:26 (12)
	17:12				20:09		21:07	47	20:19 (11)	21:57			22:15	8	21:34 (12)
31	08:29				07:15					05:13					
	17:14				20:10					21:59					
Potential sun hours	248			272	367		421			496			513		
Total, worst case		1210						565			860			255	
Sun reduction		0.17						0.34			0.36			0.26	
Oper. time red.		1.00						1.00			1.00			1.00	
Wind dir. red.		0.67						0.60			0.60			0.64	
Total reduction		0.11						0.20			0.22			0.17	
Total, real		137						116			185			42	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: E - H5

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November			December		
1	05:07		21:28 (12)	05:48		19:45 (11)	06:44	07:38	07:37			08:33		13:46 (10)
	22:15	4	21:32 (12)	21:39	40	20:25 (11)	20:31	19:16	17:04			16:19	50	14:36 (10)
2	05:08			05:50		19:45 (11)	06:45	07:40	07:39			08:35		13:46 (10)
	22:14			21:37	41	20:26 (11)	20:28	19:14	17:02			16:18	50	14:36 (10)
3	05:09			05:52		19:43 (11)	06:47	07:42	07:41			08:36		13:46 (10)
	22:14			21:35	43	20:26 (11)	20:26	19:11	17:00			16:18	51	14:37 (10)
4	05:10			05:53		19:43 (11)	06:49	07:44	07:43			08:38		13:47 (10)
	22:13			21:33	44	20:27 (11)	20:24	19:09	16:58			16:17	51	14:38 (10)
5	05:11			05:55		19:43 (11)	06:51	07:45	07:45			08:39		13:46 (10)
	22:13			21:31	45	20:28 (11)	20:21	19:06	16:56			16:16	52	14:38 (10)
6	05:12			05:57		19:42 (11)	06:53	07:47	07:47			08:41		13:47 (10)
	22:12			21:29	45	20:27 (11)	20:19	19:04	16:55			16:16	52	14:39 (10)
7	05:13			05:59		19:42 (11)	06:55	07:49	07:49			08:42		13:47 (10)
	22:12			21:27	46	20:28 (11)	20:16	19:01	16:53			16:15	52	14:39 (10)
8	05:14			06:00		19:42 (11)	06:56	07:51	07:51			08:43		13:48 (10)
	22:11			21:25	46	20:28 (11)	20:14	18:59	16:51			16:15	52	14:40 (10)
9	05:15			06:02		19:41 (11)	06:58	07:53	07:53			08:45		13:48 (10)
	22:10			21:23	46	20:27 (11)	20:11	18:56	16:49			16:14	52	14:40 (10)
10	05:16			06:04		19:41 (11)	07:00	07:55	07:55			08:46		13:48 (10)
	22:09			21:21	47	20:28 (11)	20:09	18:54	16:47			16:14	52	14:40 (10)
11	05:17			06:06		19:41 (11)	07:02	07:57	07:57			08:47		13:48 (10)
	22:08			21:19	47	20:28 (11)	20:06	18:52	16:45			16:14	53	14:41 (10)
12	05:18			06:08		19:41 (11)	07:04	07:59	07:59			08:48		13:49 (10)
	22:07			21:17	46	20:27 (11)	20:04	18:49	16:44			16:14	53	14:42 (10)
13	05:19			06:09		19:41 (11)	07:05	08:00	08:01			08:49		13:49 (10)
	22:06			21:15	46	20:27 (11)	20:01	18:47	16:42			16:14	53	14:42 (10)
14	05:21			06:11		19:41 (11)	07:07	08:02	08:03		14:00 (10)	08:50		13:50 (10)
	22:05			21:13	46	20:27 (11)	19:59	18:44	16:40	14	14:14 (10)	16:14	53	14:43 (10)
15	05:22			06:13		19:40 (11)	07:09	08:04	08:05		13:56 (10)	08:51		13:50 (10)
	22:04			21:10	46	20:26 (11)	19:56	18:42	16:39	21	14:17 (10)	16:14	53	14:43 (10)
16	05:23			06:15		19:41 (11)	07:11	08:06	08:07		13:54 (10)	08:52		13:51 (10)
	22:03			21:08	45	20:26 (11)	19:54	18:40	16:37	26	14:20 (10)	16:14	53	14:44 (10)
17	05:25			06:17		19:41 (11)	07:13	08:08	08:09		13:53 (10)	08:53		13:51 (10)
	22:02			21:06	44	20:25 (11)	19:51	18:37	16:36	29	14:22 (10)	16:14	54	14:45 (10)
18	05:26			06:18		19:41 (11)	07:14	08:10	08:11		13:52 (10)	08:54		13:51 (10)
	22:01			21:04	43	20:24 (11)	19:49	18:35	16:34	32	14:24 (10)	16:14	53	14:44 (10)
19	05:28		20:04 (11)	06:20		19:42 (11)	07:16	08:12	08:12		13:50 (10)	08:55		13:52 (10)
	21:59	4	20:08 (11)	21:01	41	20:23 (11)	19:46	18:33	16:33	35	14:25 (10)	16:14	53	14:45 (10)
20	05:29		19:59 (11)	06:22		19:43 (11)	07:18	08:14	08:14		13:49 (10)	08:55		13:53 (10)
	21:58	12	20:11 (11)	20:59	40	20:23 (11)	19:44	18:30	16:31	38	14:27 (10)	16:15	53	14:46 (10)
21	05:31		19:57 (11)	06:24		19:43 (11)	07:20	08:16	08:16		13:49 (10)	08:56		13:53 (10)
	21:57	17	20:14 (11)	20:57	38	20:21 (11)	19:41	18:28	16:30	39	14:28 (10)	16:15	53	14:46 (10)
22	05:32		19:55 (11)	06:26		19:44 (11)	07:22	08:18	08:18		13:48 (10)	08:56		13:54 (10)
	21:55	21	20:16 (11)	20:55	36	20:20 (11)	19:39	18:26	16:29	41	14:29 (10)	16:15	53	14:47 (10)
23	05:34		19:54 (11)	06:27		19:45 (11)	07:23	08:20	08:20		13:47 (10)	08:57		13:54 (10)
	21:54	24	20:18 (11)	20:52	33	20:18 (11)	19:36	18:24	16:27	43	14:30 (10)	16:16	53	14:47 (10)
24	05:35		19:52 (11)	06:29		19:46 (11)	07:25	08:22	08:22		13:47 (10)	08:57		13:54 (10)
	21:52	27	20:19 (11)	20:50	31	20:17 (11)	19:34	18:21	16:26	44	14:31 (10)	16:17	53	14:47 (10)
25	05:37		19:51 (11)	06:31		19:47 (11)	07:27	07:24	08:23		13:47 (10)	08:58		13:55 (10)
	21:51	29	20:20 (11)	20:48	27	20:14 (11)	19:31	17:19	16:25	45	14:32 (10)	16:17	53	14:48 (10)
26	05:38		19:50 (11)	06:33		19:49 (11)	07:29	07:26	08:25		13:47 (10)	08:58		13:55 (10)
	21:49	31	20:21 (11)	20:45	23	20:12 (11)	19:29	17:17	16:24	46	14:33 (10)	16:18	53	14:48 (10)
27	05:40		19:49 (11)	06:35		19:52 (11)	07:31	07:28	08:27		13:47 (10)	08:58		13:56 (10)
	21:47	33	20:22 (11)	20:43	17	20:09 (11)	19:26	17:15	16:23	46	14:33 (10)	16:19	53	14:49 (10)
28	05:42		19:48 (11)	06:36		19:57 (11)	07:33	07:29	08:29		13:46 (10)	08:58		13:56 (10)
	21:46	35	20:23 (11)	20:41	5	20:02 (11)	19:24	17:13	16:22	47	14:33 (10)	16:20	53	14:49 (10)
29	05:43		19:48 (11)	06:38			07:34	07:31	08:30		13:46 (10)	08:58		13:57 (10)
	21:44	36	20:24 (11)	20:38			19:21	17:11	16:21	48	14:34 (10)	16:20	53	14:50 (10)
30	05:45		19:46 (11)	06:40			07:36	07:33	08:32		13:46 (10)	08:59		13:57 (10)
	21:42	38	20:24 (11)	20:36			19:19	17:09	16:20	49	14:35 (10)	16:21	53	14:50 (10)
31	05:47		19:46 (11)	06:42				07:35				08:58		13:58 (10)
	21:40	39	20:25 (11)	20:33				17:06				16:22	53	14:51 (10)
Potential sun hours	515			461			382	328	257			231		
Total, worst case		350			1097					643			1628	
Sun reduction		0.27			0.27					0.20			0.12	
Oper. time red.		1.00			1.00					1.00			1.00	
Wind dir. red.		0.60			0.60					0.67			0.67	
Total reduction		0.16			0.16					0.13			0.08	
Total, real		56			179					85			130	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: F - H6

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April	May	June	July	August	September		October	November	December
1	08:58	08:27	07:29		07:13	06:02	05:12	05:08	05:48	06:44		07:38	07:37	08:33
	16:24	17:16	18:13		20:12	21:09	22:00	22:15	21:39	20:31		19:16	17:05	16:19
2	08:58	08:25	07:26		07:10	06:00	05:11	05:08	05:50	06:46		07:40	07:39	08:35
	16:25	17:18	18:15		20:14	21:11	22:01	22:14	21:37	20:29		19:14	17:03	16:19
3	08:58	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:47		07:42	07:41	08:36
	16:26	17:20	18:17		20:16	21:13	22:02	22:14	21:35	20:26		19:11	17:01	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:54	06:49		07:44	07:43	08:38
	16:28	17:22	18:19		20:18	21:14	22:03	22:13	21:33	20:24		19:09	16:59	16:17
5	08:57	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51		07:46	07:45	08:39
	16:29	17:24	18:21		20:20	21:16	22:05	22:13	21:31	20:21		19:06	16:57	16:17
6	08:57	08:18	07:17		07:00	05:52	05:08	05:12	05:57	06:53		07:47	07:47	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19		19:04	16:55	16:16
7	08:56	08:16	07:14		06:58	05:50	05:07	05:13	05:59	06:55		07:49	07:49	08:42
	16:32	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16		19:01	16:53	16:15
8	08:56	08:14	07:12		06:55	05:48	05:06	05:14	06:01	06:56		07:51	07:51	08:43
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14		18:59	16:51	16:15
9	08:55	08:12	07:10		06:53	05:46	05:06	05:15	06:02	06:58		07:53	07:53	08:45
	16:34	17:32	18:29		20:28	21:24	22:09	22:10	21:23	20:11		18:57	16:49	16:15
10	08:55	08:10	07:07		06:50	05:44	05:05	05:16	06:04	07:00		07:55	07:55	08:46
	16:36	17:34	18:31		20:29	21:25	22:09	22:09	21:21	20:09		18:54	16:47	16:14
11	08:54	08:08	07:05		06:48	05:42	05:05	05:17	06:06	07:02		07:57	07:57	08:47
	16:37	17:37	18:32		20:31	21:27	22:10	22:08	21:19	20:06		18:52	16:46	16:14
12	08:53	08:06	07:02		06:46	05:41	05:04	05:18	06:08	07:04	07:41 (1)	07:59	07:59	08:48
	16:39	17:39	18:34		20:33	21:29	22:11	22:07	21:17	20:04	9 07:50 (1)	18:49	16:44	16:14
13	08:52	08:04	07:00		06:43	05:39	05:04	05:20	06:10	07:05	07:37 (1)	08:01	08:01	08:49
	16:41	17:41	18:36		20:35	21:31	22:12	22:06	21:15	20:01	14 07:51 (1)	18:47	16:42	16:14
14	08:51	08:02	06:57		06:41	05:37	05:04	05:21	06:11	07:07	07:35 (1)	08:02	08:03	08:50
	16:42	17:43	18:38		20:37	21:32	22:12	22:05	21:13	19:59	18 07:53 (1)	18:45	16:41	16:14
15	08:50	08:00	06:55		06:38	05:35	05:03	05:22	06:13	07:09	07:36 (1)	08:04	08:05	08:51
	16:44	17:45	18:40		20:39	21:34	22:13	22:04	21:10	19:56	18 07:54 (1)	18:42	16:39	16:14
16	08:50	07:58	06:52		06:36	05:34	05:03	05:24	06:15	07:11	07:38 (1)	08:06	08:07	08:52
	16:46	17:47	18:42		20:41	21:36	22:14	22:03	21:08	19:54	17 07:55 (1)	18:40	16:37	16:14
17	08:48	07:56	06:50		06:34	05:32	05:03	05:25	06:17	07:13	07:39 (1)	08:08	08:09	08:53
	16:47	17:49	18:44		20:43	21:37	22:14	22:02	21:06	19:51	16 07:55 (1)	18:38	16:36	16:14
18	08:47	07:54	06:47		06:31	05:30	05:03	05:26	06:19	07:14	07:41 (1)	08:10	08:11	08:54
	16:49	17:51	18:46		20:44	21:39	22:14	22:01	21:04	19:49	14 07:55 (1)	18:35	16:34	16:14
19	08:46	07:52	06:45		06:29	05:29	05:03	05:28	06:20	07:16	07:43 (1)	08:12	08:12	08:55
	16:51	17:53	18:48		20:46	21:41	22:15	21:59	21:02	19:46	12 07:55 (1)	18:33	16:33	16:14
20	08:45	07:49	06:42	07:06 (1)	06:27	05:27	05:03	05:29	06:22	07:18	07:45 (1)	08:14	08:14	08:55
	16:53	17:55	18:50	1 07:07 (1)	20:48	21:42	22:15	21:58	20:59	19:44	10 07:55 (1)	18:31	16:32	16:15
21	08:44	07:47	06:40	07:04 (1)	06:24	05:26	05:03	05:31	06:24	07:20	07:46 (1)	08:16	08:16	08:56
	16:55	17:57	18:52	4 07:08 (1)	20:50	21:44	22:15	21:57	20:57	19:41	8 07:54 (1)	18:28	16:30	16:15
22	08:42	07:45	06:37	07:01 (1)	06:22	05:24	05:03	05:32	06:26	07:22	07:48 (1)	08:18	08:18	08:56
	16:57	17:59	18:54	7 07:08 (1)	20:52	21:46	22:16	21:55	20:55	19:39	5 07:53 (1)	18:26	16:29	16:16
23	08:41	07:43	06:35	06:59 (1)	06:20	05:23	05:04	05:34	06:28	07:23	07:50 (1)	08:20	08:20	08:57
	16:58	18:01	18:55	9 07:08 (1)	20:54	21:47	22:16	21:54	20:52	19:36	2 07:52 (1)	18:24	16:28	16:16
24	08:40	07:40	06:32	06:56 (1)	06:18	05:21	05:04	05:35	06:29	07:25		08:22	08:22	08:57
	17:00	18:03	18:57	12 07:08 (1)	20:56	21:49	22:16	21:52	20:50	19:34		18:22	16:26	16:17
25	08:38	07:38	06:30	06:54 (1)	06:15	05:20	05:04	05:37	06:31	07:27		07:24	08:23	08:58
	17:02	18:05	18:59	14 07:08 (1)	20:58	21:50	22:16	21:51	20:48	19:31		17:19	16:25	16:17
26	08:37	07:36	06:27	06:51 (1)	06:13	05:19	05:05	05:38	06:33	07:29		07:26	08:25	08:58
	17:04	18:07	19:01	15 07:06 (1)	21:00	21:52	22:16	21:49	20:45	19:29		17:17	16:24	16:18
27	08:35	07:33	06:25	06:49 (1)	06:11	05:17	05:05	05:40	06:35	07:31		07:28	08:27	08:58
	17:06	18:09	19:03	17 07:06 (1)	21:01	21:53	22:16	21:47	20:43	19:26		17:15	16:23	16:19
28	08:34	07:31	06:23	06:46 (1)	06:09	05:16	05:06	05:42	06:37	07:33		07:30	08:29	08:58
	17:08	18:11	19:05	18 07:04 (1)	21:03	21:55	22:16	21:46	20:41	19:24		17:13	16:22	16:20
29	08:32		07:20	07:45 (1)	06:07	05:15	05:06	05:43	06:38	07:34		07:32	08:30	08:58
	17:10		20:07	18 08:03 (1)	21:05	21:56	22:15	21:44	20:38	19:21		17:11	16:21	16:21
30	08:31		07:18	07:46 (1)	06:04	05:14	05:07	05:45	06:40	07:36		07:33	08:32	08:58
	17:12		20:09	14 08:00 (1)	21:07	21:57	22:15	21:42	20:36	19:19		17:09	16:20	16:22
31	08:29		07:15	07:48 (1)		05:13		05:47	06:42			07:35		08:58
	17:14		20:11	10 07:58 (1)		21:59		21:40	20:33			17:07		16:23
Potential sun hours	248	272	367		421	496	513	515	461	382		328	257	231
Total, worst case				139							143			
Sun reduction				0.22							0.29			
Oper. time red.				1.00							1.00			
Wind dir. red.				0.59							0.59			
Total reduction				0.13							0.17			
Total, real				18							25			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: G - H7

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June	
1	08:59		08:27		08:56 (5)	07:29	07:13	06:02	05:12	
	16:24	7	09:40 (6)	17:16	13	09:09 (5)	18:13	20:12	21:09	22:00	10	05:56 (7)
2	08:58		09:33 (6)	08:26		08:54 (5)	07:26	07:10	06:00	05:11		05:43 (7)
	16:25	7	09:40 (6)	17:18	15	09:09 (5)	18:15	20:14	21:11	22:01	15	05:58 (7)
3	08:58		09:33 (6)	08:24		08:52 (5)	07:24	07:08	05:58	05:10		05:43 (7)
	16:26	8	09:41 (6)	17:20	16	09:08 (5)	18:17	20:16	21:13	22:02	18	06:01 (7)
4	08:58		09:32 (6)	08:22		08:54 (5)	07:22	07:05	05:56	05:09		05:41 (7)
	16:28	9	09:41 (6)	17:22	12	09:06 (5)	18:19	20:18	21:15	22:04	21	06:02 (7)
5	08:57		09:32 (6)	08:20		08:56 (5)	07:19	07:03	05:54	05:08		05:40 (7)
	16:29	10	09:42 (6)	17:24	8	09:04 (5)	18:21	20:20	21:16	22:05	23	06:03 (7)
6	08:57		09:31 (6)	08:18			07:17	07:00	05:52	05:08		05:40 (7)
	16:30	11	09:42 (6)	17:26			18:23	20:22	21:18	22:06	24	06:04 (7)
7	08:57		09:30 (6)	08:16			07:14	06:58	05:50	05:07		05:39 (7)
	16:32	12	09:42 (6)	17:28			18:25	20:24	21:20	22:07	26	06:05 (7)
8	08:56		09:30 (6)	08:14			07:12	06:55	05:48	05:06		05:39 (7)
	16:33	13	09:43 (6)	17:30			18:27	20:26	21:22	22:08	27	06:06 (7)
9	08:55		09:29 (6)	08:13			07:10	06:53	05:46	05:06		05:38 (7)
	16:34	15	09:44 (6)	17:32			18:29	20:28	21:24	22:09	29	06:07 (7)
10	08:55		09:28 (6)	08:11			07:07	06:51	05:44	05:05		05:38 (7)
	16:36	16	09:44 (6)	17:35			18:31	20:29	21:25	22:10	30	06:08 (7)
11	08:54		09:27 (6)	08:09			07:05	06:48	05:42	05:05		05:37 (7)
	16:37	17	09:44 (6)	17:37			18:33	20:31	21:27	22:10	31	06:08 (7)
12	08:53		09:26 (6)	08:06			07:02	06:46	05:41	05:04		05:37 (7)
	16:39	18	09:44 (6)	17:39			18:34	20:33	21:29	22:11	32	06:09 (7)
13	08:52		09:25 (6)	08:04			07:00	06:43	05:39	05:04		05:37 (7)
	16:41	19	09:44 (6)	17:41			18:36	20:35	21:31	22:12	32	06:09 (7)
14	08:52		09:24 (6)	08:02			06:57	06:41	05:37	05:04		05:37 (7)
	16:42	20	09:44 (6)	17:43			18:38	20:37	21:32	22:13	33	06:10 (7)
15	08:51		09:23 (6)	08:00			06:55	06:39	05:35	05:03		05:36 (7)
	16:44	21	09:44 (6)	17:45			18:40	20:39	21:34	22:13	34	06:10 (7)
16	08:50		09:23 (6)	07:58			06:52	06:36	05:34	05:03		05:36 (7)
	16:46	20	09:43 (6)	17:47			18:42	20:41	21:36	22:14	34	06:10 (7)
17	08:49		09:25 (6)	07:56			06:50	06:34	05:32	05:03		05:36 (7)
	16:47	18	09:43 (6)	17:49			18:44	20:43	21:38	22:14	35	06:11 (7)
18	08:47		09:26 (6)	07:54			06:47	06:31	05:30	05:03		05:36 (7)
	16:49	17	09:43 (6)	17:51			18:46	20:45	21:39	22:15	35	06:11 (7)
19	08:46		09:27 (6)	07:52			06:45	06:29	05:29	05:03		05:36 (7)
	16:51	15	09:42 (6)	17:53			18:48	20:46	21:41	22:15	35	06:11 (7)
20	08:45		09:29 (6)	07:49			06:42	06:27	05:27	05:03		05:37 (7)
	16:53	12	09:41 (6)	17:55			18:50	20:48	21:43	22:15	35	06:12 (7)
21	08:44		09:31 (6)	07:47			06:40	06:24	05:26	05:03		05:37 (7)
	16:55	8	09:39 (6)	17:57			18:52	20:50	21:44	22:16	35	06:12 (7)
22	08:43			07:45			06:38	06:22	05:24	05:03		05:37 (7)
	16:57			17:59			18:54	20:52	21:46	22:16	35	06:12 (7)
23	08:41			07:43			06:35	06:20	05:23	05:04		05:37 (7)
	16:58			18:01			18:55	20:54	21:47	22:16	35	06:12 (7)
24	08:40			07:40			06:33	06:18	05:21	05:04		05:38 (7)
	17:00			18:03			18:57	20:56	21:49	22:16	35	06:13 (7)
25	08:38			07:38			06:30	06:15	05:20	05:04		05:38 (7)
	17:02			18:05			18:59	20:58	21:50	22:16	35	06:13 (7)
26	08:37		09:06 (5)	07:36			06:28	06:13	05:19	05:05		05:38 (7)
	17:04	2	09:08 (5)	18:07			19:01	21:00	21:52	22:16	34	06:12 (7)
27	08:35		09:05 (5)	07:33			06:25	06:11	05:17	05:05		05:39 (7)
	17:06	4	09:09 (5)	18:09			19:03	21:01	21:53	22:16	34	06:13 (7)
28	08:34		09:03 (5)	07:31			06:23	06:09	05:16	05:06		05:40 (7)
	17:08	6	09:09 (5)	18:11			19:05	21:03	21:55	22:16	33	06:13 (7)
29	08:32		09:01 (5)				07:20	06:07	05:15	05:06		05:40 (7)
	17:10	8	09:09 (5)				20:07	21:05	21:56	22:16	33	06:13 (7)
30	08:31		08:59 (5)				07:18	06:04	05:14	05:07		05:41 (7)
	17:12	10	09:09 (5)				20:09	21:07	21:57	22:15	32	06:13 (7)
31	08:29		08:58 (5)				07:15		05:13			
	17:14	12	09:10 (5)				20:11		21:59			
Potential sun hours	248		272			367	421	496	513			
Total, worst case		335		64						900		
Sun reduction		0.17		0.22						0.26		
Oper. time red.		1.00		1.00						1.00		
Wind dir. red.		0.66		0.64						0.59		
Total reduction		0.11		0.14						0.15		
Total, real		37		9						136		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: G - H7

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August	September	October	November			December		
1	05:08		05:41 (7)	05:48	06:44	07:38	07:38			08:34		09:09 (6)
	22:15	31	06:12 (7)	21:39	20:31	19:16	17:05			16:19	17	09:26 (6)
2	05:08		05:42 (7)	05:50	06:46	07:40	07:40			08:35		09:11 (6)
	22:15	30	06:12 (7)	21:37	20:29	19:14	17:03			16:19	16	09:27 (6)
3	05:09		05:43 (7)	05:52	06:47	07:42	07:42			08:37		09:12 (6)
	22:14	29	06:12 (7)	21:35	20:26	19:11	17:01			16:18	15	09:27 (6)
4	05:10		05:44 (7)	05:54	06:49	07:44	07:43			08:38		09:14 (6)
	22:14	28	06:12 (7)	21:33	20:24	19:09	16:59			16:17	14	09:28 (6)
5	05:11		05:45 (7)	05:55	06:51	07:46	07:45			08:40		09:15 (6)
	22:13	27	06:12 (7)	21:31	20:21	19:06	16:57			16:17	12	09:27 (6)
6	05:12		05:45 (7)	05:57	06:53	07:47	07:47		08:25 (5)	08:41		09:17 (6)
	22:12	25	06:10 (7)	21:29	20:19	19:04	16:55	9	08:34 (5)	16:16	11	09:28 (6)
7	05:13		05:46 (7)	05:59	06:55	07:49	07:49		08:23 (5)	08:42		09:18 (6)
	22:12	24	06:10 (7)	21:27	20:16	19:01	16:53	13	08:36 (5)	16:15	10	09:28 (6)
8	05:14		05:47 (7)	06:01	06:56	07:51	07:51		08:22 (5)	08:44		09:20 (6)
	22:11	22	06:09 (7)	21:25	20:14	18:59	16:51	16	08:38 (5)	16:15	9	09:29 (6)
9	05:15		05:48 (7)	06:02	06:58	07:53	07:53		08:25 (5)	08:45		09:21 (6)
	22:10	20	06:08 (7)	21:23	20:11	18:57	16:49	14	08:39 (5)	16:15	8	09:29 (6)
10	05:16		05:50 (7)	06:04	07:00	07:55	07:55		08:27 (5)	08:46		09:22 (6)
	22:09	16	06:06 (7)	21:21	20:09	18:54	16:47	13	08:40 (5)	16:14	8	09:30 (6)
11	05:17		05:52 (7)	06:06	07:02	07:57	07:57		08:29 (5)	08:47		09:24 (6)
	22:08	12	06:04 (7)	21:19	20:06	18:52	16:46	12	08:41 (5)	16:14	7	09:31 (6)
12	05:18		05:56 (7)	06:08	07:04	07:59	07:59		08:31 (5)	08:48		09:25 (6)
	22:07	6	06:02 (7)	21:17	20:04	18:49	16:44	10	08:41 (5)	16:14	6	09:31 (6)
13	05:20			06:10	07:06	08:01	08:01		08:33 (5)	08:49		09:26 (6)
	22:06			21:15	20:01	18:47	16:42	8	08:41 (5)	16:14	5	09:31 (6)
14	05:21			06:11	07:07	08:02	08:03		08:35 (5)	08:50		09:27 (6)
	22:05			21:13	19:59	18:45	16:41	6	08:41 (5)	16:14	5	09:32 (6)
15	05:22			06:13	07:09	08:04	08:05		08:37 (5)	08:51		09:28 (6)
	22:04			21:11	19:56	18:42	16:39	4	08:41 (5)	16:14	4	09:32 (6)
16	05:24			06:15	07:11	08:06	08:07		08:40 (5)	08:52		09:29 (6)
	22:03			21:08	19:54	18:40	16:37	2	08:42 (5)	16:14	3	09:32 (6)
17	05:25			06:17	07:13	08:08	08:09			08:53		09:30 (6)
	22:02			21:06	19:51	18:38	16:36			16:14	3	09:33 (6)
18	05:26			06:19	07:15	08:10	08:11			08:54		09:30 (6)
	22:01			21:04	19:49	18:35	16:34			16:14	3	09:33 (6)
19	05:28			06:20	07:16	08:12	08:13			08:55		09:31 (6)
	21:59			21:02	19:46	18:33	16:33			16:14	2	09:33 (6)
20	05:29			06:22	07:18	08:14	08:14			08:55		09:32 (6)
	21:58			20:59	19:44	18:31	16:32			16:15	2	09:34 (6)
21	05:31			06:24	07:20	08:16	08:16		09:07 (6)	08:56		09:32 (6)
	21:57			20:57	19:41	18:28	16:30	8	09:15 (6)	16:15	2	09:34 (6)
22	05:32			06:26	07:22	08:18	08:18		09:05 (6)	08:56		09:33 (6)
	21:55			20:55	19:39	18:26	16:29	12	09:17 (6)	16:16	2	09:35 (6)
23	05:34			06:28	07:24	08:20	08:20		09:04 (6)	08:57		09:33 (6)
	21:54			20:52	19:36	18:24	16:28	15	09:19 (6)	16:16	2	09:35 (6)
24	05:35			06:29	07:25	08:22	08:22		09:03 (6)	08:57		09:33 (6)
	21:52			20:50	19:34	18:22	16:26	17	09:20 (6)	16:17	2	09:35 (6)
25	05:37			06:31	07:27	07:24	08:24		09:03 (6)	08:58		09:34 (6)
	21:51			20:48	19:31	17:19	16:25	18	09:21 (6)	16:17	3	09:37 (6)
26	05:38			06:33	07:29	07:26	08:25		09:02 (6)	08:58		09:34 (6)
	21:49			20:45	19:29	17:17	16:24	21	09:23 (6)	16:18	3	09:37 (6)
27	05:40			06:35	07:31	07:28	08:27		09:02 (6)	08:58		09:34 (6)
	21:47			20:43	19:26	17:15	16:23	22	09:24 (6)	16:19	3	09:37 (6)
28	05:42			06:37	07:33	07:30	08:29		09:04 (6)	08:58		09:34 (6)
	21:46			20:41	19:24	17:13	16:22	20	09:24 (6)	16:20	4	09:38 (6)
29	05:43			06:38	07:35	07:32	08:30		09:05 (6)	08:59		09:34 (6)
	21:44			20:38	19:21	17:11	16:21	19	09:24 (6)	16:21	4	09:38 (6)
30	05:45			06:40	07:36	07:34	08:32		09:07 (6)	08:59		09:34 (6)
	21:42			20:36	19:19	17:09	16:20	18	09:25 (6)	16:22	5	09:39 (6)
31	05:47			06:42		07:36				08:59		09:34 (6)
	21:41			20:33		17:07				16:23	6	09:40 (6)
Potential sun hours	515			461	382	328	257			231		
Total, worst case		270						277			196	
Sun reduction		0.27						0.20			0.12	
Oper. time red.		1.00						1.00			1.00	
Wind dir. red.		0.59						0.65			0.66	
Total reduction		0.16						0.13			0.08	
Total, real		42						36			15	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: H - H8

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April			May		June	
1	08:58		08:27		16:33 (3)	07:29	07:12			06:02	20:07 (1)	05:12	20:06 (1)
	16:24		17:16	10	16:43 (3)	18:13	20:12			21:09	20:38 (1)	22:00	43 20:49 (1)
2	08:58		08:25		16:34 (3)	07:26	07:10			06:00	20:06 (1)	05:11	20:06 (1)
	16:25		17:18	12	16:46 (3)	18:15	20:14			21:11	34 20:40 (1)	22:01	43 20:49 (1)
3	08:58		08:24		16:35 (3)	07:24	07:08			05:58	20:05 (1)	05:10	20:07 (1)
	16:26		17:20	14	16:49 (3)	18:17	20:16			21:12	36 20:41 (1)	22:02	41 20:48 (1)
4	08:58		08:22		16:36 (3)	07:21	07:05			05:56	20:04 (1)	05:09	20:08 (1)
	16:27		17:22	14	16:50 (3)	18:19	20:18			21:14	39 20:43 (1)	22:03	41 20:49 (1)
5	08:57		08:20		16:37 (3)	07:19	07:03			05:54	20:04 (1)	05:08	20:08 (1)
	16:29		17:24	12	16:49 (3)	18:21	20:20			21:16	42 20:46 (1)	22:04	40 20:48 (1)
6	08:57		08:18		16:38 (3)	07:17	07:00			05:52	20:03 (1)	05:07	20:08 (1)
	16:30		17:26	10	16:48 (3)	18:23	20:22			21:18	44 20:47 (1)	22:05	40 20:48 (1)
7	08:56		08:16		16:41 (3)	07:14	06:58			05:50	20:02 (1)	05:07	20:09 (1)
	16:31		17:28	5	16:46 (3)	18:25	20:24			21:20	47 20:49 (1)	22:07	39 20:48 (1)
8	08:56		08:14			07:12	06:55			05:48	20:02 (1)	05:06	20:10 (1)
	16:33		17:30			18:27	20:26			21:22	48 20:50 (1)	22:07	38 20:48 (1)
9	08:55		08:12			07:09	06:53			05:46	20:01 (1)	05:06	20:11 (1)
	16:34		17:32			18:28	20:27			21:23	50 20:51 (1)	22:08	37 20:48 (1)
10	08:55		08:10			07:07	06:50			05:44	20:02 (1)	05:05	20:11 (1)
	16:36		17:34			18:30	20:29			21:25	50 20:52 (1)	22:09	37 20:48 (1)
11	08:54		08:08			07:05	06:48			05:42	20:01 (1)	05:05	20:11 (1)
	16:37		17:36			18:32	20:31			21:27	51 20:52 (1)	22:10	37 20:48 (1)
12	08:53		08:06			07:02	06:46			05:41	20:00 (1)	05:04	20:12 (1)
	16:39		17:38			18:34	20:33			21:29	51 20:51 (1)	22:11	36 20:48 (1)
13	08:52		08:04			07:00	06:43			05:39	20:01 (1)	05:04	20:13 (1)
	16:41		17:41			18:36	20:35			21:30	51 20:52 (1)	22:12	35 20:48 (1)
14	08:51		08:02		17:10 (4)	06:57	06:41			05:37	20:01 (1)	05:04	20:14 (1)
	16:42		17:43	3	17:13 (4)	18:38	20:37			21:32	51 20:52 (1)	22:12	34 20:48 (1)
15	08:50		08:00		17:08 (4)	06:55	06:38			05:35	20:00 (1)	05:03	20:13 (1)
	16:44		17:45	7	17:15 (4)	18:40	20:39			21:34	51 20:51 (1)	22:13	34 20:47 (1)
16	08:49		07:58		17:08 (4)	06:52	06:36			05:33	20:01 (1)	05:03	20:14 (1)
	16:46		17:47	9	17:17 (4)	18:42	20:41			21:36	51 20:52 (1)	22:13	33 20:47 (1)
17	08:48		07:56		17:08 (4)	06:50	06:34			05:32	20:00 (1)	05:03	20:14 (1)
	16:47		17:49	12	17:20 (4)	18:44	20:42			21:37	51 20:51 (1)	22:14	33 20:47 (1)
18	08:47		07:54		17:08 (4)	06:47	06:31			05:30	20:01 (1)	05:03	20:14 (1)
	16:49		17:51	14	17:22 (4)	18:46	20:44			21:39	51 20:52 (1)	22:14	33 20:47 (1)
19	08:46		07:51		17:08 (4)	06:45	06:29			05:29	20:01 (1)	05:03	20:15 (1)
	16:51		17:53	16	17:24 (4)	18:48	20:46			21:41	51 20:52 (1)	22:15	33 20:48 (1)
20	08:45		07:49		17:09 (4)	06:42	06:27			05:27	20:01 (1)	05:03	20:16 (1)
	16:53		17:55	17	17:26 (4)	18:50	20:48			21:42	50 20:51 (1)	22:15	33 20:49 (1)
21	08:44		07:47		17:10 (4)	06:40	06:24			05:26	20:02 (1)	05:03	20:16 (1)
	16:55		17:57	15	17:25 (4)	18:52	20:50			21:44	50 20:52 (1)	22:15	33 20:49 (1)
22	08:42		07:45		17:11 (4)	06:37	06:22			05:24	20:02 (1)	05:03	20:16 (1)
	16:56		17:59	12	17:23 (4)	18:53	20:52			21:45	50 20:52 (1)	22:16	33 20:49 (1)
23	08:41		07:42		17:13 (4)	06:35	06:20			05:23	20:02 (1)	05:04	20:16 (1)
	16:58		18:01	8	17:21 (4)	18:55	20:54			21:47	49 20:51 (1)	22:16	33 20:49 (1)
24	08:40		07:40			06:32	06:18		20:24 (1)	05:21	20:02 (1)	05:04	20:16 (1)
	17:00		18:03			18:57	20:56	3	20:27 (1)	21:49	49 20:51 (1)	22:16	33 20:49 (1)
25	08:38		07:38			06:30	06:15		20:19 (1)	05:20	20:03 (1)	05:04	20:16 (1)
	17:02		18:05			18:59	20:58	9	20:28 (1)	21:50	48 20:51 (1)	22:16	33 20:49 (1)
26	08:37		07:36			06:27	06:13		20:16 (1)	05:19	20:03 (1)	05:05	20:16 (1)
	17:04		18:07			19:01	20:59	14	20:30 (1)	21:52	48 20:51 (1)	22:16	33 20:49 (1)
27	08:35		07:33			06:25	06:11		20:13 (1)	05:17	20:04 (1)	05:05	20:16 (1)
	17:06		18:09			19:03	21:01	18	20:31 (1)	21:53	47 20:51 (1)	22:16	34 20:50 (1)
28	08:34	16:34 (3)	07:31			06:22	06:09		20:11 (1)	05:16	20:04 (1)	05:06	20:16 (1)
	17:08	1 16:35 (3)	18:11			19:05	21:03	22	20:33 (1)	21:54	47 20:51 (1)	22:16	34 20:50 (1)
29	08:32	16:34 (3)				07:20	06:07		20:09 (1)	05:15	20:05 (1)	05:06	20:16 (1)
	17:10	3 16:37 (3)				20:07	21:05	26	20:35 (1)	21:56	45 20:50 (1)	22:15	35 20:51 (1)
30	08:30	16:33 (3)				07:17	06:04		20:08 (1)	05:14	20:05 (1)	05:07	20:16 (1)
	17:12	6 16:39 (3)				20:09	21:07	28	20:36 (1)	21:57	45 20:50 (1)	22:15	36 20:52 (1)
31	08:29	16:33 (3)				07:15				05:13	20:06 (1)		
	17:14	8 16:41 (3)				20:10				21:58	44 20:50 (1)		
Potential sun hours	248		272			367	421			496		513	
Total, worst case		18		190				120			1452		1077
Sun reduction		0.17		0.22				0.34			0.36		0.26
Oper. time red.		1.00		1.00				1.00			1.00		1.00
Wind dir. red.		0.58		0.58				0.62			0.62		0.62
Total reduction		0.10		0.13				0.21			0.22		0.16
Total, real		2		25				25			325		172

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: H - H8

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October			November			December
1	05:08		20:16 (1)	05:48		20:11 (1)	06:44	07:38			07:37			08:33
	22:15	36	20:52 (1)	21:39	51	21:02 (1)	20:31	19:16			17:04			16:19
2	05:08		20:16 (1)	05:50		20:11 (1)	06:46	07:40			07:39			08:35
	22:14	36	20:52 (1)	21:37	51	21:02 (1)	20:28	19:14			17:02			16:18
3	05:09		20:16 (1)	05:52		20:11 (1)	06:47	07:42			07:41			08:36
	22:14	37	20:53 (1)	21:35	50	21:01 (1)	20:26	19:11			17:00			16:18
4	05:10		20:16 (1)	05:54		20:12 (1)	06:49	07:44			07:43		16:10 (3)	08:38
	22:13	38	20:54 (1)	21:33	49	21:01 (1)	20:24	19:09			16:58	6	16:16 (3)	16:17
5	05:11		20:15 (1)	05:55		20:12 (1)	06:51	07:45			07:45		16:08 (3)	08:39
	22:13	38	20:53 (1)	21:31	48	21:00 (1)	20:21	19:06			16:57	10	16:18 (3)	16:16
6	05:12		20:15 (1)	05:57		20:12 (1)	06:53	07:47			07:47		16:06 (3)	08:41
	22:12	39	20:54 (1)	21:29	45	20:57 (1)	20:19	19:04			16:55	13	16:19 (3)	16:16
7	05:13		20:15 (1)	05:59		20:13 (1)	06:55	07:49			07:49		16:05 (3)	08:42
	22:11	40	20:55 (1)	21:27	43	20:56 (1)	20:16	19:01			16:53	15	16:20 (3)	16:15
8	05:14		20:15 (1)	06:01		20:14 (1)	06:56	07:51			07:51		16:05 (3)	08:43
	22:11	40	20:55 (1)	21:25	41	20:55 (1)	20:14	18:59			16:51	13	16:18 (3)	16:15
9	05:15		20:14 (1)	06:02		20:13 (1)	06:58	07:53			07:53		16:04 (3)	08:45
	22:10	42	20:56 (1)	21:23	39	20:52 (1)	20:11	18:56			16:49	12	16:16 (3)	16:15
10	05:16		20:14 (1)	06:04		20:14 (1)	07:00	07:55			07:55		16:05 (3)	08:46
	22:09	42	20:56 (1)	21:21	36	20:50 (1)	20:09	18:54			16:47	10	16:15 (3)	16:14
11	05:17		20:14 (1)	06:06		20:16 (1)	07:02	07:57			07:57		16:05 (3)	08:47
	22:08	43	20:57 (1)	21:19	33	20:49 (1)	20:06	18:52			16:46	8	16:13 (3)	16:14
12	05:18		20:13 (1)	06:08		20:16 (1)	07:04	07:59			07:59		16:05 (3)	08:48
	22:07	44	20:57 (1)	21:17	30	20:46 (1)	20:04	18:49			16:44	6	16:11 (3)	16:14
13	05:20		20:14 (1)	06:09		20:17 (1)	07:05	08:00			08:01		16:05 (3)	08:49
	22:06	44	20:58 (1)	21:15	27	20:44 (1)	20:01	18:47			16:42	4	16:09 (3)	16:14
14	05:21		20:14 (1)	06:11		20:18 (1)	07:07	08:02			08:03		16:06 (3)	08:50
	22:05	45	20:59 (1)	21:12	25	20:43 (1)	19:59	18:44			16:40	1	16:07 (3)	16:14
15	05:22		20:13 (1)	06:13		20:19 (1)	07:09	08:04			08:05			08:51
	22:04	46	20:59 (1)	21:10	21	20:40 (1)	19:56	18:42			16:39			16:14
16	05:23		20:13 (1)	06:15		20:21 (1)	07:11	08:06			08:07			08:52
	22:03	46	20:59 (1)	21:08	17	20:38 (1)	19:54	18:40			16:37			16:14
17	05:25		20:13 (1)	06:17		20:23 (1)	07:13	08:08			08:09			08:53
	22:02	47	21:00 (1)	21:06	13	20:36 (1)	19:51	18:37			16:36			16:14
18	05:26		20:13 (1)	06:18		20:25 (1)	07:14	08:10		17:48 (4)	08:11			08:54
	22:00	47	21:00 (1)	21:04	9	20:34 (1)	19:49	18:35	1	17:49 (4)	16:34			16:14
19	05:28		20:12 (1)	06:20		20:31 (1)	07:16	08:12		17:43 (4)	08:12			08:54
	21:59	48	21:00 (1)	21:01	1	20:32 (1)	19:46	18:33	10	17:53 (4)	16:33			16:14
20	05:29		20:12 (1)	06:22			07:18	08:14		17:41 (4)	08:14			08:55
	21:58	48	21:00 (1)	20:59			19:44	18:30	14	17:55 (4)	16:31			16:15
21	05:31		20:12 (1)	06:24			07:20	08:16		17:40 (4)	08:16			08:56
	21:56	49	21:01 (1)	20:57			19:41	18:28	16	17:56 (4)	16:30			16:15
22	05:32		20:11 (1)	06:26			07:22	08:18		17:39 (4)	08:18			08:56
	21:55	50	21:01 (1)	20:55			19:39	18:26	17	17:56 (4)	16:29			16:16
23	05:34		20:12 (1)	06:27			07:23	08:20		17:38 (4)	08:20			08:57
	21:53	50	21:02 (1)	20:52			19:36	18:24	15	17:53 (4)	16:28			16:16
24	05:35		20:11 (1)	06:29			07:25	08:22		17:38 (4)	08:22			08:57
	21:52	51	21:02 (1)	20:50			19:34	18:21	13	17:51 (4)	16:26			16:17
25	05:37		20:12 (1)	06:31			07:27	07:24		16:38 (4)	08:23			08:58
	21:50	51	21:03 (1)	20:48			19:31	17:19	10	16:48 (4)	16:25			16:17
26	05:38		20:11 (1)	06:33			07:29	07:26		16:38 (4)	08:25			08:58
	21:49	51	21:02 (1)	20:45			19:29	17:17	8	16:46 (4)	16:24			16:18
27	05:40		20:12 (1)	06:35			07:31	07:27		16:38 (4)	08:27			08:58
	21:47	51	21:03 (1)	20:43			19:26	17:15	6	16:44 (4)	16:23			16:19
28	05:42		20:11 (1)	06:36			07:33	07:29		16:39 (4)	08:28			08:58
	21:46	51	21:02 (1)	20:40			19:24	17:13	3	16:42 (4)	16:22			16:20
29	05:43		20:11 (1)	06:38			07:34	07:31			08:30			08:58
	21:44	52	21:03 (1)	20:38			19:21	17:11			16:21			16:21
30	05:45		20:11 (1)	06:40			07:36	07:33			08:32			08:58
	21:42	51	21:02 (1)	20:36			19:19	17:09			16:20			16:22
31	05:47		20:11 (1)	06:42				07:35						08:58
	21:40	51	21:02 (1)	20:33				17:07						16:23
Potential sun hours	515			461			382	328			257			231
Total, worst case		1404			629				113			98		
Sun reduction		0.27			0.27				0.23			0.20		
Oper. time red.		1.00			1.00				1.00			1.00		
Wind dir. red.		0.62			0.62				0.58			0.58		
Total reduction		0.16			0.17				0.14			0.12		
Total, real		231			106				15			11		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: I - H9

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April		May	June
1	08:58		15:32 (3)	08:27		15:49 (3)	07:29			16:41 (4)	07:13	06:02	05:12
	16:24	13	15:45 (3)	17:16	11	16:00 (3)	18:13	31		17:12 (4)	20:12	21:09	22:00
2	08:58		15:33 (3)	08:25			07:26			16:42 (4)	07:10	06:00	05:11
	16:25	14	15:47 (3)	17:18			18:15	28		17:10 (4)	20:14	21:11	22:01
3	08:58		15:32 (3)	08:24			07:24			16:45 (4)	07:08	05:58	05:10
	16:26	16	15:48 (3)	17:20			18:17	23		17:08 (4)	20:16	21:12	22:02
4	08:58		15:33 (3)	08:22			07:22			16:46 (4)	07:05	05:56	05:09
	16:28	17	15:50 (3)	17:22			18:19	19		17:05 (4)	20:18	21:14	22:03
5	08:57		15:33 (3)	08:20			07:19			16:51 (4)	07:03	05:54	05:08
	16:29	18	15:51 (3)	17:24			18:21	10		17:01 (4)	20:20	21:16	22:04
6	08:57		15:33 (3)	08:18		16:52 (4)	07:17				07:00	05:52	05:08
	16:30	20	15:53 (3)	17:26	3	16:55 (4)	18:23				20:22	21:18	22:06
7	08:56		15:33 (3)	08:16		16:49 (4)	07:14				06:58	05:50	05:07
	16:32	21	15:54 (3)	17:28	9	16:58 (4)	18:25				20:24	21:20	22:07
8	08:56		15:33 (3)	08:14		16:46 (4)	07:12				06:55	05:48	05:06
	16:33	22	15:55 (3)	17:30	14	17:00 (4)	18:27				20:26	21:22	22:08
9	08:55		15:33 (3)	08:12		16:44 (4)	07:09				06:53	05:46	05:06
	16:34	24	15:57 (3)	17:32	17	17:01 (4)	18:29				20:27	21:23	22:08
10	08:55		15:34 (3)	08:10		16:43 (4)	07:07				06:50	05:44	05:05
	16:36	25	15:59 (3)	17:34	21	17:04 (4)	18:30				20:29	21:25	22:09
11	08:54		15:34 (3)	08:08		16:42 (4)	07:05				06:48	05:42	05:05
	16:37	27	16:01 (3)	17:36	24	17:06 (4)	18:32				20:31	21:27	22:10
12	08:53		15:34 (3)	08:06		16:41 (4)	07:02				06:46	05:41	05:04
	16:39	29	16:03 (3)	17:39	27	17:08 (4)	18:34				20:33	21:29	22:11
13	08:52		15:35 (3)	08:04		16:40 (4)	07:00				06:43	05:39	05:04
	16:41	29	16:04 (3)	17:41	31	17:11 (4)	18:36				20:35	21:31	22:12
14	08:51		15:34 (3)	08:02		16:40 (4)	06:57				06:41	05:37	05:04
	16:42	31	16:05 (3)	17:43	33	17:13 (4)	18:38				20:37	21:32	22:12
15	08:50		15:34 (3)	08:00		16:38 (4)	06:55				06:38	05:35	05:03
	16:44	32	16:06 (3)	17:45	37	17:15 (4)	18:40				20:39	21:34	22:13
16	08:49		15:35 (3)	07:58		16:38 (4)	06:52				06:36	05:34	05:03
	16:46	32	16:07 (3)	17:47	39	17:17 (4)	18:42				20:41	21:36	22:13
17	08:48		15:35 (3)	07:56		16:38 (4)	06:50				06:34	05:32	05:03
	16:47	32	16:07 (3)	17:49	39	17:17 (4)	18:44				20:43	21:37	22:14
18	08:47		15:35 (3)	07:54		16:38 (4)	06:47				06:31	05:30	05:03
	16:49	32	16:07 (3)	17:51	40	17:18 (4)	18:46				20:44	21:39	22:14
19	08:46		15:36 (3)	07:51		16:37 (4)	06:45				06:29	05:29	05:03
	16:51	32	16:08 (3)	17:53	40	17:17 (4)	18:48				20:46	21:41	22:15
20	08:45		15:36 (3)	07:49		16:37 (4)	06:42				06:27	05:27	05:03
	16:53	32	16:08 (3)	17:55	41	17:18 (4)	18:50				20:48	21:42	22:15
21	08:44		15:36 (3)	07:47		16:37 (4)	06:40				06:24	05:26	05:03
	16:55	32	16:08 (3)	17:57	41	17:18 (4)	18:52				20:50	21:44	22:15
22	08:42		15:37 (3)	07:45		16:37 (4)	06:37				06:22	05:24	05:03
	16:57	31	16:08 (3)	17:59	40	17:17 (4)	18:53				20:52	21:46	22:16
23	08:41		15:38 (3)	07:43		16:37 (4)	06:35				06:20	05:23	05:04
	16:58	30	16:08 (3)	18:01	40	17:17 (4)	18:55				20:54	21:47	22:16
24	08:40		15:39 (3)	07:40		16:38 (4)	06:32				06:18	05:21	05:04
	17:00	29	16:08 (3)	18:03	39	17:17 (4)	18:57				20:56	21:49	22:16
25	08:38		15:39 (3)	07:38		16:38 (4)	06:30				06:15	05:20	05:04
	17:02	29	16:08 (3)	18:05	37	17:15 (4)	18:59				20:58	21:50	22:16
26	08:37		15:40 (3)	07:36		16:39 (4)	06:27				06:13	05:19	05:05
	17:04	27	16:07 (3)	18:07	36	17:15 (4)	19:01				20:59	21:52	22:16
27	08:35		15:41 (3)	07:33		16:39 (4)	06:25				06:11	05:17	05:05
	17:06	26	16:07 (3)	18:09	34	17:13 (4)	19:03				21:01	21:53	22:16
28	08:34		15:42 (3)	07:31		16:40 (4)	06:22				06:09	05:16	05:06
	17:08	25	16:07 (3)	18:11	33	17:13 (4)	19:05				21:03	21:54	22:16
29	08:32		15:43 (3)				07:20				06:07	05:15	05:06
	17:10	23	16:06 (3)				20:07				21:05	21:56	22:15
30	08:30		15:45 (3)				07:17				06:04	05:14	05:07
	17:12	19	16:04 (3)				20:09				21:07	21:57	22:15
31	08:29		15:46 (3)				07:15					05:13	
	17:14	17	16:03 (3)				20:10					21:58	
Potential sun hours	248			272			367			421		496	513
Total, worst case		786			726			111					
Sun reduction		0.17			0.22			0.22					
Oper. time red.		1.00			1.00			1.00					
Wind dir. red.		0.62			0.58			0.58					
Total reduction		0.11			0.13			0.13					
Total, real		83			94			14					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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F91 RHH9 Sligo
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: I - H9

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October			November			December		
1	05:08		05:48		06:44		07:38			07:37		16:12 (4)	08:33		15:16 (3)
	22:15		21:39		20:31		19:16			17:05	21	16:33 (4)	16:19	27	15:43 (3)
2	05:08		05:50		06:46		07:40			07:39		16:14 (4)	08:35		15:16 (3)
	22:14		21:37		20:28		19:14			17:03	17	16:31 (4)	16:19	25	15:41 (3)
3	05:09		05:52		06:47		07:42			07:41		16:15 (4)	08:36		15:17 (3)
	22:14		21:35		20:26		19:11			17:01	13	16:28 (4)	16:18	24	15:41 (3)
4	05:10		05:54		06:49		07:44			07:43		16:19 (4)	08:38		15:18 (3)
	22:13		21:33		20:24		19:09			16:59	8	16:27 (4)	16:17	22	15:40 (3)
5	05:11		05:55		06:51		07:45			07:45		16:22 (4)	08:39		15:18 (3)
	22:13		21:31		20:21		19:06			16:57	3	16:25 (4)	16:16	21	15:39 (3)
6	05:12		05:57		06:53		07:47			07:47			08:41		15:19 (3)
	22:12		21:29		20:19		19:04			16:55			16:16	20	15:39 (3)
7	05:13		05:59		06:55		07:49			07:49			08:42		15:20 (3)
	22:11		21:27		20:16		19:01			16:53			16:15	18	15:38 (3)
8	05:14		06:01		06:56		07:51			07:51			08:43		15:20 (3)
	22:11		21:25		20:14		18:59			16:51			16:15	17	15:37 (3)
9	05:15		06:02		06:58		07:53		17:23 (4)	07:53			08:45		15:21 (3)
	22:10		21:23		20:11		18:56	15	17:38 (4)	16:49			16:15	16	15:37 (3)
10	05:16		06:04		07:00		07:55		17:20 (4)	07:55		15:21 (3)	08:46		15:22 (3)
	22:09		21:21		20:09		18:54	21	17:41 (4)	16:47	11	15:32 (3)	16:14	14	15:36 (3)
11	05:17		06:06		07:02		07:57		17:18 (4)	07:57		15:18 (3)	08:47		15:22 (3)
	22:08		21:19		20:06		18:52	25	17:43 (4)	16:46	17	15:35 (3)	16:14	14	15:36 (3)
12	05:18		06:08		07:04		07:59		17:16 (4)	07:59		15:16 (3)	08:48		15:24 (3)
	22:07		21:17		20:04		18:49	28	17:44 (4)	16:44	20	15:36 (3)	16:14	12	15:36 (3)
13	05:20		06:09		07:05		08:00		17:14 (4)	08:01		15:15 (3)	08:49		15:24 (3)
	22:06		21:15		20:01		18:47	31	17:45 (4)	16:42	23	15:38 (3)	16:14	12	15:36 (3)
14	05:21		06:11		07:07		08:02		17:13 (4)	08:03		15:14 (3)	08:50		15:25 (3)
	22:05		21:12		19:59		18:45	33	17:46 (4)	16:41	25	15:39 (3)	16:14	11	15:36 (3)
15	05:22		06:13		07:09		08:04		17:11 (4)	08:05		15:13 (3)	08:51		15:26 (3)
	22:04		21:10		19:56		18:42	36	17:47 (4)	16:39	26	15:39 (3)	16:14	10	15:36 (3)
16	05:24		06:15		07:11		08:06		17:10 (4)	08:07		15:13 (3)	08:52		15:27 (3)
	22:03		21:08		19:54		18:40	37	17:47 (4)	16:37	27	15:40 (3)	16:14	9	15:36 (3)
17	05:25		06:17		07:13		08:08		17:10 (4)	08:09		15:12 (3)	08:53		15:26 (3)
	22:02		21:06		19:51		18:37	38	17:48 (4)	16:36	29	15:41 (3)	16:14	9	15:35 (3)
18	05:26		06:18		07:14		08:10		17:09 (4)	08:11		15:13 (3)	08:54		15:27 (3)
	22:00		21:04		19:49		18:35	39	17:48 (4)	16:34	29	15:42 (3)	16:14	8	15:35 (3)
19	05:28		06:20		07:16		08:12		17:08 (4)	08:12		15:13 (3)	08:54		15:28 (3)
	21:59		21:01		19:46		18:33	40	17:48 (4)	16:33	30	15:43 (3)	16:14	8	15:36 (3)
20	05:29		06:22		07:18		08:14		17:08 (4)	08:14		15:12 (3)	08:55		15:28 (3)
	21:58		20:59		19:44		18:31	40	17:48 (4)	16:32	31	15:43 (3)	16:15	7	15:35 (3)
21	05:31		06:24		07:20		08:16		17:07 (4)	08:16		15:12 (3)	08:56		15:29 (3)
	21:56		20:57		19:41		18:28	41	17:48 (4)	16:30	32	15:44 (3)	16:15	7	15:36 (3)
22	05:32		06:26		07:22		08:18		17:07 (4)	08:18		15:12 (3)	08:56		15:29 (3)
	21:55		20:55		19:39		18:26	41	17:48 (4)	16:29	32	15:44 (3)	16:16	7	15:36 (3)
23	05:34		06:28		07:23		08:20		17:07 (4)	08:20		15:13 (3)	08:57		15:30 (3)
	21:54		20:52		19:36		18:24	41	17:48 (4)	16:28	32	15:45 (3)	16:16	7	15:37 (3)
24	05:35		06:29		07:25		08:22		17:07 (4)	08:22		15:13 (3)	08:57		15:30 (3)
	21:52		20:50		19:34		18:22	40	17:47 (4)	16:26	32	15:45 (3)	16:17	8	15:38 (3)
25	05:37		06:31		07:27		07:24		16:07 (4)	08:23		15:13 (3)	08:58		15:30 (3)
	21:50		20:48		19:31		17:19	40	16:47 (4)	16:25	32	15:45 (3)	16:17	8	15:38 (3)
26	05:38		06:33		07:29		07:26		16:07 (4)	08:25		15:14 (3)	08:58		15:31 (3)
	21:49		20:45		19:29		17:17	39	16:46 (4)	16:24	32	15:46 (3)	16:18	9	15:40 (3)
27	05:40		06:35		07:31		07:28		16:08 (4)	08:27		15:13 (3)	08:58		15:32 (3)
	21:47		20:43		19:26		17:15	36	16:44 (4)	16:23	32	15:45 (3)	16:19	8	15:40 (3)
28	05:42		06:37		07:33		07:29		16:09 (4)	08:28		15:14 (3)	08:58		15:32 (3)
	21:46		20:41		19:24		17:13	33	16:42 (4)	16:22	31	15:45 (3)	16:20	9	15:41 (3)
29	05:43		06:38		07:34		07:31		16:10 (4)	08:30		15:15 (3)	08:58		15:32 (3)
	21:44		20:38		19:21		17:11	30	16:40 (4)	16:21	30	15:45 (3)	16:21	10	15:42 (3)
30	05:45		06:40		07:36		07:33		16:11 (4)	08:32		15:15 (3)	08:58		15:32 (3)
	21:42		20:36		19:19		17:09	26	16:37 (4)	16:20	29	15:44 (3)	16:22	11	15:43 (3)
31	05:47		06:42				07:35		16:11 (4)				08:58		15:32 (3)
	21:40		20:33				17:07	24	16:35 (4)				16:23	12	15:44 (3)
Potential sun hours	515		461		382		328			257			231		
Total, worst case								774			644			400	
Sun reduction								0.23			0.20			0.12	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.58			0.62			0.62	
Total reduction								0.14			0.12			0.07	
Total, real								105			79			30	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: J - H10

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March	April	May		June	July	August		September	October		November	December
1	08:58	08:27		07:29	07:13	06:02		05:12	05:08	05:48	20:53 (7)	06:44	07:38		07:37	08:33
	16:24	17:16		18:13	20:12	21:09		22:00	22:15	21:39	20:58 (7)	20:31	19:16		17:04	16:19
2	08:58	08:25		07:26	07:10	06:00	20:38 (7)	05:11	05:08	05:50	20:51 (7)	06:46	07:40		07:39	08:35
	16:25	17:18		18:15	20:14	21:11	20:40 (7)	22:01	22:14	21:37	21:01 (7)	20:28	19:14		17:02	16:18
3	08:58	08:24		07:24	07:08	05:58	20:38 (7)	05:10	05:09	05:52	20:49 (7)	06:47	07:42		07:41	08:36
	16:26	17:20		18:17	20:16	21:13	20:42 (7)	22:02	22:14	21:35	21:01 (7)	20:26	19:11		17:00	16:18
4	08:58	08:22		07:22	07:05	05:56	20:38 (7)	05:09	05:10	05:53	20:49 (7)	06:49	07:44		07:43	08:38
	16:27	17:22		18:19	20:18	21:14	20:44 (7)	22:03	22:13	21:33	21:01 (7)	20:24	19:09		16:58	16:17
5	08:57	08:20		07:19	07:03	05:54	20:38 (7)	05:08	05:11	05:55	20:48 (7)	06:51	07:45		07:45	08:39
	16:29	17:24		18:21	20:20	21:16	20:46 (7)	22:05	22:13	21:31	21:00 (7)	20:21	19:06		16:57	16:16
6	08:57	08:18		07:17	07:00	05:52	20:38 (7)	05:07	05:12	05:57	20:47 (7)	06:53	07:47		07:47	08:41
	16:30	17:26		18:23	20:22	21:18	20:47 (7)	22:06	22:12	21:29	20:58 (7)	20:19	19:04		16:55	16:16
7	08:56	08:16		07:14	06:58	05:50	20:38 (7)	05:07	05:13	05:59	20:47 (7)	06:55	07:49		07:49	08:42
	16:31	17:28		18:25	20:24	21:20	20:49 (7)	22:07	22:12	21:27	20:56 (7)	20:16	19:01		16:53	16:15
8	08:56	08:14		07:12	06:55	05:48	20:38 (7)	05:06	05:14	06:01	20:47 (7)	06:56	07:51		07:51	08:43
	16:33	17:30		18:27	20:26	21:22	20:50 (7)	22:08	22:11	21:25	20:55 (7)	20:14	18:59		16:51	16:15
9	08:55	08:12		07:09	06:53	05:46	20:39 (7)	05:06	05:15	06:02	20:47 (7)	06:58	07:53		07:53	08:45
	16:34	17:32		18:29	20:27	21:23	20:52 (7)	22:09	22:10	21:23	20:52 (7)	20:11	18:56		16:49	16:15
10	08:55	08:10		07:07	06:50	05:44	20:40 (7)	05:05	05:16	06:04	20:47 (7)	07:00	07:55		07:55	08:46
	16:36	17:34		18:30	20:29	21:25	20:52 (7)	22:09	22:09	21:21	20:50 (7)	20:09	18:54		16:47	16:14
11	08:54	08:08	17:05 (5)	07:05	06:48	05:42	20:41 (7)	05:05	05:17	06:06	20:48 (7)	07:02	07:57		07:57	08:47
	16:37	17:36	1 17:06 (5)	18:32	20:31	21:27	20:50 (7)	22:10	22:08	21:19	1 20:49 (7)	20:06	18:52		16:46	16:14
12	08:53	08:06	17:05 (5)	07:02	06:46	05:40	20:44 (7)	05:04	05:18	06:08		07:04	07:59		07:59	08:48
	16:39	17:38	3 17:08 (5)	18:34	20:33	21:29	2 20:46 (7)	22:11	22:07	21:17		20:04	18:49		16:44	16:14
13	08:52	08:04	17:04 (5)	07:00	06:43	05:39		05:04	05:20	06:09		07:05	08:00		08:01	08:49
	16:41	17:41	7 17:11 (5)	18:36	20:35	21:31		22:12	22:06	21:15		20:01	18:47		16:42	16:14
14	08:51	08:02	17:04 (5)	06:57	06:41	05:37		05:04	05:21	06:11		07:07	08:02		08:03	08:50
	16:42	17:43	9 17:13 (5)	18:38	20:37	21:32		22:12	22:05	21:13		19:59	18:44		16:40	16:14
15	08:50	08:00	17:03 (5)	06:55	06:38	05:35		05:03	05:22	06:13		07:09	08:04		08:05	08:51
	16:44	17:45	12 17:15 (5)	18:40	20:39	21:34		22:13	22:04	21:10		19:56	18:42		16:39	16:14
16	08:49	07:58	17:03 (5)	06:52	06:36	05:33		05:03	05:23	06:15		07:11	08:06	17:55 (6)	08:07	08:52
	16:46	17:47	14 17:17 (5)	18:42	20:41	21:36		22:14	22:03	21:08		19:54	18:40	9 18:04 (6)	16:37	16:14
17	08:48	07:56	17:04 (5)	06:50	06:34	05:32		05:03	05:25	06:17		07:13	08:08	17:43 (5)	08:09	08:53
	16:47	17:49	15 17:19 (6)	18:44	20:43	21:37		22:14	22:02	21:06		19:51	18:37	23 18:06 (6)	16:36	16:14
18	08:47	07:54	17:04 (5)	06:47	06:31	05:30		05:03	05:26	06:18		07:14	08:10	17:40 (5)	08:11	08:54
	16:49	17:51	18 17:22 (6)	18:46	20:44	21:39		22:14	22:01	21:04		19:49	18:35	25 18:05 (6)	16:34	16:14
19	08:46	07:51	17:04 (5)	06:45	06:29	05:29		05:03	05:28	06:20		07:16	08:12	17:38 (5)	08:12	08:55
	16:51	17:53	19 17:23 (6)	18:48	20:46	21:41		22:15	21:59	21:01		19:46	18:33	25 18:03 (6)	16:33	16:14
20	08:45	07:49	17:04 (5)	06:42	06:27	05:27		05:03	05:29	06:22		07:18	08:14	17:37 (5)	08:14	08:55
	16:53	17:55	22 17:26 (6)	18:50	20:48	21:42		22:15	21:58	20:59		19:44	18:31	23 18:00 (6)	16:31	16:15
21	08:44	07:47	17:05 (5)	06:40	06:24	05:26		05:03	05:31	06:24		07:20	08:16	17:35 (5)	08:16	08:56
	16:55	17:57	23 17:28 (6)	18:52	20:50	21:44		22:15	21:57	20:57		19:41	18:28	23 17:58 (6)	16:30	16:15
22	08:42	07:45	17:06 (5)	06:37	06:22	05:24		05:03	05:32	06:26		07:22	08:18	17:35 (5)	08:18	08:56
	16:56	17:59	24 17:30 (6)	18:53	20:52	21:46		22:16	21:55	20:55		19:39	18:26	21 17:56 (6)	16:29	16:16
23	08:41	07:43	17:07 (5)	06:35	06:20	05:23		05:04	05:34	06:27		07:23	08:20	17:34 (5)	08:20	08:57
	16:58	18:01	25 17:32 (6)	18:55	20:54	21:47		22:16	21:54	20:52		19:36	18:24	19 17:53 (6)	16:28	16:16
24	08:40	07:40	17:10 (5)	06:32	06:18	05:21		05:04	05:35	06:29		07:25	08:22	17:33 (5)	08:22	08:57
	17:00	18:03	25 17:35 (6)	18:57	20:56	21:49		22:16	21:52	20:50		19:34	18:22	18 17:51 (6)	16:26	16:17
25	08:38	07:38	17:12 (5)	06:30	06:15	05:20		05:04	05:37	06:31		07:27	07:24	16:33 (5)	08:23	08:58
	17:02	18:05	22 17:34 (6)	18:59	20:58	21:50		22:16	21:51	20:48		19:31	17:19	15 16:48 (6)	16:25	16:17
26	08:37	07:36	17:24 (6)	06:27	06:13	05:19		05:05	05:38	06:33		07:29	07:26	16:33 (5)	08:25	08:58
	17:04	18:07	7 17:31 (6)	19:01	20:59	21:52		22:16	21:49	20:45		19:29	17:17	13 16:46 (5)	16:24	16:18
27	08:35	07:33		06:25	06:11	05:17		05:05	05:40	06:35		07:31	07:28	16:34 (5)	08:27	08:58
	17:06	18:09		19:03	21:01	21:53		22:16	21:47	20:43		19:26	17:15	11 16:45 (5)	16:23	16:19
28	08:34	07:31		06:22	06:09	05:16		05:06	05:42	06:37		07:33	07:30	16:34 (5)	08:29	08:58
	17:08	18:11		19:05	21:03	21:55		22:16	21:46	20:41		19:24	17:13	8 16:42 (5)	16:22	16:20
29	08:32			07:20	06:07	05:15		05:06	05:43	06:38		07:34	07:31	16:34 (5)	08:30	08:58
	17:10			20:07	21:05	21:56		22:15	21:44	20:38		19:21	17:11	6 16:40 (5)	16:21	16:21
30	08:31			07:17	06:04	05:14		05:07	05:45	06:40		07:36	07:33	16:34 (5)	08:32	08:58
	17:12			20:09	21:07	21:57		22:15	21:42	20:36		19:19	17:09	3 16:37 (5)	16:20	16:21
31	08:29			07:15		05:13			05:47	06:42			07:35			08:58
	17:14			20:10		21:59			21:40	20:33			17:07			16:22
Potential sun hours	248	272		367	421	496		513	515	461		382	328		257	231
Total, worst case			246				88				88			242		
Sun reduction			0.22				0.36				0.27			0.23		
Oper. time red.			1.00				1.00				1.00			1.00		
Wind dir. red.			0.58				0.62				0.62			0.58		
Total reduction			0.13				0.22				0.17			0.14		
Total, real			32				20				15			33		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: K - H11

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:59	08:27	07:29	07:13	06:02		05:12		05:08		05:48	06:44	07:38	07:38	08:34
	16:24	17:16	18:13	20:12	21:09		22:00	47	06:44 (7)	22:15	51	06:52 (7)	21:39	20:31	19:16	17:05	16:19
2	08:58	08:26	07:26	07:10	06:00		05:11		05:57 (7)	05:08		06:02 (7)	05:50	06:46	07:40	07:40	08:35
	16:25	17:18	18:15	20:14	21:11		22:01	47	06:44 (7)	22:15	50	06:52 (7)	21:37	20:29	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58		05:10		05:58 (7)	05:09		06:02 (7)	05:52	06:47	07:42	07:42	08:37
	16:26	17:20	18:17	20:16	21:13		22:02	48	06:46 (7)	22:14	50	06:52 (7)	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56		05:09		05:57 (7)	05:10		06:03 (7)	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:15		22:04	49	06:46 (7)	22:14	50	06:53 (7)	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54		05:08		05:57 (7)	05:11		06:03 (7)	05:55	06:51	07:46	07:45	08:40
	16:29	17:24	18:21	20:20	21:16		22:05	49	06:46 (7)	22:13	50	06:53 (7)	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52		05:08		05:58 (7)	05:12		06:03 (7)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18		22:06	49	06:47 (7)	22:12	49	06:52 (7)	21:29	20:19	19:04	16:55	16:16
7	08:57	08:16	07:14	06:58	05:50		05:07		05:57 (7)	05:13		06:03 (7)	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20		22:07	49	06:46 (7)	22:12	49	06:52 (7)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48		05:06		05:58 (7)	05:14		06:04 (7)	06:01	06:57	07:51	07:51	08:44
	16:33	17:30	18:27	20:26	21:22		22:08	49	06:47 (7)	22:11	48	06:52 (7)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:13	07:10	06:53	05:46		05:06		05:57 (7)	05:15		06:04 (7)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:28	21:24		22:09	50	06:47 (7)	22:10	48	06:52 (7)	21:23	20:11	18:57	16:49	16:15
10	08:55	08:11	07:07	06:51	05:44		05:05		05:58 (7)	05:16		06:04 (7)	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25		22:10	50	06:48 (7)	22:09	48	06:52 (7)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:09	07:05	06:48	05:42		05:05		05:57 (7)	05:17		06:05 (7)	06:06	07:02	07:57	07:57	08:47
	16:37	17:37	18:33	20:31	21:27		22:10	50	06:47 (7)	22:08	47	06:52 (7)	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41		05:04		05:58 (7)	05:18		06:06 (7)	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29		22:11	50	06:48 (7)	22:07	47	06:53 (7)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39		05:04		05:58 (7)	05:20		06:06 (7)	06:10	07:06	08:01	08:01	08:49
	16:41	17:41	18:36	20:35	21:31		22:12	50	06:48 (7)	22:06	46	06:52 (7)	21:15	20:01	18:47	16:42	16:14
14	08:52	08:02	06:57	06:41	05:37		06:15 (7)		05:58 (7)	05:21		06:06 (7)	06:11	07:07	08:03	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	9	06:24 (7)	51	06:49 (7)	22:05	46	06:52 (7)	21:13	19:59	18:45	16:41	16:14
15	08:51	08:00	06:55	06:39	05:35		06:12 (7)		05:58 (7)	05:22		06:07 (7)	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	16	06:28 (7)	50	06:48 (7)	22:04	44	06:51 (7)	21:11	19:56	18:42	16:39	16:14
16	08:50	07:58	06:52	06:36	05:34		06:09 (7)		05:58 (7)	05:24		06:07 (7)	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	21	06:30 (7)	51	06:49 (7)	22:03	44	06:51 (7)	21:08	19:54	18:40	16:37	16:14
17	08:49	07:56	06:50	06:34	05:32		06:08 (7)		05:58 (7)	05:25		06:08 (7)	06:17	07:13	08:08	08:09	08:53
	16:47	17:49	18:44	20:43	21:38	25	06:33 (7)	51	06:49 (7)	22:02	43	06:51 (7)	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30		06:06 (7)		05:58 (7)	05:26		06:09 (7)	06:19	07:15	08:10	08:11	08:54
	16:49	17:51	18:46	20:45	21:39	28	06:34 (7)	51	06:49 (7)	22:01	41	06:50 (7)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:52	06:45	06:29	05:29		06:05 (7)		05:58 (7)	05:28		06:09 (7)	06:20	07:16	08:12	08:13	08:55
	16:51	17:53	18:48	20:46	21:41	30	06:35 (7)	51	06:49 (7)	21:59	41	06:50 (7)	21:02	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27		06:03 (7)		05:59 (7)	05:29		06:10 (7)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:43	33	06:36 (7)	51	06:50 (7)	21:58	40	06:50 (7)	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26		06:02 (7)		05:59 (7)	05:31		06:11 (7)	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	35	06:37 (7)	51	06:50 (7)	21:57	38	06:49 (7)	20:57	19:41	18:28	16:30	16:15
22	08:43	07:45	06:38	06:22	05:24		06:02 (7)		05:59 (7)	05:32		06:11 (7)	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:54	20:52	21:46	37	06:39 (7)	51	06:50 (7)	21:55	37	06:48 (7)	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23		06:00 (7)		05:59 (7)	05:34		06:13 (7)	06:28	07:24	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	39	06:39 (7)	51	06:50 (7)	21:54	34	06:47 (7)	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:33	06:18	05:21		06:00 (7)		06:00 (7)	05:35		06:14 (7)	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	40	06:40 (7)	51	06:51 (7)	21:52	32	06:46 (7)	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20		05:59 (7)		06:00 (7)	05:37		06:16 (7)	06:31	07:27	07:24	08:24	08:58
	17:02	18:05	18:59	20:58	21:50	42	06:41 (7)	51	06:51 (7)	21:51	29	06:45 (7)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:28	06:13	05:19		05:59 (7)	51	06:00 (7)	05:38		06:17 (7)	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	21:00	21:52	42	06:41 (7)	51	06:51 (7)	21:49	26	06:43 (7)	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17		05:59 (7)	51	06:01 (7)	05:40		06:19 (7)	06:35	07:31	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	43	06:42 (7)	50	06:51 (7)	21:47	23	06:42 (7)	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16		05:58 (7)	51	06:01 (7)	05:42		06:20 (7)	06:37	07:33	07:30	08:29	08:58
	17:08	18:11	19:05	21:03	21:55	45	06:43 (7)	51	06:52 (7)	21:46	20	06:40 (7)	20:41	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15		05:58 (7)	51	06:01 (7)	05:43		06:24 (7)	06:38	07:35	07:32	08:30	08:59
	17:10		20:07	21:05	21:56	45	06:43 (7)	51	06:52 (7)	21:44	13	06:37 (7)	20:38	19:21	17:11	16:21	16:21
30	08:31		07:18	06:04	05:14		05:58 (7)	50	06:02 (7)	05:45			06:40	07:36	07:34	08:32	08:59
	17:12		20:09	21:07	21:57	46	06:44 (7)	50	06:52 (7)	21:42			20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:58 (7)			05:47			06:42		07:36		08:59
	17:14		20:11		21:59	46	06:44 (7)			21:41			20:33		17:07		16:23
Potential sun hours	248	272	367	421	496			513		515		461	382	328	257	231	
Total, worst case						622		1501		1184							
Sun reduction						0.36		0.26		0.27							
Oper. time red.						1.00		1.00		1.00							
Wind dir. red.						0.58		0.58		0.58							
Total reduction						0.21		0.15		0.15							
Total, real						131		225		183							

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: L - H12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27	15:58 (2)	07:29		07:13	18:32 (3)	06:02	20:01 (4)	05:12	20:05 (4)
	16:24		17:16 43	16:41 (2)	18:13		20:12 21	18:53 (3)	21:09 37	20:38 (4)	22:00 34	20:39 (4)
2	08:58		08:25	15:58 (2)	07:26		07:10	18:36 (3)	06:00	20:00 (4)	05:11	20:05 (4)
	16:25		17:18 44	16:42 (2)	18:15		20:14 14	18:50 (3)	21:11 40	20:40 (4)	22:01 33	20:38 (4)
3	08:58		08:24	15:58 (2)	07:24		07:08		05:58	19:59 (4)	05:10	20:07 (4)
	16:26		17:20 45	16:43 (2)	18:17		20:16		21:12 42	20:41 (4)	22:02 32	20:39 (4)
4	08:58		08:22	15:58 (2)	07:22		07:05		05:56	19:59 (4)	05:09	20:07 (4)
	16:28		17:22 45	16:43 (2)	18:19		20:18		21:14 44	20:43 (4)	22:03 31	20:38 (4)
5	08:57		08:20	15:57 (2)	07:19		07:03		05:54	19:59 (4)	05:08	20:08 (4)
	16:29		17:24 47	16:44 (2)	18:21		20:20		21:16 44	20:43 (4)	22:04 29	20:37 (4)
6	08:57		08:18	15:57 (2)	07:17		17:43 (3) 07:00		05:52	19:58 (4)	05:08	20:09 (4)
	16:30		17:26 47	16:44 (2)	18:23	12	17:55 (3) 20:22		21:18 45	20:43 (4)	22:05 28	20:37 (4)
7	08:56		08:16	15:57 (2)	07:14		17:40 (3) 06:58		05:50	19:57 (4)	05:07	20:10 (4)
	16:32		17:28 47	16:44 (2)	18:25	18	17:58 (3) 20:24		21:20 46	20:43 (4)	22:07 26	20:36 (4)
8	08:56		08:14	15:57 (2)	07:12		17:36 (3) 06:55		05:48	19:57 (4)	05:06	20:11 (4)
	16:33		17:30 46	16:43 (2)	18:27	23	17:59 (3) 20:26		21:22 46	20:43 (4)	22:07 26	20:37 (4)
9	08:55		08:12	15:57 (2)	07:09		17:35 (3) 06:53		05:46	19:56 (4)	05:06	20:11 (4)
	16:34		17:32 46	16:43 (2)	18:29	27	18:02 (3) 20:27		21:23 47	20:43 (4)	22:08 25	20:36 (4)
10	08:55		08:10	15:57 (2)	07:07		17:32 (3) 06:50		05:44	19:57 (4)	05:05	20:12 (4)
	16:36		17:34 47	16:44 (2)	18:30	31	18:03 (3) 20:29		21:25 47	20:44 (4)	22:09 24	20:36 (4)
11	08:54		08:08	15:58 (2)	07:05		17:31 (3) 06:48		05:42	19:57 (4)	05:05	20:12 (4)
	16:37		17:37 46	16:44 (2)	18:32	34	18:05 (3) 20:31		21:27 47	20:44 (4)	22:10 23	20:35 (4)
12	08:53		08:06	15:58 (2)	07:02		17:29 (3) 06:46		05:41	19:56 (4)	05:04	20:13 (4)
	16:39		17:39 45	16:43 (2)	18:34	38	18:07 (3) 20:33		21:29 48	20:44 (4)	22:11 22	20:35 (4)
13	08:52		08:04	15:59 (2)	07:00		17:29 (3) 06:43		05:39	19:57 (4)	05:04	20:14 (4)
	16:41		17:41 44	16:43 (2)	18:36	39	18:08 (3) 20:35		21:31 47	20:44 (4)	22:12 21	20:35 (4)
14	08:51		08:02	15:59 (2)	06:57		17:27 (3) 06:41		05:37	19:56 (4)	05:04	20:15 (4)
	16:42		17:43 44	16:43 (2)	18:38	41	18:08 (3) 20:37		21:32 48	20:44 (4)	22:12 19	20:34 (4)
15	08:50		08:00	15:59 (2)	06:55		17:27 (3) 06:38		05:35	19:56 (4)	05:03	20:15 (4)
	16:44		17:45 43	16:42 (2)	18:40	42	18:09 (3) 20:39		21:34 47	20:43 (4)	22:13 18	20:33 (4)
16	08:49		07:58	16:00 (2)	06:52		17:26 (3) 06:36		05:34	19:57 (4)	05:03	20:16 (4)
	16:46		17:47 41	16:41 (2)	18:42	43	18:09 (3) 20:41		21:36 47	20:44 (4)	22:13 17	20:33 (4)
17	08:48		07:56	16:01 (2)	06:50		17:25 (3) 06:34		05:32	19:56 (4)	05:03	20:16 (4)
	16:47		17:49 40	16:41 (2)	18:44	45	18:10 (3) 20:43		21:37 47	20:43 (4)	22:14 17	20:33 (4)
18	08:47		07:54	16:03 (2)	06:47		17:24 (3) 06:31		05:30	19:57 (4)	05:03	20:17 (4)
	16:49		17:51 37	16:40 (2)	18:46	45	18:09 (3) 20:44		21:39 46	20:43 (4)	22:14 16	20:33 (4)
19	08:46	16:10 (2)	07:51	16:03 (2)	06:45		17:25 (3) 06:29		05:29	19:58 (4)	05:03	20:17 (4)
	16:51 6	16:16 (2)	17:53 35	16:38 (2)	18:48	44	18:09 (3) 20:46		21:41 45	20:43 (4)	22:15 16	20:33 (4)
20	08:45	16:08 (2)	07:49	16:05 (2)	06:42		17:24 (3) 06:27		05:27	19:58 (4)	05:03	20:19 (4)
	16:53 10	16:18 (2)	17:55 32	16:37 (2)	18:50	45	18:09 (3) 20:48		21:42 45	20:43 (4)	22:15 15	20:34 (4)
21	08:44	16:06 (2)	07:47	16:07 (2)	06:40		17:24 (3) 06:24		05:26	19:58 (4)	05:03	20:19 (4)
	16:55 14	16:20 (2)	17:57 29	16:36 (2)	18:52	45	18:09 (3) 20:50		21:44 45	20:43 (4)	22:15 15	20:34 (4)
22	08:42	16:05 (2)	07:45	16:08 (2)	06:37		17:24 (3) 06:22		05:24	19:59 (4)	05:03	20:19 (4)
	16:57 17	16:22 (2)	17:59 25	16:33 (2)	18:53	44	18:08 (3) 20:52		21:45 44	20:43 (4)	22:16 15	20:34 (4)
23	08:41	16:03 (2)	07:43	16:12 (2)	06:35		17:24 (3) 06:20	20:21 (4)	05:23	19:59 (4)	05:04	20:18 (4)
	16:58 21	16:24 (2)	18:01 18	16:30 (2)	18:55	44	18:08 (3) 20:54 2	20:23 (4)	21:47 43	20:42 (4)	22:16 16	20:34 (4)
24	08:40	16:03 (2)	07:40	16:17 (2)	06:32		17:24 (3) 06:18	20:14 (4)	05:21	20:00 (4)	05:04	20:19 (4)
	17:00 24	16:27 (2)	18:03 9	16:26 (2)	18:57	42	18:06 (3) 20:56 12	20:26 (4)	21:49 42	20:42 (4)	22:16 16	20:35 (4)
25	08:38	16:02 (2)	07:38		06:30		17:25 (3) 06:15	20:11 (4)	05:20	20:00 (4)	05:04	20:19 (4)
	17:02 26	16:28 (2)	18:05		18:59	41	18:06 (3) 20:58 17	20:28 (4)	21:50 41	20:41 (4)	22:16 16	20:35 (4)
26	08:37	16:01 (2)	07:36		06:27		17:25 (3) 06:13	20:09 (4)	05:19	20:01 (4)	05:05	20:18 (4)
	17:04 29	16:30 (2)	18:07		19:01	39	18:04 (3) 20:59 21	20:30 (4)	21:52 40	20:41 (4)	22:16 17	20:35 (4)
27	08:35	16:01 (2)	07:33		06:25		17:26 (3) 06:11	20:07 (4)	05:17	20:02 (4)	05:05	20:18 (4)
	17:06 32	16:33 (2)	18:09		19:03	38	18:04 (3) 21:01 25	20:32 (4)	21:53 39	20:41 (4)	22:16 18	20:36 (4)
28	08:34	16:00 (2)	07:31		06:22		17:26 (3) 06:09	20:05 (4)	05:16	20:02 (4)	05:06	20:19 (4)
	17:08 35	16:35 (2)	18:11		19:05	36	18:02 (3) 21:03 28	20:33 (4)	21:54 39	20:41 (4)	22:16 18	20:37 (4)
29	08:32	15:59 (2)			07:20		18:28 (3) 06:07	20:03 (4)	05:15	20:03 (4)	05:06	20:18 (4)
	17:10 38	16:37 (2)			20:07	33	19:01 (3) 21:05 32	20:35 (4)	21:56 37	20:40 (4)	22:15 19	20:37 (4)
30	08:30	15:59 (2)			07:17		18:28 (3) 06:04	20:02 (4)	05:14	20:04 (4)	05:07	20:18 (4)
	17:12 40	16:39 (2)			20:09	30	18:58 (3) 21:07 34	20:36 (4)	21:57 36	20:40 (4)	22:15 21	20:39 (4)
31	08:29	15:58 (2)			07:15		18:31 (3)		05:13	20:04 (4)		
	17:14 42	16:40 (2)			20:10	26	18:57 (3)		21:58 35	20:39 (4)		
Potential sun hours	248		272		367		421		496		513	
Total, worst case	334		945		945		206		1346		643	
Sun reduction	0.17		0.22		0.22		0.34		0.36		0.26	
Oper. time red.	1.00		1.00		1.00		1.00		1.00		1.00	
Wind dir. red.	0.60		0.60		0.57		0.61		0.61		0.61	
Total reduction	0.10		0.13		0.13		0.21		0.22		0.16	
Total, real	34		126		120		43		299		102	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: L - H12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December	
1	05:08		20:17 (4)	05:48		20:06 (4)	06:44			07:38		18:09 (3)	07:37		15:27 (2)	08:33	
	22:15	22	20:39 (4)	21:39	48	20:54 (4)	20:31			19:16	39	18:48 (3)	17:05	46	16:13 (2)	16:19	
2	05:08		20:17 (4)	05:50		20:07 (4)	06:46			07:40		18:10 (3)	07:39		15:26 (2)	08:35	
	22:14	23	20:40 (4)	21:37	47	20:54 (4)	20:28			19:14	35	18:45 (3)	17:03	47	16:13 (2)	16:19	
3	05:09		20:17 (4)	05:52		20:07 (4)	06:47			07:42		18:10 (3)	07:41		15:26 (2)	08:36	
	22:14	24	20:41 (4)	21:35	47	20:54 (4)	20:26			19:11	32	18:42 (3)	17:01	47	16:13 (2)	16:18	
4	05:10		20:16 (4)	05:54		20:07 (4)	06:49			07:44		18:11 (3)	07:43		15:27 (2)	08:38	
	22:13	26	20:42 (4)	21:33	47	20:54 (4)	20:24			19:09	29	18:40 (3)	16:59	47	16:14 (2)	16:17	
5	05:11		20:16 (4)	05:55		20:07 (4)	06:51			07:45		18:12 (3)	07:45		15:27 (2)	08:39	
	22:13	26	20:42 (4)	21:31	47	20:54 (4)	20:21			19:06	25	18:37 (3)	16:57	47	16:14 (2)	16:17	
6	05:12		20:15 (4)	05:57		20:07 (4)	06:53			07:47		18:14 (3)	07:47		15:27 (2)	08:41	
	22:12	27	20:42 (4)	21:29	46	20:53 (4)	20:19			19:04	21	18:35 (3)	16:55	46	16:13 (2)	16:16	
7	05:13		20:15 (4)	05:59		20:08 (4)	06:55			07:49		18:17 (3)	07:49		15:27 (2)	08:42	
	22:11	28	20:43 (4)	21:27	45	20:53 (4)	20:16			19:01	15	18:32 (3)	16:53	46	16:13 (2)	16:15	
8	05:14		20:14 (4)	06:01		20:08 (4)	06:56			07:51		18:22 (3)	07:51		15:28 (2)	08:43	
	22:11	30	20:44 (4)	21:25	44	20:52 (4)	20:14			18:59	8	18:30 (3)	16:51	45	16:13 (2)	16:15	
9	05:15		20:14 (4)	06:02		20:08 (4)	06:58			07:53			07:53		15:28 (2)	08:45	
	22:10	31	20:45 (4)	21:23	43	20:51 (4)	20:11			18:57			16:49	44	16:12 (2)	16:15	
10	05:16		20:13 (4)	06:04		20:09 (4)	07:00		18:30 (3)	07:55			07:55		15:29 (2)	08:46	
	22:09	32	20:45 (4)	21:21	41	20:50 (4)	20:09	13	18:43 (3)	18:54			16:47	44	16:13 (2)	16:14	
11	05:17		20:13 (4)	06:06		20:10 (4)	07:02		18:26 (3)	07:57			07:57		15:30 (2)	08:47	
	22:08	33	20:46 (4)	21:19	39	20:49 (4)	20:06	20	18:46 (3)	18:52			16:46	42	16:12 (2)	16:14	
12	05:18		20:13 (4)	06:08		20:10 (4)	07:04		18:22 (3)	07:59			07:59		15:30 (2)	08:48	
	22:07	35	20:48 (4)	21:17	36	20:46 (4)	20:04	26	18:48 (3)	18:49			16:44	41	16:11 (2)	16:14	
13	05:20		20:12 (4)	06:09		20:11 (4)	07:05		18:20 (3)	08:00			08:01		15:31 (2)	08:49	
	22:06	36	20:48 (4)	21:15	33	20:44 (4)	20:01	29	18:49 (3)	18:47			16:42	38	16:09 (2)	16:14	
14	05:21		20:12 (4)	06:11		20:12 (4)	07:07		18:18 (3)	08:02			08:03		15:32 (2)	08:50	
	22:05	36	20:48 (4)	21:12	31	20:43 (4)	19:59	33	18:51 (3)	18:45			16:41	35	16:07 (2)	16:14	
15	05:22		20:11 (4)	06:13		20:12 (4)	07:09		18:17 (3)	08:04			08:05		15:33 (2)	08:51	
	22:04	38	20:49 (4)	21:10	28	20:40 (4)	19:56	35	18:52 (3)	18:42			16:39	32	16:05 (2)	16:14	
16	05:24		20:10 (4)	06:15		20:14 (4)	07:11		18:15 (3)	08:06			08:07		15:34 (2)	08:52	
	22:03	39	20:49 (4)	21:08	24	20:38 (4)	19:54	38	18:53 (3)	18:40			16:37	29	16:03 (2)	16:14	
17	05:25		20:11 (4)	06:17		20:16 (4)	07:13		18:13 (3)	08:08			08:09		15:35 (2)	08:53	
	22:02	40	20:51 (4)	21:06	20	20:36 (4)	19:51	40	18:53 (3)	18:37			16:36	26	16:01 (2)	16:14	
18	05:26		20:10 (4)	06:18		20:17 (4)	07:14		18:12 (3)	08:10		16:46 (2)	08:11		15:37 (2)	08:54	
	22:00	41	20:51 (4)	21:04	17	20:34 (4)	19:49	41	18:53 (3)	18:35	13	16:59 (2)	16:34	24	16:01 (2)	16:14	
19	05:28		20:09 (4)	06:20		20:21 (4)	07:16		18:11 (3)	08:12		16:42 (2)	08:12		15:38 (2)	08:54	
	21:59	42	20:51 (4)	21:01	11	20:32 (4)	19:46	43	18:54 (3)	18:33	21	17:03 (2)	16:33	21	15:59 (2)	16:14	
20	05:29		20:10 (4)	06:22			07:18		18:11 (3)	08:14		16:39 (2)	08:14		15:40 (2)	08:55	
	21:58	42	20:52 (4)	20:59			19:44	43	18:54 (3)	18:31	26	17:05 (2)	16:32	17	15:57 (2)	16:15	
21	05:31		20:09 (4)	06:24			07:20		18:09 (3)	08:16		16:37 (2)	08:16		15:42 (2)	08:56	
	21:56	43	20:52 (4)	20:57			19:41	44	18:53 (3)	18:28	29	17:06 (2)	16:30	14	15:56 (2)	16:15	
22	05:32		20:08 (4)	06:26			07:22		18:09 (3)	08:18		16:35 (2)	08:18		15:44 (2)	08:56	
	21:55	44	20:52 (4)	20:55			19:39	44	18:53 (3)	18:26	33	17:08 (2)	16:29	10	15:54 (2)	16:16	
23	05:34		20:09 (4)	06:28			07:23		18:08 (3)	08:20		16:33 (2)	08:20		15:47 (2)	08:57	
	21:54	44	20:53 (4)	20:52			19:36	45	18:53 (3)	18:24	36	17:09 (2)	16:28	6	15:53 (2)	16:16	
24	05:35		20:08 (4)	06:29			07:25		18:08 (3)	08:22		16:32 (2)	08:22			08:57	
	21:52	45	20:53 (4)	20:50			19:34	45	18:53 (3)	18:22	38	17:10 (2)	16:26			16:17	
25	05:37		20:08 (4)	06:31			07:27		18:08 (3)	07:24		15:30 (2)	08:23			08:58	
	21:50	46	20:54 (4)	20:48			19:31	45	18:53 (3)	17:19	40	16:10 (2)	16:25			16:17	
26	05:38		20:07 (4)	06:33			07:29		18:07 (3)	07:26		15:29 (2)	08:25			08:58	
	21:49	47	20:54 (4)	20:45			19:29	44	18:51 (3)	17:17	42	16:11 (2)	16:24			16:18	
27	05:40		20:08 (4)	06:35			07:31		18:07 (3)	07:27		15:29 (2)	08:27			08:58	
	21:47	46	20:54 (4)	20:43			19:26	44	18:51 (3)	17:15	42	16:11 (2)	16:23			16:19	
28	05:42		20:07 (4)	06:37			07:33		18:07 (3)	07:29		15:29 (2)	08:28			08:58	
	21:46	47	20:54 (4)	20:40			19:24	43	18:50 (3)	17:13	44	16:13 (2)	16:22			16:20	
29	05:43		20:07 (4)	06:38			07:34		18:08 (3)	07:31		15:28 (2)	08:30			08:58	
	21:44	48	20:55 (4)	20:38			19:21	42	18:50 (3)	17:11	45	16:13 (2)	16:21			16:21	
30	05:45		20:07 (4)	06:40			07:36		18:08 (3)	07:33		15:28 (2)	08:32			08:58	
	21:42	47	20:54 (4)	20:36			19:19	41	18:49 (3)	17:09	45	16:13 (2)	16:20			16:22	
31	05:47		20:07 (4)	06:42						07:35		15:27 (2)				08:58	
	21:40	48	20:55 (4)	20:33						17:07	46	16:13 (2)				16:23	
Potential sun hours	515			461			382			328			257			231	
Total, worst case		1156			694			798			704			794			
Sun reduction		0.27			0.27			0.29			0.23			0.20			
Oper. time red.		1.00			1.00			1.00			1.00			1.00			
Wind dir. red.		0.61			0.61			0.57			0.59			0.60			
Total reduction		0.16			0.17			0.17			0.14			0.12			
Total, real		189			117			132			97			95			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: M - H13

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: N - H14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April		May	June
1	08:58		15:32 (3)	08:27		15:44 (3)	07:29		16:41 (4)	07:13		06:02	05:12
	16:24	13	15:45 (3)	17:16	21	16:05 (3)	18:13	40	17:21 (4)	20:12		21:09	22:00
2	08:58		15:33 (3)	08:25		15:47 (3)	07:26		16:41 (4)	07:10		06:00	05:11
	16:25	14	15:47 (3)	17:18	17	16:04 (3)	18:15	38	17:19 (4)	20:14		21:11	22:01
3	08:58		15:32 (3)	08:24		15:50 (3)	07:24		16:42 (4)	07:08		05:58	05:10
	16:26	16	15:48 (3)	17:20	11	16:01 (3)	18:17	36	17:18 (4)	20:16		21:12	22:02
4	08:58		15:33 (3)	08:22			07:22		16:42 (4)	07:05		05:56	05:09
	16:28	17	15:50 (3)	17:22			18:19	35	17:17 (4)	20:18		21:14	22:03
5	08:57		15:32 (3)	08:20			07:19		16:44 (4)	07:03		05:54	05:08
	16:29	19	15:51 (3)	17:24			18:21	32	17:16 (4)	20:20		21:16	22:04
6	08:57		15:33 (3)	08:18			07:17		16:45 (4)	07:00		05:52	05:08
	16:30	20	15:53 (3)	17:26			18:23	28	17:13 (4)	20:22		21:18	22:06
7	08:56		15:33 (3)	08:16			07:14		16:47 (4)	06:58		05:50	05:07
	16:32	21	15:54 (3)	17:28			18:25	25	17:12 (4)	20:24		21:20	22:07
8	08:56		15:33 (3)	08:14			07:12		16:49 (4)	06:55		05:48	05:06
	16:33	22	15:55 (3)	17:30			18:27	20	17:09 (4)	20:26		21:22	22:08
9	08:55		15:33 (3)	08:12		16:54 (4)	07:09		16:53 (4)	06:53		05:46	05:06
	16:34	24	15:57 (3)	17:32	7	17:01 (4)	18:29	12	17:05 (4)	20:27		21:23	22:08
10	08:55		15:34 (3)	08:10		16:51 (4)	07:07			06:50		05:44	05:05
	16:36	25	15:59 (3)	17:34	13	17:04 (4)	18:30			20:29		21:25	22:09
11	08:54		15:34 (3)	08:08		16:49 (4)	07:05			06:48		05:42	05:05
	16:37	27	16:01 (3)	17:37	17	17:06 (4)	18:32			20:31		21:27	22:10
12	08:53		15:34 (3)	08:06		16:48 (4)	07:02			06:46		05:41	05:04
	16:39	29	16:03 (3)	17:39	20	17:08 (4)	18:34			20:33		21:29	22:11
13	08:52		15:34 (3)	08:04		16:46 (4)	07:00			06:43		05:39	05:04
	16:41	31	16:05 (3)	17:41	25	17:11 (4)	18:36			20:35		21:31	22:12
14	08:51		15:33 (3)	08:02		16:45 (4)	06:57			06:41		05:37	05:04
	16:42	32	16:05 (3)	17:43	28	17:13 (4)	18:38			20:37		21:32	22:12
15	08:50		15:33 (3)	08:00		16:43 (4)	06:55			06:38		05:35	05:03
	16:44	33	16:06 (3)	17:45	32	17:15 (4)	18:40			20:39		21:34	22:13
16	08:49		15:34 (3)	07:58		16:43 (4)	06:52			06:36		05:34	05:03
	16:46	33	16:07 (3)	17:47	34	17:17 (4)	18:42			20:41		21:36	22:13
17	08:48		15:34 (3)	07:56		16:42 (4)	06:50			06:34		05:32	05:03
	16:47	34	16:08 (3)	17:49	38	17:20 (4)	18:44			20:43		21:37	22:14
18	08:47		15:34 (3)	07:54		16:42 (4)	06:47			06:31		05:30	05:03
	16:49	34	16:08 (3)	17:51	40	17:22 (4)	18:46			20:44		21:39	22:14
19	08:46		15:35 (3)	07:51		16:40 (4)	06:45			06:29		05:29	05:03
	16:51	33	16:08 (3)	17:53	42	17:22 (4)	18:48			20:46		21:41	22:15
20	08:45		15:35 (3)	07:49		16:40 (4)	06:42			06:27		05:27	05:03
	16:53	34	16:09 (3)	17:55	42	17:22 (4)	18:50			20:48		21:42	22:15
21	08:44		15:35 (3)	07:47		16:40 (4)	06:40			06:24		05:26	05:03
	16:55	34	16:09 (3)	17:57	43	17:23 (4)	18:52			20:50		21:44	22:15
22	08:42		15:36 (3)	07:45		16:39 (4)	06:37			06:22		05:24	05:03
	16:57	33	16:09 (3)	17:59	43	17:22 (4)	18:53			20:52		21:46	22:16
23	08:41		15:36 (3)	07:43		16:39 (4)	06:35			06:20		05:23	05:04
	16:58	33	16:09 (3)	18:01	44	17:23 (4)	18:55			20:54		21:47	22:16
24	08:40		15:37 (3)	07:40		16:40 (4)	06:32			06:18		05:21	05:04
	17:00	33	16:10 (3)	18:03	43	17:23 (4)	18:57			20:56		21:49	22:16
25	08:38		15:37 (3)	07:38		16:39 (4)	06:30			06:15		05:20	05:04
	17:02	32	16:09 (3)	18:05	43	17:22 (4)	18:59			20:58		21:50	22:16
26	08:37		15:38 (3)	07:36		16:39 (4)	06:27			06:13		05:19	05:05
	17:04	31	16:09 (3)	18:07	43	17:22 (4)	19:01			20:59		21:52	22:16
27	08:35		15:39 (3)	07:33		16:39 (4)	06:25			06:11		05:17	05:05
	17:06	30	16:09 (3)	18:09	42	17:21 (4)	19:03			21:01		21:53	22:16
28	08:34		15:40 (3)	07:31		16:40 (4)	06:22			06:09		05:16	05:06
	17:08	29	16:09 (3)	18:11	41	17:21 (4)	19:05			21:03		21:54	22:16
29	08:32		15:41 (3)				07:20			06:07		05:15	05:06
	17:10	27	16:08 (3)				20:07			21:05		21:56	22:15
30	08:30		15:42 (3)				07:17			06:04		05:14	05:07
	17:12	25	16:07 (3)				20:09			21:07		21:57	22:15
31	08:29		15:43 (3)				07:15					05:13	
	17:14	23	16:06 (3)				20:10					21:58	
Potential sun hours	248			272			367			421		496	513
Total, worst case		841			729			266					
Sun reduction		0.17			0.22			0.22					
Oper. time red.		1.00			1.00			1.00					
Wind dir. red.		0.62			0.58			0.58					
Total reduction		0.11			0.13			0.13					
Total, real		89			95			35					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: N - H14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October			November			December		
1	05:08		05:48		06:44		07:38			07:37		16:21 (4)	08:33		15:16 (3)
	22:15		21:39		20:31		19:16			17:05	12	16:33 (4)	16:19	27	15:43 (3)
2	05:08		05:50		06:46		07:40			07:39		16:25 (4)	08:35		15:16 (3)
	22:14		21:37		20:28		19:14			17:03	6	16:31 (4)	16:19	25	15:41 (3)
3	05:09		05:52		06:47		07:42			07:41			08:36		15:17 (3)
	22:14		21:35		20:26		19:11			17:01			16:18	24	15:41 (3)
4	05:10		05:54		06:49		07:44		17:34 (4)	07:43			08:38		15:18 (3)
	22:13		21:33		20:24		19:09	5	17:39 (4)	16:59			16:17	22	15:40 (3)
5	05:11		05:55		06:51		07:45		17:28 (4)	07:45			08:39		15:18 (3)
	22:13		21:31		20:21		19:06	16	17:44 (4)	16:57			16:16	21	15:39 (3)
6	05:12		05:57		06:53		07:47		17:24 (4)	07:47			08:41		15:19 (3)
	22:12		21:29		20:19		19:04	23	17:47 (4)	16:55			16:16	20	15:39 (3)
7	05:13		05:59		06:55		07:49		17:22 (4)	07:49			08:42		15:20 (3)
	22:11		21:27		20:16		19:01	27	17:49 (4)	16:53			16:15	18	15:38 (3)
8	05:14		06:01		06:56		07:51		17:20 (4)	07:51		15:20 (3)	08:43		15:20 (3)
	22:11		21:25		20:14		18:59	30	17:50 (4)	16:51	12	15:32 (3)	16:15	17	15:37 (3)
9	05:15		06:02		06:58		07:53		17:18 (4)	07:53		15:17 (3)	08:45		15:21 (3)
	22:10		21:23		20:11		18:56	33	17:51 (4)	16:49	17	15:34 (3)	16:15	16	15:37 (3)
10	05:16		06:04		07:00		07:55		17:17 (4)	07:55		15:16 (3)	08:46		15:22 (3)
	22:09		21:21		20:09		18:54	35	17:52 (4)	16:47	21	15:37 (3)	16:14	14	15:36 (3)
11	05:17		06:06		07:02		07:57		17:15 (4)	07:57		15:15 (3)	08:47		15:22 (3)
	22:08		21:19		20:06		18:52	38	17:53 (4)	16:46	23	15:38 (3)	16:14	14	15:36 (3)
12	05:18		06:08		07:04		07:59		17:14 (4)	07:59		15:13 (3)	08:48		15:24 (3)
	22:07		21:17		20:04		18:49	39	17:53 (4)	16:44	26	15:39 (3)	16:14	12	15:36 (3)
13	05:20		06:09		07:05		08:00		17:13 (4)	08:01		15:12 (3)	08:49		15:25 (3)
	22:06		21:15		20:01		18:47	41	17:54 (4)	16:42	28	15:40 (3)	16:14	11	15:36 (3)
14	05:21		06:11		07:07		08:02		17:13 (4)	08:03		15:12 (3)	08:50		15:25 (3)
	22:05		21:12		19:59		18:45	41	17:54 (4)	16:41	28	15:40 (3)	16:14	11	15:36 (3)
15	05:22		06:13		07:09		08:04		17:12 (4)	08:05		15:11 (3)	08:51		15:26 (3)
	22:04		21:10		19:56		18:42	42	17:54 (4)	16:39	30	15:41 (3)	16:14	10	15:36 (3)
16	05:24		06:15		07:11		08:06		17:11 (4)	08:07		15:11 (3)	08:52		15:27 (3)
	22:03		21:08		19:54		18:40	43	17:54 (4)	16:37	31	15:42 (3)	16:14	9	15:36 (3)
17	05:25		06:17		07:13		08:08		17:11 (4)	08:09		15:10 (3)	08:53		15:27 (3)
	22:02		21:06		19:51		18:37	43	17:54 (4)	16:36	32	15:42 (3)	16:14	8	15:35 (3)
18	05:26		06:18		07:14		08:10		17:11 (4)	08:11		15:11 (3)	08:54		15:28 (3)
	22:00		21:04		19:49		18:35	43	17:54 (4)	16:34	33	15:44 (3)	16:14	7	15:35 (3)
19	05:28		06:20		07:16		08:12		17:11 (4)	08:12		15:11 (3)	08:54		14:37 (2)
	21:59		21:01		19:46		18:33	43	17:54 (4)	16:33	33	15:44 (3)	16:14	9	15:36 (3)
20	05:29		06:22		07:18		08:14		17:11 (4)	08:14		15:11 (3)	08:55		14:36 (2)
	21:58		20:59		19:44		18:31	43	17:54 (4)	16:32	33	15:44 (3)	16:15	11	15:35 (3)
21	05:31		06:24		07:20		08:16		17:11 (4)	08:16		15:11 (3)	08:56		14:37 (2)
	21:56		20:57		19:41		18:28	42	17:53 (4)	16:30	34	15:45 (3)	16:15	11	15:36 (3)
22	05:32		06:26		07:22		08:18		17:11 (4)	08:18		15:11 (3)	08:56		14:37 (2)
	21:55		20:55		19:39		18:26	42	17:53 (4)	16:29	34	15:45 (3)	16:16	11	15:36 (3)
23	05:34		06:28		07:23		08:20		17:11 (4)	08:20		15:12 (3)	08:57		14:38 (2)
	21:54		20:52		19:36		18:24	41	17:52 (4)	16:28	33	15:45 (3)	16:16	11	15:37 (3)
24	05:35		06:29		07:25		08:22		17:11 (4)	08:22		15:12 (3)	08:57		14:39 (2)
	21:52		20:50		19:34		18:22	40	17:51 (4)	16:26	34	15:46 (3)	16:17	10	15:38 (3)
25	05:37		06:31		07:27		07:24		16:12 (4)	08:23		15:12 (3)	08:58		15:31 (3)
	21:50		20:48		19:31		17:19	36	16:48 (4)	16:25	34	15:46 (3)	16:17	7	15:38 (3)
26	05:38		06:33		07:29		07:26		16:12 (4)	08:25		15:13 (3)	08:58		15:32 (3)
	21:49		20:45		19:29		17:17	34	16:46 (4)	16:24	33	15:46 (3)	16:18	8	15:40 (3)
27	05:40		06:35		07:31		07:28		16:13 (4)	08:27		15:13 (3)	08:58		15:32 (3)
	21:47		20:43		19:26		17:15	31	16:44 (4)	16:23	32	15:45 (3)	16:19	8	15:40 (3)
28	05:42		06:37		07:33		07:29		16:15 (4)	08:28		15:13 (3)	08:58		15:32 (3)
	21:46		20:41		19:24		17:13	27	16:42 (4)	16:22	33	15:46 (3)	16:20	9	15:41 (3)
29	05:43		06:38		07:34		07:31		16:16 (4)	08:30		15:14 (3)	08:58		15:32 (3)
	21:44		20:38		19:21		17:11	24	16:40 (4)	16:21	31	15:45 (3)	16:21	10	15:42 (3)
30	05:45		06:40		07:36		07:33		16:17 (4)	08:32		15:15 (3)	08:58		15:33 (3)
	21:42		20:36		19:19		17:09	20	16:37 (4)	16:20	29	15:44 (3)	16:22	10	15:43 (3)
31	05:47		06:42				07:35		16:19 (4)				08:58		15:32 (3)
	21:40		20:33				17:07	16	16:35 (4)				16:23	12	15:44 (3)
Potential sun hours	515		461		382		328			257			231		
Total, worst case								938			692			413	
Sun reduction								0.23			0.20			0.12	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.58			0.62			0.62	
Total reduction								0.14			0.12			0.07	
Total, real								128			86			31	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: O - H15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June	July	August	September	October	November	December
1	08:59		08:27	08:56 (5)	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:38	08:34
	16:24		17:16 2	08:58 (5)	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	08:09 (5) 17:05 16	08:09 (6) 16:19 6 09:15 (6)
2	08:58		08:26	08:54 (5)	07:26	07:10	06:00	05:11	05:08	05:50	06:46	07:40	07:40	08:35
	16:25		17:18 5	08:59 (5)	18:15	20:14	21:11	22:01	22:15	21:37	20:29	19:14	08:25 (5) 17:03 17	09:11 (6) 16:19 5 09:16 (6)
3	08:58		08:24	08:52 (5)	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:42	08:37
	16:26		17:20 7	08:59 (5)	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	08:12 (5) 17:01 16	09:12 (6) 16:18 3 09:15 (6)
4	08:58		08:22	08:50 (5)	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	08:28 (5) 17:43 14	08:38
	16:28		17:22 9	08:59 (5)	18:19	20:18	21:15	22:04	22:14	21:33	20:24	19:09	08:14 (5) 16:59 14	09:14 (6) 16:17 2 09:16 (6)
5	08:57		08:20	08:48 (5)	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:46	08:28 (5) 17:45	08:40
	16:29		17:24 11	08:59 (5)	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	08:16 (5) 16:57 13	16:17
6	08:57		08:18	08:46 (5)	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	08:29 (5) 17:47	08:41
	16:30		17:26 13	08:59 (5)	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	08:18 (5) 16:55 11	16:16
7	08:57		08:16	08:44 (5)	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	08:29 (5) 17:49	08:42
	16:32		17:28 15	08:59 (5)	18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01	08:20 (5) 16:53 9	16:15
8	08:56	09:30 (6)	08:14	08:42 (5)	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	08:29 (5) 17:51	08:44
	16:33 2	09:32 (6)	17:30 16	08:58 (5)	18:27	20:26	21:22	22:08	22:11	21:25	20:14	18:59	08:22 (5) 16:51 7	16:15
9	08:55	09:29 (6)	08:13	08:40 (5)	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	08:29 (5) 17:53	08:45
	16:34 3	09:32 (6)	17:32 17	08:57 (5)	18:29	20:28	21:24	22:09	22:10	21:23	20:11	18:57	08:25 (5) 16:49 4	16:15
10	08:55	09:28 (6)	08:11	08:40 (5)	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	08:29 (5) 17:55	08:46
	16:36 5	09:33 (6)	17:35 15	08:55 (5)	18:31	20:29	21:25	22:10	22:09	21:21	20:09	18:54	08:27 (5) 16:47 2	08:29 (5) 16:14
11	08:54	09:27 (6)	08:09	08:42 (5)	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:37 6	09:33 (6)	17:37 12	08:54 (5)	18:33	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	09:26 (6)	08:06	08:45 (5)	07:02	06:46	05:41	05:04	05:18	06:08	07:04	07:59	07:59	08:48
	16:39 8	09:34 (6)	17:39 6	08:51 (5)	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	09:25 (6)	08:04		07:00	06:43	05:39	05:04	05:20	06:10	07:06	08:01	08:01	08:53 (6) 08:49
	16:41 9	09:34 (6)	17:41		18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42 8	09:01 (6) 16:14
14	08:52	09:24 (6)	08:02		06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50 (6) 08:50
	16:42 11	09:35 (6)	17:43		18:38	20:37	21:32	22:13	22:05	21:13	19:59	18:45	16:41 14	09:04 (6) 16:14
15	08:51	09:23 (6)	08:00		06:55	06:39	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:49 (6) 08:51
	16:44 13	09:36 (6)	17:45		18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39 17	09:06 (6) 16:14
16	08:50	09:21 (6)	07:58		06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:49 (6) 08:52
	16:46 14	09:35 (6)	17:47		18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37 19	09:08 (6) 16:14
17	08:49	09:20 (6)	07:56		06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:48 (6) 08:53
	16:47 16	09:36 (6)	17:49		18:44	20:43	21:38	22:14	22:02	21:06	19:51	18:38	16:36 21	09:09 (6) 16:14
18	08:47	09:19 (6)	07:54		06:47	06:31	05:30	05:03	05:26	06:19	07:15	08:10	08:11	08:47 (6) 08:54
	16:49 17	09:36 (6)	17:51		18:46	20:45	21:39	22:15	22:01	21:04	19:49	18:35	16:34 23	09:10 (6) 16:14
19	08:46	09:17 (6)	07:52		06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:13	08:47 (6) 08:55
	16:51 19	09:36 (6)	17:53		18:48	20:46	21:41	22:15	21:59	21:02	19:46	18:33	16:33 24	09:11 (6) 16:14
20	08:45	09:16 (6)	07:49		06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:48 (6) 08:55
	16:53 20	09:36 (6)	17:55		18:50	20:48	21:43	22:15	21:58	20:59	19:44	18:31	16:32 23	09:11 (6) 16:15
21	08:44	09:14 (6)	07:47		06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:50 (6) 08:56
	16:55 22	09:36 (6)	17:57		18:52	20:50	21:44	22:16	21:57	20:57	19:41	18:28	16:30 22	09:12 (6) 16:15
22	08:43	09:13 (6)	07:45		06:38	06:22	05:24	05:03	05:32	06:26	07:22	08:18	08:18	08:52 (6) 08:56
	16:57 23	09:36 (6)	17:59		18:54	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29 20	09:12 (6) 16:16
23	08:41	09:12 (6)	07:43		06:35	06:20	05:23	05:04	05:34	06:28	07:24	08:20	08:20	08:54 (6) 08:57
	16:58 24	09:36 (6)	18:01		18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:28 19	09:13 (6) 16:16
24	08:40	09:13 (6)	07:40		06:33	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:56 (6) 08:57
	17:00 23	09:36 (6)	18:03		18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26 17	09:13 (6) 16:17
25	08:38	09:14 (6)	07:38		06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:24	08:58 (6) 08:58
	17:02 21	09:35 (6)	18:05		18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19	16:25 16	09:14 (6) 16:17
26	08:37	09:15 (6)	07:36		06:28	06:13	05:19	05:05	05:38	06:33	07:29	07:26	08:25	09:00 (6) 08:58
	17:04 19	09:34 (6)	18:07		19:01	21:00	21:52	22:16	21:49	20:45	19:29	17:17	16:24 14	09:14 (6) 16:18
27	08:35	09:17 (6)	07:33		06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28	08:27	09:02 (6) 08:58
	17:06 17	09:34 (6)	18:09		19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23 13	09:15 (6) 16:19
28	08:34	09:19 (6)	07:31		06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:30	08:29	09:04 (6) 08:58
	17:08 13	09:32 (6)	18:11		19:05	21:03	21:55	22:16	21:46	20:41	19:24	17:13	16:22 11	09:15 (6) 16:20
29	08:32	09:21 (6)			07:20	06:07	05:15	05:06	05:43	06:38	07:35	07:32	08:30	09:05 (6) 08:59
	17:10 8	09:29 (6)			20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11	16:21 9	09:14 (6) 16:21
30	08:31				07:18	06:04	05:14	05:07	05:45	06:40	07:36	07:34 08:14 (5)	08:32	09:07 (6) 08:59
	17:12				20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09 7	08:21 (5) 16:20 8	09:15 (6) 16:22
31	08:29				07:15		05:13		05:47	06:42		07:36	08:11 (5)	08:59
	17:14				20:11		21:59		21:41	20:33		17:07 13	08:24 (5)	16:23
Potential sun hours	248		272		367	421	496	513	515	461	382	328	257	231
Total, worst case		313		128								20	407	16
Sun reduction		0.17		0.22								0.23	0.20	0.12
Oper. time red.		1.00		1.00								1.00	1.00	1.00
Wind dir. red.		0.66		0.63								0.63	0.65	0.66
Total reduction		0.11		0.14								0.15	0.13	0.08
Total, real		35		18								3	53	1

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: P - H16

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27		16:29 (11)	07:29		17:06 (12)	07:12		19:19 (13)	06:02		20:14 (15)	05:12		20:37 (16)
	16:24		17:16	15	16:44 (11)	18:13	28	17:34 (12)	20:12	26	19:45 (13)	21:09	24	20:38 (14)	22:00	40	21:17 (16)
2	08:58		08:25		16:28 (11)	07:26		17:06 (12)	07:10		19:19 (13)	06:00		20:13 (15)	05:11		20:37 (16)
	16:25		17:18	18	16:46 (11)	18:15	27	17:33 (12)	20:14	28	19:47 (13)	21:11	27	20:40 (14)	22:01	40	21:17 (16)
3	08:58		08:24		16:28 (11)	07:24		17:08 (12)	07:07		19:18 (13)	05:58		20:12 (15)	05:10		20:37 (16)
	16:26		17:20	20	16:48 (11)	18:17	24	17:32 (12)	20:16	28	19:46 (13)	21:13	30	20:42 (14)	22:02	40	21:17 (16)
4	08:58		08:22		16:28 (11)	07:22		17:08 (12)	07:05		19:19 (13)	05:56		20:12 (15)	05:09		20:37 (16)
	16:27		17:22	22	16:50 (11)	18:19	22	17:30 (12)	20:18	27	19:46 (13)	21:14	31	20:43 (14)	22:03	41	21:18 (16)
5	08:57		08:20		16:28 (11)	07:19		17:10 (12)	07:03		19:19 (13)	05:54		20:12 (15)	05:08		20:37 (16)
	16:29		17:24	25	16:53 (11)	18:21	19	17:29 (12)	20:20	27	19:46 (13)	21:16	33	20:45 (14)	22:05	41	21:18 (16)
6	08:57		08:18		16:28 (11)	07:17		17:12 (12)	07:00		19:19 (13)	05:52		20:13 (15)	05:07		20:37 (16)
	16:30		17:26	26	16:54 (11)	18:23	14	17:26 (12)	20:22	25	19:44 (13)	21:18	33	20:46 (14)	22:06	40	21:17 (16)
7	08:56		08:16		16:28 (11)	07:14		17:16 (12)	06:58		19:20 (13)	05:50		20:12 (15)	05:07		20:37 (16)
	16:31		17:28	26	16:54 (11)	18:25	6	17:22 (12)	20:24	24	19:44 (13)	21:20	34	20:46 (14)	22:07	41	21:18 (16)
8	08:56		08:14		16:29 (11)	07:12			06:55		19:20 (13)	05:48		20:12 (15)	05:06		20:37 (16)
	16:33		17:30	24	16:53 (11)	18:27			20:26	22	19:42 (13)	21:22	34	20:46 (14)	22:08	41	21:18 (16)
9	08:55		08:12		16:29 (11)	07:09			06:53		19:21 (13)	05:46		20:13 (15)	05:05		20:38 (16)
	16:34		17:32	23	16:52 (11)	18:28			20:27	20	19:41 (13)	21:24	33	20:46 (14)	22:09	41	21:19 (16)
10	08:55		08:10		16:30 (11)	07:07			06:50		19:23 (13)	05:44		20:13 (15)	05:05		20:37 (16)
	16:36		17:34	22	16:52 (11)	18:30			20:29	16	19:39 (13)	21:25	32	20:45 (14)	22:09	41	21:18 (16)
11	08:54		08:08		16:31 (11)	07:05			06:48		19:25 (13)	05:42		20:14 (15)	05:04		20:38 (16)
	16:37		17:36	20	16:51 (11)	18:32			20:31	11	19:36 (13)	21:27	32	20:46 (14)	22:10	41	21:19 (16)
12	08:53		08:06		16:32 (11)	07:02			06:45			05:40		20:14 (15)	05:04		20:38 (16)
	16:39		17:38	18	16:50 (11)	18:34			20:33			21:29	31	20:45 (14)	22:11	41	21:19 (16)
13	08:52		08:04		16:34 (11)	07:00			06:43			05:39		20:15 (15)	05:04		20:39 (16)
	16:40		17:40	14	16:48 (11)	18:36			20:35			21:31	32	20:56 (16)	22:12	41	21:20 (16)
14	08:51		08:02		16:37 (11)	06:57			06:41			05:37		20:16 (15)	05:03		20:38 (16)
	16:42		17:42	9	16:46 (11)	18:38			20:37			21:32	39	21:00 (16)	22:12	41	21:19 (16)
15	08:51		08:00			06:55			06:38			05:35		20:17 (15)	05:03		20:39 (16)
	16:44		17:45			18:40			20:39			21:34	40	21:01 (16)	22:13	40	21:19 (16)
16	08:50		07:58		17:16 (12)	06:52			06:36			05:33		20:19 (15)	05:03		20:39 (16)
	16:45		17:47	1	17:17 (12)	18:42			20:41			21:36	41	21:03 (16)	22:14	41	21:20 (16)
17	08:48		07:56		17:13 (12)	06:50			06:34			05:32		20:21 (15)	05:03		20:39 (16)
	16:47		17:49	6	17:19 (12)	18:44			20:43			21:37	37	21:04 (16)	22:14	41	21:20 (16)
18	08:47		07:54		17:12 (12)	06:47			06:31			05:30		20:42 (16)	05:03		20:39 (16)
	16:49		17:51	10	17:22 (12)	18:46			20:44			21:39	24	21:06 (16)	22:15	41	21:20 (16)
19	08:46		07:51		17:10 (12)	06:45			06:29			05:28		20:41 (16)	05:03		20:39 (16)
	16:51		17:53	13	17:23 (12)	18:48			20:46			21:41	26	21:07 (16)	22:15	41	21:20 (16)
20	08:45		07:49		17:09 (12)	06:42			06:27			05:27		20:40 (16)	05:03		20:40 (16)
	16:53		17:55	17	17:26 (12)	18:50			20:48			21:42	29	21:09 (16)	22:15	40	21:20 (16)
21	08:44		07:47		17:08 (12)	06:40			06:24			05:25		20:40 (16)	05:03		20:41 (16)
	16:54		17:57	20	17:28 (12)	18:52			20:50			21:44	31	21:11 (16)	22:16	40	21:21 (16)
22	08:42		07:45		17:07 (12)	06:37			06:22			05:24		20:39 (16)	05:03		20:41 (16)
	16:56		17:59	23	17:30 (12)	18:53			20:52			21:46	33	21:12 (16)	22:16	40	21:21 (16)
23	08:41		07:43		17:06 (12)	06:35			06:20			05:22		20:38 (16)	05:03		20:40 (16)
	16:58		18:01	26	17:32 (12)	18:55			20:54			21:47	35	21:13 (16)	22:16	41	21:21 (16)
24	08:40		07:40		17:06 (12)	06:32			06:17			05:21		20:38 (16)	05:04		20:40 (16)
	17:00		18:03	29	17:35 (12)	18:57			20:56			21:49	35	21:13 (16)	22:16	41	21:21 (16)
25	08:38		07:38		17:05 (12)	06:30			06:15		20:24 (15)	05:20		20:38 (16)	05:04		20:41 (16)
	17:02		18:05	30	17:35 (12)	18:59			20:58	5	20:29 (15)	21:50	36	21:14 (16)	22:16	41	21:22 (16)
26	08:37		07:36		17:06 (12)	06:27		18:29 (13)	06:13		20:20 (15)	05:18		20:38 (16)	05:04		20:41 (16)
	17:04		18:07	29	17:35 (12)	19:01	5	18:34 (13)	20:59	9	20:29 (15)	21:52	37	21:15 (16)	22:16	41	21:22 (16)
27	08:35		07:33		17:05 (12)	06:25		18:26 (13)	06:11		20:18 (15)	05:17		20:38 (16)	05:05		20:42 (16)
	17:06	1	18:09	29	17:34 (12)	19:03	10	18:36 (13)	21:01	13	20:31 (15)	21:53	37	21:15 (16)	22:16	41	21:23 (16)
28	08:34		07:31		17:06 (12)	06:22		18:24 (13)	06:09		20:16 (15)	05:16		20:36 (16)	05:05		20:41 (16)
	17:08	4	18:11	28	17:34 (12)	19:05	13	18:37 (13)	21:03	17	20:33 (15)	21:55	39	21:15 (16)	22:16	41	21:22 (16)
29	08:32					07:20		19:23 (13)	06:06		20:15 (15)	05:15		20:37 (16)	05:06		20:42 (16)
	17:10	7				20:07	17	19:40 (13)	21:05	20	20:35 (15)	21:56	39	21:16 (16)	22:15	41	21:23 (16)
30	08:31					07:17		19:21 (13)	06:04		20:14 (15)	05:14		20:37 (16)	05:07		20:42 (16)
	17:12	10				20:09	20	19:41 (13)	21:07	23	20:37 (15)	21:57	39	21:16 (16)	22:15	40	21:22 (16)
31	08:29					07:15		19:21 (13)				05:13		20:37 (16)			
	17:14	13				20:10	22	19:43 (13)				21:59	40	21:17 (16)			
Potential sun hours	248		272			367			421			496			513		
Total, worst case	35		543			227			341			1043			1221		
Sun reduction	0.17		0.22			0.22			0.34			0.36			0.26		
Oper. time red.	1.00		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.	0.58		0.58			0.58			0.60			0.62			0.63		
Total reduction	0.10		0.13			0.13			0.20			0.22			0.16		
Total, real	3		70			30			70			235			197		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: P - H16

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December
1	05:07		20:42 (16)	05:48		20:24 (15)	06:44		19:23 (13)	07:38			15:59 (11)	08:33
	22:15	41	21:23 (16)	21:39	31	20:55 (14)	20:31	12	19:35 (13)	19:16		17:04	22	16:21 (11)	16:19
2	05:08		20:43 (16)	05:50		20:24 (15)	06:45		19:21 (13)	07:40		07:39		15:58 (11)	08:35
	22:14	40	21:23 (16)	21:37	32	20:56 (14)	20:28	16	19:37 (13)	19:14		17:02	24	16:22 (11)	16:18
3	05:09		20:43 (16)	05:52		20:23 (15)	06:47		19:19 (13)	07:42		07:41		15:59 (11)	08:36
	22:14	41	21:24 (16)	21:35	33	20:56 (14)	20:26	20	19:39 (13)	19:11		17:00	24	16:23 (11)	16:18
4	05:10		20:42 (16)	05:53		20:23 (15)	06:49		19:17 (13)	07:44		07:43		15:58 (11)	08:38
	22:14	41	21:23 (16)	21:33	33	20:56 (14)	20:24	22	19:39 (13)	19:09		16:58	25	16:23 (11)	16:17
5	05:11		20:43 (16)	05:55		20:23 (15)	06:51		19:16 (13)	07:45		07:45		15:58 (11)	08:39
	22:13	41	21:24 (16)	21:31	33	20:56 (14)	20:21	24	19:40 (13)	19:06		16:56	25	16:23 (11)	16:16
6	05:12		20:43 (16)	05:57		20:22 (15)	06:53		19:15 (13)	07:47		07:47		15:58 (11)	08:41
	22:12	41	21:24 (16)	21:29	33	20:55 (14)	20:19	25	19:40 (13)	19:04		16:55	24	16:22 (11)	16:16
7	05:13		20:43 (16)	05:59		20:22 (15)	06:54		19:14 (13)	07:49		17:49 (12)	07:49	15:58 (11)	08:42
	22:12	41	21:24 (16)	21:27	33	20:55 (14)	20:16	27	19:41 (13)	19:01	11	18:00 (12)	16:53	22	16:20 (11)	16:15
8	05:14		20:44 (16)	06:00		20:22 (15)	06:56		19:13 (13)	07:51		17:46 (12)	07:51		15:58 (11)	08:43
	22:11	40	21:24 (16)	21:25	33	20:55 (14)	20:14	27	19:40 (13)	18:59	17	18:03 (12)	16:51	20	16:18 (11)	16:15
9	05:15		20:44 (16)	06:02		20:22 (15)	06:58		19:13 (13)	07:53		17:44 (12)	07:53		15:59 (11)	08:45
	22:10	40	21:24 (16)	21:23	30	20:52 (14)	20:11	27	19:40 (13)	18:56	20	18:04 (12)	16:49	18	16:17 (11)	16:14
10	05:16		20:44 (16)	06:04		20:22 (15)	07:00		19:13 (13)	07:55		17:42 (12)	07:55		15:59 (11)	08:46
	22:09	40	21:24 (16)	21:21	29	20:51 (14)	20:09	27	19:40 (13)	18:54	24	18:06 (12)	16:47	16	16:15 (11)	16:14
11	05:17		20:44 (16)	06:06		20:21 (15)	07:02		19:13 (13)	07:57		17:41 (12)	07:57		16:00 (11)	08:47
	22:08	40	21:24 (16)	21:19	27	20:48 (14)	20:06	25	19:38 (13)	18:52	25	18:06 (12)	16:45	12	16:12 (11)	16:14
12	05:18		20:44 (16)	06:08		20:22 (15)	07:04		19:12 (13)	07:59		17:40 (12)	07:59		16:01 (11)	08:48
	22:07	40	21:24 (16)	21:17	24	20:46 (14)	20:04	23	19:35 (13)	18:49	27	18:07 (12)	16:44	9	16:10 (11)	16:14
13	05:19		20:45 (16)	06:09		20:23 (15)	07:05		19:12 (13)	08:00		17:39 (12)	08:01		16:02 (11)	08:49
	22:06	39	21:24 (16)	21:15	22	20:45 (15)	20:01	21	19:33 (13)	18:47	28	18:07 (12)	16:42	6	16:08 (11)	16:14
14	05:21		20:46 (16)	06:11		20:24 (15)	07:07		19:13 (13)	08:02		17:39 (12)	08:03		16:03 (11)	08:50
	22:05	39	21:25 (16)	21:13	19	20:43 (15)	19:59	18	19:31 (13)	18:44	29	18:08 (12)	16:40	4	16:07 (11)	16:13
15	05:22		20:46 (16)	06:13		20:24 (15)	07:09		19:14 (13)	08:04		17:38 (12)	08:05		16:04 (11)	08:51
	22:04	38	21:24 (16)	21:10	16	20:40 (15)	19:56	14	19:28 (13)	18:42	30	18:08 (12)	16:39	1	16:05 (11)	16:13
16	05:23		20:46 (16)	06:15		20:26 (15)	07:11		19:15 (13)	08:06		17:38 (12)	08:07			08:52
	22:03	38	21:24 (16)	21:08	12	20:38 (15)	19:54	10	19:25 (13)	18:40	29	18:07 (12)	16:37			16:14
17	05:25		20:46 (16)	06:16		20:28 (15)	07:13		19:17 (13)	08:08		17:38 (12)	08:09			08:53
	22:02	37	21:23 (16)	21:06	9	20:37 (15)	19:51	6	19:23 (13)	18:37	29	18:07 (12)	16:36			16:14
18	05:26		20:47 (16)	06:18		20:30 (15)	07:14			08:10		17:38 (12)	08:11			08:54
	22:01	37	21:24 (16)	21:04	4	20:34 (15)	19:49			18:35	27	18:05 (12)	16:34			16:14
19	05:28		20:48 (16)	06:20			07:16			08:12		17:38 (12)	08:13			08:55
	21:59	35	21:23 (16)	21:01			19:46			18:33	25	18:03 (12)	16:33			16:14
20	05:29		20:48 (16)	06:22			07:18			08:14		17:38 (12)	08:14			08:55
	21:58	35	21:23 (16)	20:59			19:44			18:30	22	18:00 (12)	16:31			16:14
21	05:30		20:49 (16)	06:24			07:20			08:16		17:39 (12)	08:16			08:56
	21:57	34	21:23 (16)	20:57			19:41			18:28	19	17:58 (12)	16:30			16:15
22	05:32		20:49 (16)	06:26			07:22			08:18		17:39 (12)	08:18			08:56
	21:55	32	21:21 (16)	20:55			19:39			18:26	16	17:55 (12)	16:29			16:15
23	05:33		20:51 (16)	06:27			07:23			08:20		17:40 (12)	08:20			08:57
	21:54	30	21:21 (16)	20:52			19:36			18:24	13	17:53 (12)	16:27			16:16
24	05:35		20:51 (16)	06:29			07:25			08:22		17:42 (12)	08:22			08:57
	21:52	28	21:19 (16)	20:50			19:34			18:21	9	17:51 (12)	16:26			16:16
25	05:37		20:51 (16)	06:31			07:27			07:24		16:43 (12)	08:23			08:58
	21:51	26	21:17 (16)	20:48			19:31			17:19	5	16:48 (12)	16:25			16:17
26	05:38		20:34 (15)	06:33			07:29			07:26			08:25			08:58
	21:49	32	21:16 (16)	20:45			19:29			17:17			16:24			16:18
27	05:40		20:30 (15)	06:35			07:31			07:28			08:27			08:58
	21:47	41	21:14 (16)	20:43			19:26			17:15			16:23			16:19
28	05:41		20:29 (15)	06:36			07:32			07:29		16:06 (11)	08:29			08:58
	21:46	41	21:13 (16)	20:41			19:24			17:13	10	16:16 (11)	16:22			16:19
29	05:43		20:27 (15)	06:38			07:34			07:31		16:03 (11)	08:30			08:58
	21:44	40	21:11 (16)	20:38			19:21			17:11	15	16:18 (11)	16:21			16:20
30	05:45		20:26 (15)	06:40			07:36			07:33		16:01 (11)	08:32			08:59
	21:42	37	21:10 (16)	20:36			19:19			17:08	19	16:20 (11)	16:20			16:21
31	05:46		20:26 (15)	06:42						07:35		16:00 (11)				08:59
	21:40	29	20:55 (14)	20:33						17:06	21	16:21 (11)				16:22
Potential sun hours	515			461			383			327			257			231
Total, worst case		1154			453			344			470			252		
Sun reduction		0.27			0.27			0.29			0.23			0.20		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.63			0.62			0.59			0.58			0.58		
Total reduction		0.17			0.17			0.17			0.14			0.12		
Total, real		192			76			59			64			29		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: Q - H17

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April	May	June	July	August	September		October	November	December
1	08:58	08:27	07:29		07:12	06:02	05:12	05:08	05:48	06:44		07:38	07:37	08:33
	16:24	17:16	18:13		20:12	21:09	22:00	22:15	21:39	20:31		19:16	17:04	16:19
2	08:58	08:25	07:26		07:10	06:00	05:11	05:08	05:50	06:46		07:40	07:39	08:35
	16:25	17:18	18:15		20:14	21:11	22:01	22:14	21:37	20:28		19:14	17:02	16:18
3	08:58	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:47		07:42	07:41	08:36
	16:26	17:20	18:17		20:16	21:12	22:02	22:14	21:35	20:26		19:11	17:00	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:53	06:49		07:44	07:43	08:38
	16:27	17:22	18:19		20:18	21:14	22:03	22:13	21:33	20:24		19:09	16:58	16:17
5	08:57	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51		07:45	07:45	08:39
	16:29	17:24	18:21		20:20	21:16	22:05	22:13	21:31	20:21		19:06	16:57	16:16
6	08:57	08:18	07:17		07:00	05:52	05:07	05:12	05:57	06:53		07:47	07:47	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19		19:04	16:55	16:16
7	08:56	08:16	07:14		06:58	05:50	05:07	05:13	05:59	06:55		07:49	07:49	08:42
	16:31	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16		19:01	16:53	16:15
8	08:56	08:14	07:12		06:55	05:48	05:06	05:14	06:01	06:56		07:51	07:51	08:43
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14		18:59	16:51	16:15
9	08:55	08:12	07:09		06:53	05:46	05:06	05:15	06:02	06:58		07:53	07:53	08:45
	16:34	17:32	18:29		20:27	21:23	22:08	22:10	21:23	20:11		18:56	16:49	16:15
10	08:55	08:10	07:07		06:50	05:44	05:05	05:16	06:04	07:00		07:55	07:55	08:46
	16:36	17:34	18:30		20:29	21:25	22:09	22:09	21:21	20:09		18:54	16:47	16:14
11	08:54	08:08	07:05		06:48	05:42	05:05	05:17	06:06	07:02		07:57	07:57	08:47
	16:37	17:36	18:32		20:31	21:27	22:10	22:08	21:19	20:06		18:52	16:46	16:14
12	08:53	08:06	07:02		06:46	05:40	05:04	05:18	06:08	07:04		07:59	07:59	08:48
	16:39	17:38	18:34		20:33	21:29	22:11	22:07	21:17	20:04		18:49	16:44	16:14
13	08:52	08:04	07:00		06:43	05:39	05:04	05:20	06:09	07:05		08:00	08:01	08:49
	16:41	17:41	18:36		20:35	21:31	22:12	22:06	21:15	20:01		18:47	16:42	16:14
14	08:51	08:02	06:57	18:08 (6)	06:41	05:37	05:04	05:21	06:11	07:07		08:02	08:03	08:50
	16:42	17:43	18:38	3 18:11 (6)	20:37	21:32	22:12	22:05	21:13	19:59		18:44	16:40	16:14
15	08:50	08:00	06:55	18:07 (6)	06:38	05:35	05:03	05:22	06:13	07:09		08:04	08:05	08:51
	16:44	17:45	18:40	6 18:13 (6)	20:39	21:34	22:13	22:04	21:10	19:56		18:42	16:39	16:14
16	08:49	07:58	06:52	18:06 (6)	06:36	05:33	05:03	05:23	06:15	07:11		18:57 (5)	08:06	08:07	08:52
	16:46	17:47	18:42	9 18:15 (6)	20:41	21:36	22:14	22:03	21:08	19:54	10	19:07 (5)	18:40	16:37	16:14
17	08:48	07:56	06:50	18:06 (6)	06:34	05:32	05:03	05:25	06:17	07:13		18:55 (5)	08:08	08:09	08:53
	16:47	17:49	18:44	11 18:17 (6)	20:43	21:37	22:14	22:02	21:06	19:51	14	19:09 (5)	18:37	16:36	16:14
18	08:47	07:54	06:47	18:05 (6)	06:31	05:30	05:03	05:26	06:18	07:14		18:53 (5)	08:10	08:11	08:54
	16:49	17:51	18:46	14 18:19 (6)	20:44	21:39	22:14	22:01	21:04	19:49	18	19:11 (5)	18:35	16:34	16:14
19	08:46	07:51	06:45	18:05 (6)	06:29	05:29	05:03	05:28	06:20	07:16		18:52 (5)	08:12	08:12	08:54
	16:51	17:53	18:48	16 18:21 (6)	20:46	21:41	22:15	21:59	21:01	19:46	20	19:12 (5)	18:33	16:33	16:14
20	08:45	07:49	06:42	18:05 (6)	06:27	05:27	05:03	05:29	06:22	07:18		18:51 (5)	08:14	08:14	08:55
	16:53	17:55	18:50	17 18:22 (5)	20:48	21:42	22:15	21:58	20:59	19:44	21	19:12 (5)	18:30	16:31	16:15
21	08:44	07:47	06:40	18:05 (5)	06:24	05:26	05:03	05:31	06:24	07:20		18:50 (5)	08:16	08:16	08:56
	16:55	17:57	18:52	20 18:25 (5)	20:50	21:44	22:15	21:56	20:57	19:41	21	19:11 (5)	18:28	16:30	16:15
22	08:42	07:45	06:37	18:04 (5)	06:22	05:24	05:03	05:32	06:26	07:22		18:49 (5)	08:18	08:18	08:56
	16:56	17:59	18:53	22 18:26 (5)	20:52	21:46	22:16	21:55	20:55	19:39	21	19:10 (5)	18:26	16:29	16:16
23	08:41	07:43	06:35	18:04 (5)	06:20	05:23	05:04	05:34	06:27	07:23		18:49 (5)	08:20	08:20	08:57
	16:58	18:01	18:55	22 18:26 (5)	20:54	21:47	22:16	21:54	20:52	19:36	19	19:08 (5)	18:24	16:28	16:16
24	08:40	07:40	06:32	18:04 (5)	06:18	05:21	05:04	05:35	06:29	07:25		18:49 (6)	08:22	08:22	08:57
	17:00	18:03	18:57	20 18:24 (5)	20:56	21:49	22:16	21:52	20:50	19:34	16	19:05 (6)	18:22	16:26	16:17
25	08:38	07:38	06:30	18:05 (5)	06:15	05:20	05:04	05:37	06:31	07:27		18:49 (6)	07:24	08:23	08:58
	17:02	18:05	18:59	18 18:23 (5)	20:58	21:50	22:16	21:50	20:48	19:31	14	19:03 (6)	17:19	16:25	16:17
26	08:37	07:36	06:27	18:06 (5)	06:13	05:19	05:05	05:38	06:33	07:29		18:47 (6)	07:26	08:25	08:58
	17:04	18:07	19:01	15 18:21 (5)	20:59	21:52	22:16	21:49	20:45	19:29	13	19:00 (6)	17:17	16:24	16:18
27	08:35	07:33	06:25	18:08 (5)	06:11	05:17	05:05	05:40	06:35	07:31		18:47 (6)	07:28	08:27	08:58
	17:06	18:09	19:03	12 18:20 (5)	21:01	21:53	22:16	21:47	20:43	19:26	10	18:57 (6)	17:15	16:23	16:19
28	08:34	07:31	06:22	18:12 (5)	06:09	05:16	05:06	05:42	06:36	07:33		18:48 (6)	07:29	08:28	08:58
	17:08	18:11	19:05	2 18:14 (5)	21:03	21:54	22:16	21:46	20:41	19:24	7	18:55 (6)	17:13	16:22	16:20
29	08:32		07:20		06:06	05:15	05:06	05:43	06:38	07:34		18:48 (6)	07:31	08:30	08:58
	17:10		20:07		21:05	21:56	22:15	21:44	20:38	19:21	5	18:53 (6)	17:11	16:21	16:21
30	08:31		07:17		06:04	05:14	05:07	05:45	06:40	07:36		18:49 (6)	07:33	08:32	08:58
	17:12		20:09		21:07	21:57	22:15	21:42	20:36	19:19	1	18:50 (6)	17:09	16:20	16:21
31	08:29		07:15			05:13		05:47	06:42				07:35		08:58
	17:14		20:10			21:59		21:40	20:33				17:07		16:22
Potential sun hours	248	272	367		421	496	513	515	461	382		328	257	231
Total, worst case				207							210			
Sun reduction				0.22							0.29			
Oper. time red.				1.00							1.00			
Wind dir. red.				0.58							0.58			
Total reduction				0.13							0.17			
Total, real				27							36			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: R - H18

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June	
1	08:58	08:27	07:29		07:13		08:04 (1)		05:12	21:04 (6)
	16:24	17:16	18:13		20:12	17	08:21 (1)		22:00	21 21:25 (6)
2	08:58	08:25	07:26		07:10		08:09 (1)		05:11	21:03 (6)
	16:25	17:18	18:15		20:14	7	08:16 (1)		22:01	23 21:26 (6)
3	08:58	08:24	07:24		07:08				05:10	21:03 (6)
	16:26	17:20	18:17		20:16				22:02	23 21:26 (6)
4	08:58	08:22	07:22		07:05				05:09	21:03 (6)
	16:28	17:22	18:19		20:18				22:03	25 21:28 (6)
5	08:57	08:20	07:19		07:03				05:08	21:02 (6)
	16:29	17:24	18:21		20:20				22:05	27 21:29 (6)
6	08:57	08:18	07:17		07:00				05:08	21:03 (6)
	16:30	17:26	18:23		20:22				22:06	27 21:30 (6)
7	08:56	08:16	07:14		06:58				05:07	21:02 (6)
	16:32	17:28	18:25		20:24				22:07	29 21:31 (6)
8	08:56	08:14	07:12		06:55				05:06	21:01 (6)
	16:33	17:30	18:27		20:26				22:08	30 21:31 (6)
9	08:55	08:12	07:10		06:53				05:06	21:02 (6)
	16:34	17:32	18:29		20:27				22:09	30 21:32 (6)
10	08:55	08:10	07:07		06:50				05:05	21:02 (6)
	16:36	17:34	18:31		20:29				22:09	32 21:34 (6)
11	08:54	08:08	07:05	07:29 (1)	06:48				05:05	21:01 (6)
	16:37	17:37	18:32	1 07:30 (1)	20:31				22:10	32 21:33 (6)
12	08:53	08:06	07:02	07:26 (1)	06:46				05:04	21:02 (6)
	16:39	17:39	18:34	6 07:32 (1)	20:33				22:11	32 21:34 (6)
13	08:52	08:04	07:00	07:24 (1)	06:43				05:04	21:02 (6)
	16:41	17:41	18:36	9 07:33 (1)	20:35				22:12	33 21:35 (6)
14	08:51	08:02	06:57	07:21 (1)	06:41				05:04	21:02 (6)
	16:42	17:43	18:38	13 07:34 (1)	20:37				22:12	33 21:35 (6)
15	08:50	08:00	06:55	07:19 (1)	06:38				05:03	21:01 (6)
	16:44	17:45	18:40	16 07:35 (1)	20:39				22:13	34 21:35 (6)
16	08:49	07:58	06:52	07:16 (1)	06:36				05:03	21:02 (6)
	16:46	17:47	18:42	19 07:35 (1)	20:41				22:14	33 21:35 (6)
17	08:48	07:56	06:50	07:14 (1)	06:34				05:03	21:02 (6)
	16:47	17:49	18:44	22 07:36 (1)	20:43				22:14	33 21:35 (6)
18	08:47	07:54	06:47	07:11 (1)	06:31				05:03	21:02 (6)
	16:49	17:51	18:46	25 07:36 (1)	20:44				22:14	34 21:36 (6)
19	08:46	07:51	06:45	07:09 (1)	06:29				05:03	21:02 (6)
	16:51	17:53	18:48	27 07:36 (1)	20:46				22:15	34 21:36 (6)
20	08:45	07:49	06:42	07:06 (1)	06:27				05:03	21:03 (6)
	16:53	17:55	18:50	30 07:36 (1)	20:48				22:15	34 21:37 (6)
21	08:44	07:47	06:40	07:04 (1)	06:24				05:03	21:03 (6)
	16:55	17:57	18:52	32 07:36 (1)	20:50				22:15	34 21:37 (6)
22	08:42	07:45	06:37	07:01 (1)	06:22				05:03	21:03 (6)
	16:57	17:59	18:53	34 07:35 (1)	20:52				22:16	34 21:37 (6)
23	08:41	07:43	06:35	06:59 (1)	06:20				05:04	21:03 (6)
	16:58	18:01	18:55	36 07:35 (1)	20:54				22:16	34 21:37 (6)
24	08:40	07:40	06:32	06:57 (1)	06:18				05:04	21:04 (6)
	17:00	18:03	18:57	37 07:34 (1)	20:56				22:16	34 21:38 (6)
25	08:38	07:38	06:30	06:57 (1)	06:15				05:04	21:04 (6)
	17:02	18:05	18:59	36 07:33 (1)	20:58				22:16	33 21:37 (6)
26	08:37	07:36	06:27	06:57 (1)	06:13				05:05	21:04 (6)
	17:04	18:07	19:01	35 07:32 (1)	20:59				22:16	33 21:37 (6)
27	08:35	07:33	06:25	06:58 (1)	06:11				05:05	21:05 (6)
	17:06	18:09	19:03	33 07:31 (1)	21:01				22:16	33 21:38 (6)
28	08:34	07:31	06:22	06:58 (1)	06:09				05:06	21:04 (6)
	17:08	18:11	19:05	31 07:29 (1)	21:03				22:16	33 21:37 (6)
29	08:32		07:20	08:00 (1)	06:07				05:06	21:05 (6)
	17:10		20:07	28 08:28 (1)	21:05				22:15	33 21:38 (6)
30	08:31		07:18	08:00 (1)	06:04				05:07	21:06 (6)
	17:12		20:09	26 08:26 (1)	21:07				22:15	32 21:38 (6)
31	08:29		07:15	08:02 (1)						
	17:14		20:11	22 08:24 (1)						
Potential sun hours	248	272	367		421		496		513	
Total, worst case				518		24		76		932
Sun reduction				0.22		0.34		0.36		0.26
Oper. time red.				1.00		1.00		1.00		1.00
Wind dir. red.				0.59		0.59		0.63		0.63
Total reduction				0.13		0.20		0.23		0.16
Total, real				69		5		17		152

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: R - H18

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August	September		October		November	December
1	05:08	21:06 (6)	05:48	06:44		07:38	08:05 (1)	07:37	08:33
	22:15	32 21:38 (6)	21:39	20:31		19:16	7 08:12 (1)	17:05	16:19
2	05:08	21:06 (6)	05:50	06:46		07:40	08:07 (1)	07:39	08:35
	22:14	32 21:38 (6)	21:37	20:28		19:14	3 08:10 (1)	17:03	16:19
3	05:09	21:07 (6)	05:52	06:47		07:42		07:41	08:36
	22:14	31 21:38 (6)	21:35	20:26		19:11		17:01	16:18
4	05:10	21:08 (6)	05:54	06:49		07:44		07:43	08:38
	22:13	30 21:38 (6)	21:33	20:24		19:09		16:59	16:17
5	05:11	21:07 (6)	05:55	06:51		07:45		07:45	08:39
	22:13	29 21:36 (6)	21:31	20:21		19:06		16:57	16:16
6	05:12	21:08 (6)	05:57	06:53		07:47		07:47	08:41
	22:12	28 21:36 (6)	21:29	20:19		19:04		16:55	16:16
7	05:13	21:08 (6)	05:59	06:55		07:49		07:49	08:42
	22:12	27 21:35 (6)	21:27	20:16		19:01		16:53	16:15
8	05:14	21:09 (6)	06:01	06:56		07:51		07:51	08:43
	22:11	26 21:35 (6)	21:25	20:14		18:59		16:51	16:15
9	05:15	21:10 (6)	06:02	06:58		07:53		07:53	08:45
	22:10	24 21:34 (6)	21:23	20:11		18:57		16:49	16:15
10	05:16	21:10 (6)	06:04	07:00	08:03 (1)	07:55		07:55	08:46
	22:09	23 21:33 (6)	21:21	20:09	5 08:08 (1)	18:54		16:47	16:14
11	05:17	21:11 (6)	06:06	07:02	07:58 (1)	07:57		07:57	08:47
	22:08	22 21:33 (6)	21:19	20:06	15 08:13 (1)	18:52		16:46	16:14
12	05:18	21:13 (6)	06:08	07:04	07:55 (1)	07:59		07:59	08:48
	22:07	20 21:33 (6)	21:17	20:04	21 08:16 (1)	18:49		16:44	16:14
13	05:20	21:14 (6)	06:09	07:05	07:52 (1)	08:00		08:01	08:49
	22:06	18 21:32 (6)	21:15	20:01	25 08:17 (1)	18:47		16:42	16:14
14	05:21	21:15 (6)	06:11	07:07	07:50 (1)	08:02		08:03	08:50
	22:05	16 21:31 (6)	21:13	19:59	28 08:18 (1)	18:45		16:41	16:14
15	05:22	21:16 (6)	06:13	07:09	07:49 (1)	08:04		08:05	08:51
	22:04	13 21:29 (6)	21:10	19:56	31 08:20 (1)	18:42		16:39	16:14
16	05:24	21:17 (6)	06:15	07:11	07:48 (1)	08:06		08:07	08:52
	22:03	11 21:28 (6)	21:08	19:54	33 08:21 (1)	18:40		16:37	16:14
17	05:25	21:20 (6)	06:17	07:13	07:46 (1)	08:08		08:09	08:53
	22:02	8 21:28 (6)	21:06	19:51	34 08:20 (1)	18:37		16:36	16:14
18	05:26		06:18	07:14	07:45 (1)	08:10		08:11	08:54
	22:01		21:04	19:49	36 08:21 (1)	18:35		16:34	16:14
19	05:28		06:20	07:16	07:44 (1)	08:12		08:12	08:55
	21:59		21:01	19:46	37 08:21 (1)	18:33		16:33	16:14
20	05:29		06:22	07:18	07:45 (1)	08:14		08:14	08:55
	21:58		20:59	19:44	36 08:21 (1)	18:31		16:32	16:15
21	05:31		06:24	07:20	07:46 (1)	08:16		08:16	08:56
	21:56		20:57	19:41	35 08:21 (1)	18:28		16:30	16:15
22	05:32		06:26	07:22	07:48 (1)	08:18		08:18	08:56
	21:55		20:55	19:39	32 08:20 (1)	18:26		16:29	16:16
23	05:34		06:28	07:23	07:50 (1)	08:20		08:20	08:57
	21:54		20:52	19:36	30 08:20 (1)	18:24		16:28	16:16
24	05:35		06:29	07:25	07:52 (1)	08:22		08:22	08:57
	21:52		20:50	19:34	28 08:20 (1)	18:22		16:26	16:17
25	05:37		06:31	07:27	07:54 (1)	07:24		08:23	08:58
	21:51		20:48	19:31	25 08:19 (1)	17:19		16:25	16:17
26	05:38		06:33	07:29	07:55 (1)	07:26		08:25	08:58
	21:49		20:45	19:29	23 08:18 (1)	17:17		16:24	16:18
27	05:40		06:35	07:31	07:57 (1)	07:28		08:27	08:58
	21:47		20:43	19:26	20 08:17 (1)	17:15		16:23	16:19
28	05:42		06:37	07:33	07:59 (1)	07:30		08:28	08:58
	21:46		20:41	19:24	17 08:16 (1)	17:13		16:22	16:20
29	05:43		06:38	07:34	08:01 (1)	07:31		08:30	08:58
	21:44		20:38	19:21	14 08:15 (1)	17:11		16:21	16:21
30	05:45		06:40	07:36	08:03 (1)	07:33		08:32	08:58
	21:42		20:36	19:19	11 08:14 (1)	17:09		16:20	16:22
31	05:47		06:42			07:35			08:58
	21:40		20:33			17:07			16:23
Potential sun hours	515		461	382		328		257	231
Total, worst case		390			536		10		
Sun reduction		0.27			0.29		0.23		
Oper. time red.		1.00			1.00		1.00		
Wind dir. red.		0.63			0.59		0.59		
Total reduction		0.17			0.17		0.14		
Total, real		66			93		1		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: S - H19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May	June
1	08:58			08:27		16:03 (18)	07:29		17:29 (16)	07:12		18:28 (17)	06:02	05:11
	16:24			17:16	31	16:34 (18)	18:13	15	17:44 (16)	20:12	17	18:45 (17)	21:09	22:00
2	08:58			08:25		16:02 (18)	07:26		17:29 (16)	07:10		18:33 (17)	06:00	05:10
	16:25			17:18	33	16:35 (18)	18:15	14	17:43 (16)	20:14	7	18:40 (17)	21:11	22:01
3	08:58			08:24		16:01 (18)	07:24		17:31 (16)	07:07			05:58	05:10
	16:26			17:20	35	16:36 (18)	18:17	10	17:41 (16)	20:16			21:13	22:02
4	08:58			08:22		16:01 (18)	07:21		17:33 (16)	07:05			05:56	05:09
	16:27			17:22	35	16:36 (18)	18:19	5	17:38 (16)	20:18			21:14	22:03
5	08:57			08:20		16:01 (18)	07:19			07:02			05:54	05:08
	16:28			17:24	36	16:37 (18)	18:21			20:20			21:16	22:05
6	08:57			08:18		16:00 (18)	07:17			07:00			05:52	05:07
	16:30			17:26	38	16:38 (18)	18:23			20:22			21:18	22:06
7	08:56			08:16		16:00 (18)	07:14		17:36 (17)	06:58			05:50	05:06
	16:31			17:28	38	16:38 (18)	18:24	14	17:50 (17)	20:24			21:20	22:07
8	08:56			08:14		16:00 (18)	07:12		17:32 (17)	06:55			05:48	05:06
	16:33			17:30	39	16:39 (18)	18:26	21	17:53 (17)	20:26			21:22	22:08
9	08:55			08:12		15:59 (18)	07:09		17:30 (17)	06:53			05:46	05:05
	16:34			17:32	39	16:38 (18)	18:28	26	17:56 (17)	20:27			21:23	22:09
10	08:55			08:10		15:59 (18)	07:07		17:28 (17)	06:50			05:44	05:05
	16:36			17:34	39	16:38 (18)	18:30	29	17:57 (17)	20:29			21:25	22:09
11	08:54			08:08		15:59 (18)	07:05		17:26 (17)	06:48			05:42	05:04
	16:37			17:36	39	16:38 (18)	18:32	33	17:59 (17)	20:31			21:27	22:10
12	08:53			08:06		15:59 (18)	07:02		17:24 (17)	06:45			05:40	05:04
	16:39			17:38	39	16:38 (18)	18:34	35	17:59 (17)	20:33			21:29	22:11
13	08:52			08:04		16:00 (18)	07:00		17:24 (17)	06:43			05:38	05:04
	16:40			17:40	38	16:38 (18)	18:36	36	18:00 (17)	20:35			21:31	22:12
14	08:51			08:02		16:00 (18)	06:57		17:22 (17)	06:41			05:37	05:03
	16:42			17:42	38	16:38 (18)	18:38	38	18:00 (17)	20:37			21:32	22:12
15	08:51			08:00		16:00 (18)	06:55		17:21 (17)	06:38			05:35	05:03
	16:44			17:44	37	16:37 (18)	18:40	40	18:01 (17)	20:39			21:34	22:13
16	08:50			07:58		16:01 (18)	06:52		17:20 (17)	06:36			05:33	05:03
	16:45			17:46	36	16:37 (18)	18:42	41	18:01 (17)	20:41			21:36	22:14
17	08:48			07:56		16:02 (18)	06:50		17:20 (17)	06:33			05:32	05:03
	16:47			17:49	34	16:36 (18)	18:44	42	18:02 (17)	20:42			21:37	22:14
18	08:47			07:54		16:03 (18)	06:47		17:19 (17)	06:31			05:30	05:03
	16:49			17:51	33	16:36 (18)	18:46	42	18:01 (17)	20:44			21:39	22:15
19	08:46			07:51		16:03 (18)	06:45		17:19 (17)	06:29			05:28	05:03
	16:51			17:53	31	16:34 (18)	18:48	43	18:02 (17)	20:46			21:41	22:15
20	08:45			07:49		16:05 (18)	06:42		17:18 (17)	06:26			05:27	05:03
	16:53			17:55	28	16:33 (18)	18:50	43	18:01 (17)	20:48			21:42	22:15
21	08:44			07:47		16:07 (18)	06:40		17:19 (17)	06:24			05:25	05:03
	16:54			17:57	25	16:32 (18)	18:51	42	18:01 (17)	20:50			21:44	22:16
22	08:42			07:45		16:08 (18)	06:37		17:18 (17)	06:22			05:24	05:03
	16:56			17:59	21	16:29 (18)	18:53	42	18:00 (17)	20:52			21:46	22:16
23	08:41			07:42		16:11 (18)	06:35		17:19 (17)	06:20			05:22	05:03
	16:58			18:01	17	17:32 (16)	18:55	41	18:00 (17)	20:54			21:47	22:16
24	08:40			07:40		16:17 (18)	06:32		17:18 (17)	06:17			05:21	05:04
	17:00			18:03	10	17:35 (16)	18:57	40	17:58 (17)	20:56			21:49	22:16
25	08:38			07:38		17:29 (16)	06:30		17:19 (17)	06:15			05:20	05:04
	17:02			18:05	7	17:36 (16)	18:59	39	17:58 (17)	20:58			21:50	22:16
26	08:37		16:11 (18)	07:36		17:29 (16)	06:27		17:19 (17)	06:13			05:18	05:04
	17:04	10	16:21 (18)	18:07	10	17:39 (16)	19:01	37	17:56 (17)	20:59			21:52	22:16
27	08:35		16:09 (18)	07:33		17:28 (16)	06:25		17:20 (17)	06:11			05:17	05:05
	17:06	16	16:25 (18)	18:09	12	17:40 (16)	19:03	36	17:56 (17)	21:01			21:53	22:16
28	08:34		16:07 (18)	07:31		17:28 (16)	06:22		17:21 (17)	06:08			05:16	05:05
	17:08	20	16:27 (18)	18:11	15	17:43 (16)	19:05	33	17:54 (17)	21:03			21:55	22:16
29	08:32		16:05 (18)				07:20		18:22 (17)	06:06			05:15	05:06
	17:10	24	16:29 (18)				20:07	31	18:53 (17)	21:05			21:56	22:15
30	08:31		16:04 (18)				07:17		18:23 (17)	06:04			05:14	05:07
	17:12	26	16:30 (18)				20:08	27	18:50 (17)	21:07			21:57	22:15
31	08:29		16:03 (18)				07:15		18:26 (17)				05:12	
	17:14	29	16:32 (18)				20:10	22	18:48 (17)				21:59	
Potential sun hours	248			272			367			421			496	513
Total, worst case		125			833			917			24			
Sun reduction		0.17			0.22			0.22			0.34			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.60			0.60			0.57			0.57			
Total reduction		0.10			0.13			0.13			0.20			
Total, real		13			111			117			5			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: S - H19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December	
1	05:07		05:48		06:44		07:38		18:04 (17)	07:37	15:29 (18)	08:33
	22:15		21:39		20:31		19:16	35	18:39 (17)	17:04	39	16:08 (18)	16:19
2	05:08		05:50		06:45		07:40		18:04 (17)	07:39	15:28 (18)	08:35
	22:14		21:37		20:28		19:14	33	18:37 (17)	17:02	39	16:07 (18)	16:18
3	05:09		05:52		06:47		07:42		18:05 (17)	07:41	15:29 (18)	08:36
	22:14		21:35		20:26		19:11	30	18:35 (17)	17:00	38	16:07 (18)	16:17
4	05:10		05:53		06:49		07:44		18:06 (17)	07:43	15:30 (18)	08:38
	22:14		21:33		20:24		19:09	28	18:34 (17)	16:58	38	16:08 (18)	16:17
5	05:11		05:55		06:51		07:45		18:08 (17)	07:45	15:30 (18)	08:39
	22:13		21:31		20:21		19:06	23	18:31 (17)	16:56	37	16:07 (18)	16:16
6	05:11		05:57		06:53		07:47		18:11 (17)	07:47	15:30 (18)	08:41
	22:12		21:29		20:19		19:04	17	18:28 (17)	16:54	37	16:07 (18)	16:16
7	05:12		05:59		06:54		07:49		18:15 (17)	07:49	15:31 (18)	08:42
	22:12		21:27		20:16		19:01	8	18:23 (17)	16:53	35	16:06 (18)	16:15
8	05:14		06:00		06:56		07:51			07:51	15:31 (18)	08:43
	22:11		21:25		20:14		18:59			16:51	34	16:05 (18)	16:15
9	05:15		06:02		06:58		07:53			07:53	15:32 (18)	08:45
	22:10		21:23		20:11		18:56			16:49	32	16:04 (18)	16:14
10	05:16		06:04		07:00	18:28 (17)	07:55		18:06 (16)	07:55	15:34 (18)	08:46
	22:09		21:21		20:09	4	18:32 (17)	18:54	8	18:14 (16)	16:47	30	16:04 (18)	16:14
11	05:17		06:06		07:02	18:22 (17)	07:57		18:04 (16)	07:57	15:35 (18)	08:47
	22:08		21:19		20:06	16	18:38 (17)	18:51	12	18:16 (16)	16:45	28	16:03 (18)	16:14
12	05:18		06:07		07:03	18:17 (17)	07:58		18:03 (16)	07:59	15:36 (18)	08:48
	22:07		21:17		20:04	22	18:39 (17)	18:49	14	18:17 (16)	16:44	26	16:02 (18)	16:14
13	05:19		06:09		07:05	18:15 (17)	08:00		18:02 (16)	08:01	15:37 (18)	08:49
	22:06		21:15		20:01	26	18:41 (17)	18:47	15	18:17 (16)	16:42	24	16:01 (18)	16:13
14	05:21		06:11		07:07	18:13 (17)	08:02		18:01 (16)	08:03	15:39 (18)	08:50
	22:05		21:13		19:59	30	18:43 (17)	18:44	14	18:15 (16)	16:40	20	15:59 (18)	16:13
15	05:22		06:13		07:09	18:11 (17)	08:04		18:01 (16)	08:05	15:41 (18)	08:51
	22:04		21:10		19:56	33	18:44 (17)	18:42	12	18:13 (16)	16:39	16	15:57 (18)	16:13
16	05:23		06:15		07:11	18:09 (17)	08:06		18:01 (16)	08:07	15:44 (18)	08:52
	22:03		21:08		19:54	35	18:44 (17)	18:40	9	18:10 (16)	16:37	10	15:54 (18)	16:13
17	05:25		06:16		07:12	18:08 (17)	08:08		18:01 (16)	08:09		08:53
	22:02		21:06		19:51	37	18:45 (17)	18:37	7	18:08 (16)	16:36			16:14
18	05:26		06:18		07:14	18:07 (17)	08:10		16:46 (18)	08:11		08:54
	22:01		21:04		19:49	38	18:45 (17)	18:35	13	18:05 (16)	16:34			16:14
19	05:27		06:20		07:16	18:06 (17)	08:12		16:41 (18)	08:12		08:55
	21:59		21:01		19:46	40	18:46 (17)	18:33	18	16:59 (18)	16:33			16:14
20	05:29		06:22		07:18	18:04 (17)	08:14		16:39 (18)	08:14		08:55
	21:58		20:59		19:44	41	18:45 (17)	18:30	22	17:01 (18)	16:31			16:14
21	05:30		06:24		07:20	18:04 (17)	08:16		16:36 (18)	08:16		08:56
	21:57		20:57		19:41	41	18:45 (17)	18:28	27	17:03 (18)	16:30			16:15
22	05:32		06:25		07:21	18:03 (17)	08:18		16:35 (18)	08:18		08:56
	21:55		20:55		19:39	42	18:45 (17)	18:26	29	17:04 (18)	16:29			16:15
23	05:33		06:27		07:23	18:03 (17)	08:20		16:33 (18)	08:20		08:57
	21:54		20:52		19:36	42	18:45 (17)	18:24	32	17:05 (18)	16:27			16:16
24	05:35		06:29		07:25	18:03 (17)	08:22		16:32 (18)	08:22		08:57
	21:52		20:50		19:34	42	18:45 (17)	18:21	34	17:06 (18)	16:26			16:16
25	05:37		06:31		07:27	18:03 (17)	07:24		15:31 (18)	08:23		08:58
	21:51		20:48		19:31	42	18:45 (17)	17:19	35	16:06 (18)	16:25			16:17
26	05:38		06:33		07:29	18:02 (17)	07:26		15:30 (18)	08:25		08:58
	21:49		20:45		19:28	42	18:44 (17)	17:17	37	16:07 (18)	16:24			16:18
27	05:40		06:35		07:31	18:02 (17)	07:27		15:29 (18)	08:27		08:58
	21:47		20:43		19:26	41	18:43 (17)	17:15	38	16:07 (18)	16:23			16:19
28	05:41		06:36		07:32	18:02 (17)	07:29		15:30 (18)	08:29		08:58
	21:46		20:40		19:23	40	18:42 (17)	17:13	38	16:08 (18)	16:22			16:19
29	05:43		06:38		07:34	18:03 (17)	07:31		15:29 (18)	08:30		08:58
	21:44		20:38		19:21	39	18:42 (17)	17:11	39	16:08 (18)	16:21			16:20
30	05:45		06:40		07:36	18:03 (17)	07:33		15:29 (18)	08:32		08:59
	21:42		20:36		19:18	38	18:41 (17)	17:08	39	16:08 (18)	16:20			16:21
31	05:46		06:42				07:35		15:29 (18)			08:58
	21:40		20:33				17:06	39	16:08 (18)			16:22
Potential sun hours	515		461		383		327			257		230
Total, worst case						731		705			483	
Sun reduction						0.29		0.23			0.20	
Oper. time red.						1.00		1.00			1.00	
Wind dir. red.						0.57		0.59			0.60	
Total reduction						0.17		0.14			0.12	
Total, real						122		97			58	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: T - H20

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March			April			May			June		
1	08:59	08:27	07:29			07:13		07:55 (7)	06:02			05:12		06:05 (8)
	16:24	17:16	18:13			20:13	39	08:34 (7)	21:09			22:00	36	06:41 (8)
2	08:58	08:26	07:26			07:10		07:54 (7)	06:00			05:11		06:05 (8)
	16:25	17:18	18:15			20:14	39	08:33 (7)	21:11			22:01	35	06:40 (8)
3	08:58	08:24	07:24			07:08		07:54 (7)	05:58			05:10		06:06 (8)
	16:26	17:20	18:17			20:16	40	08:34 (7)	21:13			22:02	35	06:41 (8)
4	08:58	08:22	07:22			07:05		07:52 (7)	05:56			05:09		06:06 (8)
	16:28	17:22	18:19			20:18	42	08:34 (7)	21:15			22:04	35	06:41 (8)
5	08:58	08:20	07:19			07:03		07:52 (7)	05:54			05:08		06:06 (8)
	16:29	17:24	18:21			20:20	42	08:34 (7)	21:16			22:05	34	06:40 (8)
6	08:57	08:18	07:17			07:00		07:51 (7)	05:52			05:08		06:07 (8)
	16:30	17:26	18:23			20:22	42	08:33 (7)	21:18			22:06	34	06:41 (8)
7	08:57	08:16	07:14			06:58		07:51 (7)	05:50		06:19 (8)	05:07		06:07 (8)
	16:32	17:28	18:25			20:24	42	08:33 (7)	21:20	6	06:25 (8)	22:07	34	06:41 (8)
8	08:56	08:14	07:12			06:55		07:51 (7)	05:48		06:15 (8)	05:06		06:08 (8)
	16:33	17:30	18:27			20:26	42	08:33 (7)	21:22	14	06:29 (8)	22:08	33	06:41 (8)
9	08:55	08:13	07:10			06:53		07:51 (7)	05:46		06:13 (8)	05:06		06:08 (8)
	16:34	17:32	18:29			20:28	41	08:32 (7)	21:24	18	06:31 (8)	22:09	33	06:41 (8)
10	08:55	08:11	07:07			06:51		07:51 (7)	05:44		06:12 (8)	05:05		06:09 (8)
	16:36	17:35	18:31			20:29	41	08:32 (7)	21:25	21	06:33 (8)	22:10	32	06:41 (8)
11	08:54	08:09	07:05			06:48		07:51 (7)	05:42		06:10 (8)	05:05		06:08 (8)
	16:37	17:37	18:33			20:31	40	08:31 (7)	21:27	24	06:34 (8)	22:10	32	06:40 (8)
12	08:53	08:07	07:02			06:46		07:51 (7)	05:41		06:08 (8)	05:04		06:09 (8)
	16:39	17:39	18:34			20:33	39	08:30 (7)	21:29	27	06:35 (8)	22:11	32	06:41 (8)
13	08:52	08:04	07:00			06:43		07:52 (7)	05:39		06:08 (8)	05:04		06:09 (8)
	16:41	17:41	18:36			20:35	37	08:29 (7)	21:31	28	06:36 (8)	22:12	32	06:41 (8)
14	08:52	08:02	06:57			06:41		07:52 (7)	05:37		06:06 (8)	05:04		06:10 (8)
	16:42	17:43	18:38			20:37	35	08:27 (7)	21:32	30	06:36 (8)	22:13	31	06:41 (8)
15	08:51	08:00	06:55			06:39		07:53 (7)	05:35		06:06 (8)	05:03		06:09 (8)
	16:44	17:45	18:40			20:39	33	08:26 (7)	21:34	32	06:38 (8)	22:13	31	06:40 (8)
16	08:50	07:58	06:52			06:36		07:54 (7)	05:34		06:05 (8)	05:03		06:10 (8)
	16:46	17:47	18:42			20:41	31	08:25 (7)	21:36	33	06:38 (8)	22:14	31	06:41 (8)
17	08:49	07:56	06:50			06:34		07:54 (7)	05:32		06:05 (8)	05:03		06:10 (8)
	16:47	17:49	18:44			20:43	29	08:23 (7)	21:38	34	06:39 (8)	22:14	31	06:41 (8)
18	08:48	07:54	06:47			06:31		07:56 (7)	05:30		06:04 (8)	05:03		06:10 (8)
	16:49	17:51	18:46			20:45	25	08:21 (7)	21:39	35	06:39 (8)	22:15	31	06:41 (8)
19	08:46	07:52	06:45			06:29		07:58 (7)	05:29		06:05 (8)	05:03		06:11 (8)
	16:51	17:53	18:48			20:46	21	08:19 (7)	21:41	34	06:39 (8)	22:15	30	06:41 (8)
20	08:45	07:49	06:43			06:27		08:01 (7)	05:27		06:04 (8)	05:03		06:12 (8)
	16:53	17:55	18:50			20:48	15	08:16 (7)	21:43	35	06:39 (8)	22:15	30	06:42 (8)
21	08:44	07:47	06:40			06:24		08:05 (7)	05:26		06:04 (8)	05:03		06:12 (8)
	16:55	17:57	18:52			20:50	4	08:09 (7)	21:44	36	06:40 (8)	22:16	30	06:42 (8)
22	08:43	07:45	06:38			06:22			05:24		06:04 (8)	05:03		06:12 (8)
	16:57	17:59	18:54			20:52			21:46	36	06:40 (8)	22:16	30	06:42 (8)
23	08:41	07:43	06:35			06:20			05:23		06:03 (8)	05:04		06:12 (8)
	16:58	18:01	18:55			20:54			21:47	37	06:40 (8)	22:16	30	06:42 (8)
24	08:40	07:40	06:33			06:18			05:21		06:04 (8)	05:04		06:13 (8)
	17:00	18:03	18:57			20:56			21:49	36	06:40 (8)	22:16	30	06:43 (8)
25	08:38	07:38	06:30		07:09 (7)	06:15			05:20		06:04 (8)	05:04		06:12 (8)
	17:02	18:05	18:59	15	07:24 (7)	20:58			21:50	36	06:40 (8)	22:16	31	06:43 (8)
26	08:37	07:36	06:28		07:05 (7)	06:13			05:19		06:04 (8)	05:05		06:12 (8)
	17:04	18:07	19:01	21	07:26 (7)	21:00			21:52	37	06:41 (8)	22:16	31	06:43 (8)
27	08:35	07:33	06:25		07:03 (7)	06:11			05:17		06:04 (8)	05:05		06:13 (8)
	17:06	18:09	19:03	26	07:29 (7)	21:02			21:53	37	06:41 (8)	22:16	30	06:43 (8)
28	08:34	07:31	06:23		07:01 (7)	06:09			05:16		06:04 (8)	05:06		06:13 (8)
	17:08	18:11	19:05	30	07:31 (7)	21:03			21:55	37	06:41 (8)	22:16	31	06:44 (8)
29	08:32		07:20		07:59 (7)	06:07			05:15		06:05 (8)	05:06		06:13 (8)
	17:10		20:07	32	08:31 (7)	21:05			21:56	36	06:41 (8)	22:16	31	06:44 (8)
30	08:31		07:18		07:58 (7)	06:04			05:14		06:05 (8)	05:07		06:13 (8)
	17:12		20:09	35	08:33 (7)	21:07			21:57	36	06:41 (8)	22:15	32	06:45 (8)
31	08:29		07:15		07:56 (7)				05:13		06:05 (8)			
	17:14		20:11	37	08:33 (7)				21:59	36	06:41 (8)			
Potential sun hours	248	272	367			421			496			513		
Total, worst case				196			719			771			958	
Sun reduction				0.22			0.34			0.36			0.26	
Oper. time red.				1.00			1.00			1.00			1.00	
Wind dir. red.				0.59			0.59			0.58			0.58	
Total reduction				0.13			0.20			0.21			0.15	
Total, real				26			146			162			144	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: T - H20

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:08		06:13 (8)	05:48		06:19 (8)	06:44		07:51 (7)	07:38	07:38	08:34
	22:15	31	06:44 (8)	21:39	26	06:45 (8)	20:31	39	08:30 (7)	19:16	17:05	16:19
2	05:08		06:13 (8)	05:50		06:21 (8)	06:46		07:49 (7)	07:40	07:40	08:35
	22:15	32	06:45 (8)	21:37	23	06:44 (8)	20:29	41	08:30 (7)	19:14	17:03	16:19
3	05:09		06:13 (8)	05:52		06:23 (8)	06:47		07:49 (7)	07:42	07:42	08:37
	22:14	33	06:46 (8)	21:35	20	06:43 (8)	20:26	41	08:30 (7)	19:11	17:01	16:18
4	05:10		06:13 (8)	05:54		06:24 (8)	06:49		07:48 (7)	07:44	07:44	08:38
	22:14	33	06:46 (8)	21:33	16	06:40 (8)	20:24	42	08:30 (7)	19:09	16:59	16:17
5	05:11		06:13 (8)	05:55		06:26 (8)	06:51		07:47 (7)	07:46	07:45	08:40
	22:13	34	06:47 (8)	21:31	12	06:38 (8)	20:21	42	08:29 (7)	19:06	16:57	16:16
6	05:12		06:13 (8)	05:57			06:53		07:47 (7)	07:47	07:47	08:41
	22:12	33	06:46 (8)	21:29			20:19	42	08:29 (7)	19:04	16:55	16:16
7	05:13		06:13 (8)	05:59			06:55		07:47 (7)	07:49	07:49	08:42
	22:12	34	06:47 (8)	21:27			20:16	42	08:29 (7)	19:01	16:53	16:15
8	05:14		06:13 (8)	06:01			06:57		07:47 (7)	07:51	07:51	08:44
	22:11	34	06:47 (8)	21:25			20:14	42	08:29 (7)	18:59	16:51	16:15
9	05:15		06:13 (8)	06:02			06:58		07:47 (7)	07:53	07:53	08:45
	22:10	34	06:47 (8)	21:23			20:11	40	08:27 (7)	18:57	16:49	16:15
10	05:16		06:13 (8)	06:04			07:00		07:47 (7)	07:55	07:55	08:46
	22:09	35	06:48 (8)	21:21			20:09	40	08:27 (7)	18:54	16:47	16:14
11	05:17		06:13 (8)	06:06			07:02		07:48 (7)	07:57	07:57	08:47
	22:08	35	06:48 (8)	21:19			20:06	38	08:26 (7)	18:52	16:46	16:14
12	05:18		06:13 (8)	06:08			07:04		07:48 (7)	07:59	07:59	08:48
	22:08	36	06:49 (8)	21:17			20:04	37	08:25 (7)	18:49	16:44	16:14
13	05:20		06:13 (8)	06:10			07:06		07:48 (7)	08:01	08:01	08:49
	22:07	36	06:49 (8)	21:15			20:01	35	08:23 (7)	18:47	16:42	16:14
14	05:21		06:13 (8)	06:11			07:07		07:49 (7)	08:03	08:03	08:50
	22:05	36	06:49 (8)	21:13			19:59	33	08:22 (7)	18:45	16:41	16:14
15	05:22		06:13 (8)	06:13			07:09		07:50 (7)	08:04	08:05	08:51
	22:04	36	06:49 (8)	21:11			19:56	30	08:20 (7)	18:42	16:39	16:14
16	05:24		06:13 (8)	06:15			07:11		07:52 (7)	08:06	08:07	08:52
	22:03	36	06:49 (8)	21:08			19:54	27	08:19 (7)	18:40	16:37	16:14
17	05:25		06:14 (8)	06:17			07:13		07:53 (7)	08:08	08:09	08:53
	22:02	36	06:50 (8)	21:06			19:51	22	08:15 (7)	18:38	16:36	16:14
18	05:26		06:13 (8)	06:19			07:15		07:56 (7)	08:10	08:11	08:54
	22:01	37	06:50 (8)	21:04			19:49	16	08:12 (7)	18:35	16:34	16:14
19	05:28		06:13 (8)	06:20			07:16		08:02 (7)	08:12	08:13	08:55
	21:59	37	06:50 (8)	21:02			19:46	4	08:06 (7)	18:33	16:33	16:14
20	05:29		06:14 (8)	06:22			07:18			08:14	08:15	08:55
	21:58	36	06:50 (8)	20:59			19:44			18:31	16:32	16:15
21	05:31		06:14 (8)	06:24			07:20			08:16	08:16	08:56
	21:57	36	06:50 (8)	20:57			19:41			18:28	16:30	16:15
22	05:32		06:14 (8)	06:26		08:09 (7)	07:22			08:18	08:18	08:57
	21:55	36	06:50 (8)	20:55	6	08:15 (7)	19:39			18:26	16:29	16:16
23	05:34		06:14 (8)	06:28		08:04 (7)	07:24			08:20	08:20	08:57
	21:54	36	06:50 (8)	20:52	16	08:20 (7)	19:36			18:24	16:28	16:16
24	05:35		06:14 (8)	06:29		08:01 (7)	07:25			08:22	08:22	08:57
	21:52	35	06:49 (8)	20:50	22	08:23 (7)	19:34			18:22	16:26	16:17
25	05:37		06:15 (8)	06:31		07:59 (7)	07:27			07:24	08:24	08:58
	21:51	35	06:50 (8)	20:48	25	08:24 (7)	19:31			17:19	16:25	16:17
26	05:38		06:15 (8)	06:33		07:57 (7)	07:29			07:26	08:25	08:58
	21:49	34	06:49 (8)	20:45	29	08:26 (7)	19:29			17:17	16:24	16:18
27	05:40		06:16 (8)	06:35		07:56 (7)	07:31			07:28	08:27	08:58
	21:47	33	06:49 (8)	20:43	31	08:27 (7)	19:26			17:15	16:23	16:19
28	05:42		06:16 (8)	06:37		07:55 (7)	07:33			07:30	08:29	08:59
	21:46	32	06:48 (8)	20:41	33	08:28 (7)	19:24			17:13	16:22	16:20
29	05:43		06:17 (8)	06:38		07:53 (7)	07:35			07:32	08:30	08:59
	21:44	31	06:48 (8)	20:38	35	08:28 (7)	19:21			17:11	16:21	16:21
30	05:45		06:17 (8)	06:40		07:52 (7)	07:36			07:34	08:32	08:59
	21:42	30	06:47 (8)	20:36	37	08:29 (7)	19:19			17:09	16:20	16:22
31	05:47		06:18 (8)	06:42		07:51 (7)				07:36		08:59
	21:41	28	06:46 (8)	20:33	39	08:30 (7)				17:07		16:23
Potential sun hours	515			461			382			328	257	231
Total, worst case		1060			370			653				
Sun reduction		0.27			0.27			0.29				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.58			0.59			0.59				
Total reduction		0.15			0.16			0.17				
Total, real		164			60			113				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: U - H21

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April		May	June
1	08:58	08:27		07:29		16:23 (18)	07:12	18:37 (17)	06:02	05:11
	16:24	17:16		18:13	39	17:45 (16)	20:12	42 19:19 (17)	21:09	22:00
2	08:58	08:25		07:26		16:24 (18)	07:10	18:38 (17)	06:00	05:10
	16:25	17:18		18:15	39	17:47 (16)	20:14	41 19:19 (17)	21:11	22:01
3	08:58	08:24		07:24		16:26 (18)	07:07	18:37 (17)	05:58	05:10
	16:26	17:20		18:17	38	17:49 (16)	20:16	41 19:18 (17)	21:13	22:02
4	08:58	08:22		07:21		16:27 (18)	07:05	18:38 (17)	05:56	05:09
	16:27	17:22		18:19	37	17:51 (16)	20:18	40 19:18 (17)	21:14	22:03
5	08:57	08:20		07:19		16:30 (18)	07:02	18:39 (17)	05:54	05:08
	16:28	17:24		18:21	32	17:52 (16)	20:20	38 19:17 (17)	21:16	22:05
6	08:57	08:18		07:17		16:34 (18)	07:00	18:39 (17)	05:52	05:07
	16:30	17:26		18:23	22	17:51 (16)	20:22	37 19:16 (17)	21:18	22:06
7	08:56	08:16	16:37 (18)	07:14		17:38 (16)	06:58	18:40 (17)	05:50	05:06
	16:31	17:28	5 16:42 (18)	18:24	12	17:50 (16)	20:24	35 19:15 (17)	21:20	22:07
8	08:56	08:14	16:32 (18)	07:12		17:40 (16)	06:55	18:40 (17)	05:48	05:06
	16:33	17:30	15 16:47 (18)	18:26	7	17:47 (16)	20:25	33 19:13 (17)	21:22	22:08
9	08:55	08:12	16:29 (18)	07:09			06:53	18:41 (17)	05:46	05:05
	16:34	17:32	20 16:49 (18)	18:28			20:27	31 19:12 (17)	21:23	22:09
10	08:55	08:10	16:27 (18)	07:07			06:50	18:42 (17)	05:44	05:05
	16:36	17:34	24 16:51 (18)	18:30			20:29	27 19:09 (17)	21:25	22:09
11	08:54	08:08	16:26 (18)	07:05			06:48	18:44 (17)	05:42	05:04
	16:37	17:36	27 16:53 (18)	18:32			20:31	24 19:08 (17)	21:27	22:10
12	08:53	08:06	16:25 (18)	07:02			06:45	18:47 (17)	05:40	05:04
	16:39	17:38	30 16:55 (18)	18:34			20:33	18 19:05 (17)	21:29	22:11
13	08:52	08:04	16:24 (18)	07:00			06:43	18:49 (17)	05:38	05:04
	16:40	17:40	32 16:56 (18)	18:36			20:35	12 19:01 (17)	21:31	22:12
14	08:51	08:02	16:23 (18)	06:57			06:41		05:37	05:03
	16:42	17:42	34 16:57 (18)	18:38			20:37		21:32	22:12
15	08:51	08:00	16:22 (18)	06:55			06:38		05:35	05:03
	16:44	17:44	35 16:57 (18)	18:40			20:39		21:34	22:13
16	08:50	07:58	16:21 (18)	06:52			06:36		05:33	05:03
	16:45	17:46	37 16:58 (18)	18:42			20:41		21:36	22:14
17	08:48	07:56	16:21 (18)	06:50			06:33		05:32	05:03
	16:47	17:49	38 16:59 (18)	18:44			20:42		21:37	22:14
18	08:47	07:54	16:21 (18)	06:47		17:57 (17)	06:31		05:30	05:03
	16:49	17:51	39 17:00 (18)	18:46	11	18:08 (17)	20:44		21:39	22:15
19	08:46	07:51	16:20 (18)	06:45		17:53 (17)	06:29		05:28	05:03
	16:51	17:53	39 16:59 (18)	18:48	19	18:12 (17)	20:46		21:41	22:15
20	08:45	07:49	16:20 (18)	06:42		17:50 (17)	06:26		05:27	05:03
	16:53	17:55	40 17:00 (18)	18:50	24	18:14 (17)	20:48		21:42	22:15
21	08:44	07:47	16:20 (18)	06:40		17:48 (17)	06:24		05:25	05:03
	16:54	17:57	40 17:00 (18)	18:51	28	18:16 (17)	20:50		21:44	22:16
22	08:42	07:45	16:19 (18)	06:37		17:46 (17)	06:22		05:24	05:03
	16:56	17:59	40 16:59 (18)	18:53	31	18:17 (17)	20:52		21:46	22:16
23	08:41	07:42	16:20 (18)	06:35		17:45 (17)	06:20		05:22	05:03
	16:58	18:01	39 16:59 (18)	18:55	33	18:18 (17)	20:54		21:47	22:16
24	08:40	07:40	16:20 (18)	06:32		17:43 (17)	06:17		05:21	05:04
	17:00	18:03	39 16:59 (18)	18:57	36	18:19 (17)	20:56		21:49	22:16
25	08:38	07:38	16:20 (18)	06:30		17:42 (17)	06:15		05:20	05:04
	17:02	18:05	38 16:58 (18)	18:59	38	18:20 (17)	20:58		21:50	22:16
26	08:37	07:36	16:21 (18)	06:27		17:41 (17)	06:13		05:18	05:04
	17:04	18:07	37 16:58 (18)	19:01	39	18:20 (17)	20:59		21:52	22:16
27	08:35	07:33	16:21 (18)	06:25		17:40 (17)	06:11		05:17	05:05
	17:06	18:09	36 16:57 (18)	19:03	40	18:20 (17)	21:01		21:53	22:16
28	08:34	07:31	16:22 (18)	06:22		17:39 (17)	06:08		05:16	05:05
	17:08	18:11	38 17:43 (16)	19:05	41	18:20 (17)	21:03		21:55	22:16
29	08:32			07:20		18:39 (17)	06:06		05:15	05:06
	17:10			20:07	41	19:20 (17)	21:05		21:56	22:15
30	08:31			07:17		18:38 (17)	06:04		05:14	05:07
	17:12			20:08	42	19:20 (17)	21:07		21:57	22:15
31	08:29			07:15		18:38 (17)			05:12	
	17:14			20:10	42	19:20 (17)			21:59	
Potential sun hours	248	272		367			421		496	513
Total, worst case			722		691			419		
Sun reduction			0.22		0.22			0.34		
Oper. time red.			1.00		1.00			1.00		
Wind dir. red.			0.58		0.58			0.58		
Total reduction			0.13		0.13			0.20		
Total, real			93		89			83		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: U - H21

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August			September			October			November			December
1	05:07	05:48			06:44		18:43 (17)	07:38			07:37		15:57 (18)	08:33
	22:15	21:39			20:31	24	19:07 (17)	19:16			17:04	24	16:21 (18)	16:19
2	05:08	05:50			06:45		18:41 (17)	07:40			07:39		15:59 (18)	08:35
	22:14	21:37			20:28	27	19:08 (17)	19:14			17:02	19	16:18 (18)	16:18
3	05:09	05:52			06:47		18:39 (17)	07:42			07:41		16:02 (18)	08:36
	22:14	21:35			20:26	31	19:10 (17)	19:11			17:00	13	16:15 (18)	16:17
4	05:10	05:53			06:49		18:37 (17)	07:44			07:43			08:38
	22:14	21:33			20:24	33	19:10 (17)	19:09			16:58			16:17
5	05:11	05:55			06:51		18:36 (17)	07:45		18:18 (16)	07:45			08:39
	22:13	21:31			20:21	35	19:11 (17)	19:06	4	18:22 (16)	16:56			16:16
6	05:12	05:57			06:53		18:35 (17)	07:47		18:15 (16)	07:47			08:41
	22:12	21:29			20:19	37	19:12 (17)	19:04	10	18:25 (16)	16:54			16:16
7	05:12	05:59			06:54		18:34 (17)	07:49		18:13 (16)	07:49			08:42
	22:12	21:27			20:16	38	19:12 (17)	19:01	13	18:26 (16)	16:53			16:15
8	05:14	06:00			06:56		18:32 (17)	07:51		17:07 (18)	07:51			08:43
	22:11	21:25			20:14	40	19:12 (17)	18:59	28	18:27 (16)	16:51			16:15
9	05:15	06:02			06:58		18:32 (17)	07:53		17:04 (18)	07:53			08:45
	22:10	21:23			20:11	40	19:12 (17)	18:56	35	18:27 (16)	16:49			16:14
10	05:16	06:04			07:00		18:31 (17)	07:55		17:01 (18)	07:55			08:46
	22:09	21:21			20:09	41	19:12 (17)	18:54	38	18:25 (16)	16:47			16:14
11	05:17	06:06			07:02		18:31 (17)	07:57		16:59 (18)	07:57			08:47
	22:08	21:19			20:06	41	19:12 (17)	18:51	39	18:22 (16)	16:45			16:14
12	05:18	06:07			07:03		18:29 (17)	07:58		16:57 (18)	07:59			08:48
	22:07	21:17			20:04	42	19:11 (17)	18:49	40	18:20 (16)	16:44			16:14
13	05:19	06:09			07:05		18:29 (17)	08:00		16:56 (18)	08:01			08:49
	22:06	21:15			20:01	42	19:11 (17)	18:47	38	18:17 (16)	16:42			16:13
14	05:21	06:11			07:07		18:29 (17)	08:02		16:54 (18)	08:03			08:50
	22:05	21:13			19:59	42	19:11 (17)	18:44	38	18:15 (16)	16:40			16:13
15	05:22	06:13			07:09		18:29 (17)	08:04		16:53 (18)	08:05			08:51
	22:04	21:10			19:56	41	19:10 (17)	18:42	37	17:30 (18)	16:39			16:13
16	05:23	06:15			07:11		18:29 (17)	08:06		16:53 (18)	08:07			08:52
	22:03	21:08			19:54	40	19:09 (17)	18:40	37	17:30 (18)	16:37			16:13
17	05:25	06:16			07:12		18:29 (17)	08:08		16:52 (18)	08:09			08:53
	22:02	21:06			19:51	39	19:08 (17)	18:37	39	17:31 (18)	16:36			16:14
18	05:26	06:18			07:14		18:30 (17)	08:10		16:51 (18)	08:11			08:54
	22:01	21:04			19:49	37	19:07 (17)	18:35	40	17:31 (18)	16:34			16:14
19	05:27	06:20			07:16		18:30 (17)	08:12		16:51 (18)	08:12			08:55
	21:59	21:01			19:46	36	19:06 (17)	18:33	40	17:31 (18)	16:33			16:14
20	05:29	06:22			07:18		18:30 (17)	08:14		16:50 (18)	08:14			08:55
	21:58	20:59			19:44	34	19:04 (17)	18:30	40	17:30 (18)	16:31			16:14
21	05:30	06:24			07:20		18:31 (17)	08:16		16:50 (18)	08:16			08:56
	21:57	20:57			19:41	32	19:03 (17)	18:28	40	17:30 (18)	16:30			16:15
22	05:32	06:25			07:21		18:32 (17)	08:18		16:50 (18)	08:18			08:56
	21:55	20:55			19:39	29	19:01 (17)	18:26	40	17:30 (18)	16:29			16:15
23	05:33	06:27			07:23		18:34 (17)	08:20		16:50 (18)	08:20			08:57
	21:54	20:52			19:36	25	18:59 (17)	18:24	39	17:29 (18)	16:27			16:16
24	05:35	06:29			07:25		18:36 (17)	08:22		16:50 (18)	08:22			08:57
	21:52	20:50			19:33	21	18:57 (17)	18:21	39	17:29 (18)	16:26			16:16
25	05:37	06:31			07:27		18:39 (17)	07:24		15:50 (18)	08:23			08:58
	21:51	20:48			19:31	14	18:53 (17)	17:19	38	16:28 (18)	16:25			08:17
26	05:38	06:33			07:29			07:26		15:51 (18)	08:25			08:58
	21:49	20:45			19:28			17:17	37	16:28 (18)	16:24			16:18
27	05:40	06:35			07:31			07:27		15:51 (18)	08:27			08:58
	21:47	20:43			19:26			17:15	36	16:27 (18)	16:23			16:19
28	05:41	06:36			07:32			07:29		15:53 (18)	08:29			08:58
	21:46	20:40			19:23			17:13	34	16:27 (18)	16:22			16:19
29	05:43	06:38			07:34			07:31		15:54 (18)	08:30			08:58
	21:44	20:38			19:21			17:11	31	16:25 (18)	16:21			16:20
30	05:45	06:40		18:50 (17)	07:36			07:33		15:55 (18)	08:32			08:59
	21:42	20:36	12	19:02 (17)	19:18			17:08	29	16:24 (18)	16:20			16:21
31	05:46	06:42		18:47 (17)				07:35		15:56 (18)				08:58
	21:40	20:33	19	19:06 (17)				17:06	27	16:23 (18)				16:22
Potential sun hours	515	461			383			327			257			230
Total, worst case			31			861			906			56		
Sun reduction			0.27			0.29			0.23			0.20		
Oper. time red.			1.00			1.00			1.00			1.00		
Wind dir. red.			0.58			0.58			0.58			0.58		
Total reduction			0.16			0.17			0.14			0.12		
Total, real			5			146			123			6		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: V - H22

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April		May	June
1	08:58	08:27		07:29		16:39 (18)	07:12	19:09 (17)	06:02	05:11
	16:24	17:16		18:13	41	17:20 (18)	20:12	19:35 (17)	21:09	22:00
2	08:58	08:25		07:26		16:38 (18)	07:10	19:07 (17)	06:00	05:11
	16:25	17:18		18:15	42	17:20 (18)	20:14	19:37 (17)	21:11	22:01
3	08:58	08:24		07:24		16:38 (18)	07:07	19:05 (17)	05:58	05:10
	16:26	17:20		18:17	42	17:20 (18)	20:16	19:38 (17)	21:13	22:02
4	08:58	08:22		07:21		16:38 (18)	07:05	19:04 (17)	05:56	05:09
	16:27	17:22		18:19	42	17:20 (18)	20:18	19:39 (17)	21:14	22:03
5	08:57	08:20		07:19		16:38 (18)	07:02	19:03 (17)	05:54	05:08
	16:28	17:24		18:21	42	17:20 (18)	20:20	19:40 (17)	21:16	22:05
6	08:57	08:18		07:17		16:38 (18)	07:00	19:02 (17)	05:52	05:07
	16:30	17:26		18:23	41	17:19 (18)	20:22	19:40 (17)	21:18	22:06
7	08:56	08:16		07:14		16:38 (18)	06:58	19:01 (17)	05:50	05:06
	16:31	17:28		18:24	41	17:19 (18)	20:24	19:41 (17)	21:20	22:07
8	08:56	08:14		07:12		16:38 (18)	06:55	19:00 (17)	05:48	05:06
	16:33	17:30		18:26	40	17:18 (18)	20:25	19:40 (17)	21:22	22:08
9	08:55	08:12		07:09		16:39 (18)	06:53	18:59 (17)	05:46	05:05
	16:34	17:32		18:28	38	17:17 (18)	20:27	19:41 (17)	21:23	22:09
10	08:55	08:10		07:07		16:39 (18)	06:50	18:58 (17)	05:44	05:05
	16:36	17:34		18:30	37	17:16 (18)	20:29	19:40 (17)	21:25	22:09
11	08:54	08:08		07:05		16:40 (18)	06:48	18:58 (17)	05:42	05:04
	16:37	17:36		18:32	35	17:15 (18)	20:31	19:40 (17)	21:27	22:10
12	08:53	08:06		07:02		16:41 (18)	06:45	18:58 (17)	05:40	05:04
	16:39	17:38		18:34	32	17:13 (18)	20:33	19:40 (17)	21:29	22:11
13	08:52	08:04		07:00		16:43 (18)	06:43	18:58 (17)	05:38	05:04
	16:40	17:40		18:36	29	17:12 (18)	20:35	19:39 (17)	21:31	22:12
14	08:51	08:02		06:57		16:44 (18)	06:41	18:58 (17)	05:37	05:03
	16:42	17:42		18:38	26	17:10 (18)	20:37	19:39 (17)	21:32	22:12
15	08:50	08:00		06:55		16:46 (18)	06:38	18:58 (17)	05:35	05:03
	16:44	17:44		18:40	22	17:08 (18)	20:39	19:39 (17)	21:34	22:13
16	08:50	07:58		06:52		16:49 (18)	06:36	18:58 (17)	05:33	05:03
	16:45	17:46		18:42	15	17:04 (18)	20:41	19:38 (17)	21:36	22:14
17	08:48	07:56		06:50			06:33	18:58 (17)	05:32	05:03
	16:47	17:49		18:44			20:42	19:37 (17)	21:37	22:14
18	08:47	07:54	16:57 (18)	06:47			06:31	18:59 (17)	05:30	05:03
	16:49	17:51	8 17:05 (18)	18:46			20:44	19:37 (17)	21:39	22:15
19	08:46	07:51	16:52 (18)	06:45			06:29	19:00 (17)	05:28	05:03
	16:51	17:53	17 17:09 (18)	18:48			20:46	19:36 (17)	21:41	22:15
20	08:45	07:49	16:49 (18)	06:42			06:26	19:00 (17)	05:27	05:03
	16:53	17:55	23 17:12 (18)	18:50			20:48	19:34 (17)	21:42	22:15
21	08:44	07:47	16:48 (18)	06:40			06:24	19:01 (17)	05:25	05:03
	16:54	17:57	26 17:14 (18)	18:51			20:50	19:33 (17)	21:44	22:16
22	08:42	07:45	16:45 (18)	06:37			06:22	19:02 (17)	05:24	05:03
	16:56	17:59	30 17:15 (18)	18:53			20:52	19:32 (17)	21:46	22:16
23	08:41	07:42	16:44 (18)	06:35			06:20	19:04 (17)	05:22	05:03
	16:58	18:01	32 17:16 (18)	18:55			20:54	19:30 (17)	21:47	22:16
24	08:40	07:40	16:43 (18)	06:32			06:17	19:06 (17)	05:21	05:04
	17:00	18:03	35 17:18 (18)	18:57			20:56	19:29 (17)	21:49	22:16
25	08:38	07:38	16:42 (18)	06:30			06:15	19:07 (17)	05:20	05:04
	17:02	18:05	36 17:18 (18)	18:59			20:58	19:25 (17)	21:50	22:16
26	08:37	07:36	16:41 (18)	06:27			06:13	19:10 (17)	05:18	05:04
	17:04	18:07	38 17:19 (18)	19:01			20:59	19:22 (17)	21:52	22:16
27	08:35	07:33	16:40 (18)	06:25			06:11		05:17	05:05
	17:06	18:09	39 17:19 (18)	19:03			21:01		21:53	22:16
28	08:34	07:31	16:39 (18)	06:22			06:08		05:16	05:05
	17:08	18:11	41 17:20 (18)	19:05			21:03		21:55	22:16
29	08:32			07:20		19:22 (17)	06:06		05:15	05:06
	17:10			20:07	3	19:25 (17)	21:05		21:56	22:15
30	08:31			07:17		19:15 (17)	06:04		05:14	05:07
	17:12			20:08	16	19:31 (17)	21:07		21:57	22:15
31	08:29			07:15		19:12 (17)			05:12	
	17:14			20:10	22	19:34 (17)			21:59	
Potential sun hours	248	272		367			421		496	513
Total, worst case			325		606			898		
Sun reduction			0.22		0.22			0.34		
Oper. time red.			1.00		1.00			1.00		
Wind dir. red.			0.58		0.58			0.59		
Total reduction			0.13		0.13			0.20		
Total, real			42		79			182		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: V - H22

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October		November	December
1	05:07	05:48		06:44		18:57 (17)	07:38	17:21 (18)	07:37	08:33
	22:15	21:39		20:31	42	19:39 (17)	19:16	32	17:53 (18)	17:04	16:19
2	05:08	05:50		06:45		18:57 (17)	07:40	17:19 (18)	07:39	08:35
	22:14	21:37		20:28	42	19:39 (17)	19:14	33	17:52 (18)	17:02	16:18
3	05:09	05:52		06:47		18:57 (17)	07:42	17:17 (18)	07:41	08:36
	22:14	21:35		20:26	42	19:39 (17)	19:11	36	17:53 (18)	17:00	16:17
4	05:10	05:53		06:49		18:57 (17)	07:44	17:16 (18)	07:43	08:38
	22:14	21:33		20:24	40	19:37 (17)	19:09	38	17:54 (18)	16:58	16:17
5	05:11	05:55		06:51		18:57 (17)	07:45	17:15 (18)	07:45	08:39
	22:13	21:31		20:21	40	19:37 (17)	19:06	39	17:54 (18)	16:56	16:16
6	05:12	05:57		06:53		18:58 (17)	07:47	17:15 (18)	07:47	08:41
	22:12	21:29		20:19	38	19:36 (17)	19:04	40	17:55 (18)	16:54	16:16
7	05:12	05:59		06:54		18:58 (17)	07:49	17:14 (18)	07:49	08:42
	22:12	21:27		20:16	37	19:35 (17)	19:01	41	17:55 (18)	16:53	16:15
8	05:14	06:00		06:56		18:58 (17)	07:51	17:13 (18)	07:51	08:43
	22:11	21:25		20:14	35	19:33 (17)	18:59	42	17:55 (18)	16:51	16:15
9	05:15	06:02		06:58		18:59 (17)	07:53	17:13 (18)	07:53	08:45
	22:10	21:23		20:11	33	19:32 (17)	18:56	42	17:55 (18)	16:49	16:14
10	05:16	06:04		07:00		19:00 (17)	07:55	17:13 (18)	07:55	08:46
	22:09	21:21		20:09	30	19:30 (17)	18:54	42	17:55 (18)	16:47	16:14
11	05:17	06:06		07:02		19:02 (17)	07:57	17:12 (18)	07:57	08:47
	22:08	21:19		20:06	27	19:29 (17)	18:51	42	17:54 (18)	16:45	16:14
12	05:18	06:07		07:03		19:03 (17)	07:58	17:12 (18)	07:59	08:48
	22:07	21:17		20:04	22	19:25 (17)	18:49	42	17:54 (18)	16:44	16:14
13	05:19	06:09		07:05		19:05 (17)	08:00	17:13 (18)	08:01	08:49
	22:06	21:15		20:01	17	19:22 (17)	18:47	40	17:53 (18)	16:42	16:13
14	05:21	06:11		07:07		19:10 (17)	08:02	17:13 (18)	08:03	08:50
	22:05	21:13		19:59	7	19:17 (17)	18:44	40	17:53 (18)	16:40	16:13
15	05:22	06:13		07:09			08:04	17:13 (18)	08:05	08:51
	22:04	21:10		19:56			18:42	39	17:52 (18)	16:39	16:13
16	05:23	06:15		07:11			08:06	17:13 (18)	08:07	08:52
	22:03	21:08		19:54			18:40	38	17:51 (18)	16:37	16:13
17	05:25	06:16		19:17 (17)	07:12		08:08	17:14 (18)	08:09	08:53
	22:02	21:06	13	19:30 (17)	19:51		18:37	36	17:50 (18)	16:36	16:14
18	05:26	06:18		19:13 (17)	07:14		08:10	17:15 (18)	08:11	08:54
	22:01	21:04	19	19:32 (17)	19:49		18:35	34	17:49 (18)	16:34	16:14
19	05:27	06:20		19:11 (17)	07:16		08:12	17:16 (18)	08:12	08:55
	21:59	21:01	24	19:35 (17)	19:46		18:33	31	17:47 (18)	16:33	16:14
20	05:29	06:22		19:09 (17)	07:18		08:14	17:17 (18)	08:14	08:55
	21:58	20:59	27	19:36 (17)	19:44		18:30	29	17:46 (18)	16:31	16:14
21	05:30	06:24		19:07 (17)	07:20		08:16	17:18 (18)	08:16	08:56
	21:57	20:57	30	19:37 (17)	19:41		18:28	26	17:44 (18)	16:30	16:15
22	05:32	06:25		19:05 (17)	07:21		08:18	17:20 (18)	08:18	08:56
	21:55	20:55	33	19:38 (17)	19:39		18:26	21	17:41 (18)	16:29	16:15
23	05:33	06:27		19:04 (17)	07:23		08:20	17:23 (18)	08:20	08:57
	21:54	20:52	35	19:39 (17)	19:36		18:24	15	17:38 (18)	16:27	16:16
24	05:35	06:29		19:02 (17)	07:25		08:22			08:22	08:57
	21:52	20:50	37	19:39 (17)	19:33		18:21			16:26	16:16
25	05:37	06:31		19:02 (17)	07:27		07:24			08:23	08:58
	21:51	20:48	38	19:40 (17)	19:31		17:19			16:25	16:17
26	05:38	06:33		19:01 (17)	07:29		07:26			08:25	08:58
	21:49	20:45	39	19:40 (17)	19:28		17:17			16:24	16:18
27	05:40	06:35		19:00 (17)	07:31	17:32 (18)	07:27			08:27	08:58
	21:47	20:43	41	19:41 (17)	19:26	12	17:44 (18)	17:15		16:23	16:19
28	05:41	06:36		18:59 (17)	07:32	17:28 (18)	07:29			08:29	08:58
	21:46	20:40	41	19:40 (17)	19:23	19	17:47 (18)	17:13		16:22	16:19
29	05:43	06:38		18:59 (17)	07:34	17:25 (18)	07:31			08:30	08:58
	21:44	20:38	41	19:40 (17)	19:21	25	17:50 (18)	17:11		16:21	16:20
30	05:45	06:40		18:58 (17)	07:36	17:23 (18)	07:33			08:32	08:59
	21:42	20:36	42	19:40 (17)	19:18	28	17:51 (18)	17:08		16:20	16:21
31	05:46	06:42		18:58 (17)			07:35				08:58
	21:40	20:33	42	19:40 (17)			17:06				16:22
Potential sun hours	515	461		383			327		257	230	
Total, worst case			502		536			818			
Sun reduction			0.27		0.29			0.23			
Oper. time red.			1.00		1.00			1.00			
Wind dir. red.			0.59		0.59			0.58			
Total reduction			0.16		0.17			0.14			
Total, real			81		92			112			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
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+353719161416
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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: W - H23

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February	March		April	May	June	July	August	September		October	November		December	
1	08:58	15:17 (1)	08:27	07:29		07:12	06:02	05:12	05:08	05:48	06:44		07:38	07:37		08:33	15:06 (1)
	16:24 28	15:45 (1)	17:16	18:13		20:12	21:09	22:00	22:15	21:39	20:31		19:16	17:04		16:19 29	15:35 (1)
2	08:58	15:18 (1)	08:25	07:26		07:10	06:00	05:11	05:08	05:50	06:46		07:40	07:39		08:35	15:05 (1)
	16:25 29	15:47 (1)	17:18	18:15		20:14	21:11	22:01	22:14	21:37	20:28		19:14	17:02		16:18 30	15:35 (1)
3	08:58	15:18 (1)	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:47		07:42	07:41		08:36	15:05 (1)
	16:26 30	15:48 (1)	17:20	18:17		20:16	21:12	22:02	22:14	21:35	20:26		19:11	17:00		16:18 31	15:36 (1)
4	08:58	15:19 (1)	08:22	07:22		07:05	05:56	05:09	05:10	05:53	06:49		07:44	07:43		08:38	15:06 (1)
	16:27 30	15:49 (1)	17:22	18:19		20:18	21:14	22:03	22:13	21:33	20:24		19:09	16:58		16:17 31	15:37 (1)
5	08:57	15:19 (1)	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51		07:45	07:45		08:39	15:06 (1)
	16:29 31	15:50 (1)	17:24	18:21		20:20	21:16	22:04	22:13	21:31	20:21		19:06	16:57		16:16 31	15:37 (1)
6	08:57	15:20 (1)	08:18	07:17		07:00	05:52	05:07	05:12	05:57	06:53		07:47	07:47		08:41	15:06 (1)
	16:30 32	15:52 (1)	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19		19:04	16:55		16:16 32	15:38 (1)
7	08:56	15:21 (1)	08:16	07:14		06:58	05:50	05:07	05:13	05:59	06:55		07:49	07:49		08:42	15:06 (1)
	16:31 31	15:52 (1)	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16		19:01	16:53		16:15 32	15:38 (1)
8	08:56	15:21 (1)	08:14	07:12		06:55	05:48	05:06	05:14	06:00	06:56		07:51	07:51		08:43	15:07 (1)
	16:33 31	15:52 (1)	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14		18:59	16:51		16:15 31	15:38 (1)
9	08:55	15:21 (1)	08:12	07:09		06:53	05:46	05:06	05:15	06:02	06:58		07:53	07:53		08:45	15:07 (1)
	16:34 31	15:52 (1)	17:32	18:28		20:27	21:23	22:08	22:10	21:23	20:11		18:56	16:49		16:15 30	15:37 (1)
10	08:55	15:23 (1)	08:10	07:07		06:50	05:44	05:05	05:16	06:04	07:00		07:55	07:55		08:46	15:07 (1)
	16:36 30	15:53 (1)	17:34	18:30		20:29	21:25	22:09	22:09	21:21	20:09		18:54	16:47		16:14 29	15:36 (1)
11	08:54	15:23 (1)	08:08	07:05		06:48	05:42	05:05	05:17	06:06	07:02		07:57	07:57		08:47	15:07 (1)
	16:37 30	15:53 (1)	17:36	18:32		20:31	21:27	22:10	22:08	21:19	20:06		18:52	16:45		16:14 28	15:35 (1)
12	08:53	15:24 (1)	08:06	07:02		06:46	05:40	05:04	05:18	06:08	07:04		07:59	07:59		08:48	15:09 (1)
	16:39 29	15:53 (1)	17:38	18:34		20:33	21:29	22:11	22:07	21:17	20:04		18:49	16:44		16:14 27	15:36 (1)
13	08:52	15:25 (1)	08:04	07:00		06:43	05:39	05:04	05:20	06:09	07:05		08:00	08:01		08:49	15:09 (1)
	16:41 28	15:53 (1)	17:41	18:36		20:35	21:31	22:12	22:06	21:15	20:01		18:47	16:42		16:14 27	15:36 (1)
14	08:51	15:25 (1)	08:02	06:57		06:41	05:37	05:03	05:21	06:11	07:07		08:02	08:03		08:50	15:09 (1)
	16:42 27	15:52 (1)	17:43	18:38		20:37	21:32	22:12	22:05	21:12	19:59		18:44	16:40		16:14 26	15:35 (1)
15	08:50	15:26 (1)	08:00	06:55		06:38	05:35	05:03	05:22	06:13	07:09		08:04	08:05		08:51	15:10 (1)
	16:44 26	15:52 (1)	17:45	18:40		20:39	21:34	22:13	22:04	21:10	19:56		18:42	16:39		16:14 25	15:35 (1)
16	08:49	15:27 (1)	07:58	06:52		06:36	05:33	05:03	05:23	06:15	07:11		08:06	08:07		08:52	15:10 (1)
	16:46 25	15:52 (1)	17:47	18:42		20:41	21:36	22:13	22:03	21:08	19:54		18:40	16:37		16:14 25	15:35 (1)
17	08:48	15:28 (1)	07:56	06:50		06:34	05:32	05:03	05:25	06:17	07:13	19:07 (5)	08:08	08:09		08:53	15:10 (1)
	16:47 24	15:52 (1)	17:49	18:44		20:42	21:37	22:14	22:02	21:06	19:51 5	19:12 (5)	18:37	16:36		16:14 25	15:35 (1)
18	08:47	15:30 (1)	07:54	06:47	18:17 (5)	06:31	05:30	05:03	05:26	06:18	07:14	19:04 (5)	08:10	08:11		08:54	15:11 (1)
	16:49 22	15:52 (1)	17:51	18:46 2	18:19 (5)	20:44	21:39	22:14	22:00	21:04	19:49 11	19:15 (5)	18:35	16:34		16:14 24	15:35 (1)
19	08:46	15:31 (1)	07:51	06:45	18:17 (5)	06:29	05:29	05:03	05:28	06:20	07:16	19:03 (5)	08:12	08:12		08:54	15:12 (1)
	16:51 20	15:51 (1)	17:53	18:48 4	18:21 (5)	20:46	21:41	22:15	21:59	21:01	19:46 13	19:16 (5)	18:33	16:33		16:14 24	15:36 (1)
20	08:45	15:33 (1)	07:49	06:42	18:15 (5)	06:27	05:27	05:03	05:29	06:22	07:18	19:02 (5)	08:14	08:14	15:13 (1)	08:55	15:12 (1)
	16:53 17	15:50 (1)	17:55	18:50 7	18:22 (5)	20:48	21:42	22:15	21:58	20:59	19:44 14	19:16 (5)	18:30	16:31 9	15:22 (1)	16:15 24	15:36 (1)
21	08:44	15:34 (1)	07:47	06:40	18:15 (5)	06:24	05:25	05:03	05:31	06:24	07:20	19:00 (5)	08:16	08:16	15:10 (1)	08:56	15:12 (1)
	16:55 15	15:49 (1)	17:57	18:52 10	18:25 (5)	20:50	21:44	22:15	21:56	20:57	19:41 12	19:12 (5)	18:28	16:30 15	15:25 (1)	16:15 24	15:36 (1)
22	08:42	15:38 (1)	07:45	06:37	18:14 (5)	06:22	05:24	05:03	05:32	06:26	07:22	19:00 (5)	08:18	08:18	15:09 (1)	08:56	15:13 (1)
	16:56 9	15:47 (1)	17:59	18:53 12	18:26 (5)	20:52	21:46	22:16	21:55	20:55	19:39 10	19:10 (5)	18:26	16:29 17	15:26 (1)	16:15 24	15:37 (1)
23	08:41		07:42	06:35	18:15 (5)	06:20	05:23	05:04	05:34	06:27	07:23	19:00 (5)	08:20	08:20	15:08 (1)	08:57	15:13 (1)
	16:58		18:01	18:55 14	18:29 (5)	20:54	21:47	22:16	21:54	20:52	19:36 8	19:08 (5)	18:24	16:27 20	15:28 (1)	16:16 24	15:37 (1)
24	08:40		07:40	06:32	18:15 (5)	06:17	05:21	05:04	05:35	06:29	07:25	19:00 (5)	08:22	08:22	15:07 (1)	08:57	15:13 (1)
	17:00		18:03	18:57 14	18:29 (5)	20:56	21:49	22:16	21:52	20:50	19:34 5	19:05 (5)	18:21	16:26 22	15:29 (1)	16:17 24	15:37 (1)
25	08:38		07:38	06:30	18:16 (5)	06:15	05:20	05:04	05:37	06:31	07:27	19:01 (5)	07:24	08:23	15:07 (1)	08:58	15:15 (1)
	17:02		18:05	18:59 12	18:28 (5)	20:58	21:50	22:16	21:50	20:48	19:31 2	19:03 (5)	17:19	16:25 23	15:30 (1)	16:17 24	15:39 (1)
26	08:37		07:36	06:27	18:18 (5)	06:13	05:19	05:05	05:38	06:33	07:29		07:26	08:25	15:06 (1)	08:58	15:15 (1)
	17:04		18:07	19:01 7	18:25 (5)	20:59	21:52	22:16	21:49	20:45	19:29		17:17	16:24 25	15:31 (1)	16:18 24	15:39 (1)
27	08:35		07:33	06:25		06:11	05:17	05:05	05:40	06:35	07:31		07:27	08:27	15:05 (1)	08:58	15:15 (1)
	17:06		18:09	19:03		21:01	21:53	22:16	21:47	20:43	19:26		17:15	16:23 27	15:32 (1)	16:19 25	15:40 (1)
28	08:34		07:31	06:22		06:09	05:16	05:06	05:42	06:36	07:33		07:29	08:28	15:05 (1)	08:58	15:16 (1)
	17:08		18:11	19:05		21:03	21:54	22:16	21:46	20:40	19:24		17:13	16:22 27	15:32 (1)	16:20 25	15:41 (1)
29	08:32			07:20		06:06	05:15	05:06	05:43	06:38	07:34		07:31	08:30	15:05 (1)	08:58	15:16 (1)
	17:10			20:07		21:05	21:56	22:15	21:44	20:38	19:21		17:11	16:21 28	15:33 (1)	16:20 26	15:42 (1)
30	08:30			07:17		06:04	05:14	05:07	05:45	06:40	07:36		07:33	08:32	15:05 (1)	08:58	15:17 (1)
	17:12			20:09		21:07	21:57	22:15	21:42	20:36	19:19		17:09	16:20 29	15:34 (1)	16:21 26	15:43 (1)
31	08:29			07:15			05:13		05:47	06:42			07:35			08:58	15:17 (1)
	17:14			20:10			21:59		21:40	20:33			17:06			16:22 27	15:44 (1)
Potential sun hours	248		272	367		421	496	513	515	461	382		328	257		231	
Total, worst case		575			82							80			242		834
Sun reduction		0.17			0.22							0.29			0.20		0.12
Oper. time red.		1.00			1.00							1.00			1.00		1.00
Wind dir. red.		0.63			0.58							0.58			0.63		0.63
Total reduction		0.11			0.13							0.17			0.13		0.08
Total, real		61			11							14			30		63

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: X - H24

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:38	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: Y - H25

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June
1	08:58	08:27	07:29		07:12		18:20 (18)	06:02	19:28 (17)	05:11
	16:24	17:16	18:13		20:12	18	18:38 (18)	21:09	36	20:04 (17)	22:00
2	08:58	08:25	07:26		07:10		18:25 (18)	06:00	19:28 (17)	05:11
	16:25	17:18	18:15		20:14	9	18:34 (18)	21:11	35	20:03 (17)	22:01
3	08:58	08:24	07:24		07:07			05:58	19:28 (17)	05:10
	16:26	17:20	18:17		20:16			21:12	34	20:02 (17)	22:02
4	08:58	08:22	07:21		07:05			05:56	19:29 (17)	05:09
	16:27	17:22	18:19		20:18			21:14	33	20:02 (17)	22:03
5	08:57	08:20	07:19		07:02			05:54	19:29 (17)	05:08
	16:28	17:24	18:21		20:20			21:16	32	20:01 (17)	22:05
6	08:57	08:18	07:17		07:00			05:52	19:31 (17)	05:07
	16:30	17:26	18:23		20:22			21:18	30	20:01 (17)	22:06
7	08:56	08:16	07:14		06:58			05:50	19:32 (17)	05:06
	16:31	17:28	18:24		20:24			21:20	27	19:59 (17)	22:07
8	08:56	08:14	07:12	17:34 (18)	06:55			05:48	19:33 (17)	05:06
	16:33	17:30	18:26	3	17:37 (18)	20:25			21:22	25	19:58 (17)	22:08
9	08:55	08:12	07:09	17:28 (18)	06:53			05:46	19:34 (17)	05:05
	16:34	17:32	18:28	15	17:43 (18)	20:27			21:23	22	19:56 (17)	22:09
10	08:55	08:10	07:07	17:24 (18)	06:50			05:44	19:36 (17)	05:05
	16:36	17:34	18:30	22	17:46 (18)	20:29			21:25	18	19:54 (17)	22:09
11	08:54	08:08	07:05	17:22 (18)	06:48			05:42	19:38 (17)	05:04
	16:37	17:36	18:32	26	17:48 (18)	20:31			21:27	15	19:53 (17)	22:10
12	08:53	08:06	07:02	17:20 (18)	06:45			05:40	19:42 (17)	05:04
	16:39	17:38	18:34	29	17:49 (18)	20:33			21:29	7	19:49 (17)	22:11
13	08:52	08:04	07:00	17:19 (18)	06:43		19:46 (17)	05:38	05:04
	16:40	17:40	18:36	32	17:51 (18)	20:35	6	19:52 (17)	21:31	22:12
14	08:51	08:02	06:57	17:17 (18)	06:41		19:41 (17)	05:37	05:03
	16:42	17:42	18:38	34	17:51 (18)	20:37	16	19:57 (17)	21:32	22:12
15	08:50	08:00	06:55	17:16 (18)	06:38		19:39 (17)	05:35	05:03
	16:44	17:44	18:40	36	17:52 (18)	20:39	20	19:59 (17)	21:34	22:13
16	08:49	07:58	06:52	17:15 (18)	06:36		19:36 (17)	05:33	05:03
	16:45	17:46	18:42	37	17:52 (18)	20:41	24	20:00 (17)	21:36	22:14
17	08:48	07:56	06:50	17:14 (18)	06:33		19:34 (17)	05:32	05:03
	16:47	17:49	18:44	39	17:53 (18)	20:42	28	20:02 (17)	21:37	22:14
18	08:47	07:54	06:47	17:13 (18)	06:31		19:33 (17)	05:30	05:03
	16:49	17:51	18:46	39	17:52 (18)	20:44	30	20:03 (17)	21:39	22:15
19	08:46	07:51	06:45	17:13 (18)	06:29		19:32 (17)	05:28	05:03
	16:51	17:53	18:48	40	17:53 (18)	20:46	32	20:04 (17)	21:41	22:15
20	08:45	07:49	06:42	17:12 (18)	06:26		19:30 (17)	05:27	05:03
	16:53	17:55	18:50	40	17:52 (18)	20:48	34	20:04 (17)	21:42	22:15
21	08:44	07:47	06:40	17:12 (18)	06:24		19:30 (17)	05:25	05:03
	16:54	17:57	18:51	41	17:53 (18)	20:50	35	20:05 (17)	21:44	22:15
22	08:42	07:45	06:37	17:12 (18)	06:22		19:29 (17)	05:24	05:03
	16:56	17:59	18:53	40	17:52 (18)	20:52	36	20:05 (17)	21:46	22:16
23	08:41	07:42	06:35	17:12 (18)	06:20		19:29 (17)	05:22	05:03
	16:58	18:01	18:55	40	17:52 (18)	20:54	37	20:06 (17)	21:47	22:16
24	08:40	07:40	06:32	17:12 (18)	06:17		19:28 (17)	05:21	05:04
	17:00	18:03	18:57	38	17:50 (18)	20:56	38	20:06 (17)	21:49	22:16
25	08:38	07:38	06:30	17:13 (18)	06:15		19:27 (17)	05:20	05:04
	17:02	18:05	18:59	37	17:50 (18)	20:58	38	20:05 (17)	21:50	22:16
26	08:37	07:36	06:27	17:12 (18)	06:13		19:27 (17)	05:18	05:04
	17:04	18:07	19:01	37	17:49 (18)	20:59	38	20:05 (17)	21:52	22:16
27	08:35	07:33	06:25	17:14 (18)	06:11		19:27 (17)	05:17	05:05
	17:06	18:09	19:03	34	17:48 (18)	21:01	38	20:05 (17)	21:53	22:16
28	08:34	07:31	06:22	17:14 (18)	06:08		19:27 (17)	05:16	05:05
	17:08	18:11	19:05	32	17:46 (18)	21:03	38	20:05 (17)	21:55	22:16
29	08:32		07:20	18:15 (18)	06:06		19:27 (17)	05:15	05:06
	17:10		20:07	30	18:45 (18)	21:05	38	20:05 (17)	21:56	22:15
30	08:31		07:17	18:16 (18)	06:04		19:27 (17)	05:14	05:07
	17:12		20:08	27	18:43 (18)	21:07	37	20:04 (17)	21:57	22:15
31	08:29		07:15	18:18 (18)				05:12	
	17:14		20:10	23	18:41 (18)				21:59		
Potential sun hours	248	272	367		421			496		513
Total, worst case				771		590			314	
Sun reduction				0.22		0.34			0.36	
Oper. time red.				1.00		1.00			1.00	
Wind dir. red.				0.57		0.59			0.59	
Total reduction				0.13		0.20			0.21	
Total, real				99		119			67	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: Y - H25

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October		November	December
1	05:07	05:48		19:50 (17)	06:44		17:59 (18)	07:37	08:33
	22:15	21:39	11	20:01 (17)	20:31	19:16	30	18:29 (18)	17:04	16:19
2	05:08	05:50		19:48 (17)	06:45		17:59 (18)	07:39	08:35
	22:14	21:37	16	20:04 (17)	20:28	19:14	28	18:27 (18)	17:02	16:18
3	05:09	05:52		19:45 (17)	06:47		18:01 (18)	07:41	08:36
	22:14	21:35	20	20:05 (17)	20:26	19:11	24	18:25 (18)	17:00	16:17
4	05:10	05:53		19:44 (17)	06:49		18:03 (18)	07:43	08:38
	22:13	21:33	23	20:07 (17)	20:23	19:09	19	18:22 (18)	16:58	16:17
5	05:11	05:55		19:43 (17)	06:51		18:07 (18)	07:45	08:39
	22:13	21:31	26	20:09 (17)	20:21	19:06	11	18:18 (18)	16:56	16:16
6	05:12	05:57		19:41 (17)	06:53			07:47	08:41
	22:12	21:29	28	20:09 (17)	20:19	19:04			16:54	16:16
7	05:12	05:59		19:40 (17)	06:54			07:49	08:42
	22:12	21:27	30	20:10 (17)	20:16	19:01			16:53	16:15
8	05:14	06:00		19:39 (17)	06:56			07:51	08:43
	22:11	21:25	31	20:10 (17)	20:14	18:59			16:51	16:15
9	05:15	06:02		19:38 (17)	06:58			07:53	08:45
	22:10	21:23	33	20:11 (17)	20:11	18:56			16:49	16:14
10	05:16	06:04		19:38 (17)	07:00	18:19 (18)		07:55	07:55	08:46
	22:09	21:21	34	20:12 (17)	20:09	7	18:26 (18)	18:54	16:47	16:14
11	05:17	06:06		19:36 (17)	07:02	18:14 (18)		07:57	07:57	08:47
	22:08	21:19	36	20:12 (17)	20:06	17	18:31 (18)	18:51	16:45	16:14
12	05:18	06:07		19:36 (17)	07:03	18:10 (18)		07:58	07:59	08:48
	22:07	21:17	36	20:12 (17)	20:04	22	18:32 (18)	18:49	16:44	16:14
13	05:19	06:09		19:36 (17)	07:05	18:08 (18)		08:00	08:01	08:49
	22:06	21:15	37	20:13 (17)	20:01	26	18:34 (18)	18:47	16:42	16:13
14	05:21	06:11		19:35 (17)	07:07	18:06 (18)		08:02	08:03	08:50
	22:05	21:13	37	20:12 (17)	19:59	29	18:35 (18)	18:44	16:40	16:13
15	05:22	06:13		19:35 (17)	07:09	18:04 (18)		08:04	08:05	08:51
	22:04	21:10	38	20:13 (17)	19:56	32	18:36 (18)	18:42	16:39	16:13
16	05:23	06:15		19:35 (17)	07:11	18:02 (18)		08:06	08:07	08:52
	22:03	21:08	38	20:13 (17)	19:54	34	18:36 (18)	18:40	16:37	16:13
17	05:25	06:16		19:35 (17)	07:12	18:01 (18)		08:08	08:09	08:53
	22:02	21:06	38	20:13 (17)	19:51	36	18:37 (18)	18:37	16:36	16:14
18	05:26	06:18		19:34 (17)	07:14	18:00 (18)		08:10	08:11	08:54
	22:01	21:04	38	20:12 (17)	19:49	37	18:37 (18)	18:35	16:34	16:14
19	05:27	06:20		19:34 (17)	07:16	17:59 (18)		08:12	08:12	08:55
	21:59	21:01	38	20:12 (17)	19:46	39	18:38 (18)	18:33	16:33	16:14
20	05:29	06:22		19:34 (17)	07:18	17:58 (18)		08:14	08:14	08:55
	21:58	20:59	37	20:11 (17)	19:44	39	18:37 (18)	18:30	16:31	16:14
21	05:30	06:24		19:34 (17)	07:20	17:57 (18)		08:16	08:16	08:56
	21:57	20:57	36	20:10 (17)	19:41	40	18:37 (18)	18:28	16:30	16:15
22	05:32	06:25		19:35 (17)	07:21	17:57 (18)		08:18	08:18	08:56
	21:55	20:55	34	20:09 (17)	19:39	40	18:37 (18)	18:26	16:29	16:15
23	05:33	06:27		19:35 (17)	07:23	17:57 (18)		08:20	08:20	08:57
	21:54	20:52	34	20:09 (17)	19:36	40	18:37 (18)	18:24	16:27	16:16
24	05:35	06:29		19:35 (17)	07:25	17:57 (18)		08:22	08:22	08:57
	21:52	20:50	32	20:07 (17)	19:33	40	18:37 (18)	18:21	16:26	16:16
25	05:37	06:31		19:36 (17)	07:27	17:56 (18)		07:24	08:23	08:58
	21:51	20:48	30	20:06 (17)	19:31	39	18:35 (18)	17:19	16:25	16:17
26	05:38	06:33		19:37 (17)	07:29	17:56 (18)		07:26	08:25	08:58
	21:49	20:45	28	20:05 (17)	19:28	39	18:35 (18)	17:17	16:24	16:18
27	05:40	06:35		19:39 (17)	07:31	17:56 (18)		07:27	08:27	08:58
	21:47	20:43	24	20:03 (17)	19:26	38	18:34 (18)	17:15	16:23	16:19
28	05:41	06:36		19:40 (17)	07:32	17:57 (18)		07:29	08:29	08:58
	21:46	20:40	20	20:00 (17)	19:23	36	18:33 (18)	17:13	16:22	16:19
29	05:43	06:38		19:42 (17)	07:34	17:57 (18)		07:31	08:30	08:58
	21:44	20:38	15	19:57 (17)	19:21	35	18:32 (18)	17:11	16:21	16:20
30	05:45	06:40		19:48 (17)	07:36	17:58 (18)		07:33	08:32	08:58
	21:42	20:36	4	19:52 (17)	19:18	33	18:31 (18)	17:08	16:20	16:21
31	05:46	06:42						07:35		08:58
	21:40	20:33						17:06		16:22
Potential sun hours	515	461		383		327		257	230	
Total, worst case			882		698		112			
Sun reduction			0.27		0.29		0.23			
Oper. time red.			1.00		1.00		1.00			
Wind dir. red.			0.59		0.57		0.57			
Total reduction			0.16		0.17		0.13			
Total, real			142		117		15			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: Z - H26

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April	May	June
1	08:58			08:27		15:51 (18)	07:29		17:17 (17)	07:12	06:02	05:11
	16:24			17:16	35	16:26 (18)	18:13	23	17:40 (17)	20:12	21:09	22:00
2	08:58			08:25		15:51 (18)	07:26		17:14 (17)	07:10	06:00	05:10
	16:25			17:18	36	16:27 (18)	18:15	27	17:41 (17)	20:14	21:11	22:01
3	08:58			08:24		15:51 (18)	07:24		17:13 (17)	07:07	05:58	05:10
	16:26			17:20	36	16:27 (18)	18:17	30	17:43 (17)	20:16	21:13	22:02
4	08:58			08:22		15:51 (18)	07:21		17:11 (17)	07:05	05:56	05:09
	16:27			17:22	36	16:27 (18)	18:19	33	17:44 (17)	20:18	21:14	22:03
5	08:57			08:20		15:51 (18)	07:19		17:10 (17)	07:02	05:54	05:08
	16:28			17:24	36	16:27 (18)	18:21	35	17:45 (17)	20:20	21:16	22:05
6	08:57			08:18		15:51 (18)	07:17		17:09 (17)	07:00	05:52	05:07
	16:30			17:26	36	16:27 (18)	18:23	36	17:45 (17)	20:22	21:18	22:06
7	08:56			08:16		15:51 (18)	07:14		17:08 (17)	06:58	05:50	05:06
	16:31			17:28	36	16:27 (18)	18:24	38	17:46 (17)	20:24	21:20	22:07
8	08:56			08:14		15:52 (18)	07:12		17:07 (17)	06:55	05:48	05:06
	16:33			17:30	35	16:27 (18)	18:26	39	17:46 (17)	20:25	21:22	22:08
9	08:55			08:12		15:51 (18)	07:09		17:07 (17)	06:53	05:46	05:05
	16:34			17:32	35	16:26 (18)	18:28	39	17:46 (17)	20:27	21:23	22:09
10	08:55			08:10		15:52 (18)	07:07		17:06 (17)	06:50	05:44	05:05
	16:36			17:34	34	16:26 (18)	18:30	40	17:46 (17)	20:29	21:25	22:09
11	08:54			08:08		15:53 (18)	07:05		17:06 (17)	06:48	05:42	05:04
	16:37			17:36	32	16:25 (18)	18:32	40	17:46 (17)	20:31	21:27	22:10
12	08:53			08:06		15:54 (18)	07:02		17:05 (17)	06:45	05:40	05:04
	16:39			17:38	31	16:25 (18)	18:34	41	17:46 (17)	20:33	21:29	22:11
13	08:52			08:04		15:55 (18)	07:00		17:06 (17)	06:43	05:38	05:04
	16:40			17:40	29	16:24 (18)	18:36	40	17:46 (17)	20:35	21:31	22:12
14	08:51			08:02		15:57 (18)	06:57		17:05 (17)	06:41	05:37	05:03
	16:42			17:42	26	16:23 (18)	18:38	40	17:45 (17)	20:37	21:32	22:12
15	08:51			08:00		15:57 (18)	06:55		17:06 (17)	06:38	05:35	05:03
	16:44			17:44	24	16:21 (18)	18:40	38	17:44 (17)	20:39	21:34	22:13
16	08:50			07:58		16:00 (18)	06:52		17:06 (17)	06:36	05:33	05:03
	16:45			17:46	19	16:19 (18)	18:42	37	17:43 (17)	20:41	21:36	22:14
17	08:48			07:56		16:03 (18)	06:50		17:07 (17)	06:33	05:32	05:03
	16:47			17:49	14	16:17 (18)	18:44	36	17:43 (17)	20:42	21:37	22:14
18	08:47			07:54		16:09 (18)	06:47		17:07 (17)	06:31	05:30	05:03
	16:49			17:51	3	16:12 (18)	18:46	34	17:41 (17)	20:44	21:39	22:15
19	08:46		16:03 (18)	07:51			06:45		17:08 (17)	06:29	05:28	05:03
	16:51	3	16:06 (18)	17:53			18:48	32	17:40 (17)	20:46	21:41	22:15
20	08:45		16:00 (18)	07:49		17:25 (16)	06:42		17:09 (17)	06:26	05:27	05:03
	16:53	11	16:11 (18)	17:55	1	17:26 (16)	18:50	29	17:38 (17)	20:48	21:42	22:15
21	08:44		15:57 (18)	07:47		17:25 (16)	06:40		17:11 (17)	06:24	05:25	05:03
	16:54	16	16:13 (18)	17:57	3	17:28 (16)	18:51	26	17:37 (17)	20:50	21:44	22:16
22	08:42		15:56 (18)	07:45		17:23 (16)	06:37		17:12 (17)	06:22	05:24	05:03
	16:56	20	16:16 (18)	17:59	7	17:30 (16)	18:53	22	17:34 (17)	20:52	21:46	22:16
23	08:41		15:55 (18)	07:42		17:23 (16)	06:35		17:15 (17)	06:20	05:22	05:03
	16:58	22	16:17 (18)	18:01	9	17:32 (16)	18:55	16	17:31 (17)	20:54	21:47	22:16
24	08:40		15:54 (18)	07:40		17:23 (16)	06:32		17:20 (17)	06:17	05:21	05:04
	17:00	25	16:19 (18)	18:03	12	17:35 (16)	18:57	5	17:25 (17)	20:56	21:49	22:16
25	08:38		15:53 (18)	07:38		17:22 (16)	06:30			06:15	05:20	05:04
	17:02	27	16:20 (18)	18:05	14	17:36 (16)	18:59			20:58	21:50	22:16
26	08:37		15:52 (18)	07:36		17:23 (16)	06:27			06:13	05:18	05:04
	17:04	29	16:21 (18)	18:07	15	17:38 (16)	19:01			20:59	21:52	22:16
27	08:35		15:52 (18)	07:33		17:23 (16)	06:25			06:11	05:17	05:05
	17:06	31	16:23 (18)	18:09	13	17:36 (16)	19:03			21:01	21:53	22:16
28	08:34		15:52 (18)	07:31		17:19 (17)	06:22			06:08	05:16	05:05
	17:08	31	16:23 (18)	18:11	18	17:37 (17)	19:05			21:03	21:55	22:16
29	08:32		15:51 (18)				07:20			06:06	05:15	05:06
	17:10	33	16:24 (18)				20:07			21:05	21:56	22:15
30	08:31		15:51 (18)				07:17			06:04	05:14	05:07
	17:12	33	16:24 (18)				20:08			21:07	21:57	22:15
31	08:29		15:50 (18)				07:15				05:12	
	17:14	35	16:25 (18)				20:10				21:59	
Potential sun hours	248			272			367			421	496	513
Total, worst case		316			625			776				
Sun reduction		0.17			0.22			0.22				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.61			0.60			0.58				
Total reduction		0.10			0.13			0.13				
Total, real		33			84			101				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: Z - H26

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October		November		December
1	05:07	05:48	06:44		07:38		17:45 (17)	07:37	15:22 (18)	08:33
	22:15	21:39	20:31		19:16	40	18:25 (17)	17:04	33	15:55 (18)	16:19
2	05:08	05:50	06:45		07:40		17:44 (17)	07:39	15:21 (18)	08:35
	22:14	21:37	20:28		19:14	40	18:24 (17)	17:02	35	15:56 (18)	16:18
3	05:09	05:52	06:47		07:42		17:44 (17)	07:41	15:20 (18)	08:36
	22:14	21:35	20:26		19:11	40	18:24 (17)	17:00	36	15:56 (18)	16:17
4	05:10	05:53	06:49		07:44		17:44 (17)	07:43	15:21 (18)	08:38
	22:14	21:33	20:24		19:09	40	18:24 (17)	16:58	36	15:57 (18)	16:17
5	05:11	05:55	06:51		07:45		17:44 (17)	07:45	15:21 (18)	08:39
	22:13	21:31	20:21		19:06	39	18:23 (17)	16:56	36	15:57 (18)	16:16
6	05:11	05:57	06:53		07:47		17:44 (17)	07:47	15:20 (18)	08:41
	22:12	21:29	20:19		19:04	38	18:22 (17)	16:54	37	15:57 (18)	16:16
7	05:12	05:59	06:54		07:49		17:45 (17)	07:49	15:20 (18)	08:42
	22:12	21:27	20:16		19:01	37	18:22 (17)	16:53	37	15:57 (18)	16:15
8	05:14	06:00	06:56		07:51		17:45 (17)	07:51	15:20 (18)	08:43
	22:11	21:25	20:14		18:59	36	18:21 (17)	16:51	37	15:57 (18)	16:15
9	05:15	06:02	06:58		07:53		17:46 (17)	07:53	15:21 (18)	08:45
	22:10	21:23	20:11		18:56	33	18:19 (17)	16:49	35	15:56 (18)	16:14
10	05:16	06:04	07:00		07:55		17:47 (17)	07:55	15:22 (18)	08:46
	22:09	21:21	20:09		18:54	31	18:18 (17)	16:47	35	15:57 (18)	16:14
11	05:17	06:06	07:02		07:57		17:48 (17)	07:57	15:22 (18)	08:47
	22:08	21:19	20:06		18:51	29	18:17 (17)	16:45	35	15:57 (18)	16:14
12	05:18	06:07	07:03		07:58		17:49 (17)	07:59	15:23 (18)	08:48
	22:07	21:17	20:04		18:49	26	18:15 (17)	16:44	33	15:56 (18)	16:14
13	05:19	06:09	07:05		08:00		17:51 (17)	08:01	15:23 (18)	08:49
	22:06	21:15	20:01		18:47	21	18:12 (17)	16:42	33	15:56 (18)	16:13
14	05:21	06:11	07:07		08:02		17:54 (17)	08:03	15:24 (18)	08:50
	22:05	21:13	19:59		18:44	15	18:09 (16)	16:40	31	15:55 (18)	16:13
15	05:22	06:13	07:09		08:04		17:56 (16)	08:05	15:24 (18)	08:51
	22:04	21:10	19:56		18:42	14	18:10 (16)	16:39	31	15:55 (18)	16:13
16	05:23	06:15	07:11		08:06		17:55 (16)	08:07	15:25 (18)	08:52
	22:03	21:08	19:54		18:40	15	18:10 (16)	16:37	29	15:54 (18)	16:13
17	05:25	06:16	07:12		08:08		17:54 (16)	08:09	15:27 (18)	08:53
	22:02	21:06	19:51		18:37	14	18:08 (16)	16:36	27	15:54 (18)	16:14
18	05:26	06:18	07:14		08:10		17:54 (16)	08:11	15:28 (18)	08:54
	22:01	21:04	19:49		18:35	11	18:05 (16)	16:34	25	15:53 (18)	16:14
19	05:27	06:20	07:16		08:12		17:54 (16)	08:12	15:30 (18)	08:55
	21:59	21:01	19:46		18:33	9	18:03 (16)	16:33	22	15:52 (18)	16:14
20	05:29	06:22	07:18	18:02 (17)	08:14		17:54 (16)	08:14	15:31 (18)	08:55
	21:58	20:59	19:44	14	18:16 (17)	18:30	6	18:00 (16)	16:31	20	15:51 (18)	16:14
21	05:30	06:24	07:20	17:59 (17)	08:16		17:55 (16)	08:16	15:33 (18)	08:56
	21:57	20:57	19:41	20	18:19 (17)	18:28	3	17:58 (16)	16:30	16	15:49 (18)	16:15
22	05:32	06:25	07:21	17:56 (17)	08:18			08:18	15:36 (18)	08:56
	21:55	20:55	19:39	25	18:21 (17)	18:26			16:29	11	15:47 (18)	16:15
23	05:33	06:27	07:23	17:54 (17)	08:20			08:20	15:40 (18)	08:57
	21:54	20:52	19:36	28	18:22 (17)	18:24			16:27	3	15:43 (18)	16:16
24	05:35	06:29	07:25	17:52 (17)	08:22		16:36 (18)	08:22	08:57
	21:52	20:50	19:34	32	18:24 (17)	18:21	8	16:44 (18)	16:26	16:16
25	05:37	06:31	07:27	17:51 (17)	07:24		15:31 (18)	08:23	08:58
	21:51	20:48	19:31	33	18:24 (17)	17:19	16	15:47 (18)	16:25	16:17
26	05:38	06:33	07:29	17:49 (17)	07:26		15:29 (18)	08:25	08:58
	21:49	20:45	19:28	35	18:24 (17)	17:17	20	15:49 (18)	16:24	16:18
27	05:40	06:35	07:31	17:48 (17)	07:27		15:26 (18)	08:27	08:58
	21:47	20:43	19:26	37	18:25 (17)	17:15	25	15:51 (18)	16:23	16:19
28	05:41	06:36	07:32	17:47 (17)	07:29		15:26 (18)	08:29	08:58
	21:46	20:40	19:23	38	18:25 (17)	17:13	27	15:53 (18)	16:22	16:19
29	05:43	06:38	07:34	17:46 (17)	07:31		15:24 (18)	08:30	08:58
	21:44	20:38	19:21	39	18:25 (17)	17:11	30	15:54 (18)	16:21	16:20
30	05:45	06:40	07:36	17:46 (17)	07:33		15:23 (18)	08:32	08:59
	21:42	20:36	19:18	39	18:25 (17)	17:08	31	15:54 (18)	16:20	16:21
31	05:46	06:42			07:35		15:22 (18)	08:58
	21:40	20:33			17:06	33	15:55 (18)	16:22
Potential sun hours	515	461	383		327		257		230
Total, worst case				340		727		673	
Sun reduction				0.29		0.23		0.20	
Oper. time red.				1.00		1.00		1.00	
Wind dir. red.				0.58		0.59		0.61	
Total reduction				0.17		0.14		0.12	
Total, real				58		100		82	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AA - H27

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May	June	July	August	September		October	November	December
1	08:58	08:27	07:29		07:13		19:03 (5)	06:02	05:08	05:48	06:44		07:38	07:37	08:33
	16:24	17:16	18:13		20:12	22	19:25 (5)	21:09	22:15	21:39	20:31		19:16	17:04	16:19
2	08:58	08:25	07:26		07:10		19:05 (5)	06:00	05:08	05:50	06:46		07:40	07:39	08:35
	16:25	17:18	18:15		20:14	18	19:23 (5)	21:11	22:14	21:37	20:28		19:14	17:02	16:18
3	08:58	08:24	07:24		07:08		19:08 (5)	05:58	05:10	05:09	05:52		07:42	07:41	08:36
	16:26	17:20	18:17		20:16	13	19:21 (5)	21:13	22:02	22:14	21:35	20:26		19:11	17:00	16:18
4	08:58	08:22	07:22		07:05		19:12 (5)	05:56	05:09	05:10	05:54	06:49		07:44	07:43	08:38
	16:27	17:22	18:19		20:18	3	19:15 (5)	21:14	22:03	22:13	21:33	20:24		19:09	16:59	16:17
5	08:57	08:20	07:19		07:03			05:54	05:08	05:11	05:55	06:51		07:45	07:45	08:39
	16:29	17:24	18:21		20:20			21:16	22:05	22:13	21:31	20:21		19:06	16:57	16:16
6	08:57	08:18	07:17		07:00			05:52	05:07	05:12	05:57	06:53		07:47	07:47	08:41
	16:30	17:26	18:23		20:22			21:18	22:06	22:12	21:29	20:19		19:04	16:55	16:16
7	08:56	08:16	07:14		06:58			05:50	05:07	05:13	05:59	06:55		07:49	07:49	08:42
	16:31	17:28	18:25		20:24			21:20	22:07	22:12	21:27	20:16		19:01	16:53	16:15
8	08:56	08:14	07:12		06:55			05:48	05:06	05:14	06:01	06:56		07:51	07:51	08:43
	16:33	17:30	18:27		20:26			21:22	22:08	22:11	21:25	20:14		18:59	16:51	16:15
9	08:55	08:12	07:09		06:53			05:46	05:06	05:15	06:02	06:58	19:01 (5)	07:53	07:53	08:45
	16:34	17:32	18:29		20:27			21:23	22:09	22:10	21:23	20:11	13 19:14 (5)	18:56	16:49	16:15
10	08:55	08:10	07:07		06:50			05:44	05:05	05:16	06:04	07:00	18:59 (5)	07:55	07:55	08:46
	16:36	17:34	18:30		20:29			21:25	22:09	22:09	21:21	20:09	17 19:16 (5)	18:54	16:47	16:14
11	08:54	08:08	07:05		06:48			05:42	05:05	05:17	06:06	07:02	18:57 (5)	07:57	07:57	08:47
	16:37	17:36	18:32		20:31			21:27	22:10	22:08	21:19	20:06	21 19:18 (5)	18:52	16:46	16:14
12	08:53	08:06	07:02		06:46			05:41	05:04	05:18	06:08	07:04	18:54 (5)	07:59	07:59	08:48
	16:39	17:39	18:34		20:33			21:29	22:11	22:07	21:17	20:04	24 19:18 (5)	18:49	16:44	16:14
13	08:52	08:04	07:00		06:43			05:39	05:04	05:20	06:09	07:05	18:53 (5)	08:00	08:01	08:49
	16:41	17:41	18:36		20:35			21:31	22:12	22:06	21:15	20:01	26 19:19 (5)	18:47	16:42	16:14
14	08:51	08:02	06:57	18:10 (6)	06:41			05:37	05:04	05:21	06:11	07:07	18:52 (5)	08:02	08:03	08:50
	16:42	17:43	18:38	1 18:11 (6)	20:37			21:32	22:12	22:05	21:13	19:59	28 19:20 (5)	18:44	16:40	16:14
15	08:50	08:00	06:55	18:08 (6)	06:38			05:35	05:03	05:22	06:13	07:09	18:51 (5)	08:04	08:05	08:51
	16:44	17:45	18:40	5 18:13 (6)	20:39			21:34	22:13	22:04	21:10	19:56	29 19:20 (5)	18:42	16:39	16:14
16	08:49	07:58	06:52	18:06 (6)	06:36			05:33	05:03	05:23	06:15	07:11	18:50 (5)	08:06	08:07	08:52
	16:46	17:47	18:42	9 18:15 (6)	20:41			21:36	22:14	22:03	21:08	19:54	29 19:19 (5)	18:40	16:37	16:14
17	08:48	07:56	06:50	18:05 (6)	06:34			05:32	05:03	05:25	06:17	07:13	18:50 (5)	08:08	08:09	08:53
	16:47	17:49	18:44	12 18:17 (6)	20:43			21:37	22:14	22:02	21:06	19:51	29 19:19 (5)	18:37	16:36	16:14
18	08:47	07:54	06:47	18:04 (6)	06:31			05:30	05:03	05:26	06:18	07:14	18:49 (5)	08:10	08:11	08:54
	16:49	17:51	18:46	15 18:19 (6)	20:44			21:39	22:14	22:01	21:04	19:49	30 19:19 (5)	18:35	16:34	16:14
19	08:46	07:51	06:45	18:04 (6)	06:29			05:29	05:03	05:28	06:20	07:16	18:49 (5)	08:12	08:12	08:54
	16:51	17:53	18:48	17 18:21 (6)	20:46			21:41	22:15	21:59	21:01	19:46	29 19:18 (5)	18:33	16:33	16:14
20	08:45	07:49	06:42	18:03 (6)	06:27			05:27	05:03	05:29	06:22	07:18	18:49 (5)	08:14	08:14	08:55
	16:53	17:55	18:50	19 18:22 (6)	20:48			21:42	22:15	21:58	20:59	19:44	27 19:16 (5)	18:31	16:31	16:15
21	08:44	07:47	06:40	18:03 (6)	06:24			05:26	05:03	05:31	06:24	07:20	18:48 (6)	08:16	08:16	08:56
	16:55	17:57	18:52	22 18:25 (6)	20:50			21:44	22:15	21:56	20:57	19:41	24 19:12 (5)	18:28	16:30	16:15
22	08:42	07:45	06:37	18:03 (6)	06:22			05:24	05:03	05:32	06:26	07:22	18:48 (6)	08:18	08:18	08:56
	16:57	17:59	18:53	23 18:26 (5)	20:52			21:46	22:16	21:55	20:55	19:39	22 19:10 (6)	18:26	16:29	16:16
23	08:41	07:43	06:35	18:03 (5)	06:20			05:23	05:04	05:34	06:27	07:23	18:48 (6)	08:20	08:20	08:57
	16:58	18:01	18:55	26 18:29 (5)	20:54			21:47	22:16	21:54	20:52	19:36	20 19:08 (6)	18:24	16:28	16:16
24	08:40	07:40	06:32	18:02 (5)	06:18			05:21	05:04	05:35	06:29	07:25	18:47 (6)	08:22	08:22	08:57
	17:00	18:03	18:57	28 18:30 (5)	20:56			21:49	22:16	21:52	20:50	19:34	18 19:05 (6)	18:22	16:26	16:17
25	08:38	07:38	06:30	18:02 (5)	06:15			05:20	05:04	05:37	06:31	07:27	18:48 (6)	07:24	08:23	08:58
	17:02	18:05	18:59	30 18:32 (5)	20:58			21:50	22:16	21:51	20:48	19:31	15 19:03 (6)	17:19	16:25	16:17
26	08:37	07:36	06:27	18:01 (5)	06:13			05:19	05:05	05:38	06:33	07:29	18:47 (6)	07:26	08:25	08:58
	17:04	18:07	19:01	30 18:31 (5)	20:59			21:52	22:16	21:49	20:45	19:29	13 19:00 (6)	17:17	16:24	16:18
27	08:35	07:33	06:25	18:01 (5)	06:11			05:17	05:05	05:40	06:35	07:31	18:47 (6)	07:28	08:27	08:58
	17:06	18:09	19:03	30 18:31 (5)	21:01			21:53	22:16	21:47	20:43	19:26	10 18:57 (6)	17:15	16:23	16:19
28	08:34	07:31	06:22	18:01 (5)	06:09			05:16	05:06	05:42	06:37	07:33	18:48 (6)	07:29	08:28	08:58
	17:08	18:11	19:05	29 18:30 (5)	21:03			21:55	22:16	21:46	20:41	19:24	7 18:55 (6)	17:13	16:22	16:20
29	08:32		07:20	19:02 (5)	06:07			05:15	05:06	05:43	06:38	07:34	18:50 (6)	07:31	08:30	08:58
	17:10		20:07	27 19:29 (5)	21:05			21:56	22:15	21:44	20:38	19:21	3 18:53 (6)	17:11	16:21	16:21
30	08:31		07:17	19:02 (5)	06:04			05:14	05:07	05:45	06:40	07:36		07:33	08:32	08:58
	17:12		20:09	26 19:28 (5)	21:07			21:57	22:15	21:42	20:36	19:19		17:09	16:20	16:21
31	08:29		07:15	19:03 (5)				05:13		05:47	06:42			07:35		08:58
	17:14		20:10	24 19:27 (5)				21:59		21:40	20:33			17:07		16:23
Potential sun hours	248	272	367		421		496	513	515	461	382		328	257	231
Total, worst case				373		56						434			
Sun reduction				0.22		0.34						0.29			
Oper. time red.				1.00		1.00						1.00			
Wind dir. red.				0.58		0.58						0.58			
Total reduction				0.13		0.20						0.17			
Total, real				49		11						74			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AB - H28

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April	May	June	July	August	September		October	November	December
1	08:58	08:27	07:29		07:12	06:02	05:12	05:08	05:48	06:44		07:38	07:37	08:33
	16:24	17:16	18:13		20:12	21:09	22:00	22:15	21:39	20:31		19:16	17:04	16:19
2	08:58	08:25	07:26		07:10	06:00	05:11	05:08	05:50	06:46		07:40	07:39	08:35
	16:25	17:18	18:15		20:14	21:11	22:01	22:14	21:37	20:28		19:14	17:02	16:18
3	08:58	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:47		07:42	07:41	08:36
	16:26	17:20	18:17		20:16	21:12	22:02	22:14	21:35	20:26		19:11	17:00	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:53	06:49		07:44	07:43	08:38
	16:27	17:22	18:19		20:18	21:14	22:03	22:13	21:33	20:24		19:09	16:58	16:17
5	08:57	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51		07:45	07:45	08:39
	16:29	17:24	18:21		20:20	21:16	22:05	22:13	21:31	20:21		19:06	16:57	16:16
6	08:57	08:18	07:17		07:00	05:52	05:07	05:12	05:57	06:53		07:47	07:47	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19		19:04	16:55	16:16
7	08:56	08:16	07:14		06:58	05:50	05:07	05:13	05:59	06:55		07:49	07:49	08:42
	16:31	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16		19:01	16:53	16:15
8	08:56	08:14	07:12		06:55	05:48	05:06	05:14	06:01	06:56		07:51	07:51	08:43
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14		18:59	16:51	16:15
9	08:55	08:12	07:09		06:53	05:46	05:06	05:15	06:02	06:58		07:53	07:53	08:45
	16:34	17:32	18:29		20:27	21:23	22:08	22:10	21:23	20:11		18:56	16:49	16:15
10	08:55	08:10	07:07		06:50	05:44	05:05	05:16	06:04	07:00		07:55	07:55	08:46
	16:36	17:34	18:30		20:29	21:25	22:09	22:09	21:21	20:09		18:54	16:47	16:14
11	08:54	08:08	07:05		06:48	05:42	05:05	05:17	06:06	07:02		07:57	07:57	08:47
	16:37	17:36	18:32		20:31	21:27	22:10	22:08	21:19	20:06		18:52	16:46	16:14
12	08:53	08:06	07:02		06:46	05:40	05:04	05:18	06:08	07:04		07:59	07:59	08:48
	16:39	17:38	18:34		20:33	21:29	22:11	22:07	21:17	20:04		18:49	16:44	16:14
13	08:52	08:04	07:00		06:43	05:39	05:04	05:20	06:09	07:05	19:03 (5)	08:00	08:01	08:49
	16:41	17:41	18:36		20:35	21:31	22:12	22:06	21:15	20:01	7 19:10 (5)	18:47	16:42	16:14
14	08:51	08:02	06:57		06:41	05:37	05:04	05:21	06:11	07:07	19:00 (5)	08:02	08:03	08:50
	16:42	17:43	18:38		20:37	21:32	22:12	22:05	21:13	19:59	13 19:13 (5)	18:44	16:40	16:14
15	08:50	08:00	06:55	18:10 (6)	06:38	05:35	05:03	05:22	06:13	07:09	18:58 (5)	08:04	08:05	08:51
	16:44	17:45	18:40	3 18:13 (6)	20:39	21:34	22:13	22:04	21:10	19:56	17 19:15 (5)	18:42	16:39	16:14
16	08:49	07:58	06:52	18:08 (6)	06:36	05:33	05:03	05:23	06:15	07:11	18:55 (5)	08:06	08:07	08:52
	16:46	17:47	18:42	7 18:15 (6)	20:41	21:36	22:14	22:03	21:08	19:54	20 19:15 (5)	18:40	16:37	16:14
17	08:48	07:56	06:50	18:08 (6)	06:34	05:32	05:03	05:25	06:17	07:13	18:54 (5)	08:08	08:09	08:53
	16:47	17:49	18:44	9 18:17 (6)	20:43	21:37	22:14	22:02	21:06	19:51	21 19:15 (5)	18:37	16:36	16:14
18	08:47	07:54	06:47	18:06 (6)	06:31	05:30	05:03	05:26	06:18	07:14	18:53 (5)	08:10	08:11	08:54
	16:49	17:51	18:46	13 18:19 (6)	20:44	21:39	22:14	22:01	21:04	19:49	23 19:16 (5)	18:35	16:34	16:14
19	08:46	07:51	06:45	18:06 (6)	06:29	05:29	05:03	05:28	06:20	07:16	18:53 (5)	08:12	08:12	08:54
	16:51	17:53	18:48	15 18:21 (6)	20:46	21:41	22:15	21:59	21:01	19:46	23 19:16 (5)	18:33	16:33	16:14
20	08:45	07:49	06:42	18:06 (6)	06:27	05:27	05:03	05:29	06:22	07:18	18:53 (5)	08:14	08:14	08:55
	16:53	17:55	18:50	16 18:22 (6)	20:48	21:42	22:15	21:58	20:59	19:44	23 19:16 (5)	18:31	16:31	16:15
21	08:44	07:47	06:40	18:06 (6)	06:24	05:26	05:03	05:31	06:24	07:20	18:51 (5)	08:16	08:16	08:56
	16:55	17:57	18:52	19 18:25 (6)	20:50	21:44	22:15	21:56	20:57	19:41	21 19:12 (5)	18:28	16:30	16:15
22	08:42	07:45	06:37	18:06 (6)	06:22	05:24	05:03	05:32	06:26	07:22	18:51 (6)	08:18	08:18	08:56
	16:56	17:59	18:53	20 18:26 (5)	20:52	21:46	22:16	21:55	20:55	19:39	19 19:10 (5)	18:26	16:29	16:16
23	08:41	07:43	06:35	18:06 (5)	06:20	05:23	05:04	05:34	06:27	07:23	18:51 (6)	08:20	08:20	08:57
	16:58	18:01	18:55	23 18:29 (5)	20:54	21:47	22:16	21:54	20:52	19:36	17 19:08 (6)	18:24	16:28	16:16
24	08:40	07:40	06:32	18:05 (5)	06:18	05:21	05:04	05:35	06:29	07:25	18:50 (6)	08:22	08:22	08:57
	17:00	18:03	18:57	24 18:29 (5)	20:56	21:49	22:16	21:52	20:50	19:34	15 19:05 (6)	18:22	16:26	16:17
25	08:38	07:38	06:30	18:06 (5)	06:15	05:20	05:04	05:37	06:31	07:27	18:50 (6)	07:24	08:23	08:58
	17:02	18:05	18:59	22 18:28 (5)	20:58	21:50	22:16	21:50	20:48	19:31	13 19:03 (6)	17:19	16:25	16:17
26	08:37	07:36	06:27	18:06 (5)	06:13	05:19	05:05	05:38	06:33	07:29	18:49 (6)	07:26	08:25	08:58
	17:04	18:07	19:01	21 18:27 (5)	20:59	21:52	22:16	21:49	20:45	19:29	11 19:00 (6)	17:17	16:24	16:18
27	08:35	07:33	06:25	18:07 (5)	06:11	05:17	05:05	05:40	06:35	07:31	18:50 (6)	07:28	08:27	08:58
	17:06	18:09	19:03	19 18:26 (5)	21:01	21:53	22:16	21:47	20:43	19:26	7 18:57 (6)	17:15	16:23	16:19
28	08:34	07:31	06:22	18:07 (5)	06:09	05:16	05:06	05:42	06:37	07:33	18:50 (6)	07:29	08:28	08:58
	17:08	18:11	19:05	17 18:24 (5)	21:03	21:54	22:16	21:46	20:41	19:24	5 18:55 (6)	17:13	16:22	16:20
29	08:32		07:20	19:09 (5)	06:07	05:15	05:06	05:43	06:38	07:34	18:52 (6)	07:31	08:30	08:58
	17:10		20:07	14 19:23 (5)	21:05	21:56	22:15	21:44	20:38	19:21	1 18:53 (6)	17:11	16:21	16:21
30	08:31		07:17	19:11 (5)	06:04	05:14	05:07	05:45	06:40	07:36		07:33	08:32	08:58
	17:12		20:09	8 19:19 (5)	21:07	21:57	22:15	21:42	20:36	19:19		17:09	16:20	16:21
31	08:29		07:15			05:13		05:47	06:42			07:35		08:58
	17:14		20:10			21:59		21:40	20:33			17:07		16:22
Potential sun hours	248	272	367		421	496	513	515	461	382		328	257	231
Total, worst case				250							256			
Sun reduction				0.22							0.29			
Oper. time red.				1.00							1.00			
Wind dir. red.				0.58							0.58			
Total reduction				0.13							0.17			
Total, real				33							43			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AC - H29

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April		May		June	
1	08:58	08:27		07:29		17:11 (11)	07:12		06:02		20:58 (16)
	16:24	17:16		18:13	19	17:30 (11)	20:12		21:09	25	21:23 (16)
2	08:58	08:25		07:26		17:12 (11)	07:10		06:00		20:58 (16)
	16:25	17:18		18:15	16	17:28 (11)	20:14		21:11	25	21:23 (16)
3	08:58	08:24		07:24		17:15 (11)	07:07		05:58		20:57 (16)
	16:26	17:20		18:17	11	17:26 (11)	20:16		21:13	27	21:24 (16)
4	08:58	08:22		07:22			07:05		05:56		20:58 (16)
	16:27	17:22		18:19			20:18		21:14	7	20:43 (15)	22:03	27	21:25 (16)
5	08:57	08:20		07:19			07:03		05:54		20:34 (15)	05:08		20:57 (16)
	16:29	17:24		18:21			20:20		21:16	11	20:45 (15)	22:05	28	21:25 (16)
6	08:57	08:18		07:17			07:00		05:52		20:33 (15)	05:07		20:57 (16)
	16:30	17:26		18:23			20:22		21:18	14	20:47 (15)	22:06	28	21:25 (16)
7	08:56	08:16		07:14			06:58		05:50		20:32 (15)	05:07		20:57 (16)
	16:31	17:28		18:25			20:24		21:20	17	20:49 (14)	22:07	29	21:26 (16)
8	08:56	08:14		07:12		17:56 (12)	06:55	19:51 (13)	05:48		20:31 (15)	05:06		20:57 (16)
	16:33	17:30		18:26	3	17:59 (12)	20:26	7	19:58 (13)	21:22	19	20:50 (14)	22:08	29	21:26 (16)
9	08:55	08:12		07:09		17:52 (12)	06:53		19:49 (13)	05:46		20:30 (15)	05:05		20:57 (16)
	16:34	17:32		18:28	9	18:01 (12)	20:27	11	20:00 (13)	21:23	22	20:52 (14)	22:09	29	21:26 (16)
10	08:55	08:10		07:07		17:50 (12)	06:50		19:48 (13)	05:44		20:29 (15)	05:05		20:57 (16)
	16:36	17:34		18:30	13	18:03 (12)	20:29	14	20:02 (13)	21:25	24	20:53 (14)	22:09	29	21:26 (16)
11	08:54	08:08		07:05		17:48 (12)	06:48		19:46 (13)	05:42		20:30 (15)	05:04		20:57 (16)
	16:37	17:36		18:32	17	18:05 (12)	20:31	17	20:03 (13)	21:27	24	20:54 (14)	22:10	30	21:27 (16)
12	08:53	08:06		07:02		17:47 (12)	06:45		19:45 (13)	05:40		20:29 (15)	05:04		20:58 (16)
	16:39	17:38		18:34	20	18:07 (12)	20:33	20	20:05 (13)	21:29	25	20:54 (14)	22:11	29	21:27 (16)
13	08:52	08:04		07:00		17:46 (12)	06:43		19:44 (13)	05:39		20:29 (15)	05:04		20:58 (16)
	16:40	17:40		18:36	23	18:09 (12)	20:35	22	20:06 (13)	21:31	25	20:54 (14)	22:12	30	21:28 (16)
14	08:51	08:02		06:57		17:45 (12)	06:41		19:43 (13)	05:37		20:29 (15)	05:03		20:57 (16)
	16:42	17:42		18:38	25	18:10 (12)	20:37	23	20:06 (13)	21:32	26	20:55 (14)	22:12	30	21:27 (16)
15	08:51	08:00		06:55		17:45 (12)	06:38		19:43 (13)	05:35		20:29 (15)	05:03		20:58 (16)
	16:44	17:45		18:40	25	18:10 (12)	20:39	23	20:06 (13)	21:34	25	20:54 (14)	22:13	30	21:28 (16)
16	08:50	07:58		06:52		17:44 (12)	06:36		19:43 (13)	05:33		20:30 (15)	05:03		20:58 (16)
	16:45	17:47		18:42	26	18:10 (12)	20:41	22	20:05 (13)	21:36	25	20:55 (14)	22:14	30	21:28 (16)
17	08:48	07:56	17:17 (11)	06:50		17:44 (12)	06:34		19:43 (13)	05:32		20:30 (15)	05:03		20:58 (16)
	16:47	17:49	2 17:19 (11)	18:44	26	18:10 (12)	20:43	22	20:05 (13)	21:37	24	20:54 (14)	22:14	30	21:28 (16)
18	08:47	07:54	17:15 (11)	06:47		17:44 (12)	06:31		19:44 (13)	05:30		20:31 (15)	05:03		20:58 (16)
	16:49	17:51	7 17:22 (11)	18:46	25	18:09 (12)	20:44	21	20:05 (13)	21:39	23	20:54 (14)	22:15	31	21:29 (16)
19	08:46	07:51	17:13 (11)	06:45		17:44 (12)	06:29		19:44 (13)	05:28		20:31 (15)	05:03		20:58 (16)
	16:51	17:53	10 17:23 (11)	18:48	24	18:08 (12)	20:46	20	20:04 (13)	21:41	22	20:53 (14)	22:15	31	21:29 (16)
20	08:45	07:49	17:12 (11)	06:42		17:44 (12)	06:27		19:44 (13)	05:27		20:32 (15)	05:03		20:59 (16)
	16:53	17:55	14 17:26 (11)	18:50	23	18:07 (12)	20:48	18	20:02 (13)	21:42	21	20:53 (14)	22:15	30	21:29 (16)
21	08:44	07:47	17:11 (11)	06:40		17:46 (12)	06:24		19:46 (13)	05:25		20:33 (15)	05:03		21:00 (16)
	16:54	17:57	17 17:28 (11)	18:51	20	18:06 (12)	20:50	14	20:00 (13)	21:44	19	20:52 (14)	22:15	30	21:30 (16)
22	08:42	07:45	17:10 (11)	06:37		17:47 (12)	06:22		19:48 (13)	05:24		20:33 (15)	05:03		21:00 (16)
	16:56	17:59	20 17:30 (11)	18:53	17	18:04 (12)	20:52	10	19:58 (13)	21:46	17	20:50 (14)	22:16	30	21:30 (16)
23	08:41	07:43	17:10 (11)	06:35		17:49 (12)	06:20			05:22		20:35 (15)	05:03		21:00 (16)
	16:58	18:01	22 17:32 (11)	18:55	13	18:02 (12)	20:54			21:47	19	21:12 (16)	22:16	30	21:30 (16)
24	08:40	07:40	17:10 (11)	06:32		17:52 (12)	06:17			05:21		20:36 (15)	05:04		20:59 (16)
	17:00	18:03	23 17:33 (11)	18:57	5	17:57 (12)	20:56			21:49	21	21:15 (16)	22:16	31	21:30 (16)
25	08:38	07:38	17:09 (11)	06:30			06:15			05:20		20:39 (15)	05:04		21:00 (16)
	17:02	18:05	23 17:32 (11)	18:59			20:58			21:50	18	21:16 (16)	22:16	30	21:30 (16)
26	08:37	07:36	17:09 (11)	06:27			06:13			05:18		21:02 (16)	05:04		21:00 (16)
	17:04	18:07	23 17:32 (11)	19:01			20:59			21:52	16	21:18 (16)	22:16	30	21:30 (16)
27	08:35	07:33	17:09 (11)	06:25			06:11			05:17		21:01 (16)	05:05		21:01 (16)
	17:06	18:09	22 17:31 (11)	19:03			21:01			21:53	18	21:19 (16)	22:16	30	21:31 (16)
28	08:34	07:31	17:10 (11)	06:22			06:09			05:16		20:59 (16)	05:05		21:01 (16)
	17:08	18:11	21 17:31 (11)	19:05			21:03			21:55	21	21:20 (16)	22:16	30	21:31 (16)
29	08:32			07:20			06:06			05:15		20:58 (16)	05:06		21:01 (16)
	17:10			20:07			21:05			21:56	22	21:20 (16)	22:15	30	21:31 (16)
30	08:31			07:17			06:04			05:14		20:59 (16)	05:07		21:01 (16)
	17:12			20:09			21:07			21:57	23	21:22 (16)	22:15	30	21:31 (16)
31	08:29			07:15						05:13		20:58 (16)			
	17:14			20:10						21:59	25	21:23 (16)			
Potential sun hours	248	272		367			421			496			513		
Total, worst case			204		360			264			573			878	
Sun reduction			0.22		0.22			0.34			0.36			0.26	
Oper. time red.			1.00		1.00			1.00			1.00			1.00	
Wind dir. red.			0.58		0.57			0.59			0.62			0.63	
Total reduction			0.13		0.13			0.20			0.23			0.16	
Total, real			26		46			53			129			142	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AC - H29

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November	December		
1	05:07		21:01 (16)	05:48		20:40 (15)	06:44		19:45 (13)	07:38		18:26 (12)	07:37	08:33		
	22:15	30	21:31 (16)	21:39	25	21:05 (14)	20:31	17	20:02 (13)	19:16	22	18:48 (12)	17:04	16:19		
2	05:08		21:02 (16)	05:50		20:40 (15)	06:45		19:46 (13)	07:40		18:26 (12)	07:39	08:35		
	22:14	29	21:31 (16)	21:37	25	21:05 (14)	20:28	14	20:00 (13)	19:14	18	18:44 (12)	17:02	16:18		
3	05:09		21:03 (16)	05:52		20:40 (15)	06:47		19:47 (13)	07:42		18:27 (12)	07:41	08:36		
	22:14	29	21:32 (16)	21:35	23	21:03 (14)	20:26	11	19:58 (13)	19:11	15	18:42 (12)	17:00	16:18		
4	05:10		21:02 (16)	05:53		20:41 (15)	06:49		19:48 (13)	07:44		18:28 (12)	07:43	08:38		
	22:14	29	21:31 (16)	21:33	21	21:02 (14)	20:24	7	19:55 (13)	19:09	11	18:39 (12)	16:58	16:17		
5	05:11		21:03 (16)	05:55		20:42 (15)	06:51			07:45		18:31 (12)	07:45	08:39		
	22:13	28	21:31 (16)	21:31	18	21:00 (14)	20:21			19:06	6	18:37 (12)	16:56	16:16		
6	05:12		21:03 (16)	05:57		20:42 (15)	06:53			07:47			07:47	08:41		
	22:12	28	21:31 (16)	21:29	16	20:58 (14)	20:19			19:04			16:55	16:16		
7	05:13		21:04 (16)	05:59		20:43 (15)	06:54			07:49			07:49	08:42		
	22:12	27	21:31 (16)	21:27	13	20:56 (15)	20:16			19:01			16:53	16:15		
8	05:14		21:04 (16)	06:00		20:44 (15)	06:56			07:51			07:51	08:43		
	22:11	27	21:31 (16)	21:25	10	20:54 (15)	20:14			18:59			16:51	16:15		
9	05:15		21:04 (16)	06:02		20:47 (15)	06:58			07:53			07:53	08:45		
	22:10	27	21:31 (16)	21:23	5	20:52 (15)	20:11			18:56			16:49	16:14		
10	05:16		21:05 (16)	06:04			07:00			07:55		17:51 (11)	07:55	08:46		
	22:09	26	21:31 (16)	21:21			20:09			18:54	7	17:58 (11)	16:47	16:14		
11	05:17		21:05 (16)	06:06			07:02			07:57		17:47 (11)	07:57	08:47		
	22:08	26	21:31 (16)	21:19			20:06			18:52	14	18:01 (11)	16:45	16:14		
12	05:18		21:06 (16)	06:08			07:03			07:59		17:45 (11)	07:59	08:48		
	22:07	24	21:30 (16)	21:17			20:04			18:49	17	18:02 (11)	16:44	16:14		
13	05:19		21:06 (16)	06:09			07:05			08:00		17:44 (11)	08:01	08:49		14:58 (10)
	22:06	24	21:30 (16)	21:15			20:01			18:47	19	18:03 (11)	16:42	16:13	4	15:02 (10)
14	05:21		21:08 (16)	06:11			07:07			08:02		17:43 (11)	08:03	08:50		14:57 (10)
	22:05	22	21:30 (16)	21:13			19:59			18:44	21	18:04 (11)	16:40	16:13	6	15:03 (10)
15	05:22		21:08 (16)	06:13			07:09			08:04		17:42 (11)	08:05	08:51		14:57 (10)
	22:04	21	21:29 (16)	21:10			19:56			18:42	22	18:04 (11)	16:39	16:13	8	15:05 (10)
16	05:23		21:09 (16)	06:15			07:11			08:06		17:41 (11)	08:07	08:52		14:57 (10)
	22:03	19	21:28 (16)	21:08			19:54			18:40	23	18:04 (11)	16:37	16:14	9	15:06 (10)
17	05:25		21:10 (16)	06:16			07:13			08:08		17:41 (11)	08:09	08:53		14:57 (10)
	22:02	17	21:27 (16)	21:06			19:51			18:37	23	18:04 (11)	16:36	16:14	10	15:07 (10)
18	05:26		21:12 (16)	06:18			07:14			08:10		17:41 (11)	08:11	08:54		14:57 (10)
	22:01	15	21:27 (16)	21:04			19:49			18:35	23	18:04 (11)	16:34	16:14	10	15:07 (10)
19	05:27		20:47 (15)	06:20			07:16			08:12		17:41 (11)	08:12	08:55		14:57 (10)
	21:59	19	21:25 (16)	21:01			19:46			18:33	22	18:03 (11)	16:33	16:14	11	15:08 (10)
20	05:29		20:45 (15)	06:22		19:57 (13)	07:18		18:36 (12)	08:14		17:41 (11)	08:14	08:55		14:58 (10)
	21:58	19	21:23 (16)	20:59	4	20:01 (13)	19:44	12	18:48 (12)	18:30	19	18:00 (11)	16:31	16:14	11	15:09 (10)
21	05:30		20:45 (15)	06:24		19:52 (13)	07:20		18:33 (12)	08:16		17:42 (11)	08:16	08:56		14:58 (10)
	21:57	15	21:00 (14)	20:57	11	20:03 (13)	19:41	16	18:49 (12)	18:28	16	17:58 (11)	16:30	16:15	11	15:09 (10)
22	05:32		20:43 (15)	06:26		19:50 (13)	07:22		18:31 (12)	08:18		17:42 (11)	08:18	08:56		14:59 (10)
	21:55	18	21:01 (14)	20:55	15	20:05 (13)	19:39	19	18:50 (12)	18:26	13	17:55 (11)	16:29	16:15	11	15:10 (10)
23	05:33		20:43 (15)	06:27		19:49 (13)	07:23		18:29 (12)	08:20		17:43 (11)	08:20	08:57		14:59 (10)
	21:54	20	21:03 (14)	20:52	18	20:07 (13)	19:36	22	18:51 (12)	18:24	10	17:53 (11)	16:27	16:16	11	15:10 (10)
24	05:35		20:42 (15)	06:29		19:48 (13)	07:25		18:28 (12)	08:22		17:45 (11)	08:22	08:57		14:59 (10)
	21:52	21	21:03 (14)	20:50	20	20:08 (13)	19:34	24	18:52 (12)	18:21	6	17:51 (11)	16:26	16:16	11	15:10 (10)
25	05:37		20:41 (15)	06:31		19:46 (13)	07:27		18:28 (12)	07:24			08:23	08:58		15:00 (10)
	21:51	23	21:04 (14)	20:48	21	20:07 (13)	19:31	24	18:52 (12)	17:19			16:25	16:17	11	15:11 (10)
26	05:38		20:41 (15)	06:33		19:46 (13)	07:29		18:26 (12)	07:26			08:25	08:58		15:01 (10)
	21:49	24	21:05 (14)	20:45	22	20:08 (13)	19:29	25	18:51 (12)	17:17			16:24	16:18	10	15:11 (10)
27	05:40		20:40 (15)	06:35		19:45 (13)	07:31		18:26 (12)	07:28			08:27	08:58		15:02 (10)
	21:47	24	21:04 (14)	20:43	23	20:08 (13)	19:26	25	18:51 (12)	17:15			16:23	16:19	9	15:11 (10)
28	05:41		20:40 (15)	06:36		19:44 (13)	07:32		18:25 (12)	07:29			08:29	08:58		15:03 (10)
	21:46	25	21:05 (14)	20:41	23	20:07 (13)	19:24	26	18:51 (12)	17:13			16:22	16:19	8	15:11 (10)
29	05:43		20:39 (15)	06:38		19:44 (13)	07:34		18:26 (12)	07:31			08:30	08:58		15:04 (10)
	21:44	26	21:05 (14)	20:38	23	20:07 (13)	19:21	25	18:51 (12)	17:11			16:21	16:20	6	15:10 (10)
30	05:45		20:40 (15)	06:40		19:45 (13)	07:36		18:26 (12)	07:33			08:32	08:59		15:06 (10)
	21:42	25	21:05 (14)	20:36	22	20:07 (13)	19:19	24	18:50 (12)	17:08			16:20	16:21	4	15:10 (10)
31	05:46		20:40 (15)	06:42		19:45 (13)				07:35				08:58		
	21:40	26	21:06 (14)	20:33	20	20:05 (13)				17:06				16:22		
Potential sun hours	515			461			383			328			257	231		
Total, worst case		733			378			291			327				161	
Sun reduction		0.27			0.27			0.29			0.23				0.12	
Oper. time red.		1.00			1.00			1.00			1.00				1.00	
Wind dir. red.		0.63			0.60			0.57			0.58				0.64	
Total reduction		0.17			0.16			0.17			0.14				0.08	
Total, real		122			62			49			44				12	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AD - H30

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May			June	
1	08:59			08:27		09:00 (11)	07:29			07:13			06:02		06:35 (15)	05:12	
	16:24			17:16	15	09:15 (11)	18:13			20:12			21:09	28	07:03 (15)	22:00	
2	08:58			08:26		09:02 (11)	07:26			07:10			06:00		06:35 (15)	05:11	
	16:25			17:18	12	09:14 (11)	18:15			20:14			21:11	27	07:02 (15)	22:01	
3	08:58			08:24		09:05 (11)	07:24			07:08			05:58		06:36 (15)	05:10	
	16:26			17:20	6	09:11 (11)	18:17			20:16			21:13	25	07:01 (15)	22:02	
4	08:58			08:22			07:22			07:05			05:56		06:37 (15)	05:09	
	16:27			17:22			18:19			20:18			21:15	23	07:00 (15)	22:04	
5	08:58			08:20			07:19			07:03			05:54		06:39 (15)	05:08	
	16:29			17:24			18:21			20:20			21:16	21	07:00 (15)	22:05	
6	08:57			08:18			07:17			07:00			05:52		06:40 (15)	05:07	
	16:30			17:26			18:23			20:22			21:18	18	06:58 (15)	22:06	
7	08:57			08:16			07:14			06:58			05:50		06:42 (15)	05:07	
	16:31			17:28			18:25			20:24			21:20	14	06:56 (15)	22:07	
8	08:56			08:14			07:12			06:55			05:48		06:44 (15)	05:06	
	16:33			17:30			18:27			20:26			21:22	9	06:53 (15)	22:08	
9	08:55			08:13			07:10			06:53			05:46			05:05	
	16:34			17:32			18:29			20:28			21:24			22:09	
10	08:55			08:11			07:07			06:50		07:15 (16)	05:44			05:05	
	16:36			17:34			18:31			20:29	2	07:17 (16)	21:25			22:10	
11	08:54			08:09			07:05			06:48		07:12 (16)	05:42			05:04	
	16:37			17:36			18:32			20:31	5	07:17 (16)	21:27			22:10	
12	08:53			08:06		08:33 (12)	07:02			06:46		07:10 (16)	05:40			05:04	
	16:39			17:38	1	08:34 (12)	18:34			20:33	7	07:17 (16)	21:29			22:11	
13	08:52			08:04		08:31 (12)	07:00		07:24 (13)	06:43		07:08 (16)	05:39			05:04	
	16:41			17:41	4	08:35 (12)	18:36	1	07:25 (13)	20:35	9	07:17 (16)	21:31			22:12	
14	08:52			08:02		08:29 (12)	06:57		07:22 (13)	06:41		07:05 (16)	05:37			05:03	
	16:42			17:43	7	08:36 (12)	18:38	5	07:27 (13)	20:37	11	07:16 (16)	21:32			22:13	
15	08:51			08:00		08:27 (12)	06:55		07:19 (13)	06:38		07:03 (16)	05:35			05:03	
	16:44			17:45	9	08:36 (12)	18:40	8	07:27 (13)	20:39	13	07:16 (16)	21:34			22:13	
16	08:50			07:58		08:24 (12)	06:52		07:17 (13)	06:36		07:01 (16)	05:33			05:03	
	16:46			17:47	11	08:35 (12)	18:42	12	07:29 (13)	20:41	14	07:15 (16)	21:36			22:14	
17	08:49			07:56		08:22 (12)	06:50		07:14 (13)	06:34		06:58 (16)	05:32			05:03	
	16:47			17:49	13	08:35 (12)	18:44	14	07:28 (13)	20:43	16	07:14 (16)	21:38			22:14	
18	08:47			07:54		08:20 (12)	06:47		07:11 (13)	06:31		06:56 (16)	05:30			05:03	
	16:49			17:51	15	08:35 (12)	18:46	17	07:28 (13)	20:45	16	07:12 (16)	21:39			22:15	
19	08:46			07:52		08:17 (12)	06:45		07:09 (13)	06:29		06:54 (15)	05:29			05:03	
	16:51			17:53	17	08:34 (12)	18:48	20	07:29 (13)	20:46	17	07:11 (16)	21:41			22:15	
20	08:45			07:49		08:15 (12)	06:42		07:06 (13)	06:27		06:52 (15)	05:27			05:03	
	16:53			17:55	19	08:34 (12)	18:50	22	07:28 (13)	20:48	16	07:08 (16)	21:43			22:15	
21	08:44		09:14 (11)	07:47		08:13 (12)	06:40		07:04 (13)	06:24		06:49 (15)	05:25			05:03	
	16:55	2	09:16 (11)	17:57	20	08:33 (12)	18:52	24	07:28 (13)	20:50	16	07:05 (15)	21:44			22:16	
22	08:43		09:13 (11)	07:45		08:13 (12)	06:37		07:01 (13)	06:22		06:47 (15)	05:24			05:03	
	16:56	4	09:17 (11)	17:59	18	08:31 (12)	18:54	26	07:27 (13)	20:52	19	07:06 (15)	21:46			22:16	
23	08:41		09:11 (11)	07:43		08:15 (12)	06:35		06:59 (13)	06:20		06:45 (15)	05:23			05:04	
	16:58	6	09:17 (11)	18:01	14	08:29 (12)	18:55	28	07:27 (13)	20:54	21	07:06 (15)	21:47			22:16	
24	08:40		09:10 (11)	07:40		08:18 (12)	06:32		06:56 (13)	06:18		06:43 (15)	05:21			05:04	
	17:00	8	09:18 (11)	18:03	8	08:26 (12)	18:57	30	07:26 (13)	20:56	24	07:07 (15)	21:49			22:16	
25	08:38		09:08 (11)	07:38			06:30		06:56 (13)	06:15		06:41 (15)	05:20			05:04	
	17:02	10	09:18 (11)	18:05			18:59	29	07:25 (13)	20:58	26	07:07 (15)	21:50			22:16	
26	08:37		09:07 (11)	07:36			06:27		06:56 (13)	06:13		06:39 (15)	05:18			05:05	
	17:04	11	09:18 (11)	18:07			19:01	27	07:23 (13)	21:00	28	07:07 (15)	21:52			22:16	
27	08:35		09:05 (11)	07:33			06:25		06:58 (13)	06:11		06:36 (15)	05:17			05:05	
	17:06	13	09:18 (11)	18:09			19:03	24	07:22 (13)	21:01	29	07:05 (15)	21:53			22:16	
28	08:34		09:03 (11)	07:31			06:22		06:58 (13)	06:09		06:34 (15)	05:16			05:06	
	17:08	15	09:18 (11)	18:11			19:05	22	07:20 (13)	21:03	31	07:05 (15)	21:55			22:16	
29	08:32		09:01 (11)				07:20		08:00 (13)	06:06		06:34 (15)	05:15			05:06	
	17:10	16	09:17 (11)				20:07	18	08:18 (13)	21:05	31	07:05 (15)	21:56			22:16	
30	08:31		08:59 (11)				07:18		08:02 (13)	06:04		06:34 (15)	05:14			05:07	
	17:12	17	09:16 (11)				20:09	12	08:14 (13)	21:07	30	07:04 (15)	21:57			22:15	
31	08:29		08:59 (11)				07:15						05:13				
	17:14	18	09:17 (11)				20:11						21:59				
Potential sun hours	248			272			367			421			496			513	
Total, worst case		120			189			339			381			165			
Sun reduction		0.17			0.22			0.22			0.34			0.36			
Oper. time red.		1.00			1.00			1.00			1.00			1.00			
Wind dir. red.		0.64			0.63			0.59			0.57			0.58			
Total reduction		0.11			0.14			0.13			0.20			0.21			
Total, real		13			26			45			75			34			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AD - H30

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October		November		December
1	05:08	05:48		06:44		07:11 (16)		07:38		08:34
	22:15	21:39		20:31	5	07:16 (16)		17:04		16:19
2	05:08	05:50		06:46		07:13 (16)		07:40		08:35
	22:15	21:37		20:29	2	07:15 (16)		17:02		16:18
3	05:09	05:52		06:47		07:42		07:41		08:37
	22:14	21:35		20:26		19:11		17:00		16:18
4	05:10	05:53		06:49		07:44		07:43		08:38
	22:14	21:33		20:24		19:09		16:58		16:17
5	05:11	05:55	06:53 (15)	06:51		07:46		07:45		08:40
	22:13	21:31	11 07:04 (15)	20:21		19:06		16:57		16:16
6	05:12	05:57	06:50 (15)	06:53		07:47		07:47		08:41
	22:12	21:29	16 07:06 (15)	20:19		19:04		16:55		16:16
7	05:13	05:59	06:49 (15)	06:55		07:49		07:49		08:42
	22:12	21:27	19 07:08 (15)	20:16		19:01		16:53		16:15
8	05:14	06:00	06:48 (15)	06:56		07:51		07:51	08:34 (11)	08:44
	22:11	21:25	22 07:10 (15)	20:14		18:59		16:51	7 08:41 (11)	16:15
9	05:15	06:02	06:46 (15)	06:58		07:53		07:53	08:32 (11)	08:45
	22:10	21:23	24 07:10 (15)	20:11		18:57		16:49	13 08:45 (11)	16:14
10	05:16	06:04	06:45 (15)	07:00		07:55		07:55	08:31 (11)	08:46
	22:09	21:21	26 07:11 (15)	20:09		18:54		16:47	15 08:46 (11)	16:14
11	05:17	06:06	06:45 (15)	07:02		07:57		07:57	08:29 (11)	08:47
	22:08	21:19	27 07:12 (15)	20:06		18:52		16:46	18 08:47 (11)	16:14
12	05:18	06:08	06:43 (15)	07:04		07:59		07:59	08:31 (11)	08:48
	22:08	21:17	29 07:12 (15)	20:04		18:49		16:44	17 08:48 (11)	16:14
13	05:20	06:09	06:43 (15)	07:05		07:54 (13)		08:01	08:33 (11)	08:49
	22:07	21:15	30 07:13 (15)	20:01	11	08:05 (13)		18:47	16:42	16 08:49 (11)	16:14
14	05:21	06:11	06:43 (15)	07:07		07:51 (13)		08:02	08:03	08:35 (11)	08:50
	22:05	21:13	30 07:13 (15)	19:59	17	08:08 (13)		18:45	16:40	15 08:50 (11)	16:14
15	05:22	06:13	06:42 (15)	07:09		07:49 (13)		08:04	08:05	08:38 (11)	08:51
	22:04	21:10	31 07:13 (15)	19:56	21	08:10 (13)		18:42	16:39	13 08:51 (11)	16:14
16	05:23	06:15	06:44 (15)	07:11		07:47 (13)		08:06	08:07	08:40 (11)	08:52
	22:03	21:08	29 07:13 (15)	19:54	25	08:12 (13)		18:40	16:37	11 08:51 (11)	16:14
17	05:25	06:17	06:46 (15)	07:13		07:45 (13)		08:08	08:09	08:42 (11)	08:53
	22:02	21:06	27 07:13 (15)	19:51	27	08:12 (13)		18:37	16:36	10 08:52 (11)	16:14
18	05:26	06:18	06:47 (15)	07:14		07:44 (13)		08:10	08:48 (12)	08:11	08:44 (11)	08:54
	22:01	21:04	25 07:12 (15)	19:49	29	08:13 (13)		18:35	11 08:59 (12)	16:34	8 08:52 (11)	16:14
19	05:28	06:20	06:49 (15)	07:16		07:43 (13)		08:12	08:46 (12)	08:13	08:46 (11)	08:55
	21:59	21:02	23 07:12 (15)	19:46	30	08:13 (13)		18:33	15 09:01 (12)	16:33	6 08:52 (11)	16:14
20	05:29	06:22	06:51 (15)	07:18		07:45 (13)		08:14	08:44 (12)	08:14	08:48 (11)	08:55
	21:58	20:59	21 07:12 (15)	19:44	29	08:14 (13)		18:31	19 09:03 (12)	16:31	4 08:52 (11)	16:15
21	05:31	06:24	06:53 (15)	07:20		07:46 (13)		08:16	08:44 (12)	08:16	08:50 (11)	08:56
	21:57	20:57	19 07:12 (15)	19:41	27	08:13 (13)		18:28	20 09:04 (12)	16:30	2 08:52 (11)	16:15
22	05:32	06:26	06:54 (15)	07:22		07:48 (13)		08:18	08:46 (12)	08:18	08:57
	21:55	20:55	16 07:10 (15)	19:39	25	08:13 (13)		18:26	18 09:04 (12)	16:29	16:15
23	05:34	06:27	06:56 (15)	07:23		07:50 (13)		08:20	08:48 (12)	08:20	08:57
	21:54	20:52	17 07:13 (16)	19:36	23	08:13 (13)		18:24	17 09:05 (12)	16:27	16:16
24	05:35	06:29	06:58 (15)	07:25		07:52 (13)		08:22	08:50 (12)	08:22	08:57
	21:52	20:50	17 07:15 (16)	19:34	20	08:12 (13)		18:22	15 09:05 (12)	16:26	16:17
25	05:37	06:31	06:59 (16)	07:27		07:54 (13)		07:24	07:52 (12)	08:24	08:58
	21:51	20:48	16 07:15 (16)	19:31	18	08:12 (13)		17:19	13 08:05 (12)	16:25	16:17
26	05:38	06:33	07:01 (16)	07:29		07:55 (13)		07:26	07:55 (12)	08:25	08:58
	21:49	20:45	15 07:16 (16)	19:29	15	08:10 (13)		17:17	11 08:06 (12)	16:24	16:18
27	05:40	06:35	07:03 (16)	07:31		07:57 (13)		07:28	07:57 (12)	08:27	08:58
	21:47	20:43	14 07:17 (16)	19:26	13	08:10 (13)		17:15	8 08:05 (12)	16:23	16:19
28	05:42	06:37	07:05 (16)	07:33		07:59 (13)		07:30	07:59 (12)	08:29	08:59
	21:46	20:41	13 07:18 (16)	19:24	10	08:09 (13)		17:13	6 08:05 (12)	16:22	16:20
29	05:43	06:38	07:06 (16)	07:34		08:01 (13)		07:32	08:01 (12)	08:30	08:59
	21:44	20:38	11 07:17 (16)	19:21	6	08:07 (13)		17:11	3 08:04 (12)	16:21	16:20
30	05:45	06:40	07:08 (16)	07:36		08:03 (13)		07:34	08:03 (12)	08:32	08:59
	21:42	20:36	9 07:17 (16)	19:19	3	08:06 (13)		17:09	1 08:04 (12)	16:20	16:21
31	05:47	06:42	07:10 (16)					07:36			08:59
	21:41	20:33	7 07:17 (16)					17:07			16:22
Potential sun hours	515	461		383		327		257		230
Total, worst case			544		356		157		155	
Sun reduction			0.27		0.29		0.23		0.20	
Oper. time red.			1.00		1.00		1.00		1.00	
Wind dir. red.			0.57		0.59		0.62		0.64	
Total reduction			0.16		0.17		0.15		0.13	
Total, real			85		61		23		20	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AE - H31

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April		May	June
1	08:58			08:27		16:09 (18)	07:29			07:12		06:02	05:11
	16:24			17:16	26	16:35 (18)	18:13			20:12		21:09	22:00
2	08:58			08:25		16:08 (18)	07:26			07:10		06:00	05:10
	16:25			17:18	28	16:36 (18)	18:15			20:14		21:11	22:01
3	08:58			08:24		16:07 (18)	07:24			07:07		05:58	05:10
	16:26			17:20	30	16:37 (18)	18:17			20:16		21:13	22:02
4	08:58			08:22		16:06 (18)	07:21			07:05		05:56	05:09
	16:27			17:22	32	16:38 (18)	18:19			20:18		21:14	22:03
5	08:57			08:20		16:06 (18)	07:19		17:37 (17)	07:02		05:54	05:08
	16:28			17:24	33	16:39 (18)	18:21	7	17:44 (17)	20:20		21:16	22:05
6	08:57			08:18		16:06 (18)	07:17		17:32 (17)	07:00		05:52	05:07
	16:30			17:26	33	16:39 (18)	18:23	16	17:48 (17)	20:22		21:18	22:06
7	08:56			08:16		16:05 (18)	07:14		17:29 (17)	06:58		05:50	05:06
	16:31			17:28	35	16:40 (18)	18:24	22	17:51 (17)	20:24		21:20	22:07
8	08:56			08:14		16:05 (18)	07:12		17:27 (17)	06:55		05:48	05:06
	16:33			17:30	36	16:41 (18)	18:26	26	17:53 (17)	20:25		21:22	22:08
9	08:55			08:12		16:04 (18)	07:09		17:25 (17)	06:53		05:46	05:05
	16:34			17:32	36	16:40 (18)	18:28	29	17:54 (17)	20:27		21:23	22:09
10	08:55			08:10		16:04 (18)	07:07		17:23 (17)	06:50		05:44	05:05
	16:36			17:34	36	16:40 (18)	18:30	32	17:55 (17)	20:29		21:25	22:09
11	08:54			08:08		16:04 (18)	07:05		17:23 (17)	06:48		05:42	05:04
	16:37			17:36	37	16:41 (18)	18:32	33	17:56 (17)	20:31		21:27	22:10
12	08:53			08:06		16:04 (18)	07:02		17:21 (17)	06:45		05:40	05:04
	16:39			17:38	37	16:41 (18)	18:34	35	17:56 (17)	20:33		21:29	22:11
13	08:52			08:04		16:05 (18)	07:00		17:21 (17)	06:43		05:38	05:04
	16:40			17:40	36	16:41 (18)	18:36	36	17:57 (17)	20:35		21:31	22:12
14	08:51			08:02		16:05 (18)	06:57		17:19 (17)	06:41		05:37	05:03
	16:42			17:42	36	16:41 (18)	18:38	38	17:57 (17)	20:37		21:32	22:12
15	08:51			08:00		16:05 (18)	06:55		17:19 (17)	06:38		05:35	05:03
	16:44			17:44	34	16:39 (18)	18:40	39	17:58 (17)	20:39		21:34	22:13
16	08:50			07:58		16:06 (18)	06:52		17:18 (17)	06:36		05:33	05:03
	16:45			17:46	33	16:39 (18)	18:42	39	17:57 (17)	20:41		21:36	22:14
17	08:48			07:56		16:07 (18)	06:50		17:18 (17)	06:33		05:32	05:03
	16:47			17:49	32	16:39 (18)	18:44	39	17:57 (17)	20:42		21:37	22:14
18	08:47			07:54		16:08 (18)	06:47		17:18 (17)	06:31		05:30	05:03
	16:49			17:51	30	16:38 (18)	18:46	39	17:57 (17)	20:44		21:39	22:15
19	08:46			07:51		16:08 (18)	06:45		17:18 (17)	06:29		05:28	05:03
	16:51			17:53	28	16:36 (18)	18:48	39	17:57 (17)	20:46		21:41	22:15
20	08:45			07:49		16:10 (18)	06:42		17:17 (17)	06:26		05:27	05:03
	16:53			17:55	25	16:35 (18)	18:50	39	17:56 (17)	20:48		21:42	22:15
21	08:44			07:47		16:12 (18)	06:40		17:18 (17)	06:24		05:25	05:03
	16:54			17:57	22	16:34 (18)	18:51	37	17:55 (17)	20:50		21:44	22:16
22	08:42			07:45		16:14 (18)	06:37		17:18 (17)	06:22		05:24	05:03
	16:56			17:59	17	16:31 (18)	18:53	36	17:54 (17)	20:52		21:46	22:16
23	08:41			07:42		16:17 (18)	06:35		17:19 (17)	06:20		05:22	05:03
	16:58			18:01	11	16:28 (18)	18:55	34	17:53 (17)	20:54		21:47	22:16
24	08:40			07:40			06:32		17:19 (17)	06:17		05:21	05:04
	17:00			18:03			18:57	33	17:52 (17)	20:56		21:49	22:16
25	08:38			07:38			06:30		17:21 (17)	06:15		05:20	05:04
	17:02			18:05			18:59	30	17:51 (17)	20:58		21:50	22:16
26	08:37			07:36			06:27		17:21 (17)	06:13		05:18	05:04
	17:04			18:07			19:01	28	17:49 (17)	20:59		21:52	22:16
27	08:35			07:33			06:25		17:24 (17)	06:11		05:17	05:05
	17:06			18:09			19:03	23	17:47 (17)	21:01		21:53	22:16
28	08:34		16:15 (18)	07:31			06:22		17:25 (17)	06:08		05:16	05:05
	17:08	11	16:26 (18)	18:11			19:05	19	17:44 (17)	21:03		21:55	22:16
29	08:32		16:12 (18)				07:20		18:29 (17)	06:06		05:15	05:06
	17:10	17	16:29 (18)				20:07	12	18:41 (17)	21:05		21:56	22:15
30	08:31		16:11 (18)				07:17			06:04		05:14	05:07
	17:12	20	16:31 (18)				20:08			21:07		21:57	22:15
31	08:29		16:09 (18)				07:15					05:12	
	17:14	24	16:33 (18)				20:10					21:59	
Potential sun hours	248			272			367			421		496	513
Total, worst case		72			703			760					
Sun reduction		0.17			0.22			0.22					
Oper. time red.		1.00			1.00			1.00					
Wind dir. red.		0.59			0.59			0.57					
Total reduction		0.10			0.13			0.13					
Total, real		7			93			97					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AE - H31

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September			October			November			December
1	05:07	05:48	06:44			07:38		18:01 (17)	07:37		15:34 (18)	08:33
	22:15	21:39	20:31			19:16	36	18:37 (17)	17:04	36	16:10 (18)	16:19
2	05:08	05:50	06:45			07:40		18:00 (17)	07:39		15:34 (18)	08:35
	22:14	21:37	20:28			19:14	35	18:35 (17)	17:02	36	16:10 (18)	16:18
3	05:09	05:52	06:47			07:42		18:01 (17)	07:41		15:34 (18)	08:36
	22:14	21:35	20:26			19:11	32	18:33 (17)	17:00	35	16:09 (18)	16:17
4	05:10	05:53	06:49			07:44		18:02 (17)	07:43		15:35 (18)	08:38
	22:14	21:33	20:24			19:09	30	18:32 (17)	16:58	35	16:10 (18)	16:17
5	05:11	05:55	06:51			07:45		18:03 (17)	07:45		15:35 (18)	08:39
	22:13	21:31	20:21			19:06	27	18:30 (17)	16:56	34	16:09 (18)	16:16
6	05:11	05:57	06:53			07:47		18:04 (17)	07:47		15:36 (18)	08:41
	22:12	21:29	20:19			19:04	24	18:28 (17)	16:54	32	16:08 (18)	16:16
7	05:12	05:59	06:54			07:49		18:06 (17)	07:49		15:36 (18)	08:42
	22:12	21:27	20:16			19:01	20	18:26 (17)	16:53	32	16:08 (18)	16:15
8	05:14	06:00	06:56			07:51		18:10 (17)	07:51		15:37 (18)	08:43
	22:11	21:25	20:14			18:59	12	18:22 (17)	16:51	30	16:07 (18)	16:15
9	05:15	06:02	06:58			07:53			07:53		15:38 (18)	08:45
	22:10	21:23	20:11			18:56			16:49	28	16:06 (18)	16:14
10	05:16	06:04	07:00			07:55			07:55		15:40 (18)	08:46
	22:09	21:21	20:09			18:54			16:47	26	16:06 (18)	16:14
11	05:17	06:06	07:02			07:57			07:57		15:41 (18)	08:47
	22:08	21:19	20:06			18:51			16:45	23	16:04 (18)	16:14
12	05:18	06:07	07:03			07:58			07:59		15:42 (18)	08:48
	22:07	21:17	20:04			18:49			16:44	21	16:03 (18)	16:14
13	05:19	06:09	07:05			08:00			08:01		15:44 (18)	08:49
	22:06	21:15	20:01			18:47			16:42	17	16:01 (18)	16:13
14	05:21	06:11	07:07		18:20 (17)	08:02			08:03		15:47 (18)	08:50
	22:05	21:13	19:59	10	18:30 (17)	18:44			16:40	11	15:58 (18)	16:13
15	05:22	06:13	07:09		18:16 (17)	08:04			08:05			08:51
	22:04	21:10	19:56	18	18:34 (17)	18:42			16:39			16:13
16	05:23	06:15	07:11		18:12 (17)	08:06			08:07			08:52
	22:03	21:08	19:54	23	18:35 (17)	18:40			16:37			16:13
17	05:25	06:16	07:12		18:10 (17)	08:08			08:09			08:53
	22:02	21:06	19:51	27	18:37 (17)	18:37			16:36			16:14
18	05:26	06:18	07:14		18:08 (17)	08:10			08:11			08:54
	22:01	21:04	19:49	30	18:38 (17)	18:35			16:34			16:14
19	05:27	06:20	07:16		18:07 (17)	08:12		16:47 (18)	08:12			08:55
	21:59	21:01	19:46	32	18:39 (17)	18:33	14	17:01 (18)	16:33			16:14
20	05:29	06:22	07:18		18:05 (17)	08:14		16:44 (18)	08:14			08:55
	21:58	20:59	19:44	34	18:39 (17)	18:30	19	17:03 (18)	16:31			16:14
21	05:30	06:24	07:20		18:04 (17)	08:16		16:42 (18)	08:16			08:56
	21:57	20:57	19:41	35	18:39 (17)	18:28	23	17:05 (18)	16:30			16:15
22	05:32	06:25	07:21		18:03 (17)	08:18		16:40 (18)	08:18			08:56
	21:55	20:55	19:39	37	18:40 (17)	18:26	26	17:06 (18)	16:29			16:15
23	05:33	06:27	07:23		18:02 (17)	08:20		16:38 (18)	08:20			08:57
	21:54	20:52	19:36	38	18:40 (17)	18:24	29	17:07 (18)	16:27			16:16
24	05:35	06:29	07:25		18:02 (17)	08:22		16:37 (18)	08:22			08:57
	21:52	20:50	19:33	38	18:40 (17)	18:21	31	17:08 (18)	16:26			16:16
25	05:37	06:31	07:27		18:01 (17)	07:24		15:36 (18)	08:23			08:58
	21:51	20:48	19:31	39	18:40 (17)	17:19	32	16:08 (18)	16:25			08:17
26	05:38	06:33	07:29		18:00 (17)	07:26		15:35 (18)	08:25			08:58
	21:49	20:45	19:28	39	18:39 (17)	17:17	34	16:09 (18)	16:24			16:18
27	05:40	06:35	07:31		18:00 (17)	07:27		15:34 (18)	08:27			08:58
	21:47	20:43	19:26	39	18:39 (17)	17:15	35	16:09 (18)	16:23			16:19
28	05:41	06:36	07:32		18:00 (17)	07:29		15:35 (18)	08:29			08:58
	21:46	20:40	19:23	39	18:39 (17)	17:13	35	16:10 (18)	16:22			16:19
29	05:43	06:38	07:34		18:00 (17)	07:31		15:34 (18)	08:30			08:58
	21:44	20:38	19:21	38	18:38 (17)	17:11	36	16:10 (18)	16:21			16:20
30	05:45	06:40	07:36		18:00 (17)	07:33		15:34 (18)	08:32			08:59
	21:42	20:36	19:18	37	18:37 (17)	17:08	36	16:10 (18)	16:20			16:21
31	05:46	06:42				07:35		15:34 (18)				08:58
	21:40	20:33				17:06	36	16:10 (18)				16:22
Potential sun hours	515	461	383			327			257			230
Total, worst case				553			602			396		
Sun reduction				0.29			0.23			0.20		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.57			0.59			0.59		
Total reduction				0.17			0.14			0.12		
Total, real				93			83			47		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AF - H32

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February	March	April			May			June		
1	08:58		15:33 (1)	08:27	07:29	07:12			06:02		20:16 (9)	05:12		20:21 (9)
	16:24	12	15:45 (1)	17:16	18:13	20:12			21:09	16	20:32 (9)	22:00	9	20:30 (9)
2	08:58		15:35 (1)	08:25	07:26	07:10			06:00		20:14 (9)	05:11		20:24 (9)
	16:25	10	15:45 (1)	17:18	18:15	20:14			21:11	20	20:34 (9)	22:01	2	20:26 (9)
3	08:58		15:35 (1)	08:24	07:24	07:07			05:58		20:12 (9)	05:10		
	16:26	9	15:44 (1)	17:20	18:17	20:16			21:12	23	20:35 (9)	22:02		
4	08:58		15:37 (1)	08:22	07:21	07:05			05:56		20:11 (9)	05:09		
	16:27	8	15:45 (1)	17:22	18:19	20:18			21:14	25	20:36 (9)	22:03		
5	08:57		15:38 (1)	08:20	07:19	07:03			05:54		20:11 (9)	05:08		
	16:29	5	15:43 (1)	17:24	18:21	20:20			21:16	27	20:38 (9)	22:04		
6	08:57			08:18	07:17	07:00			05:52		20:10 (9)	05:07		
	16:30			17:26	18:23	20:22			21:18	28	20:38 (9)	22:06		
7	08:56			08:16	07:14	06:58			05:50		20:09 (9)	05:07		21:23 (10)
	16:31			17:28	18:25	20:24			21:20	30	20:39 (9)	22:07	6	21:29 (10)
8	08:56			08:14	07:12	06:55			05:48		20:08 (9)	05:06		21:21 (10)
	16:33			17:30	18:27	20:26			21:22	31	20:39 (9)	22:08	9	21:30 (10)
9	08:55			08:12	07:09	06:53			05:46		20:08 (9)	05:05		21:21 (10)
	16:34			17:32	18:28	20:27			21:23	31	20:39 (9)	22:08	11	21:32 (10)
10	08:55			08:10	07:07	06:50			05:44		20:08 (9)	05:05		21:20 (10)
	16:36			17:34	18:30	20:29			21:25	32	20:40 (9)	22:09	12	21:32 (10)
11	08:54			08:08	07:05	06:48			05:42		20:07 (9)	05:04		21:19 (10)
	16:37			17:36	18:32	20:31			21:27	33	20:40 (9)	22:10	15	21:34 (10)
12	08:53			08:06	07:02	06:45			05:40		20:07 (9)	05:04		21:19 (10)
	16:39			17:38	18:34	20:33			21:29	32	20:39 (9)	22:11	16	21:35 (10)
13	08:52			08:04	07:00	06:43			05:39		20:08 (9)	05:04		21:19 (10)
	16:40			17:40	18:36	20:35			21:31	32	20:40 (9)	22:12	17	21:36 (10)
14	08:51			08:02	06:57	06:41			05:37		20:07 (9)	05:03		21:18 (10)
	16:42			17:43	18:38	20:37			21:32	33	20:40 (9)	22:12	17	21:35 (10)
15	08:50			08:00	06:55	06:38			05:35		20:07 (9)	05:03		21:19 (10)
	16:44			17:45	18:40	20:39			21:34	32	20:39 (9)	22:13	17	21:36 (10)
16	08:49			07:58	06:52	06:36			05:33		20:08 (9)	05:03		21:19 (10)
	16:46			17:47	18:42	20:41			21:36	32	20:40 (9)	22:13	17	21:36 (10)
17	08:48			07:56	06:50	06:34			05:32		20:07 (9)	05:03		21:19 (10)
	16:47			17:49	18:44	20:42			21:37	32	20:39 (9)	22:14	18	21:37 (10)
18	08:47			07:54	06:47	06:31			05:30		20:08 (9)	05:03		21:19 (10)
	16:49			17:51	18:46	20:44			21:39	31	20:39 (9)	22:14	18	21:37 (10)
19	08:46			07:51	06:45	06:29			05:28		20:08 (9)	05:03		21:19 (10)
	16:51			17:53	18:48	20:46			21:41	30	20:38 (9)	22:15	19	21:38 (10)
20	08:45			07:49	06:42	06:27			05:27		20:09 (9)	05:03		21:19 (10)
	16:53			17:55	18:50	20:48			21:42	29	20:38 (9)	22:15	19	21:38 (10)
21	08:44			07:47	06:40	06:24			05:25		20:10 (9)	05:03		21:20 (10)
	16:55			17:57	18:51	20:50			21:44	28	20:38 (9)	22:15	19	21:39 (10)
22	08:42			07:45	06:37	06:22			05:24		20:09 (9)	05:03		21:20 (10)
	16:56			17:59	18:53	20:52			21:46	28	20:37 (9)	22:16	19	21:39 (10)
23	08:41			07:42	06:35	06:20			05:23		20:10 (9)	05:03		21:20 (10)
	16:58			18:01	18:55	20:54			21:47	27	20:37 (9)	22:16	19	21:39 (10)
24	08:40			07:40	06:32	06:17			05:21		20:11 (9)	05:04		21:20 (10)
	17:00			18:03	18:57	20:56			21:49	26	20:37 (9)	22:16	18	21:38 (10)
25	08:38			07:38	06:30	06:15			05:20		20:12 (9)	05:04		21:21 (10)
	17:02			18:05	18:59	20:58			21:50	24	20:36 (9)	22:16	18	21:39 (10)
26	08:37			07:36	06:27	06:13			05:18		20:13 (9)	05:05		21:21 (10)
	17:04			18:07	19:01	20:59			21:52	23	20:36 (9)	22:16	18	21:39 (10)
27	08:35			07:33	06:25	06:11			05:17		20:14 (9)	05:05		21:22 (10)
	17:06			18:09	19:03	21:01			21:53	21	20:35 (9)	22:16	17	21:39 (10)
28	08:34			07:31	06:22	06:09			05:16		20:15 (9)	05:06		21:21 (10)
	17:08			18:11	19:05	21:03			21:54	19	20:34 (9)	22:16	18	21:39 (10)
29	08:32				07:20	06:06			05:15		20:16 (9)	05:06		21:22 (10)
	17:10				20:07	21:05			21:56	18	20:34 (9)	22:15	17	21:39 (10)
30	08:30				07:17	06:04		20:18 (9)	05:14		20:18 (9)	05:07		21:23 (10)
	17:12				20:09	21:07	12	20:30 (9)	21:57	15	20:33 (9)	22:15	16	21:39 (10)
31	08:29				07:15				05:13		20:19 (9)			
	17:14				20:10				21:59	12	20:31 (9)			
Potential sun hours	248			272	367	421			496			513		
Total, worst case		44					12			820			401	
Sun reduction		0.17					0.34			0.36			0.26	
Oper. time red.		1.00					1.00			1.00			1.00	
Wind dir. red.		0.63					0.62			0.62			0.64	
Total reduction		0.11					0.21			0.22			0.16	
Total, real		5					3			183			66	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AF - H32

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November	December		
1	05:07		21:23 (10)	05:48		20:17 (9)	06:44	07:38	07:37	08:33		
	22:15	15	21:38 (10)	21:39	33	20:50 (9)	20:31	19:16	17:04	16:19		
2	05:08		21:24 (10)	05:50		20:18 (9)	06:45	07:40	07:39	08:35		
	22:14	14	21:38 (10)	21:37	32	20:50 (9)	20:28	19:14	17:02	16:18		
3	05:09		21:26 (10)	05:52		20:17 (9)	06:47	07:42	07:41	08:36		
	22:14	12	21:38 (10)	21:35	32	20:49 (9)	20:26	19:11	17:00	16:18		
4	05:10		21:26 (10)	05:53		20:18 (9)	06:49	07:44	07:43	08:38		
	22:13	10	21:36 (10)	21:33	31	20:49 (9)	20:24	19:09	16:58	16:17		
5	05:11		21:27 (10)	05:55		20:19 (9)	06:51	07:45	07:45	08:39		
	22:13	8	21:35 (10)	21:31	30	20:49 (9)	20:21	19:06	16:56	16:16		
6	05:12		21:30 (10)	05:57		20:19 (9)	06:53	07:47	07:47	08:41		
	22:12	3	21:33 (10)	21:29	29	20:48 (9)	20:19	19:04	16:55	16:16		
7	05:13			05:59		20:19 (9)	06:55	07:49	07:49	08:42		15:25 (1)
	22:12			21:27	28	20:47 (9)	20:16	19:01	16:53	16:15	5	15:30 (1)
8	05:14			06:00		20:21 (9)	06:56	07:51	07:51	08:43		15:25 (1)
	22:11			21:25	26	20:47 (9)	20:14	18:59	16:51	16:15	8	15:33 (1)
9	05:15			06:02		20:21 (9)	06:58	07:53	07:53	08:45		15:24 (1)
	22:10			21:23	24	20:45 (9)	20:11	18:56	16:49	16:14	10	15:34 (1)
10	05:16			06:04		20:22 (9)	07:00	07:55	07:55	08:46		15:24 (1)
	22:09			21:21	22	20:44 (9)	20:09	18:54	16:47	16:14	10	15:34 (1)
11	05:17		20:29 (9)	06:06		20:24 (9)	07:02	07:57	07:57	08:47		15:23 (1)
	22:08	7	20:36 (9)	21:19	19	20:43 (9)	20:06	18:52	16:45	16:14	12	15:35 (1)
12	05:18		20:27 (9)	06:08		20:25 (9)	07:04	07:59	07:59	08:48		15:24 (1)
	22:07	11	20:38 (9)	21:17	15	20:40 (9)	20:04	18:49	16:44	16:14	12	15:36 (1)
13	05:19		20:27 (9)	06:09		20:28 (9)	07:05	08:00	08:01	08:49		15:24 (1)
	22:06	13	20:40 (9)	21:15	9	20:37 (9)	20:01	18:47	16:42	16:14	12	15:36 (1)
14	05:21		20:26 (9)	06:11			07:07	08:02	08:03	08:50		15:24 (1)
	22:05	16	20:42 (9)	21:12			19:59	18:44	16:40	16:14	11	15:35 (1)
15	05:22		20:24 (9)	06:13			07:09	08:04	08:05	08:51		15:25 (1)
	22:04	19	20:43 (9)	21:10			19:56	18:42	16:39	16:14	10	15:35 (1)
16	05:23		20:23 (9)	06:15			07:11	08:06	08:07	08:52		15:25 (1)
	22:03	20	20:43 (9)	21:08			19:54	18:40	16:37	16:14	10	15:35 (1)
17	05:25		20:22 (9)	06:17			07:13	08:08	08:09	08:53		15:24 (1)
	22:02	22	20:44 (9)	21:06			19:51	18:37	16:36	16:14	11	15:35 (1)
18	05:26		20:22 (9)	06:18			07:14	08:10	08:11	08:54		15:25 (1)
	22:00	23	20:45 (9)	21:04			19:49	18:35	16:34	16:14	10	15:35 (1)
19	05:28		20:21 (9)	06:20			07:16	08:12	08:12	08:54		15:26 (1)
	21:59	25	20:46 (9)	21:01			19:46	18:33	16:33	16:14	10	15:36 (1)
20	05:29		20:20 (9)	06:22			07:18	08:14	08:14	08:55		15:26 (1)
	21:58	26	20:46 (9)	20:59			19:44	18:30	16:31	16:15	10	15:36 (1)
21	05:31		20:20 (9)	06:24			07:20	08:16	08:16	08:56		15:26 (1)
	21:56	27	20:47 (9)	20:57			19:41	18:28	16:30	16:15	10	15:36 (1)
22	05:32		20:20 (9)	06:26			07:22	08:18	08:18	08:56		15:27 (1)
	21:55	28	20:48 (9)	20:55			19:39	18:26	16:29	16:15	10	15:37 (1)
23	05:34		20:20 (9)	06:27			07:23	08:20	08:20	08:57		15:27 (1)
	21:54	29	20:49 (9)	20:52			19:36	18:24	16:27	16:16	10	15:37 (1)
24	05:35		20:19 (9)	06:29			07:25	08:22	08:22	08:57		15:28 (1)
	21:52	30	20:49 (9)	20:50			19:34	18:21	16:26	16:17	9	15:37 (1)
25	05:37		20:18 (9)	06:31			07:27	07:24	08:23	08:58		15:29 (1)
	21:50	31	20:49 (9)	20:48			19:31	17:19	16:25	16:17	10	15:39 (1)
26	05:38		20:18 (9)	06:33			07:29	07:26	08:25	08:58		15:29 (1)
	21:49	32	20:50 (9)	20:45			19:29	17:17	16:24	16:18	10	15:39 (1)
27	05:40		20:18 (9)	06:35			07:31	07:27	08:27	08:58		15:30 (1)
	21:47	31	20:49 (9)	20:43			19:26	17:15	16:23	16:19	10	15:40 (1)
28	05:42		20:18 (9)	06:36			07:32	07:29	08:28	08:58		15:30 (1)
	21:46	32	20:50 (9)	20:40			19:24	17:13	16:22	16:20	11	15:41 (1)
29	05:43		20:18 (9)	06:38			07:34	07:31	08:30	08:58		15:31 (1)
	21:44	33	20:51 (9)	20:38			19:21	17:11	16:21	16:20	11	15:42 (1)
30	05:45		20:18 (9)	06:40			07:36	07:33	08:32	08:58		15:32 (1)
	21:42	32	20:50 (9)	20:36			19:19	17:09	16:20	16:21	11	15:43 (1)
31	05:47		20:18 (9)	06:42				07:35		08:58		15:33 (1)
	21:40	32	20:50 (9)	20:33				17:06		16:22	11	15:44 (1)
Potential sun hours	515			461			382	328	257	231		
Total, worst case		581			330						254	
Sun reduction		0.27			0.27						0.12	
Oper. time red.		1.00			1.00						1.00	
Wind dir. red.		0.62			0.62						0.63	
Total reduction		0.16			0.17						0.08	
Total, real		96			56						19	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AG - H33

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June
1	08:59	08:27	07:29		07:13		06:02		06:49 (8) 05:12
	16:24	17:16	18:13		20:13		21:09	35	07:24 (8) 22:00
2	08:58	08:26	07:26		07:10		06:00		06:49 (8) 05:11
	16:25	17:18	18:15		20:14		21:11	35	07:24 (8) 22:01
3	08:58	08:24	07:24		07:08		05:58		06:50 (8) 05:10
	16:26	17:20	18:17		20:16		21:13	34	07:24 (8) 22:02
4	08:58	08:22	07:22	07:59 (7)	07:05		05:56		06:50 (8) 05:09
	16:28	17:22	18:19	13 08:12 (7)	20:18		21:15	33	07:23 (8) 22:04
5	08:58	08:20	07:19	07:56 (7)	07:03		05:54		06:51 (8) 05:08
	16:29	17:24	18:21	20 08:16 (7)	20:20		21:16	32	07:23 (8) 22:05
6	08:57	08:18	07:17	07:54 (7)	07:00		05:52		06:51 (8) 05:08
	16:30	17:26	18:23	24 08:18 (7)	20:22		21:18	31	07:22 (8) 22:06
7	08:57	08:16	07:14	07:52 (7)	06:58		05:50		06:52 (8) 05:07
	16:32	17:28	18:25	27 08:19 (7)	20:24		21:20	28	07:20 (8) 22:07
8	08:56	08:14	07:12	07:51 (7)	06:55		05:48		06:52 (8) 05:06
	16:33	17:30	18:27	30 08:21 (7)	20:26		21:22	27	07:19 (8) 22:08
9	08:55	08:13	07:10	07:49 (7)	06:53		05:46		06:53 (8) 05:06
	16:34	17:32	18:29	32 08:21 (7)	20:28		21:24	25	07:18 (8) 22:09
10	08:55	08:11	07:07	07:48 (7)	06:51		05:44		06:55 (8) 05:05
	16:36	17:35	18:31	34 08:22 (7)	20:29		21:25	22	07:17 (8) 22:10
11	08:54	08:09	07:05	07:47 (7)	06:48		05:42		06:56 (8) 05:05
	16:37	17:37	18:33	35 08:22 (7)	20:31		21:27	19	07:15 (8) 22:10
12	08:53	08:07	07:02	07:46 (7)	06:46		05:41		06:58 (8) 05:04
	16:39	17:39	18:34	37 08:23 (7)	20:33		21:29	14	07:12 (8) 22:11
13	08:52	08:04	07:00	07:45 (7)	06:43		05:39		07:02 (8) 05:04
	16:41	17:41	18:36	38 08:23 (7)	20:35		21:31	8	07:10 (8) 22:12
14	08:52	08:02	06:57	07:45 (7)	06:41		05:37		05:04
	16:42	17:43	18:38	38 08:23 (7)	20:37		21:33		22:13
15	08:51	08:00	06:55	07:44 (7)	06:39		07:06 (8) 05:35		05:03
	16:44	17:45	18:40	39 08:23 (7)	20:39	9	07:15 (8) 21:34		22:13
16	08:50	07:58	06:52	07:44 (7)	06:36		07:02 (8) 05:34		05:03
	16:46	17:47	18:42	39 08:23 (7)	20:41	17	07:19 (8) 21:36		22:14
17	08:49	07:56	06:50	07:44 (7)	06:34		06:59 (8) 05:32		05:03
	16:47	17:49	18:44	38 08:22 (7)	20:43	21	07:20 (8) 21:38		22:14
18	08:48	07:54	06:47	07:44 (7)	06:31		06:57 (8) 05:30		05:03
	16:49	17:51	18:46	38 08:22 (7)	20:45	25	07:22 (8) 21:39		22:15
19	08:46	07:52	06:45	07:44 (7)	06:29		06:55 (8) 05:29		05:03
	16:51	17:53	18:48	36 08:20 (7)	20:46	28	07:23 (8) 21:41		22:15
20	08:45	07:49	06:43	07:45 (7)	06:27		06:54 (8) 05:27		05:03
	16:53	17:55	18:50	35 08:20 (7)	20:48	30	07:24 (8) 21:43		22:15
21	08:44	07:47	06:40	07:44 (7)	06:24		06:52 (8) 05:26		05:03
	16:55	17:57	18:52	34 08:18 (7)	20:50	32	07:24 (8) 21:44		22:16
22	08:43	07:45	06:38	07:46 (7)	06:22		06:52 (8) 05:24		05:03
	16:57	17:59	18:54	32 08:18 (7)	20:52	33	07:25 (8) 21:46		22:16
23	08:41	07:43	06:35	07:46 (7)	06:20		06:51 (8) 05:23		05:04
	16:58	18:01	18:55	30 08:16 (7)	20:54	34	07:25 (8) 21:47		22:16
24	08:40	07:40	06:33	07:46 (7)	06:18		06:51 (8) 05:21		05:04
	17:00	18:03	18:57	27 08:13 (7)	20:56	35	07:26 (8) 21:49		22:16
25	08:38	07:38	06:30	07:48 (7)	06:15		06:50 (8) 05:20		05:04
	17:02	18:05	18:59	24 08:12 (7)	20:58	36	07:26 (8) 21:50		22:16
26	08:37	07:36	06:28	07:50 (7)	06:13		06:50 (8) 05:19		05:05
	17:04	18:07	19:01	18 08:08 (7)	21:00	36	07:26 (8) 21:52		22:16
27	08:35	07:33	06:25	07:53 (7)	06:11		06:50 (8) 05:17		05:05
	17:06	18:09	19:03	12 08:05 (7)	21:02	36	07:26 (8) 21:53		22:16
28	08:34	07:31	06:23		06:09		06:49 (8) 05:16		05:06
	17:08	18:11	19:05		21:03	37	07:26 (8) 21:55		22:16
29	08:32		07:20		06:07		06:48 (8) 05:15		05:06
	17:10		20:07		21:05	37	07:25 (8) 21:56		22:16
30	08:31		07:18		06:04		06:48 (8) 05:14		05:07
	17:12		20:09		21:07	37	07:25 (8) 21:57		22:15
31	08:29		07:15				05:13		
	17:14		20:11				21:59		
Potential sun hours	248	272	367		421		496		513
Total, worst case				730		483		343	
Sun reduction				0.22		0.34		0.36	
Oper. time red.				1.00		1.00		1.00	
Wind dir. red.				0.61		0.57		0.57	
Total reduction				0.14		0.20		0.21	
Total, real				99		95		71	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AG - H33

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:08		05:48		07:08 (8)	06:44		07:38	08:25 (7)	07:38	08:34
	22:15		21:39	16	07:24 (8)	20:31		19:16	37	09:02 (7)	17:05	16:19
2	05:08		05:50		07:06 (8)	06:46		07:40		08:25 (7)	07:40	08:35
	22:15		21:37	20	07:26 (8)	20:29		19:14	36	09:01 (7)	17:03	16:19
3	05:09		05:52		07:05 (8)	06:47		07:42		08:26 (7)	07:42	08:37
	22:14		21:35	23	07:28 (8)	20:26		19:11	35	09:01 (7)	17:01	16:18
4	05:10		05:54		07:03 (8)	06:49		07:44		08:25 (7)	07:44	08:38
	22:14		21:33	25	07:28 (8)	20:24		19:09	34	08:59 (7)	16:59	16:17
5	05:11		05:55		07:02 (8)	06:51		07:46		08:26 (7)	07:45	08:40
	22:13		21:31	28	07:30 (8)	20:21		19:06	31	08:57 (7)	16:57	16:16
6	05:12		05:57		07:01 (8)	06:53		07:47		08:27 (7)	07:47	08:41
	22:12		21:29	29	07:30 (8)	20:19		19:04	29	08:56 (7)	16:55	16:16
7	05:13		05:59		07:00 (8)	06:55		07:49		08:28 (7)	07:49	08:42
	22:12		21:27	31	07:31 (8)	20:16		19:01	26	08:54 (7)	16:53	16:15
8	05:14		06:01		07:00 (8)	06:57		07:51		08:30 (7)	07:51	08:44
	22:11		21:25	32	07:32 (8)	20:14		18:59	22	08:52 (7)	16:51	16:15
9	05:15		06:02		06:59 (8)	06:58		07:53		08:33 (7)	07:53	08:45
	22:10		21:23	33	07:32 (8)	20:11		18:57	16	08:49 (7)	16:49	16:15
10	05:16		06:04		06:58 (8)	07:00		07:55		08:37 (7)	07:55	08:46
	22:09		21:21	35	07:33 (8)	20:09		18:54	8	08:45 (7)	16:47	16:14
11	05:17		06:06		06:58 (8)	07:02		07:57			07:57	08:47
	22:08		21:19	35	07:33 (8)	20:06		18:52			16:46	16:14
12	05:18		06:08		06:57 (8)	07:04		07:59			07:59	08:48
	22:08		21:17	36	07:33 (8)	20:04		18:49			16:44	16:14
13	05:20		06:10		06:57 (8)	07:06		08:01			08:01	08:49
	22:07		21:15	36	07:33 (8)	20:01		18:47			16:42	16:14
14	05:21		06:11		06:57 (8)	07:07		08:03			08:03	08:50
	22:05		21:13	37	07:34 (8)	19:59		18:45			16:41	16:14
15	05:22		06:13		06:56 (8)	07:09		08:04			08:05	08:51
	22:04		21:11	37	07:33 (8)	19:56		18:42			16:39	16:14
16	05:24		06:15		06:56 (8)	07:11	08:44 (7)	08:06			08:07	08:52
	22:03		21:08	37	07:33 (8)	19:54	9	08:53 (7)	18:40		16:37	16:14
17	05:25		06:17		06:56 (8)	07:13		08:39 (7)	08:08		08:09	08:53
	22:02		21:06	37	07:33 (8)	19:51	17	08:56 (7)	18:38		16:36	16:14
18	05:26		06:19		06:57 (8)	07:15		08:36 (7)	08:10		08:11	08:54
	22:01		21:04	36	07:33 (8)	19:49	23	08:59 (7)	18:35		16:34	16:14
19	05:28		06:20		06:56 (8)	07:16		08:34 (7)	08:12		08:13	08:55
	21:59		21:02	35	07:31 (8)	19:46	26	09:00 (7)	18:33		16:33	16:14
20	05:29		06:22		06:57 (8)	07:18		08:33 (7)	08:14		08:15	08:55
	21:58		20:59	34	07:31 (8)	19:44	29	09:02 (7)	18:31		16:32	16:15
21	05:31		06:24		06:57 (8)	07:20		08:31 (7)	08:16		08:16	08:56
	21:57		20:57	33	07:30 (8)	19:41	32	09:03 (7)	18:28		16:30	16:15
22	05:32		06:26		06:57 (8)	07:22		08:29 (7)	08:18		08:18	08:57
	21:55		20:55	32	07:29 (8)	19:39	34	09:03 (7)	18:26		16:29	16:16
23	05:34		06:28		06:58 (8)	07:24		08:28 (7)	08:20		08:20	08:57
	21:54		20:52	30	07:28 (8)	19:36	35	09:03 (7)	18:24		16:28	16:16
24	05:35		06:29		06:59 (8)	07:25		08:28 (7)	08:22		08:22	08:57
	21:52		20:50	28	07:27 (8)	19:34	36	09:04 (7)	18:22		16:26	16:17
25	05:37		06:31		07:00 (8)	07:27		08:27 (7)	07:24		08:24	08:58
	21:51		20:48	24	07:24 (8)	19:31	37	09:04 (7)	17:19		16:25	16:17
26	05:38		06:33		07:02 (8)	07:29		08:27 (7)	07:26		08:25	08:58
	21:49		20:45	21	07:23 (8)	19:29	37	09:04 (7)	17:17		16:24	16:18
27	05:40		06:35		07:04 (8)	07:31		08:25 (7)	07:28		08:27	08:58
	21:47		20:43	16	07:20 (8)	19:26	38	09:03 (7)	17:15		16:23	16:19
28	05:42		06:37		07:08 (8)	07:33		08:25 (7)	07:30		08:29	08:59
	21:46		20:41	8	07:16 (8)	19:24	38	09:03 (7)	17:13		16:22	16:20
29	05:43		06:38			07:35		08:25 (7)	07:32		08:30	08:59
	21:44		20:38			19:21	38	09:03 (7)	17:11		16:21	16:21
30	05:45		06:40			07:36		08:25 (7)	07:34		08:32	08:59
	21:42		20:36			19:19	38	09:03 (7)	17:09		16:20	16:22
31	05:47	07:11 (8)	06:42						07:36			08:59
	21:41	11 07:22 (8)	20:33						17:07			16:23
Potential sun hours	515		461		382		328		257	231
Total, worst case	11		824		467		274			
Sun reduction	0.27		0.27		0.29		0.23			
Oper. time red.	1.00		1.00		1.00		1.00			
Wind dir. red.	0.57		0.57		0.61		0.61			
Total reduction	0.15		0.16		0.18		0.14			
Total, real	2		129		83		39			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AH - H34

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April		May		June
1	08:58	08:27		07:29		17:00 (2)	07:13	19:02 (3)	06:02	20:19 (4)	05:12
	16:24	17:16		18:13	38	17:38 (2)	20:12	35	19:37 (3)	21:09	19	20:38 (4)	22:00
2	08:58	08:25		07:26		16:59 (2)	07:10	19:02 (3)	06:00	20:18 (4)	05:11
	16:25	17:18		18:15	38	17:37 (2)	20:14	35	19:37 (3)	21:11	22	20:40 (4)	22:01
3	08:58	08:24		07:24		16:59 (2)	07:08	19:03 (3)	05:58	20:17 (4)	05:10
	16:26	17:20		18:17	38	17:37 (2)	20:16	34	19:37 (3)	21:12	24	20:41 (4)	22:02
4	08:58	08:22		07:22		16:59 (2)	07:05	19:02 (3)	05:56	20:17 (4)	05:09
	16:28	17:22		18:19	37	17:36 (2)	20:18	33	19:35 (3)	21:14	27	20:44 (4)	22:03
5	08:57	08:20		07:19		16:59 (2)	07:03	19:03 (3)	05:54	20:16 (4)	05:08
	16:29	17:24		18:21	37	17:36 (2)	20:20	32	19:35 (3)	21:16	30	20:46 (4)	22:04
6	08:57	08:18		07:17		16:59 (2)	07:00	19:03 (3)	05:52	20:16 (4)	05:08
	16:30	17:26		18:23	36	17:35 (2)	20:22	30	19:33 (3)	21:18	31	20:47 (4)	22:05
7	08:56	08:16		07:14		17:00 (2)	06:58	19:04 (3)	05:50	20:15 (4)	05:07
	16:32	17:28		18:25	34	17:34 (2)	20:24	28	19:32 (3)	21:20	34	20:49 (4)	22:06
8	08:56	08:14		07:12		17:00 (2)	06:55	19:04 (3)	05:48	20:15 (4)	05:06
	16:33	17:30		18:27	33	17:33 (2)	20:26	26	19:30 (3)	21:22	34	20:49 (4)	22:07
9	08:55	08:12		07:09		17:02 (2)	06:53	19:06 (3)	05:46	20:14 (4)	05:06
	16:34	17:32		18:29	30	17:32 (2)	20:27	23	19:29 (3)	21:23	35	20:49 (4)	22:08
10	08:55	08:10		07:07		17:03 (2)	06:50	19:08 (3)	05:44	20:15 (4)	05:05
	16:36	17:34		18:30	27	17:30 (2)	20:29	19	19:27 (3)	21:25	35	20:50 (4)	22:09
11	08:54	08:08		07:05		17:05 (2)	06:48	19:10 (3)	05:42	20:14 (4)	05:05
	16:37	17:37		18:32	23	17:28 (2)	20:31	14	19:24 (3)	21:27	35	20:49 (4)	22:10
12	08:53	08:06		07:02		17:06 (2)	06:46			05:41		20:14 (4)	05:04
	16:39	17:39		18:34	19	17:25 (2)	20:33			21:29	35	20:49 (4)	22:11
13	08:52	08:04		07:00		17:10 (2)	06:43			05:39		20:15 (4)	05:04
	16:41	17:41		18:36	12	17:22 (2)	20:35			21:30	34	20:49 (4)	22:12
14	08:51	08:02		06:57			06:41			05:37		20:14 (4)	05:04
	16:42	17:43		18:38			20:37			21:32	35	20:49 (4)	22:12
15	08:50	08:00		06:55			06:38			05:35		20:14 (4)	05:03
	16:44	17:45		18:40			20:39			21:34	34	20:48 (4)	22:13
16	08:49	07:58		06:52			06:36			05:34		20:15 (4)	05:03
	16:46	17:47		18:42			20:41			21:36	33	20:48 (4)	22:13
17	08:48	07:56	17:14 (2)	06:50			06:34			05:32		20:15 (4)	05:03
	16:47	17:49	6 17:20 (2)	18:44			20:42			21:37	33	20:48 (4)	22:14
18	08:47	07:54	17:11 (2)	06:47			06:31			05:30		20:16 (4)	05:03
	16:49	17:51	11 17:22 (2)	18:46			20:44			21:39	32	20:48 (4)	22:14
19	08:46	07:51	17:08 (2)	06:45			06:29			05:29		20:17 (4)	05:03
	16:51	17:53	16 17:24 (2)	18:48			20:46			21:41	31	20:48 (4)	22:15
20	08:45	07:49	17:06 (2)	06:42			06:27			05:27		20:17 (4)	05:03
	16:53	17:55	20 17:26 (2)	18:50			20:48			21:42	30	20:47 (4)	22:15
21	08:44	07:47	17:05 (2)	06:40		18:18 (3)	06:24			05:26		20:17 (4)	05:03
	16:55	17:57	24 17:29 (2)	18:52	7	18:25 (3)	20:50			21:44	29	20:46 (4)	22:15
22	08:42	07:45	17:03 (2)	06:37		18:14 (3)	06:22			05:24		20:18 (4)	05:03
	16:57	17:59	27 17:30 (2)	18:53	12	18:26 (3)	20:52			21:45	28	20:46 (4)	22:16
23	08:41	07:42	17:03 (2)	06:35		18:12 (3)	06:20			05:23		20:19 (4)	05:04
	16:58	18:01	30 17:33 (2)	18:55	17	18:29 (3)	20:54			21:47	26	20:45 (4)	22:16
24	08:40	07:40	17:02 (2)	06:32		18:09 (3)	06:18			05:21		20:20 (4)	05:04
	17:00	18:03	33 17:35 (2)	18:57	21	18:30 (3)	20:56			21:49	25	20:45 (4)	22:16
25	08:38	07:38	17:01 (2)	06:30		18:08 (3)	06:15			05:20		20:21 (4)	05:04
	17:02	18:05	36 17:37 (2)	18:59	24	18:32 (3)	20:58			21:50	23	20:44 (4)	22:16
26	08:37	07:36	17:00 (2)	06:27		18:06 (3)	06:13			05:19		20:22 (4)	05:05
	17:04	18:07	37 17:37 (2)	19:01	28	18:34 (3)	20:59			21:52	21	20:43 (4)	22:16
27	08:35	07:33	16:59 (2)	06:25		18:06 (3)	06:11		20:30 (4)	05:17		20:23 (4)	05:05
	17:06	18:09	38 17:37 (2)	19:03	30	18:36 (3)	21:01	2	20:32 (4)	21:53	20	20:43 (4)	22:16
28	08:34	07:31	16:59 (2)	06:22		18:04 (3)	06:09		20:25 (4)	05:16		20:24 (4)	05:06
	17:08	18:11	39 17:38 (2)	19:05	33	18:37 (3)	21:03	8	20:33 (4)	21:54	18	20:42 (4)	22:15
29	08:32			07:20		19:04 (3)	06:07		20:23 (4)	05:15		20:26 (4)	05:06
	17:10			20:07	34	19:38 (3)	21:05	12	20:35 (4)	21:56	15	20:41 (4)	22:15
30	08:30			07:17		19:03 (3)	06:04		20:21 (4)	05:14		20:27 (4)	05:07
	17:12			20:09	34	19:37 (3)	21:07	15	20:36 (4)	21:57	12	20:39 (4)	22:15
31	08:29			07:15		19:03 (3)				05:13		20:29 (4)	
	17:14			20:10	35	19:38 (3)				21:58	8	20:37 (4)	
Potential sun hours	248	272		367			421			496			513
Total, worst case			317		677			346			848		
Sun reduction			0.22		0.22			0.34			0.36		
Oper. time red.			1.00		1.00			1.00			1.00		
Wind dir. red.			0.58		0.58			0.59			0.62		
Total reduction			0.13		0.13			0.20			0.22		
Total, real			41		88			70			190		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AH - H34

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:08		05:48		20:24 (4)	06:44	19:09 (3)	07:38	17:48 (2)	07:37	08:33
	22:15		21:39	35	20:59 (4)	20:31 14	19:23 (3)	19:16 16	18:04 (2)	17:05	16:19
2	05:08		05:50		20:25 (4)	06:46	19:06 (3)	07:40	17:44 (2)	07:39	08:35
	22:14		21:37	35	21:00 (4)	20:28 19	19:25 (3)	19:14 21	18:05 (2)	17:03	16:19
3	05:09		05:52		20:25 (4)	06:47	19:04 (3)	07:42	17:41 (2)	07:41	08:36
	22:14		21:35	35	21:00 (4)	20:26 23	19:27 (3)	19:11 26	18:07 (2)	17:01	16:18
4	05:10		05:54		20:24 (4)	06:49	19:02 (3)	07:44	17:40 (2)	07:43	08:38
	22:13		21:33	35	20:59 (4)	20:24 26	19:28 (3)	19:09 28	18:08 (2)	16:59	16:17
5	05:11		05:55		20:25 (4)	06:51	19:00 (3)	07:45	17:38 (2)	07:45	08:39
	22:13		21:31	34	20:59 (4)	20:21 28	19:28 (3)	19:06 31	18:09 (2)	16:57	16:16
6	05:12		05:57		20:25 (4)	06:53	18:59 (3)	07:47	17:37 (2)	07:47	08:41
	22:12		21:29	32	20:57 (4)	20:19 30	19:29 (3)	19:04 33	18:10 (2)	16:55	16:16
7	05:13		05:59		20:25 (4)	06:55	18:58 (3)	07:49	17:36 (2)	07:49	08:42
	22:11		21:27	31	20:56 (4)	20:16 32	19:30 (3)	19:01 35	18:11 (2)	16:53	16:15
8	05:14		06:01		20:26 (4)	06:56	18:57 (3)	07:51	17:35 (2)	07:51	08:43
	22:11		21:25	28	20:54 (4)	20:14 33	19:30 (3)	18:59 36	18:11 (2)	16:51	16:15
9	05:15		06:02		20:26 (4)	06:58	18:56 (3)	07:53	17:34 (2)	07:53	08:45
	22:10		21:23	26	20:52 (4)	20:11 34	19:30 (3)	18:56 37	18:11 (2)	16:49	16:15
10	05:16		06:04		20:27 (4)	07:00	18:55 (3)	07:55	17:34 (2)	07:55	08:46
	22:09		21:21	23	20:50 (4)	20:09 35	19:30 (3)	18:54 37	18:11 (2)	16:47	16:14
11	05:17		06:06		20:28 (4)	07:02	18:55 (3)	07:57	17:33 (2)	07:57	08:47
	22:08		21:19	21	20:49 (4)	20:06 35	19:30 (3)	18:52 38	18:11 (2)	16:46	16:14
12	05:18		20:39 (4)	06:08	20:28 (4)	07:04	18:54 (3)	07:59	17:33 (2)	07:59	08:48
	22:07	5	20:44 (4)	21:17	18 20:46 (4)	20:04 35	19:29 (3)	18:49 38	18:11 (2)	16:44	16:14
13	05:20		20:37 (4)	06:09	20:30 (4)	07:05	18:54 (3)	08:00	17:33 (2)	08:01	08:49
	22:06	10	20:47 (4)	21:15	14 20:44 (4)	20:01 35	19:29 (3)	18:47 38	18:11 (2)	16:42	16:14
14	05:21		20:35 (4)	06:11	20:32 (4)	07:07	18:54 (3)	08:02	17:33 (2)	08:03	08:50
	22:05	13	20:48 (4)	21:12	11 20:43 (4)	19:59 34	19:28 (3)	18:45 38	18:11 (2)	16:41	16:14
15	05:22		20:33 (4)	06:13	20:33 (4)	07:09	18:54 (3)	08:04	17:33 (2)	08:05	08:51
	22:04	17	20:50 (4)	21:10	7 20:40 (4)	19:56 34	19:28 (3)	18:42 37	18:10 (2)	16:39	16:14
16	05:24		20:32 (4)	06:15		07:11	18:54 (3)	08:06	17:33 (2)	08:07	08:52
	22:03	19	20:51 (4)	21:08		19:54 31	19:25 (3)	18:40 36	18:09 (2)	16:37	16:14
17	05:25		20:32 (4)	06:17		07:13	18:55 (3)	08:08	17:33 (2)	08:09	08:53
	22:02	21	20:53 (4)	21:06		19:51 28	19:23 (3)	18:37 35	18:08 (2)	16:36	16:14
18	05:26		20:31 (4)	06:18		07:14	18:55 (3)	08:10	17:34 (2)	08:11	08:54
	22:00	22	20:53 (4)	21:04		19:49 25	19:20 (3)	18:35 31	18:05 (2)	16:34	16:14
19	05:28		20:30 (4)	06:20		07:16	18:56 (3)	08:12	17:34 (2)	08:12	08:54
	21:59	24	20:54 (4)	21:01		19:46 22	19:18 (3)	18:33 29	18:03 (2)	16:33	16:14
20	05:29		20:30 (4)	06:22		07:18	18:58 (3)	08:14	17:35 (2)	08:14	08:55
	21:58	25	20:55 (4)	20:59		19:44 18	19:16 (3)	18:31 26	18:01 (2)	16:32	16:15
21	05:31		20:29 (4)	06:24		07:20	18:59 (3)	08:16	17:36 (2)	08:16	08:56
	21:56	27	20:56 (4)	20:57		19:41 13	19:12 (3)	18:28 22	17:58 (2)	16:30	16:15
22	05:32		20:28 (4)	06:26		07:22	19:01 (3)	08:18	17:37 (2)	08:18	08:56
	21:55	28	20:56 (4)	20:55		19:39 9	19:10 (3)	18:26 19	17:56 (2)	16:29	16:16
23	05:34		20:28 (4)	06:28		07:23		08:20	17:39 (2)	08:20	08:57
	21:53	29	20:57 (4)	20:52		19:36		18:24 14	17:53 (2)	16:28	16:16
24	05:35		20:27 (4)	06:29		07:25		08:22	17:41 (2)	08:22	08:57
	21:52	30	20:57 (4)	20:50		19:34		18:22 10	17:51 (2)	16:26	16:17
25	05:37		20:27 (4)	06:31		07:27		07:24	16:45 (2)	08:23	08:58
	21:50	31	20:58 (4)	20:48		19:31		17:19 3	16:48 (2)	16:25	16:17
26	05:38		20:26 (4)	06:33		07:29		07:26		08:25	08:58
	21:49	32	20:58 (4)	20:45		19:29		17:17		16:24	16:18
27	05:40		20:26 (4)	06:35		07:31		07:27		08:27	08:58
	21:47	33	20:59 (4)	20:43		19:26		17:15		16:23	16:19
28	05:42		20:25 (4)	06:37		07:33		07:29		08:28	08:58
	21:46	34	20:59 (4)	20:40		19:24		17:13		16:22	16:20
29	05:43		20:25 (4)	06:38		07:34		07:31		08:30	08:58
	21:44	35	21:00 (4)	20:38		19:21		17:11		16:21	16:21
30	05:45		20:25 (4)	06:40		07:36	17:52 (2)	07:33		08:32	08:58
	21:42	34	20:59 (4)	20:36		19:19 8	18:00 (2)	17:09		16:20	16:22
31	05:47		20:25 (4)	06:42				07:35			08:58
	21:40	35	21:00 (4)	20:33				17:07			16:23
Potential sun hours	515		461		382		328		257	231	
Total, worst case		504		385		601		714			
Sun reduction		0.27		0.27		0.29		0.23			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.62		0.62		0.59		0.58			
Total reduction		0.16		0.17		0.17		0.14			
Total, real		83		65		103		97			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AI - H35

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May		June	
1	08:58			08:27		16:10 (18)	07:29			07:12			06:02		05:11	
	16:24			17:16	25	16:35 (18)	18:13			20:12			21:09		22:00	
2	08:58			08:25		16:09 (18)	07:26			07:10			06:00		05:10	
	16:25			17:18	27	16:36 (18)	18:15			20:14			21:11		22:01	
3	08:58			08:24		16:08 (18)	07:24			07:07			05:58		05:10	
	16:26			17:20	29	16:37 (18)	18:17			20:16			21:13		22:02	
4	08:58			08:22		16:08 (18)	07:21		17:35 (17)	07:05			05:56		05:09	
	16:27			17:22	30	16:38 (18)	18:19	6	17:41 (17)	20:18			21:14		22:03	
5	08:57			08:20		16:07 (18)	07:19		17:30 (17)	07:02			05:54		05:08	
	16:28			17:24	32	16:39 (18)	18:21	16	17:46 (17)	20:20			21:16		22:05	
6	08:57			08:18		16:07 (18)	07:17		17:27 (17)	07:00			05:52		05:07	
	16:30			17:26	32	16:39 (18)	18:23	21	17:48 (17)	20:22			21:18		22:06	
7	08:56			08:16		16:07 (18)	07:14		17:25 (17)	06:58			05:50		05:06	
	16:31			17:28	33	16:40 (18)	18:24	26	17:51 (17)	20:24			21:20		22:07	
8	08:56			08:14		16:06 (18)	07:12		17:23 (17)	06:55			05:48		05:06	
	16:33			17:30	35	16:41 (18)	18:26	28	17:51 (17)	20:25			21:22		22:08	
9	08:55			08:12		16:05 (18)	07:09		17:22 (17)	06:53			05:46		05:05	
	16:34			17:32	35	16:40 (18)	18:28	31	17:53 (17)	20:27			21:23		22:09	
10	08:55			08:10		16:05 (18)	07:07		17:20 (17)	06:50			05:44		05:05	
	16:36			17:34	35	16:40 (18)	18:30	33	17:53 (17)	20:29			21:25		22:09	
11	08:54			08:08		16:05 (18)	07:05		17:20 (17)	06:48			05:42		05:04	
	16:37			17:36	36	16:41 (18)	18:32	34	17:54 (17)	20:31			21:27		22:10	
12	08:53			08:06		16:06 (18)	07:02		17:18 (17)	06:45			05:40		05:04	
	16:39			17:38	35	16:41 (18)	18:34	36	17:54 (17)	20:33			21:29		22:11	
13	08:52			08:04		16:06 (18)	07:00		17:18 (17)	06:43			05:38		05:04	
	16:40			17:40	35	16:41 (18)	18:36	37	17:55 (17)	20:35			21:31		22:12	
14	08:51			08:02		16:07 (18)	06:57		17:17 (17)	06:41			05:37		05:03	
	16:42			17:42	34	16:41 (18)	18:38	37	17:54 (17)	20:37			21:32		22:12	
15	08:51			08:00		16:06 (18)	06:55		17:17 (17)	06:38			05:35		05:03	
	16:44			17:44	33	16:39 (18)	18:40	38	17:55 (17)	20:39			21:34		22:13	
16	08:50			07:58		16:07 (18)	06:52		17:16 (17)	06:36			05:33		05:03	
	16:45			17:46	32	16:39 (18)	18:42	38	17:54 (17)	20:41			21:36		22:14	
17	08:48			07:56		16:08 (18)	06:50		17:17 (17)	06:33			05:32		05:03	
	16:47			17:49	31	16:39 (18)	18:44	37	17:54 (17)	20:42			21:37		22:14	
18	08:47			07:54		16:09 (18)	06:47		17:16 (17)	06:31			05:30		05:03	
	16:49			17:51	29	16:38 (18)	18:46	37	17:53 (17)	20:44			21:39		22:15	
19	08:46			07:51		16:10 (18)	06:45		17:17 (17)	06:29			05:28		05:03	
	16:51			17:53	26	16:36 (18)	18:48	36	17:53 (17)	20:46			21:41		22:15	
20	08:45			07:49		16:12 (18)	06:42		17:17 (17)	06:26			05:27		05:03	
	16:53			17:55	23	16:35 (18)	18:50	35	17:52 (17)	20:48			21:42		22:15	
21	08:44			07:47		16:14 (18)	06:40		17:18 (17)	06:24			05:25		05:03	
	16:54			17:57	19	16:33 (18)	18:51	33	17:51 (17)	20:50			21:44		22:16	
22	08:42			07:45		16:16 (18)	06:37		17:18 (17)	06:22			05:24		05:03	
	16:56			17:59	14	16:30 (18)	18:53	31	17:49 (17)	20:52			21:46		22:16	
23	08:41			07:42			06:35		17:19 (17)	06:20			05:22		05:03	
	16:58			18:01			18:55	30	17:49 (17)	20:54			21:47		22:16	
24	08:40			07:40			06:32		17:20 (17)	06:17			05:21		05:04	
	17:00			18:03			18:57	26	17:46 (17)	20:56			21:49		22:16	
25	08:38			07:38			06:30		17:22 (17)	06:15			05:20		05:04	
	17:02			18:05			18:59	23	17:45 (17)	20:58			21:50		22:16	
26	08:37			07:36			06:27		17:23 (17)	06:13			05:18		05:04	
	17:04			18:07			19:01	19	17:42 (17)	20:59			21:52		22:16	
27	08:35			07:33			06:25		17:27 (17)	06:11			05:17		05:05	
	17:06			18:09			19:03	12	17:39 (17)	21:01			21:53		22:16	
28	08:34		16:18 (18)	07:31			06:22			06:08			05:16		05:05	
	17:08	7	16:25 (18)	18:11			19:05			21:03			21:55		22:16	
29	08:32		16:14 (18)				07:20			06:06			05:15		05:06	
	17:10	14	16:28 (18)				20:07			21:05			21:56		22:15	
30	08:31		16:12 (18)				07:17			06:04			05:14		05:07	
	17:12	19	16:31 (18)				20:08			21:07			21:57		22:15	
31	08:29		16:11 (18)				07:15						05:12			
	17:14	21	16:32 (18)				20:10						21:59			
Potential sun hours	248			272			367			421			496		513	
Total, worst case		61			660			700								
Sun reduction		0.17			0.22			0.22								
Oper. time red.		1.00			1.00			1.00								
Wind dir. red.		0.59			0.59			0.57								
Total reduction		0.10			0.13			0.13								
Total, real		6			87			90								

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AI - H35

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December	
1	05:07		05:48		06:44		07:38		17:58 (17)		07:37	
	22:15		21:39		20:31		19:16	36	18:34 (17)		17:04	35
2	05:08		05:50		06:45		07:40		17:57 (17)		07:39	
	22:14		21:37		20:28		19:14	35	18:32 (17)		17:02	35
3	05:09		05:52		06:47		07:42		17:58 (17)		07:41	
	22:14		21:35		20:26		19:11	33	18:31 (17)		17:00	34
4	05:10		05:53		06:49		07:44		17:59 (17)		07:43	
	22:14		21:33		20:24		19:09	31	18:30 (17)		16:58	34
5	05:11		05:55		06:51		07:45		17:59 (17)		07:45	
	22:13		21:31		20:21		19:06	30	18:29 (17)		16:56	32
6	05:11		05:57		06:53		07:47		18:01 (17)		07:47	
	22:12		21:29		20:19		19:04	26	18:27 (17)		16:54	31
7	05:12		05:59		06:54		07:49		18:02 (17)		07:49	
	22:12		21:27		20:16		19:01	23	18:25 (17)		16:53	30
8	05:14		06:00		06:56		07:51		18:04 (17)		07:51	
	22:11		21:25		20:14		18:59	19	18:23 (17)		16:51	29
9	05:15		06:02		06:58		07:53		18:07 (17)		07:53	
	22:10		21:23		20:11		18:56	13	18:20 (17)		16:49	27
10	05:16		06:04		07:00		07:55				07:55	
	22:09		21:21		20:09		18:54				16:47	24
11	05:17		06:06		07:02		07:57				07:57	
	22:08		21:19		20:06		18:51				16:45	21
12	05:18		06:07		07:03		07:58				07:59	
	22:07		21:17		20:04		18:49				16:44	18
13	05:19		06:09		07:05		08:00				08:01	
	22:06		21:15		20:01		18:47				16:42	14
14	05:21		06:11		07:07		08:02				08:03	
	22:05		21:13		19:59		18:44				16:40	7
15	05:22		06:13		07:09		08:04				08:05	
	22:04		21:10		19:56		18:42				16:39	
16	05:23		06:15		07:11		18:16 (17)		08:06		08:07	
	22:03		21:08		19:54	10	18:26 (17)		18:40		16:37	
17	05:25		06:16		07:12		18:12 (17)		08:08		08:09	
	22:02		21:06		19:51	18	18:30 (17)		18:37		16:36	
18	05:26		06:18		07:14		18:10 (17)		08:10		08:11	
	22:01		21:04		19:49	22	18:32 (17)		18:35		16:34	
19	05:27		06:20		07:16		18:08 (17)		08:12		16:51 (18)	
	21:59		21:01		19:46	26	18:34 (17)		18:33	7	16:58 (18)	
20	05:29		06:22		07:18		18:05 (17)		08:14		16:46 (18)	
	21:58		20:59		19:44	29	18:34 (17)		18:30	16	17:02 (18)	
21	05:30		06:24		07:20		18:04 (17)		08:16		16:44 (18)	
	21:57		20:57		19:41	31	18:35 (17)		18:28	20	17:04 (18)	
22	05:32		06:25		07:21		18:02 (17)		08:18		16:42 (18)	
	21:55		20:55		19:39	33	18:35 (17)		18:26	24	17:06 (18)	
23	05:33		06:27		07:23		18:01 (17)		08:20		16:40 (18)	
	21:54		20:52		19:36	35	18:36 (17)		18:24	27	17:07 (18)	
24	05:35		06:29		07:25		18:01 (17)		08:22		16:39 (18)	
	21:52		20:50		19:33	35	18:36 (17)		18:21	29	17:08 (18)	
25	05:37		06:31		07:27		18:00 (17)		07:24		15:37 (18)	
	21:51		20:48		19:31	37	18:37 (17)		17:19	31	16:08 (18)	
26	05:38		06:33		07:29		17:58 (17)		07:26		15:37 (18)	
	21:49		20:45		19:28	38	18:36 (17)		17:17	32	16:09 (18)	
27	05:40		06:35		07:31		17:58 (17)		07:27		15:36 (18)	
	21:47		20:43		19:26	38	18:36 (17)		17:15	33	16:09 (18)	
28	05:41		06:36		07:32		17:58 (17)		07:29		15:36 (18)	
	21:46		20:40		19:23	38	18:36 (17)		17:13	34	16:10 (18)	
29	05:43		06:38		07:34		17:58 (17)		07:31		15:36 (18)	
	21:44		20:38		19:21	37	18:35 (17)		17:11	34	16:10 (18)	
30	05:45		06:40		07:36		17:58 (17)		07:33		15:35 (18)	
	21:42		20:36		19:18	37	18:35 (17)		17:08	35	16:10 (18)	
31	05:46		06:42						07:35		15:35 (18)	
	21:40		20:33						17:06	35	16:10 (18)	
Potential sun hours	515		461		383		327		257		230	
Total, worst case						464		603		371		
Sun reduction						0.29		0.23		0.20		
Oper. time red.						1.00		1.00		1.00		
Wind dir. red.						0.57		0.59		0.59		
Total reduction						0.17		0.14		0.12		
Total, real						78		83		44		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AJ - H36

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March			April			May			June			
1	08:58	08:27	07:29			07:12		19:02 (9)	06:02		20:03 (10)	05:12			
	16:24	17:16	18:13			20:12	32	19:34 (9)	21:09	30	20:33 (10)	22:00			
2	08:58	08:25	07:26			07:10		19:02 (9)	06:00		20:02 (10)	05:11			
	16:25	17:18	18:15			20:14	33	19:35 (9)	21:11	31	20:33 (10)	22:01			
3	08:58	08:24	07:24			07:07		19:00 (9)	05:58		20:01 (10)	05:10			
	16:26	17:20	18:17			20:16	34	19:34 (9)	21:12	33	20:34 (10)	22:02			
4	08:58	08:22	07:21			07:05		19:00 (9)	05:56		20:01 (10)	05:09			
	16:27	17:22	18:19			20:18	34	19:34 (9)	21:14	33	20:34 (10)	22:03			
5	08:57	08:20	07:19			07:03		19:01 (9)	05:54		20:01 (10)	05:08			
	16:29	17:24	18:21			20:20	33	19:34 (9)	21:16	34	20:35 (10)	22:05			
6	08:57	08:18	07:17			07:00		19:00 (9)	05:52		20:01 (10)	05:07			
	16:30	17:26	18:23			20:22	33	19:33 (9)	21:18	34	20:35 (10)	22:06			
7	08:56	08:16	07:14			06:58		19:00 (9)	05:50		20:00 (10)	05:07			
	16:31	17:28	18:25			20:24	33	19:33 (9)	21:20	35	20:35 (10)	22:07			
8	08:56	08:14	07:12			06:55		19:00 (9)	05:48		20:00 (10)	05:06			
	16:33	17:30	18:26			20:26	32	19:32 (9)	21:22	35	20:35 (10)	22:08			
9	08:55	08:12	07:09			06:53		19:01 (9)	05:46		20:00 (10)	05:05			
	16:34	17:32	18:28			20:27	30	19:31 (9)	21:23	34	20:34 (10)	22:08			
10	08:55	08:10	07:07			06:50		19:02 (9)	05:44		20:01 (10)	05:05			
	16:36	17:34	18:30			20:29	29	19:31 (9)	21:25	34	20:35 (10)	22:09			
11	08:54	08:08	07:05			06:48		19:02 (9)	05:42		20:01 (10)	05:04			
	16:37	17:36	18:32			20:31	27	19:29 (9)	21:27	33	20:34 (10)	22:10			
12	08:53	08:06	07:02			06:45		19:03 (9)	05:40		20:01 (10)	05:04			
	16:39	17:38	18:34			20:33	25	19:28 (9)	21:29	33	20:34 (10)	22:11			
13	08:52	08:04	07:00			06:43		19:04 (9)	05:39		20:01 (10)	05:04			
	16:40	17:40	18:36			20:35	21	19:25 (9)	21:31	33	20:34 (10)	22:12			
14	08:51	08:02	06:57			06:41		19:06 (9)	05:37		20:01 (10)	05:03			
	16:42	17:43	18:38			20:37	17	19:23 (9)	21:32	32	20:33 (10)	22:12			
15	08:50	08:00	06:55			06:38		19:09 (9)	05:35		20:02 (10)	05:03			
	16:44	17:45	18:40			20:39	12	19:21 (9)	21:34	30	20:32 (10)	22:13			
16	08:49	07:58	06:52			06:36			05:33		20:03 (10)	05:03			21:36 (11)
	16:46	17:47	18:42			20:41			21:36	29	20:32 (10)	22:14	1		21:37 (11)
17	08:48	07:56	06:50			06:34			05:32		20:03 (10)	05:03			21:35 (11)
	16:47	17:49	18:44			20:42			21:37	28	20:31 (10)	22:14	2		21:37 (11)
18	08:47	07:54	06:47			06:31			05:30		20:04 (10)	05:03			21:35 (11)
	16:49	17:51	18:46			20:44			21:39	27	20:31 (10)	22:14	3		21:38 (11)
19	08:46	07:51	06:45			06:29			05:28		20:04 (10)	05:03			21:35 (11)
	16:51	17:53	18:48			20:46			21:41	26	20:30 (10)	22:15	3		21:38 (11)
20	08:45	07:49	06:42			06:27			05:27		20:06 (10)	05:03			21:35 (11)
	16:53	17:55	18:50			20:48			21:42	23	20:29 (10)	22:15	3		21:38 (11)
21	08:44	07:47	06:40			06:24			05:25		20:07 (10)	05:03			21:36 (11)
	16:55	17:57	18:51			20:50			21:44	22	20:29 (10)	22:15	3		21:39 (11)
22	08:42	07:45	06:37			06:22			05:24		20:08 (10)	05:03			21:36 (11)
	16:56	17:59	18:53			20:52			21:46	19	20:27 (10)	22:16	3		21:39 (11)
23	08:41	07:42	06:35			06:20			05:22		20:09 (10)	05:03			21:36 (11)
	16:58	18:01	18:55			20:54			21:47	17	20:26 (10)	22:16	3		21:39 (11)
24	08:40	07:40	06:32			06:17			05:21		20:11 (10)	05:04			21:36 (11)
	17:00	18:03	18:57			20:56			21:49	14	20:25 (10)	22:16	3		21:39 (11)
25	08:38	07:38	06:30		18:16 (9)	06:15		20:13 (10)	05:20		20:13 (10)	05:04			21:37 (11)
	17:02	18:05	18:59	9	18:25 (9)	20:58	13	20:26 (10)	21:50	10	20:23 (10)	22:16	2		21:39 (11)
26	08:37	07:36	06:27		18:12 (9)	06:13		20:09 (10)	05:18			05:05			21:37 (11)
	17:04	18:07	19:01	16	18:28 (9)	20:59	18	20:27 (10)	21:52			22:16	2		21:39 (11)
27	08:35	07:33	06:25		18:09 (9)	06:11		20:08 (10)	05:17			05:05			
	17:06	18:09	19:03	22	18:31 (9)	21:01	21	20:29 (10)	21:53			22:16			
28	08:34	07:31	06:22		18:07 (9)	06:09		20:06 (10)	05:16			05:06			
	17:08	18:11	19:05	25	18:32 (9)	21:03	24	20:30 (10)	21:54			22:16			
29	08:32		07:20		19:06 (9)	06:06		20:05 (10)	05:15			05:06			
	17:10		20:07	27	19:33 (9)	21:05	27	20:32 (10)	21:56			22:15			
30	08:30		07:17		19:04 (9)	06:04		20:04 (10)	05:14			05:07			
	17:12		20:09	29	19:33 (9)	21:07	28	20:32 (10)	21:57			22:15			
31	08:29		07:15		19:03 (9)				05:13						
	17:14		20:10	31	19:34 (9)				21:59						
Potential sun hours	248	272	367			421			496			513			
Total, worst case				159			556			709			28		
Sun reduction				0.22			0.34			0.36			0.26		
Oper. time red.				1.00			1.00			1.00			1.00		
Wind dir. red.				0.59			0.59			0.61			0.64		
Total reduction				0.13			0.20			0.22			0.17		
Total, real				21			113			157			5		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AJ - H36

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07		05:48	20:11 (10)	06:44	19:01 (9)	07:38	07:37	08:33
	22:15		21:39	33 20:44 (10)	20:31	27 19:28 (9)	19:16	17:04	16:19
2	05:08		05:50	20:11 (10)	06:45	19:00 (9)	07:40	07:39	08:35
	22:14		21:37	34 20:45 (10)	20:28	29 19:29 (9)	19:14	17:02	16:18
3	05:09		05:52	20:10 (10)	06:47	18:59 (9)	07:42	07:41	08:36
	22:14		21:35	34 20:44 (10)	20:26	30 19:29 (9)	19:11	17:00	16:18
4	05:10		05:53	20:10 (10)	06:49	18:57 (9)	07:44	07:43	08:38
	22:13		21:33	35 20:45 (10)	20:24	32 19:29 (9)	19:09	16:58	16:17
5	05:11		05:55	20:11 (10)	06:51	18:56 (9)	07:45	07:45	08:39
	22:13		21:31	34 20:45 (10)	20:21	33 19:29 (9)	19:06	16:56	16:16
6	05:12		05:57	20:10 (10)	06:53	18:56 (9)	07:47	07:47	08:41
	22:12		21:29	34 20:44 (10)	20:19	33 19:29 (9)	19:04	16:55	16:16
7	05:13		05:59	20:10 (10)	06:54	18:56 (9)	07:49	07:49	08:42
	22:12		21:27	34 20:44 (10)	20:16	34 19:30 (9)	19:01	16:53	16:15
8	05:14		06:00	20:11 (10)	06:56	18:55 (9)	07:51	07:51	08:43
	22:11		21:25	33 20:44 (10)	20:14	33 19:28 (9)	18:59	16:51	16:15
9	05:15		06:02	20:10 (10)	06:58	18:55 (9)	07:53	07:53	08:45
	22:10		21:23	33 20:43 (10)	20:11	33 19:28 (9)	18:56	16:49	16:14
10	05:16		06:04	20:11 (10)	07:00	18:55 (9)	07:55	07:55	08:46
	22:09		21:21	32 20:43 (10)	20:09	33 19:28 (9)	18:54	16:47	16:14
11	05:17		06:06	20:12 (10)	07:02	18:55 (9)	07:57	07:57	08:47
	22:08		21:19	31 20:43 (10)	20:06	32 19:27 (9)	18:52	16:45	16:14
12	05:18		06:08	20:11 (10)	07:04	18:55 (9)	07:59	07:59	08:48
	22:07		21:17	30 20:41 (10)	20:04	31 19:26 (9)	18:49	16:44	16:14
13	05:19		06:09	20:12 (10)	07:05	18:55 (9)	08:00	08:01	08:49
	22:06		21:15	29 20:41 (10)	20:01	30 19:25 (9)	18:47	16:42	16:14
14	05:21		06:11	20:14 (10)	07:07	18:56 (9)	08:02	08:03	08:50
	22:05		21:12	26 20:40 (10)	19:59	28 19:24 (9)	18:44	16:40	16:14
15	05:22		06:13	20:14 (10)	07:09	18:57 (9)	08:04	08:05	08:51
	22:04		21:10	24 20:38 (10)	19:56	25 19:22 (9)	18:42	16:39	16:14
16	05:23		06:15	20:15 (10)	07:11	18:58 (9)	08:06	08:07	08:52
	22:03		21:08	21 20:36 (10)	19:54	21 19:19 (9)	18:40	16:37	16:14
17	05:25		06:17	20:17 (10)	07:13	18:59 (9)	08:08	08:09	08:53
	22:02		21:06	17 20:34 (10)	19:51	18 19:17 (9)	18:37	16:36	16:14
18	05:26	20:24 (10)	06:18	20:19 (10)	07:14	19:02 (9)	08:10	08:11	08:54
	22:00	7 20:31 (10)	21:04	12 20:31 (10)	19:49	12 19:14 (9)	18:35	16:34	16:14
19	05:28	20:22 (10)	06:20		07:16		08:12	08:12	08:54
	21:59	12 20:34 (10)	21:01		19:46		18:33	16:33	16:14
20	05:29	20:20 (10)	06:22		07:18		08:14	08:14	08:55
	21:58	15 20:35 (10)	20:59		19:44		18:30	16:31	16:15
21	05:31	20:19 (10)	06:24		07:20		08:16	08:16	08:56
	21:56	18 20:37 (10)	20:57		19:41		18:28	16:30	16:15
22	05:32	20:17 (10)	06:26		07:22		08:18	08:18	08:56
	21:55	21 20:38 (10)	20:55		19:39		18:26	16:29	16:15
23	05:34	20:17 (10)	06:27		07:23		08:20	08:20	08:57
	21:54	23 20:40 (10)	20:52		19:36		18:24	16:27	16:16
24	05:35	20:16 (10)	06:29		07:25		08:22	08:22	08:57
	21:52	24 20:40 (10)	20:50		19:34		18:21	16:26	16:17
25	05:37	20:14 (10)	06:31		07:27		07:24	08:23	08:58
	21:50	27 20:41 (10)	20:48		19:31		17:19	16:25	16:17
26	05:38	20:14 (10)	06:33		07:29		07:26	08:25	08:58
	21:49	28 20:42 (10)	20:45		19:29		17:17	16:24	16:18
27	05:40	20:13 (10)	06:35		07:31		07:27	08:27	08:58
	21:47	29 20:42 (10)	20:43		19:26		17:15	16:23	16:19
28	05:42	20:13 (10)	06:36	19:10 (9)	07:32		07:29	08:28	08:58
	21:46	30 20:43 (10)	20:40	12 19:22 (9)	19:24		17:13	16:22	16:20
29	05:43	20:13 (10)	06:38	19:07 (9)	07:34		07:31	08:30	08:58
	21:44	31 20:44 (10)	20:38	17 19:24 (9)	19:21		17:11	16:21	16:20
30	05:45	20:12 (10)	06:40	19:05 (9)	07:36		07:33	08:32	08:58
	21:42	32 20:44 (10)	20:36	21 19:26 (9)	19:19		17:09	16:20	16:21
31	05:47	20:12 (10)	06:42	19:03 (9)			07:35		08:58
	21:40	33 20:45 (10)	20:33	25 19:28 (9)			17:06		16:22
Potential sun hours	515		461		382		328	257	231
Total, worst case		330		601		514			
Sun reduction		0.27		0.27		0.29			
Oper. time red.		1.00		1.00		1.00			
Wind dir. red.		0.61		0.61		0.59			
Total reduction		0.16		0.17		0.17			
Total, real		54		100		88			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AK - H37

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:59		08:27		07:29		07:13		06:02		06:28 (15)	
	16:24		17:16		18:13		20:12		21:09	4	06:32 (15)	
2	08:58		08:26		07:26		07:10		06:00		06:26 (15)	
	16:25		17:18		18:15		20:14		21:11	6	06:32 (15)	
3	08:58		08:24		07:24		07:08		05:58		06:24 (15)	
	16:26		17:20		18:17		20:16		21:13	8	06:32 (15)	
4	08:58		08:22		07:22	07:46 (11)	07:05		05:56		06:23 (15)	
	16:27		17:22		18:19	1 07:47 (11)	20:18		21:15	9	06:32 (15)	
5	08:58		08:20		07:19	07:44 (11)	07:03		05:54		06:21 (15)	
	16:29		17:24		18:21	3 07:47 (11)	20:20		21:16	10	06:31 (15)	
6	08:57		08:18		07:17	07:41 (11)	07:00		05:52		06:19 (15)	
	16:30		17:26		18:23	5 07:46 (11)	20:22		21:18	11	06:30 (15)	
7	08:57		08:16		07:14	07:39 (11)	06:58		05:50		06:17 (15)	
	16:31		17:28		18:25	6 07:45 (11)	20:24		21:20	12	06:29 (15)	
8	08:56		08:14		07:12	07:37 (11)	06:55		05:48		06:19 (15)	
	16:33		17:30		18:27	7 07:44 (11)	20:26		21:22	8	06:27 (15)	
9	08:55		08:13		07:10	07:35 (11)	06:53		05:46			
	16:34		17:32		18:29	5 07:40 (11)	20:28		21:24			
10	08:55		08:11		07:07		06:50	07:15 (13)	05:44			
	16:36		17:34		18:31		20:29	2 07:17 (13)	21:25			
11	08:54		08:09		07:05		06:48	07:12 (13)	05:42			
	16:37		17:36		18:32		20:31	4 07:16 (13)	21:27			
12	08:53		08:07		07:02		06:46	07:10 (13)	05:41			
	16:39		17:39		18:34		20:33	6 07:16 (13)	21:29			
13	08:52		08:04		07:00		06:43	07:08 (13)	05:39			
	16:41		17:41		18:36		20:35	8 07:16 (13)	21:31			
14	08:52		08:02		06:57		06:41	07:05 (13)	05:37			
	16:42		17:43		18:38		20:37	9 07:14 (13)	21:32			
15	08:51		08:00		06:55		06:38	07:03 (13)	05:35			
	16:44		17:45		18:40		20:39	10 07:13 (13)	21:34			
16	08:50		07:58		06:52		06:36	07:01 (13)	05:33			
	16:46		17:47		18:42		20:41	10 07:11 (13)	21:36			
17	08:49		07:56		06:50		06:34	07:03 (13)	05:32			
	16:47		17:49		18:44		20:43	4 07:07 (13)	21:38			
18	08:48		07:54		06:47		06:31		05:30			
	16:49		17:51		18:46		20:45		21:39			
19	08:46		07:52		06:45	07:09 (12)	06:29		05:29			
	16:51		17:53		18:48	2 07:11 (12)	20:46		21:41			
20	08:45		07:49		06:42	07:06 (12)	06:27		05:27			
	16:53		17:55		18:50	4 07:10 (12)	20:48		21:43			
21	08:44		07:47		06:40	07:04 (12)	06:24		05:26			
	16:55		17:57		18:52	5 07:09 (12)	20:50		21:44			
22	08:43		07:45		06:37	07:01 (12)	06:22		05:24			
	16:57		17:59		18:54	6 07:07 (12)	20:52		21:46			
23	08:41		07:43		06:35	06:59 (12)	06:20		05:23			
	16:58		18:01		18:55	6 07:05 (12)	20:54		21:47			
24	08:40		07:40		06:32		06:18		05:21			
	17:00		18:03		18:57		20:56		21:49			
25	08:38		07:38		06:30		06:15		05:20			
	17:02		18:05		18:59		20:58		21:50			
26	08:37		07:36		06:28		06:13		05:19			
	17:04		18:07		19:01		21:00		21:52			
27	08:35		07:33		06:25		06:11		05:17		05:48 (14)	
	17:06		18:09		19:03		21:01		21:53	1	05:49 (14)	
28	08:34		07:31		06:23		06:09		05:16		05:47 (14)	
	17:08		18:11		19:05		21:03		21:55	3	05:50 (14)	
29	08:32				07:20		06:07		05:15		05:46 (14)	
	17:10				20:07		21:05		21:56	4	05:50 (14)	
30	08:31				07:18		06:04	06:30 (15)	05:14		05:45 (14)	
	17:12				20:09		21:07	2 06:32 (15)	21:57	6	05:51 (14)	
31	08:29				07:15				05:13		05:44 (14)	
	17:14				20:11				21:59	7	05:51 (14)	
Potential sun hours	248		272		367		421		496		513	
Total, worst case						50		55		89		501
Sun reduction						0.22		0.34		0.36		0.26
Oper. time red.						1.00		1.00		1.00		1.00
Wind dir. red.						0.59		0.57		0.58		0.58
Total reduction						0.13		0.19		0.21		0.15
Total, real						7		11		19		75

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AK - H37

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November	December
1	05:08		05:41 (14)	05:48			06:44		07:11 (13)	07:38			07:38	08:34
	22:15	17	05:58 (14)	21:39			20:31	4	07:15 (13)	19:16			17:05	16:19
2	05:08		05:42 (14)	05:50			06:46		07:13 (13)	07:40			07:40	08:35
	22:15	17	05:59 (14)	21:37			20:29	2	07:15 (13)	19:14			17:03	16:18
3	05:09		05:43 (14)	05:52			06:47			07:42			07:42	08:37
	22:14	16	05:59 (14)	21:35			20:26			19:11			17:01	16:18
4	05:10		05:44 (14)	05:54		06:30 (15)	06:49			07:44			07:43	08:38
	22:14	15	05:59 (14)	21:33	5	06:35 (15)	20:24			19:09			16:59	16:17
5	05:11		05:44 (14)	05:55		06:28 (15)	06:51			07:46		08:12 (11)	07:45	08:40
	22:13	15	05:59 (14)	21:31	10	06:38 (15)	20:21			19:06	6	08:18 (11)	16:57	16:16
6	05:12		05:45 (14)	05:57		06:27 (15)	06:53			07:47		08:14 (11)	07:47	08:41
	22:12	14	05:59 (14)	21:29	12	06:39 (15)	20:19			19:04	6	08:20 (11)	16:55	16:16
7	05:13		05:46 (14)	05:59		06:29 (15)	06:55			07:49		08:16 (11)	07:49	08:42
	22:12	13	05:59 (14)	21:27	11	06:40 (15)	20:16			19:01	5	08:21 (11)	16:53	16:15
8	05:14		05:47 (14)	06:01		06:31 (15)	06:56			07:51		08:18 (11)	07:51	08:44
	22:11	12	05:59 (14)	21:25	10	06:41 (15)	20:14			18:59	4	08:22 (11)	16:51	16:15
9	05:15		05:48 (14)	06:02		06:32 (15)	06:58			07:53		08:20 (11)	07:53	08:45
	22:10	11	05:59 (14)	21:23	9	06:41 (15)	20:11			18:57	2	08:22 (11)	16:49	16:15
10	05:16		05:49 (14)	06:04		06:34 (15)	07:00			07:55			07:55	08:46
	22:09	10	05:59 (14)	21:21	7	06:41 (15)	20:09			18:54			16:47	16:14
11	05:17		05:50 (14)	06:06		06:36 (15)	07:02			07:57			07:57	08:47
	22:08	9	05:59 (14)	21:19	6	06:42 (15)	20:06			18:52			16:46	16:14
12	05:18		05:51 (14)	06:08		06:37 (15)	07:04			07:59			07:59	08:48
	22:08	8	05:59 (14)	21:17	4	06:41 (15)	20:04			18:49			16:44	16:14
13	05:20		05:53 (14)	06:09		06:39 (15)	07:05			08:01			08:01	08:49
	22:07	7	06:00 (14)	21:15	2	06:41 (15)	20:01			18:47			16:42	16:14
14	05:21		05:54 (14)	06:11			07:07			08:02			08:03	08:50
	22:05	5	05:59 (14)	21:13			19:59			18:45			16:41	16:14
15	05:22		05:55 (14)	06:13			07:09			08:04			08:05	08:51
	22:04	4	05:59 (14)	21:11			19:56			18:42			16:39	16:14
16	05:23		05:56 (14)	06:15			07:11			08:06			08:07	08:52
	22:03	2	05:58 (14)	21:08			19:54			18:40			16:37	16:14
17	05:25			06:17			07:13			08:08			08:09	08:53
	22:02			21:06			19:51			18:37			16:36	16:14
18	05:26			06:18			07:14			08:10			08:11	08:54
	22:01			21:04			19:49			18:35			16:34	16:14
19	05:28			06:20			07:16			08:12			08:13	08:55
	21:59			21:02			19:46			18:33			16:33	16:14
20	05:29			06:22			07:18		07:45 (12)	08:14			08:15	08:55
	21:58			20:59			19:44	6	07:51 (12)	18:31			16:31	16:15
21	05:31			06:24			07:20		07:46 (12)	08:16			08:16	08:56
	21:57			20:57			19:41	6	07:52 (12)	18:28			16:30	16:15
22	05:32			06:26			07:22		07:48 (12)	08:18			08:18	08:57
	21:55			20:55			19:39	5	07:53 (12)	18:26			16:29	16:16
23	05:34			06:28			07:24		07:50 (12)	08:20			08:20	08:57
	21:54			20:52			19:36	4	07:54 (12)	18:24			16:28	16:16
24	05:35			06:29			07:25		07:52 (12)	08:22			08:22	08:57
	21:52			20:50			19:34	2	07:54 (12)	18:22			16:26	16:17
25	05:37			06:31			07:27			07:24			08:24	08:58
	21:51			20:48			19:31			17:19			16:25	16:17
26	05:38			06:33		07:05 (13)	07:29			07:26			08:25	08:58
	21:49			20:45	6	07:11 (13)	19:29			17:17			16:24	16:18
27	05:40			06:35		07:03 (13)	07:31			07:28			08:27	08:58
	21:47			20:43	10	07:13 (13)	19:26			17:15			16:23	16:19
28	05:42			06:37		07:05 (13)	07:33			07:30			08:29	08:59
	21:46			20:41	10	07:15 (13)	19:24			17:13			16:22	16:20
29	05:43			06:38		07:06 (13)	07:34			07:32			08:30	08:59
	21:44			20:38	9	07:15 (13)	19:21			17:11			16:21	16:21
30	05:45			06:40		07:08 (13)	07:36			07:34			08:32	08:59
	21:42			20:36	8	07:16 (13)	19:19			17:09			16:20	16:21
31	05:47			06:42		07:10 (13)				07:36				08:59
	21:41			20:33	6	07:16 (13)				17:07				16:22
Potential sun hours	515			461			383			328			257	231
Total, worst case		175			125			29			23			
Sun reduction		0.27			0.27			0.29			0.23			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.58			0.58			0.59			0.60			
Total reduction		0.16			0.16			0.17			0.14			
Total, real		27			20			5			3			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AL - H38

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May	June
1	08:58		14:48 (18)	08:27		16:03 (17)	07:29	07:12	06:02	05:11
	16:24	32	15:20 (18)	17:16	34	16:37 (17)	18:13	20:12	21:09	22:00
2	08:58		14:49 (18)	08:25		16:02 (17)	07:26	07:10	06:00	05:10
	16:25	32	15:21 (18)	17:18	36	16:38 (17)	18:15	20:14	21:11	22:01
3	08:58		14:50 (18)	08:24		16:02 (17)	07:24	07:07	05:58	05:10
	16:26	31	15:21 (18)	17:20	36	16:38 (17)	18:17	20:16	21:13	22:02
4	08:58		14:50 (18)	08:22		16:02 (17)	07:21	07:05	05:56	05:09
	16:27	31	15:21 (18)	17:22	37	16:39 (17)	18:19	20:18	21:14	22:04
5	08:57		14:51 (18)	08:20		16:02 (17)	07:19	07:02	05:54	05:08
	16:28	31	15:22 (18)	17:24	37	16:39 (17)	18:21	20:20	21:16	22:05
6	08:57		14:51 (18)	08:18		16:02 (17)	07:17	07:00	05:52	05:07
	16:30	31	15:22 (18)	17:26	37	16:39 (17)	18:23	20:22	21:18	22:06
7	08:56		14:51 (18)	08:16		16:02 (17)	07:14	06:58	05:50	05:06
	16:31	31	15:22 (18)	17:28	38	16:40 (17)	18:24	20:24	21:20	22:07
8	08:56		14:52 (18)	08:14		16:02 (17)	07:12	06:55	05:48	05:06
	16:33	30	15:22 (18)	17:30	38	16:40 (17)	18:26	20:26	21:22	22:08
9	08:55		14:53 (18)	08:12		16:01 (17)	07:09	06:53	05:46	05:05
	16:34	30	15:23 (18)	17:32	38	16:39 (17)	18:28	20:27	21:24	22:09
10	08:55		14:54 (18)	08:10		16:02 (17)	07:07	06:50	05:44	05:05
	16:36	29	15:23 (18)	17:34	37	16:39 (17)	18:30	20:29	21:25	22:09
11	08:54		14:54 (18)	08:08		16:02 (17)	07:05	06:48	05:42	05:04
	16:37	29	15:23 (18)	17:36	37	16:39 (17)	18:32	20:31	21:27	22:10
12	08:53		14:55 (18)	08:06		16:03 (17)	07:02	06:45	05:40	05:04
	16:39	28	15:23 (18)	17:38	35	16:38 (17)	18:34	20:33	21:29	22:11
13	08:52		14:56 (18)	08:04		16:04 (17)	07:00	06:43	05:38	05:03
	16:40	27	15:23 (18)	17:40	34	16:38 (17)	18:36	20:35	21:31	22:12
14	08:51		14:57 (18)	08:02		16:05 (17)	06:57	06:41	05:37	05:03
	16:42	26	15:23 (18)	17:42	32	16:37 (17)	18:38	20:37	21:32	22:12
15	08:51		14:57 (18)	08:00		16:05 (17)	06:55	06:38	05:35	05:03
	16:44	25	15:22 (18)	17:44	31	16:36 (17)	18:40	20:39	21:34	22:13
16	08:50		14:58 (18)	07:58		16:06 (17)	06:52	06:36	05:33	05:03
	16:45	24	15:22 (18)	17:46	29	16:35 (17)	18:42	20:41	21:36	22:14
17	08:48		15:00 (18)	07:56		16:08 (17)	06:50	06:33	05:32	05:03
	16:47	22	15:22 (18)	17:49	26	16:34 (17)	18:44	20:43	21:37	22:14
18	08:47		15:01 (18)	07:54		16:10 (17)	06:47	06:31	05:30	05:03
	16:49	21	15:22 (18)	17:51	23	16:33 (17)	18:46	20:44	21:39	22:15
19	08:46		15:02 (18)	07:51		16:11 (17)	06:45	06:29	05:28	05:03
	16:51	18	15:20 (18)	17:53	19	16:30 (17)	18:48	20:46	21:41	22:15
20	08:45		15:05 (18)	07:49		16:15 (17)	06:42	06:26	05:27	05:03
	16:53	14	15:19 (18)	17:55	12	16:27 (17)	18:50	20:48	21:42	22:15
21	08:44		15:07 (18)	07:47			06:40	06:24	05:25	05:03
	16:54	10	15:17 (18)	17:57			18:51	20:50	21:44	22:16
22	08:42		16:13 (17)	07:45			06:37	06:22	05:24	05:03
	16:56	8	16:21 (17)	17:59			18:53	20:52	21:46	22:16
23	08:41		16:10 (17)	07:42			06:35	06:20	05:22	05:03
	16:58	13	16:23 (17)	18:01			18:55	20:54	21:47	22:16
24	08:40		16:09 (17)	07:40			06:32	06:17	05:21	05:04
	17:00	17	16:26 (17)	18:03			18:57	20:56	21:49	22:16
25	08:38		16:07 (17)	07:38			06:30	06:15	05:20	05:04
	17:02	21	16:28 (17)	18:05			18:59	20:58	21:50	22:16
26	08:37		16:05 (17)	07:36			06:27	06:13	05:18	05:04
	17:04	25	16:30 (17)	18:07			19:01	20:59	21:52	22:16
27	08:35		16:05 (17)	07:33			06:25	06:11	05:17	05:05
	17:06	27	16:32 (17)	18:09			19:03	21:01	21:53	22:16
28	08:34		16:04 (17)	07:31			06:22	06:08	05:16	05:05
	17:08	29	16:33 (17)	18:11			19:05	21:03	21:55	22:16
29	08:32		16:03 (17)				07:20	06:06	05:15	05:06
	17:10	31	16:34 (17)				20:07	21:05	21:56	22:16
30	08:31		16:03 (17)				07:17	06:04	05:14	05:07
	17:12	32	16:35 (17)				20:09	21:07	21:57	22:15
31	08:29		16:02 (17)				07:15		05:12	
	17:14	34	16:36 (17)				20:10		21:59	
Potential sun hours	248			272			367	421	496	513
Total, worst case		789			646					
Sun reduction		0.17			0.22					
Oper. time red.		1.00			1.00					
Wind dir. red.		0.63			0.60					
Total reduction		0.11			0.13					
Total, real		84			86					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AL - H38

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October			November			December		
1	05:07		05:48		06:44		07:38			07:37		15:31 (17)	08:33		14:36 (18)
	22:15		21:39		20:31		19:16			17:04	37	16:08 (17)	16:19	29	15:05 (18)
2	05:08		05:50		06:45		07:40			07:39		15:31 (17)	08:35		14:36 (18)
	22:15		21:37		20:28		19:14			17:02	37	16:08 (17)	16:18	29	15:05 (18)
3	05:09		05:52		06:47		07:42			07:41		15:31 (17)	08:36		14:36 (18)
	22:14		21:35		20:26		19:11			17:00	38	16:09 (17)	16:17	30	15:06 (18)
4	05:10		05:53		06:49		07:44			07:43		15:31 (17)	08:38		14:37 (18)
	22:14		21:33		20:24		19:09			16:58	38	16:09 (17)	16:17	30	15:07 (18)
5	05:11		05:55		06:51		07:45			07:45		15:31 (17)	08:39		14:36 (18)
	22:13		21:31		20:21		19:06			16:56	38	16:09 (17)	16:16	31	15:07 (18)
6	05:11		05:57		06:53		07:47			07:47		15:31 (17)	08:41		14:37 (18)
	22:12		21:29		20:19		19:04			16:54	38	16:09 (17)	16:16	31	15:08 (18)
7	05:12		05:59		06:54		07:49			07:49		15:31 (17)	08:42		14:37 (18)
	22:12		21:27		20:16		19:01			16:53	37	16:08 (17)	16:15	31	15:08 (18)
8	05:13		06:00		06:56		07:51			07:51		15:32 (17)	08:43		14:38 (18)
	22:11		21:25		20:14		18:59			16:51	36	16:08 (17)	16:15	31	15:09 (18)
9	05:15		06:02		06:58		07:53			07:53		15:33 (17)	08:45		14:38 (18)
	22:10		21:23		20:11		18:56			16:49	36	16:09 (17)	16:14	31	15:09 (18)
10	05:16		06:04		07:00		07:55			07:55		15:33 (17)	08:46		14:38 (18)
	22:09		21:21		20:09		18:54			16:47	35	16:08 (17)	16:14	32	15:10 (18)
11	05:17		06:06		07:02		07:57			07:57		15:34 (17)	08:47		14:39 (18)
	22:08		21:19		20:06		18:51			16:45	33	16:07 (17)	16:14	32	15:11 (18)
12	05:18		06:07		07:03		07:59			07:59		15:35 (17)	08:48		14:39 (18)
	22:07		21:17		20:04		18:49			16:44	32	16:07 (17)	16:13	32	15:11 (18)
13	05:19		06:09		07:05		08:00			08:01		15:35 (17)	08:49		14:40 (18)
	22:06		21:15		20:01		18:47			16:42	31	16:06 (17)	16:13	32	15:12 (18)
14	05:21		06:11		07:07		08:02			08:03		15:36 (17)	08:50		14:40 (18)
	22:05		21:13		19:59		18:44			16:40	29	16:05 (17)	16:13	32	15:12 (18)
15	05:22		06:13		07:09		08:04			08:05		15:37 (17)	08:51		14:40 (18)
	22:04		21:10		19:56		18:42			16:39	27	16:04 (17)	16:13	32	15:12 (18)
16	05:23		06:15		07:11		08:06			08:07		15:39 (17)	08:52		14:41 (18)
	22:03		21:08		19:54		18:40			16:37	25	16:04 (17)	16:13	32	15:13 (18)
17	05:25		06:16		07:12		08:08			08:09		15:41 (17)	08:53		14:42 (18)
	22:02		21:06		19:51		18:37			16:36	21	16:02 (17)	16:14	32	15:14 (18)
18	05:26		06:18		07:14		08:10			08:11		15:43 (17)	08:54		14:41 (18)
	22:01		21:04		19:49		18:35			16:34	17	16:00 (17)	16:14	32	15:13 (18)
19	05:27		06:20		07:16		08:12			08:13		15:45 (17)	08:55		14:42 (18)
	21:59		21:01		19:46		18:33			16:33	13	15:58 (17)	16:14	32	15:14 (18)
20	05:29		06:22		07:18		08:14			08:14		15:48 (17)	08:55		14:43 (18)
	21:58		20:59		19:44		18:30			16:31	8	15:56 (17)	16:14	32	15:15 (18)
21	05:30		06:24		07:20		08:16			08:16		14:43 (18)	08:56		14:43 (18)
	21:57		20:57		19:41		18:28			16:30	10	14:53 (18)	16:15	32	15:15 (18)
22	05:32		06:25		07:21		08:18		16:44 (17)	08:18		14:41 (18)	08:56		14:44 (18)
	21:55		20:55		19:39		18:26	14	16:58 (17)	16:29	14	14:55 (18)	16:15	32	15:16 (18)
23	05:33		06:27		07:23		08:20		16:41 (17)	08:20		14:39 (18)	08:57		14:44 (18)
	21:54		20:52		19:36		18:24	20	17:01 (17)	16:27	18	14:57 (18)	16:16	32	15:16 (18)
24	05:35		06:29		07:25		08:22		16:39 (17)	08:22		14:38 (18)	08:57		14:44 (18)
	21:52		20:50		19:34		18:21	23	17:02 (17)	16:26	21	14:59 (18)	16:16	32	15:16 (18)
25	05:37		06:31		07:27		07:24		15:37 (17)	08:23		14:38 (18)	08:58		14:45 (18)
	21:51		20:48		19:31		17:19	27	16:04 (17)	16:25	22	15:00 (18)	16:17	32	15:17 (18)
26	05:38		06:33		07:29		07:26		15:35 (17)	08:25		14:37 (18)	08:58		14:45 (18)
	21:49		20:45		19:28		17:17	30	16:05 (17)	16:24	24	15:01 (18)	16:18	32	15:17 (18)
27	05:40		06:35		07:31		07:28		15:34 (17)	08:27		14:37 (18)	08:58		14:46 (18)
	21:47		20:43		19:26		17:15	32	16:06 (17)	16:23	25	15:02 (18)	16:18	32	15:18 (18)
28	05:41		06:36		07:32		07:29		15:34 (17)	08:29		14:36 (18)	08:58		14:46 (18)
	21:46		20:40		19:23		17:13	33	16:07 (17)	16:22	26	15:02 (18)	16:19	32	15:18 (18)
29	05:43		06:38		07:34		07:31		15:33 (17)	08:30		14:36 (18)	08:58		14:47 (18)
	21:44		20:38		19:21		17:11	35	16:08 (17)	16:21	27	15:03 (18)	16:20	32	15:19 (18)
30	05:45		06:40		07:36		07:33		15:32 (17)	08:32		14:36 (18)	08:59		14:47 (18)
	21:42		20:36		19:18		17:08	36	16:08 (17)	16:20	28	15:04 (18)	16:21	32	15:19 (18)
31	05:46		06:42				07:35		15:32 (17)				08:59		14:48 (18)
	21:40		20:33				17:06	36	16:08 (17)				16:22	32	15:20 (18)
Potential sun hours	515		461		383		327			257			230		
Total, worst case								286			821			977	
Sun reduction								0.23			0.20			0.12	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.60			0.61			0.64	
Total reduction								0.14			0.12			0.08	
Total, real								40			100			74	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AM - H39

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	19:00 (5)	06:02	05:12	05:08	05:48	06:44	07:38	18:38 (6)	07:37	08:33
	16:24	17:16	18:13	20:12	7 19:07 (5)	21:09	22:00	22:15	21:39	20:31	19:16	10 18:48 (6)	17:04	16:19
2	08:58	08:25	07:26	07:10		06:00	05:11	05:08	05:50	06:46	07:40	18:39 (6)	07:39	08:35
	16:25	17:18	18:15	20:14		21:11	22:01	22:14	21:37	20:28	19:14	6 18:45 (6)	17:02	16:18
3	08:58	08:24	07:24	07:08		05:58	05:10	05:09	05:52	06:47	07:42	18:39 (6)	07:41	08:36
	16:26	17:20	18:17	20:16		21:13	22:02	22:14	21:35	20:26	19:11	3 18:42 (6)	17:00	16:18
4	08:58	08:22	07:22	07:05		05:56	05:09	05:10	05:54	06:49	07:44		07:43	08:38
	16:27	17:22	18:19	20:18		21:14	22:03	22:13	21:33	20:24	19:09		16:59	16:17
5	08:57	08:20	07:19	07:03		05:54	05:08	05:11	05:55	06:51	07:45		07:45	08:39
	16:29	17:24	18:21	20:20		21:16	22:05	22:13	21:31	20:21	19:06		16:57	16:16
6	08:57	08:18	07:17	07:00		05:52	05:07	05:12	05:57	06:53	07:47		07:47	08:41
	16:30	17:26	18:23	20:22		21:18	22:06	22:12	21:29	20:19	19:04		16:55	16:16
7	08:56	08:16	07:14	06:58		05:50	05:07	05:13	05:59	06:55	07:49		07:49	08:42
	16:31	17:28	18:25	20:24		21:20	22:07	22:12	21:27	20:16	19:01		16:53	16:15
8	08:56	08:14	07:12	06:55		05:48	05:06	05:14	06:01	06:56	07:51		07:51	08:43
	16:33	17:30	18:27	20:26		21:22	22:08	22:11	21:25	20:14	18:59		16:51	16:15
9	08:55	08:12	07:10	06:53		05:46	05:06	05:15	06:02	06:58	07:53		07:53	08:45
	16:34	17:32	18:29	20:27		21:23	22:09	22:10	21:23	20:11	18:56		16:49	16:15
10	08:55	08:10	07:07	18:02 (6)	06:50	05:44	05:05	05:16	06:04	07:00	07:55		07:55	08:46
	16:36	17:34	18:30	1 18:03 (6)	20:29	21:25	22:09	22:09	21:21	20:09	18:54		16:47	16:14
11	08:54	08:08	07:05	18:01 (6)	06:48	05:42	05:05	05:17	06:06	07:02	07:57		07:57	08:47
	16:37	17:36	18:32	4 18:05 (6)	20:31	21:27	22:10	22:08	21:19	20:06	6 19:00 (5)	18:52	16:46	16:14
12	08:53	08:06	07:02	17:58 (6)	06:46	05:41	05:04	05:18	06:08	07:04	18:48 (5)	07:59	07:59	08:48
	16:39	17:39	18:34	9 18:07 (6)	20:33	21:29	22:11	22:07	21:17	20:04	15 19:03 (5)	18:49	16:44	16:14
13	08:52	08:04	07:00	17:58 (6)	06:43	05:39	05:04	05:20	06:09	07:05	18:46 (5)	08:00	08:01	08:49
	16:41	17:41	18:36	11 18:09 (6)	20:35	21:31	22:12	22:06	21:15	20:01	19 19:05 (5)	18:47	16:42	16:14
14	08:51	08:02	06:57	17:56 (6)	06:41	05:37	05:04	05:21	06:11	07:07	18:44 (5)	08:02	08:03	08:50
	16:42	17:43	18:38	15 18:11 (6)	20:37	21:32	22:12	22:05	21:13	19:59	23 19:07 (5)	18:44	16:41	16:14
15	08:50	08:00	06:55	17:56 (6)	06:38	05:35	05:03	05:22	06:13	07:09	18:42 (5)	08:04	08:05	08:51
	16:44	17:45	18:40	17 18:13 (6)	20:39	21:34	22:13	22:04	21:10	19:56	26 19:08 (5)	18:42	16:39	16:14
16	08:49	07:58	06:52	17:54 (5)	06:36	05:33	05:03	05:23	06:15	07:11	18:41 (5)	08:06	08:07	08:52
	16:46	17:47	18:42	21 18:15 (6)	20:41	21:36	22:14	22:03	21:08	19:54	28 19:09 (5)	18:40	16:37	16:14
17	08:48	07:56	06:50	17:54 (5)	06:34	05:32	05:03	05:25	06:17	07:13	18:39 (5)	08:08	08:09	08:53
	16:47	17:49	18:44	23 18:17 (6)	20:43	21:37	22:14	22:02	21:06	19:51	30 19:09 (5)	18:37	16:36	16:14
18	08:47	07:54	06:47	17:52 (5)	06:31	05:30	05:03	05:26	06:18	07:14	18:38 (5)	08:10	08:11	08:54
	16:49	17:51	18:46	27 18:19 (6)	20:44	21:39	22:14	22:01	21:04	19:49	31 19:09 (5)	18:35	16:34	16:14
19	08:46	07:51	06:45	17:52 (5)	06:29	05:29	05:03	05:28	06:20	07:16	18:37 (5)	08:12	08:12	08:55
	16:51	17:53	18:48	29 18:21 (5)	20:46	21:41	22:15	21:59	21:01	19:46	33 19:10 (5)	18:33	16:33	16:14
20	08:45	07:49	06:42	17:51 (5)	06:27	05:27	05:03	05:29	06:22	07:18	18:37 (5)	08:14	08:14	08:55
	16:53	17:55	18:50	31 18:22 (5)	20:48	21:42	22:15	21:58	20:59	19:44	33 19:10 (5)	18:31	16:31	16:15
21	08:44	07:47	06:40	17:51 (5)	06:24	05:26	05:03	05:31	06:24	07:20	18:36 (5)	08:16	08:16	08:56
	16:55	17:57	18:52	33 18:24 (5)	20:50	21:44	22:15	21:56	20:57	19:41	33 19:09 (5)	18:28	16:30	16:15
22	08:42	07:45	06:37	17:50 (5)	06:22	05:24	05:03	05:32	06:26	07:22	18:35 (5)	08:18	08:18	08:56
	16:57	17:59	18:53	33 18:23 (5)	20:52	21:46	22:16	21:55	20:55	19:39	34 19:09 (5)	18:26	16:29	16:16
23	08:41	07:43	06:35	17:50 (5)	06:20	05:23	05:04	05:34	06:27	07:23	18:35 (5)	08:20	08:20	08:57
	16:58	18:01	18:55	33 18:23 (5)	20:54	21:47	22:16	21:54	20:52	19:36	33 19:08 (5)	18:24	16:28	16:16
24	08:40	07:40	06:32	17:50 (5)	06:18	05:21	05:04	05:35	06:29	07:25	18:35 (5)	08:22	08:22	08:57
	17:00	18:03	18:57	32 18:22 (5)	20:56	21:49	22:16	21:52	20:50	19:34	30 19:05 (5)	18:22	16:26	16:17
25	08:38	07:38	06:30	17:50 (5)	06:15	05:20	05:04	05:37	06:31	07:27	18:36 (5)	07:24	08:23	08:58
	17:02	18:05	18:59	32 18:22 (5)	20:58	21:50	22:16	21:51	20:48	19:31	27 19:03 (6)	17:19	16:25	16:17
26	08:37	07:36	06:27	17:50 (5)	06:13	05:19	05:05	05:38	06:33	07:29	18:35 (5)	07:26	08:25	08:58
	17:04	18:07	19:01	31 18:21 (5)	20:59	21:52	22:16	21:49	20:45	19:29	25 19:00 (6)	17:17	16:24	16:18
27	08:35	07:33	06:25	17:51 (5)	06:11	05:17	05:05	05:40	06:35	07:31	18:36 (5)	07:28	08:27	08:58
	17:06	18:09	19:03	29 18:20 (5)	21:01	21:53	22:16	21:47	20:43	19:26	21 18:57 (6)	17:15	16:23	16:19
28	08:34	07:31	06:22	17:52 (5)	06:09	05:16	05:06	05:42	06:37	07:33	18:37 (6)	07:30	08:28	08:58
	17:08	18:11	19:05	26 18:18 (5)	21:03	21:55	22:16	21:46	20:41	19:24	18 18:55 (6)	17:13	16:22	16:20
29	08:32		07:20	18:53 (5)	06:07	05:15	05:06	05:43	06:38	07:34	18:37 (6)	07:31	08:30	08:58
	17:10		20:07	24 19:17 (5)	21:05	21:56	22:15	21:44	20:38	19:21	16 18:53 (6)	17:11	16:21	16:21
30	08:31		07:17	18:54 (5)	06:04	05:14	05:07	05:45	06:40	07:36	18:37 (6)	07:33	08:32	08:58
	17:12		20:09	20 19:14 (5)	21:07	21:57	22:15	21:42	20:36	19:19	13 18:50 (6)	17:09	16:20	16:22
31	08:29		07:15	18:57 (5)		05:13		05:47	06:42			07:35		08:58
	17:14		20:10	15 19:12 (5)		21:59		21:40	20:33			17:07		16:23
Potential sun hours	248	272	367	421		496	513	515	461	382		328	257	231
Total, worst case			496	7						494	19			
Sun reduction			0.22	0.34						0.29	0.23			
Oper. time red.			1.00	1.00						1.00	1.00			
Wind dir. red.			0.58	0.58						0.58	0.57			
Total reduction			0.13	0.20						0.17	0.13			
Total, real			64	1						83	3			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AN - H40

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June	July	August	September	October	November		December	
1	08:58		08:27	15:57 (1)	07:29	07:12	06:02	05:12	05:08	05:48	06:44	07:38	07:37		08:33	15:29 (1)
	16:24		17:16	20 16:17 (1)	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04		16:19	14 15:43 (1)
2	08:58		08:25	16:00 (1)	07:26	07:10	06:00	05:11	05:08	05:50	06:46	07:40	07:39		08:35	15:29 (1)
	16:25		17:18	16 16:16 (1)	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:02		16:18	12 15:41 (1)
3	08:58	15:47 (1)	08:24	16:03 (1)	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41		08:36	15:31 (1)
	16:26	1 15:48 (1)	17:20	11 16:14 (1)	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:00		16:18	10 15:41 (1)
4	08:58	15:47 (1)	08:22		07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43		08:38	15:32 (1)
	16:27	2 15:49 (1)	17:22		18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:58		16:17	8 15:40 (1)
5	08:57	15:47 (1)	08:20		07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45		08:39	15:32 (1)
	16:29	3 15:50 (1)	17:24		18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57		16:16	7 15:39 (1)
6	08:57	15:47 (1)	08:18		07:17	07:00	05:52	05:07	05:12	05:57	06:53	07:47	07:47		08:41	15:33 (1)
	16:30	5 15:52 (1)	17:26		18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55		16:16	6 15:39 (1)
7	08:56	15:47 (1)	08:16		07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49		08:42	15:34 (1)
	16:31	7 15:54 (1)	17:28		18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53		16:15	4 15:38 (1)
8	08:56	15:47 (1)	08:14		07:12	06:55	05:48	05:06	05:14	06:00	06:56	07:51	07:51	15:32 (1)	08:43	15:35 (1)
	16:33	8 15:55 (1)	17:30		18:27	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	12 15:44 (1)	16:15	3 15:38 (1)
9	08:55	15:46 (1)	08:12		07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	15:30 (1)	08:45	15:36 (1)
	16:34	10 15:56 (1)	17:32		18:28	20:27	21:23	22:08	22:10	21:23	20:11	18:56	16:49	16 15:46 (1)	16:15	1 15:37 (1)
10	08:55	15:47 (1)	08:10		07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	15:29 (1)	08:46	
	16:36	12 15:59 (1)	17:34		18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	20 15:49 (1)	16:14	
11	08:54	15:47 (1)	08:08		07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	15:27 (1)	08:47	
	16:37	14 16:01 (1)	17:36		18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:45	23 15:50 (1)	16:14	
12	08:53	15:47 (1)	08:06		07:02	06:46	05:40	05:04	05:18	06:08	07:04	07:59	07:59	15:26 (1)	08:48	
	16:39	15 16:02 (1)	17:38		18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	25 15:51 (1)	16:14	
13	08:52	15:48 (1)	08:04		07:00	06:43	05:39	05:04	05:20	06:09	07:05	08:00	08:01	15:25 (1)	08:49	
	16:41	16 16:04 (1)	17:41		18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	27 15:52 (1)	16:14	
14	08:51	15:47 (1)	08:02		06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03	15:25 (1)	08:50	
	16:42	18 16:05 (1)	17:43		18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:44	16:40	27 15:52 (1)	16:14	
15	08:50	15:47 (1)	08:00		06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	15:24 (1)	08:51	
	16:44	20 16:07 (1)	17:45		18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	29 15:53 (1)	16:14	
16	08:49	15:47 (1)	07:58		06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07	15:24 (1)	08:52	
	16:46	23 16:10 (1)	17:47		18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	30 15:54 (1)	16:14	
17	08:48	15:48 (1)	07:56		06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	15:24 (1)	08:53	
	16:47	24 16:12 (1)	17:49		18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36	30 15:54 (1)	16:14	
18	08:47	15:48 (1)	07:54		06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11	15:24 (1)	08:54	
	16:49	26 16:14 (1)	17:51		18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	32 15:56 (1)	16:14	
19	08:46	15:48 (1)	07:51		06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	15:24 (1)	08:54	
	16:51	27 16:15 (1)	17:53		18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	32 15:56 (1)	16:14	
20	08:45	15:49 (1)	07:49		06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	15:24 (1)	08:55	
	16:53	29 16:18 (1)	17:55		18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	32 15:56 (1)	16:15	
21	08:44	15:48 (1)	07:47		06:40	06:24	05:25	05:03	05:31	06:24	07:20	08:16	08:16	15:24 (1)	08:56	
	16:55	31 16:19 (1)	17:57		18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	32 15:56 (1)	16:15	
22	08:42	15:49 (1)	07:45		06:37	06:22	05:24	05:03	05:32	06:26	07:22	08:18	08:18	15:25 (1)	08:56	
	16:56	32 16:21 (1)	17:59		18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	29 15:54 (1)	16:15	
23	08:41	15:49 (1)	07:42		06:35	06:20	05:23	05:04	05:34	06:27	07:23	08:20	08:20	15:25 (1)	08:57	
	16:58	32 16:21 (1)	18:01		18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	28 15:53 (1)	16:16	
24	08:40	15:50 (1)	07:40		06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22	15:25 (1)	08:57	
	17:00	32 16:22 (1)	18:03		18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	16:26	26 15:51 (1)	16:17	
25	08:38	15:51 (1)	07:38		06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	15:26 (1)	08:58	
	17:02	30 16:21 (1)	18:05		18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	24 15:50 (1)	16:17	
26	08:37	15:51 (1)	07:36		06:27	06:13	05:19	05:05	05:38	06:33	07:29	07:26	08:25	15:26 (1)	08:58	
	17:04	30 16:21 (1)	18:07		19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	23 15:49 (1)	16:18	
27	08:35	15:52 (1)	07:33		06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	15:26 (1)	08:58	
	17:06	29 16:21 (1)	18:09		19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	21 15:47 (1)	16:19	
28	08:34	15:53 (1)	07:31		06:22	06:09	05:16	05:06	05:42	06:36	07:32	07:29	08:28	15:27 (1)	08:58	
	17:08	28 16:21 (1)	18:11		19:05	21:03	21:54	22:16	21:46	20:40	19:24	17:13	16:22	18 15:45 (1)	16:20	
29	08:32	15:54 (1)			07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	08:30	15:28 (1)	08:58	
	17:10	26 16:20 (1)			20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	17 15:45 (1)	16:20	
30	08:30	15:55 (1)			07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	15:29 (1)	08:58	
	17:12	24 16:19 (1)			20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	15 15:44 (1)	16:21	
31	08:29	15:56 (1)			07:15		05:13		05:47	06:42		07:35			08:58	
	17:14	22 16:18 (1)			20:10		21:58		21:40	20:33		17:06			16:22	
Potential sun hours	248		272		367	421	496	513	515	461	382	328	257		231	
Total, worst case	576		47										568		65	
Sun reduction	0.17		0.22										0.20		0.12	
Oper. time red.	1.00		1.00										1.00		1.00	
Wind dir. red.	0.61		0.61										0.61		0.61	
Total reduction	0.10		0.14										0.12		0.07	
Total, real	60		6										70		5	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AO - H41

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June		
1	08:59	08:27	07:29	07:13		06:02		05:12		05:45 (14)
	16:24	17:16	18:13	20:12		21:09		22:00	16	06:01 (14)
2	08:58	08:26	07:26	07:10		06:00		05:11		05:45 (14)
	16:25	17:18	18:15	20:14		21:11		22:01	15	06:00 (14)
3	08:58	08:24	07:24	07:08		05:58		05:10		05:46 (14)
	16:26	17:20	18:17	20:16		21:13		22:02	14	06:00 (14)
4	08:58	08:22	07:22	07:05		05:56		05:09		05:47 (14)
	16:27	17:22	18:19	20:18		21:15		22:04	13	06:00 (14)
5	08:58	08:20	07:19	07:03		05:54		05:08		05:48 (14)
	16:29	17:24	18:21	20:20		21:16		22:05	11	05:59 (14)
6	08:57	08:18	07:17	07:00		05:52		05:07		05:48 (14)
	16:30	17:26	18:23	20:22		21:18		22:06	11	05:59 (14)
7	08:57	08:16	07:14	06:58		05:50		05:07		05:49 (14)
	16:31	17:28	18:25	20:24		21:20		22:07	10	05:59 (14)
8	08:56	08:14	07:12	06:55		05:48		05:06		05:50 (14)
	16:33	17:30	18:27	20:26		21:22		22:08	8	05:58 (14)
9	08:55	08:13	07:10	06:53		05:46		05:06		05:51 (14)
	16:34	17:32	18:29	20:28		21:24		22:09	6	05:57 (14)
10	08:55	08:11	07:07	06:50	07:15 (13)	05:44		05:05		05:53 (14)
	16:36	17:34	18:31	20:29	2 07:17 (13)	21:25		22:10	3	05:56 (14)
11	08:54	08:09	07:05	06:48	07:12 (13)	05:42		05:05		
	16:37	17:37	18:33	20:31	4 07:16 (13)	21:27		22:10		
12	08:53	08:07	07:02	06:46	07:10 (13)	05:41		05:04		
	16:39	17:39	18:34	20:33	5 07:15 (13)	21:29		22:11		
13	08:53	08:04	07:00	06:43	07:08 (13)	05:39		05:04		
	16:41	17:41	18:36	20:35	6 07:14 (13)	21:31		22:12		
14	08:52	08:02	06:57	06:41	07:05 (13)	05:37		05:04		
	16:42	17:43	18:38	20:37	7 07:12 (13)	21:33		22:13		
15	08:51	08:00	06:55	06:38	07:06 (13)	05:35		05:03		
	16:44	17:45	18:40	20:39	2 07:08 (13)	21:34		22:13		
16	08:50	07:58	06:52	06:36		05:34		05:03		
	16:46	17:47	18:42	20:41		21:36		22:14		
17	08:49	07:56	06:50	06:34		05:32		05:03		
	16:47	17:49	18:44	20:43		21:38		22:14		
18	08:48	07:54	06:47	06:31		05:30		05:03		
	16:49	17:51	18:46	20:45		21:39		22:15		
19	08:46	07:52	06:45	06:29		05:29	05:58 (14)	05:03		
	16:51	17:53	18:48	20:46		21:41	2 06:00 (14)	22:15		
20	08:45	07:49	06:42	06:27		05:27	05:56 (14)	05:03		
	16:53	17:55	18:50	20:48		21:43	4 06:00 (14)	22:15		
21	08:44	07:47	06:40	06:24		05:26	05:55 (14)	05:03		
	16:55	17:57	18:52	20:50		21:44	6 06:01 (14)	22:16		
22	08:43	07:45	06:37	06:22		05:24	05:54 (14)	05:03		
	16:57	17:59	18:54	20:52		21:46	7 06:01 (14)	22:16		
23	08:41	07:43	06:35	06:20		05:23	05:52 (14)	05:04		
	16:58	18:01	18:55	20:54		21:47	9 06:01 (14)	22:16		
24	08:40	07:40	06:33	06:18		05:21	05:51 (14)	05:04		
	17:00	18:03	18:57	20:56		21:49	10 06:01 (14)	22:16		
25	08:38	07:38	06:30	06:15		05:20	05:50 (14)	05:04		
	17:02	18:05	18:59	20:58		21:50	12 06:02 (14)	22:16		
26	08:37	07:36	06:28	06:13		05:19	05:49 (14)	05:05		
	17:04	18:07	19:01	21:00		21:52	13 06:02 (14)	22:16		
27	08:35	07:33	06:25	06:11		05:17	05:48 (14)	05:05		
	17:06	18:09	19:03	21:02		21:53	14 06:02 (14)	22:16		
28	08:34	07:31	06:23	06:09		05:16	05:47 (14)	05:06		
	17:08	18:11	19:05	21:03		21:55	15 06:02 (14)	22:16		
29	08:32		07:20	06:07		05:15	05:46 (14)	05:06		
	17:10		20:07	21:05		21:56	16 06:02 (14)	22:16		
30	08:31		07:18	06:04		05:14	05:45 (14)	05:07		
	17:12		20:09	21:07		21:57	16 06:01 (14)	22:15		
31	08:29		07:15			05:13	05:45 (14)			
	17:14		20:11			21:59	16 06:01 (14)			
Potential sun hours	248	272	367	421		496		513		
Total, worst case					26		140		107	
Sun reduction					0.34		0.36		0.26	
Oper. time red.					1.00		1.00		1.00	
Wind dir. red.					0.57		0.58		0.58	
Total reduction					0.20		0.21		0.15	
Total, real					5		29		16	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AO - H41

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:08		05:48		06:44	07:11 (13)	07:38	07:38	08:34
	22:15		21:39		20:31	4 07:15 (13)	19:16	17:05	16:19
2	05:08	05:59 (14)	05:50		06:46	07:13 (13)	07:40	07:40	08:35
	22:15	1 06:00 (14)	21:37		20:29	2 07:15 (13)	19:14	17:03	16:18
3	05:09	05:57 (14)	05:52		06:47		07:42	07:42	08:37
	22:14	5 06:02 (14)	21:35		20:26		19:11	17:01	16:18
4	05:10	05:56 (14)	05:54		06:49		07:44	07:44	08:38
	22:14	7 06:03 (14)	21:33		20:24		19:09	16:59	16:17
5	05:11	05:55 (14)	05:55		06:51		07:46	07:45	08:40
	22:13	9 06:04 (14)	21:31		20:21		19:06	16:57	16:16
6	05:12	05:54 (14)	05:57		06:53		07:47	07:47	08:41
	22:12	11 06:05 (14)	21:29		20:19		19:04	16:55	16:16
7	05:13	05:54 (14)	05:59		06:55		07:49	07:49	08:42
	22:12	11 06:05 (14)	21:27		20:16		19:01	16:53	16:15
8	05:14	05:54 (14)	06:01		06:56		07:51	07:51	08:44
	22:11	12 06:06 (14)	21:25		20:14		18:59	16:51	16:15
9	05:15	05:53 (14)	06:02		06:58		07:53	07:53	08:45
	22:10	14 06:07 (14)	21:23		20:11		18:57	16:49	16:15
10	05:16	05:53 (14)	06:04		07:00		07:55	07:55	08:46
	22:09	15 06:08 (14)	21:21		20:09		18:54	16:47	16:14
11	05:17	05:53 (14)	06:06		07:02		07:57	07:57	08:47
	22:09	15 06:08 (14)	21:19		20:06		18:52	16:46	16:14
12	05:18	05:52 (14)	06:08		07:04		07:59	07:59	08:48
	22:08	16 06:08 (14)	21:17		20:04		18:49	16:44	16:14
13	05:20	05:53 (14)	06:09		07:05		08:01	08:01	08:49
	22:07	17 06:10 (14)	21:15		20:01		18:47	16:42	16:14
14	05:21	05:54 (14)	06:11		07:07		08:02	08:03	08:50
	22:05	16 06:10 (14)	21:13		19:59		18:45	16:41	16:14
15	05:22	05:55 (14)	06:13		07:09		08:04	08:05	08:51
	22:04	15 06:10 (14)	21:11		19:56		18:42	16:39	16:14
16	05:23	05:56 (14)	06:15		07:11		08:06	08:07	08:52
	22:03	14 06:10 (14)	21:08		19:54		18:40	16:37	16:14
17	05:25	05:58 (14)	06:17		07:13		08:08	08:09	08:53
	22:02	13 06:11 (14)	21:06		19:51		18:38	16:36	16:14
18	05:26	05:59 (14)	06:18		07:14		08:10	08:11	08:54
	22:01	12 06:11 (14)	21:04		19:49		18:35	16:34	16:14
19	05:28	06:00 (14)	06:20		07:16		08:12	08:13	08:55
	21:59	11 06:11 (14)	21:02		19:46		18:33	16:33	16:14
20	05:29	06:02 (14)	06:22		07:18		08:14	08:15	08:55
	21:58	10 06:12 (14)	20:59		19:44		18:31	16:31	16:15
21	05:31	06:03 (14)	06:24		07:20		08:16	08:16	08:56
	21:57	8 06:11 (14)	20:57		19:41		18:28	16:30	16:15
22	05:32	06:04 (14)	06:26		07:22		08:18	08:18	08:57
	21:55	7 06:11 (14)	20:55		19:39		18:26	16:29	16:16
23	05:34	06:06 (14)	06:28		07:24		08:20	08:20	08:57
	21:54	5 06:11 (14)	20:52		19:36		18:24	16:28	16:16
24	05:35	06:07 (14)	06:29		07:25		08:22	08:22	08:57
	21:52	3 06:10 (14)	20:50		19:34		18:22	16:26	16:17
25	05:37	06:09 (14)	06:31		07:27		07:24	08:24	08:58
	21:51	1 06:10 (14)	20:48		19:31		07:19	16:25	16:17
26	05:38		06:33		07:29		07:26	08:25	08:58
	21:49		20:45		19:29		17:17	16:24	16:18
27	05:40		06:35		07:31		07:28	08:27	08:58
	21:47		20:43		19:26		17:15	16:23	16:19
28	05:42		06:37	07:07 (13)	07:33		07:30	08:29	08:59
	21:46		20:41	3 07:10 (13)	19:24		17:13	16:22	16:20
29	05:43		06:38	07:06 (13)	07:34		07:32	08:30	08:59
	21:44		20:38	7 07:13 (13)	19:21		17:11	16:21	16:21
30	05:45		06:40	07:08 (13)	07:36		07:34	08:32	08:59
	21:42		20:36	6 07:14 (13)	19:19		17:09	16:20	16:21
31	05:47		06:42	07:10 (13)			07:36		08:59
	21:41		20:33	5 07:15 (13)			17:07		16:22
Potential sun hours	515		461		383		328	257	231
Total, worst case		248		21		6			
Sun reduction		0.27		0.27		0.29			
Oper. time red.		1.00		1.00		1.00			
Wind dir. red.		0.58		0.57		0.57			
Total reduction		0.15		0.16		0.17			
Total, real		38		3		1			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AP - H42

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April	May	June
1	08:58			08:27		15:37 (18)	07:29		16:44 (17)	07:12	06:02	05:11
	16:24			17:16	29	16:06 (18)	18:13	35	17:19 (17)	20:12	21:09	22:00
2	08:58			08:25		15:38 (18)	07:26		16:43 (17)	07:10	06:00	05:10
	16:25			17:18	27	16:05 (18)	18:15	34	17:17 (17)	20:14	21:11	22:01
3	08:58			08:24		15:39 (18)	07:24		16:44 (17)	07:07	05:58	05:10
	16:26			17:20	25	16:04 (18)	18:17	33	17:17 (17)	20:16	21:13	22:02
4	08:58		15:40 (18)	08:22		15:41 (18)	07:21		16:45 (17)	07:05	05:56	05:09
	16:27	4	15:44 (18)	17:22	22	16:03 (18)	18:19	30	17:15 (17)	20:18	21:14	22:03
5	08:57		15:38 (18)	08:20		15:42 (18)	07:19		16:46 (17)	07:02	05:54	05:08
	16:28	9	15:47 (18)	17:24	20	16:02 (18)	18:21	28	17:14 (17)	20:20	21:16	22:05
6	08:57		15:37 (18)	08:18		15:44 (18)	07:17		16:47 (17)	07:00	05:52	05:07
	16:30	12	15:49 (18)	17:26	16	16:00 (18)	18:23	25	17:12 (17)	20:22	21:18	22:06
7	08:56		15:36 (18)	08:16		15:48 (18)	07:14		16:49 (17)	06:58	05:50	05:06
	16:31	14	15:50 (18)	17:28	10	15:58 (18)	18:24	22	17:11 (17)	20:24	21:20	22:07
8	08:56		15:35 (18)	08:14			07:12		16:51 (17)	06:55	05:48	05:06
	16:33	16	15:51 (18)	17:30			18:26	17	17:08 (17)	20:26	21:22	22:08
9	08:55		15:35 (18)	08:12			07:09		16:55 (17)	06:53	05:46	05:05
	16:34	19	15:54 (18)	17:32			18:28	9	17:04 (17)	20:27	21:23	22:09
10	08:55		15:35 (18)	08:10			07:07			06:50	05:44	05:05
	16:36	20	15:55 (18)	17:34			18:30			20:29	21:25	22:09
11	08:54		15:34 (18)	08:08			07:05			06:48	05:42	05:04
	16:37	22	15:56 (18)	17:36			18:32			20:31	21:27	22:10
12	08:53		15:34 (18)	08:06			07:02			06:45	05:40	05:04
	16:39	23	15:57 (18)	17:38			18:34			20:33	21:29	22:11
13	08:52		15:34 (18)	08:04			07:00			06:43	05:38	05:04
	16:40	24	15:58 (18)	17:40			18:36			20:35	21:31	22:12
14	08:51		15:34 (18)	08:02		16:56 (17)	06:57			06:41	05:37	05:03
	16:42	25	15:59 (18)	17:42	13	17:09 (17)	18:38			20:37	21:32	22:12
15	08:51		15:33 (18)	08:00		16:52 (17)	06:55			06:38	05:35	05:03
	16:44	26	15:59 (18)	17:44	19	17:11 (17)	18:40			20:39	21:34	22:13
16	08:50		15:33 (18)	07:58		16:50 (17)	06:52			06:36	05:33	05:03
	16:45	28	16:01 (18)	17:46	23	17:13 (17)	18:42			20:41	21:36	22:14
17	08:48		15:33 (18)	07:56		16:49 (17)	06:50			06:33	05:32	05:03
	16:47	29	16:02 (18)	17:49	26	17:15 (17)	18:44			20:42	21:37	22:14
18	08:47		15:33 (18)	07:54		16:48 (17)	06:47			06:31	05:30	05:03
	16:49	30	16:03 (18)	17:51	28	17:16 (17)	18:46			20:44	21:39	22:15
19	08:46		15:32 (18)	07:51		16:46 (17)	06:45			06:29	05:28	05:03
	16:51	31	16:03 (18)	17:53	31	17:17 (17)	18:48			20:46	21:41	22:15
20	08:45		15:33 (18)	07:49		16:46 (17)	06:42			06:26	05:27	05:03
	16:53	31	16:04 (18)	17:55	32	17:18 (17)	18:50			20:48	21:42	22:15
21	08:44		15:32 (18)	07:47		16:45 (17)	06:40			06:24	05:25	05:03
	16:54	32	16:04 (18)	17:57	34	17:19 (17)	18:51			20:50	21:44	22:16
22	08:42		15:33 (18)	07:45		16:44 (17)	06:37			06:22	05:24	05:03
	16:56	32	16:05 (18)	17:59	35	17:19 (17)	18:53			20:52	21:46	22:16
23	08:41		15:33 (18)	07:42		16:44 (17)	06:35			06:20	05:22	05:03
	16:58	32	16:05 (18)	18:01	35	17:19 (17)	18:55			20:54	21:47	22:16
24	08:40		15:33 (18)	07:40		16:44 (17)	06:32			06:17	05:21	05:04
	17:00	33	16:06 (18)	18:03	36	17:20 (17)	18:57			20:56	21:49	22:16
25	08:38		15:33 (18)	07:38		16:43 (17)	06:30			06:15	05:20	05:04
	17:02	33	16:06 (18)	18:05	36	17:19 (17)	18:59			20:58	21:50	22:16
26	08:37		15:33 (18)	07:36		16:43 (17)	06:27			06:13	05:18	05:04
	17:04	33	16:06 (18)	18:07	36	17:19 (17)	19:01			20:59	21:52	22:16
27	08:35		15:34 (18)	07:33		16:42 (17)	06:25			06:11	05:17	05:05
	17:06	32	16:06 (18)	18:09	37	17:19 (17)	19:03			21:01	21:53	22:16
28	08:34		15:34 (18)	07:31		16:43 (17)	06:22			06:08	05:16	05:05
	17:08	32	16:06 (18)	18:11	36	17:19 (17)	19:05			21:03	21:55	22:16
29	08:32		15:35 (18)				07:20			06:06	05:15	05:06
	17:10	31	16:06 (18)				20:07			21:05	21:56	22:15
30	08:31		15:35 (18)				07:17			06:04	05:14	05:07
	17:12	31	16:06 (18)				20:08			21:07	21:57	22:15
31	08:29		15:36 (18)				07:15				05:12	
	17:14	29	16:05 (18)				20:10				21:59	
Potential sun hours	248			272			367			421	496	513
Total, worst case		713			606			233				
Sun reduction		0.17			0.22			0.22				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.62			0.59			0.58				
Total reduction		0.11			0.13			0.13				
Total, real		76			80			30				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AP - H42

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October			November			December		
1	05:07		05:48		06:44		07:38			07:37			08:33		15:16 (18)
	22:15		21:39		20:31		19:16			17:04			16:19	22	15:38 (18)
2	05:08		05:50		06:45		07:40			07:39			08:35		15:17 (18)
	22:14		21:37		20:28		19:14			17:02			16:18	20	15:37 (18)
3	05:09		05:52		06:47		07:42			07:41			08:36		15:18 (18)
	22:14		21:35		20:26		19:11			17:00			16:17	19	15:37 (18)
4	05:10		05:53		06:49		07:44			07:43		15:17 (18)	08:38		15:20 (18)
	22:14		21:33		20:24		19:09			16:58	11	15:28 (18)	16:17	17	15:37 (18)
5	05:11		05:55		06:51		07:45		17:29 (17)	07:45		15:14 (18)	08:39		15:21 (18)
	22:13		21:31		20:21		19:06	14	17:43 (17)	16:56	16	15:30 (18)	16:16	14	15:35 (18)
6	05:11		05:57		06:53		07:47		17:26 (17)	07:47		15:12 (18)	08:41		15:23 (18)
	22:12		21:29		20:19		19:04	20	17:46 (17)	16:54	20	15:32 (18)	16:16	12	15:35 (18)
7	05:12		05:59		06:54		07:49		17:24 (17)	07:49		15:10 (18)	08:42		15:24 (18)
	22:12		21:27		20:16		19:01	24	17:48 (17)	16:53	23	15:33 (18)	16:15	10	15:34 (18)
8	05:14		06:00		06:56		07:51		17:22 (17)	07:51		15:09 (18)	08:43		15:27 (18)
	22:11		21:25		20:14		18:59	27	17:49 (17)	16:51	25	15:34 (18)	16:15	6	15:33 (18)
9	05:15		06:02		06:58		07:53		17:20 (17)	07:53		15:08 (18)	08:45		
	22:10		21:23		20:11		18:56	30	17:50 (17)	16:49	27	15:35 (18)	16:14		
10	05:16		06:04		07:00		07:55		17:19 (17)	07:55		15:08 (18)	08:46		
	22:09		21:21		20:09		18:54	32	17:51 (17)	16:47	29	15:37 (18)	16:14		
11	05:17		06:06		07:02		07:57		17:18 (17)	07:57		15:07 (18)	08:47		
	22:08		21:19		20:06		18:51	33	17:51 (17)	16:45	30	15:37 (18)	16:14		
12	05:18		06:07		07:03		07:58		17:17 (17)	07:59		15:07 (18)	08:48		
	22:07		21:17		20:04		18:49	35	17:52 (17)	16:44	31	15:38 (18)	16:13		
13	05:19		06:09		07:05		08:00		17:16 (17)	08:01		15:07 (18)	08:49		
	22:06		21:15		20:01		18:47	36	17:52 (17)	16:42	31	15:38 (18)	16:13		
14	05:21		06:11		07:07		08:02		17:16 (17)	08:03		15:06 (18)	08:50		
	22:05		21:13		19:59		18:44	36	17:52 (17)	16:40	32	15:38 (18)	16:13		
15	05:22		06:13		07:09		08:04		17:15 (17)	08:05		15:06 (18)	08:51		
	22:04		21:10		19:56		18:42	37	17:52 (17)	16:39	32	15:38 (18)	16:13		
16	05:23		06:15		07:11		08:06		17:15 (17)	08:07		15:06 (18)	08:52		
	22:03		21:08		19:54		18:40	37	17:52 (17)	16:37	33	15:39 (18)	16:13		
17	05:25		06:16		07:12		08:08		17:15 (17)	08:09		15:07 (18)	08:53		
	22:02		21:06		19:51		18:37	36	17:51 (17)	16:36	33	15:40 (18)	16:14		
18	05:26		06:18		07:14		08:10		17:15 (17)	08:11		15:07 (18)	08:54		
	22:01		21:04		19:49		18:35	36	17:51 (17)	16:34	33	15:40 (18)	16:14		
19	05:27		06:20		07:16		08:12		17:15 (17)	08:12		15:08 (18)	08:55		
	21:59		21:01		19:46		18:33	35	17:50 (17)	16:33	32	15:40 (18)	16:14		
20	05:29		06:22		07:18		08:14		17:15 (17)	08:14		15:08 (18)	08:55		
	21:58		20:59		19:44		18:30	35	17:50 (17)	16:31	32	15:40 (18)	16:14		
21	05:30		06:24		07:20		08:16		17:16 (17)	08:16		15:08 (18)	08:56		
	21:57		20:57		19:41		18:28	33	17:49 (17)	16:30	32	15:40 (18)	16:15		
22	05:32		06:25		07:21		08:18		17:16 (17)	08:18		15:09 (18)	08:56		
	21:55		20:55		19:39		18:26	32	17:48 (17)	16:29	31	15:40 (18)	16:15		
23	05:33		06:27		07:23		08:20		17:17 (17)	08:20		15:10 (18)	08:57		
	21:54		20:52		19:36		18:24	30	17:47 (17)	16:27	30	15:40 (18)	16:16		
24	05:35		06:29		07:25		08:22		17:18 (17)	08:22		15:10 (18)	08:57		
	21:52		20:50		19:33		18:21	28	17:46 (17)	16:26	30	15:40 (18)	16:16		
25	05:37		06:31		07:27		07:24		16:19 (17)	08:23		15:11 (18)	08:58		
	21:51		20:48		19:31		17:19	25	16:44 (17)	16:25	29	15:40 (18)	16:17		
26	05:38		06:33		07:29		07:26		16:20 (17)	08:25		15:12 (18)	08:58		
	21:49		20:45		19:28		17:17	22	16:42 (17)	16:24	28	15:40 (18)	16:18		
27	05:40		06:35		07:31		07:27		16:22 (17)	08:27		15:13 (18)	08:58		
	21:47		20:43		19:26		17:15	18	16:40 (17)	16:23	27	15:40 (18)	16:18		
28	05:41		06:36		07:32		07:29		16:26 (17)	08:29		15:13 (18)	08:58		
	21:46		20:40		19:23		17:13	11	16:37 (17)	16:22	25	15:38 (18)	16:19		
29	05:43		06:38		07:34		07:31			08:30		15:14 (18)	08:58		
	21:44		20:38		19:21		17:11			16:21	24	15:38 (18)	16:20		
30	05:45		06:40		07:36		07:33			08:32		15:15 (18)	08:59		
	21:42		20:36		19:18		17:08			16:20	23	15:38 (18)	16:21		
31	05:46		06:42				07:35						08:59		
	21:40		20:33				17:06						16:22		
Potential sun hours	515		461		383		327			257			230		
Total, worst case								702			749			120	
Sun reduction								0.23			0.20			0.12	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.58			0.62			0.62	
Total reduction								0.14			0.12			0.07	
Total, real								96			93			9	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AQ - H43

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May	June	July	August	September		October		November	December
1	08:58	08:27	07:29		07:13	18:53 (5)	06:02	05:12	05:08	05:48	06:44		07:38	18:37 (6)	07:37	08:33
	16:24	17:16	18:13		20:12	20 19:13 (5)	21:09	22:00	22:15	21:39	20:31		19:16	11 18:48 (6)	17:05	16:19
2	08:58	08:25	07:26		07:10	18:55 (5)	06:00	05:11	05:08	05:50	06:46		07:40	18:38 (6)	07:39	08:35
	16:25	17:18	18:15		20:14	15 19:10 (5)	21:11	22:01	22:14	21:37	20:28		19:14	7 18:45 (6)	17:02	16:18
3	08:58	08:24	07:24		07:08	19:01 (5)	05:58	05:10	05:09	05:52	06:47		07:42	18:38 (6)	07:41	08:36
	16:26	17:20	18:17		20:16	4 19:05 (5)	21:13	22:02	22:14	21:35	20:26		19:11	4 18:42 (6)	17:00	16:18
4	08:58	08:22	07:22		07:05		05:56	05:09	05:10	05:54	06:49		07:44		07:43	08:38
	16:27	17:22	18:19		20:18		21:14	22:03	22:13	21:33	20:24		19:09		16:59	16:17
5	08:57	08:20	07:19		07:03		05:54	05:08	05:11	05:55	06:51		07:45		07:45	08:39
	16:29	17:24	18:21		20:20		21:16	22:05	22:13	21:31	20:21		19:06		16:57	16:16
6	08:57	08:18	07:17		07:00		05:52	05:07	05:12	05:57	06:53		07:47		07:47	08:41
	16:30	17:26	18:23		20:22		21:18	22:06	22:12	21:29	20:19		19:04		16:55	16:16
7	08:56	08:16	07:14		06:58		05:50	05:07	05:13	05:59	06:55		07:49		07:49	08:42
	16:31	17:28	18:25		20:24		21:20	22:07	22:12	21:27	20:16		19:01		16:53	16:15
8	08:56	08:14	07:12		06:55		05:48	05:06	05:14	06:01	06:56		07:51		07:51	08:43
	16:33	17:30	18:27		20:26		21:22	22:08	22:11	21:25	20:14		18:59		16:51	16:15
9	08:55	08:12	07:10		06:53		05:46	05:06	05:15	06:02	06:58		07:53		07:53	08:45
	16:34	17:32	18:29		20:27		21:23	22:09	22:10	21:23	20:11		18:56		16:49	16:15
10	08:55	08:10	07:07		18:01 (6)	06:50	05:44	05:05	05:16	06:04	07:00	18:49 (5)	07:55		07:55	08:46
	16:36	17:34	18:30	2	18:03 (6)	20:29	21:25	22:09	22:09	21:21	20:09	14 19:03 (5)	18:54		16:47	16:14
11	08:54	08:08	07:05		17:59 (6)	06:48	05:42	05:05	05:17	06:06	07:02	18:46 (5)	07:57		07:57	08:47
	16:37	17:36	18:32	6	18:05 (6)	20:31	21:27	22:10	22:08	21:19	20:06	20 19:06 (5)	18:52		16:46	16:14
12	08:53	08:06	07:02		17:57 (6)	06:46	05:41	05:04	05:18	06:08	07:04	18:43 (5)	07:59		07:59	08:48
	16:39	17:39	18:34	10	18:07 (6)	20:33	21:29	22:11	22:07	21:17	20:04	24 19:07 (5)	18:49		16:44	16:14
13	08:52	08:04	07:00		17:56 (6)	06:43	05:39	05:04	05:20	06:09	07:05	18:41 (5)	08:00		08:01	08:49
	16:41	17:41	18:36	13	18:09 (6)	20:35	21:31	22:12	22:06	21:15	20:01	27 19:08 (5)	18:47		16:42	16:14
14	08:51	08:02	06:57		17:55 (6)	06:41	05:37	05:04	05:21	06:11	07:07	18:40 (5)	08:02		08:03	08:50
	16:42	17:43	18:38	16	18:11 (6)	20:37	21:32	22:12	22:05	21:13	19:59	29 19:09 (5)	18:44		16:41	16:14
15	08:50	08:00	06:55		17:54 (6)	06:38	05:35	05:03	05:22	06:13	07:09	18:39 (5)	08:04		08:05	08:51
	16:44	17:45	18:40	19	18:13 (6)	20:39	21:34	22:13	22:04	21:10	19:56	31 19:10 (5)	18:42		16:39	16:14
16	08:49	07:58	06:52		17:53 (6)	06:36	05:34	05:03	05:23	06:15	07:11	18:38 (5)	08:06		08:07	08:52
	16:46	17:47	18:42	22	18:15 (6)	20:41	21:36	22:14	22:03	21:08	19:54	33 19:11 (5)	18:40		16:37	16:14
17	08:48	07:56	06:50		17:52 (5)	06:34	05:32	05:03	05:25	06:17	07:13	18:36 (5)	08:08		08:09	08:53
	16:47	17:49	18:44	25	18:17 (6)	20:43	21:37	22:14	22:02	21:06	19:51	34 19:10 (5)	18:37		16:36	16:14
18	08:47	07:54	06:47		17:50 (5)	06:31	05:30	05:03	05:26	06:18	07:14	18:35 (5)	08:10		08:11	08:54
	16:49	17:51	18:46	29	18:19 (6)	20:44	21:39	22:14	22:01	21:04	19:49	35 19:10 (5)	18:35		16:34	16:14
19	08:46	07:51	06:45		17:50 (5)	06:29	05:29	05:03	05:28	06:20	07:16	18:35 (5)	08:12		08:12	08:55
	16:51	17:53	18:48	31	18:21 (5)	20:46	21:41	22:15	21:59	21:01	19:46	35 19:10 (5)	18:33		16:33	16:14
20	08:45	07:49	06:42		17:49 (5)	06:27	05:27	05:03	05:29	06:22	07:18	18:34 (5)	08:14		08:14	08:55
	16:53	17:55	18:50	33	18:22 (5)	20:48	21:42	22:15	21:58	20:59	19:44	36 19:10 (5)	18:31		16:31	16:15
21	08:44	07:47	06:40		17:49 (5)	06:24	05:26	05:03	05:31	06:24	07:20	18:33 (5)	08:16		08:16	08:56
	16:55	17:57	18:52	35	18:24 (5)	20:50	21:44	22:15	21:56	20:57	19:41	36 19:09 (5)	18:28		16:30	16:15
22	08:42	07:45	06:37		17:48 (5)	06:22	05:24	05:03	05:32	06:26	07:22	18:33 (5)	08:18		08:18	08:56
	16:57	17:59	18:53	36	18:24 (5)	20:52	21:46	22:16	21:55	20:55	19:39	36 19:09 (5)	18:26		16:29	16:16
23	08:41	07:43	06:35		17:48 (5)	06:20	05:23	05:04	05:34	06:27	07:23	18:33 (5)	08:20		08:20	08:57
	16:58	18:01	18:55	36	18:24 (5)	20:54	21:47	22:16	21:54	20:52	19:36	35 19:08 (5)	18:24		16:28	16:16
24	08:40	07:40	06:32		17:47 (5)	06:18	05:21	05:04	05:35	06:29	07:25	18:33 (5)	08:22		08:22	08:57
	17:00	18:03	18:57	36	18:23 (5)	20:56	21:49	22:16	21:52	20:50	19:34	32 19:05 (5)	18:22		16:26	16:17
25	08:38	07:38	06:30		17:48 (5)	06:15	05:20	05:04	05:37	06:31	07:27	18:34 (5)	07:24		08:23	08:58
	17:02	18:05	18:59	35	18:23 (5)	20:58	21:50	22:16	21:51	20:48	19:31	29 19:03 (6)	17:19		16:25	16:17
26	08:37	07:36	06:27		17:47 (5)	06:13	05:19	05:05	05:38	06:33	07:29	18:33 (5)	07:26		08:25	08:58
	17:04	18:07	19:01	35	18:22 (5)	20:59	21:52	22:16	21:49	20:45	19:29	27 19:00 (6)	17:17		16:24	16:18
27	08:35	07:33	06:25		17:48 (5)	06:11	05:17	05:05	05:40	06:35	07:31	18:34 (5)	07:28		08:27	08:58
	17:06	18:09	19:03	33	18:21 (5)	21:01	21:53	22:16	21:47	20:43	19:26	23 18:57 (6)	17:15		16:23	16:19
28	08:34	07:31	06:22		17:48 (5)	06:09	05:16	05:06	05:42	06:37	07:33	18:35 (6)	07:30		08:28	08:58
	17:08	18:11	19:05	32	18:20 (5)	21:03	21:55	22:16	21:46	20:41	19:24	20 18:55 (6)	17:13		16:22	16:20
29	08:32		07:20		18:49 (5)	06:07	05:15	05:06	05:43	06:38	07:34	18:35 (6)	07:31		08:30	08:58
	17:10		20:07	30	19:19 (5)	21:05	21:56	22:15	21:44	20:38	19:21	18 18:53 (6)	17:11		16:21	16:21
30	08:31		07:17		18:50 (5)	06:04	05:14	05:07	05:45	06:40	07:36	18:36 (6)	07:33		08:32	08:58
	17:12		20:09	27	19:17 (5)	21:07	21:57	22:15	21:42	20:36	19:19	14 18:50 (6)	17:09		16:20	16:22
31	08:29		07:15		18:51 (5)		05:13		05:47	06:42			07:35			08:58
	17:14		20:10	25	19:16 (5)		21:59		21:40	20:33			17:07			16:23
Potential sun hours	248	272	367		421		496	513	515	461	382		328		257	231
Total, worst case			566		39						588		22			
Sun reduction			0.22		0.34						0.29		0.23			
Oper. time red.			1.00		1.00						1.00		1.00			
Wind dir. red.			0.58		0.58						0.58		0.57			
Total reduction			0.13		0.20						0.17		0.13			
Total, real			73		8						99		3			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AR - H44

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June	
1	08:58	08:27	07:29	07:12		06:02	19:15 (18)	05:11	20:20 (17)
	16:24	17:16	18:13	20:12		21:09	23 19:38 (18)	22:00	31 20:51 (17)
2	08:58	08:25	07:26	07:10		06:00	19:16 (18)	05:11	20:20 (17)
	16:25	17:18	18:15	20:14		21:11	21 19:37 (18)	22:01	31 20:51 (17)
3	08:58	08:24	07:24	07:07		05:58	19:18 (18)	05:10	20:20 (17)
	16:26	17:20	18:17	20:16		21:12	17 19:35 (18)	22:02	31 20:51 (17)
4	08:58	08:22	07:21	07:05		05:56	19:21 (18)	05:09	20:20 (17)
	16:27	17:22	18:19	20:18		21:14	11 19:32 (18)	22:03	30 20:50 (17)
5	08:57	08:20	07:19	07:02		05:54		05:08	20:21 (17)
	16:28	17:24	18:21	20:20		21:16		22:05	30 20:51 (17)
6	08:57	08:18	07:17	07:00		05:52		05:07	20:21 (17)
	16:30	17:26	18:23	20:22		21:18		22:06	29 20:50 (17)
7	08:56	08:16	07:14	06:58		05:50		05:06	20:22 (17)
	16:31	17:28	18:24	20:24		21:20		22:07	29 20:51 (17)
8	08:56	08:14	07:12	06:55		05:48		05:06	20:22 (17)
	16:33	17:30	18:26	20:25		21:22		22:08	29 20:51 (17)
9	08:55	08:12	07:09	06:53	19:26 (18)	05:46		05:05	20:23 (17)
	16:34	17:32	18:28	20:27	10 19:36 (18)	21:23		22:09	28 20:51 (17)
10	08:55	08:10	07:07	06:50	19:22 (18)	05:44	20:28 (17)	05:05	20:23 (17)
	16:36	17:34	18:30	20:29	17 19:39 (18)	21:25	10 20:38 (17)	22:09	27 20:50 (17)
11	08:54	08:08	07:05	06:48	19:19 (18)	05:42	20:27 (17)	05:04	20:23 (17)
	16:37	17:36	18:32	20:31	22 19:41 (18)	21:27	14 20:41 (17)	22:10	28 20:51 (17)
12	08:53	08:06	07:02	06:45	19:18 (18)	05:40	20:24 (17)	05:04	20:24 (17)
	16:39	17:38	18:34	20:33	25 19:43 (18)	21:29	19 20:43 (17)	22:11	27 20:51 (17)
13	08:52	08:04	07:00	06:43	19:16 (18)	05:38	20:23 (17)	05:04	20:24 (17)
	16:40	17:40	18:36	20:35	28 19:44 (18)	21:31	21 20:44 (17)	22:12	26 20:50 (17)
14	08:51	08:02	06:57	06:41	19:15 (18)	05:37	20:22 (17)	05:03	20:24 (17)
	16:42	17:42	18:38	20:37	30 19:45 (18)	21:32	24 20:46 (17)	22:12	27 20:51 (17)
15	08:50	08:00	06:55	06:38	19:14 (18)	05:35	20:21 (17)	05:03	20:25 (17)
	16:44	17:44	18:40	20:39	32 19:46 (18)	21:34	25 20:46 (17)	22:13	26 20:51 (17)
16	08:49	07:58	06:52	06:36	19:12 (18)	05:33	20:21 (17)	05:03	20:25 (17)
	16:45	17:46	18:42	20:41	33 19:45 (18)	21:36	26 20:47 (17)	22:14	26 20:51 (17)
17	08:48	07:56	06:50	06:33	19:12 (18)	05:32	20:20 (17)	05:03	20:25 (17)
	16:47	17:49	18:44	20:42	34 19:46 (18)	21:37	27 20:47 (17)	22:14	26 20:51 (17)
18	08:47	07:54	06:47	06:31	19:11 (18)	05:30	20:20 (17)	05:03	20:26 (17)
	16:49	17:51	18:46	20:44	35 19:46 (18)	21:39	28 20:48 (17)	22:14	25 20:51 (17)
19	08:46	07:51	06:45	06:29	19:11 (18)	05:28	20:19 (17)	05:03	20:26 (17)
	16:51	17:53	18:48	20:46	36 19:47 (18)	21:41	29 20:48 (17)	22:15	25 20:51 (17)
20	08:45	07:49	06:42	06:26	19:10 (18)	05:27	20:19 (17)	05:03	20:26 (17)
	16:53	17:55	18:50	20:48	36 19:46 (18)	21:42	30 20:49 (17)	22:15	25 20:51 (17)
21	08:44	07:47	06:40	06:24	19:10 (18)	05:25	20:19 (17)	05:03	20:26 (17)
	16:54	17:57	18:51	20:50	36 19:46 (18)	21:44	31 20:50 (17)	22:15	25 20:51 (17)
22	08:42	07:45	06:37	06:22	19:10 (18)	05:24	20:18 (17)	05:03	20:27 (17)
	16:56	17:59	18:53	20:52	36 19:46 (18)	21:46	31 20:49 (17)	22:16	25 20:52 (17)
23	08:41	07:42	06:35	06:20	19:10 (18)	05:22	20:18 (17)	05:03	20:27 (17)
	16:58	18:01	18:55	20:54	36 19:46 (18)	21:47	32 20:50 (17)	22:16	25 20:52 (17)
24	08:40	07:40	06:32	06:17	19:10 (18)	05:21	20:18 (17)	05:04	20:27 (17)
	17:00	18:03	18:57	20:56	35 19:45 (18)	21:49	32 20:50 (17)	22:16	25 20:52 (17)
25	08:38	07:38	06:30	06:15	19:10 (18)	05:20	20:19 (17)	05:04	20:28 (17)
	17:02	18:05	18:59	20:58	34 19:44 (18)	21:50	32 20:51 (17)	22:16	25 20:53 (17)
26	08:37	07:36	06:27	06:13	19:10 (18)	05:18	20:19 (17)	05:04	20:27 (17)
	17:04	18:07	19:01	20:59	33 19:43 (18)	21:52	32 20:51 (17)	22:16	26 20:53 (17)
27	08:35	07:33	06:25	06:11	19:11 (18)	05:17	20:18 (17)	05:05	20:28 (17)
	17:06	18:09	19:03	21:01	32 19:43 (18)	21:53	32 20:50 (17)	22:16	26 20:54 (17)
28	08:34	07:31	06:22	06:08	19:12 (18)	05:16	20:18 (17)	05:05	20:27 (17)
	17:08	18:11	19:05	21:03	30 19:42 (18)	21:55	32 20:50 (17)	22:16	27 20:54 (17)
29	08:32		07:20	06:06	19:12 (18)	05:15	20:18 (17)	05:06	20:28 (17)
	17:10		20:07	21:05	29 19:41 (18)	21:56	32 20:50 (17)	22:15	26 20:54 (17)
30	08:30		07:17	06:04	19:13 (18)	05:14	20:19 (17)	05:07	20:27 (17)
	17:12		20:08	21:07	27 19:40 (18)	21:57	31 20:50 (17)	22:15	27 20:54 (17)
31	08:29		07:15			05:12	20:20 (17)		
	17:14		20:10			21:59	31 20:51 (17)		
Potential sun hours	248	272	367	421		496		513	
Total, worst case					666		673		813
Sun reduction					0.34		0.36		0.26
Oper. time red.					1.00		1.00		1.00
Wind dir. red.					0.59		0.62		0.62
Total reduction					0.20		0.22		0.16
Total, real					135		151		130

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AR - H44

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October	November	December
1	05:07		20:28 (17)	05:48		20:35 (17)	06:44		19:18 (18)	07:38	07:37	08:33
	22:15	27	20:55 (17)	21:39	18	20:53 (17)	20:31	22	19:40 (18)	19:16	17:04	16:19
2	05:08		20:28 (17)	05:50		20:38 (17)	06:45		19:21 (18)	07:40	07:39	08:35
	22:14	27	20:55 (17)	21:37	13	20:51 (17)	20:28	17	19:38 (18)	19:14	17:02	16:18
3	05:09		20:28 (17)	05:52		20:40 (17)	06:47		19:24 (18)	07:42	07:41	08:36
	22:14	28	20:56 (17)	21:35	7	20:47 (17)	20:26	10	19:34 (18)	19:11	17:00	16:17
4	05:10		20:27 (17)	05:53			06:49			07:43	07:43	08:38
	22:13	29	20:56 (17)	21:33			20:23			19:09	16:58	16:17
5	05:11		20:27 (17)	05:55			06:51			07:45	07:45	08:39
	22:13	29	20:56 (17)	21:31			20:21			19:06	16:56	16:16
6	05:12		20:27 (17)	05:57			06:53			07:47	07:47	08:41
	22:12	30	20:57 (17)	21:29			20:19			19:04	16:54	16:16
7	05:13		20:28 (17)	05:59			06:54			07:49	07:49	08:42
	22:12	29	20:57 (17)	21:27			20:16			19:01	16:53	16:15
8	05:14		20:28 (17)	06:00		19:33 (18)	06:56			07:51	07:51	08:43
	22:11	30	20:58 (17)	21:25	4	19:37 (18)	20:14			18:59	16:51	16:15
9	05:15		20:28 (17)	06:02		19:29 (18)	06:58			07:53	07:53	08:45
	22:10	30	20:58 (17)	21:23	13	19:42 (18)	20:11			18:56	16:49	16:14
10	05:16		20:27 (17)	06:04		19:27 (18)	07:00			07:55	07:55	08:46
	22:09	31	20:58 (17)	21:21	18	19:45 (18)	20:09			18:54	16:47	16:14
11	05:17		20:27 (17)	06:06		19:24 (18)	07:02			07:57	07:57	08:47
	22:08	31	20:58 (17)	21:19	22	19:46 (18)	20:06			18:51	16:45	16:14
12	05:18		20:27 (17)	06:07		19:23 (18)	07:03			07:58	07:59	08:48
	22:07	32	20:59 (17)	21:17	24	19:47 (18)	20:04			18:49	16:44	16:14
13	05:19		20:27 (17)	06:09		19:22 (18)	07:05			08:00	08:01	08:49
	22:06	32	20:59 (17)	21:15	27	19:49 (18)	20:01			18:47	16:42	16:13
14	05:21		20:28 (17)	06:11		19:20 (18)	07:07			08:02	08:03	08:50
	22:05	32	21:00 (17)	21:12	29	19:49 (18)	19:59			18:44	16:40	16:13
15	05:22		20:28 (17)	06:13		19:19 (18)	07:09			08:04	08:05	08:51
	22:04	32	21:00 (17)	21:10	31	19:50 (18)	19:56			18:42	16:39	16:13
16	05:23		20:28 (17)	06:15		19:18 (18)	07:11			08:06	08:07	08:52
	22:03	32	21:00 (17)	21:08	32	19:50 (18)	19:54			18:40	16:37	16:13
17	05:25		20:27 (17)	06:16		19:18 (18)	07:12			08:08	08:09	08:53
	22:02	32	20:59 (17)	21:06	33	19:51 (18)	19:51			18:37	16:36	16:14
18	05:26		20:28 (17)	06:18		19:16 (18)	07:14			08:10	08:11	08:54
	22:01	32	21:00 (17)	21:04	35	19:51 (18)	19:49			18:35	16:34	16:14
19	05:27		20:28 (17)	06:20		19:16 (18)	07:16			08:12	08:12	08:55
	21:59	32	21:00 (17)	21:01	35	19:51 (18)	19:46			18:33	16:33	16:14
20	05:29		20:28 (17)	06:22		19:16 (18)	07:18			08:14	08:14	08:55
	21:58	32	21:00 (17)	20:59	35	19:51 (18)	19:44			18:30	16:31	16:14
21	05:30		20:29 (17)	06:24		19:15 (18)	07:20			08:16	08:16	08:56
	21:56	31	21:00 (17)	20:57	36	19:51 (18)	19:41			18:28	16:30	16:15
22	05:32		20:29 (17)	06:25		19:15 (18)	07:21			08:18	08:18	08:56
	21:55	31	21:00 (17)	20:55	36	19:51 (18)	19:39			18:26	16:29	16:15
23	05:33		20:28 (17)	06:27		19:15 (18)	07:23			08:20	08:20	08:57
	21:54	31	20:59 (17)	20:52	36	19:51 (18)	19:36			18:24	16:27	16:16
24	05:35		20:29 (17)	06:29		19:14 (18)	07:25			08:22	08:22	08:57
	21:52	30	20:59 (17)	20:50	35	19:49 (18)	19:33			18:21	16:26	16:16
25	05:37		20:29 (17)	06:31		19:14 (18)	07:27			07:24	08:23	08:58
	21:51	29	20:58 (17)	20:48	35	19:49 (18)	19:31			17:19	16:25	16:17
26	05:38		20:30 (17)	06:33		19:14 (18)	07:29			07:25	08:25	08:58
	21:49	29	20:59 (17)	20:45	35	19:49 (18)	19:28			17:17	16:24	16:18
27	05:40		20:30 (17)	06:35		19:15 (18)	07:31			07:27	08:27	08:58
	21:47	28	20:58 (17)	20:43	33	19:48 (18)	19:26			17:15	16:23	16:19
28	05:41		20:31 (17)	06:36		19:15 (18)	07:32			07:29	08:28	08:58
	21:46	26	20:57 (17)	20:40	31	19:46 (18)	19:23			17:13	16:22	16:19
29	05:43		20:32 (17)	06:38		19:15 (18)	07:34			07:31	08:30	08:58
	21:44	24	20:56 (17)	20:38	31	19:46 (18)	19:21			17:11	16:21	16:20
30	05:45		20:33 (17)	06:40		19:17 (18)	07:36			07:33	08:32	08:58
	21:42	22	20:55 (17)	20:36	27	19:44 (18)	19:18			17:08	16:20	16:21
31	05:46		20:35 (17)	06:42		19:17 (18)				07:35		08:58
	21:40	20	20:55 (17)	20:33	25	19:42 (18)				17:06		16:22
Potential sun hours	515			461			383			327	257	230
Total, worst case		910			736			49				
Sun reduction		0.27			0.27			0.29				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.62			0.59			0.59				
Total reduction		0.17			0.16			0.17				
Total, real		151			119			8				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AS - H45

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June	July	August	September	October	November		December	
1	08:58		14:31 (18)	08:27	15:34 (17)	07:29	07:12	06:02	05:11	05:07	05:48	06:44	07:38	07:37		08:33	15:12 (17)
	16:24	34	15:45 (17)	17:16	34	16:08 (17)	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04		16:19	30	15:42 (17)
2	08:58		14:32 (18)	08:25	15:35 (17)	07:26	07:10	06:00	05:10	05:08	05:50	06:45	07:40	07:39	15:17 (17)	08:35		15:13 (17)
	16:25	34	15:46 (17)	17:18	32	16:07 (17)	18:15	20:14	21:11	22:01	22:15	21:37	20:28	19:14	17:02	8	15:25 (17)	16:18	29	15:42 (17)
3	08:58		14:34 (18)	08:24	15:36 (17)	07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41	15:14 (17)	08:37		15:13 (17)
	16:26	35	15:48 (17)	17:20	31	16:07 (17)	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	17:00	16	15:30 (17)	16:17	27	15:40 (17)
4	08:58		14:34 (18)	08:22	15:37 (17)	07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43	15:12 (17)	08:38		14:26 (18)
	16:27	35	15:49 (17)	17:22	29	16:06 (17)	18:19	20:18	21:14	22:04	22:14	21:33	20:24	19:09	16:58	20	15:32 (17)	16:17	31	15:40 (17)
5	08:57		14:36 (18)	08:20	15:38 (17)	07:19	07:02	05:54	05:08	05:11	05:55	06:51	07:45	07:45	15:10 (17)	08:39		14:24 (18)
	16:28	35	15:51 (17)	17:24	27	16:05 (17)	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:56	23	15:33 (17)	16:16	33	15:38 (17)
6	08:57		14:37 (18)	08:18	15:40 (17)	07:17	07:00	05:52	05:07	05:11	05:57	06:53	07:47	07:47	15:08 (17)	08:41		14:23 (18)
	16:30	35	15:52 (17)	17:26	24	16:04 (17)	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:54	27	15:35 (17)	16:16	35	15:38 (17)
7	08:56		14:39 (18)	08:16	15:42 (17)	07:14	06:58	05:50	05:06	05:12	05:59	06:54	07:49	07:49	15:07 (17)	08:42		14:22 (18)
	16:31	33	15:53 (17)	17:28	20	16:02 (17)	18:24	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	29	15:36 (17)	16:15	35	15:37 (17)
8	08:56		14:41 (18)	08:14	15:45 (17)	07:12	06:55	05:48	05:06	05:13	06:00	06:56	07:51	07:51	15:06 (17)	08:44		14:22 (18)
	16:33	31	15:55 (17)	17:30	15	16:00 (17)	18:26	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	30	15:36 (17)	16:15	35	15:37 (17)
9	08:55		15:30 (17)	08:12	15:49 (17)	07:09	06:53	05:46	05:05	05:15	06:02	06:58	07:53	07:53	15:06 (17)	08:45		14:22 (18)
	16:34	27	15:57 (17)	17:32	5	15:54 (17)	18:28	20:27	21:24	22:09	22:10	21:23	20:11	18:56	16:49	32	15:38 (17)	16:14	35	15:36 (17)
10	08:55		15:30 (17)	08:10			07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55		15:05 (17)	08:46		14:21 (18)
	16:36	29	15:59 (17)	17:34			18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	34	15:39 (17)	16:14	34	15:35 (17)
11	08:54		15:30 (17)	08:08			07:05	06:48	05:42	05:04	05:17	06:06	07:02	07:57	07:57		15:04 (17)	08:47		14:22 (18)
	16:37	30	16:00 (17)	17:36			18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:51	16:45	35	15:39 (17)	16:14	34	15:36 (17)
12	08:53		15:30 (17)	08:06			07:02	06:45	05:40	05:04	05:18	06:07	07:03	07:59	07:59		15:04 (17)	08:48		14:22 (18)
	16:39	31	16:01 (17)	17:38			18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	36	15:40 (17)	16:13	33	15:35 (17)
13	08:52		15:30 (17)	08:04			07:00	06:43	05:38	05:03	05:19	06:09	07:05	08:00	08:01		15:04 (17)	08:49		14:22 (18)
	16:40	32	16:02 (17)	17:40			18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	36	15:40 (17)	16:13	32	15:35 (17)
14	08:51		15:30 (17)	08:02			06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03		15:03 (17)	08:50		14:22 (18)
	16:42	32	16:02 (17)	17:42			18:38	20:37	21:32	22:12	22:05	21:13	19:59	18:44	16:40	37	15:40 (17)	16:13	32	15:35 (17)
15	08:51		15:29 (17)	08:00			06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05		15:03 (17)	08:51		14:22 (18)
	16:44	33	16:02 (17)	17:44			18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	38	15:41 (17)	16:13	32	15:35 (17)
16	08:50		15:29 (17)	07:58			06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07		15:04 (17)	08:52		14:23 (18)
	16:45	34	16:03 (17)	17:46			18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	38	15:42 (17)	16:13	30	15:35 (17)
17	08:48		15:29 (17)	07:56			06:50	06:33	05:32	05:03	05:25	06:16	07:12	08:08	08:09		15:04 (17)	08:53		14:23 (18)
	16:47	35	16:04 (17)	17:49			18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:37	16:36	38	15:42 (17)	16:14	29	15:35 (17)
18	08:47		15:30 (17)	07:54			06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11		15:04 (17)	08:54		14:23 (18)
	16:49	35	16:05 (17)	17:51			18:46	20:44	21:39	22:15	22:01	21:04	19:49	18:35	16:34	38	15:42 (17)	16:14	29	15:35 (17)
19	08:46		15:29 (17)	07:51			06:45	06:29	05:28	05:03	05:27	06:20	07:16	08:12	08:13		15:04 (17)	08:55		14:23 (18)
	16:51	36	16:05 (17)	17:53			18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	38	15:42 (17)	16:14	29	15:35 (17)
20	08:45		15:29 (17)	07:49			06:42	06:26	05:27	05:03	05:29	06:22	07:18	08:14	08:14		15:05 (17)	08:55		14:24 (18)
	16:53	37	16:06 (17)	17:55			18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	37	15:42 (17)	16:14	29	15:36 (17)
21	08:44		15:29 (17)	07:47			06:40	06:24	05:25	05:03	05:30	06:24	07:20	08:16	08:16		15:05 (17)	08:56		14:24 (18)
	16:54	37	16:06 (17)	17:57			18:51	20:50	21:44	22:16	21:57	20:57	19:41	18:28	16:30	37	15:42 (17)	16:15	29	15:36 (17)
22	08:42		15:30 (17)	07:45			06:37	06:22	05:24	05:03	05:32	06:25	07:22	08:18	08:18		15:06 (17)	08:56		14:25 (18)
	16:56	37	16:07 (17)	17:59			18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	36	15:42 (17)	16:15	29	15:37 (17)
23	08:41		15:29 (17)	07:42			06:35	06:20	05:22	05:03	05:33	06:27	07:23	08:20	08:20		15:06 (17)	08:57		14:25 (18)
	16:58	38	16:07 (17)	18:01			18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	36	15:42 (17)	16:16	29	15:37 (17)
24	08:40		15:30 (17)	07:40			06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22		15:07 (17)	08:57		14:25 (18)
	17:00	38	16:08 (17)	18:03			18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	16:26	35	15:42 (17)	16:16	29	15:37 (17)
25	08:38		15:30 (17)	07:38			06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23		15:07 (17)	08:58		14:26 (18)
	17:02	38	16:08 (17)	18:05			18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19	16:25	35	15:42 (17)	16:17	29	15:38 (17)
26	08:37		15:30 (17)	07:36			06:27	06:13	05:18	05:04	05:38	06:33	07:29	07:26	08:25		15:08 (17)	08:58		14:27 (18)
	17:04	38	16:08 (17)	18:07			19:01	20:59	21:52	22:16	21:49	20:45	19:28	17:17	16:24	34	15:42 (17)	16:18	29	15:39 (17)
27	08:35		15:31 (17)	07:33			06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28	08:27		15:09 (17)	08:58		14:27 (18)
	17:06	38	16:09 (17)	18:09			19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	34	15:43 (17)	16:18	31	15:40 (17)
28	08:34		15:31 (17)	07:31			06:22	06:08	05:16	05:05	05:41	06:36	07:32	07:29	08:29		15:09 (17)	08:58		14:28 (18)
	17:08	37	16:08 (17)	18:11			19:05	21:03	21:55	22:16	21:46	20:40	19:23	17:13	16:22	33	15:42 (17)	16:19	31	15:40 (17)
29	08:32		15:32 (17)				07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	08:30		15:10 (17)	08:59		14:29 (18)
	17:10	36	16:08 (17)				20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11	16:21	32	15:42 (17)	16:20	31	15:41 (17)
30	08:31		15:32 (17)				07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32		15:11 (17)	08:59		14:29 (18)
	17:12	36	16:08 (17)				20:09	21:07	21:57	22:15	21:42	20:36	19:18	17:08	16:20	31	15:42 (17)	16:21	33	15:43 (17)
31	08:29		15:33 (17)				07:15		05:12		05:46	06:42		07:35				08:59		14:30 (18)
	17:14	34	16:07 (17)				20:10		21:59		21:40	20:33		17:06				16:22	34	15:44 (17)
Potential sun hours	248			272		367	421	496	513	515	461	383	327	257		230				
Total, worst case		1070			217										933			967		
Sun reduction		0.17			0.22										0.20			0.12		
Oper. time red.		1.00			1.00										1.00			1.00		
Wind dir. red.		0.63			0.62										0.62			0.64		
Total reduction		0.11			0.14										0.12			0.08		
Total, real		114			30										116			74		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AT - H46

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June	
1	08:58	08:27	07:29	07:12		06:02	19:55 (18)	05:11	19:54 (18)
	16:24	17:16	18:13	20:12		21:09 19	20:14 (18)	22:00 24	20:18 (18)
2	08:58	08:25	07:26	07:10		06:00	19:53 (18)	05:11	19:55 (18)
	16:25	17:18	18:15	20:14		21:11 23	20:16 (18)	22:01 23	20:18 (18)
3	08:58	08:24	07:24	07:07		05:58	19:52 (18)	05:10	19:55 (18)
	16:26	17:20	18:17	20:16		21:12 25	20:17 (18)	22:02 22	20:17 (18)
4	08:58	08:22	07:21	07:05		05:56	19:50 (18)	05:09	19:56 (18)
	16:27	17:22	18:19	20:18		21:14 28	20:18 (18)	22:03 25	21:11 (17)
5	08:57	08:20	07:19	07:02		05:54	19:49 (18)	05:08	19:58 (18)
	16:28	17:24	18:21	20:20		21:16 30	20:19 (18)	22:05 27	21:14 (17)
6	08:57	08:18	07:17	07:00		05:52	19:49 (18)	05:07	19:58 (18)
	16:30	17:26	18:23	20:22		21:18 32	20:21 (18)	22:06 29	21:15 (17)
7	08:56	08:16	07:14	06:58		05:50	19:48 (18)	05:07	20:00 (18)
	16:31	17:28	18:24	20:24		21:20 33	20:21 (18)	22:07 29	21:17 (17)
8	08:56	08:14	07:12	06:55		05:48	19:47 (18)	05:06	20:01 (18)
	16:33	17:30	18:26	20:25		21:22 34	20:21 (18)	22:08 28	21:17 (17)
9	08:55	08:12	07:09	06:53		05:46	19:47 (18)	05:05	20:02 (18)
	16:34	17:32	18:28	20:27		21:23 35	20:22 (18)	22:09 28	21:19 (17)
10	08:55	08:10	07:07	06:50		05:44	19:46 (18)	05:05	20:03 (18)
	16:36	17:34	18:30	20:29		21:25 36	20:22 (18)	22:09 26	21:19 (17)
11	08:54	08:08	07:05	06:48		05:42	19:46 (18)	05:04	20:06 (18)
	16:37	17:36	18:32	20:31		21:27 37	20:23 (18)	22:10 23	21:20 (17)
12	08:53	08:06	07:02	06:45		05:40	19:46 (18)	05:04	21:01 (17)
	16:39	17:38	18:34	20:33		21:29 36	20:22 (18)	22:11 20	21:21 (17)
13	08:52	08:04	07:00	06:43		05:38	19:45 (18)	05:04	21:00 (17)
	16:40	17:40	18:36	20:35		21:31 37	20:22 (18)	22:12 20	21:20 (17)
14	08:51	08:02	06:57	06:41		05:37	19:46 (18)	05:03	21:00 (17)
	16:42	17:42	18:38	20:37		21:32 37	20:23 (18)	22:12 21	21:21 (17)
15	08:50	08:00	06:55	06:38		05:35	19:45 (18)	05:03	21:01 (17)
	16:44	17:44	18:40	20:39		21:34 37	20:22 (18)	22:13 21	21:22 (17)
16	08:49	07:58	06:52	06:36		05:33	19:46 (18)	05:03	21:01 (17)
	16:45	17:46	18:42	20:41		21:36 37	20:23 (18)	22:14 21	21:22 (17)
17	08:48	07:56	06:50	06:33		05:32	19:46 (18)	05:03	21:01 (17)
	16:47	17:49	18:44	20:42		21:37 36	20:22 (18)	22:14 21	21:22 (17)
18	08:47	07:54	06:47	06:31		05:30	19:46 (18)	05:03	21:01 (17)
	16:49	17:51	18:46	20:44		21:39 37	20:23 (18)	22:14 22	21:23 (17)
19	08:46	07:51	06:45	06:29		05:28	19:46 (18)	05:03	21:01 (17)
	16:51	17:53	18:48	20:46		21:41 36	20:22 (18)	22:15 22	21:23 (17)
20	08:45	07:49	06:42	06:26		05:27	19:47 (18)	05:03	21:01 (17)
	16:53	17:55	18:50	20:48		21:42 35	20:22 (18)	22:15 22	21:23 (17)
21	08:44	07:47	06:40	06:24		05:25	19:47 (18)	05:03	21:01 (17)
	16:54	17:57	18:51	20:50		21:44 35	20:22 (18)	22:15 22	21:23 (17)
22	08:42	07:45	06:37	06:22		05:24	19:47 (18)	05:03	21:02 (17)
	16:56	17:59	18:53	20:52		21:46 34	20:21 (18)	22:16 22	21:24 (17)
23	08:41	07:42	06:35	06:20		05:22	19:48 (18)	05:03	21:02 (17)
	16:58	18:01	18:55	20:54		21:47 33	20:21 (18)	22:16 22	21:24 (17)
24	08:40	07:40	06:32	06:17		05:21	19:48 (18)	05:04	21:02 (17)
	17:00	18:03	18:57	20:56		21:49 33	20:21 (18)	22:16 22	21:24 (17)
25	08:38	07:38	06:30	06:15		05:20	19:49 (18)	05:04	21:03 (17)
	17:02	18:05	18:59	20:58		21:50 32	20:21 (18)	22:16 22	21:25 (17)
26	08:37	07:36	06:27	06:13		05:18	19:50 (18)	05:04	21:03 (17)
	17:04	18:07	19:01	20:59		21:52 31	20:21 (18)	22:16 21	21:24 (17)
27	08:35	07:33	06:25	06:11		05:17	19:50 (18)	05:05	21:04 (17)
	17:06	18:09	19:03	21:01		21:53 30	20:20 (18)	22:16 21	21:25 (17)
28	08:34	07:31	06:22	06:08		05:16	19:50 (18)	05:05	21:03 (17)
	17:08	18:11	19:05	21:03		21:55 29	20:19 (18)	22:16 21	21:24 (17)
29	08:32		07:20	06:06	20:02 (18)	05:15	19:51 (18)	05:06	21:04 (17)
	17:10		20:07	21:05 6	20:08 (18)	21:56 28	20:19 (18)	22:15 21	21:25 (17)
30	08:30		07:17	06:04	19:58 (18)	05:14	19:52 (18)	05:07	21:04 (17)
	17:12		20:08	21:07 14	20:12 (18)	21:57 26	20:18 (18)	22:15 20	21:24 (17)
31	08:29		07:15			05:12	19:53 (18)		
	17:14		20:10			21:59 26	20:19 (18)		
Potential sun hours	248	272	367	421		496		513	
Total, worst case				20		997		688	
Sun reduction				0.34		0.36		0.26	
Oper. time red.				1.00		1.00		1.00	
Wind dir. red.				0.61		0.61		0.62	
Total reduction				0.21		0.22		0.16	
Total, real				4		219		110	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AT - H46

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November	December
1	05:07		20:11 (18)	05:48		19:56 (18)	06:44	07:38	07:37	08:33
	22:15	21	21:24 (17)	21:39	37	20:33 (18)	20:31	19:16	17:04	16:19
2	05:08		20:09 (18)	05:50		19:57 (18)	06:45	07:40	07:39	08:35
	22:14	25	21:24 (17)	21:37	36	20:33 (18)	20:28	19:14	17:02	16:18
3	05:09		20:08 (18)	05:52		19:56 (18)	06:47	07:42	07:41	08:36
	22:14	27	21:24 (17)	21:35	36	20:32 (18)	20:26	19:11	17:00	16:17
4	05:10		20:06 (18)	05:53		19:57 (18)	06:49	07:43	07:43	08:38
	22:13	28	21:23 (17)	21:33	35	20:32 (18)	20:23	19:09	16:58	16:17
5	05:11		20:06 (18)	05:55		19:58 (18)	06:51	07:45	07:45	08:39
	22:13	28	21:22 (17)	21:31	34	20:32 (18)	20:21	19:06	16:56	16:16
6	05:12		20:05 (18)	05:57		19:58 (18)	06:53	07:47	07:47	08:41
	22:12	29	21:22 (17)	21:29	32	20:30 (18)	20:19	19:04	16:54	16:16
7	05:13		20:04 (18)	05:59		19:59 (18)	06:54	07:49	07:49	08:42
	22:12	29	21:21 (17)	21:27	31	20:30 (18)	20:16	19:01	16:53	16:15
8	05:14		20:04 (18)	06:00		19:59 (18)	06:56	07:51	07:51	08:43
	22:11	27	21:20 (17)	21:25	29	20:28 (18)	20:14	18:59	16:51	16:15
9	05:15		20:03 (18)	06:02		20:00 (18)	06:58	07:53	07:53	08:45
	22:10	21	20:24 (18)	21:23	27	20:27 (18)	20:11	18:56	16:49	16:14
10	05:16		20:03 (18)	06:04		20:01 (18)	07:00	07:55	07:55	08:46
	22:09	22	20:25 (18)	21:21	25	20:26 (18)	20:09	18:54	16:47	16:14
11	05:17		20:02 (18)	06:06		20:02 (18)	07:02	07:57	07:57	08:47
	22:08	23	20:25 (18)	21:19	22	20:24 (18)	20:06	18:51	16:45	16:14
12	05:18		20:01 (18)	06:07		20:04 (18)	07:03	07:58	07:59	08:48
	22:07	25	20:26 (18)	21:17	18	20:22 (18)	20:04	18:49	16:44	16:14
13	05:19		20:01 (18)	06:09		20:07 (18)	07:05	08:00	08:01	08:49
	22:06	26	20:27 (18)	21:15	13	20:20 (18)	20:01	18:47	16:42	16:13
14	05:21		20:01 (18)	06:11			07:07	08:02	08:03	08:50
	22:05	27	20:28 (18)	21:12			19:59	18:44	16:40	16:13
15	05:22		20:00 (18)	06:13			07:09	08:04	08:05	08:51
	22:04	29	20:29 (18)	21:10			19:56	18:42	16:39	16:13
16	05:23		19:59 (18)	06:15			07:11	08:06	08:07	08:52
	22:03	30	20:29 (18)	21:08			19:54	18:40	16:37	16:13
17	05:25		19:59 (18)	06:16			07:12	08:08	08:09	08:53
	22:02	30	20:29 (18)	21:06			19:51	18:37	16:36	16:14
18	05:26		19:59 (18)	06:18			07:14	08:10	08:11	08:54
	22:01	32	20:31 (18)	21:04			19:49	18:35	16:34	16:14
19	05:27		19:58 (18)	06:20			07:16	08:12	08:12	08:55
	21:59	33	20:31 (18)	21:01			19:46	18:33	16:33	16:14
20	05:29		19:58 (18)	06:22			07:18	08:14	08:14	08:55
	21:58	33	20:31 (18)	20:59			19:44	18:30	16:31	16:14
21	05:30		19:58 (18)	06:24			07:20	08:16	08:16	08:56
	21:56	34	20:32 (18)	20:57			19:41	18:28	16:30	16:15
22	05:32		19:57 (18)	06:25			07:21	08:18	08:18	08:56
	21:55	35	20:32 (18)	20:55			19:39	18:26	16:29	16:15
23	05:33		19:57 (18)	06:27			07:23	08:20	08:20	08:57
	21:54	35	20:32 (18)	20:52			19:36	18:24	16:27	16:16
24	05:35		19:57 (18)	06:29			07:25	08:22	08:22	08:57
	21:52	36	20:33 (18)	20:50			19:33	18:21	16:26	16:16
25	05:37		19:56 (18)	06:31			07:27	07:24	08:23	08:58
	21:51	36	20:32 (18)	20:48			19:31	17:19	16:25	16:17
26	05:38		19:57 (18)	06:33			07:29	07:25	08:25	08:58
	21:49	36	20:33 (18)	20:45			19:28	17:17	16:24	16:18
27	05:40		19:56 (18)	06:35			07:31	07:27	08:27	08:58
	21:47	37	20:33 (18)	20:43			19:26	17:15	16:23	16:19
28	05:41		19:56 (18)	06:36			07:32	07:29	08:28	08:58
	21:46	37	20:33 (18)	20:40			19:23	17:13	16:22	16:19
29	05:43		19:56 (18)	06:38			07:34	07:31	08:30	08:58
	21:44	37	20:33 (18)	20:38			19:21	17:11	16:21	16:20
30	05:45		19:56 (18)	06:40			07:36	07:33	08:32	08:58
	21:42	37	20:33 (18)	20:36			19:18	17:08	16:20	16:21
31	05:46		19:57 (18)	06:42				07:35		08:58
	21:40	37	20:34 (18)	20:33				17:06		16:22
Potential sun hours	515			461			383	327	257	230
Total, worst case		942			375					
Sun reduction		0.27			0.27					
Oper. time red.		1.00			1.00					
Wind dir. red.		0.61			0.61					
Total reduction		0.16			0.17					
Total, real		153			62					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AU - H47

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February	March	April	May			June		
1	08:58		15:43 (1)	08:27	07:29	07:12	06:02			05:12		20:26 (9)
	16:24	2	15:45 (1)	17:16	18:13	20:12	21:09			22:00	28	20:54 (9)
2	08:58		15:44 (1)	08:25	07:26	07:10	06:00			05:11		20:27 (9)
	16:25	3	15:47 (1)	17:18	18:15	20:14	21:11			22:01	27	20:54 (9)
3	08:58		15:44 (1)	08:24	07:24	07:07	05:58			05:10		20:27 (9)
	16:26	3	15:47 (1)	17:20	18:17	20:16	21:12			22:02	26	20:53 (9)
4	08:58		15:45 (1)	08:22	07:21	07:05	05:56			05:09		20:28 (9)
	16:27	4	15:49 (1)	17:22	18:19	20:18	21:14			22:03	26	20:54 (9)
5	08:57		15:45 (1)	08:20	07:19	07:03	05:54			05:08		20:28 (9)
	16:29	5	15:50 (1)	17:24	18:21	20:20	21:16			22:04	25	20:53 (9)
6	08:57		15:46 (1)	08:18	07:17	07:00	05:52			05:07		20:28 (9)
	16:30	6	15:52 (1)	17:26	18:23	20:22	21:18			22:06	25	20:53 (9)
7	08:56		15:46 (1)	08:16	07:14	06:58	05:50			05:07		20:29 (9)
	16:31	8	15:54 (1)	17:28	18:25	20:24	21:20			22:07	24	20:53 (9)
8	08:56		15:47 (1)	08:14	07:12	06:55	05:48			05:06		20:29 (9)
	16:33	8	15:55 (1)	17:30	18:26	20:25	21:22			22:08	24	20:53 (9)
9	08:55		15:47 (1)	08:12	07:09	06:53	05:46		20:33 (9)	05:05		20:30 (9)
	16:34	9	15:56 (1)	17:32	18:28	20:27	21:23	11	20:44 (9)	22:08	23	20:53 (9)
10	08:55		15:49 (1)	08:10	07:07	06:50	05:44		20:31 (9)	05:05		20:30 (9)
	16:36	10	15:59 (1)	17:34	18:30	20:29	21:25	16	20:47 (9)	22:09	22	20:52 (9)
11	08:54		15:49 (1)	08:08	07:05	06:48	05:42		20:30 (9)	05:04		20:31 (9)
	16:37	12	16:01 (1)	17:36	18:32	20:31	21:27	18	20:48 (9)	22:10	21	20:52 (9)
12	08:53		15:50 (1)	08:06	07:02	06:45	05:40		20:28 (9)	05:04		20:32 (9)
	16:39	12	16:02 (1)	17:38	18:34	20:33	21:29	21	20:49 (9)	22:11	21	20:53 (9)
13	08:52		15:51 (1)	08:04	07:00	06:43	05:39		20:28 (9)	05:04		20:33 (9)
	16:40	13	16:04 (1)	17:40	18:36	20:35	21:31	23	20:51 (9)	22:12	20	20:53 (9)
14	08:51		15:51 (1)	08:02	06:57	06:41	05:37		20:26 (9)	05:03		20:32 (9)
	16:42	14	16:05 (1)	17:43	18:38	20:37	21:32	25	20:51 (9)	22:12	20	20:52 (9)
15	08:50		15:52 (1)	08:00	06:55	06:38	05:35		20:25 (9)	05:03		20:33 (9)
	16:44	13	16:05 (1)	17:45	18:40	20:39	21:34	26	20:51 (9)	22:13	19	20:52 (9)
16	08:49		15:54 (1)	07:58	06:52	06:36	05:33		20:25 (9)	05:03		20:33 (9)
	16:46	10	16:04 (1)	17:47	18:42	20:41	21:36	27	20:52 (9)	22:13	19	20:52 (9)
17	08:48		15:56 (1)	07:56	06:50	06:34	05:32		20:24 (9)	05:03		20:34 (9)
	16:47	7	16:03 (1)	17:49	18:44	20:42	21:37	28	20:52 (9)	22:14	18	20:52 (9)
18	08:47			07:54	06:47	06:31	05:30		20:25 (9)	05:03		20:34 (9)
	16:49			17:51	18:46	20:44	21:39	28	20:53 (9)	22:14	18	20:52 (9)
19	08:46			07:51	06:45	06:29	05:28		20:24 (9)	05:03		20:34 (9)
	16:51			17:53	18:48	20:46	21:41	29	20:53 (9)	22:15	18	20:52 (9)
20	08:45			07:49	06:42	06:27	05:27		20:24 (9)	05:03		20:35 (9)
	16:53			17:55	18:50	20:48	21:42	29	20:53 (9)	22:15	17	20:52 (9)
21	08:44			07:47	06:40	06:24	05:25		20:24 (9)	05:03		20:36 (9)
	16:55			17:57	18:51	20:50	21:44	30	20:54 (9)	22:15	17	20:53 (9)
22	08:42			07:45	06:37	06:22	05:24		20:23 (9)	05:03		20:36 (9)
	16:56			17:59	18:53	20:52	21:46	30	20:53 (9)	22:16	17	20:53 (9)
23	08:41			07:42	06:35	06:20	05:23		20:24 (9)	05:04		20:35 (9)
	16:58			18:01	18:55	20:54	21:47	30	20:54 (9)	22:16	18	20:53 (9)
24	08:40			07:40	06:32	06:17	05:21		20:24 (9)	05:04		20:35 (9)
	17:00			18:03	18:57	20:56	21:49	30	20:54 (9)	22:16	18	20:53 (9)
25	08:38			07:38	06:30	06:15	05:20		20:24 (9)	05:04		20:36 (9)
	17:02			18:05	18:59	20:58	21:50	30	20:54 (9)	22:16	18	20:54 (9)
26	08:37			07:36	06:27	06:13	05:18		20:25 (9)	05:05		20:36 (9)
	17:04			18:07	19:01	20:59	21:52	30	20:55 (9)	22:16	18	20:54 (9)
27	08:35			07:33	06:25	06:11	05:17		20:25 (9)	05:05		20:36 (9)
	17:06			18:09	19:03	21:01	21:53	30	20:55 (9)	22:16	19	20:55 (9)
28	08:34			07:31	06:22	06:09	05:16		20:25 (9)	05:06		20:35 (9)
	17:08			18:11	19:05	21:03	21:54	30	20:55 (9)	22:16	20	20:55 (9)
29	08:32				07:20	06:06	05:15		20:26 (9)	05:06		20:36 (9)
	17:10				20:07	21:05	21:56	29	20:55 (9)	22:15	20	20:56 (9)
30	08:30				07:17	06:04	05:14		20:26 (9)	05:07		20:36 (9)
	17:12				20:09	21:07	21:57	28	20:54 (9)	22:15	21	20:57 (9)
31	08:29				07:15		05:13		20:26 (9)			
	17:14				20:10		21:58	28	20:54 (9)			
Potential sun hours	248			272	367	421	496			513		
Total, worst case		139						606			627	
Sun reduction		0.17						0.36			0.26	
Oper. time red.		1.00						1.00			1.00	
Wind dir. red.		0.62						0.62			0.62	
Total reduction		0.11						0.23			0.16	
Total, real		15						137			101	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AU - H47

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November			December		
1	05:07		20:35 (9)	05:48		20:39 (9)	06:44	07:38	07:37			08:33		15:31 (1)
	22:15	22	20:57 (9)	21:39	20	20:59 (9)	20:31	19:16	17:04			16:19	12	15:43 (1)
2	05:08		20:36 (9)	05:50		20:40 (9)	06:45	07:40	07:39			08:35		15:31 (1)
	22:14	21	20:57 (9)	21:37	18	20:58 (9)	20:28	19:14	17:02			16:18	10	15:41 (1)
3	05:09		20:36 (9)	05:52		20:42 (9)	06:47	07:42	07:41			08:36		15:31 (1)
	22:14	22	20:58 (9)	21:35	13	20:55 (9)	20:26	19:11	17:00			16:18	10	15:41 (1)
4	05:10		20:35 (9)	05:53		20:45 (9)	06:49	07:44	07:43			08:38		15:32 (1)
	22:13	23	20:58 (9)	21:33	8	20:53 (9)	20:24	19:09	16:58			16:17	8	15:40 (1)
5	05:11		20:35 (9)	05:55			06:51	07:45	07:45			08:39		15:31 (1)
	22:13	23	20:58 (9)	21:31			20:21	19:06	16:56			16:16	8	15:39 (1)
6	05:12		20:35 (9)	05:57			06:53	07:47	07:47			08:41		15:32 (1)
	22:12	24	20:59 (9)	21:29			20:19	19:04	16:55			16:16	7	15:39 (1)
7	05:13		20:35 (9)	05:59			06:55	07:49	07:49			08:42		15:32 (1)
	22:12	25	21:00 (9)	21:27			20:16	19:01	16:53			16:15	6	15:38 (1)
8	05:14		20:35 (9)	06:00			06:56	07:51	07:51			08:43		15:33 (1)
	22:11	25	21:00 (9)	21:25			20:14	18:59	16:51			16:15	5	15:38 (1)
9	05:15		20:34 (9)	06:02			06:58	07:53	07:53			08:45		15:33 (1)
	22:10	27	21:01 (9)	21:23			20:11	18:56	16:49			16:14	4	15:37 (1)
10	05:16		20:34 (9)	06:04			07:00	07:55	07:55			08:46		15:33 (1)
	22:09	27	21:01 (9)	21:21			20:09	18:54	16:47			16:14	3	15:36 (1)
11	05:17		20:34 (9)	06:06			07:02	07:57	07:57			08:47		15:34 (1)
	22:08	27	21:01 (9)	21:19			20:06	18:52	16:45			16:14	1	15:35 (1)
12	05:18		20:34 (9)	06:08			07:04	07:59	07:59			08:48		15:35 (1)
	22:07	28	21:02 (9)	21:17			20:04	18:49	16:44			16:14	1	15:36 (1)
13	05:19		20:34 (9)	06:09			07:05	08:00	08:01			08:49		15:35 (1)
	22:06	29	21:03 (9)	21:15			20:01	18:47	16:42			16:14	1	15:36 (1)
14	05:21		20:34 (9)	06:11			07:07	08:02	08:03			08:50		
	22:05	29	21:03 (9)	21:12			19:59	18:44	16:40			16:14		
15	05:22		20:34 (9)	06:13			07:09	08:04	08:05			08:51		
	22:04	29	21:03 (9)	21:10			19:56	18:42	16:39			16:14		
16	05:23		20:34 (9)	06:15			07:11	08:06	08:07			08:52		
	22:03	29	21:03 (9)	21:08			19:54	18:40	16:37			16:14		
17	05:25		20:33 (9)	06:17			07:13	08:08	08:09			08:53		
	22:02	30	21:03 (9)	21:06			19:51	18:37	16:36			16:14		
18	05:26		20:34 (9)	06:18			07:14	08:10	08:11			08:54		
	22:00	30	21:04 (9)	21:04			19:49	18:35	16:34			16:14		
19	05:28		20:34 (9)	06:20			07:16	08:12	08:12			08:54		
	21:59	30	21:04 (9)	21:01			19:46	18:33	16:33			16:14		
20	05:29		20:33 (9)	06:22			07:18	08:14	08:14			08:55		
	21:58	31	21:04 (9)	20:59			19:44	18:30	16:31			16:15		
21	05:31		20:34 (9)	06:24			07:20	08:16	08:16			08:56		
	21:56	30	21:04 (9)	20:57			19:41	18:28	16:30			16:15		
22	05:32		20:34 (9)	06:26			07:22	08:18	08:18			08:56		
	21:55	30	21:04 (9)	20:55			19:39	18:26	16:29			16:15		
23	05:34		20:35 (9)	06:27			07:23	08:20	08:20			08:57		
	21:54	29	21:04 (9)	20:52			19:36	18:24	16:27			16:16		
24	05:35		20:34 (9)	06:29			07:25	08:22	08:22			08:57		
	21:52	30	21:04 (9)	20:50			19:34	18:21	16:26			16:17		
25	05:37		20:34 (9)	06:31			07:27	07:24	08:23		15:35 (1)	08:58		
	21:50	29	21:03 (9)	20:48			19:31	17:19	16:25	6	15:41 (1)	16:17		
26	05:38		20:35 (9)	06:33			07:29	07:25	08:25		15:33 (1)	08:58		
	21:49	28	21:03 (9)	20:45			19:29	17:17	16:24	10	15:43 (1)	16:18		
27	05:40		20:35 (9)	06:35			07:31	07:27	08:27		15:32 (1)	08:58		
	21:47	27	21:02 (9)	20:43			19:26	17:15	16:23	12	15:44 (1)	16:19		
28	05:42		20:36 (9)	06:36			07:32	07:29	08:28		15:31 (1)	08:58		
	21:46	26	21:02 (9)	20:40			19:24	17:13	16:22	14	15:45 (1)	16:20		
29	05:43		20:37 (9)	06:38			07:34	07:31	08:30		15:31 (1)	08:58		
	21:44	25	21:02 (9)	20:38			19:21	17:11	16:21	13	15:44 (1)	16:20		
30	05:45		20:37 (9)	06:40			07:36	07:33	08:32		15:31 (1)	08:58		
	21:42	24	21:01 (9)	20:36			19:19	17:09	16:20	13	15:44 (1)	16:21		
31	05:47		20:38 (9)	06:42				07:35				08:58		
	21:40	23	21:01 (9)	20:33				17:06				16:22		
Potential sun hours	515			461			382	328	257			231		
Total, worst case		832			59					68			76	
Sun reduction		0.27			0.27					0.20			0.12	
Oper. time red.		1.00			1.00					1.00			1.00	
Wind dir. red.		0.62			0.62					0.62			0.62	
Total reduction		0.17			0.17					0.12			0.07	
Total, real		138			10					8			6	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AV - H48

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April		May	June
1	08:58		09:44 (3)	08:27	09:04 (4)	07:29		06:02	05:12
	16:24	17	10:01 (3)	17:16	23	09:27 (4)	18:13	20:12	21:09	22:00
2	08:58		09:45 (3)	08:25	09:04 (4)	07:26	07:10	06:00	05:11
	16:25	16	10:01 (3)	17:18	22	09:26 (4)	18:15	20:14	21:11	22:01
3	08:58		09:46 (3)	08:24	09:06 (4)	07:24	07:08	05:58	05:10
	16:26	15	10:01 (3)	17:20	19	09:25 (4)	18:17	20:16	21:13	22:02
4	08:58		09:47 (3)	08:22	09:07 (4)	07:22	07:05	05:56	05:09
	16:28	14	10:01 (3)	17:22	16	09:23 (4)	18:19	20:18	21:14	22:03
5	08:57		09:48 (3)	08:20	09:10 (4)	07:19	07:03	07:27 (1)	05:54	05:08
	16:29	12	10:00 (3)	17:24	11	09:21 (4)	18:21	20:20	2	07:29 (1)	21:16	22:05
6	08:57		09:50 (3)	08:18			07:17	07:00	07:24 (1)	05:52	05:08
	16:30	10	10:00 (3)	17:26			18:23	20:22	4	07:28 (1)	21:18	22:06
7	08:56		09:51 (3)	08:16			07:14	06:58	07:22 (1)	05:50	05:07
	16:32	8	09:59 (3)	17:28			18:25	20:24	5	07:27 (1)	21:20	22:07
8	08:56		09:54 (3)	08:14			07:12	06:55	07:20 (1)	05:48	05:06
	16:33	3	09:57 (3)	17:30			18:27	20:26	6	07:26 (1)	21:22	22:08
9	08:55			08:12			07:10	06:53	07:17 (1)	05:46	05:06
	16:34			17:32			18:29	20:28	6	07:23 (1)	21:24	22:09
10	08:55			08:10			07:07	06:51		05:44	05:05
	16:36			17:35			18:31	20:29		21:25	22:09
11	08:54			08:08			07:05	06:48		05:42	05:05
	16:38			17:37			18:33	20:31		21:27	22:10
12	08:53			08:06			07:02	06:46		05:41	05:04
	16:39			17:39			18:34	20:33		21:29	22:11
13	08:52			08:04			07:00	06:43		05:39	05:04
	16:41			17:41			18:36	20:35		21:31	22:12
14	08:51			08:02			06:57	06:41		05:37	05:04
	16:42			17:43			18:38	20:37		21:32	22:12
15	08:51			08:00			06:55	06:39		05:35	05:03
	16:44			17:45			18:40	20:39		21:34	22:13
16	08:50		09:21 (4)	07:58			06:52	06:36		05:34	05:03
	16:46	1	09:22 (4)	17:47			18:42	20:41		21:36	22:14
17	08:48		09:20 (4)	07:56			06:50	06:34		05:32	05:03
	16:48	3	09:23 (4)	17:49			18:44	20:43		21:37	22:14
18	08:47		09:19 (4)	07:54			06:47	06:31		05:30	05:03
	16:49	5	09:24 (4)	17:51			18:46	20:44		21:39	22:14
19	08:46		09:17 (4)	07:52			06:45	06:29		05:29	05:03
	16:51	8	09:25 (4)	17:53			18:48	20:46		21:41	22:15
20	08:45		09:16 (4)	07:49			06:42	06:27		05:27	05:03
	16:53	10	09:26 (4)	17:55			18:50	20:48		21:42	22:15
21	08:44		09:14 (4)	07:47			06:40	06:24		05:26	05:03
	16:55	12	09:26 (4)	17:57			18:52	20:50		21:44	22:15
22	08:42		09:13 (4)	07:45			06:37	06:22		05:24	05:04
	16:57	14	09:27 (4)	17:59			18:54	20:52		21:46	22:16
23	08:41		09:11 (4)	07:43			06:35	06:20		05:23	05:04
	16:59	16	09:27 (4)	18:01			18:55	20:54		21:47	22:16
24	08:40		09:10 (4)	07:40			06:32	06:18		05:21	05:04
	17:00	18	09:28 (4)	18:03			18:57	20:56		21:49	22:16
25	08:38		09:08 (4)	07:38			06:30	06:15		05:20	05:04
	17:02	20	09:28 (4)	18:05			18:59	20:58		21:50	22:16
26	08:37		09:06 (4)	07:36			06:28	06:13		05:19	05:05
	17:04	21	09:27 (4)	18:07			19:01	21:00		21:52	22:16
27	08:35		09:05 (4)	07:33			06:25	06:11		05:17	05:05
	17:06	23	09:28 (4)	18:09			19:03	21:01		21:53	22:16
28	08:34		09:03 (4)	07:31			06:23	06:09		05:16	05:06
	17:08	25	09:28 (4)	18:11			19:05	21:03		21:55	22:16
29	08:32		09:01 (4)				07:20	06:07		05:15	05:06
	17:10	27	09:28 (4)				20:07	21:05		21:56	22:15
30	08:31		09:01 (4)				07:18	06:04		05:14	05:07
	17:12	26	09:27 (4)				20:09	21:07		21:57	22:15
31	08:29		09:02 (4)				07:15			05:13	
	17:14	25	09:27 (4)				20:11			21:59	
Potential sun hours	248			272		367		421		496	513
Total, worst case		349			91				23		
Sun reduction		0.17			0.22				0.34		
Oper. time red.		1.00			1.00				1.00		
Wind dir. red.		0.65			0.65				0.58		
Total reduction		0.11			0.14				0.20		
Total, real		39			13				5		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AV - H48

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October	November		December		
1	05:08	05:48	06:44		07:38	07:37		08:33		
	22:15	21:39	20:31		19:16	17:05		16:19		
2	05:08	05:50	06:46		07:40	07:39		08:35		
	22:14	21:37	20:29		19:14	17:03		16:19		
3	05:09	05:52	06:47	07:15 (1)	07:42	07:41		08:36		
	22:14	21:35	20:26	6 07:21 (1)	19:11	17:01		16:18		
4	05:10	05:54	06:49	07:17 (1)	07:44	07:43		08:38		09:39 (3)
	22:13	21:33	20:24	6 07:23 (1)	19:09	16:59		16:17	3	09:42 (3)
5	05:11	05:55	06:51	07:18 (1)	07:46	07:45	08:43 (4)	08:39		09:36 (3)
	22:13	21:31	20:21	5 07:23 (1)	19:06	16:57	4 08:47 (4)	16:17	8	09:44 (3)
6	05:12	05:57	06:53	07:20 (1)	07:47	07:47	08:39 (4)	08:41		09:36 (3)
	22:12	21:29	20:19	4 07:24 (1)	19:04	16:55	12 08:51 (4)	16:16	10	09:46 (3)
7	05:13	05:59	06:55	07:22 (1)	07:49	07:49	08:37 (4)	08:42		09:35 (3)
	22:12	21:27	20:16	2 07:24 (1)	19:01	16:53	16 08:53 (4)	16:15	12	09:47 (3)
8	05:14	06:01	06:56		07:51	07:51	08:35 (4)	08:43		09:35 (3)
	22:11	21:25	20:14		18:59	16:51	20 08:55 (4)	16:15	14	09:49 (3)
9	05:15	06:02	06:58		07:53	07:53	08:35 (4)	08:45		09:35 (3)
	22:10	21:23	20:11		18:57	16:49	22 08:57 (4)	16:15	15	09:50 (3)
10	05:16	06:04	07:00		07:55	07:55	08:34 (4)	08:46		09:34 (3)
	22:09	21:21	20:09		18:54	16:47	24 08:58 (4)	16:14	16	09:50 (3)
11	05:17	06:06	07:02		07:57	07:57	08:34 (4)	08:47		09:34 (3)
	22:08	21:19	20:06		18:52	16:46	25 08:59 (4)	16:14	17	09:51 (3)
12	05:18	06:08	07:04		07:59	07:59	08:33 (4)	08:48		09:35 (3)
	22:07	21:17	20:04		18:49	16:44	26 08:59 (4)	16:14	18	09:53 (3)
13	05:20	06:10	07:05		08:01	08:01	08:33 (4)	08:49		09:35 (3)
	22:06	21:15	20:01		18:47	16:42	27 09:00 (4)	16:14	18	09:53 (3)
14	05:21	06:11	07:07		08:02	08:03	08:35 (4)	08:50		09:35 (3)
	22:05	21:13	19:59		18:45	16:41	25 09:00 (4)	16:14	19	09:54 (3)
15	05:22	06:13	07:09		08:04	08:05	08:37 (4)	08:51		09:36 (3)
	22:04	21:10	19:56		18:42	16:39	23 09:00 (4)	16:14	19	09:55 (3)
16	05:24	06:15	07:11		08:06	08:07	08:39 (4)	08:52		09:36 (3)
	22:03	21:08	19:54		18:40	16:37	21 09:00 (4)	16:14	19	09:55 (3)
17	05:25	06:17	07:13		08:08	08:09	08:42 (4)	08:53		09:36 (3)
	22:02	21:06	19:51		18:38	16:36	20 09:02 (4)	16:14	19	09:55 (3)
18	05:26	06:19	07:14		08:10	08:11	08:44 (4)	08:54		09:36 (3)
	22:01	21:04	19:49		18:35	16:34	18 09:02 (4)	16:14	20	09:56 (3)
19	05:28	06:20	07:16		08:12	08:13	08:46 (4)	08:55		09:37 (3)
	21:59	21:02	19:46		18:33	16:33	16 09:02 (4)	16:14	20	09:57 (3)
20	05:29	06:22	07:18		08:14	08:14	08:48 (4)	08:55		09:38 (3)
	21:58	20:59	19:44		18:31	16:32	14 09:02 (4)	16:15	20	09:58 (3)
21	05:31	06:24	07:20		08:16	08:16	08:50 (4)	08:56		09:37 (3)
	21:57	20:57	19:41		18:28	16:30	12 09:02 (4)	16:15	21	09:58 (3)
22	05:32	06:26	07:22		08:18	08:18	08:52 (4)	08:56		09:38 (3)
	21:55	20:55	19:39		18:26	16:29	10 09:02 (4)	16:16	21	09:59 (3)
23	05:34	06:28	07:24		08:20	08:20	08:54 (4)	08:57		09:39 (3)
	21:54	20:52	19:36		18:24	16:28	8 09:02 (4)	16:16	20	09:59 (3)
24	05:35	06:29	07:25		08:22	08:22	08:56 (4)	08:57		09:39 (3)
	21:52	20:50	19:34		18:22	16:26	6 09:02 (4)	16:17	20	09:59 (3)
25	05:37	06:31	07:27		07:24	08:23	08:58 (4)	08:58		09:40 (3)
	21:51	20:48	19:31		17:19	16:25	3 09:01 (4)	16:17	20	10:00 (3)
26	05:39	06:33	07:29		07:26	08:25	09:00 (4)	08:58		09:40 (3)
	21:49	20:45	19:29		17:17	16:24	1 09:01 (4)	16:18	20	10:00 (3)
27	05:40	06:35	07:31		07:28	08:27		08:58		09:41 (3)
	21:47	20:43	19:26		17:15	16:23		16:19	19	10:00 (3)
28	05:42	06:37	07:33		07:30	08:29		08:58		09:41 (3)
	21:46	20:41	19:24		17:13	16:22		16:20	20	10:01 (3)
29	05:43	06:38	07:34		07:32	08:30		08:58		09:42 (3)
	21:44	20:38	19:21		17:11	16:21		16:21	19	10:01 (3)
30	05:45	06:40	07:36		07:34	08:32		08:58		09:43 (3)
	21:42	20:36	19:19		17:09	16:20		16:22	18	10:01 (3)
31	05:47	06:42			07:35			08:58		09:44 (3)
	21:40	20:33			17:07			16:23	18	10:02 (3)
Potential sun hours	515	461	382		328	257		231		
Total, worst case				23			353		483	
Sun reduction				0.29			0.20		0.12	
Oper. time red.				1.00			1.00		1.00	
Wind dir. red.				0.58			0.65		0.66	
Total reduction				0.17			0.13		0.08	
Total, real				4			46		38	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AW - H49

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April			May			June		
1	08:58	08:27	07:29	07:12			06:02		19:21 (18)	05:11		20:29 (17)
	16:24	17:16	18:13	20:12			21:09	34	19:55 (18)	22:00	31	21:00 (17)
2	08:58	08:25	07:26	07:10			06:00		19:22 (18)	05:11		20:29 (17)
	16:25	17:18	18:15	20:14			21:11	33	19:55 (18)	22:01	31	21:00 (17)
3	08:58	08:24	07:24	07:07			05:58		19:22 (18)	05:10		20:29 (17)
	16:26	17:20	18:17	20:16			21:12	32	19:54 (18)	22:02	31	21:00 (17)
4	08:58	08:22	07:21	07:05			05:56		19:23 (18)	05:09		20:29 (17)
	16:27	17:22	18:19	20:18			21:14	30	19:53 (18)	22:03	31	21:00 (17)
5	08:57	08:20	07:19	07:02			05:54		19:23 (18)	05:08		20:29 (17)
	16:28	17:24	18:21	20:20			21:16	29	19:52 (18)	22:05	31	21:00 (17)
6	08:57	08:18	07:17	07:00			05:52		19:25 (18)	05:07		20:29 (17)
	16:30	17:26	18:23	20:22			21:18	27	19:52 (18)	22:06	31	21:00 (17)
7	08:56	08:16	07:14	06:58			05:50		19:26 (18)	05:06		20:30 (17)
	16:31	17:28	18:24	20:24			21:20	25	19:51 (18)	22:07	31	21:01 (17)
8	08:56	08:14	07:12	06:55			05:48		19:27 (18)	05:06		20:30 (17)
	16:33	17:30	18:26	20:25			21:22	23	19:50 (18)	22:08	31	21:01 (17)
9	08:55	08:12	07:09	06:53			05:46		19:28 (18)	05:05		20:30 (17)
	16:34	17:32	18:28	20:27			21:23	20	19:48 (18)	22:09	31	21:01 (17)
10	08:55	08:10	07:07	06:50			05:44		19:30 (18)	05:05		20:30 (17)
	16:36	17:34	18:30	20:29			21:25	16	19:46 (18)	22:09	31	21:01 (17)
11	08:54	08:08	07:05	06:48			05:42		19:33 (18)	05:04		20:31 (17)
	16:37	17:36	18:32	20:31			21:27	11	19:44 (18)	22:10	30	21:01 (17)
12	08:53	08:06	07:02	06:45			05:40			05:04		20:31 (17)
	16:39	17:38	18:34	20:33			21:29			22:11	31	21:02 (17)
13	08:52	08:04	07:00	06:43			05:38			05:04		20:31 (17)
	16:40	17:40	18:36	20:35			21:31			22:12	30	21:01 (17)
14	08:51	08:02	06:57	06:41			05:37			05:03		20:31 (17)
	16:42	17:42	18:38	20:37			21:32			22:12	30	21:01 (17)
15	08:50	08:00	06:55	06:38		19:36 (18)	05:35		20:39 (17)	05:03		20:32 (17)
	16:44	17:44	18:40	20:39	11	19:47 (18)	21:34	7	20:46 (17)	22:13	30	21:02 (17)
16	08:49	07:58	06:52	06:36		19:32 (18)	05:33		20:37 (17)	05:03		20:32 (17)
	16:45	17:46	18:42	20:41	18	19:50 (18)	21:36	12	20:49 (17)	22:14	30	21:02 (17)
17	08:48	07:56	06:50	06:33		19:30 (18)	05:32		20:34 (17)	05:03		20:32 (17)
	16:47	17:49	18:44	20:42	22	19:52 (18)	21:37	17	20:51 (17)	22:14	30	21:02 (17)
18	08:47	07:54	06:47	06:31		19:28 (18)	05:30		20:34 (17)	05:03		20:32 (17)
	16:49	17:51	18:46	20:44	25	19:53 (18)	21:39	18	20:52 (17)	22:14	30	21:02 (17)
19	08:46	07:51	06:45	06:29		19:27 (18)	05:28		20:32 (17)	05:03		20:33 (17)
	16:51	17:53	18:48	20:46	28	19:55 (18)	21:41	21	20:53 (17)	22:15	29	21:02 (17)
20	08:45	07:49	06:42	06:26		19:25 (18)	05:27		20:32 (17)	05:03		20:33 (17)
	16:53	17:55	18:50	20:48	30	19:55 (18)	21:42	22	20:54 (17)	22:15	29	21:02 (17)
21	08:44	07:47	06:40	06:24		19:24 (18)	05:25		20:31 (17)	05:03		20:33 (17)
	16:54	17:57	18:51	20:50	32	19:56 (18)	21:44	25	20:56 (17)	22:15	29	21:02 (17)
22	08:42	07:45	06:37	06:22		19:24 (18)	05:24		20:30 (17)	05:03		20:34 (17)
	16:56	17:59	18:53	20:52	32	19:56 (18)	21:46	26	20:56 (17)	22:16	29	21:03 (17)
23	08:41	07:42	06:35	06:20		19:23 (18)	05:22		20:30 (17)	05:03		20:34 (17)
	16:58	18:01	18:55	20:54	34	19:57 (18)	21:47	26	20:56 (17)	22:16	29	21:03 (17)
24	08:40	07:40	06:32	06:17		19:23 (18)	05:21		20:30 (17)	05:04		20:34 (17)
	17:00	18:03	18:57	20:56	34	19:57 (18)	21:49	27	20:57 (17)	22:16	29	21:03 (17)
25	08:38	07:38	06:30	06:15		19:21 (18)	05:20		20:29 (17)	05:04		20:34 (17)
	17:02	18:05	18:59	20:58	35	19:56 (18)	21:50	29	20:58 (17)	22:16	30	21:04 (17)
26	08:37	07:36	06:27	06:13		19:21 (18)	05:18		20:29 (17)	05:04		20:34 (17)
	17:04	18:07	19:01	20:59	36	19:57 (18)	21:52	29	20:58 (17)	22:16	30	21:04 (17)
27	08:35	07:33	06:25	06:11		19:21 (18)	05:17		20:28 (17)	05:05		20:35 (17)
	17:06	18:09	19:03	21:01	35	19:56 (18)	21:53	30	20:58 (17)	22:16	30	21:05 (17)
28	08:34	07:31	06:22	06:08		19:21 (18)	05:16		20:28 (17)	05:05		20:34 (17)
	17:08	18:11	19:05	21:03	35	19:56 (18)	21:55	30	20:58 (17)	22:16	30	21:04 (17)
29	08:32		07:20	06:06		19:21 (18)	05:15		20:28 (17)	05:06		20:35 (17)
	17:10		20:07	21:05	35	19:56 (18)	21:56	30	20:58 (17)	22:15	30	21:05 (17)
30	08:30		07:17	06:04		19:21 (18)	05:14		20:28 (17)	05:07		20:34 (17)
	17:12		20:08	21:07	35	19:56 (18)	21:57	31	20:59 (17)	22:15	31	21:05 (17)
31	08:29		07:15				05:12		20:29 (17)			
	17:14		20:10				21:59	31	21:00 (17)			
Potential sun hours	248	272	367	421			496			513		
Total, worst case					477			691			906	
Sun reduction					0.34			0.36			0.26	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.59			0.61			0.63	
Total reduction					0.20			0.22			0.16	
Total, real					97			153			146	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AW - H49

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October	November	December
1	05:07		05:48		06:44	07:38	07:37	08:33
	22:15	30	21:39	5	20:31	19:16	17:04	16:19
2	05:08		05:50		06:45	07:40	07:39	08:35
	22:14	31	21:37	13	20:28	19:14	17:02	16:18
3	05:09		05:52		06:47	07:42	07:41	08:36
	22:14	30	21:35	18	20:26	19:11	17:00	16:17
4	05:10		05:53		06:49	07:43	07:43	08:38
	22:13	31	21:33	21	20:23	19:09	16:58	16:17
5	05:11		05:55		06:51	07:45	07:45	08:39
	22:13	31	21:31	23	20:21	19:06	16:56	16:16
6	05:12		05:57		06:53	07:47	07:47	08:41
	22:12	31	21:29	26	20:19	19:04	16:54	16:16
7	05:13		05:59		06:54	07:49	07:49	08:42
	22:12	31	21:27	28	20:16	19:01	16:53	16:15
8	05:14		06:00		06:56	07:51	07:51	08:43
	22:11	31	21:25	30	20:14	18:59	16:51	16:15
9	05:15		06:02		06:58	07:53	07:53	08:45
	22:10	31	21:23	31	20:11	18:56	16:49	16:14
10	05:16		06:04		07:00	07:55	07:55	08:46
	22:09	31	21:21	33	20:09	18:54	16:47	16:14
11	05:17		06:06		07:02	07:57	07:57	08:47
	22:08	31	21:19	33	20:06	18:51	16:45	16:14
12	05:18		06:07		07:03	07:58	07:59	08:48
	22:07	31	21:17	34	20:04	18:49	16:44	16:14
13	05:19		06:09		07:05	08:00	08:01	08:49
	22:06	31	21:15	34	20:01	18:47	16:42	16:13
14	05:21		06:11		07:07	08:02	08:03	08:50
	22:05	30	21:12	35	19:59	18:44	16:40	16:13
15	05:22		06:13		07:09	08:04	08:05	08:51
	22:04	30	21:10	35	19:56	18:42	16:39	16:13
16	05:23		06:15		07:11	08:06	08:07	08:52
	22:03	29	21:08	35	19:54	18:40	16:37	16:13
17	05:25		06:16		07:12	08:08	08:09	08:53
	22:02	29	21:06	35	19:51	18:37	16:36	16:14
18	05:26		06:18		07:14	08:10	08:11	08:54
	22:01	29	21:04	35	19:49	18:35	16:34	16:14
19	05:27		06:20		07:16	08:12	08:12	08:55
	21:59	28	21:01	35	19:46	18:33	16:33	16:14
20	05:29		06:22		07:18	08:14	08:14	08:55
	21:58	27	20:59	33	19:44	18:30	16:31	16:14
21	05:30		06:24		07:20	08:16	08:16	08:56
	21:56	27	20:57	33	19:41	18:28	16:30	16:15
22	05:32		06:25		07:21	08:18	08:18	08:56
	21:55	25	20:55	31	19:39	18:26	16:29	16:15
23	05:33		06:27		07:23	08:20	08:20	08:57
	21:54	24	20:52	29	19:36	18:24	16:27	16:16
24	05:35		06:29		07:25	08:22	08:22	08:57
	21:52	22	20:50	27	19:33	18:21	16:26	16:16
25	05:37		06:31		07:27	07:24	08:23	08:58
	21:51	20	20:48	25	19:31	17:19	16:25	16:17
26	05:38		06:33		07:29	07:25	08:25	08:58
	21:49	18	20:45	21	19:28	17:17	16:24	16:18
27	05:40		06:35		07:31	07:27	08:27	08:58
	21:47	14	20:43	17	19:26	17:15	16:23	16:19
28	05:41		06:36		07:32	07:29	08:28	08:58
	21:46	10	20:40	11	19:23	17:13	16:22	16:19
29	05:43		06:38		07:34	07:31	08:30	08:58
	21:44		20:38		19:21	17:11	16:21	16:20
30	05:45		06:40		07:36	07:33	08:32	08:58
	21:42		20:36		19:18	17:08	16:20	16:21
31	05:46		06:42			07:35		08:58
	21:40		20:33			17:06		16:22
Potential sun hours	515		461		383	327	257	230
Total, worst case		763		766				
Sun reduction		0.27		0.27				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.63		0.59				
Total reduction		0.17		0.16				
Total, real		127		123				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AX - H50

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March			April			May			June
1	08:58	08:27	07:29			07:12		18:56 (18)	06:02		19:59 (17)	05:11
	16:24	17:16	18:13			20:12	28	19:24 (18)	21:09	25	20:24 (17)	22:00
2	08:58	08:25	07:26			07:10		18:55 (18)	06:00		19:58 (17)	05:11
	16:25	17:18	18:15			20:14	30	19:25 (18)	21:11	27	20:25 (17)	22:01
3	08:58	08:24	07:24			07:07		18:54 (18)	05:58		19:57 (17)	05:10
	16:26	17:20	18:17			20:16	31	19:25 (18)	21:12	28	20:25 (17)	22:02
4	08:58	08:22	07:21			07:05		18:53 (18)	05:56		19:56 (17)	05:09
	16:27	17:22	18:19			20:18	33	19:26 (18)	21:14	29	20:25 (17)	22:03
5	08:57	08:20	07:19			07:02		18:53 (18)	05:54		19:55 (17)	05:08
	16:28	17:24	18:21			20:20	33	19:26 (18)	21:16	31	20:26 (17)	22:05
6	08:57	08:18	07:17			07:00		18:52 (18)	05:52		19:56 (17)	05:07
	16:30	17:26	18:23			20:22	34	19:26 (18)	21:18	31	20:27 (17)	22:06
7	08:56	08:16	07:14			06:58		18:52 (18)	05:50		19:55 (17)	05:06
	16:31	17:28	18:24			20:24	34	19:26 (18)	21:20	32	20:27 (17)	22:07
8	08:56	08:14	07:12			06:55		18:51 (18)	05:48		19:55 (17)	05:06
	16:33	17:30	18:26			20:25	34	19:25 (18)	21:22	31	20:26 (17)	22:08
9	08:55	08:12	07:09			06:53		18:51 (18)	05:46		19:55 (17)	05:05
	16:34	17:32	18:28			20:27	34	19:25 (18)	21:23	31	20:26 (17)	22:09
10	08:55	08:10	07:07			06:50		18:50 (18)	05:44		19:54 (17)	05:05
	16:36	17:34	18:30			20:29	34	19:24 (18)	21:25	32	20:26 (17)	22:09
11	08:54	08:08	07:05			06:48		18:51 (18)	05:42		19:55 (17)	05:04
	16:37	17:36	18:32			20:31	33	19:24 (18)	21:27	31	20:26 (17)	22:10
12	08:53	08:06	07:02			06:45		18:52 (18)	05:40		19:55 (17)	05:04
	16:39	17:38	18:34			20:33	31	19:23 (18)	21:29	31	20:26 (17)	22:11
13	08:52	08:04	07:00			06:43		18:52 (18)	05:38		19:55 (17)	05:04
	16:40	17:40	18:36			20:35	29	19:21 (18)	21:31	30	20:25 (17)	22:12
14	08:51	08:02	06:57			06:41		18:53 (18)	05:37		19:56 (17)	05:03
	16:42	17:42	18:38			20:37	28	19:21 (18)	21:32	29	20:25 (17)	22:12
15	08:50	08:00	06:55			06:38		18:54 (18)	05:35		19:56 (17)	05:03
	16:44	17:44	18:40			20:39	26	19:20 (18)	21:34	28	20:24 (17)	22:13
16	08:49	07:58	06:52			06:36		18:54 (18)	05:33		19:57 (17)	05:03
	16:45	17:46	18:42			20:41	23	19:17 (18)	21:36	28	20:25 (17)	22:14
17	08:48	07:56	06:50			06:33		18:56 (18)	05:32		19:57 (17)	05:03
	16:47	17:49	18:44			20:42	20	19:16 (18)	21:37	26	20:23 (17)	22:14
18	08:47	07:54	06:47			06:31		18:59 (18)	05:30		19:59 (17)	05:03
	16:49	17:51	18:46			20:44	14	19:13 (18)	21:39	24	20:23 (17)	22:15
19	08:46	07:51	06:45			06:29		19:04 (18)	05:28		19:59 (17)	05:03
	16:51	17:53	18:48			20:46	5	19:09 (18)	21:41	23	20:22 (17)	22:15
20	08:45	07:49	06:42			06:26			05:27		20:00 (17)	05:03
	16:53	17:55	18:50			20:48			21:42	22	20:22 (17)	22:15
21	08:44	07:47	06:40			06:24			05:25		20:02 (17)	05:03
	16:54	17:57	18:51			20:50			21:44	19	20:21 (17)	22:15
22	08:42	07:45	06:37			06:22			05:24		20:02 (17)	05:03
	16:56	17:59	18:53			20:52			21:46	17	20:19 (17)	22:16
23	08:41	07:42	06:35			06:20			05:22		20:04 (17)	05:03
	16:58	18:01	18:55			20:54			21:47	14	20:18 (17)	22:16
24	08:40	07:40	06:32			06:17			05:21		20:06 (17)	05:04
	17:00	18:03	18:57			20:56			21:49	11	20:17 (17)	22:16
25	08:38	07:38	06:30			06:15			05:20		20:09 (17)	05:04
	17:02	18:05	18:59			20:58			21:50	5	20:14 (17)	22:16
26	08:37	07:36	06:27			06:13			05:18			05:04
	17:04	18:07	19:01			20:59			21:52			22:16
27	08:35	07:33	06:25			06:11		20:05 (17)	05:17			05:05
	17:06	18:09	19:03			21:01	13	20:18 (17)	21:53			22:16
28	08:34	07:31	06:22		18:06 (18)	06:08		20:03 (17)	05:16			05:05
	17:08	18:11	19:05	11	18:17 (18)	21:03	17	20:20 (17)	21:55			22:16
29	08:32		07:20		19:03 (18)	06:06		20:01 (17)	05:15			05:06
	17:10		20:07	17	19:20 (18)	21:05	21	20:22 (17)	21:56			22:15
30	08:31		07:17		19:00 (18)	06:04		20:00 (17)	05:14			05:07
	17:12		20:08	22	19:22 (18)	21:07	23	20:23 (17)	21:57			22:15
31	08:29		07:15		18:58 (18)				05:12			
	17:14		20:10	25	19:23 (18)				21:59			
Potential sun hours	248	272	367			421			496			513
Total, worst case				75			608			635		
Sun reduction				0.22			0.34			0.36		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.59			0.59			0.61		
Total reduction				0.13			0.20			0.22		
Total, real				10			123			140		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AX - H50

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October	November	December
1	05:07			05:48		20:05 (17)	06:44		18:50 (18)	07:38	07:37	08:33
	22:15			21:39	31	20:36 (17)	20:31	33	19:23 (18)	19:16	17:04	16:19
2	05:08			05:50		20:06 (17)	06:45		18:49 (18)	07:40	07:39	08:35
	22:14			21:37	31	20:37 (17)	20:28	34	19:23 (18)	19:14	17:02	16:18
3	05:09			05:52		20:05 (17)	06:47		18:49 (18)	07:42	07:41	08:36
	22:14			21:35	31	20:36 (17)	20:26	34	19:23 (18)	19:11	17:00	16:17
4	05:10			05:53		20:05 (17)	06:49		18:48 (18)	07:43	07:43	08:38
	22:13			21:33	32	20:37 (17)	20:23	34	19:22 (18)	19:09	16:58	16:17
5	05:11			05:55		20:04 (17)	06:51		18:48 (18)	07:45	07:45	08:39
	22:13			21:31	32	20:36 (17)	20:21	34	19:22 (18)	19:06	16:56	16:16
6	05:12			05:57		20:05 (17)	06:53		18:48 (18)	07:47	07:47	08:41
	22:12			21:29	31	20:36 (17)	20:19	34	19:22 (18)	19:04	16:54	16:16
7	05:12			05:59		20:05 (17)	06:54		18:48 (18)	07:49	07:49	08:42
	22:12			21:27	31	20:36 (17)	20:16	33	19:21 (18)	19:01	16:53	16:15
8	05:14			06:00		20:05 (17)	06:56		18:47 (18)	07:51	07:51	08:43
	22:11			21:25	30	20:35 (17)	20:14	33	19:20 (18)	18:59	16:51	16:15
9	05:15			06:02		20:06 (17)	06:58		18:48 (18)	07:53	07:53	08:45
	22:10			21:23	29	20:35 (17)	20:11	31	19:19 (18)	18:56	16:49	16:14
10	05:16			06:04		20:06 (17)	07:00		18:48 (18)	07:55	07:55	08:46
	22:09			21:21	28	20:34 (17)	20:09	30	19:18 (18)	18:54	16:47	16:14
11	05:17			06:06		20:06 (17)	07:02		18:49 (18)	07:57	07:57	08:47
	22:08			21:19	27	20:33 (17)	20:06	28	19:17 (18)	18:51	16:45	16:14
12	05:18			06:07		20:07 (17)	07:03		18:49 (18)	07:58	07:59	08:48
	22:07			21:17	25	20:32 (17)	20:04	26	19:15 (18)	18:49	16:44	16:14
13	05:19			06:09		20:09 (17)	07:05		18:51 (18)	08:00	08:01	08:49
	22:06			21:15	22	20:31 (17)	20:01	22	19:13 (18)	18:47	16:42	16:13
14	05:21			06:11		20:09 (17)	07:07		18:52 (18)	08:02	08:03	08:50
	22:05			21:12	20	20:29 (17)	19:59	19	19:11 (18)	18:44	16:40	16:13
15	05:22			06:13		20:11 (17)	07:09		18:55 (18)	08:04	08:05	08:51
	22:04			21:10	16	20:27 (17)	19:56	13	19:08 (18)	18:42	16:39	16:13
16	05:23			06:15		20:14 (17)	07:11			08:06	08:07	08:52
	22:03			21:08	11	20:25 (17)	19:54			18:40	16:37	16:13
17	05:25			06:16			07:12			08:08	08:09	08:53
	22:02			21:06			19:51			18:37	16:36	16:14
18	05:26			06:18			07:14			08:10	08:11	08:54
	22:01			21:04			19:49			18:35	16:34	16:14
19	05:27		20:17 (17)	06:20			07:16			08:12	08:12	08:55
	21:59	8	20:25 (17)	21:01			19:46			18:33	16:33	16:14
20	05:29		20:14 (17)	06:22			07:18			08:14	08:14	08:55
	21:58	13	20:27 (17)	20:59			19:44			18:30	16:31	16:14
21	05:30		20:14 (17)	06:24			07:20			08:16	08:16	08:56
	21:56	15	20:29 (17)	20:57			19:41			18:28	16:30	16:15
22	05:32		20:12 (17)	06:25			07:21			08:18	08:18	08:56
	21:55	18	20:30 (17)	20:55			19:39			18:26	16:29	16:15
23	05:33		20:10 (17)	06:27			07:23			08:20	08:20	08:57
	21:54	21	20:31 (17)	20:52			19:36			18:24	16:27	16:16
24	05:35		20:10 (17)	06:29		19:05 (18)	07:25			08:22	08:22	08:57
	21:52	22	20:32 (17)	20:50	7	19:12 (18)	19:33			18:21	16:26	16:16
25	05:37		20:09 (17)	06:31		19:01 (18)	07:27			07:24	08:23	08:58
	21:51	24	20:33 (17)	20:48	15	19:16 (18)	19:31			17:19	16:25	16:17
26	05:38		20:09 (17)	06:33		18:59 (18)	07:29			07:25	08:25	08:58
	21:49	25	20:34 (17)	20:45	20	19:19 (18)	19:28			17:17	16:24	16:18
27	05:40		20:07 (17)	06:35		18:57 (18)	07:31			07:27	08:27	08:58
	21:47	27	20:34 (17)	20:43	23	19:20 (18)	19:26			17:15	16:23	16:19
28	05:41		20:07 (17)	06:36		18:55 (18)	07:32			07:29	08:28	08:58
	21:46	28	20:35 (17)	20:40	25	19:20 (18)	19:23			17:13	16:22	16:19
29	05:43		20:06 (17)	06:38		18:53 (18)	07:34			07:31	08:30	08:58
	21:44	29	20:35 (17)	20:38	29	19:22 (18)	19:21			17:11	16:21	16:20
30	05:45		20:06 (17)	06:40		18:52 (18)	07:36			07:33	08:32	08:58
	21:42	30	20:36 (17)	20:36	30	19:22 (18)	19:18			17:08	16:20	16:21
31	05:46		20:05 (17)	06:42		18:51 (18)				07:35		08:58
	21:40	31	20:36 (17)	20:33	31	19:22 (18)				17:06		16:22
Potential sun hours	515			461			383			327	257	230
Total, worst case		291			607			438				
Sun reduction		0.27			0.27			0.29				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.61			0.60			0.59				
Total reduction		0.16			0.16			0.17				
Total, real		47			100			75				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AY - H51

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April	May	June
1	08:58		08:27		16:08 (18)	07:29	17:22 (17)	07:12	06:02	05:11
	16:24		17:16	25	16:33 (18)	18:13	16	17:38 (17)	20:12	21:09	22:00
2	08:58		08:25		16:07 (18)	07:26	17:19 (17)	07:10	06:00	05:10
	16:25		17:18	27	16:34 (18)	18:15	21	17:40 (17)	20:14	21:11	22:01
3	08:58		08:24		16:06 (18)	07:24	17:17 (17)	07:07	05:58	05:10
	16:26		17:20	29	16:35 (18)	18:17	25	17:42 (17)	20:16	21:13	22:02
4	08:58		08:22		16:06 (18)	07:21	17:15 (17)	07:05	05:56	05:09
	16:27		17:22	30	16:36 (18)	18:19	27	17:42 (17)	20:18	21:14	22:03
5	08:57		08:20		16:06 (18)	07:19	17:14 (17)	07:02	05:54	05:08
	16:28		17:24	30	16:36 (18)	18:21	30	17:44 (17)	20:20	21:16	22:05
6	08:57		08:18		16:05 (18)	07:17	17:13 (17)	07:00	05:52	05:07
	16:30		17:26	32	16:37 (18)	18:23	31	17:44 (17)	20:22	21:18	22:06
7	08:56		08:16		16:05 (18)	07:14	17:12 (17)	06:58	05:50	05:06
	16:31		17:28	32	16:37 (18)	18:24	33	17:45 (17)	20:24	21:20	22:07
8	08:56		08:14		16:05 (18)	07:12	17:11 (17)	06:55	05:48	05:06
	16:33		17:30	32	16:37 (18)	18:26	34	17:45 (17)	20:25	21:22	22:08
9	08:55		08:12		16:05 (18)	07:09	17:11 (17)	06:53	05:46	05:05
	16:34		17:32	31	16:36 (18)	18:28	34	17:45 (17)	20:27	21:23	22:09
10	08:55		08:10		16:05 (18)	07:07	17:10 (17)	06:50	05:44	05:05
	16:36		17:34	32	16:37 (18)	18:30	34	17:44 (17)	20:29	21:25	22:09
11	08:54		08:08		16:05 (18)	07:05	17:10 (17)	06:48	05:42	05:04
	16:37		17:36	32	16:37 (18)	18:32	35	17:45 (17)	20:31	21:27	22:10
12	08:53		08:06		16:06 (18)	07:02	17:10 (17)	06:45	05:40	05:04
	16:39		17:38	30	16:36 (18)	18:34	34	17:44 (17)	20:33	21:29	22:11
13	08:52		08:04		16:07 (18)	07:00	17:10 (17)	06:43	05:38	05:04
	16:40		17:40	29	16:36 (18)	18:36	34	17:44 (17)	20:35	21:31	22:12
14	08:51		08:02		16:07 (18)	06:57	17:10 (17)	06:41	05:37	05:03
	16:42		17:42	29	16:36 (18)	18:38	33	17:43 (17)	20:37	21:32	22:12
15	08:51		08:00		16:08 (18)	06:55	17:11 (17)	06:38	05:35	05:03
	16:44		17:44	26	16:34 (18)	18:40	31	17:42 (17)	20:39	21:34	22:13
16	08:50		07:58		16:09 (18)	06:52	17:11 (17)	06:36	05:33	05:03
	16:45		17:46	24	16:33 (18)	18:42	30	17:41 (17)	20:41	21:36	22:14
17	08:48		07:56		16:11 (18)	06:50	17:12 (17)	06:33	05:32	05:03
	16:47		17:49	21	16:32 (18)	18:44	28	17:40 (17)	20:42	21:37	22:14
18	08:47		07:54		16:13 (18)	06:47	17:13 (17)	06:31	05:30	05:03
	16:49		17:51	18	16:31 (18)	18:46	25	17:38 (17)	20:44	21:39	22:15
19	08:46		07:51		16:15 (18)	06:45	17:15 (17)	06:29	05:28	05:03
	16:51		17:53	12	16:27 (18)	18:48	21	17:36 (17)	20:46	21:41	22:15
20	08:45		07:49			06:42	17:17 (17)	06:26	05:27	05:03
	16:53		17:55			18:50	16	17:33 (17)	20:48	21:42	22:15
21	08:44		07:47			06:40	17:21 (17)	06:24	05:25	05:03
	16:54		17:57			18:51	9	17:30 (17)	20:50	21:44	22:16
22	08:42		07:45			06:37		06:22	05:24	05:03
	16:56		17:59			18:53			20:52	21:46	22:16
23	08:41		07:42			06:35			06:20	05:22	05:03
	16:58		18:01			18:55			20:54	21:47	22:16
24	08:40		07:40			06:32			06:17	05:21	05:04
	17:00		18:03			18:57			20:56	21:49	22:16
25	08:38		07:38			06:30			06:15	05:20	05:04
	17:02		18:05			18:59			20:58	21:50	22:16
26	08:37		07:36			06:27			06:13	05:18	05:04
	17:04		18:07			19:01			20:59	21:52	22:16
27	08:35	16:15 (18)	07:33			06:25			06:11	05:17	05:05
	17:06	9	16:24 (18)	18:09			19:03			21:01	21:53	22:16
28	08:34	16:12 (18)	07:31		17:25 (17)	06:22			06:08	05:16	05:05
	17:08	14	16:26 (18)	18:11	9	17:34 (17)	19:05			21:03	21:55	22:16
29	08:32	16:10 (18)					07:20			06:06	05:15	05:06
	17:10	18	16:28 (18)				20:07			21:05	21:56	22:15
30	08:31	16:09 (18)					07:17			06:04	05:14	05:07
	17:12	21	16:30 (18)				20:08			21:07	21:57	22:15
31	08:29	16:08 (18)					07:15				05:12	
	17:14	23	16:31 (18)				20:10				21:59	
Potential sun hours	248		272			367		421	496	513
Total, worst case	85		530			581				
Sun reduction	0.17		0.22			0.22				
Oper. time red.	1.00		1.00			1.00				
Wind dir. red.	0.60		0.60			0.58				
Total reduction	0.10		0.13			0.13				
Total, real	9		70			75				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AY - H51

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October		November		December
1	05:07	05:48	06:44		07:38		17:50 (17)	07:37	15:34 (18)	08:33
	22:15	21:39	20:31		19:16	34	18:24 (17)	17:04	32	16:06 (18)	16:19
2	05:08	05:50	06:45		07:40		17:48 (17)	07:39		15:34 (18)	08:35
	22:14	21:37	20:28		19:14	35	18:23 (17)	17:02	32	16:06 (18)	16:18
3	05:09	05:52	06:47		07:42		17:48 (17)	07:41		15:34 (18)	08:36
	22:14	21:35	20:26		19:11	34	18:22 (17)	17:00	32	16:06 (18)	16:17
4	05:10	05:53	06:49		07:43		17:48 (17)	07:43		15:35 (18)	08:38
	22:14	21:33	20:23		19:09	34	18:22 (17)	16:58	32	16:07 (18)	16:17
5	05:11	05:55	06:51		07:45		17:48 (17)	07:45		15:35 (18)	08:39
	22:13	21:31	20:21		19:06	34	18:22 (17)	16:56	31	16:06 (18)	16:16
6	05:11	05:57	06:53		07:47		17:48 (17)	07:47		15:35 (18)	08:41
	22:12	21:29	20:19		19:04	33	18:21 (17)	16:54	31	16:06 (18)	16:16
7	05:12	05:59	06:54		07:49		17:49 (17)	07:49		15:36 (18)	08:42
	22:12	21:27	20:16		19:01	31	18:20 (17)	16:53	29	16:05 (18)	16:15
8	05:14	06:00	06:56		07:51		17:49 (17)	07:51		15:36 (18)	08:43
	22:11	21:25	20:14		18:59	30	18:19 (17)	16:51	29	16:05 (18)	16:15
9	05:15	06:02	06:58		07:53		17:50 (17)	07:53		15:37 (18)	08:45
	22:10	21:23	20:11		18:56	28	18:18 (17)	16:49	27	16:04 (18)	16:14
10	05:16	06:04	07:00		07:55		17:51 (17)	07:55		15:39 (18)	08:46
	22:09	21:21	20:09		18:54	26	18:17 (17)	16:47	25	16:04 (18)	16:14
11	05:17	06:06	07:02		07:57		17:52 (17)	07:57		15:40 (18)	08:47
	22:08	21:19	20:06		18:51	23	18:15 (17)	16:45	23	16:03 (18)	16:14
12	05:18	06:07	07:03		07:58		17:54 (17)	07:59		15:41 (18)	08:48
	22:07	21:17	20:04		18:49	19	18:13 (17)	16:44	21	16:02 (18)	16:13
13	05:19	06:09	07:05		08:00		17:56 (17)	08:01		15:42 (18)	08:49
	22:06	21:15	20:01		18:47	14	18:10 (17)	16:42	18	16:00 (18)	16:13
14	05:21	06:11	07:07		08:02		18:02 (17)	08:03		15:44 (18)	08:50
	22:05	21:13	19:59		18:44	2	18:04 (17)	16:40	14	15:58 (18)	16:13
15	05:22	06:13	07:09		08:04			08:05		15:47 (18)	08:51
	22:04	21:10	19:56		18:42			16:39	9	15:56 (18)	16:13
16	05:23	06:15	07:11		08:06			08:07			08:52
	22:03	21:08	19:54		18:40			16:37			16:13
17	05:25	06:16	07:12		08:08			08:09			08:53
	22:02	21:06	19:51		18:37			16:36			16:14
18	05:26	06:18	07:14		08:10			08:11			08:54
	22:01	21:04	19:49		18:35			16:34			16:14
19	05:27	06:20	07:16		08:12			08:12			08:55
	21:59	21:01	19:46		18:33			16:33			16:14
20	05:29	06:22	07:18		08:14			08:14			08:55
	21:58	20:59	19:44		18:30			16:31			16:14
21	05:30	06:24	07:20		08:16			08:16			08:56
	21:57	20:57	19:41		18:28			16:30			16:15
22	05:32	06:25	07:21	18:07 (17)	08:18		16:48 (18)	08:18			08:56
	21:55	20:55	19:39	6	18:13 (17)	18:26	7	16:55 (18)	16:29			16:15
23	05:33	06:27	07:23	18:02 (17)	08:20		16:44 (18)	08:20			08:57
	21:54	20:52	19:36	15	18:17 (17)	18:24	15	16:59 (18)	16:27			16:16
24	05:35	06:29	07:25	17:59 (17)	08:22		16:42 (18)	08:22			08:57
	21:52	20:50	19:33	20	18:19 (17)	18:21	19	17:01 (18)	16:26			16:16
25	05:37	06:31	07:27	17:56 (17)	07:24		15:40 (18)	08:23			08:58
	21:51	20:48	19:31	24	18:20 (17)	17:19	22	16:02 (18)	16:25			16:17
26	05:38	06:33	07:29	17:55 (17)	07:26		15:38 (18)	08:25			08:58
	21:49	20:45	19:28	26	18:21 (17)	17:17	25	16:03 (18)	16:24			16:18
27	05:40	06:35	07:31	17:53 (17)	07:27		15:37 (18)	08:27			08:58
	21:47	20:43	19:26	29	18:22 (17)	17:15	27	16:04 (18)	16:23			16:18
28	05:41	06:36	07:32	17:52 (17)	07:29		15:37 (18)	08:29			08:58
	21:46	20:40	19:23	31	18:23 (17)	17:13	28	16:05 (18)	16:22			16:19
29	05:43	06:38	07:34	17:51 (17)	07:31		15:36 (18)	08:30			08:58
	21:44	20:38	19:21	32	18:23 (17)	17:11	30	16:06 (18)	16:21			16:20
30	05:45	06:40	07:36	17:50 (17)	07:33		15:35 (18)	08:32			08:59
	21:42	20:36	19:18	34	18:24 (17)	17:08	31	16:06 (18)	16:20			16:21
31	05:46	06:42				07:35		15:35 (18)				08:58
	21:40	20:33				17:06	31	16:06 (18)				16:22
Potential sun hours	515	461	383			327			257			230
Total, worst case				217			612			385		
Sun reduction				0.29			0.23			0.20		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.58			0.59			0.60		
Total reduction				0.17			0.14			0.12		
Total, real				37			84			46		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AZ - H52

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June		
1	08:58	08:27	07:29	07:12		19:16 (18)	06:02		20:14 (17)	05:11		20:17 (17)
	16:24	17:16	18:13	20:12	7	19:23 (18)	21:09	11	20:25 (17)	22:00	7	20:24 (17)
2	08:58	08:25	07:26	07:10		19:12 (18)	06:00		20:11 (17)	05:11		
	16:25	17:18	18:15	20:14	15	19:27 (18)	21:11	16	20:27 (17)	22:01		
3	08:58	08:24	07:24	07:07		19:09 (18)	05:58		20:09 (17)	05:10		
	16:26	17:20	18:17	20:16	20	19:29 (18)	21:12	20	20:29 (17)	22:02		
4	08:58	08:22	07:21	07:05		19:07 (18)	05:56		20:08 (17)	05:09		
	16:27	17:22	18:19	20:18	24	19:31 (18)	21:14	22	20:30 (17)	22:03		
5	08:57	08:20	07:19	07:02		19:06 (18)	05:54		20:07 (17)	05:08		
	16:28	17:24	18:21	20:20	26	19:32 (18)	21:16	24	20:31 (17)	22:05		
6	08:57	08:18	07:17	07:00		19:04 (18)	05:52		20:06 (17)	05:07		
	16:30	17:26	18:23	20:22	29	19:33 (18)	21:18	27	20:33 (17)	22:06		
7	08:56	08:16	07:14	06:58		19:03 (18)	05:50		20:06 (17)	05:06		
	16:31	17:28	18:24	20:24	31	19:34 (18)	21:20	27	20:33 (17)	22:07		
8	08:56	08:14	07:12	06:55		19:01 (18)	05:48		20:05 (17)	05:06		
	16:33	17:30	18:26	20:25	32	19:33 (18)	21:22	28	20:33 (17)	22:08		
9	08:55	08:12	07:09	06:53		19:01 (18)	05:46		20:04 (17)	05:05		
	16:34	17:32	18:28	20:27	33	19:34 (18)	21:23	29	20:33 (17)	22:09		
10	08:55	08:10	07:07	06:50		19:00 (18)	05:44		20:03 (17)	05:05		
	16:36	17:34	18:30	20:29	34	19:34 (18)	21:25	30	20:33 (17)	22:09		
11	08:54	08:08	07:05	06:48		19:00 (18)	05:42		20:04 (17)	05:04		
	16:37	17:36	18:32	20:31	34	19:34 (18)	21:27	30	20:34 (17)	22:10		
12	08:53	08:06	07:02	06:45		19:00 (18)	05:40		20:03 (17)	05:04		
	16:39	17:38	18:34	20:33	34	19:34 (18)	21:29	31	20:34 (17)	22:11		
13	08:52	08:04	07:00	06:43		18:59 (18)	05:38		20:03 (17)	05:04		
	16:40	17:40	18:36	20:35	34	19:33 (18)	21:31	31	20:34 (17)	22:12		
14	08:51	08:02	06:57	06:41		18:59 (18)	05:37		20:03 (17)	05:03		
	16:42	17:42	18:38	20:37	34	19:33 (18)	21:32	31	20:34 (17)	22:12		
15	08:50	08:00	06:55	06:38		19:00 (18)	05:35		20:03 (17)	05:03		
	16:44	17:44	18:40	20:39	33	19:33 (18)	21:34	31	20:34 (17)	22:13		
16	08:49	07:58	06:52	06:36		18:59 (18)	05:33		20:04 (17)	05:03		
	16:45	17:46	18:42	20:41	32	19:31 (18)	21:36	30	20:34 (17)	22:14		
17	08:48	07:56	06:50	06:33		19:00 (18)	05:32		20:03 (17)	05:03		
	16:47	17:49	18:44	20:42	31	19:31 (18)	21:37	31	20:34 (17)	22:14		
18	08:47	07:54	06:47	06:31		19:01 (18)	05:30		20:04 (17)	05:03		
	16:49	17:51	18:46	20:44	29	19:30 (18)	21:39	30	20:34 (17)	22:15		
19	08:46	07:51	06:45	06:29		19:02 (18)	05:28		20:04 (17)	05:03		
	16:51	17:53	18:48	20:46	27	19:29 (18)	21:41	29	20:33 (17)	22:15		
20	08:45	07:49	06:42	06:26		19:02 (18)	05:27		20:05 (17)	05:03		
	16:53	17:55	18:50	20:48	25	19:27 (18)	21:42	28	20:33 (17)	22:15		
21	08:44	07:47	06:40	06:24		19:03 (18)	05:25		20:06 (17)	05:03		
	16:54	17:57	18:51	20:50	23	19:26 (18)	21:44	27	20:33 (17)	22:15		
22	08:42	07:45	06:37	06:22		19:05 (18)	05:24		20:05 (17)	05:03		
	16:56	17:59	18:53	20:52	19	19:24 (18)	21:46	27	20:32 (17)	22:16		
23	08:41	07:42	06:35	06:20		19:08 (18)	05:22		20:06 (17)	05:03		
	16:58	18:01	18:55	20:54	13	19:21 (18)	21:47	26	20:32 (17)	22:16		
24	08:40	07:40	06:32	06:17		19:13 (18)	05:21		20:07 (17)	05:04		
	17:00	18:03	18:57	20:56	4	19:17 (18)	21:49	25	20:32 (17)	22:16		
25	08:38	07:38	06:30	06:15			05:20		20:08 (17)	05:04		
	17:02	18:05	18:59	20:58			21:50	23	20:31 (17)	22:16		
26	08:37	07:36	06:27	06:13			05:18		20:09 (17)	05:04		
	17:04	18:07	19:01	20:59			21:52	22	20:31 (17)	22:16		
27	08:35	07:33	06:25	06:11			05:17		20:09 (17)	05:05		
	17:06	18:09	19:03	21:01			21:53	20	20:29 (17)	22:16		
28	08:34	07:31	06:22	06:08			05:16		20:10 (17)	05:05		
	17:08	18:11	19:05	21:03			21:55	18	20:28 (17)	22:16		
29	08:32		07:20	06:06			05:15		20:12 (17)	05:06		
	17:10		20:07	21:05			21:56	16	20:28 (17)	22:15		
30	08:30		07:17	06:04			05:14		20:13 (17)	05:07		
	17:12		20:08	21:07			21:57	14	20:27 (17)	22:15		
31	08:29		07:15				05:12		20:15 (17)			
	17:14		20:10				21:59	11	20:26 (17)			
Potential sun hours	248	272	367	421		496		513				
Total, worst case					623		765				7	
Sun reduction					0.34		0.36				0.26	
Oper. time red.					1.00		1.00				1.00	
Wind dir. red.					0.59		0.61				0.61	
Total reduction					0.20		0.22				0.16	
Total, real					126		170				1	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: AZ - H52

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October	November	December
1	05:07			05:48		20:14 (17)	06:44		18:59 (18)	07:38	07:37	08:33
	22:15			21:39	30	20:44 (17)	20:31	34	19:33 (18)	19:16	17:04	16:19
2	05:08			05:50		20:14 (17)	06:45		18:59 (18)	07:40	07:39	08:35
	22:14			21:37	31	20:45 (17)	20:28	34	19:33 (18)	19:14	17:02	16:18
3	05:09			05:52		20:14 (17)	06:47		18:59 (18)	07:42	07:41	08:36
	22:14			21:35	30	20:44 (17)	20:26	33	19:32 (18)	19:11	17:00	16:17
4	05:10			05:53		20:14 (17)	06:49		18:58 (18)	07:43	07:43	08:38
	22:13			21:33	30	20:44 (17)	20:23	33	19:31 (18)	19:09	16:58	16:17
5	05:11			05:55		20:14 (17)	06:51		18:59 (18)	07:45	07:45	08:39
	22:13			21:31	28	20:42 (17)	20:21	31	19:30 (18)	19:06	16:56	16:16
6	05:12			05:57		20:15 (17)	06:53		19:00 (18)	07:47	07:47	08:41
	22:12			21:29	27	20:42 (17)	20:19	29	19:29 (18)	19:04	16:54	16:16
7	05:12			05:59		20:16 (17)	06:54		19:01 (18)	07:49	07:49	08:42
	22:12			21:27	26	20:42 (17)	20:16	27	19:28 (18)	19:01	16:53	16:15
8	05:14			06:00		20:16 (17)	06:56		19:01 (18)	07:51	07:51	08:43
	22:11			21:25	24	20:40 (17)	20:14	24	19:25 (18)	18:59	16:51	16:15
9	05:15			06:02		20:18 (17)	06:58		19:03 (18)	07:53	07:53	08:45
	22:10			21:23	21	20:39 (17)	20:11	20	19:23 (18)	18:56	16:49	16:14
10	05:16			06:04		20:19 (17)	07:00		19:05 (18)	07:55	07:55	08:46
	22:09			21:21	19	20:38 (17)	20:09	16	19:21 (18)	18:54	16:47	16:14
11	05:17		20:26 (17)	06:06		20:20 (17)	07:02		19:09 (18)	07:57	07:57	08:47
	22:08	4	20:30 (17)	21:19	15	20:35 (17)	20:06	8	19:17 (18)	18:51	16:45	16:14
12	05:18		20:24 (17)	06:07		20:23 (17)	07:03			07:58	07:59	08:48
	22:07	9	20:33 (17)	21:17	10	20:33 (17)	20:04			18:49	16:44	16:14
13	05:19		20:22 (17)	06:09			07:05			08:00	08:01	08:49
	22:06	12	20:34 (17)	21:15			20:01			18:47	16:42	16:13
14	05:21		20:22 (17)	06:11			07:07			08:02	08:03	08:50
	22:05	15	20:37 (17)	21:12			19:59			18:44	16:40	16:13
15	05:22		20:20 (17)	06:13			07:09			08:04	08:05	08:51
	22:04	18	20:38 (17)	21:10			19:56			18:42	16:39	16:13
16	05:23		20:19 (17)	06:15			07:11			08:06	08:07	08:52
	22:03	19	20:38 (17)	21:08			19:54			18:40	16:37	16:13
17	05:25		20:18 (17)	06:16			07:12			08:08	08:09	08:53
	22:02	21	20:39 (17)	21:06			19:51			18:37	16:36	16:14
18	05:26		20:18 (17)	06:18			07:14			08:10	08:11	08:54
	22:01	22	20:40 (17)	21:04			19:49			18:35	16:34	16:14
19	05:27		20:17 (17)	06:20		19:17 (18)	07:16			08:12	08:12	08:55
	21:59	24	20:41 (17)	21:01	7	19:24 (18)	19:46			18:33	16:33	16:14
20	05:29		20:16 (17)	06:22		19:13 (18)	07:18			08:14	08:14	08:55
	21:58	25	20:41 (17)	20:59	15	19:28 (18)	19:44			18:30	16:31	16:14
21	05:30		20:16 (17)	06:24		19:10 (18)	07:20			08:16	08:16	08:56
	21:56	26	20:42 (17)	20:57	19	19:29 (18)	19:41			18:28	16:30	16:15
22	05:32		20:16 (17)	06:25		19:08 (18)	07:21			08:18	08:18	08:56
	21:55	27	20:43 (17)	20:55	23	19:31 (18)	19:39			18:26	16:29	16:15
23	05:33		20:15 (17)	06:27		19:06 (18)	07:23			08:20	08:20	08:57
	21:54	28	20:43 (17)	20:52	26	19:32 (18)	19:36			18:24	16:27	16:16
24	05:35		20:15 (17)	06:29		19:04 (18)	07:25			08:22	08:22	08:57
	21:52	29	20:44 (17)	20:50	28	19:32 (18)	19:33			18:21	16:26	16:16
25	05:37		20:14 (17)	06:31		19:03 (18)	07:27			07:24	08:23	08:58
	21:51	30	20:44 (17)	20:48	30	19:33 (18)	19:31			17:19	16:25	16:17
26	05:38		20:14 (17)	06:33		19:03 (18)	07:29			07:25	08:25	08:58
	21:49	30	20:44 (17)	20:45	31	19:34 (18)	19:28			17:17	16:24	16:18
27	05:40		20:14 (17)	06:35		19:02 (18)	07:31			07:27	08:27	08:58
	21:47	30	20:44 (17)	20:43	32	19:34 (18)	19:26			17:15	16:23	16:19
28	05:41		20:14 (17)	06:36		19:00 (18)	07:32			07:29	08:28	08:58
	21:46	31	20:45 (17)	20:40	34	19:34 (18)	19:23			17:13	16:22	16:19
29	05:43		20:13 (17)	06:38		19:00 (18)	07:34			07:31	08:30	08:58
	21:44	31	20:44 (17)	20:38	34	19:34 (18)	19:21			17:11	16:21	16:20
30	05:45		20:14 (17)	06:40		19:00 (18)	07:36			07:33	08:32	08:58
	21:42	31	20:45 (17)	20:36	34	19:34 (18)	19:18			17:08	16:20	16:21
31	05:46		20:13 (17)	06:42		18:59 (18)				07:35		08:58
	21:40	31	20:44 (17)	20:33	34	19:33 (18)				17:06		16:22
Potential sun hours	515			461			383			327	257	230
Total, worst case		493			638			289				
Sun reduction		0.27			0.27			0.29				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.61			0.60			0.59				
Total reduction		0.16			0.16			0.17				
Total, real		81			105			50				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BA - H53

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April			May			June		
1	08:58	08:27	07:29	07:12			06:02		19:19 (18)	05:11		20:19 (17)
	16:24	17:16	18:13	20:12			21:09	15	19:34 (18)	22:00	27	20:46 (17)
2	08:58	08:25	07:26	07:10			06:00		19:22 (18)	05:11		20:19 (17)
	16:25	17:18	18:15	20:14			21:11	9	19:31 (18)	22:01	27	20:46 (17)
3	08:58	08:24	07:24	07:07			05:58			05:10		20:19 (17)
	16:26	17:20	18:17	20:16			21:12			22:02	27	20:46 (17)
4	08:58	08:22	07:21	07:05			05:56			05:09		20:19 (17)
	16:27	17:22	18:19	20:18			21:14			22:03	26	20:45 (17)
5	08:57	08:20	07:19	07:02			05:54			05:08		20:21 (17)
	16:28	17:24	18:21	20:20			21:16			22:05	25	20:46 (17)
6	08:57	08:18	07:17	07:00			05:52			05:07		20:21 (17)
	16:30	17:26	18:23	20:22			21:18			22:06	24	20:45 (17)
7	08:56	08:16	07:14	06:58			05:50			05:06		20:22 (17)
	16:31	17:28	18:24	20:24			21:20			22:07	23	20:45 (17)
8	08:56	08:14	07:12	06:55		19:28 (18)	05:48		20:26 (17)	05:06		20:22 (17)
	16:33	17:30	18:26	20:25	6	19:34 (18)	21:22	10	20:36 (17)	22:08	23	20:45 (17)
9	08:55	08:12	07:09	06:53		19:23 (18)	05:46		20:23 (17)	05:05		20:23 (17)
	16:34	17:32	18:28	20:27	16	19:39 (18)	21:23	15	20:38 (17)	22:09	22	20:45 (17)
10	08:55	08:10	07:07	06:50		19:20 (18)	05:44		20:21 (17)	05:05		20:23 (17)
	16:36	17:34	18:30	20:29	20	19:40 (18)	21:25	19	20:40 (17)	22:09	21	20:44 (17)
11	08:54	08:08	07:04	06:48		19:18 (18)	05:42		20:21 (17)	05:04		20:24 (17)
	16:37	17:36	18:32	20:31	24	19:42 (18)	21:27	21	20:42 (17)	22:10	21	20:45 (17)
12	08:53	08:06	07:02	06:45		19:17 (18)	05:40		20:19 (17)	05:04		20:25 (17)
	16:39	17:38	18:34	20:33	27	19:44 (18)	21:29	23	20:42 (17)	22:11	20	20:45 (17)
13	08:52	08:04	07:00	06:43		19:15 (18)	05:38		20:18 (17)	05:04		20:24 (17)
	16:40	17:40	18:36	20:35	29	19:44 (18)	21:31	25	20:43 (17)	22:12	20	20:44 (17)
14	08:51	08:02	06:57	06:41		19:14 (18)	05:37		20:18 (17)	05:03		20:25 (17)
	16:42	17:42	18:38	20:37	31	19:45 (18)	21:32	26	20:44 (17)	22:12	19	20:44 (17)
15	08:50	08:00	06:55	06:38		19:14 (18)	05:35		20:17 (17)	05:03		20:26 (17)
	16:44	17:44	18:40	20:39	32	19:46 (18)	21:34	27	20:44 (17)	22:13	18	20:44 (17)
16	08:49	07:58	06:52	06:36		19:12 (18)	05:33		20:17 (17)	05:03		20:26 (17)
	16:45	17:46	18:42	20:41	33	19:45 (18)	21:36	28	20:45 (17)	22:14	18	20:44 (17)
17	08:48	07:56	06:50	06:33		19:12 (18)	05:32		20:16 (17)	05:03		20:27 (17)
	16:47	17:49	18:44	20:42	34	19:46 (18)	21:37	29	20:45 (17)	22:14	17	20:44 (17)
18	08:47	07:54	06:47	06:31		19:12 (18)	05:30		20:16 (17)	05:03		20:27 (17)
	16:49	17:51	18:46	20:44	34	19:46 (18)	21:39	30	20:46 (17)	22:14	17	20:44 (17)
19	08:46	07:51	06:45	06:29		19:12 (18)	05:28		20:16 (17)	05:03		20:27 (17)
	16:51	17:53	18:48	20:46	34	19:46 (18)	21:41	30	20:46 (17)	22:15	17	20:44 (17)
20	08:45	07:49	06:42	06:26		19:11 (18)	05:27		20:16 (17)	05:03		20:27 (17)
	16:53	17:55	18:50	20:48	34	19:45 (18)	21:42	30	20:46 (17)	22:15	17	20:44 (17)
21	08:44	07:47	06:40	06:24		19:11 (18)	05:25		20:16 (17)	05:03		20:27 (17)
	16:54	17:57	18:51	20:50	34	19:45 (18)	21:44	31	20:47 (17)	22:15	17	20:44 (17)
22	08:42	07:45	06:37	06:22		19:11 (18)	05:24		20:15 (17)	05:03		20:28 (17)
	16:56	17:59	18:53	20:52	34	19:45 (18)	21:46	31	20:46 (17)	22:16	17	20:45 (17)
23	08:41	07:42	06:35	06:20		19:11 (18)	05:22		20:16 (17)	05:03		20:28 (17)
	16:58	18:01	18:55	20:54	33	19:44 (18)	21:47	31	20:47 (17)	22:16	17	20:45 (17)
24	08:40	07:40	06:32	06:17		19:12 (18)	05:21		20:16 (17)	05:04		20:28 (17)
	17:00	18:03	18:57	20:56	32	19:44 (18)	21:49	31	20:47 (17)	22:16	17	20:45 (17)
25	08:38	07:38	06:30	06:15		19:11 (18)	05:20		20:16 (17)	05:04		20:29 (17)
	17:02	18:05	18:59	20:58	31	19:42 (18)	21:50	31	20:47 (17)	22:16	17	20:46 (17)
26	08:37	07:36	06:27	06:13		19:12 (18)	05:18		20:17 (17)	05:04		20:28 (17)
	17:04	18:07	19:01	20:59	29	19:41 (18)	21:52	30	20:47 (17)	22:16	18	20:46 (17)
27	08:35	07:33	06:25	06:11		19:13 (18)	05:17		20:16 (17)	05:05		20:29 (17)
	17:06	18:09	19:03	21:01	27	19:40 (18)	21:53	30	20:46 (17)	22:16	18	20:47 (17)
28	08:34	07:31	06:22	06:08		19:14 (18)	05:16		20:16 (17)	05:05		20:28 (17)
	17:08	18:11	19:05	21:03	25	19:39 (18)	21:55	30	20:46 (17)	22:16	19	20:47 (17)
29	08:32		07:20	06:06		19:15 (18)	05:15		20:17 (17)	05:06		20:29 (17)
	17:10		20:07	21:05	23	19:38 (18)	21:56	29	20:46 (17)	22:15	19	20:48 (17)
30	08:30		07:17	06:04		19:17 (18)	05:14		20:17 (17)	05:07		20:28 (17)
	17:12		20:08	21:07	19	19:36 (18)	21:57	29	20:46 (17)	22:15	20	20:48 (17)
31	08:29		07:15				05:12		20:18 (17)			
	17:14		20:10				21:59	29	20:47 (17)			
Potential sun hours	248	272	367	421			496			513		
Total, worst case					641			669			608	
Sun reduction					0.34			0.36			0.26	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.59			0.62			0.62	
Total reduction					0.20			0.22			0.16	
Total, real					130			150			97	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BA - H53

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October	November	December
1	05:07		20:28 (17)	05:48		20:30 (17)	06:44		19:17 (18)	07:38	07:37	08:33
	22:15	21	20:49 (17)	21:39	22	20:52 (17)	20:31	24	19:41 (18)	19:16	17:04	16:19
2	05:08		20:28 (17)	05:50		20:31 (17)	06:45		19:19 (18)	07:40	07:39	08:35
	22:14	21	20:49 (17)	21:37	21	20:52 (17)	20:28	20	19:39 (18)	19:14	17:02	16:18
3	05:09		20:28 (17)	05:52		20:32 (17)	06:47		19:21 (18)	07:42	07:41	08:36
	22:14	22	20:50 (17)	21:35	18	20:50 (17)	20:26	16	19:37 (18)	19:11	17:00	16:17
4	05:10		20:27 (17)	05:53		20:34 (17)	06:49		19:25 (18)	07:43	07:43	08:38
	22:13	23	20:50 (17)	21:33	14	20:48 (17)	20:23	6	19:31 (18)	19:09	16:58	16:17
5	05:11		20:27 (17)	05:55		20:37 (17)	06:51			07:45	07:45	08:39
	22:13	24	20:51 (17)	21:31	8	20:45 (17)	20:21			19:06	16:56	16:16
6	05:12		20:27 (17)	05:57			06:53			07:47	07:47	08:41
	22:12	24	20:51 (17)	21:29			20:19			19:04	16:54	16:16
7	05:12		20:27 (17)	05:59			06:54			07:49	07:49	08:42
	22:12	25	20:52 (17)	21:27			20:16			19:01	16:53	16:15
8	05:14		20:27 (17)	06:00			06:56			07:51	07:51	08:43
	22:11	25	20:52 (17)	21:25			20:14			18:59	16:51	16:15
9	05:15		20:27 (17)	06:02			06:58			07:53	07:53	08:45
	22:10	26	20:53 (17)	21:23			20:11			18:56	16:49	16:14
10	05:16		20:27 (17)	06:04			07:00			07:55	07:55	08:46
	22:09	26	20:53 (17)	21:21			20:09			18:54	16:47	16:14
11	05:17		20:26 (17)	06:06		19:29 (18)	07:02			07:57	07:57	08:47
	22:08	28	20:54 (17)	21:19	12	19:41 (18)	20:06			18:51	16:45	16:14
12	05:18		20:26 (17)	06:07		19:27 (18)	07:03			07:58	07:59	08:48
	22:07	28	20:54 (17)	21:17	16	19:43 (18)	20:04			18:49	16:44	16:14
13	05:19		20:26 (17)	06:09		19:25 (18)	07:05			08:00	08:01	08:49
	22:06	28	20:54 (17)	21:15	20	19:45 (18)	20:01			18:47	16:42	16:13
14	05:21		20:26 (17)	06:11		19:22 (18)	07:07			08:02	08:03	08:50
	22:05	29	20:55 (17)	21:12	24	19:46 (18)	19:59			18:44	16:40	16:13
15	05:22		20:26 (17)	06:13		19:21 (18)	07:09			08:04	08:05	08:51
	22:04	30	20:56 (17)	21:10	26	19:47 (18)	19:56			18:42	16:39	16:13
16	05:23		20:26 (17)	06:15		19:20 (18)	07:11			08:06	08:07	08:52
	22:03	30	20:56 (17)	21:08	28	19:48 (18)	19:54			18:40	16:37	16:13
17	05:25		20:25 (17)	06:16		19:19 (18)	07:12			08:08	08:09	08:53
	22:02	31	20:56 (17)	21:06	30	19:49 (18)	19:51			18:37	16:36	16:14
18	05:26		20:26 (17)	06:18		19:18 (18)	07:14			08:10	08:11	08:54
	22:01	31	20:57 (17)	21:04	31	19:49 (18)	19:49			18:35	16:34	16:14
19	05:27		20:26 (17)	06:20		19:17 (18)	07:16			08:12	08:12	08:55
	21:59	30	20:56 (17)	21:01	33	19:50 (18)	19:46			18:33	16:33	16:14
20	05:29		20:25 (17)	06:22		19:17 (18)	07:18			08:14	08:14	08:55
	21:58	31	20:56 (17)	20:59	33	19:50 (18)	19:44			18:30	16:31	16:14
21	05:30		20:26 (17)	06:24		19:16 (18)	07:20			08:16	08:16	08:56
	21:56	31	20:57 (17)	20:57	33	19:49 (18)	19:41			18:28	16:30	16:15
22	05:32		20:26 (17)	06:25		19:15 (18)	07:21			08:18	08:18	08:56
	21:55	31	20:57 (17)	20:55	35	19:50 (18)	19:39			18:26	16:29	16:15
23	05:33		20:25 (17)	06:27		19:15 (18)	07:23			08:20	08:20	08:57
	21:54	31	20:56 (17)	20:52	35	19:50 (18)	19:36			18:24	16:27	16:16
24	05:35		20:26 (17)	06:29		19:14 (18)	07:25			08:22	08:22	08:57
	21:52	31	20:57 (17)	20:50	35	19:49 (18)	19:33			18:21	16:26	16:16
25	05:37		20:26 (17)	06:31		19:14 (18)	07:27			07:24	08:23	08:58
	21:51	30	20:56 (17)	20:48	35	19:49 (18)	19:31			17:19	16:25	16:17
26	05:38		20:27 (17)	06:33		19:15 (18)	07:29			07:25	08:25	08:58
	21:49	29	20:56 (17)	20:45	33	19:48 (18)	19:28			17:17	16:24	16:18
27	05:40		20:27 (17)	06:35		19:15 (18)	07:31			07:27	08:27	08:58
	21:47	28	20:55 (17)	20:43	33	19:48 (18)	19:26			17:15	16:23	16:19
28	05:41		20:27 (17)	06:36		19:15 (18)	07:32			07:29	08:28	08:58
	21:46	28	20:55 (17)	20:40	31	19:46 (18)	19:23			17:13	16:22	16:19
29	05:43		20:27 (17)	06:38		19:15 (18)	07:34			07:31	08:30	08:58
	21:44	27	20:54 (17)	20:38	31	19:46 (18)	19:21			17:11	16:21	16:20
30	05:45		20:29 (17)	06:40		19:16 (18)	07:36			07:33	08:32	08:58
	21:42	25	20:54 (17)	20:36	29	19:45 (18)	19:18			17:08	16:20	16:21
31	05:46		20:29 (17)	06:42		19:16 (18)				07:35		08:58
	21:40	24	20:53 (17)	20:33	27	19:43 (18)				17:06		16:22
Potential sun hours	515			461			383			327	257	230
Total, worst case		848			693			66				
Sun reduction		0.27			0.27			0.29				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.62			0.59			0.59				
Total reduction		0.17			0.16			0.17				
Total, real		140			113			11				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BB - H54

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June	
1	08:58	08:27	07:29		07:12		19:05 (18)	06:02		20:06 (17)	05:11
	16:24	17:16	18:13		20:12	20	19:25 (18)	21:09	19	20:25 (17)	22:00
2	08:58	08:25	07:26		07:10		19:04 (18)	06:00		20:04 (17)	05:11
	16:25	17:18	18:15		20:14	23	19:27 (18)	21:11	23	20:27 (17)	22:01
3	08:58	08:24	07:24		07:07		19:01 (18)	05:58		20:03 (17)	05:10
	16:26	17:20	18:17		20:16	27	19:28 (18)	21:12	25	20:28 (17)	22:02
4	08:58	08:22	07:21		07:05		19:00 (18)	05:56		20:02 (17)	05:09
	16:27	17:22	18:19		20:18	29	19:29 (18)	21:14	26	20:28 (17)	22:03
5	08:57	08:20	07:19		07:02		19:00 (18)	05:54		20:01 (17)	05:08
	16:28	17:24	18:21		20:20	30	19:30 (18)	21:16	28	20:29 (17)	22:05
6	08:57	08:18	07:17		07:00		18:58 (18)	05:52		20:01 (17)	05:07
	16:30	17:26	18:23		20:22	32	19:30 (18)	21:18	29	20:30 (17)	22:06
7	08:56	08:16	07:14		06:58		18:58 (18)	05:50		20:01 (17)	05:06
	16:31	17:28	18:24		20:24	33	19:31 (18)	21:20	29	20:30 (17)	22:07
8	08:56	08:14	07:12		06:55		18:57 (18)	05:48		20:00 (17)	05:06
	16:33	17:30	18:26		20:25	33	19:30 (18)	21:22	30	20:30 (17)	22:08
9	08:55	08:12	07:09		06:53		18:56 (18)	05:46		20:00 (17)	05:05
	16:34	17:32	18:28		20:27	34	19:30 (18)	21:23	30	20:30 (17)	22:09
10	08:55	08:10	07:07		06:50		18:55 (18)	05:44		19:59 (17)	05:05
	16:36	17:34	18:30		20:29	35	19:30 (18)	21:25	31	20:30 (17)	22:09
11	08:54	08:08	07:05		06:48		18:56 (18)	05:42		20:00 (17)	05:04
	16:37	17:36	18:32		20:31	34	19:30 (18)	21:27	31	20:31 (17)	22:10
12	08:53	08:06	07:02		06:45		18:56 (18)	05:40		19:59 (17)	05:04
	16:39	17:38	18:34		20:33	34	19:30 (18)	21:29	32	20:31 (17)	22:11
13	08:52	08:04	07:00		06:43		18:55 (18)	05:38		19:59 (17)	05:04
	16:40	17:40	18:36		20:35	33	19:28 (18)	21:31	31	20:30 (17)	22:12
14	08:51	08:02	06:57		06:41		18:56 (18)	05:37		20:00 (17)	05:03
	16:42	17:42	18:38		20:37	32	19:28 (18)	21:32	30	20:30 (17)	22:12
15	08:50	08:00	06:55		06:38		18:57 (18)	05:35		20:00 (17)	05:03
	16:44	17:44	18:40		20:39	30	19:27 (18)	21:34	30	20:30 (17)	22:13
16	08:49	07:58	06:52		06:36		18:57 (18)	05:33		20:01 (17)	05:03
	16:45	17:46	18:42		20:41	29	19:26 (18)	21:36	29	20:30 (17)	22:14
17	08:48	07:56	06:50		06:33		18:58 (18)	05:32		20:00 (17)	05:03
	16:47	17:49	18:44		20:42	27	19:25 (18)	21:37	29	20:29 (17)	22:14
18	08:47	07:54	06:47		06:31		18:59 (18)	05:30		20:01 (17)	05:03
	16:49	17:51	18:46		20:44	25	19:24 (18)	21:39	28	20:29 (17)	22:15
19	08:46	07:51	06:45		06:29		19:01 (18)	05:28		20:01 (17)	05:03
	16:51	17:53	18:48		20:46	21	19:22 (18)	21:41	27	20:28 (17)	22:15
20	08:45	07:49	06:42		06:26		19:02 (18)	05:27		20:02 (17)	05:03
	16:53	17:55	18:50		20:48	17	19:19 (18)	21:42	26	20:28 (17)	22:15
21	08:44	07:47	06:40		06:24		19:05 (18)	05:25		20:03 (17)	05:03
	16:54	17:57	18:51		20:50	11	19:16 (18)	21:44	25	20:28 (17)	22:15
22	08:42	07:45	06:37		06:22			05:24		20:04 (17)	05:03
	16:56	17:59	18:53		20:52			21:46	23	20:27 (17)	22:16
23	08:41	07:42	06:35		06:20			05:22		20:05 (17)	05:03
	16:58	18:01	18:55		20:54			21:47	21	20:26 (17)	22:16
24	08:40	07:40	06:32		06:17			05:21		20:06 (17)	05:04
	17:00	18:03	18:57		20:56			21:49	20	20:26 (17)	22:16
25	08:38	07:38	06:30		06:15			05:20		20:07 (17)	05:04
	17:02	18:05	18:59		20:58			21:50	18	20:25 (17)	22:16
26	08:37	07:36	06:27		06:13			05:18		20:09 (17)	05:04
	17:04	18:07	19:01		20:59			21:52	15	20:24 (17)	22:16
27	08:35	07:33	06:25		06:11			05:17		20:09 (17)	05:05
	17:06	18:09	19:03		21:01			21:53	13	20:22 (17)	22:16
28	08:34	07:31	06:22		06:08			05:16		20:12 (17)	05:05
	17:08	18:11	19:05		21:03			21:55	8	20:20 (17)	22:16
29	08:32		07:20		06:06		20:10 (17)	05:15			05:06
	17:10		20:07		21:05	11	20:21 (17)	21:56			22:15
30	08:30		07:17	19:13 (18)	06:04		20:08 (17)	05:14			05:07
	17:12		20:08	6 19:19 (18)	21:07	16	20:24 (17)	21:57			22:15
31	08:29		07:15	19:09 (18)				05:12			
	17:14		20:10	15 19:24 (18)				21:59			
Potential sun hours	248	272	367		421			496			513
Total, worst case				21		616			706		
Sun reduction				0.22		0.34			0.36		
Oper. time red.				1.00		1.00			1.00		
Wind dir. red.				0.59		0.59			0.61		
Total reduction				0.13		0.20			0.22		
Total, real				3		125			156		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BB - H54

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07		05:48	20:10 (17)	06:44	18:55 (18)	07:38	07:37	08:33
	22:15		21:39 31	20:41 (17)	20:31 34	19:29 (18)	19:16	17:04	16:19
2	05:08		05:50	20:10 (17)	06:45	18:54 (18)	07:40	07:39	08:35
	22:14		21:37 31	20:41 (17)	20:28 35	19:29 (18)	19:14	17:02	16:18
3	05:09		05:52	20:10 (17)	06:47	18:54 (18)	07:42	07:41	08:36
	22:14		21:35 30	20:40 (17)	20:26 34	19:28 (18)	19:11	17:00	16:17
4	05:10		05:53	20:10 (17)	06:49	18:54 (18)	07:43	07:43	08:38
	22:13		21:33 31	20:41 (17)	20:23 33	19:27 (18)	19:09	16:58	16:17
5	05:11		05:55	20:10 (17)	06:51	18:54 (18)	07:45	07:45	08:39
	22:13		21:31 30	20:40 (17)	20:21 33	19:27 (18)	19:06	16:56	16:16
6	05:12		05:57	20:10 (17)	06:53	18:54 (18)	07:47	07:47	08:41
	22:12		21:29 30	20:40 (17)	20:19 32	19:26 (18)	19:04	16:54	16:16
7	05:12		05:59	20:11 (17)	06:54	18:55 (18)	07:49	07:49	08:42
	22:12		21:27 28	20:39 (17)	20:16 30	19:25 (18)	19:01	16:53	16:15
8	05:14		06:00	20:11 (17)	06:56	18:55 (18)	07:51	07:51	08:43
	22:11		21:25 27	20:38 (17)	20:14 28	19:23 (18)	18:59	16:51	16:15
9	05:15		06:02	20:12 (17)	06:58	18:55 (18)	07:53	07:53	08:45
	22:10		21:23 25	20:37 (17)	20:11 27	19:22 (18)	18:56	16:49	16:14
10	05:16		06:04	20:13 (17)	07:00	18:57 (18)	07:55	07:55	08:46
	22:09		21:21 24	20:37 (17)	20:09 24	19:21 (18)	18:54	16:47	16:14
11	05:17		06:06	20:13 (17)	07:02	18:58 (18)	07:57	07:57	08:47
	22:08		21:19 22	20:35 (17)	20:06 21	19:19 (18)	18:51	16:45	16:14
12	05:18		06:07	20:15 (17)	07:03	19:00 (18)	07:58	07:59	08:48
	22:07		21:17 18	20:33 (17)	20:04 15	19:15 (18)	18:49	16:44	16:14
13	05:19		06:09	20:17 (17)	07:05	19:03 (18)	08:00	08:01	08:49
	22:06		21:15 15	20:32 (17)	20:01 8	19:11 (18)	18:47	16:42	16:13
14	05:21		06:11	20:19 (17)	07:07		08:02	08:03	08:50
	22:05		21:12 9	20:28 (17)	19:59		18:44	16:40	16:13
15	05:22	20:23 (17)	06:13		07:09		08:04	08:05	08:51
	22:04 5	20:28 (17)	21:10		19:56		18:42	16:39	16:13
16	05:23	20:20 (17)	06:15		07:11		08:06	08:07	08:52
	22:03 10	20:30 (17)	21:08		19:54		18:40	16:37	16:13
17	05:25	20:18 (17)	06:16		07:12		08:08	08:09	08:53
	22:02 14	20:32 (17)	21:06		19:51		18:37	16:36	16:14
18	05:26	20:18 (17)	06:18		07:14		08:10	08:11	08:54
	22:01 16	20:34 (17)	21:04		19:49		18:35	16:34	16:14
19	05:27	20:16 (17)	06:20		07:16		08:12	08:12	08:55
	21:59 19	20:35 (17)	21:01		19:46		18:33	16:33	16:14
20	05:29	20:15 (17)	06:22		07:18		08:14	08:14	08:55
	21:58 20	20:35 (17)	20:59		19:44		18:30	16:31	16:14
21	05:30	20:15 (17)	06:24		07:20		08:16	08:16	08:56
	21:56 22	20:37 (17)	20:57		19:41		18:28	16:30	16:15
22	05:32	20:14 (17)	06:25	19:09 (18)	07:21		08:18	08:18	08:56
	21:55 23	20:37 (17)	20:55 13	19:22 (18)	19:39		18:26	16:29	16:15
23	05:33	20:12 (17)	06:27	19:06 (18)	07:23		08:20	08:20	08:57
	21:54 26	20:38 (17)	20:52 18	19:24 (18)	19:36		18:24	16:27	16:16
24	05:35	20:12 (17)	06:29	19:03 (18)	07:25		08:22	08:22	08:57
	21:52 27	20:39 (17)	20:50 22	19:25 (18)	19:33		18:21	16:26	16:16
25	05:37	20:11 (17)	06:31	19:02 (18)	07:27		07:24	08:23	08:58
	21:51 28	20:39 (17)	20:48 24	19:26 (18)	19:31		17:19	16:25	16:17
26	05:38	20:12 (17)	06:33	19:00 (18)	07:29		07:25	08:25	08:58
	21:49 28	20:40 (17)	20:45 28	19:28 (18)	19:28		17:17	16:24	16:18
27	05:40	20:11 (17)	06:35	18:59 (18)	07:31		07:27	08:27	08:58
	21:47 29	20:40 (17)	20:43 29	19:28 (18)	19:26		17:15	16:23	16:19
28	05:41	20:11 (17)	06:36	18:58 (18)	07:32		07:29	08:28	08:58
	21:46 30	20:41 (17)	20:40 30	19:28 (18)	19:23		17:13	16:22	16:19
29	05:43	20:10 (17)	06:38	18:57 (18)	07:34		07:31	08:30	08:58
	21:44 30	20:40 (17)	20:38 32	19:29 (18)	19:21		17:11	16:21	16:20
30	05:45	20:10 (17)	06:40	18:56 (18)	07:36		07:33	08:32	08:58
	21:42 31	20:41 (17)	20:36 33	19:29 (18)	19:18		17:08	16:20	16:21
31	05:46	20:09 (17)	06:42	18:55 (18)			07:35		08:58
	21:40 31	20:40 (17)	20:33 33	19:28 (18)			17:06		16:22
Potential sun hours	515		461		383		327	257	230
Total, worst case	389		613		354				
Sun reduction	0.27		0.27		0.29				
Oper. time red.	1.00		1.00		1.00				
Wind dir. red.	0.61		0.60		0.59				
Total reduction	0.16		0.16		0.17				
Total, real	63		101		61				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BC - H55

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April			May			June		
1	08:58	08:27	07:29	07:12			06:02		19:37 (18)	05:11		20:45 (17)
	16:24	17:16	18:13	20:12			21:09	33	20:10 (18)	22:00	24	21:09 (17)
2	08:58	08:25	07:26	07:10			06:00		19:37 (18)	05:11		20:44 (17)
	16:25	17:18	18:15	20:14			21:11	34	20:11 (18)	22:01	25	21:09 (17)
3	08:58	08:24	07:24	07:07			05:58		19:36 (18)	05:10		20:44 (17)
	16:26	17:20	18:17	20:16			21:12	35	20:11 (18)	22:02	26	21:10 (17)
4	08:58	08:22	07:21	07:05			05:56		19:36 (18)	05:09		20:43 (17)
	16:27	17:22	18:19	20:18			21:14	35	20:11 (18)	22:03	27	21:10 (17)
5	08:57	08:20	07:19	07:02			05:54		19:35 (18)	05:08		20:44 (17)
	16:28	17:24	18:21	20:20			21:16	36	20:11 (18)	22:05	27	21:11 (17)
6	08:57	08:18	07:17	07:00			05:52		19:36 (18)	05:07		20:44 (17)
	16:30	17:26	18:23	20:22			21:18	35	20:11 (18)	22:06	27	21:11 (17)
7	08:56	08:16	07:14	06:58			05:50		19:36 (18)	05:07		20:44 (17)
	16:31	17:28	18:24	20:24			21:20	35	20:11 (18)	22:07	28	21:12 (17)
8	08:56	08:14	07:12	06:55			05:48		19:36 (18)	05:06		20:44 (17)
	16:33	17:30	18:26	20:25			21:22	35	20:11 (18)	22:08	28	21:12 (17)
9	08:55	08:12	07:09	06:53			05:46		19:36 (18)	05:05		20:44 (17)
	16:34	17:32	18:28	20:27			21:23	34	20:10 (18)	22:09	29	21:13 (17)
10	08:55	08:10	07:07	06:50			05:44		19:36 (18)	05:05		20:44 (17)
	16:36	17:34	18:30	20:29			21:25	34	20:10 (18)	22:09	28	21:12 (17)
11	08:54	08:08	07:05	06:48			05:42		19:37 (18)	05:04		20:44 (17)
	16:37	17:36	18:32	20:31			21:27	33	20:10 (18)	22:10	29	21:13 (17)
12	08:53	08:06	07:02	06:45			05:40		19:37 (18)	05:04		20:44 (17)
	16:39	17:38	18:34	20:33			21:29	32	20:09 (18)	22:11	30	21:14 (17)
13	08:52	08:04	07:00	06:43			05:38		19:37 (18)	05:04		20:44 (17)
	16:40	17:40	18:36	20:35			21:31	31	20:08 (18)	22:12	29	21:13 (17)
14	08:51	08:02	06:57	06:41			05:37		19:38 (18)	05:03		20:44 (17)
	16:42	17:42	18:38	20:37			21:32	30	20:08 (18)	22:12	30	21:14 (17)
15	08:50	08:00	06:55	06:38			05:35		19:39 (18)	05:03		20:44 (17)
	16:44	17:44	18:40	20:39			21:34	28	20:07 (18)	22:13	30	21:14 (17)
16	08:49	07:58	06:52	06:36			05:33		19:40 (18)	05:03		20:45 (17)
	16:45	17:46	18:42	20:41			21:36	27	20:07 (18)	22:14	29	21:14 (17)
17	08:48	07:56	06:50	06:33			05:32		19:40 (18)	05:03		20:45 (17)
	16:47	17:49	18:44	20:42			21:37	26	20:06 (18)	22:14	30	21:15 (17)
18	08:47	07:54	06:47	06:31			05:30		19:42 (18)	05:03		20:45 (17)
	16:49	17:51	18:46	20:44			21:39	24	20:06 (18)	22:14	30	21:15 (17)
19	08:46	07:51	06:45	06:29			05:28		19:42 (18)	05:03		20:45 (17)
	16:51	17:53	18:48	20:46			21:41	22	20:04 (18)	22:15	30	21:15 (17)
20	08:45	07:49	06:42	06:26			05:27		19:44 (18)	05:03		20:45 (17)
	16:53	17:55	18:50	20:48			21:42	19	20:03 (18)	22:15	30	21:15 (17)
21	08:44	07:47	06:40	06:24			05:25		19:46 (18)	05:03		20:45 (17)
	16:54	17:57	18:51	20:50			21:44	16	20:02 (18)	22:15	30	21:15 (17)
22	08:42	07:45	06:37	06:22			05:24		19:47 (18)	05:03		20:46 (17)
	16:56	17:59	18:53	20:52			21:46	13	20:00 (18)	22:16	30	21:16 (17)
23	08:41	07:42	06:35	06:20		19:50 (18)	05:22		19:50 (18)	05:03		20:46 (17)
	16:58	18:01	18:55	20:54	11	20:01 (18)	21:47	7	19:57 (18)	22:16	30	21:16 (17)
24	08:40	07:40	06:32	06:17		19:47 (18)	05:21		20:52 (17)	05:04		20:46 (17)
	17:00	18:03	18:57	20:56	17	20:04 (18)	21:49	8	21:00 (17)	22:16	30	21:16 (17)
25	08:38	07:38	06:30	06:15		19:44 (18)	05:20		20:50 (17)	05:04		20:47 (17)
	17:02	18:05	18:59	20:58	21	20:05 (18)	21:50	12	21:02 (17)	22:16	30	21:17 (17)
26	08:37	07:36	06:27	06:13		19:42 (18)	05:18		20:49 (17)	05:04		20:47 (17)
	17:04	18:07	19:01	20:59	24	20:06 (18)	21:52	15	21:04 (17)	22:16	29	21:16 (17)
27	08:35	07:33	06:25	06:11		19:41 (18)	05:17		20:47 (17)	05:05		20:47 (17)
	17:06	18:09	19:03	21:01	27	20:08 (18)	21:53	17	21:04 (17)	22:16	30	21:17 (17)
28	08:34	07:31	06:22	06:08		19:40 (18)	05:16		20:46 (17)	05:05		20:47 (17)
	17:08	18:11	19:05	21:03	29	20:09 (18)	21:55	19	21:05 (17)	22:16	30	21:17 (17)
29	08:32		07:20	06:06		19:39 (18)	05:15		20:45 (17)	05:06		20:48 (17)
	17:10		20:07	21:05	30	20:09 (18)	21:56	21	21:06 (17)	22:15	29	21:17 (17)
30	08:30		07:17	06:04		19:38 (18)	05:14		20:45 (17)	05:07		20:48 (17)
	17:12		20:08	21:07	32	20:10 (18)	21:57	22	21:07 (17)	22:15	29	21:17 (17)
31	08:29		07:15				05:12		20:45 (17)			
	17:14		20:10				21:59	24	21:09 (17)			
Potential sun hours	248	272	367	421			496			513		
Total, worst case					191			792			863	
Sun reduction					0.34			0.36			0.26	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.60			0.60			0.63	
Total reduction					0.21			0.22			0.16	
Total, real					39			173			140	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BC - H55

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October	November	December
1	05:07		05:48		06:44	07:38	07:37	08:33
	22:15	29	21:39	33	20:31	19:16	17:04	16:19
2	05:08		05:50		06:45	07:40	07:39	08:35
	22:14	29	21:37	34	20:28	19:14	17:02	16:18
3	05:09		05:52		06:47	07:42	07:41	08:36
	22:14	29	21:35	34	20:26	19:11	17:00	16:17
4	05:10		05:53		06:49	07:43	07:43	08:38
	22:13	28	21:33	35	20:23	19:09	16:58	16:17
5	05:11		05:55		06:51	07:45	07:45	08:39
	22:13	28	21:31	35	20:21	19:06	16:56	16:16
6	05:12		05:57		06:53	07:47	07:47	08:41
	22:12	27	21:29	36	20:19	19:04	16:54	16:16
7	05:13		05:59		06:54	07:49	07:49	08:42
	22:12	27	21:27	35	20:16	19:01	16:53	16:15
8	05:14		06:00		06:56	07:51	07:51	08:43
	22:11	26	21:25	35	20:14	18:59	16:51	16:15
9	05:15		06:02		06:58	07:53	07:53	08:45
	22:10	26	21:23	35	20:11	18:56	16:49	16:14
10	05:16		06:04		07:00	07:55	07:55	08:46
	22:09	25	21:21	34	20:09	18:54	16:47	16:14
11	05:17		06:06		07:02	07:57	07:57	08:47
	22:08	25	21:19	34	20:06	18:51	16:45	16:14
12	05:18		06:07		07:03	07:58	07:59	08:48
	22:07	23	21:17	33	20:04	18:49	16:44	16:14
13	05:19		06:09		07:05	08:00	08:01	08:49
	22:06	23	21:15	31	20:01	18:47	16:42	16:13
14	05:21		06:11		07:07	08:02	08:03	08:50
	22:05	21	21:12	31	19:59	18:44	16:40	16:13
15	05:22		06:13		07:09	08:04	08:05	08:51
	22:04	20	21:10	29	19:56	18:42	16:39	16:13
16	05:23		06:15		07:11	08:06	08:07	08:52
	22:03	18	21:08	26	19:54	18:40	16:37	16:13
17	05:25		06:16		07:12	08:08	08:09	08:53
	22:02	16	21:06	24	19:51	18:37	16:36	16:14
18	05:26		06:18		07:14	08:10	08:11	08:54
	22:01	14	21:04	20	19:49	18:35	16:34	16:14
19	05:27		06:20		07:16	08:12	08:12	08:55
	21:59	11	21:01	16	19:46	18:33	16:33	16:14
20	05:29		06:22		07:18	08:14	08:14	08:55
	21:58	5	20:59	10	19:44	18:30	16:31	16:14
21	05:30		06:24		07:20	08:16	08:16	08:56
	21:56	10	20:57		19:41	18:28	16:30	16:15
22	05:32		06:25		07:21	08:18	08:18	08:56
	21:55	14	20:55		19:39	18:26	16:29	16:15
23	05:33		06:27		07:23	08:20	08:20	08:57
	21:54	17	20:52		19:36	18:24	16:27	16:16
24	05:35		06:29		07:25	08:22	08:22	08:57
	21:52	20	20:50		19:33	18:21	16:26	16:16
25	05:37		06:31		07:27	07:24	08:23	08:58
	21:51	23	20:48		19:31	17:19	16:25	16:17
26	05:38		06:33		07:29	07:25	08:25	08:58
	21:49	24	20:45		19:28	17:17	16:24	16:18
27	05:40		06:35		07:31	07:27	08:27	08:58
	21:47	27	20:43		19:26	17:15	16:23	16:19
28	05:41		06:36		07:32	07:29	08:28	08:58
	21:46	28	20:40		19:23	17:13	16:22	16:19
29	05:43		06:38		07:34	07:31	08:30	08:58
	21:44	29	20:38		19:21	17:11	16:21	16:20
30	05:45		06:40		07:36	07:33	08:32	08:58
	21:42	31	20:36		19:18	17:08	16:20	16:21
31	05:46		06:42			07:35		08:58
	21:40	32	20:33			17:06		16:22
Potential sun hours	515		461		383	327	257	230
Total, worst case		705		600				
Sun reduction		0.27		0.27				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.62		0.60				
Total reduction		0.16		0.16				
Total, real		116		98				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BD - H56

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May	June
1	08:58		08:27		16:21 (2)		07:29		17:13 (3)	07:12		19:04 (4)	06:02	05:12
	16:24		17:16	22	16:43 (2)		18:13	25	17:38 (3)	20:12	19	19:23 (4)	21:09	22:00
2	08:58		08:25		16:22 (2)		07:26		17:13 (3)	07:10		19:06 (4)	06:00	05:11
	16:25		17:18	24	16:46 (2)		18:15	24	17:37 (3)	20:14	15	19:21 (4)	21:11	22:01
3	08:58		08:24		16:22 (2)		07:24		17:14 (3)	07:08		19:09 (4)	05:58	05:10
	16:26		17:20	26	16:48 (2)		18:17	22	17:36 (3)	20:16	9	19:18 (4)	21:12	22:02
4	08:58		08:22		16:22 (2)		07:22		17:14 (3)	07:05			05:56	05:09
	16:28		17:22	26	16:48 (2)		18:19	20	17:34 (3)	20:18			21:14	22:03
5	08:57		08:20		16:22 (2)		07:19		17:16 (3)	07:03			05:54	05:08
	16:29		17:24	26	16:48 (2)		18:21	17	17:33 (3)	20:20			21:16	22:04
6	08:57		08:18		16:23 (2)		07:17		17:17 (3)	07:00			05:52	05:08
	16:30		17:26	25	16:48 (2)		18:23	14	17:31 (3)	20:22			21:18	22:05
7	08:56		08:16		16:23 (2)		07:14		17:21 (3)	06:58			05:50	05:07
	16:31		17:28	25	16:48 (2)		18:25	6	17:27 (3)	20:24			21:20	22:07
8	08:56		08:14		16:23 (2)		07:12			06:55			05:48	05:06
	16:33		17:30	23	16:46 (2)		18:27			20:26			21:22	22:07
9	08:55		08:12		16:24 (2)		07:09			06:53			05:46	05:06
	16:34		17:32	22	16:46 (2)		18:29			20:27			21:23	22:08
10	08:55		08:10		16:25 (2)		07:07			06:50			05:44	05:05
	16:36		17:34	20	16:45 (2)		18:30			20:29			21:25	22:09
11	08:54		08:08		16:26 (2)		07:05			06:48			05:42	05:05
	16:37		17:36	18	16:44 (2)		18:32			20:31			21:27	22:10
12	08:53		08:06		16:28 (2)		07:02			06:46			05:41	05:04
	16:39		17:39	14	16:42 (2)		18:34			20:33			21:29	22:11
13	08:52		08:04		16:31 (2)		07:00			06:43			05:39	05:04
	16:41		17:41	9	16:40 (2)		18:36			20:35			21:30	22:12
14	08:51		08:02				06:57			06:41			05:37	05:04
	16:42		17:43				18:38			20:37			21:32	22:12
15	08:50		08:00				06:55			06:38			05:35	05:03
	16:44		17:45				18:40			20:39			21:34	22:13
16	08:49		07:58				06:52			06:36			05:34	05:03
	16:46		17:47				18:42			20:41			21:36	22:13
17	08:48		07:56				06:50		18:16 (4)	06:34			05:32	05:03
	16:47		17:49				18:44	1	18:17 (4)	20:42			21:37	22:14
18	08:47		07:54				06:47		18:11 (4)	06:31			05:30	05:03
	16:49		17:51				18:46	8	18:19 (4)	20:44			21:39	22:14
19	08:46		07:51		17:22 (3)		06:45		18:09 (4)	06:29			05:29	05:03
	16:51		17:53	2	17:24 (3)		18:48	12	18:21 (4)	20:46			21:41	22:15
20	08:45		07:49		17:19 (3)		06:42		18:07 (4)	06:27			05:27	05:03
	16:53		17:55	7	17:26 (3)		18:50	15	18:22 (4)	20:48			21:42	22:15
21	08:44		07:47		17:18 (3)		06:40		18:06 (4)	06:24			05:26	05:03
	16:55		17:57	11	17:29 (3)		18:52	19	18:25 (4)	20:50			21:44	22:15
22	08:42		07:45		17:16 (3)		06:37		18:04 (4)	06:22			05:24	05:03
	16:57		17:59	14	17:30 (3)		18:53	22	18:26 (4)	20:52			21:45	22:16
23	08:41		07:42		17:15 (3)		06:35		18:04 (4)	06:20			05:23	05:04
	16:58		18:01	18	17:33 (3)		18:55	25	18:29 (4)	20:54			21:47	22:16
24	08:40		07:40		17:14 (3)		06:32		18:02 (4)	06:18			05:21	05:04
	17:00		18:03	21	17:35 (3)		18:57	28	18:30 (4)	20:56			21:49	22:16
25	08:38		07:38		17:13 (3)		06:30		18:02 (4)	06:15			05:20	05:04
	17:02	2	16:28 (2)	18:05	24	17:37 (3)		18:59	28	18:30 (4)	20:58			21:50	22:16
26	08:37		16:25 (2)	07:36		17:13 (3)		06:27		18:02 (4)	06:13			05:19	05:05
	17:04	5	16:30 (2)	18:07	25	17:38 (3)		19:01	27	18:29 (4)	20:59			21:52	22:16
27	08:35		16:25 (2)	07:33		17:12 (3)		06:25		18:02 (4)	06:11			05:17	05:05
	17:06	8	16:33 (2)	18:09	26	17:38 (3)		19:03	27	18:29 (4)	21:01			21:53	22:16
28	08:34		16:24 (2)	07:31		17:13 (3)		06:22		18:01 (4)	06:09			05:16	05:06
	17:08	11	16:35 (2)	18:11	25	17:38 (3)		19:05	27	18:28 (4)	21:03			21:54	22:16
29	08:32		16:23 (2)					07:20		19:02 (4)	06:07			05:15	05:06
	17:10	14	16:37 (2)					20:07	26	19:28 (4)	21:05			21:56	22:15
30	08:30		16:22 (2)					07:17		19:02 (4)	06:04			05:14	05:07
	17:12	17	16:39 (2)					20:09	24	19:26 (4)	21:07			21:57	22:15
31	08:29		16:22 (2)					07:15		19:03 (4)				05:13	
	17:14	19	16:41 (2)					20:10	22	19:25 (4)				21:58	
Potential sun hours	248		272		367		421		496	513
Total, worst case	76		453		439		43			
Sun reduction	0.17		0.22		0.22		0.34			
Oper. time red.	1.00		1.00		1.00		1.00			
Wind dir. red.	0.59		0.59		0.58		0.58			
Total reduction	0.10		0.13		0.13		0.20			
Total, real	8		59		57		9			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BD - H56

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08	05:48	06:44	07:38	07:37	15:54 (2) 08:33
	22:15	21:39	20:31	19:16	17:05 21	16:15 (2) 16:19
2	05:08	05:50	06:46	07:40	07:39	15:53 (2) 08:35
	22:14	21:37	20:28	19:14	17:02 22	16:15 (2) 16:18
3	05:09	05:52	06:47	07:42	07:41	15:52 (2) 08:36
	22:14	21:35	20:26	19:11	17:00 24	16:16 (2) 16:18
4	05:10	05:54	06:49	07:44	07:43	15:53 (2) 08:38
	22:13	21:33	20:24	19:09	16:59 24	16:17 (2) 16:17
5	05:11	05:55	06:51	07:45	07:45	15:52 (2) 08:39
	22:13	21:31	20:21	19:06	16:57 26	16:18 (2) 16:16
6	05:12	05:57	06:53	07:47	07:47	15:52 (2) 08:41
	22:12	21:29	20:19	19:04	16:55 26	16:18 (2) 16:16
7	05:13	05:59	06:55	07:49 17:55 (3)	07:49	15:52 (2) 08:42
	22:11	21:27	20:16	19:01 10 18:05 (3)	16:53 26	16:18 (2) 16:15
8	05:14	06:01	06:56	07:51 17:52 (3)	07:51	15:52 (2) 08:43
	22:11	21:25	20:14	18:59 16 18:08 (3)	16:51 26	16:18 (2) 16:15
9	05:15	06:02	06:58 19:03 (4)	07:53 17:50 (3)	07:53	15:52 (2) 08:45
	22:10	21:23	20:11 8 19:11 (4)	18:56 19 18:09 (3)	16:49 24	16:16 (2) 16:15
10	05:16	06:04	07:00 19:00 (4)	07:55 17:49 (3)	07:55	15:53 (2) 08:46
	22:09	21:21	20:09 14 19:14 (4)	18:54 21 18:10 (3)	16:47 22	16:15 (2) 16:14
11	05:17	06:06	07:02 18:57 (4)	07:57 17:48 (3)	07:57	15:54 (2) 08:47
	22:08	21:19	20:06 19 19:16 (4)	18:52 23 18:11 (3)	16:46 19	16:13 (2) 16:14
12	05:18	06:08	07:04 18:55 (4)	07:59 17:47 (3)	07:59	15:54 (2) 08:48
	22:07	21:17	20:04 21 19:16 (4)	18:49 24 18:11 (3)	16:44 17	16:11 (2) 16:14
13	05:20	06:09	07:05 18:54 (4)	08:00 17:46 (3)	08:01	15:55 (2) 08:49
	22:06	21:15	20:01 23 19:17 (4)	18:47 25 18:11 (3)	16:42 14	16:09 (2) 16:14
14	05:21	06:11	07:07 18:53 (4)	08:02 17:46 (3)	08:03	15:56 (2) 08:50
	22:05	21:12	19:59 25 19:18 (4)	18:44 25 18:11 (3)	16:41 11	16:07 (2) 16:14
15	05:22	06:13	07:09 18:52 (4)	08:04 17:45 (3)	08:05	15:57 (2) 08:51
	22:04	21:10	19:56 26 19:18 (4)	18:42 26 18:11 (3)	16:39 8	16:05 (2) 16:14
16	05:24	06:15	07:11 18:50 (4)	08:06 17:45 (3)	08:07	15:58 (2) 08:52
	22:03	21:08	19:54 28 19:18 (4)	18:40 25 18:10 (3)	16:37 5	16:03 (2) 16:14
17	05:25	06:17	07:13 18:50 (4)	08:08 17:46 (3)	08:09	15:59 (2) 08:53
	22:02	21:06	19:51 28 19:18 (4)	18:37 22 18:08 (3)	16:36 2	16:01 (2) 16:14
18	05:26	06:18	07:14 18:50 (4)	08:10 17:46 (3)	08:11	08:54
	22:00	21:04	19:49 27 19:17 (4)	18:35 19 18:05 (3)	16:34	16:14
19	05:28	06:20	07:16 18:50 (4)	08:12 17:47 (3)	08:12	08:54
	21:59	21:01	19:46 27 19:17 (4)	18:33 16 18:03 (3)	16:33	16:14
20	05:29	06:22	07:18 18:50 (4)	08:14 17:47 (3)	08:14	08:55
	21:58	20:59	19:44 26 19:16 (4)	18:31 14 18:01 (3)	16:31	16:15
21	05:31	06:24	07:20 18:49 (4)	08:16 17:49 (3)	08:16	08:56
	21:56	20:57	19:41 23 19:12 (4)	18:28 9 17:58 (3)	16:30	16:15
22	05:32	06:26	07:22 18:50 (4)	08:18 17:50 (3)	08:18	08:56
	21:55	20:55	19:39 20 19:10 (4)	18:26 6 17:56 (3)	16:29	16:16
23	05:34	06:27	07:23 18:51 (4)	08:20	08:20	08:57
	21:53	20:52	19:36 17 19:08 (4)	18:24	16:28	16:16
24	05:35	06:29	07:25 18:52 (4)	08:22	08:22	08:57
	21:52	20:50	19:34 13 19:05 (4)	18:22	16:26	16:17
25	05:37	06:31	07:27 18:54 (4)	07:24	08:23	08:58
	21:50	20:48	19:31 9 19:03 (4)	17:19	16:25	16:17
26	05:38	06:33	07:29 18:56 (4)	07:26	08:25	08:58
	21:49	20:45	19:29 4 19:00 (4)	17:17	16:24	16:18
27	05:40	06:35	07:31	07:27	08:27	08:58
	21:47	20:43	19:26	17:15	16:23	16:19
28	05:42	06:37	07:33	07:29	08:28	08:58
	21:46	20:40	19:24	17:13	16:22	16:20
29	05:43	06:38	07:34	07:31 16:00 (2)	08:30	08:58
	21:44	20:38	19:21	17:11 10 16:10 (2)	16:21	16:21
30	05:45	06:40	07:36	07:33 15:58 (2)	08:32	08:58
	21:42	20:36	19:19	17:09 14 16:12 (2)	16:20	16:22
31	05:47	06:42		07:35 15:56 (2)		08:58
	21:40	20:33		17:07 18 16:14 (2)		16:23
Potential sun hours	515	461	382	328	257	231
Total, worst case			358	342	317	
Sun reduction			0.29	0.23	0.20	
Oper. time red.			1.00	1.00	1.00	
Wind dir. red.			0.58	0.58	0.59	
Total reduction			0.17	0.14	0.12	
Total, real			61	47	37	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Finisklin Business Park
F91 RHH9 Sligo
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BE - H57

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April			May			June		
1	08:58		15:21 (9)	08:27		16:09 (10)	07:29	07:12			06:02			05:12		20:31 (12)
	16:24	22	15:43 (9)	17:16	29	16:38 (10)	18:13	20:12			21:09			22:00	18	20:49 (12)
2	08:58		15:21 (9)	08:25		16:09 (10)	07:26	07:10			06:00			05:11		20:32 (12)
	16:25	23	15:44 (9)	17:18	30	16:39 (10)	18:15	20:14			21:11			22:01	16	20:48 (12)
3	08:58		15:22 (9)	08:24		16:08 (10)	07:24	07:07			05:58			05:10		20:32 (12)
	16:26	23	15:45 (9)	17:20	32	16:40 (10)	18:17	20:16			21:13			22:02	15	20:47 (12)
4	08:58		15:21 (9)	08:22		16:08 (10)	07:22	07:05			05:56			05:09		20:34 (12)
	16:27	24	15:45 (9)	17:22	33	16:41 (10)	18:19	20:18			21:14			22:03	13	20:47 (12)
5	08:57		15:21 (9)	08:20		16:07 (10)	07:19	07:03			05:54		20:37 (12)	05:08		20:35 (12)
	16:29	25	15:46 (9)	17:24	34	16:41 (10)	18:21	20:20			21:16	4	20:41 (12)	22:05	11	20:46 (12)
6	08:57		15:22 (9)	08:18		16:07 (10)	07:17	07:00			05:52		20:33 (12)	05:07		20:36 (12)
	16:30	25	15:47 (9)	17:26	35	16:42 (10)	18:23	20:22			21:18	12	20:45 (12)	22:06	9	20:45 (12)
7	08:56		15:22 (9)	08:16		16:07 (10)	07:14	06:58			05:50		20:31 (12)	05:07		20:38 (12)
	16:31	25	15:47 (9)	17:28	35	16:42 (10)	18:25	20:24			21:20	16	20:47 (12)	22:07	9	21:31 (13)
8	08:56		15:22 (9)	08:14		16:07 (10)	07:12	06:55		19:49 (11)	05:48		20:29 (12)	05:06		21:26 (13)
	16:33	26	15:48 (9)	17:30	35	16:42 (10)	18:27	20:26	3	19:52 (11)	21:22	19	20:48 (12)	22:08	5	21:31 (13)
9	08:55		15:23 (9)	08:12		16:06 (10)	07:09	06:53		19:44 (11)	05:46		20:28 (12)	05:05		21:26 (13)
	16:34	26	15:49 (9)	17:32	35	16:41 (10)	18:28	20:27	13	19:57 (11)	21:23	21	20:49 (12)	22:09	7	21:33 (13)
10	08:55		15:23 (9)	08:10		16:07 (10)	07:07	06:50		19:42 (11)	05:44		20:27 (12)	05:05		21:25 (13)
	16:36	27	15:50 (9)	17:34	35	16:42 (10)	18:30	20:29	17	19:59 (11)	21:25	23	20:50 (12)	22:09	8	21:33 (13)
11	08:54		15:23 (9)	08:08		16:07 (10)	07:05	06:48		19:40 (11)	05:42		20:26 (12)	05:04		21:25 (13)
	16:37	27	15:50 (9)	17:36	35	16:42 (10)	18:32	20:31	20	20:00 (11)	21:27	25	20:51 (12)	22:10	9	21:34 (13)
12	08:53		15:23 (9)	08:06		16:07 (10)	07:02	06:45		19:38 (11)	05:40		20:25 (12)	05:04		21:25 (13)
	16:39	28	15:51 (9)	17:38	34	16:41 (10)	18:34	20:33	23	20:01 (11)	21:29	26	20:51 (12)	22:11	10	21:35 (13)
13	08:52		15:23 (9)	08:04		16:08 (10)	07:00	06:43		19:37 (11)	05:39		20:25 (12)	05:04		21:25 (13)
	16:40	28	15:51 (9)	17:40	33	16:41 (10)	18:36	20:35	24	20:01 (11)	21:31	26	20:51 (12)	22:12	11	21:36 (13)
14	08:51		15:24 (9)	08:02		16:09 (10)	06:57	06:41		19:36 (11)	05:37		20:25 (12)	05:03		21:24 (13)
	16:42	28	15:52 (9)	17:42	32	16:41 (10)	18:38	20:37	26	20:02 (11)	21:32	27	20:52 (12)	22:12	12	21:36 (13)
15	08:50		15:23 (9)	08:00		16:09 (10)	06:55	06:38		19:36 (11)	05:35		20:24 (12)	05:03		21:24 (13)
	16:44	29	15:52 (9)	17:45	30	16:39 (10)	18:40	20:39	27	20:03 (11)	21:34	28	20:52 (12)	22:13	12	21:36 (13)
16	08:49		15:24 (9)	07:58		16:10 (10)	06:52	06:36		19:35 (11)	05:33		20:25 (12)	05:03		21:24 (13)
	16:46	28	15:52 (9)	17:47	29	16:39 (10)	18:42	20:41	28	20:03 (11)	21:36	27	20:52 (12)	22:14	13	21:37 (13)
17	08:48		15:24 (9)	07:56		16:11 (10)	06:50	06:34		19:34 (11)	05:32		20:24 (12)	05:03		21:24 (13)
	16:47	29	15:53 (9)	17:49	27	16:38 (10)	18:44	20:43	28	20:02 (11)	21:37	28	20:52 (12)	22:14	13	21:37 (13)
18	08:47		15:25 (9)	07:54		16:13 (10)	06:47	06:31		19:34 (11)	05:30		20:24 (12)	05:03		21:24 (13)
	16:49	28	15:53 (9)	17:51	24	16:37 (10)	18:46	20:44	28	20:02 (11)	21:39	29	20:53 (12)	22:14	14	21:38 (13)
19	08:46		15:25 (9)	07:51		16:14 (10)	06:45	06:29		19:34 (11)	05:28		20:24 (12)	05:03		21:24 (13)
	16:51	28	15:53 (9)	17:53	20	16:34 (10)	18:48	20:46	28	20:02 (11)	21:41	28	20:52 (12)	22:15	14	21:38 (13)
20	08:45		15:26 (9)	07:49		16:17 (10)	06:42	06:27		19:34 (11)	05:27		20:24 (12)	05:03		21:24 (13)
	16:53	27	15:53 (9)	17:55	15	16:32 (10)	18:50	20:48	27	20:01 (11)	21:42	28	20:52 (12)	22:15	14	21:38 (13)
21	08:44		15:26 (9)	07:47		16:22 (10)	06:40	06:24		19:34 (11)	05:25		20:25 (12)	05:03		21:25 (13)
	16:54	27	15:53 (9)	17:57	6	16:28 (10)	18:52	20:50	26	20:00 (11)	21:44	28	20:53 (12)	22:15	14	21:39 (13)
22	08:42		15:27 (9)	07:45			06:37	06:22		19:35 (11)	05:24		20:24 (12)	05:03		21:25 (13)
	16:56	26	15:53 (9)	17:59			18:53	20:52	24	19:59 (11)	21:46	28	20:52 (12)	22:16	14	21:39 (13)
23	08:41		15:27 (9)	07:43			06:35	06:20		19:36 (11)	05:22		20:25 (12)	05:03		21:25 (13)
	16:58	26	15:53 (9)	18:01			18:55	20:54	23	19:59 (11)	21:47	27	20:52 (12)	22:16	14	21:39 (13)
24	08:40		15:28 (9)	07:40			06:32	06:17		19:37 (11)	05:21		20:26 (12)	05:04		21:25 (13)
	17:00	25	15:53 (9)	18:03			18:57	20:56	20	19:57 (11)	21:49	26	20:52 (12)	22:16	14	21:39 (13)
25	08:38		15:29 (9)	07:38			06:30	06:15		19:38 (11)	05:20		20:26 (12)	05:04		21:26 (13)
	17:02	23	15:52 (9)	18:05			18:59	20:58	18	19:56 (11)	21:50	26	20:52 (12)	22:16	13	21:39 (13)
26	08:37		15:30 (9)	07:36			06:27	06:13		19:39 (11)	05:18		20:27 (12)	05:05		21:26 (13)
	17:04	33	16:27 (10)	18:07			19:01	20:59	14	19:53 (11)	21:52	25	20:52 (12)	22:16	13	21:39 (13)
27	08:35		15:32 (9)	07:33			06:25	06:11		19:42 (11)	05:17		20:28 (12)	05:05		21:27 (13)
	17:06	37	16:31 (10)	18:09			19:03	21:01	8	19:50 (11)	21:53	23	20:51 (12)	22:16	12	21:39 (13)
28	08:34		15:33 (9)	07:31			06:22	06:09			05:16		20:28 (12)	05:06		21:27 (13)
	17:08	37	16:33 (10)	18:11			19:05	21:03			21:55	23	20:51 (12)	22:16	12	21:39 (13)
29	08:32		15:35 (9)				07:20	06:06			05:15		20:29 (12)	05:06		21:28 (13)
	17:10	36	16:34 (10)				20:07	21:05			21:56	22	20:51 (12)	22:15	11	21:39 (13)
30	08:31		15:38 (9)				07:17	06:04			05:14		20:29 (12)	05:07		21:28 (13)
	17:12	33	16:35 (10)				20:09	21:07			21:57	21	20:50 (12)	22:15	10	21:38 (13)
31	08:29		16:09 (10)				07:15				05:13		20:30 (12)			
	17:14	27	16:36 (10)				20:10				21:59	20	20:50 (12)			
Potential sun hours	248			272			367	421			496			513		
Total, worst case		856			618				425			636			360	
Sun reduction		0.17			0.22				0.34			0.36			0.26	
Oper. time red.		1.00			1.00				1.00			1.00			1.00	
Wind dir. red.		0.62			0.59				0.59			0.62			0.64	
Total reduction		0.11			0.13				0.20			0.23			0.16	
Total, real		91			82				86			143			59	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BE - H57

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December		
1	05:07		21:29 (13)	05:48		20:36 (12)	06:44		19:38 (11)	07:38			07:37		15:36 (10)	08:33		15:05 (9)
	22:15	9	21:38 (13)	21:39	25	21:01 (12)	20:31	21	19:59 (11)	19:16			17:04	35	16:11 (10)	16:19	27	15:32 (9)
2	05:08		21:30 (13)	05:50		20:37 (12)	06:45		19:40 (11)	07:40			07:39		15:36 (10)	08:35		15:05 (9)
	22:14	8	21:38 (13)	21:37	24	21:01 (12)	20:28	17	19:57 (11)	19:14			17:02	35	16:11 (10)	16:18	27	15:32 (9)
3	05:09		21:31 (13)	05:52		20:37 (12)	06:47		19:42 (11)	07:42			07:41		15:36 (10)	08:36		15:06 (9)
	22:14	7	21:38 (13)	21:35	22	20:59 (12)	20:26	13	19:55 (11)	19:11			17:00	35	16:11 (10)	16:18	26	15:32 (9)
4	05:10		21:31 (13)	05:53		20:38 (12)	06:49		19:46 (11)	07:44			07:43		15:37 (10)	08:38		15:07 (9)
	22:13	6	21:37 (13)	21:33	21	20:59 (12)	20:24	3	19:49 (11)	19:09			16:58	35	16:12 (10)	16:17	26	15:33 (9)
5	05:11		20:44 (12)	05:55		20:40 (12)	06:51			07:45			07:45		15:37 (10)	08:39		15:07 (9)
	22:13	10	21:37 (13)	21:31	18	20:58 (12)	20:21			19:06			16:56	34	16:11 (10)	16:16	25	15:32 (9)
6	05:12		20:43 (12)	05:57		20:41 (12)	06:53			07:47			07:47		15:37 (10)	08:41		15:08 (9)
	22:12	8	20:51 (12)	21:29	14	20:55 (12)	20:19			19:04			16:55	34	16:11 (10)	16:16	25	15:33 (9)
7	05:13		20:42 (12)	05:59		20:43 (12)	06:54			07:49			07:49		15:37 (10)	08:42		15:08 (9)
	22:12	10	20:52 (12)	21:27	10	20:53 (12)	20:16			19:01			16:53	33	16:10 (10)	16:15	25	15:33 (9)
8	05:14		20:41 (12)	06:00			06:56			07:51			07:51		15:38 (10)	08:43		15:09 (9)
	22:11	12	20:53 (12)	21:25			20:14			18:59			16:51	32	16:10 (10)	16:15	24	15:33 (9)
9	05:15		20:40 (12)	06:02			06:58			07:53			07:53		15:38 (10)	08:45		15:10 (9)
	22:10	14	20:54 (12)	21:23			20:11			18:56			16:49	31	16:09 (10)	16:14	23	15:33 (9)
10	05:16		20:39 (12)	06:04			07:00			07:55			07:55		15:40 (10)	08:46		15:10 (9)
	22:09	16	20:55 (12)	21:21			20:09			18:54			16:47	29	16:09 (10)	16:14	23	15:33 (9)
11	05:17		20:39 (12)	06:06			07:02			07:57			07:57		15:41 (10)	08:47		15:11 (9)
	22:08	17	20:56 (12)	21:19			20:06			18:52			16:45	27	16:08 (10)	16:14	22	15:33 (9)
12	05:18		20:38 (12)	06:08			07:04			07:59			07:59		15:10 (9)	08:48		15:12 (9)
	22:07	19	20:57 (12)	21:17			20:04			18:49			16:44	33	16:07 (10)	16:14	22	15:34 (9)
13	05:19		20:37 (12)	06:09			07:05			08:00			08:01		15:07 (9)	08:49		15:13 (9)
	22:06	20	20:57 (12)	21:15			20:01			18:47			16:42	36	16:06 (10)	16:14	21	15:34 (9)
14	05:21		20:38 (12)	06:11			07:07			08:02			08:03		15:05 (9)	08:50		15:13 (9)
	22:05	21	20:59 (12)	21:13			19:59			18:44			16:40	36	16:04 (10)	16:13	21	15:34 (9)
15	05:22		20:37 (12)	06:13			07:09			08:04			08:05		15:04 (9)	08:51		15:14 (9)
	22:04	22	20:59 (12)	21:10			19:56			18:42			16:39	36	16:03 (10)	16:13	20	15:34 (9)
16	05:23		20:36 (12)	06:15		19:49 (11)	07:11			08:06			08:07		15:03 (9)	08:52		15:15 (9)
	22:03	24	21:00 (12)	21:08	10	19:59 (11)	19:54			18:40			16:37	33	16:00 (10)	16:14	20	15:35 (9)
17	05:25		20:36 (12)	06:17		19:46 (11)	07:13			08:08			08:09		15:03 (9)	08:53		15:16 (9)
	22:02	24	21:00 (12)	21:06	15	20:01 (11)	19:51			18:37			16:36	23	15:26 (9)	16:14	19	15:35 (9)
18	05:26		20:36 (12)	06:18		19:44 (11)	07:14			08:10			08:11		15:02 (9)	08:54		15:16 (9)
	22:01	25	21:01 (12)	21:04	18	20:02 (11)	19:49			18:35			16:34	25	15:27 (9)	16:14	19	15:35 (9)
19	05:28		20:35 (12)	06:20		19:42 (11)	07:16			08:12			08:12		15:02 (9)	08:55		15:16 (9)
	21:59	26	21:01 (12)	21:01	21	20:03 (11)	19:46			18:33			16:33	26	15:28 (9)	16:14	19	15:35 (9)
20	05:29		20:35 (12)	06:22		19:41 (11)	07:18			08:14			08:14		15:02 (9)	08:55		15:17 (9)
	21:58	26	21:01 (12)	20:59	23	20:04 (11)	19:44			18:30			16:31	26	15:28 (9)	16:15	19	15:36 (9)
21	05:30		20:35 (12)	06:24		19:39 (11)	07:20			08:16		16:50 (10)	08:16		15:02 (9)	08:56		15:17 (9)
	21:57	27	21:02 (12)	20:57	25	20:04 (11)	19:41			18:28	10	17:00 (10)	16:30	27	15:29 (9)	16:15	19	15:36 (9)
22	05:32		20:35 (12)	06:26		19:39 (11)	07:22			08:18		16:47 (10)	08:18		15:02 (9)	08:56		15:18 (9)
	21:55	27	21:02 (12)	20:55	26	20:05 (11)	19:39			18:26	16	17:03 (10)	16:29	28	15:30 (9)	16:15	19	15:37 (9)
23	05:34		20:35 (12)	06:27		19:38 (11)	07:23			08:20		16:44 (10)	08:20		15:02 (9)	08:57		15:18 (9)
	21:54	28	21:03 (12)	20:52	27	20:05 (11)	19:36			18:24	21	17:05 (10)	16:27	28	15:30 (9)	16:16	19	15:37 (9)
24	05:35		20:35 (12)	06:29		19:38 (11)	07:25			08:22		16:42 (10)	08:22		15:02 (9)	08:57		15:18 (9)
	21:52	28	21:03 (12)	20:50	28	20:06 (11)	19:34			18:21	25	17:07 (10)	16:26	28	15:30 (9)	16:17	19	15:37 (9)
25	05:37		20:34 (12)	06:31		19:37 (11)	07:27			07:24		15:40 (10)	08:23		15:02 (9)	08:58		15:20 (9)
	21:51	28	21:02 (12)	20:48	28	20:05 (11)	19:31			17:19	28	16:08 (10)	16:25	29	15:31 (9)	16:17	18	15:38 (9)
26	05:38		20:35 (12)	06:33		19:37 (11)	07:29			07:26		15:39 (10)	08:25		15:03 (9)	08:58		15:20 (9)
	21:49	28	21:03 (12)	20:45	28	20:05 (11)	19:29			17:17	29	16:08 (10)	16:24	28	15:31 (9)	16:18	19	15:39 (9)
27	05:40		20:34 (12)	06:35		19:37 (11)	07:31			07:28		15:38 (10)	08:27		15:03 (9)	08:58		15:20 (9)
	21:47	28	21:02 (12)	20:43	28	20:05 (11)	19:26			17:15	31	16:09 (10)	16:23	29	15:32 (9)	16:19	19	15:39 (9)
28	05:42		20:35 (12)	06:36		19:36 (11)	07:32			07:29		15:38 (10)	08:29		15:03 (9)	08:58		15:20 (9)
	21:46	28	21:03 (12)	20:40	27	20:03 (11)	19:24			17:13	33	16:11 (10)	16:22	28	15:31 (9)	16:19	20	15:40 (9)
29	05:43		20:35 (12)	06:38		19:37 (11)	07:34			07:31		15:37 (10)	08:30		15:03 (9)	08:58		15:20 (9)
	21:44	27	21:02 (12)	20:38	26	20:03 (11)	19:21			17:11	34	16:11 (10)	16:21	29	15:32 (9)	16:20	21	15:41 (9)
30	05:45		20:35 (12)	06:40		19:38 (11)	07:36			07:33		15:37 (10)	08:32		15:04 (9)	08:58		15:21 (9)
	21:42	27	21:02 (12)	20:36	24	20:02 (11)	19:19			17:09	34	16:11 (10)	16:20	28	15:32 (9)	16:21	21	15:42 (9)
31	05:47		20:36 (12)	06:42		19:38 (11)				07:35		15:36 (10)				08:58		15:21 (9)
	21:40	26	21:02 (12)	20:33	23	20:01 (11)				17:06	35	16:11 (10)				16:22	22	15:43 (9)
Potential sun hours	515			461			382			328			257			231		
Total, worst case		626			511			54			296			916			669	
Sun reduction		0.27			0.27			0.29			0.23			0.20			0.12	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.62			0.60			0.59			0.59			0.61			0.63	
Total reduction		0.17			0.16			0.17			0.14			0.12			0.08	
Total, real		104			84			9			41			112			50	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BF - H58

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June
1	08:58	08:27	07:29		07:12		18:30 (18)	06:02	19:31 (17)	05:11
	16:24	17:16	18:13		20:12	20	18:50 (18)	21:09	24	19:55 (17)	22:00
2	08:58	08:25	07:26		07:10		18:33 (18)	06:00	19:32 (17)	05:10
	16:25	17:18	18:15		20:14	15	18:48 (18)	21:11	22	19:54 (17)	22:01
3	08:58	08:24	07:24		07:07		18:36 (18)	05:58	19:33 (17)	05:10
	16:26	17:20	18:17		20:16	6	18:42 (18)	21:12	19	19:52 (17)	22:02
4	08:58	08:22	07:21		07:05			05:56	19:35 (17)	05:09
	16:27	17:22	18:19		20:18			21:14	15	19:50 (17)	22:03
5	08:57	08:20	07:19		07:02			05:54	19:38 (17)	05:08
	16:28	17:24	18:21		20:20			21:16	9	19:47 (17)	22:05
6	08:57	08:18	07:17		07:00			05:52		05:07
	16:30	17:26	18:23		20:22			21:18		22:06
7	08:56	08:16	07:14		06:58			05:50		05:06
	16:31	17:28	18:24		20:24			21:20		22:07
8	08:56	08:14	07:12		06:55			05:48		05:06
	16:33	17:30	18:26		20:25			21:22		22:08
9	08:55	08:12	07:09		06:53			05:46		05:05
	16:34	17:32	18:28		20:27			21:23		22:09
10	08:55	08:10	07:07		06:50			05:44		05:05
	16:36	17:34	18:30		20:29			21:25		22:09
11	08:54	08:08	07:05		06:48			05:42		05:04
	16:37	17:36	18:32		20:31			21:27		22:10
12	08:53	08:06	07:02		06:45		19:44 (17)	05:40		05:04
	16:39	17:38	18:34		20:33	6	19:50 (17)	21:29		22:11
13	08:52	08:04	07:00	17:43 (18)	06:43		19:39 (17)	05:38		05:04
	16:40	17:40	18:36	6	17:49 (18)	20:35	14	19:53 (17)	21:31		22:12
14	08:51	08:02	06:57	17:37 (18)	06:41		19:37 (17)	05:37		05:03
	16:42	17:42	18:38	15	17:52 (18)	20:37	19	19:56 (17)	21:32		22:12
15	08:50	08:00	06:55	17:35 (18)	06:38		19:35 (17)	05:35		05:03
	16:44	17:44	18:40	20	17:55 (18)	20:39	23	19:58 (17)	21:34		22:13
16	08:49	07:58	06:52	17:32 (18)	06:36		19:33 (17)	05:33		05:03
	16:45	17:46	18:42	24	17:56 (18)	20:41	25	19:58 (17)	21:36		22:14
17	08:48	07:56	06:50	17:31 (18)	06:33		19:32 (17)	05:32		05:03
	16:47	17:49	18:44	27	17:58 (18)	20:42	27	19:59 (17)	21:37		22:14
18	08:47	07:54	06:47	17:29 (18)	06:31		19:31 (17)	05:30		05:03
	16:49	17:51	18:46	29	17:58 (18)	20:44	29	20:00 (17)	21:39		22:15
19	08:46	07:51	06:45	17:29 (18)	06:29		19:31 (17)	05:28		05:03
	16:51	17:53	18:48	30	17:59 (18)	20:46	30	20:01 (17)	21:41		22:15
20	08:45	07:49	06:42	17:27 (18)	06:26		19:29 (17)	05:27		05:03
	16:53	17:55	18:50	32	17:59 (18)	20:48	31	20:00 (17)	21:42		22:15
21	08:44	07:47	06:40	17:27 (18)	06:24		19:29 (17)	05:25		05:03
	16:54	17:57	18:51	33	18:00 (18)	20:50	31	20:00 (17)	21:44		22:15
22	08:42	07:45	06:37	17:26 (18)	06:22		19:29 (17)	05:24		05:03
	16:56	17:59	18:53	33	17:59 (18)	20:52	31	20:00 (17)	21:46		22:16
23	08:41	07:42	06:35	17:26 (18)	06:20		19:28 (17)	05:22		05:03
	16:58	18:01	18:55	34	18:00 (18)	20:54	33	20:01 (17)	21:47		22:16
24	08:40	07:40	06:32	17:25 (18)	06:17		19:28 (17)	05:21		05:04
	17:00	18:03	18:57	34	17:59 (18)	20:56	32	20:00 (17)	21:49		22:16
25	08:38	07:38	06:30	17:26 (18)	06:15		19:28 (17)	05:20		05:04
	17:02	18:05	18:59	33	17:59 (18)	20:58	31	19:59 (17)	21:50		22:16
26	08:37	07:36	06:27	17:25 (18)	06:13		19:28 (17)	05:18		05:04
	17:04	18:07	19:01	33	17:58 (18)	20:59	31	19:59 (17)	21:52		22:16
27	08:35	07:33	06:25	17:26 (18)	06:11		19:28 (17)	05:17		05:05
	17:06	18:09	19:03	32	17:58 (18)	21:01	30	19:58 (17)	21:53		22:16
28	08:34	07:31	06:22	17:26 (18)	06:08		19:29 (17)	05:16		05:05
	17:08	18:11	19:05	30	17:56 (18)	21:03	29	19:58 (17)	21:55		22:16
29	08:32		07:20	18:27 (18)	06:06		19:29 (17)	05:15		05:06
	17:10		20:07	28	18:55 (18)	21:05	28	19:57 (17)	21:56		22:15
30	08:31		07:17	18:27 (18)	06:04		19:30 (17)	05:14		05:07
	17:12		20:08	26	18:53 (18)	21:07	26	19:56 (17)	21:57		22:15
31	08:29		07:15	18:29 (18)				05:12		
	17:14		20:10	23	18:52 (18)			21:59		
Potential sun hours	248	272	367		421		496		513
Total, worst case			522		547		89		
Sun reduction			0.22		0.34		0.36		
Oper. time red.			1.00		1.00		1.00		
Wind dir. red.			0.57		0.59		0.59		
Total reduction			0.13		0.20		0.21		
Total, real			66		110		19		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BF - H58

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October	November	December
1	05:07	05:48		06:44		07:38	07:37	08:33
	22:15	21:39		20:31		19:16	17:04	16:19
2	05:08	05:50		06:45		07:40	07:39	08:35
	22:14	21:37		20:28		19:14	17:02	16:18
3	05:09	05:52		06:47		07:42	07:41	08:36
	22:14	21:35		20:26		19:11	17:00	16:17
4	05:10	05:53		06:49		07:43	07:43	08:38
	22:13	21:33		20:23		19:09	16:58	16:17
5	05:11	05:55		06:51		07:45	07:45	08:39
	22:13	21:31		20:21		19:06	16:56	16:16
6	05:12	05:57		06:53		07:47	07:47	08:41
	22:12	21:29		20:19		19:04	16:54	16:16
7	05:12	05:59		06:54		07:49	07:49	08:42
	22:12	21:27		20:16		19:01	16:53	16:15
8	05:14	06:00	19:46 (17)	06:56		07:51	07:51	08:43
	22:11	21:25	12 19:58 (17)	20:14		18:59	16:51	16:15
9	05:15	06:02	19:44 (17)	06:58	18:32 (18)	07:53	07:53	08:45
	22:10	21:23	16 20:00 (17)	20:11	3 18:35 (18)	18:56	16:49	16:14
10	05:16	06:04	19:42 (17)	07:00	18:26 (18)	07:55	07:55	08:46
	22:09	21:21	20 20:02 (17)	20:09	14 18:40 (18)	18:54	16:47	16:14
11	05:17	06:06	19:40 (17)	07:02	18:23 (18)	07:57	07:57	08:47
	22:08	21:19	23 20:03 (17)	20:06	20 18:43 (18)	18:51	16:45	16:14
12	05:18	06:07	19:39 (17)	07:03	18:20 (18)	07:58	07:59	08:48
	22:07	21:17	25 20:04 (17)	20:04	23 18:43 (18)	18:49	16:44	16:14
13	05:19	06:09	19:38 (17)	07:05	18:19 (18)	08:00	08:01	08:49
	22:06	21:15	27 20:05 (17)	20:01	26 18:45 (18)	18:47	16:42	16:13
14	05:21	06:11	19:37 (17)	07:07	18:17 (18)	08:02	08:03	08:50
	22:05	21:12	28 20:05 (17)	19:59	29 18:46 (18)	18:44	16:40	16:13
15	05:22	06:13	19:36 (17)	07:09	18:16 (18)	08:04	08:05	08:51
	22:04	21:10	29 20:05 (17)	19:56	30 18:46 (18)	18:42	16:39	16:13
16	05:23	06:15	19:36 (17)	07:11	18:14 (18)	08:06	08:07	08:52
	22:03	21:08	30 20:06 (17)	19:54	32 18:46 (18)	18:40	16:37	16:13
17	05:25	06:16	19:35 (17)	07:12	18:14 (18)	08:08	08:09	08:53
	22:02	21:06	32 20:07 (17)	19:51	32 18:46 (18)	18:37	16:36	16:14
18	05:26	06:18	19:34 (17)	07:14	18:13 (18)	08:10	08:11	08:54
	22:01	21:04	32 20:06 (17)	19:49	33 18:46 (18)	18:35	16:34	16:14
19	05:27	06:20	19:34 (17)	07:16	18:13 (18)	08:12	08:12	08:55
	21:59	21:01	32 20:06 (17)	19:46	33 18:46 (18)	18:33	16:33	16:14
20	05:29	06:22	19:34 (17)	07:18	18:12 (18)	08:14	08:14	08:55
	21:58	20:59	32 20:06 (17)	19:44	33 18:45 (18)	18:30	16:31	16:14
21	05:30	06:24	19:33 (17)	07:20	18:12 (18)	08:16	08:16	08:56
	21:57	20:57	32 20:05 (17)	19:41	33 18:45 (18)	18:28	16:30	16:15
22	05:32	06:25	19:33 (17)	07:21	18:12 (18)	08:18	08:18	08:56
	21:55	20:55	32 20:05 (17)	19:39	33 18:45 (18)	18:26	16:29	16:15
23	05:33	06:27	19:34 (17)	07:23	18:12 (18)	08:20	08:20	08:57
	21:54	20:52	31 20:05 (17)	19:36	32 18:44 (18)	18:24	16:27	16:16
24	05:35	06:29	19:33 (17)	07:25	18:12 (18)	08:22	08:22	08:57
	21:52	20:50	30 20:03 (17)	19:33	31 18:43 (18)	18:21	16:26	16:16
25	05:37	06:31	19:34 (17)	07:27	18:12 (18)	07:24	08:23	08:58
	21:51	20:48	29 20:03 (17)	19:31	29 18:41 (18)	17:19	16:25	16:17
26	05:38	06:33	19:35 (17)	07:29	18:13 (18)	07:26	08:25	08:58
	21:49	20:45	27 20:02 (17)	19:28	27 18:40 (18)	17:17	16:24	16:18
27	05:40	06:35	19:36 (17)	07:31	18:14 (18)	07:27	08:27	08:58
	21:47	20:43	25 20:01 (17)	19:26	25 18:39 (18)	17:15	16:23	16:19
28	05:41	06:36	19:36 (17)	07:32	18:15 (18)	07:29	08:28	08:58
	21:46	20:40	22 19:58 (17)	19:23	22 18:37 (18)	17:13	16:22	16:19
29	05:43	06:38	19:38 (17)	07:34	18:17 (18)	07:31	08:30	08:58
	21:44	20:38	18 19:56 (17)	19:21	17 18:34 (18)	17:11	16:21	16:20
30	05:45	06:40	19:40 (17)	07:36	18:20 (18)	07:33	08:32	08:58
	21:42	20:36	14 19:54 (17)	19:18	11 18:31 (18)	17:08	16:20	16:21
31	05:46	06:42	19:44 (17)			07:35		08:58
	21:40	20:33	4 19:48 (17)			17:06		16:22
Potential sun hours	515	461		383		327	257	230
Total, worst case			602		568			
Sun reduction			0.27		0.29			
Oper. time red.			1.00		1.00			
Wind dir. red.			0.59		0.57			
Total reduction			0.16		0.17			
Total, real			97		94			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BG - H59

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April			May			June		
1	08:59			08:27		08:56 (5)	07:29	07:13			06:02		07:00 (7)	05:12		05:45 (8)
	16:24			17:16	5	09:01 (5)	18:13	20:13			21:09	32	07:32 (7)	22:00	27	06:12 (8)
2	08:58			08:26		08:54 (5)	07:26	07:10			06:00		07:00 (7)	05:11		05:45 (8)
	16:25			17:18	7	09:01 (5)	18:15	20:14			21:11	31	07:31 (7)	22:01	27	06:12 (8)
3	08:58			08:24		08:52 (5)	07:24	07:08			05:58		07:01 (7)	05:10		05:46 (8)
	16:26			17:20	9	09:01 (5)	18:17	20:16			21:13	31	07:32 (7)	22:02	27	06:13 (8)
4	08:58			08:22		08:50 (5)	07:22	07:05			05:56		07:02 (7)	05:09		05:45 (8)
	16:28			17:22	11	09:01 (5)	18:19	20:18			21:15	29	07:31 (7)	22:04	28	06:13 (8)
5	08:58			08:20		08:48 (5)	07:19	07:03			05:54		07:02 (7)	05:08		05:45 (8)
	16:29			17:24	13	09:01 (5)	18:21	20:20			21:16	28	07:30 (7)	22:05	28	06:13 (8)
6	08:57			08:18		08:46 (5)	07:17	07:00			05:52		07:03 (7)	05:08		05:46 (8)
	16:30			17:26	14	09:00 (5)	18:23	20:22			21:18	25	07:28 (7)	22:06	28	06:14 (8)
7	08:57			08:16		08:47 (5)	07:14	06:58			05:50		07:04 (7)	05:07		05:45 (8)
	16:32			17:28	13	09:00 (5)	18:25	20:24			21:20	23	07:27 (7)	22:07	29	06:14 (8)
8	08:56			08:14		08:49 (5)	07:12	06:55			05:48		07:05 (7)	05:06		05:46 (8)
	16:33			17:30	9	08:58 (5)	18:27	20:26			21:22	20	07:25 (7)	22:08	29	06:15 (8)
9	08:55			08:13		08:51 (5)	07:10	06:53			05:46		07:06 (7)	05:06		05:46 (8)
	16:34			17:32	5	08:56 (5)	18:29	20:28			21:24	17	07:23 (7)	22:09	28	06:14 (8)
10	08:55			08:11			07:07	06:51			05:44		07:09 (7)	05:05		05:46 (8)
	16:36			17:35			18:31	20:29			21:25	12	07:21 (7)	22:10	29	06:15 (8)
11	08:54			08:09			07:05	06:48			05:42			05:05		05:46 (8)
	16:37			17:37			18:33	20:31			21:27			22:10	29	06:15 (8)
12	08:53			08:07			07:02	06:46			05:41			05:04		05:46 (8)
	16:39			17:39			18:34	20:33			21:29			22:11	29	06:15 (8)
13	08:52			08:04			07:00	06:43			05:39			05:04		05:47 (8)
	16:41			17:41			18:36	20:35			21:31			22:12	29	06:16 (8)
14	08:52			08:02			06:57	06:41			05:37			05:04		05:47 (8)
	16:42			17:43			18:38	20:37			21:32			22:13	29	06:16 (8)
15	08:51		09:23 (6)	08:00			06:55	06:39		07:15 (7)	05:35			05:03		05:47 (8)
	16:44	1	09:24 (6)	17:45			18:40	20:39	10	07:25 (7)	21:34			22:13	29	06:16 (8)
16	08:50		09:21 (6)	07:58			06:52	06:36		07:11 (7)	05:34			05:03		05:47 (8)
	16:46	3	09:24 (6)	17:47			18:42	20:41	17	07:28 (7)	21:36			22:14	29	06:16 (8)
17	08:49		09:20 (6)	07:56			06:50	06:34		07:08 (7)	05:32			05:03		05:47 (8)
	16:47	5	09:25 (6)	17:49			18:44	20:43	21	07:29 (7)	21:38			22:14	29	06:16 (8)
18	08:48		09:19 (6)	07:54			06:47	06:31		07:07 (7)	05:30			05:03		05:47 (8)
	16:49	7	09:26 (6)	17:51			18:46	20:45	24	07:31 (7)	21:39			22:15	29	06:16 (8)
19	08:46		09:17 (6)	07:52			06:45	06:29		07:05 (7)	05:29			05:03		05:48 (8)
	16:51	9	09:26 (6)	17:53			18:48	20:46	27	07:32 (7)	21:41			22:15	29	06:17 (8)
20	08:45		09:16 (6)	07:49			06:43	06:27		07:04 (7)	05:27		05:56 (8)	05:03		05:48 (8)
	16:53	11	09:27 (6)	17:55			18:50	20:48	29	07:33 (7)	21:43	4	06:00 (8)	22:15	29	06:17 (8)
21	08:44		09:14 (6)	07:47			06:40	06:24		07:02 (7)	05:26		05:55 (8)	05:03		05:48 (8)
	16:55	12	09:26 (6)	17:57			18:52	20:50	31	07:33 (7)	21:44	8	06:03 (8)	22:16	29	06:17 (8)
22	08:43		09:13 (6)	07:45			06:38	06:22		07:02 (7)	05:24		05:54 (8)	05:03		05:48 (8)
	16:57	14	09:27 (6)	17:59			18:54	20:52	32	07:34 (7)	21:46	11	06:05 (8)	22:16	29	06:17 (8)
23	08:41		09:11 (6)	07:43			06:35	06:20		07:01 (7)	05:23		05:52 (8)	05:04		05:48 (8)
	16:58	16	09:27 (6)	18:01			18:56	20:54	33	07:34 (7)	21:47	14	06:06 (8)	22:16	29	06:17 (8)
24	08:40		09:10 (6)	07:40			06:33	06:18		07:01 (7)	05:21		05:51 (8)	05:04		05:49 (8)
	17:00	18	09:28 (6)	18:03			18:57	20:56	33	07:34 (7)	21:49	16	06:07 (8)	22:16	29	06:18 (8)
25	08:38		09:10 (6)	07:38			06:30	06:15		07:01 (7)	05:20		05:50 (8)	05:04		05:49 (8)
	17:02	17	09:27 (6)	18:05			18:59	20:58	34	07:35 (7)	21:50	18	06:08 (8)	22:16	29	06:18 (8)
26	08:37		09:11 (6)	07:36			06:28	06:13		07:00 (7)	05:19		05:49 (8)	05:05		05:50 (8)
	17:04	16	09:27 (6)	18:07			19:01	21:00	35	07:35 (7)	21:52	20	06:09 (8)	22:16	29	06:19 (8)
27	08:35		09:12 (6)	07:33			06:25	06:11		07:00 (7)	05:17		05:48 (8)	05:05		05:49 (8)
	17:06	15	09:27 (6)	18:09			19:03	21:02	35	07:35 (7)	21:53	22	06:10 (8)	22:16	29	06:18 (8)
28	08:34		09:13 (6)	07:31			06:23	06:09		07:00 (7)	05:16		05:47 (8)	05:06		05:50 (8)
	17:08	13	09:26 (6)	18:11			19:05	21:03	34	07:34 (7)	21:55	24	06:11 (8)	22:16	29	06:19 (8)
29	08:32		09:15 (6)				07:20	06:07		06:59 (7)	05:15		05:46 (8)	05:06		05:50 (8)
	17:10	9	09:24 (6)				20:07	21:05	34	07:33 (7)	21:56	25	06:11 (8)	22:16	29	06:19 (8)
30	08:31		09:18 (6)				07:18	06:04		06:59 (7)	05:14		05:46 (8)	05:07		05:50 (8)
	17:12	3	09:21 (6)				20:09	21:07	34	07:33 (7)	21:57	26	06:12 (8)	22:15	29	06:19 (8)
31	08:29		08:58 (5)				07:15				05:13		05:45 (8)			
	17:14	2	09:00 (5)				20:11				21:59	27	06:12 (8)			
Potential sun hours	248			272			367	421			496			513		
Total, worst case		171			86				463			463			860	
Sun reduction		0.17			0.22				0.34			0.36			0.26	
Oper. time red.		1.00			1.00				1.00			1.00			1.00	
Wind dir. red.		0.65			0.63				0.57			0.57			0.58	
Total reduction		0.11			0.14				0.19			0.21			0.15	
Total, real		19			12				90			96			128	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BG - H59

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November			December
1	05:08		05:50 (8)	05:48			06:44	07:38	07:38			08:34
	22:15	29	06:19 (8)	21:39			20:31	19:16	17:05			16:19
2	05:08		05:50 (8)	05:50		07:22 (7)	06:46	07:40	07:40		08:20 (5)	08:35
	22:15	29	06:19 (8)	21:37	7	07:29 (7)	20:29	19:14	17:03	6	08:26 (5)	16:19
3	05:09		05:51 (8)	05:52		07:19 (7)	06:47	07:42	07:42		08:18 (5)	08:37
	22:14	29	06:20 (8)	21:35	14	07:33 (7)	20:26	19:11	17:01	10	08:28 (5)	16:18
4	05:10		05:51 (8)	05:54		07:16 (7)	06:49	07:44	07:44		08:17 (5)	08:38
	22:14	29	06:20 (8)	21:33	18	07:34 (7)	20:24	19:09	16:59	12	08:29 (5)	16:17
5	05:11		05:52 (8)	05:55		07:15 (7)	06:51	07:46	07:45		08:16 (5)	08:40
	22:13	28	06:20 (8)	21:31	21	07:36 (7)	20:21	19:06	16:57	14	08:30 (5)	16:17
6	05:12		05:51 (8)	05:57		07:13 (7)	06:53	07:47	07:47		08:18 (5)	08:41
	22:12	29	06:20 (8)	21:29	24	07:37 (7)	20:19	19:04	16:55	13	08:31 (5)	16:16
7	05:13		05:51 (8)	05:59		07:12 (7)	06:55	07:49	07:49		08:20 (5)	08:42
	22:12	29	06:20 (8)	21:27	26	07:38 (7)	20:16	19:01	16:53	11	08:31 (5)	16:15
8	05:14		05:52 (8)	06:01		07:12 (7)	06:57	07:51	07:51		08:22 (5)	08:44
	22:11	28	06:20 (8)	21:25	27	07:39 (7)	20:14	18:59	16:51	9	08:31 (5)	16:15
9	05:15		05:52 (8)	06:02		07:10 (7)	06:58	07:53	07:53		08:25 (5)	08:45
	22:10	28	06:20 (8)	21:23	29	07:39 (7)	20:11	18:57	16:49	7	08:32 (5)	16:15
10	05:16		05:52 (8)	06:04		07:10 (7)	07:00	07:55	07:55		08:27 (5)	08:46
	22:09	28	06:20 (8)	21:21	30	07:40 (7)	20:09	18:54	16:47	4	08:31 (5)	16:14
11	05:17		05:52 (8)	06:06		07:09 (7)	07:02	07:57	07:57		08:29 (5)	08:47
	22:08	28	06:20 (8)	21:19	32	07:41 (7)	20:06	18:52	16:46	2	08:31 (5)	16:14
12	05:18		05:54 (8)	06:08		07:08 (7)	07:04	07:59	07:59		08:49 (6)	08:48
	22:08	26	06:20 (8)	21:17	33	07:41 (7)	20:04	18:49	16:44	4	08:53 (6)	16:14
13	05:20		05:54 (8)	06:10		07:08 (7)	07:06	08:01	08:01		08:46 (6)	08:49
	22:07	26	06:20 (8)	21:15	33	07:41 (7)	20:01	18:47	16:42	10	08:56 (6)	16:14
14	05:21		05:54 (8)	06:11		07:08 (7)	07:07	08:03	08:03		08:45 (6)	08:50
	22:05	26	06:20 (8)	21:13	34	07:42 (7)	19:59	18:45	16:41	12	08:57 (6)	16:14
15	05:22		05:55 (8)	06:13		07:07 (7)	07:09	08:04	08:05		08:45 (6)	08:51
	22:04	24	06:19 (8)	21:11	34	07:41 (7)	19:56	18:42	16:39	15	09:00 (6)	16:14
16	05:24		05:56 (8)	06:15		07:07 (7)	07:11	08:06	08:07		08:44 (6)	08:52
	22:03	23	06:19 (8)	21:08	34	07:41 (7)	19:54	18:40	16:37	16	09:00 (6)	16:14
17	05:25		05:58 (8)	06:17		07:07 (7)	07:13	08:08	08:09		08:44 (6)	08:53
	22:02	21	06:19 (8)	21:06	34	07:41 (7)	19:51	18:38	16:36	17	09:01 (6)	16:14
18	05:26		05:59 (8)	06:19		07:07 (7)	07:15	08:10	08:11		08:44 (6)	08:54
	22:01	19	06:18 (8)	21:04	34	07:41 (7)	19:49	18:35	16:34	18	09:02 (6)	16:14
19	05:28		06:00 (8)	06:20		07:07 (7)	07:16	08:12	08:13		08:46 (6)	08:55
	21:59	17	06:17 (8)	21:02	33	07:40 (7)	19:46	18:33	16:33	16	09:02 (6)	16:14
20	05:29		06:02 (8)	06:22		07:07 (7)	07:18	08:14	08:15		08:48 (6)	08:55
	21:58	15	06:17 (8)	20:59	33	07:40 (7)	19:44	18:31	16:32	14	09:02 (6)	16:15
21	05:31		06:03 (8)	06:24		07:08 (7)	07:20	08:16	08:16		08:50 (6)	08:56
	21:57	13	06:16 (8)	20:57	31	07:39 (7)	19:41	18:28	16:30	12	09:02 (6)	16:15
22	05:32		06:04 (8)	06:26		07:07 (7)	07:22	08:18	08:18		08:52 (6)	08:57
	21:55	10	06:14 (8)	20:55	31	07:38 (7)	19:39	18:26	16:29	11	09:03 (6)	16:16
23	05:34		06:06 (8)	06:28		07:08 (7)	07:24	08:20	08:20		08:54 (6)	08:57
	21:54	7	06:13 (8)	20:52	29	07:37 (7)	19:36	18:24	16:28	9	09:03 (6)	16:16
24	05:35			06:29		07:09 (7)	07:25	08:22	08:22		08:56 (6)	08:57
	21:52			20:50	27	07:36 (7)	19:34	18:22	16:26	7	09:03 (6)	16:17
25	05:37			06:31		07:10 (7)	07:27	07:24	08:24		08:58 (6)	08:58
	21:51			20:48	23	07:33 (7)	19:31	17:19	16:25	5	09:03 (6)	16:17
26	05:38			06:33		07:11 (7)	07:29	07:26	08:25		09:00 (6)	08:58
	21:49			20:45	21	07:32 (7)	19:29	17:17	16:24	3	09:03 (6)	16:18
27	05:40			06:35		07:13 (7)	07:31	07:28	08:27		09:02 (6)	08:58
	21:47			20:43	17	07:30 (7)	19:26	17:15	16:23	1	09:03 (6)	16:19
28	05:42			06:37		07:17 (7)	07:33	07:30	08:29			08:59
	21:46			20:41	9	07:26 (7)	19:24	17:13	16:22			16:20
29	05:43			06:38			07:35	07:32	08:30			08:59
	21:44			20:38			19:21	17:11	16:21			16:21
30	05:45			06:40			07:36	07:34	08:32			08:59
	21:42			20:36			19:19	17:09	16:20			16:22
31	05:47			06:42				07:36				08:59
	21:41			20:33				17:07				16:23
Potential sun hours	515			461			382	328	257			231
Total, worst case		541			718					258		
Sun reduction		0.27			0.27					0.20		
Oper. time red.		1.00			1.00					1.00		
Wind dir. red.		0.58			0.57					0.64		
Total reduction		0.15			0.15					0.13		
Total, real		83			111					33		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BH - H60

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April	May	June
1	08:58			08:27		15:41 (18)	07:29		16:44 (17)	07:12	06:02	05:11
	16:24			17:16	27	16:08 (18)	18:13	30	17:14 (17)	20:12	21:09	22:00
2	08:58			08:25		15:42 (18)	07:26		16:44 (17)	07:10	06:00	05:10
	16:25			17:18	25	16:07 (18)	18:15	29	17:13 (17)	20:14	21:11	22:01
3	08:58			08:24		15:43 (18)	07:24		16:46 (17)	07:07	05:58	05:10
	16:26			17:20	23	16:06 (18)	18:17	26	17:12 (17)	20:16	21:13	22:02
4	08:58			08:22		15:44 (18)	07:21		16:46 (17)	07:05	05:56	05:09
	16:27			17:22	21	16:05 (18)	18:19	24	17:10 (17)	20:18	21:14	22:03
5	08:57			08:20		15:46 (18)	07:19		16:49 (17)	07:02	05:54	05:08
	16:28			17:24	18	16:04 (18)	18:21	20	17:09 (17)	20:20	21:16	22:05
6	08:57			08:18		15:48 (18)	07:17		16:50 (17)	07:00	05:52	05:07
	16:30			17:26	14	16:02 (18)	18:23	15	17:05 (17)	20:22	21:18	22:06
7	08:56			08:16		15:52 (18)	07:14		16:55 (17)	06:58	05:50	05:06
	16:31			17:28	7	15:59 (18)	18:24	6	17:01 (17)	20:24	21:20	22:07
8	08:56		15:42 (18)	08:14			07:12			06:55	05:48	05:06
	16:33	8	15:50 (18)	17:30			18:26			20:25	21:22	22:08
9	08:55		15:42 (18)	08:12			07:09			06:53	05:46	05:05
	16:34	11	15:53 (18)	17:32			18:28			20:27	21:23	22:09
10	08:55		15:41 (18)	08:10			07:07			06:50	05:44	05:05
	16:36	14	15:55 (18)	17:34			18:30			20:29	21:25	22:09
11	08:54		15:40 (18)	08:08			07:05			06:48	05:42	05:04
	16:37	16	15:56 (18)	17:36			18:32			20:31	21:27	22:10
12	08:53		15:39 (18)	08:06			07:02			06:45	05:40	05:04
	16:39	19	15:58 (18)	17:38			18:34			20:33	21:29	22:11
13	08:52		15:39 (18)	08:04		16:55 (17)	07:00			06:43	05:38	05:03
	16:40	20	15:59 (18)	17:40	10	17:05 (17)	18:36			20:35	21:31	22:12
14	08:51		15:38 (18)	08:02		16:52 (17)	06:57			06:41	05:37	05:03
	16:42	22	16:00 (18)	17:42	16	17:08 (17)	18:38			20:37	21:32	22:12
15	08:51		15:37 (18)	08:00		16:49 (17)	06:55			06:38	05:35	05:03
	16:44	23	16:00 (18)	17:44	21	17:10 (17)	18:40			20:39	21:34	22:13
16	08:50		15:37 (18)	07:58		16:48 (17)	06:52			06:36	05:33	05:03
	16:45	25	16:02 (18)	17:46	24	17:12 (17)	18:42			20:41	21:36	22:14
17	08:48		15:37 (18)	07:56		16:47 (17)	06:50			06:33	05:32	05:03
	16:47	26	16:03 (18)	17:49	26	17:13 (17)	18:44			20:42	21:37	22:14
18	08:47		15:37 (18)	07:54		16:46 (17)	06:47			06:31	05:30	05:03
	16:49	27	16:04 (18)	17:51	29	17:15 (17)	18:46			20:44	21:39	22:15
19	08:46		15:37 (18)	07:51		16:45 (17)	06:45			06:29	05:28	05:03
	16:51	27	16:04 (18)	17:53	30	17:15 (17)	18:48			20:46	21:41	22:15
20	08:45		15:37 (18)	07:49		16:44 (17)	06:42			06:26	05:27	05:03
	16:53	28	16:05 (18)	17:55	32	17:16 (17)	18:50			20:48	21:42	22:15
21	08:44		15:36 (18)	07:47		16:44 (17)	06:40			06:24	05:25	05:03
	16:54	29	16:05 (18)	17:57	32	17:16 (17)	18:51			20:50	21:44	22:16
22	08:42		15:37 (18)	07:45		16:43 (17)	06:37			06:22	05:24	05:03
	16:56	30	16:07 (18)	17:59	33	17:16 (17)	18:53			20:52	21:46	22:16
23	08:41		15:37 (18)	07:42		16:43 (17)	06:35			06:20	05:22	05:03
	16:58	30	16:07 (18)	18:01	34	17:17 (17)	18:55			20:54	21:47	22:16
24	08:40		15:37 (18)	07:40		16:43 (17)	06:32			06:17	05:21	05:04
	17:00	31	16:08 (18)	18:03	34	17:17 (17)	18:57			20:56	21:49	22:16
25	08:38		15:37 (18)	07:38		16:42 (17)	06:30			06:15	05:20	05:04
	17:02	31	16:08 (18)	18:05	34	17:16 (17)	18:59			20:58	21:50	22:16
26	08:37		15:37 (18)	07:36		16:43 (17)	06:27			06:13	05:18	05:04
	17:04	31	16:08 (18)	18:07	33	17:16 (17)	19:01			20:59	21:52	22:16
27	08:35		15:38 (18)	07:33		16:42 (17)	06:25			06:11	05:17	05:05
	17:06	30	16:08 (18)	18:09	33	17:15 (17)	19:03			21:01	21:53	22:16
28	08:34		15:38 (18)	07:31		16:43 (17)	06:22			06:08	05:16	05:05
	17:08	30	16:08 (18)	18:11	32	17:15 (17)	19:05			21:03	21:55	22:16
29	08:32		15:38 (18)				07:20			06:06	05:15	05:06
	17:10	30	16:08 (18)				20:07			21:05	21:56	22:15
30	08:31		15:39 (18)				07:17			06:04	05:14	05:07
	17:12	29	16:08 (18)				20:08			21:07	21:57	22:15
31	08:29		15:39 (18)				07:15				05:12	
	17:14	28	16:07 (18)				20:10				21:59	
Potential sun hours	248			272			367			421	496	513
Total, worst case		595			588			150				
Sun reduction		0.17			0.22			0.22				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.62			0.59			0.58				
Total reduction		0.11			0.13			0.13				
Total, real		63			77			20				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BH - H60

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October			November			December		
1	05:07	05:48	06:44	07:38			07:37			08:33		15:22 (18)
	22:15	21:39	20:31	19:16			17:04			16:19	16	15:38 (18)
2	05:08	05:50	06:45	07:40			07:39			08:35		15:23 (18)
	22:14	21:37	20:28	19:14			17:02			16:18	14	15:37 (18)
3	05:09	05:52	06:47	07:42			07:41			08:36		15:25 (18)
	22:14	21:35	20:26	19:11			17:00			16:17	11	15:36 (18)
4	05:10	05:53	06:49	07:44			07:43		15:21 (18)	08:38		15:27 (18)
	22:14	21:33	20:24	19:09			16:58	8	15:29 (18)	16:17	8	15:35 (18)
5	05:11	05:55	06:51	07:45			07:45		15:17 (18)	08:39		15:30 (18)
	22:13	21:31	20:21	19:06			16:56	15	15:32 (18)	16:16	2	15:32 (18)
6	05:11	05:57	06:53	07:47			07:47		15:15 (18)	08:41		
	22:12	21:29	20:19	19:04			16:54	19	15:34 (18)	16:16		
7	05:12	05:59	06:54	07:49		17:28 (17)	07:49		15:14 (18)	08:42		
	22:12	21:27	20:16	19:01	12	17:40 (17)	16:53	21	15:35 (18)	16:15		
8	05:13	06:00	06:56	07:51		17:25 (17)	07:51		15:13 (18)	08:43		
	22:11	21:25	20:14	18:59	18	17:43 (17)	16:51	23	15:36 (18)	16:15		
9	05:15	06:02	06:58	07:53		17:22 (17)	07:53		15:12 (18)	08:45		
	22:10	21:23	20:11	18:56	22	17:44 (17)	16:49	25	15:37 (18)	16:14		
10	05:16	06:04	07:00	07:55		17:21 (17)	07:55		15:12 (18)	08:46		
	22:09	21:21	20:09	18:54	25	17:46 (17)	16:47	27	15:39 (18)	16:14		
11	05:17	06:06	07:02	07:57		17:19 (17)	07:57		15:11 (18)	08:47		
	22:08	21:19	20:06	18:51	28	17:47 (17)	16:45	28	15:39 (18)	16:14		
12	05:18	06:07	07:03	07:58		17:18 (17)	07:59		15:11 (18)	08:48		
	22:07	21:17	20:04	18:49	29	17:47 (17)	16:44	29	15:40 (18)	16:13		
13	05:19	06:09	07:05	08:00		17:17 (17)	08:01		15:10 (18)	08:49		
	22:06	21:15	20:01	18:47	31	17:48 (17)	16:42	30	15:40 (18)	16:13		
14	05:21	06:11	07:07	08:02		17:16 (17)	08:03		15:10 (18)	08:50		
	22:05	21:13	19:59	18:44	32	17:48 (17)	16:40	30	15:40 (18)	16:13		
15	05:22	06:13	07:09	08:04		17:15 (17)	08:05		15:10 (18)	08:51		
	22:04	21:10	19:56	18:42	33	17:48 (17)	16:39	30	15:40 (18)	16:13		
16	05:23	06:15	07:11	08:06		17:15 (17)	08:07		15:10 (18)	08:52		
	22:03	21:08	19:54	18:40	33	17:48 (17)	16:37	30	15:40 (18)	16:13		
17	05:25	06:16	07:12	08:08		17:14 (17)	08:09		15:11 (18)	08:53		
	22:02	21:06	19:51	18:37	34	17:48 (17)	16:36	31	15:42 (18)	16:14		
18	05:26	06:18	07:14	08:10		17:14 (17)	08:11		15:11 (18)	08:54		
	22:01	21:04	19:49	18:35	34	17:48 (17)	16:34	31	15:42 (18)	16:14		
19	05:27	06:20	07:16	08:12		17:14 (17)	08:12		15:12 (18)	08:55		
	21:59	21:01	19:46	18:33	34	17:48 (17)	16:33	30	15:42 (18)	16:14		
20	05:29	06:22	07:18	08:14		17:14 (17)	08:14		15:12 (18)	08:55		
	21:58	20:59	19:44	18:30	33	17:47 (17)	16:31	30	15:42 (18)	16:14		
21	05:30	06:24	07:20	08:16		17:14 (17)	08:16		15:13 (18)	08:56		
	21:57	20:57	19:41	18:28	33	17:47 (17)	16:30	28	15:41 (18)	16:15		
22	05:32	06:25	07:21	08:18		17:15 (17)	08:18		15:13 (18)	08:56		
	21:55	20:55	19:39	18:26	31	17:46 (17)	16:29	28	15:41 (18)	16:15		
23	05:33	06:27	07:23	08:20		17:15 (17)	08:20		15:14 (18)	08:57		
	21:54	20:52	19:36	18:24	30	17:45 (17)	16:27	27	15:41 (18)	16:16		
24	05:35	06:29	07:25	08:22		17:16 (17)	08:22		15:15 (18)	08:57		
	21:52	20:50	19:33	18:21	28	17:44 (17)	16:26	26	15:41 (18)	16:16		
25	05:37	06:31	07:27	07:24		16:17 (17)	08:23		15:15 (18)	08:58		
	21:51	20:48	19:31	17:19	25	16:42 (17)	16:25	26	15:41 (18)	16:17		
26	05:38	06:33	07:29	07:26		16:18 (17)	08:25		15:16 (18)	08:58		
	21:49	20:45	19:28	17:17	23	16:41 (17)	16:24	25	15:41 (18)	16:18		
27	05:40	06:35	07:31	07:27		16:19 (17)	08:27		15:17 (18)	08:58		
	21:47	20:43	19:26	17:15	20	16:39 (17)	16:23	24	15:41 (18)	16:18		
28	05:41	06:36	07:32	07:29		16:22 (17)	08:29		15:18 (18)	08:58		
	21:46	20:40	19:23	17:13	15	16:37 (17)	16:22	21	15:39 (18)	16:19		
29	05:43	06:38	07:34	07:31		16:26 (17)	08:30		15:19 (18)	08:58		
	21:44	20:38	19:21	17:10	7	16:33 (17)	16:21	20	15:39 (18)	16:20		
30	05:45	06:40	07:36	07:33			08:32		15:20 (18)	08:59		
	21:42	20:36	19:18	17:08			16:20	19	15:39 (18)	16:21		
31	05:46	06:42		07:35						08:59		
	21:40	20:33		17:06						16:22		
Potential sun hours	515	461	383	327			257			230		
Total, worst case					610			681			51	
Sun reduction					0.23			0.20			0.12	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.58			0.62			0.62	
Total reduction					0.14			0.12			0.07	
Total, real					83			84			4	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BI - H61

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:11	05:07	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:08	05:50	06:45	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52	05:07	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:00	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22	22:08	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:05	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23	22:09	22:10	21:23	20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:04	05:17	06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40	05:04	05:18	06:07	07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38	05:04	05:19	06:09	07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:16	07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:01	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28	05:03	05:27	06:20	07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25	05:03	05:30	06:24	07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:03	05:32	06:25	07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22	05:03	05:33	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18	05:04	05:38	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16	05:05	05:41	06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55	22:16	21:46	20:40	19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57	22:15	21:42	20:36	19:18	17:08	16:20	16:21
31	08:29		07:15		05:13		05:46	06:42		07:35		08:58
	17:14		20:10		21:59		21:40	20:33		17:06		16:22
Potential sun hours	248	272	367	421	496	513	515	461	383	327	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BJ - H62

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:59	08:27	07:29	07:13	06:02	05:12
	16:24	17:16	18:13 6	08:00 (11)	20:12	21:09 10	06:38 (15)	22:00 11	05:54 (14)
2	08:58	08:26	07:26	07:51 (11)	07:10	06:00	06:26 (15)	05:11	05:42 (14)
	16:25	17:18	18:15 7	07:58 (11)	20:14	21:11 11	06:37 (15)	22:01 12	05:54 (14)
3	08:58	08:24	07:24	07:49 (11)	07:08	05:58	06:24 (15)	05:10	05:41 (14)
	16:26	17:20	18:17 8	07:57 (11)	20:16	21:13 12	06:36 (15)	22:02 13	05:54 (14)
4	08:58	08:22	07:22	07:47 (11)	07:05	05:56	06:23 (15)	05:09	05:41 (14)
	16:27	17:22	18:19 7	07:54 (11)	20:18	21:15 14	06:37 (15)	22:04 14	05:55 (14)
5	08:58	08:20	07:19		07:03	05:54	06:21 (15)	05:08	05:40 (14)
	16:29	17:24	18:21		20:20	21:16 14	06:35 (15)	22:05 15	05:55 (14)
6	08:57	08:18	07:17		07:00 07:24 (13)	05:52	06:22 (15)	05:07	05:39 (14)
	16:30	17:26	18:23		20:22 2 07:26 (13)	21:18 12	06:34 (15)	22:06 16	05:55 (14)
7	08:57	08:16	07:14		06:58 07:22 (13)	05:50	06:24 (15)	05:07	05:39 (14)
	16:31	17:28	18:25		20:24 5 07:27 (13)	21:20 8	06:32 (15)	22:07 17	05:56 (14)
8	08:56	08:14	07:12		06:55 07:19 (13)	05:48		05:06	05:38 (14)
	16:33	17:30	18:27		20:26 7 07:26 (13)	21:22		22:08 18	05:56 (14)
9	08:55	08:13	07:10		06:53 07:17 (13)	05:46		05:06	05:38 (14)
	16:34	17:32	18:29		20:28 9 07:26 (13)	21:24		22:09 19	05:57 (14)
10	08:55	08:11	07:07		06:50 07:15 (13)	05:44		05:05	05:38 (14)
	16:36	17:34	18:31		20:29 10 07:25 (13)	21:25		22:10 19	05:57 (14)
11	08:54	08:09	07:05		06:48 07:12 (13)	05:42		05:05	05:37 (14)
	16:37	17:36	18:32		20:31 12 07:24 (13)	21:27		22:10 20	05:57 (14)
12	08:53	08:06	07:02		06:46 07:10 (13)	05:41		05:04	05:37 (14)
	16:39	17:39	18:34		20:33 13 07:23 (13)	21:29		22:11 20	05:57 (14)
13	08:52	08:04	07:00		06:43 07:09 (13)	05:39		05:04	05:37 (14)
	16:41	17:41	18:36		20:35 12 07:21 (13)	21:31		22:12 21	05:58 (14)
14	08:52	08:02	06:57	07:22 (12)	06:41 07:11 (13)	05:37		05:03	05:37 (14)
	16:42	17:43	18:38 2	07:24 (12)	20:37 6 07:17 (13)	21:32		22:13 21	05:58 (14)
15	08:51	08:00	06:55	07:19 (12)	06:38	05:35		05:03	05:36 (14)
	16:44	17:45	18:40 4	07:23 (12)	20:39	21:34		22:13 21	05:57 (14)
16	08:50	07:58	06:52	07:17 (12)	06:36	05:33		05:03	05:36 (14)
	16:46	17:47	18:42 5	07:22 (12)	20:41	21:36		22:14 22	05:58 (14)
17	08:49	07:56	06:50	07:14 (12)	06:34	05:32		05:03	05:36 (14)
	16:47	17:49	18:44 7	07:21 (12)	20:43	21:38		22:14 22	05:58 (14)
18	08:48	07:54	06:47	07:12 (12)	06:31	05:30		05:03	05:36 (14)
	16:49	17:51	18:46 8	07:20 (12)	20:45	21:39		22:15 22	05:58 (14)
19	08:46	07:52	06:45	07:09 (12)	06:29	05:29		05:03	05:36 (14)
	16:51	17:53	18:48 8	07:17 (12)	20:46	21:41		22:15 22	05:58 (14)
20	08:45	07:49	06:42		06:27	05:27		05:03	05:37 (14)
	16:53	17:55	18:50		20:48	21:43		22:15 22	05:59 (14)
21	08:44	07:47	06:40		06:24	05:26		05:03	05:37 (14)
	16:55	17:57	18:52		20:50	21:44		22:16 22	05:59 (14)
22	08:43	07:45	06:37		06:22	05:24		05:03	05:37 (14)
	16:56	17:59	18:54		20:52	21:46		22:16 22	05:59 (14)
23	08:41	07:43	06:35		06:20	05:23		05:04	05:37 (14)
	16:58	18:01	18:55		20:54	21:47		22:16 22	05:59 (14)
24	08:40	07:40	06:32		06:18	05:21		05:04	05:38 (14)
	17:00	18:03	18:57		20:56	21:49		22:16 22	06:00 (14)
25	08:38	07:38	06:30		06:15	05:20		05:04	05:38 (14)
	17:02	18:05	18:59		20:58	21:50		22:16 22	06:00 (14)
26	08:37	07:36	06:27		06:13	05:19 05:49 (14)		05:05	05:38 (14)
	17:04	18:07	19:01		21:00	21:52 1	05:50 (14)	22:16 22	06:00 (14)
27	08:35	07:33 07:59 (11)	06:25		06:11 06:37 (15)	05:17	05:48 (14)	05:05	05:39 (14)
	17:06	18:09 2 08:01 (11)	19:03		21:01 1 06:38 (15)	21:53 3	05:51 (14)	22:16 21	06:00 (14)
28	08:34	07:31 07:56 (11)	06:23		06:09 06:34 (15)	05:16	05:47 (14)	05:06	05:39 (14)
	17:08	18:11 4 08:00 (11)	19:05		21:03 4 06:38 (15)	21:55 5	05:52 (14)	22:16 21	06:00 (14)
29	08:32		07:20		06:07 06:32 (15)	05:15	05:46 (14)	05:06	05:40 (14)
	17:10		20:07		21:05 6 06:38 (15)	21:56 7	05:53 (14)	22:16 21	06:01 (14)
30	08:31		07:18		06:04 06:30 (15)	05:14	05:45 (14)	05:07	05:41 (14)
	17:12		20:09		21:07 8 06:38 (15)	21:57 8	05:53 (14)	22:15 20	06:01 (14)
31	08:29		07:15			05:13	05:44 (14)		
	17:14		20:11			21:59 10	05:54 (14)		
Potential sun hours	248	272	367	421	496	513
Total, worst case		6	62	95	115	582
Sun reduction		0.22	0.22	0.34	0.36	0.26
Oper. time red.		1.00	1.00	1.00	1.00	1.00
Wind dir. red.		0.61	0.60	0.57	0.58	0.58
Total reduction		0.14	0.13	0.20	0.21	0.15
Total, real		1	8	19	24	87

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BJ - H62

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August			September		October			November	December
1	05:08		05:41 (14)	05:48		06:44		07:11 (13)	07:38		07:38	08:34
	22:15	20	06:01 (14)	21:39		20:31	12	07:23 (13)	19:16		17:05	16:19
2	05:08		05:42 (14)	05:50		06:46		07:13 (13)	07:40		07:40	08:35
	22:15	19	06:01 (14)	21:37		20:29	10	07:23 (13)	19:14		17:02	16:18
3	05:09		05:43 (14)	05:52		06:47		07:15 (13)	07:42		07:42	08:37
	22:14	19	06:02 (14)	21:35		20:26	9	07:24 (13)	19:11		17:00	16:18
4	05:10		05:44 (14)	05:54		06:49		07:17 (13)	07:44		07:43	08:38
	22:14	18	06:02 (14)	21:33		20:24	7	07:24 (13)	19:09		16:59	16:17
5	05:11		05:44 (14)	05:55	06:37 (15)	06:51		07:18 (13)	07:46		07:45	08:40
	22:13	17	06:01 (14)	21:31	2 06:39 (15)	20:21	5	07:23 (13)	19:06		16:57	16:16
6	05:12		05:45 (14)	05:57	06:33 (15)	06:53		07:20 (13)	07:47		07:47	08:41
	22:12	17	06:02 (14)	21:29	9 06:42 (15)	20:19	2	07:22 (13)	19:04		16:55	16:16
7	05:13		05:46 (14)	05:59	06:31 (15)	06:55			07:49		07:49	08:42
	22:12	16	06:02 (14)	21:27	13 06:44 (15)	20:16			19:01		16:53	16:15
8	05:14		05:47 (14)	06:01	06:31 (15)	06:56			07:51		07:51	08:44
	22:11	15	06:02 (14)	21:25	14 06:45 (15)	20:14			18:59		16:51	16:15
9	05:15		05:48 (14)	06:02	06:32 (15)	06:58			07:53		07:53	08:45
	22:10	14	06:02 (14)	21:23	13 06:45 (15)	20:11			18:57		16:49	16:15
10	05:16		05:49 (14)	06:04	06:34 (15)	07:00			07:55	08:22 (11)	07:55	08:46
	22:09	13	06:02 (14)	21:21	12 06:46 (15)	20:09			18:54	8 08:30 (11)	16:47	16:14
11	05:17		05:50 (14)	06:06	06:36 (15)	07:02			07:57	08:24 (11)	07:57	08:47
	22:08	12	06:02 (14)	21:19	11 06:47 (15)	20:06			18:52	8 08:32 (11)	16:46	16:14
12	05:18		05:51 (14)	06:08	06:37 (15)	07:04			07:59	08:26 (11)	07:59	08:48
	22:08	10	06:01 (14)	21:17	9 06:46 (15)	20:04			18:49	7 08:33 (11)	16:44	16:14
13	05:20		05:53 (14)	06:09	06:39 (15)	07:05			08:01	08:28 (11)	08:01	08:49
	22:07	9	06:02 (14)	21:15	7 06:46 (15)	20:01			18:47	5 08:33 (11)	16:42	16:14
14	05:21		05:54 (14)	06:11	06:41 (15)	07:07			08:02	08:30 (11)	08:03	08:50
	22:05	8	06:02 (14)	21:13	5 06:46 (15)	19:59			18:45	4 08:34 (11)	16:40	16:14
15	05:22		05:55 (14)	06:13	06:42 (15)	07:09			08:04	08:32 (11)	08:05	08:51
	22:04	6	06:01 (14)	21:11	3 06:45 (15)	19:56			18:42	1 08:33 (11)	16:39	16:14
16	05:23		05:56 (14)	06:15	06:44 (15)	07:11			08:06		08:07	08:52
	22:03	4	06:00 (14)	21:08	1 06:45 (15)	19:54			18:40		16:37	16:14
17	05:25		05:58 (14)	06:17		07:13			08:08		08:09	08:53
	22:02	2	06:00 (14)	21:06		19:51			18:37		16:36	16:14
18	05:26			06:18		07:14			08:10		08:11	08:54
	22:01			21:04		19:49			18:35		16:34	16:14
19	05:28			06:20		07:16			08:12		08:13	08:55
	21:59			21:02		19:46			18:33		16:33	16:14
20	05:29			06:22		07:18			08:14		08:15	08:55
	21:58			20:59		19:44			18:31		16:31	16:15
21	05:31			06:24		07:20			08:16		08:16	08:56
	21:57			20:57		19:41			18:28		16:30	16:15
22	05:32			06:26		07:22			08:18		08:18	08:57
	21:55			20:55		19:39			18:26		16:29	16:16
23	05:34			06:27		07:24			08:20		08:20	08:57
	21:54			20:52		19:36			18:24		16:28	16:16
24	05:35			06:29		07:25		07:53 (12)	08:22		08:22	08:57
	21:52			20:50		19:34	7	08:00 (12)	18:22		16:26	16:17
25	05:37			06:31		07:27		07:54 (12)	07:24		08:24	08:58
	21:51			20:48		19:31	8	08:02 (12)	17:19		16:25	16:17
26	05:38			06:33		07:29		07:56 (12)	07:26		08:25	08:58
	21:49			20:45		19:29	7	08:03 (12)	17:17		16:24	16:18
27	05:40			06:35		07:31		07:57 (12)	07:28		08:27	08:58
	21:47			20:43		19:26	6	08:03 (12)	17:15		16:23	16:19
28	05:42			06:37		07:33		07:59 (12)	07:30		08:29	08:59
	21:46			20:41		19:24	4	08:03 (12)	17:13		16:22	16:20
29	05:43			06:38	07:12 (13)	07:34		08:01 (12)	07:32		08:30	08:59
	21:44			20:38	6 07:18 (13)	19:21	2	08:03 (12)	17:11		16:21	16:21
30	05:45			06:40	07:09 (13)	07:36			07:34		08:32	08:59
	21:42			20:36	12 07:21 (13)	19:19			17:09		16:20	16:21
31	05:47			06:42	07:10 (13)				07:36			08:59
	21:41			20:33	13 07:23 (13)				17:07			16:22
Potential sun hours	515			461		383			328		257	231
Total, worst case		219			130		79			33		
Sun reduction		0.27			0.27		0.29			0.23		
Oper. time red.		1.00			1.00		1.00			1.00		
Wind dir. red.		0.58			0.58		0.58			0.61		
Total reduction		0.15			0.16		0.17			0.14		
Total, real		34			21		13			5		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BK - H63

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:11	20:03 (18)	05:07	20:13 (18)	05:48	20:12 (18)	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00 30	20:33 (18)	22:15 30	21:25 (17)	21:39 30	20:42 (18)	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	20:04 (18)	05:08	20:13 (18)	05:50	20:13 (18)	06:45	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01 29	20:33 (18)	22:14 28	21:24 (17)	21:37 28	20:41 (18)	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58	05:10	20:04 (18)	05:09	20:13 (18)	05:52	20:13 (18)	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02 28	20:32 (18)	22:14 24	20:37 (18)	21:35 27	20:40 (18)	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56	05:09	20:04 (18)	05:10	20:12 (18)	05:53	20:14 (18)	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03 28	20:32 (18)	22:13 25	20:37 (18)	21:33 25	20:39 (18)	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54	20:11 (18) 05:08	20:05 (18)	05:11	20:12 (18)	05:55	20:16 (18)	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16 11	20:22 (18) 22:05 27	20:32 (18)	22:13 25	20:37 (18)	21:31 22	20:38 (18)	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52	20:09 (18) 05:07	20:05 (18)	05:12	20:12 (18)	05:57	20:17 (18)	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18 16	20:25 (18) 22:06 27	20:32 (18)	22:12 26	20:38 (18)	21:29 19	20:36 (18)	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50	20:07 (18) 05:07	20:07 (18)	05:13	20:12 (18)	05:59	20:19 (18)	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20 20	20:27 (18) 22:07 25	20:32 (18)	22:12 27	20:39 (18)	21:27 15	20:34 (18)	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	20:05 (18) 05:06	20:07 (18)	05:14	20:12 (18)	06:00	20:21 (18)	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22 23	20:28 (18) 22:08 25	20:32 (18)	22:11 27	20:39 (18)	21:25 9	20:30 (18)	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	20:04 (18) 05:05	20:08 (18)	05:15	20:11 (18)	06:02		06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23 25	20:29 (18) 22:09 24	20:32 (18)	22:10 29	20:40 (18)	21:23		20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44	20:02 (18) 05:05	20:08 (18)	05:16	20:11 (18)	06:04		07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25 28	20:30 (18) 22:09 25	21:17 (17)	22:09 29	20:40 (18)	21:21		20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42	20:02 (18) 05:04	20:09 (18)	05:17	20:11 (18)	06:06		07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27 29	20:31 (18) 22:10 28	21:20 (17)	22:08 30	20:41 (18)	21:19		20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40	20:01 (18) 05:04	20:09 (18)	05:18	20:10 (18)	06:07		07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29 31	20:32 (18) 22:11 31	21:22 (17)	22:07 31	20:41 (18)	21:17		20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38	20:00 (18) 05:04	20:09 (18)	05:19	20:10 (18)	06:09		07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31 32	20:32 (18) 22:12 32	21:22 (17)	22:06 31	20:41 (18)	21:15		20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37	20:00 (18) 05:03	20:10 (18)	05:21	20:11 (18)	06:11		07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32 33	20:33 (18) 22:12 32	21:23 (17)	22:05 31	20:42 (18)	21:12		19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35	20:00 (18) 05:03	20:11 (18)	05:22	20:10 (18)	06:13		07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34 33	20:33 (18) 22:13 33	21:24 (17)	22:04 33	20:43 (18)	21:10		19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33	20:00 (18) 05:03	20:11 (18)	05:23	20:10 (18)	06:15		07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36 33	20:33 (18) 22:14 33	21:24 (17)	22:03 33	20:43 (18)	21:08		19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32	19:59 (18) 05:03	20:11 (18)	05:25	20:10 (18)	06:16		07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37 34	20:33 (18) 22:14 34	21:25 (17)	22:02 33	20:43 (18)	21:06		19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:00 (18) 05:03	20:12 (18)	05:26	20:10 (18)	06:18		07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39 34	20:34 (18) 22:14 33	21:25 (17)	22:01 34	20:44 (18)	21:04		19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28	19:59 (18) 05:03	20:12 (18)	05:27	20:10 (18)	06:20		07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41 34	20:33 (18) 22:15 33	21:25 (17)	21:59 34	20:44 (18)	21:01		19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27	19:59 (18) 05:03	20:12 (18)	05:29	20:09 (18)	06:22		07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42 35	20:34 (18) 22:15 34	21:26 (17)	21:58 35	20:44 (18)	20:59		19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25	20:00 (18) 05:03	20:12 (18)	05:30	20:10 (18)	06:24		07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44 34	20:34 (18) 22:15 34	21:26 (17)	21:56 34	20:44 (18)	20:57		19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	19:59 (18) 05:03	20:13 (18)	05:32	20:09 (18)	06:25		07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46 35	20:34 (18) 22:16 34	21:27 (17)	21:55 35	20:44 (18)	20:55		19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22	20:00 (18) 05:03	20:13 (18)	05:33	20:09 (18)	06:27		07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47 34	20:34 (18) 22:16 34	21:27 (17)	21:54 35	20:44 (18)	20:52		19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21	20:00 (18) 05:04	20:13 (18)	05:35	20:10 (18)	06:29		07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49 34	20:34 (18) 22:16 33	21:26 (17)	21:52 34	20:44 (18)	20:50		19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20	20:00 (18) 05:04	20:14 (18)	05:37	20:09 (18)	06:31		07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50 34	20:34 (18) 22:16 33	21:27 (17)	21:51 35	20:44 (18)	20:48		19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18	20:01 (18) 05:04	20:13 (18)	05:38	20:10 (18)	06:33		07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52 33	20:34 (18) 22:16 33	21:26 (17)	21:49 34	20:44 (18)	20:45		19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:00 (18) 05:05	20:14 (18)	05:40	20:10 (18)	06:35		07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53 33	20:33 (18) 22:16 33	21:27 (17)	21:47 33	20:43 (18)	20:43		19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16	20:01 (18) 05:05	20:13 (18)	05:41	20:10 (18)	06:36		07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55 32	20:33 (18) 22:16 33	21:26 (17)	21:46 34	20:44 (18)	20:40		19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15	20:01 (18) 05:06	20:14 (18)	05:43	20:10 (18)	06:38		07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56 32	20:33 (18) 22:15 31	21:26 (17)	21:44 33	20:43 (18)	20:38		19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14	20:01 (18) 05:07	20:13 (18)	05:45	20:11 (18)	06:40		07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57 32	20:33 (18) 22:15 31	21:25 (17)	21:42 32	20:43 (18)	20:36		19:18	17:08	16:20	16:21
31	08:29		07:15		05:12	20:03 (18)		05:46	20:12 (18)	06:42			07:35		08:58
	17:14		20:10		21:59 31	20:34 (18)		21:40 31	20:43 (18)	20:33			17:06		16:22
Potential sun hours	248	272	367	421	496	513	515	461	383	327	257	230
Total, worst case					815	920	965	175				
Sun reduction					0.36	0.26	0.27	0.27				
Oper. time red.					1.00	1.00	1.00	1.00				
Wind dir. red.					0.62	0.62	0.62	0.62				
Total reduction					0.22	0.16	0.16	0.17				
Total, real					181	147	158	29				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BL - H64

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May	June	July	August	September	October	November			December		
1	08:58		14:36 (18)	08:27		15:33 (17)	07:29	07:12	06:02	05:11	05:07	05:48	06:44	07:38	07:37			08:33		15:02 (17)
	16:24	31	15:45 (17)	17:16	20	15:53 (17)	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04			16:19	33	15:35 (17)
2	08:58		15:19 (17)	08:25		15:36 (17)	07:26	07:10	06:00	05:10	05:08	05:50	06:45	07:40	07:39			08:35		15:03 (17)
	16:25	27	15:46 (17)	17:18	15	15:51 (17)	18:15	20:14	21:11	22:01	22:15	21:37	20:28	19:14	17:02			16:18	33	15:36 (17)
3	08:58		15:19 (17)	08:24		15:39 (17)	07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41			08:37		15:03 (17)
	16:26	29	15:48 (17)	17:20	9	15:48 (17)	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	17:00			16:17	32	15:35 (17)
4	08:58		15:19 (17)	08:22			07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43			08:38		15:04 (17)
	16:27	29	15:48 (17)	17:22			18:19	20:18	21:14	22:04	22:14	21:33	20:24	19:09	16:58			16:17	32	15:36 (17)
5	08:57		15:20 (17)	08:20			07:19	07:02	05:54	05:08	05:11	05:55	06:51	07:45	07:45			08:39		15:04 (17)
	16:28	29	15:49 (17)	17:24			18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:56			16:16	31	15:35 (17)
6	08:57		15:19 (17)	08:18			07:17	07:00	05:52	05:07	05:11	05:57	06:53	07:47	07:47			08:41		15:05 (17)
	16:30	31	15:50 (17)	17:26			18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:54			16:16	31	15:36 (17)
7	08:57		15:19 (17)	08:16			07:14	06:58	05:50	05:06	05:12	05:59	06:54	07:49	07:49			08:42		15:06 (17)
	16:31	31	15:50 (17)	17:28			18:24	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53			16:15	30	15:36 (17)
8	08:56		15:19 (17)	08:14			07:12	06:55	05:48	05:06	05:13	06:00	06:56	07:51	07:51		15:09 (17)	08:44		15:07 (17)
	16:33	32	15:51 (17)	17:30			18:26	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	9	15:18 (17)	16:15	29	15:36 (17)
9	08:55		15:20 (17)	08:12			07:09	06:53	05:46	05:05	05:15	06:02	06:58	07:53	07:53		15:06 (17)	08:45		15:07 (17)
	16:34	32	15:52 (17)	17:32			18:28	20:27	21:24	22:09	22:10	21:23	20:11	18:56	16:49	16	15:22 (17)	16:14	29	15:36 (17)
10	08:55		15:20 (17)	08:10			07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55		15:04 (17)	08:46		15:08 (17)
	16:36	33	15:53 (17)	17:34			18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	20	15:24 (17)	16:14	27	15:35 (17)
11	08:54		15:20 (17)	08:08			07:05	06:48	05:42	05:04	05:17	06:06	07:02	07:57	07:57		15:02 (17)	08:47		14:28 (18)
	16:37	33	15:53 (17)	17:36			18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:51	16:45	23	15:25 (17)	16:14	30	15:36 (17)
12	08:53		15:20 (17)	08:06			07:02	06:45	05:40	05:04	05:18	06:07	07:03	07:59	07:59		15:01 (17)	08:48		14:26 (18)
	16:39	34	15:54 (17)	17:38			18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	25	15:26 (17)	16:13	32	15:35 (17)
13	08:52		15:21 (17)	08:04			07:00	06:43	05:38	05:03	05:19	06:09	07:05	08:00	08:01		15:00 (17)	08:49		14:25 (18)
	16:40	33	15:54 (17)	17:40			18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	27	15:27 (17)	16:13	34	15:35 (17)
14	08:51		15:21 (17)	08:02			06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03		14:59 (17)	08:50		14:25 (18)
	16:42	34	15:55 (17)	17:42			18:38	20:37	21:32	22:12	22:05	21:13	19:59	18:44	16:40	29	15:28 (17)	16:13	35	15:35 (17)
15	08:51		15:20 (17)	08:00			06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05		14:59 (17)	08:51		14:25 (18)
	16:44	35	15:55 (17)	17:44			18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	30	15:29 (17)	16:13	35	15:35 (17)
16	08:50		15:21 (17)	07:58			06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07		14:59 (17)	08:52		14:25 (18)
	16:45	34	15:55 (17)	17:46			18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	32	15:31 (17)	16:13	36	15:35 (17)
17	08:48		15:21 (17)	07:56			06:50	06:33	05:32	05:03	05:25	06:16	07:12	08:08	08:09		14:59 (17)	08:53		14:25 (18)
	16:47	35	15:56 (17)	17:49			18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:37	16:36	32	15:31 (17)	16:14	36	15:35 (17)
18	08:47		15:22 (17)	07:54			06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11		14:58 (17)	08:54		14:24 (18)
	16:49	35	15:57 (17)	17:51			18:46	20:44	21:39	22:15	22:01	21:04	19:49	18:35	16:34	34	15:32 (17)	16:14	37	15:35 (17)
19	08:46		15:22 (17)	07:51			06:45	06:29	05:28	05:03	05:27	06:20	07:16	08:12	08:13		14:58 (17)	08:55		14:25 (18)
	16:51	35	15:57 (17)	17:53			18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	34	15:32 (17)	16:14	36	15:35 (17)
20	08:45		15:22 (17)	07:49			06:42	06:26	05:27	05:03	05:29	06:22	07:18	08:14	08:14		14:58 (17)	08:55		14:26 (18)
	16:53	35	15:57 (17)	17:55			18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	34	15:32 (17)	16:14	35	15:36 (17)
21	08:44		15:22 (17)	07:47			06:40	06:24	05:25	05:03	05:30	06:24	07:20	08:16	08:16		14:58 (17)	08:56		14:26 (18)
	16:54	35	15:57 (17)	17:57			18:51	20:50	21:44	22:16	21:57	20:57	19:41	18:28	16:30	35	15:33 (17)	16:15	35	15:36 (17)
22	08:42		15:23 (17)	07:45			06:37	06:22	05:24	05:03	05:32	06:25	07:21	08:18	08:18		14:58 (17)	08:56		14:27 (18)
	16:56	34	15:57 (17)	17:59			18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	35	15:33 (17)	16:15	35	15:37 (17)
23	08:41		15:23 (17)	07:42			06:35	06:20	05:22	05:03	05:33	06:27	07:23	08:20	08:20		14:59 (17)	08:57		14:27 (18)
	16:58	34	15:57 (17)	18:01			18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	35	15:34 (17)	16:16	35	15:37 (17)
24	08:40		15:25 (17)	07:40			06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22		14:59 (17)	08:57		14:27 (18)
	17:00	33	15:58 (17)	18:03			18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	16:26	35	15:34 (17)	16:16	36	15:37 (17)
25	08:38		15:25 (17)	07:38			06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23		14:59 (17)	08:58		14:28 (18)
	17:02	32	15:57 (17)	18:05			18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19	16:25	35	15:34 (17)	16:17	36	15:38 (17)
26	08:37		15:25 (17)	07:36			06:27	06:13	05:18	05:04	05:38	06:33	07:29	07:26	08:25		15:00 (17)	08:58		14:29 (18)
	17:04	32	15:57 (17)	18:07			19:01	20:59	21:52	22:16	21:49	20:45	19:28	17:17	16:24	35	15:35 (17)	16:18	36	15:39 (17)
27	08:35		15:27 (17)	07:33			06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28	08:27		15:00 (17)	08:58		14:29 (18)
	17:06	30	15:57 (17)	18:09			19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	35	15:35 (17)	16:18	37	15:40 (17)
28	08:34		15:27 (17)	07:31			06:22	06:08	05:16	05:05	05:41	06:36	07:32	07:29	08:29		15:00 (17)	08:58		14:30 (18)
	17:08	29	15:56 (17)	18:11			19:05	21:03	21:55	22:16	21:46	20:40	19:23	17:13	16:22	34	15:34 (17)	16:19	35	15:40 (17)
29	08:32		15:28 (17)				07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	08:30		15:01 (17)	08:59		14:31 (18)
	17:10	27	15:55 (17)				20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11	16:21	34	15:35 (17)	16:20	35	15:41 (17)
30	08:31		15:29 (17)				07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32		15:01 (17)	08:59		14:33 (18)
	17:12	26	15:55 (17)				20:09	21:07	21:57	22:15	21:42	20:36	19:18	17:08	16:20	34	15:35 (17)	16:21	35	15:43 (17)
31	08:29		15:31 (17)				07:15		05:12		05:46	06:42		07:35				08:59		14:34 (18)
	17:14	22	15:53 (17)				20:10		21:59		21:40	20:33		17:06				16:22	33	15:44 (17)
Potential sun hours	248			272			367	421	496	513	515	461	383	327	257			230		
Total, worst case		981			44											692			1041	
Sun reduction		0.17			0.22											0.20			0.12	
Oper. time red.		1.00			1.00											1.00			1.00	
Wind dir. red.		0.63			0.63											0.63			0.63	
Total reduction		0.11			0.14											0.13			0.08	
Total, real		105			6											87			79	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BM - H65

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May			June		
1	08:58			08:27		15:56 (9)	07:29		16:45 (10)	07:12			06:02			05:12		20:38 (12)
	16:24			17:16	26	16:22 (9)	18:13	14	16:59 (10)	20:12			21:09			22:00	9	20:47 (12)
2	08:58			08:25		15:56 (9)	07:26		16:49 (10)	07:10			06:00			05:11		20:40 (12)
	16:25			17:18	25	16:21 (9)	18:15	5	16:54 (10)	20:14			21:11			22:01	5	20:45 (12)
3	08:58			08:24		15:57 (9)	07:24			07:07			05:58			05:10		21:24 (13)
	16:26			17:20	24	16:21 (9)	18:17			20:16			21:12			22:02	3	21:27 (13)
4	08:58			08:22		15:58 (9)	07:21			07:05			05:56			05:09		21:23 (13)
	16:27			17:22	22	16:20 (9)	18:19			20:18			21:14			22:03	5	21:28 (13)
5	08:57			08:20		15:59 (9)	07:19			07:03			05:54			05:08		21:22 (13)
	16:29			17:24	21	16:20 (9)	18:21			20:20			21:16			22:05	7	21:29 (13)
6	08:57			08:18		16:00 (9)	07:17			07:00			05:52		20:37 (12)	05:07		21:21 (13)
	16:30			17:26	19	16:19 (9)	18:23			20:22			21:18	9	20:46 (12)	22:06	9	21:30 (13)
7	08:56			08:16		16:02 (9)	07:14			06:58			05:50		20:34 (12)	05:07		21:21 (13)
	16:31			17:28	15	16:17 (9)	18:25			20:24			21:20	14	20:48 (12)	22:07	10	21:31 (13)
8	08:56			08:14		16:05 (9)	07:12			06:55			05:48		20:33 (12)	05:06		21:20 (13)
	16:33			17:30	14	16:55 (10)	18:26			20:26			21:22	16	20:49 (12)	22:08	11	21:31 (13)
9	08:55			08:12		16:45 (10)	07:09			06:53			05:46		20:31 (12)	05:05		21:21 (13)
	16:34			17:32	14	16:59 (10)	18:28			20:27			21:23	19	20:50 (12)	22:09	12	21:33 (13)
10	08:55			08:10		16:43 (10)	07:07			06:50			05:44		20:31 (12)	05:05		21:20 (13)
	16:36			17:34	18	17:01 (10)	18:30			20:29			21:25	20	20:51 (12)	22:09	13	21:33 (13)
11	08:54			08:08		16:42 (10)	07:05			06:48			05:42		20:30 (12)	05:04		21:20 (13)
	16:37			17:36	21	17:03 (10)	18:32			20:31			21:27	22	20:52 (12)	22:10	14	21:34 (13)
12	08:53			08:06		16:41 (10)	07:02			06:45		19:53 (11)	05:40		20:29 (12)	05:04		21:20 (13)
	16:39			17:38	24	17:05 (10)	18:34			20:33	10	20:03 (11)	21:29	23	20:52 (12)	22:11	15	21:35 (13)
13	08:52			08:04		16:40 (10)	07:00			06:43		19:49 (11)	05:39		20:28 (12)	05:04		21:21 (13)
	16:40			17:40	26	17:06 (10)	18:36			20:35	16	20:05 (11)	21:31	24	20:52 (12)	22:12	15	21:36 (13)
14	08:51			08:02		16:39 (10)	06:57			06:41		19:48 (11)	05:37		20:29 (12)	05:03		21:20 (13)
	16:42			17:42	28	17:07 (10)	18:38			20:37	18	20:06 (11)	21:32	24	20:53 (12)	22:12	16	21:36 (13)
15	08:50		16:01 (9)	08:00		16:38 (10)	06:55			06:38		19:47 (11)	05:35		20:28 (12)	05:03		21:20 (13)
	16:44	5	16:06 (9)	17:45	29	17:07 (10)	18:40			20:39	21	20:08 (11)	21:34	25	20:53 (12)	22:13	16	21:36 (13)
16	08:49		15:59 (9)	07:58		16:37 (10)	06:52			06:36		19:46 (11)	05:33		20:28 (12)	05:03		21:20 (13)
	16:46	10	16:09 (9)	17:47	31	17:08 (10)	18:42			20:41	22	20:08 (11)	21:36	25	20:53 (12)	22:14	17	21:37 (13)
17	08:48		15:58 (9)	07:56		16:37 (10)	06:50			06:34		19:44 (11)	05:32		20:28 (12)	05:03		21:20 (13)
	16:47	13	16:11 (9)	17:49	31	17:08 (10)	18:44			20:42	24	20:08 (11)	21:37	25	20:53 (12)	22:14	17	21:37 (13)
18	08:47		15:57 (9)	07:54		16:37 (10)	06:47			06:31		19:44 (11)	05:30		20:28 (12)	05:03		21:21 (13)
	16:49	16	16:13 (9)	17:51	32	17:09 (10)	18:46			20:44	25	20:09 (11)	21:39	25	20:53 (12)	22:14	17	21:38 (13)
19	08:46		15:56 (9)	07:51		16:36 (10)	06:45			06:29		19:44 (11)	05:28		20:28 (12)	05:03		21:21 (13)
	16:51	18	16:14 (9)	17:53	32	17:08 (10)	18:48			20:46	25	20:09 (11)	21:41	25	20:53 (12)	22:15	17	21:38 (13)
20	08:45		15:56 (9)	07:49		16:36 (10)	06:42			06:27		19:43 (11)	05:27		20:28 (12)	05:03		21:21 (13)
	16:53	20	16:16 (9)	17:55	33	17:09 (10)	18:50			20:48	25	20:08 (11)	21:42	25	20:53 (12)	22:15	17	21:38 (13)
21	08:44		15:55 (9)	07:47		16:37 (10)	06:40			06:24		19:43 (11)	05:25		20:29 (12)	05:03		21:22 (13)
	16:54	21	16:16 (9)	17:57	32	17:09 (10)	18:51			20:50	25	20:08 (11)	21:44	24	20:53 (12)	22:15	17	21:39 (13)
22	08:42		15:55 (9)	07:45		16:36 (10)	06:37			06:22		19:43 (11)	05:24		20:29 (12)	05:03		21:22 (13)
	16:56	23	16:18 (9)	17:59	32	17:08 (10)	18:53			20:52	24	20:07 (11)	21:46	23	20:52 (12)	22:16	17	21:39 (13)
23	08:41		15:54 (9)	07:42		16:37 (10)	06:35			06:20		19:44 (11)	05:22		20:30 (12)	05:03		21:22 (13)
	16:58	24	16:18 (9)	18:01	30	17:07 (10)	18:55			20:54	23	20:07 (11)	21:47	22	20:52 (12)	22:16	17	21:39 (13)
24	08:40		15:54 (9)	07:40		16:38 (10)	06:32			06:17		19:44 (11)	05:21		20:30 (12)	05:04		21:22 (13)
	17:00	25	16:19 (9)	18:03	29	17:07 (10)	18:57			20:56	22	20:06 (11)	21:49	22	20:52 (12)	22:16	17	21:39 (13)
25	08:38		15:54 (9)	07:38		16:38 (10)	06:30			06:15		19:45 (11)	05:20		20:31 (12)	05:04		21:23 (13)
	17:02	26	16:20 (9)	18:05	28	17:06 (10)	18:59			20:58	20	20:05 (11)	21:50	21	20:52 (12)	22:16	16	21:39 (13)
26	08:37		15:53 (9)	07:36		16:39 (10)	06:27			06:13		19:45 (11)	05:18		20:32 (12)	05:05		21:22 (13)
	17:04	27	16:20 (9)	18:07	26	17:05 (10)	19:01			20:59	18	20:03 (11)	21:52	19	20:51 (12)	22:16	17	21:39 (13)
27	08:35		15:54 (9)	07:33		16:40 (10)	06:25			06:11		19:47 (11)	05:17		20:33 (12)	05:05		21:23 (13)
	17:06	27	16:21 (9)	18:09	23	17:03 (10)	19:03			21:01	15	20:02 (11)	21:53	18	20:51 (12)	22:16	16	21:39 (13)
28	08:34		15:54 (9)	07:31		16:42 (10)	06:22			06:09		19:49 (11)	05:16		20:34 (12)	05:06		21:23 (13)
	17:08	27	16:21 (9)	18:11	19	17:01 (10)	19:05			21:03	10	19:59 (11)	21:55	16	20:50 (12)	22:16	16	21:39 (13)
29	08:32		15:54 (9)				07:20			06:06			05:15		20:34 (12)	05:06		21:24 (13)
	17:10	27	16:21 (9)				20:07			21:05			21:56	16	20:50 (12)	22:15	15	21:39 (13)
30	08:31		15:54 (9)				07:17			06:04			05:14		20:36 (12)	05:07		21:24 (13)
	17:12	27	16:21 (9)				20:09			21:07			21:57	13	20:49 (12)	22:15	14	21:38 (13)
31	08:29		15:54 (9)				07:15						05:13		20:37 (12)			
	17:14	27	16:21 (9)				20:10						21:59	11	20:48 (12)			
Potential sun hours	248			272			367			421			496			513		
Total, worst case		363			704			19			343			526			407	
Sun reduction		0.17			0.22			0.22			0.34			0.36			0.26	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.61			0.59			0.58			0.59			0.62			0.64	
Total reduction		0.10			0.13			0.13			0.20			0.23			0.16	
Total, real		38			92			2			69			119			67	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BM - H65

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October		November		December
1	05:07	21:24 (13)	05:48	20:40 (12)	06:44	07:38		07:37	16:13 (10)	08:33
	22:15	14 21:38 (13)	21:39	22 21:02 (12)	20:31	19:16		17:04	17 16:30 (10)	16:19
2	05:08	21:25 (13)	05:50	20:41 (12)	06:45	07:40		07:39	15:38 (9)	08:35
	22:14	13 21:38 (13)	21:37	21 21:02 (12)	20:28	19:14		17:02	14 16:28 (10)	16:18
3	05:09	21:26 (13)	05:52	20:41 (12)	06:47	07:42		07:41	15:33 (9)	08:36
	22:14	12 21:38 (13)	21:35	19 21:00 (12)	20:26	19:11		17:00	11 15:44 (9)	16:18
4	05:10	21:25 (13)	05:53	20:42 (12)	06:49	07:44		07:43	15:31 (9)	08:38
	22:13	12 21:37 (13)	21:33	18 21:00 (12)	20:24	19:09		16:58	16 15:47 (9)	16:17
5	05:11	21:26 (13)	05:55	20:43 (12)	06:51	07:45		07:45	15:30 (9)	08:39
	22:13	11 21:37 (13)	21:31	16 20:59 (12)	20:21	19:06		16:56	19 15:49 (9)	16:16
6	05:12	21:27 (13)	05:57	20:44 (12)	06:53	07:47		07:47	15:28 (9)	08:41
	22:12	9 21:36 (13)	21:29	12 20:56 (12)	20:19	19:04		16:55	22 15:50 (9)	16:16
7	05:13	21:28 (13)	05:59	20:48 (12)	06:54	07:49		07:49	15:27 (9)	08:42
	22:12	8 21:36 (13)	21:27	6 20:54 (12)	20:16	19:01		16:53	23 15:50 (9)	16:15
8	05:14	21:29 (13)	06:00		06:56	07:51		07:51	15:26 (9)	08:43
	22:11	6 21:35 (13)	21:25		20:14	18:59		16:51	25 15:51 (9)	16:15
9	05:15	21:30 (13)	06:02		06:58	07:53		07:53	15:26 (9)	08:45
	22:10	4 21:34 (13)	21:23		20:11	18:56		16:49	25 15:51 (9)	16:14
10	05:16		06:04		07:00	07:55		07:55	15:26 (9)	08:46
	22:09		21:21		20:09	18:54		16:47	27 15:53 (9)	16:14
11	05:17	20:46 (12)	06:06		07:02	07:57		07:57	15:26 (9)	08:47
	22:08	7 20:53 (12)	21:19		20:06	18:52		16:45	27 15:53 (9)	16:14
12	05:18	20:45 (12)	06:08		07:03	07:59	17:20 (10)	07:59	15:26 (9)	08:48
	22:07	10 20:55 (12)	21:17		20:04	18:49	11 17:31 (10)	16:44	27 15:53 (9)	16:14
13	05:19	20:43 (12)	06:09		07:05	08:00	17:17 (10)	08:01	15:26 (9)	08:49
	22:06	13 20:56 (12)	21:15		20:01	18:47	17 17:34 (10)	16:42	27 15:53 (9)	16:14
14	05:21	20:43 (12)	06:11	20:00 (11)	07:07	08:02	17:14 (10)	08:03	15:26 (9)	08:50
	22:05	15 20:58 (12)	21:13	5 20:05 (11)	19:59	18:44	21 17:35 (10)	16:40	27 15:53 (9)	16:13
15	05:22	20:42 (12)	06:13	19:56 (11)	07:09	08:04	17:12 (10)	08:05	15:26 (9)	08:51
	22:04	17 20:59 (12)	21:10	12 20:08 (11)	19:56	18:42	24 17:36 (10)	16:39	27 15:53 (9)	16:13
16	05:23	20:42 (12)	06:15	19:54 (11)	07:11	08:06	17:11 (10)	08:07	15:26 (9)	08:52
	22:03	17 20:59 (12)	21:08	16 20:10 (11)	19:54	18:40	26 17:37 (10)	16:37	27 15:53 (9)	16:14
17	05:25	20:41 (12)	06:17	19:53 (11)	07:13	08:08	17:10 (10)	08:09	15:28 (9)	08:53
	22:02	19 21:00 (12)	21:06	18 20:11 (11)	19:51	18:37	28 17:38 (10)	16:36	26 15:54 (9)	16:14
18	05:26	20:41 (12)	06:18	19:51 (11)	07:14	08:10	17:09 (10)	08:11	15:28 (9)	08:54
	22:01	20 21:01 (12)	21:04	20 20:11 (11)	19:49	18:35	30 17:39 (10)	16:34	25 15:53 (9)	16:14
19	05:28	20:40 (12)	06:20	19:50 (11)	07:16	08:12	17:08 (10)	08:12	15:29 (9)	08:55
	21:59	21 21:01 (12)	21:01	22 20:12 (11)	19:46	18:33	31 17:39 (10)	16:33	24 15:53 (9)	16:14
20	05:29	20:39 (12)	06:22	19:49 (11)	07:18	08:14	17:07 (10)	08:14	15:30 (9)	08:55
	21:58	23 21:02 (12)	20:59	24 20:13 (11)	19:44	18:30	32 17:39 (10)	16:31	23 15:53 (9)	16:15
21	05:30	20:40 (12)	06:24	19:48 (11)	07:20	08:16	17:07 (10)	08:16	15:31 (9)	08:56
	21:56	23 21:03 (12)	20:57	24 20:12 (11)	19:41	18:28	32 17:39 (10)	16:30	21 15:52 (9)	16:15
22	05:32	20:39 (12)	06:26	19:48 (11)	07:22	08:18	17:07 (10)	08:18	15:32 (9)	08:56
	21:55	24 21:03 (12)	20:55	24 20:12 (11)	19:39	18:26	32 17:39 (10)	16:29	20 15:52 (9)	16:15
23	05:34	20:39 (12)	06:27	19:48 (11)	07:23	08:20	17:06 (10)	08:20	15:33 (9)	08:57
	21:54	25 21:04 (12)	20:52	24 20:12 (11)	19:36	18:24	33 17:39 (10)	16:27	18 15:51 (9)	16:16
24	05:35	20:39 (12)	06:29	19:48 (11)	07:25	08:22	17:06 (10)	08:22	15:34 (9)	08:57
	21:52	24 21:03 (12)	20:50	24 20:12 (11)	19:34	18:21	32 17:38 (10)	16:26	16 15:50 (9)	16:17
25	05:37	20:38 (12)	06:31	19:47 (11)	07:27	07:24	16:07 (10)	08:23	15:36 (9)	08:58
	21:51	25 21:03 (12)	20:48	24 20:11 (11)	19:31	17:19	31 16:38 (10)	16:25	13 15:49 (9)	16:17
26	05:38	20:39 (12)	06:33	19:47 (11)	07:29	07:26	16:07 (10)	08:25	15:38 (9)	08:58
	21:49	25 21:04 (12)	20:45	24 20:11 (11)	19:29	17:17	30 16:37 (10)	16:24	10 15:48 (9)	16:18
27	05:40	20:38 (12)	06:35	19:48 (11)	07:31	07:27	16:07 (10)	08:27	15:41 (9)	08:58
	21:47	25 21:03 (12)	20:43	22 20:10 (11)	19:26	17:15	29 16:36 (10)	16:23	5 15:46 (9)	16:19
28	05:42	20:39 (12)	06:36	19:48 (11)	07:32	07:29	16:09 (10)	08:28		08:58
	21:46	25 21:04 (12)	20:40	20 20:08 (11)	19:24	17:13	27 16:36 (10)	16:22		16:19
29	05:43	20:38 (12)	06:38	19:49 (11)	07:34	07:31	16:09 (10)	08:30		08:58
	21:44	25 21:03 (12)	20:38	18 20:07 (11)	19:21	17:11	26 16:35 (10)	16:21		16:20
30	05:45	20:39 (12)	06:40	19:50 (11)	07:36	07:33	16:10 (10)	08:32		08:58
	21:42	24 21:03 (12)	20:36	16 20:06 (11)	19:19	17:09	24 16:34 (10)	16:20		16:21
31	05:47	20:40 (12)	06:42	19:53 (11)		07:35	16:12 (10)			08:58
	21:40	23 21:03 (12)	20:33	10 20:03 (11)		17:06	20 16:32 (10)			16:22
Potential sun hours	515		461		382	328		257		231
Total, worst case		519		461			536		562	
Sun reduction		0.27		0.27			0.23		0.20	
Oper. time red.		1.00		1.00			1.00		1.00	
Wind dir. red.		0.63		0.60			0.58		0.61	
Total reduction		0.17		0.16			0.14		0.12	
Total, real		86		75			73		68	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BN - H66

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June
1	08:58	08:27	07:29		07:12		18:38 (18)	06:02	19:36 (17)	05:11
	16:24	17:16	18:13		20:12	28	19:06 (18)	21:09	25	20:01 (17)	22:00
2	08:58	08:25	07:26		07:10		18:39 (18)	06:00	19:37 (17)	05:10
	16:25	17:18	18:15		20:14	26	19:05 (18)	21:11	23	20:00 (17)	22:01
3	08:58	08:24	07:24		07:07		18:39 (18)	05:58	19:38 (17)	05:10
	16:26	17:20	18:17		20:16	24	19:03 (18)	21:12	21	19:59 (17)	22:02
4	08:58	08:22	07:21		07:05		18:40 (18)	05:56	19:39 (17)	05:09
	16:27	17:22	18:19		20:18	22	19:02 (18)	21:14	18	19:57 (17)	22:03
5	08:57	08:20	07:19		07:02		18:42 (18)	05:54	19:41 (17)	05:08
	16:28	17:24	18:21		20:20	19	19:01 (18)	21:16	14	19:55 (17)	22:05
6	08:57	08:18	07:17		07:00		18:44 (18)	05:52	19:44 (17)	05:07
	16:30	17:26	18:23		20:22	13	18:57 (18)	21:18	10	19:54 (17)	22:06
7	08:56	08:16	07:14		06:58			05:50		05:06
	16:31	17:28	18:24		20:24			21:20		22:07
8	08:56	08:14	07:12		06:55			05:48		05:06
	16:33	17:30	18:26		20:25			21:22		22:08
9	08:55	08:12	07:09		06:53			05:46		05:05
	16:34	17:32	18:28		20:27			21:23		22:09
10	08:55	08:10	07:07		06:50			05:44		05:05
	16:36	17:34	18:30		20:29			21:25		22:09
11	08:54	08:08	07:04		06:48			05:42		05:04
	16:37	17:36	18:32		20:31			21:27		22:10
12	08:53	08:06	07:02		06:45			05:40		05:04
	16:39	17:38	18:34		20:33			21:29		22:11
13	08:52	08:04	07:00		06:43			05:38		05:04
	16:40	17:40	18:36		20:35			21:31		22:12
14	08:51	08:02	06:57		06:41			05:37		05:03
	16:42	17:42	18:38		20:37			21:32		22:12
15	08:50	08:00	06:55		06:38		19:48 (17)	05:35		05:03
	16:44	17:44	18:40		20:39	8	19:56 (17)	21:34		22:13
16	08:49	07:58	06:52		06:36		19:44 (17)	05:33		05:03
	16:45	17:46	18:42		20:41	14	19:58 (17)	21:36		22:14
17	08:48	07:56	06:50		06:33		19:42 (17)	05:32		05:03
	16:47	17:49	18:44		20:42	19	20:01 (17)	21:37		22:14
18	08:47	07:54	06:47		06:31		19:40 (17)	05:30		05:03
	16:49	17:51	18:46		20:44	22	20:02 (17)	21:39		22:15
19	08:46	07:51	06:45	17:50 (18)	06:29		19:39 (17)	05:28		05:03
	16:51	17:53	18:48	12	18:02 (18)	20:46	24	20:03 (17)	21:41		22:15
20	08:45	07:49	06:42		17:46 (18)	06:26		19:37 (17)	05:27		05:03
	16:53	17:55	18:50	18	18:04 (18)	20:48	26	20:03 (17)	21:42		22:15
21	08:44	07:47	06:40		17:45 (18)	06:24		19:37 (17)	05:25		05:03
	16:54	17:57	18:51	21	18:06 (18)	20:50	27	20:04 (17)	21:44		22:15
22	08:42	07:45	06:37		17:43 (18)	06:22		19:36 (17)	05:24		05:03
	16:56	17:59	18:53	24	18:07 (18)	20:52	28	20:04 (17)	21:46		22:16
23	08:41	07:42	06:35		17:42 (18)	06:20		19:36 (17)	05:22		05:03
	16:58	18:01	18:55	26	18:08 (18)	20:54	29	20:05 (17)	21:47		22:16
24	08:40	07:40	06:32		17:40 (18)	06:17		19:36 (17)	05:21		05:04
	17:00	18:03	18:57	28	18:08 (18)	20:56	29	20:05 (17)	21:49		22:16
25	08:38	07:38	06:30		17:40 (18)	06:15		19:34 (17)	05:20		05:04
	17:02	18:05	18:59	29	18:09 (18)	20:58	30	20:04 (17)	21:50		22:16
26	08:37	07:36	06:27		17:38 (18)	06:13		19:34 (17)	05:18		05:04
	17:04	18:07	19:01	31	18:09 (18)	20:59	30	20:04 (17)	21:52		22:16
27	08:35	07:33	06:25		17:38 (18)	06:11		19:35 (17)	05:17		05:05
	17:06	18:09	19:03	31	18:09 (18)	21:01	28	20:03 (17)	21:53		22:16
28	08:34	07:31	06:22		17:37 (18)	06:08		19:35 (17)	05:16		05:05
	17:08	18:11	19:05	31	18:08 (18)	21:03	28	20:03 (17)	21:55		22:16
29	08:32		07:20		18:38 (18)	06:06		19:35 (17)	05:15		05:06
	17:10		20:07	31	19:09 (18)	21:05	28	20:03 (17)	21:56		22:15
30	08:30		07:17		18:37 (18)	06:04		19:36 (17)	05:14		05:07
	17:12		20:08	30	19:07 (18)	21:07	26	20:02 (17)	21:57		22:15
31	08:29		07:15		18:38 (18)				05:12		
	17:14		20:10	29	19:07 (18)				21:59		
Potential sun hours	248	272	367			421			496			513
Total, worst case				341			528			111		
Sun reduction				0.22			0.34			0.36		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.57			0.58			0.59		
Total reduction				0.13			0.20			0.21		
Total, real				44			106			24		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BN - H66

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October	November	December
1	05:07	05:48		06:44		07:38	07:37	08:33
	22:15	21:39		20:31		19:16	17:04	16:19
2	05:08	05:50		06:45		07:40	07:39	08:35
	22:14	21:37		20:28		19:14	17:02	16:18
3	05:09	05:52		06:47		07:42	07:41	08:36
	22:14	21:35		20:26		19:11	17:00	16:17
4	05:10	05:53		06:49		07:43	07:43	08:38
	22:13	21:33		20:23		19:09	16:58	16:17
5	05:11	05:55		06:51		07:45	07:45	08:39
	22:13	21:31		20:21		19:06	16:56	16:16
6	05:11	05:57	19:56 (17)	06:53	18:40 (18)	07:47	07:47	08:41
	22:12	21:29	4 20:00 (17)	20:19	13 18:53 (18)	19:04	16:54	16:16
7	05:12	05:59	19:52 (17)	06:54	18:38 (18)	07:49	07:49	08:42
	22:12	21:27	12 20:04 (17)	20:16	18 18:56 (18)	19:01	16:53	16:15
8	05:14	06:00	19:50 (17)	06:56	18:35 (18)	07:51	07:51	08:43
	22:11	21:25	15 20:05 (17)	20:14	21 18:56 (18)	18:59	16:51	16:15
9	05:15	06:02	19:48 (17)	06:58	18:33 (18)	07:53	07:53	08:45
	22:10	21:23	19 20:07 (17)	20:11	24 18:57 (18)	18:56	16:49	16:14
10	05:16	06:04	19:47 (17)	07:00	18:32 (18)	07:55	07:55	08:46
	22:09	21:21	22 20:09 (17)	20:09	26 18:58 (18)	18:54	16:47	16:14
11	05:17	06:06	19:45 (17)	07:02	18:31 (18)	07:57	07:57	08:47
	22:08	21:19	24 20:09 (17)	20:06	28 18:59 (18)	18:51	16:45	16:14
12	05:18	06:07	19:45 (17)	07:03	18:29 (18)	07:58	07:59	08:48
	22:07	21:17	25 20:10 (17)	20:04	29 18:58 (18)	18:49	16:44	16:14
13	05:19	06:09	19:44 (17)	07:05	18:28 (18)	08:00	08:01	08:49
	22:06	21:15	27 20:11 (17)	20:01	31 18:59 (18)	18:47	16:42	16:13
14	05:21	06:11	19:43 (17)	07:07	18:28 (18)	08:02	08:03	08:50
	22:05	21:12	27 20:10 (17)	19:59	31 18:59 (18)	18:44	16:40	16:13
15	05:22	06:13	19:42 (17)	07:09	18:28 (18)	08:04	08:05	08:51
	22:04	21:10	29 20:11 (17)	19:56	31 18:59 (18)	18:42	16:39	16:13
16	05:23	06:15	19:42 (17)	07:11	18:27 (18)	08:06	08:07	08:52
	22:03	21:08	29 20:11 (17)	19:54	31 18:58 (18)	18:40	16:37	16:13
17	05:25	06:16	19:42 (17)	07:12	18:27 (18)	08:08	08:09	08:53
	22:02	21:06	29 20:11 (17)	19:51	30 18:57 (18)	18:37	16:36	16:14
18	05:26	06:18	19:41 (17)	07:14	18:27 (18)	08:10	08:11	08:54
	22:01	21:04	29 20:10 (17)	19:49	30 18:57 (18)	18:35	16:34	16:14
19	05:27	06:20	19:41 (17)	07:16	18:27 (18)	08:12	08:12	08:55
	21:59	21:01	29 20:10 (17)	19:46	29 18:56 (18)	18:33	16:33	16:14
20	05:29	06:22	19:42 (17)	07:18	18:27 (18)	08:14	08:14	08:55
	21:58	20:59	28 20:10 (17)	19:44	27 18:54 (18)	18:30	16:31	16:14
21	05:30	06:24	19:41 (17)	07:20	18:28 (18)	08:16	08:16	08:56
	21:56	20:57	28 20:09 (17)	19:41	25 18:53 (18)	18:28	16:30	16:15
22	05:32	06:25	19:41 (17)	07:21	18:29 (18)	08:18	08:18	08:56
	21:55	20:55	27 20:08 (17)	19:39	22 18:51 (18)	18:26	16:29	16:15
23	05:33	06:27	19:42 (17)	07:23	18:30 (18)	08:20	08:20	08:57
	21:54	20:52	26 20:08 (17)	19:36	19 18:49 (18)	18:24	16:27	16:16
24	05:35	06:29	19:42 (17)	07:25	18:33 (18)	08:22	08:22	08:57
	21:52	20:50	24 20:06 (17)	19:33	14 18:47 (18)	18:21	16:26	16:16
25	05:37	06:31	19:43 (17)	07:27	18:36 (18)	07:24	08:23	08:58
	21:51	20:48	22 20:05 (17)	19:31	5 18:41 (18)	17:19	16:25	16:17
26	05:38	06:33	19:45 (17)	07:29		07:25	08:25	08:58
	21:49	20:45	18 20:03 (17)	19:28		17:17	16:24	16:18
27	05:40	06:35	19:47 (17)	07:31		07:27	08:27	08:58
	21:47	20:43	14 20:01 (17)	19:26		17:15	16:23	16:19
28	05:41	06:36	19:49 (17)	07:32		07:29	08:28	08:58
	21:46	20:40	7 19:56 (17)	19:23		17:13	16:22	16:19
29	05:43	06:38		07:34		07:31	08:30	08:58
	21:44	20:38		19:21		17:11	16:21	16:20
30	05:45	06:40		07:36		07:33	08:32	08:58
	21:42	20:36		19:18		17:08	16:20	16:21
31	05:46	06:42				07:35		08:58
	21:40	20:33				17:06		16:22
Potential sun hours	515	461		383		327	257	230
Total, worst case			514		484			
Sun reduction			0.27		0.29			
Oper. time red.			1.00		1.00			
Wind dir. red.			0.59		0.57			
Total reduction			0.16		0.17			
Total, real			83		81			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BO - H67

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April			May			June		
1	08:58	08:27	07:29	07:12			06:02		20:03 (18)	05:11		20:07 (18)
	16:24	17:16	18:13	20:12			21:09	15	20:18 (18)	22:00	23	21:13 (17)
2	08:58	08:25	07:26	07:10			06:00		20:01 (18)	05:11		20:09 (18)
	16:25	17:18	18:15	20:14			21:11	19	20:20 (18)	22:01	20	21:14 (17)
3	08:58	08:24	07:24	07:07			05:58		19:59 (18)	05:10		20:58 (17)
	16:26	17:20	18:17	20:16			21:12	22	20:21 (18)	22:02	16	21:14 (17)
4	08:58	08:22	07:21	07:05			05:56		19:58 (18)	05:09		20:57 (17)
	16:27	17:22	18:19	20:18			21:14	24	20:22 (18)	22:03	18	21:15 (17)
5	08:57	08:20	07:19	07:02			05:54		19:57 (18)	05:08		20:58 (17)
	16:28	17:24	18:21	20:20			21:16	26	20:23 (18)	22:05	18	21:16 (17)
6	08:57	08:18	07:17	07:00			05:52		19:57 (18)	05:07		20:57 (17)
	16:30	17:26	18:23	20:22			21:18	27	20:24 (18)	22:06	20	21:17 (17)
7	08:56	08:16	07:14	06:58			05:50		19:56 (18)	05:07		20:57 (17)
	16:31	17:28	18:24	20:24			21:20	29	20:25 (18)	22:07	21	21:18 (17)
8	08:56	08:14	07:12	06:55			05:48		19:55 (18)	05:06		20:56 (17)
	16:33	17:30	18:26	20:25			21:22	30	20:25 (18)	22:08	22	21:18 (17)
9	08:55	08:12	07:09	06:53			05:46		19:54 (18)	05:05		20:57 (17)
	16:34	17:32	18:28	20:27			21:23	31	20:25 (18)	22:09	22	21:19 (17)
10	08:55	08:10	07:07	06:50			05:44		19:54 (18)	05:05		20:56 (17)
	16:36	17:34	18:30	20:29			21:25	31	20:25 (18)	22:09	23	21:19 (17)
11	08:54	08:08	07:04	06:48			05:42		19:54 (18)	05:04		20:56 (17)
	16:37	17:36	18:32	20:31			21:27	32	20:26 (18)	22:10	23	21:19 (17)
12	08:53	08:06	07:02	06:45			05:40		19:54 (18)	05:04		20:57 (17)
	16:39	17:38	18:34	20:33			21:29	32	20:26 (18)	22:11	23	21:20 (17)
13	08:52	08:04	07:00	06:43			05:38		19:53 (18)	05:04		20:56 (17)
	16:40	17:40	18:36	20:35			21:31	32	20:25 (18)	22:12	24	21:20 (17)
14	08:51	08:02	06:57	06:41			05:37		19:54 (18)	05:03		20:56 (17)
	16:42	17:42	18:38	20:37			21:32	32	20:26 (18)	22:12	24	21:20 (17)
15	08:50	08:00	06:55	06:38			05:35		19:54 (18)	05:03		20:57 (17)
	16:44	17:44	18:40	20:39			21:34	32	20:26 (18)	22:13	24	21:21 (17)
16	08:49	07:58	06:52	06:36			05:33		19:54 (18)	05:03		20:57 (17)
	16:45	17:46	18:42	20:41			21:36	32	20:26 (18)	22:14	24	21:21 (17)
17	08:48	07:56	06:50	06:33			05:32		19:54 (18)	05:03		20:57 (17)
	16:47	17:49	18:44	20:42			21:37	31	20:25 (18)	22:14	24	21:21 (17)
18	08:47	07:54	06:47	06:31			05:30		19:55 (18)	05:03		20:57 (17)
	16:49	17:51	18:46	20:44			21:39	31	20:26 (18)	22:14	25	21:22 (17)
19	08:46	07:51	06:45	06:29			05:28		19:55 (18)	05:03		20:57 (17)
	16:51	17:53	18:48	20:46			21:41	30	20:25 (18)	22:15	25	21:22 (17)
20	08:45	07:49	06:42	06:26			05:27		19:55 (18)	05:03		20:57 (17)
	16:53	17:55	18:50	20:48			21:42	30	20:25 (18)	22:15	25	21:22 (17)
21	08:44	07:47	06:40	06:24			05:25		19:56 (18)	05:03		20:57 (17)
	16:54	17:57	18:51	20:50			21:44	29	20:25 (18)	22:15	25	21:22 (17)
22	08:42	07:45	06:37	06:22			05:24		19:56 (18)	05:03		20:58 (17)
	16:56	17:59	18:53	20:52			21:46	28	20:24 (18)	22:16	25	21:23 (17)
23	08:41	07:42	06:35	06:20			05:22		19:57 (18)	05:03		20:58 (17)
	16:58	18:01	18:55	20:54			21:47	26	20:23 (18)	22:16	25	21:23 (17)
24	08:40	07:40	06:32	06:17			05:21		19:58 (18)	05:04		20:58 (17)
	17:00	18:03	18:57	20:56			21:49	25	20:23 (18)	22:16	25	21:23 (17)
25	08:38	07:38	06:30	06:15			05:20		19:59 (18)	05:04		20:59 (17)
	17:02	18:05	18:59	20:58			21:50	24	20:23 (18)	22:16	25	21:24 (17)
26	08:37	07:36	06:27	06:13			05:18		20:00 (18)	05:04		20:59 (17)
	17:04	18:07	19:01	20:59			21:52	22	20:22 (18)	22:16	24	21:23 (17)
27	08:35	07:33	06:25	06:11			05:17		20:00 (18)	05:05		21:00 (17)
	17:06	18:09	19:03	21:01			21:53	21	20:21 (18)	22:16	24	21:24 (17)
28	08:34	07:31	06:22	06:08			05:16		20:01 (18)	05:05		20:59 (17)
	17:08	18:11	19:05	21:03			21:55	19	20:20 (18)	22:16	24	21:23 (17)
29	08:32		07:20	06:06			05:15		20:02 (18)	05:06		21:00 (17)
	17:10		20:07	21:05			21:56	17	20:19 (18)	22:15	24	21:24 (17)
30	08:30		07:17	06:04		20:07 (18)	05:14		20:03 (18)	05:07		21:00 (17)
	17:12		20:08	21:07	8	20:15 (18)	21:57	22	21:09 (17)	22:15	23	21:23 (17)
31	08:29		07:15				05:12		20:05 (18)			
	17:14		20:10				21:59	23	21:11 (17)			
Potential sun hours	248	272	367	421			496			513		
Total, worst case					8			824			688	
Sun reduction					0.34			0.36			0.26	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.61			0.61			0.63	
Total reduction					0.21			0.22			0.16	
Total, real					2			182			111	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BO - H67

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September	October	November	December
1	05:07		21:01 (17)	05:48		20:04 (18)	06:44	07:38	07:37	08:33
	22:15	23	21:24 (17)	21:39	32	20:36 (18)	20:31	19:16	17:04	16:19
2	05:08		21:01 (17)	05:50		20:05 (18)	06:45	07:40	07:39	08:35
	22:14	23	21:24 (17)	21:37	31	20:36 (18)	20:28	19:14	17:02	16:18
3	05:09		21:02 (17)	05:52		20:04 (18)	06:47	07:42	07:41	08:36
	22:14	22	21:24 (17)	21:35	31	20:35 (18)	20:26	19:11	17:00	16:17
4	05:10		21:02 (17)	05:53		20:05 (18)	06:49	07:43	07:43	08:38
	22:13	21	21:23 (17)	21:33	30	20:35 (18)	20:23	19:09	16:58	16:17
5	05:11		21:02 (17)	05:55		20:06 (18)	06:51	07:45	07:45	08:39
	22:13	21	21:23 (17)	21:31	29	20:35 (18)	20:21	19:06	16:56	16:16
6	05:12		21:03 (17)	05:57		20:06 (18)	06:53	07:47	07:47	08:41
	22:12	20	21:23 (17)	21:29	28	20:34 (18)	20:19	19:04	16:54	16:16
7	05:13		21:04 (17)	05:59		20:06 (18)	06:54	07:49	07:49	08:42
	22:12	19	21:23 (17)	21:27	28	20:34 (18)	20:16	19:01	16:53	16:15
8	05:14		21:04 (17)	06:00		20:07 (18)	06:56	07:51	07:51	08:43
	22:11	19	21:23 (17)	21:25	25	20:32 (18)	20:14	18:59	16:51	16:15
9	05:15		21:05 (17)	06:02		20:08 (18)	06:58	07:53	07:53	08:45
	22:10	17	21:22 (17)	21:23	23	20:31 (18)	20:11	18:56	16:49	16:14
10	05:16		21:06 (17)	06:04		20:09 (18)	07:00	07:55	07:55	08:46
	22:09	16	21:22 (17)	21:21	21	20:30 (18)	20:09	18:54	16:47	16:14
11	05:17		20:15 (18)	06:06		20:10 (18)	07:02	07:57	07:57	08:47
	22:08	22	21:21 (17)	21:19	18	20:28 (18)	20:06	18:51	16:45	16:14
12	05:18		20:14 (18)	06:07		20:12 (18)	07:03	07:58	07:59	08:48
	22:07	23	21:20 (17)	21:17	13	20:25 (18)	20:04	18:49	16:44	16:14
13	05:19		20:12 (18)	06:09		20:17 (18)	07:05	08:00	08:01	08:49
	22:06	22	21:18 (17)	21:15	4	20:21 (18)	20:01	18:47	16:42	16:13
14	05:21		20:12 (18)	06:11			07:07	08:02	08:03	08:50
	22:05	18	21:16 (17)	21:12			19:59	18:44	16:40	16:13
15	05:22		20:11 (18)	06:13			07:09	08:04	08:05	08:51
	22:04	18	20:29 (18)	21:10			19:56	18:42	16:39	16:13
16	05:23		20:10 (18)	06:15			07:11	08:06	08:07	08:52
	22:03	20	20:30 (18)	21:08			19:54	18:40	16:37	16:13
17	05:25		20:09 (18)	06:16			07:12	08:08	08:09	08:53
	22:02	22	20:31 (18)	21:06			19:51	18:37	16:36	16:14
18	05:26		20:09 (18)	06:18			07:14	08:10	08:11	08:54
	22:01	23	20:32 (18)	21:04			19:49	18:35	16:34	16:14
19	05:27		20:08 (18)	06:20			07:16	08:12	08:12	08:55
	21:59	25	20:33 (18)	21:01			19:46	18:33	16:33	16:14
20	05:29		20:07 (18)	06:22			07:18	08:14	08:14	08:55
	21:58	26	20:33 (18)	20:59			19:44	18:30	16:31	16:14
21	05:30		20:07 (18)	06:24			07:20	08:16	08:16	08:56
	21:56	27	20:34 (18)	20:57			19:41	18:28	16:30	16:15
22	05:32		20:06 (18)	06:25			07:21	08:18	08:18	08:56
	21:55	28	20:34 (18)	20:55			19:39	18:26	16:29	16:15
23	05:33		20:05 (18)	06:27			07:23	08:20	08:20	08:57
	21:54	29	20:34 (18)	20:52			19:36	18:24	16:27	16:16
24	05:35		20:06 (18)	06:29			07:25	08:22	08:22	08:57
	21:52	29	20:35 (18)	20:50			19:33	18:21	16:26	16:16
25	05:37		20:05 (18)	06:31			07:27	07:24	08:23	08:58
	21:50	30	20:35 (18)	20:48			19:31	17:19	16:25	16:17
26	05:38		20:05 (18)	06:33			07:29	07:25	08:25	08:58
	21:49	31	20:36 (18)	20:45			19:28	17:17	16:24	16:18
27	05:40		20:04 (18)	06:35			07:31	07:27	08:27	08:58
	21:47	32	20:36 (18)	20:43			19:26	17:15	16:23	16:19
28	05:41		20:05 (18)	06:36			07:32	07:29	08:28	08:58
	21:46	31	20:36 (18)	20:40			19:23	17:13	16:22	16:19
29	05:43		20:04 (18)	06:38			07:34	07:31	08:30	08:58
	21:44	32	20:36 (18)	20:38			19:21	17:11	16:21	16:20
30	05:45		20:04 (18)	06:40			07:36	07:33	08:32	08:58
	21:42	32	20:36 (18)	20:36			19:18	17:08	16:20	16:21
31	05:46		20:05 (18)	06:42				07:35		08:58
	21:40	32	20:37 (18)	20:33				17:06		16:22
Potential sun hours	515			461			383	327	257	230
Total, worst case		753			313					
Sun reduction		0.27			0.27					
Oper. time red.		1.00			1.00					
Wind dir. red.		0.62			0.61					
Total reduction		0.16			0.17					
Total, real		123			52					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BP - H68

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April			May			June		
1	08:58		15:26 (9)	08:27		16:10 (10)	07:29	07:12			06:02		20:13 (12)	05:12		21:06 (13)
	16:24	19	15:45 (9)	17:16	29	16:39 (10)	18:13	20:12			21:09	22	20:35 (12)	22:00	18	21:24 (13)
2	08:58		15:26 (9)	08:25		16:10 (10)	07:26	07:10			06:00		20:12 (12)	05:11		21:05 (13)
	16:25	21	15:47 (9)	17:18	29	16:39 (10)	18:15	20:14			21:11	23	20:35 (12)	22:01	20	21:25 (13)
3	08:58		15:27 (9)	08:24		16:10 (10)	07:24	07:07		19:34 (11)	05:58		20:11 (12)	05:10		21:05 (13)
	16:26	21	15:48 (9)	17:20	30	16:40 (10)	18:17	20:16	12	19:46 (11)	21:13	25	20:36 (12)	22:02	20	21:25 (13)
4	08:58		15:27 (9)	08:22		16:09 (10)	07:22	07:05		19:32 (11)	05:56		20:11 (12)	05:09		21:06 (13)
	16:27	21	15:48 (9)	17:22	31	16:40 (10)	18:19	20:18	17	19:49 (11)	21:14	25	20:36 (12)	22:03	20	21:26 (13)
5	08:57		15:26 (9)	08:20		16:09 (10)	07:19	07:03		19:31 (11)	05:54		20:11 (12)	05:08		21:05 (13)
	16:29	22	15:48 (9)	17:24	32	16:41 (10)	18:21	20:20	19	19:50 (11)	21:16	26	20:37 (12)	22:05	21	21:26 (13)
6	08:57		15:27 (9)	08:18		16:09 (10)	07:17	07:00		19:29 (11)	05:52		20:11 (12)	05:07		21:05 (13)
	16:30	23	15:50 (9)	17:26	32	16:41 (10)	18:23	20:22	22	19:51 (11)	21:18	26	20:37 (12)	22:06	21	21:26 (13)
7	08:56		15:27 (9)	08:16		16:09 (10)	07:14	06:58		19:28 (11)	05:50		20:10 (12)	05:07		21:06 (13)
	16:31	23	15:50 (9)	17:28	32	16:41 (10)	18:25	20:24	24	19:52 (11)	21:20	27	20:37 (12)	22:07	21	21:27 (13)
8	08:56		15:27 (9)	08:14		16:10 (10)	07:12	06:55		19:27 (11)	05:48		20:10 (12)	05:06		21:05 (13)
	16:33	24	15:51 (9)	17:30	31	16:41 (10)	18:26	20:26	24	19:51 (11)	21:22	27	20:37 (12)	22:08	21	21:26 (13)
9	08:55		15:28 (9)	08:12		16:09 (10)	07:09	06:53		19:26 (11)	05:46		20:10 (12)	05:05		21:06 (13)
	16:34	24	15:52 (9)	17:32	31	16:40 (10)	18:28	20:27	26	19:52 (11)	21:23	26	20:36 (12)	22:09	21	21:27 (13)
10	08:55		15:28 (9)	08:10		16:10 (10)	07:07	06:50		19:26 (11)	05:44		20:11 (12)	05:05		21:05 (13)
	16:36	25	15:53 (9)	17:34	30	16:40 (10)	18:30	20:29	26	19:52 (11)	21:25	26	20:37 (12)	22:09	22	21:27 (13)
11	08:54		15:28 (9)	08:08		16:10 (10)	07:05	06:48		19:25 (11)	05:42		20:11 (12)	05:04		21:06 (13)
	16:37	25	15:53 (9)	17:36	30	16:40 (10)	18:32	20:31	26	19:51 (11)	21:27	25	20:36 (12)	22:10	21	21:27 (13)
12	08:53		15:28 (9)	08:06		16:11 (10)	07:02	06:45		19:26 (11)	05:40		20:11 (12)	05:04		21:06 (13)
	16:39	26	15:54 (9)	17:38	28	16:39 (10)	18:34	20:33	25	19:51 (11)	21:29	24	20:35 (12)	22:11	22	21:28 (13)
13	08:52		15:28 (9)	08:04		16:12 (10)	07:00	06:43		19:25 (11)	05:39		20:11 (12)	05:04		21:07 (13)
	16:40	26	15:54 (9)	17:40	27	16:39 (10)	18:36	20:35	25	19:50 (11)	21:31	24	20:35 (12)	22:12	21	21:28 (13)
14	08:51		15:29 (9)	08:02		16:13 (10)	06:57	06:41		19:26 (11)	05:37		20:12 (12)	05:03		21:06 (13)
	16:42	26	15:55 (9)	17:42	25	16:38 (10)	18:38	20:37	23	19:49 (11)	21:32	22	20:34 (12)	22:12	22	21:28 (13)
15	08:50		15:28 (9)	08:00		16:14 (10)	06:55	06:38		19:26 (11)	05:35		20:13 (12)	05:03		21:06 (13)
	16:44	26	15:54 (9)	17:45	22	16:36 (10)	18:40	20:39	23	19:49 (11)	21:34	20	20:33 (12)	22:13	22	21:28 (13)
16	08:49		15:29 (9)	07:58		16:16 (10)	06:52	06:36		19:27 (11)	05:33		20:14 (12)	05:03		21:07 (13)
	16:45	26	15:55 (9)	17:47	19	16:35 (10)	18:42	20:41	21	19:48 (11)	21:36	19	20:33 (12)	22:14	21	21:28 (13)
17	08:48		15:29 (9)	07:56		16:18 (10)	06:50	06:34		19:28 (11)	05:32		20:15 (12)	05:03		21:07 (13)
	16:47	27	15:56 (9)	17:49	15	16:33 (10)	18:44	20:43	18	19:46 (11)	21:37	17	20:32 (12)	22:14	21	21:28 (13)
18	08:47		15:30 (9)	07:54		16:23 (10)	06:47	06:31		19:30 (11)	05:30		20:17 (12)	05:03		21:07 (13)
	16:49	26	15:56 (9)	17:51	6	16:29 (10)	18:46	20:44	14	19:44 (11)	21:39	14	20:31 (12)	22:14	22	21:29 (13)
19	08:46		15:30 (9)	07:51			06:45	06:29		19:33 (11)	05:28		20:18 (12)	05:03		21:07 (13)
	16:51	26	15:56 (9)	17:53			18:48	20:46	8	19:41 (11)	21:41	11	20:29 (12)	22:15	22	21:29 (13)
20	08:45		15:31 (9)	07:49			06:42	06:27			05:27		20:21 (12)	05:03		21:07 (13)
	16:53	25	15:56 (9)	17:55			18:50	20:48			21:42	5	20:26 (12)	22:15	22	21:29 (13)
21	08:44		15:31 (9)	07:47			06:40	06:24			05:25			05:03		21:08 (13)
	16:54	25	15:56 (9)	17:57			18:51	20:50			21:44			22:15	22	21:30 (13)
22	08:42		15:32 (9)	07:45			06:37	06:22			05:24			05:03		21:08 (13)
	16:56	24	15:56 (9)	17:59			18:53	20:52			21:46			22:16	22	21:30 (13)
23	08:41		15:32 (9)	07:42			06:35	06:20			05:22			05:03		21:08 (13)
	16:58	23	15:55 (9)	18:01			18:55	20:54			21:47			22:16	22	21:30 (13)
24	08:40		15:34 (9)	07:40			06:32	06:17			05:21			05:04		21:08 (13)
	17:00	22	15:56 (9)	18:03			18:57	20:56			21:49			22:16	22	21:30 (13)
25	08:38		15:35 (9)	07:38			06:30	06:15			05:20		21:11 (13)	05:04		21:09 (13)
	17:02	31	16:28 (10)	18:05			18:59	20:58			21:50	5	21:16 (13)	22:16	22	21:31 (13)
26	08:37		15:36 (9)	07:36			06:27	06:13			05:18		21:09 (13)	05:05		21:09 (13)
	17:04	33	16:30 (10)	18:07			19:01	20:59			21:52	9	21:18 (13)	22:16	21	21:30 (13)
27	08:35		15:38 (9)	07:33			06:25	06:11		20:20 (12)	05:17		21:08 (13)	05:05		21:10 (13)
	17:06	35	16:33 (10)	18:09			19:03	21:01	8	20:28 (12)	21:53	11	21:19 (13)	22:16	21	21:31 (13)
28	08:34		15:40 (9)	07:31			06:22	06:09		20:17 (12)	05:16		21:08 (13)	05:06		21:09 (13)
	17:08	33	16:34 (10)	18:11			19:05	21:03	14	20:31 (12)	21:55	12	21:20 (13)	22:16	22	21:31 (13)
29	08:32		15:43 (9)				07:20	06:06		20:16 (12)	05:15		21:07 (13)	05:06		21:10 (13)
	17:10	29	16:35 (10)				20:07	21:05	17	20:33 (12)	21:56	15	21:22 (13)	22:15	21	21:31 (13)
30	08:31		16:11 (10)				07:17	06:04		20:14 (12)	05:14		21:07 (13)	05:07		21:09 (13)
	17:12	25	16:36 (10)				20:09	21:07	20	20:34 (12)	21:57	16	21:23 (13)	22:15	22	21:31 (13)
31	08:29		16:10 (10)				07:15				05:13		21:06 (13)			
	17:14	27	16:37 (10)				20:10				21:59	18	21:24 (13)			
Potential sun hours	248			272			367	421			496			513		
Total, worst case		789			479				412			520			638	
Sun reduction		0.17			0.22				0.34			0.36			0.26	
Oper. time red.		1.00			1.00				1.00			1.00			1.00	
Wind dir. red.		0.62			0.60				0.59			0.62			0.63	
Total reduction		0.11			0.13				0.20			0.22			0.16	
Total, real		83			63				84			116			103	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BP - H68

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December	
1	05:07		21:10 (13)	05:48		20:21 (12)	06:44		19:24 (11)	07:38		15:39 (10)	08:33		15:10 (9)
	22:15	21	21:31 (13)	21:39	25	20:46 (12)	20:31	26	19:50 (11)	19:16		16:10 (10)	16:19	25	15:35 (9)
2	05:08		21:11 (13)	05:50		20:21 (12)	06:45		19:24 (11)	07:40		15:39 (10)	08:35		15:10 (9)
	22:14	21	21:32 (13)	21:37	26	20:47 (12)	20:28	26	19:50 (11)	19:14		16:10 (10)	16:18	25	15:35 (9)
3	05:09		21:11 (13)	05:52		20:20 (12)	06:47		19:24 (11)	07:42		15:38 (10)	08:36		15:11 (9)
	22:14	21	21:32 (13)	21:35	26	20:46 (12)	20:26	26	19:50 (11)	19:11		16:10 (10)	16:18	24	15:35 (9)
4	05:10		21:10 (13)	05:53		20:20 (12)	06:49		19:24 (11)	07:44		15:39 (10)	08:38		15:12 (9)
	22:13	22	21:32 (13)	21:33	27	20:47 (12)	20:24	24	19:48 (11)	19:09		16:11 (10)	16:17	24	15:36 (9)
5	05:11		21:11 (13)	05:55		20:21 (12)	06:51		19:24 (11)	07:45		15:39 (10)	08:39		15:12 (9)
	22:13	21	21:32 (13)	21:31	26	20:47 (12)	20:21	24	19:48 (11)	19:06		16:11 (10)	16:16	23	15:35 (9)
6	05:12		21:11 (13)	05:57		20:20 (12)	06:53		19:25 (11)	07:47		15:39 (10)	08:41		15:13 (9)
	22:12	21	21:32 (13)	21:29	26	20:46 (12)	20:19	22	19:47 (11)	19:04		16:10 (10)	16:16	23	15:36 (9)
7	05:13		21:12 (13)	05:59		20:20 (12)	06:54		19:26 (11)	07:49		15:39 (10)	08:42		15:13 (9)
	22:12	20	21:32 (13)	21:27	27	20:47 (12)	20:16	20	19:46 (11)	19:01		16:10 (10)	16:15	22	15:35 (9)
8	05:14		21:12 (13)	06:00		20:21 (12)	06:56		19:26 (11)	07:51		15:39 (10)	08:43		15:15 (9)
	22:11	20	21:32 (13)	21:25	26	20:47 (12)	20:14	17	19:43 (11)	18:59		16:10 (10)	16:15	21	15:36 (9)
9	05:15		21:12 (13)	06:02		20:20 (12)	06:58		19:28 (11)	07:53		15:40 (10)	08:45		15:15 (9)
	22:10	20	21:32 (13)	21:23	25	20:45 (12)	20:11	13	19:41 (11)	18:56		16:09 (10)	16:14	21	15:36 (9)
10	05:16		21:13 (13)	06:04		20:21 (12)	07:00		19:33 (11)	07:55		15:41 (10)	08:46		15:16 (9)
	22:09	19	21:32 (13)	21:21	24	20:45 (12)	20:09	3	19:36 (11)	18:54		16:09 (10)	16:14	20	15:36 (9)
11	05:17		21:13 (13)	06:06		20:22 (12)	07:02			07:57		15:42 (10)	08:47		15:16 (9)
	22:08	19	21:32 (13)	21:19	23	20:45 (12)	20:06			18:52		16:09 (10)	16:14	19	15:35 (9)
12	05:18		21:13 (13)	06:08		20:22 (12)	07:04			07:59		15:43 (10)	08:48		15:18 (9)
	22:07	19	21:32 (13)	21:17	21	20:43 (12)	20:04			18:49		16:08 (10)	16:14	18	15:36 (9)
13	05:19		21:14 (13)	06:09		20:23 (12)	07:05			08:00		15:14 (9)	08:49		15:18 (9)
	22:06	17	21:31 (13)	21:15	19	20:42 (12)	20:01			18:47		16:07 (10)	16:14	17	15:35 (9)
14	05:21		21:15 (13)	06:11		20:24 (12)	07:07			08:02		15:12 (9)	08:50		15:19 (9)
	22:05	16	21:31 (13)	21:13	17	20:41 (12)	19:59			18:44		16:06 (10)	16:13	16	15:35 (9)
15	05:22		21:16 (13)	06:13		20:26 (12)	07:09			08:04		15:10 (9)	08:51		15:20 (9)
	22:04	14	21:30 (13)	21:10	12	20:38 (12)	19:56			18:42		16:04 (10)	16:13	15	15:35 (9)
16	05:23		21:16 (13)	06:15		20:29 (12)	07:11			08:06		15:09 (9)	08:52		15:21 (9)
	22:03	12	21:28 (13)	21:08	6	20:35 (12)	19:54			18:40		16:03 (10)	16:14	14	15:35 (9)
17	05:25		21:17 (13)	06:17			07:13			08:08		15:09 (9)	08:53		15:21 (9)
	22:02	10	21:27 (13)	21:06			19:51			18:37		16:01 (10)	16:14	14	15:35 (9)
18	05:26		21:19 (13)	06:18			07:14			08:10		15:08 (9)	08:54		15:21 (9)
	22:01	8	21:27 (13)	21:04			19:49			18:35		15:30 (9)	16:14	14	15:35 (9)
19	05:28		21:21 (13)	06:20			07:16			08:12		15:07 (9)	08:55		15:22 (9)
	21:59	4	21:25 (13)	21:01			19:46			18:33		15:30 (9)	16:14	13	15:35 (9)
20	05:29			06:22			07:18			08:14		15:07 (9)	08:55		15:23 (9)
	21:58			20:59			19:44			18:30		15:31 (9)	16:15	13	15:36 (9)
21	05:30			06:24			07:20			08:16		15:07 (9)	08:56		15:23 (9)
	21:57			20:57			19:41			18:28		15:32 (9)	16:15	13	15:36 (9)
22	05:32			06:26			07:22			08:18		15:07 (9)	08:56		15:24 (9)
	21:55			20:55			19:39			18:26		15:32 (9)	16:15	13	15:37 (9)
23	05:34			06:27			07:23			08:20		15:07 (9)	08:57		15:24 (9)
	21:54			20:52			19:36			18:24		15:33 (9)	16:16	13	15:37 (9)
24	05:35		20:30 (12)	06:29		19:36 (11)	07:25			08:22	16:51 (10)	15:07 (9)	08:57		15:24 (9)
	21:52	8	20:38 (12)	20:50	9	19:45 (11)	19:34			18:21	9 17:00 (10)	15:33 (9)	16:17	13	15:37 (9)
25	05:37		20:27 (12)	06:31		19:32 (11)	07:27			07:24	15:47 (10)	15:07 (9)	08:58		15:25 (9)
	21:51	13	20:40 (12)	20:48	15	19:47 (11)	19:31			17:19	16 16:03 (10)	15:34 (9)	16:17	14	15:39 (9)
26	05:38		20:26 (12)	06:33		19:30 (11)	07:29			07:26	15:45 (10)	15:08 (9)	08:58		15:25 (9)
	21:49	16	20:42 (12)	20:45	19	19:49 (11)	19:29			17:17	20 16:05 (10)	15:34 (9)	16:18	14	15:39 (9)
27	05:40		20:25 (12)	06:35		19:29 (11)	07:31			07:28	15:43 (10)	15:08 (9)	08:58		15:25 (9)
	21:47	17	20:42 (12)	20:43	21	19:50 (11)	19:26			17:15	23 16:06 (10)	15:35 (9)	16:19	15	15:40 (9)
28	05:42		20:24 (12)	06:36		19:27 (11)	07:32			07:29	15:43 (10)	15:08 (9)	08:58		15:26 (9)
	21:46	20	20:44 (12)	20:40	23	19:50 (11)	19:24			17:13	25 16:08 (10)	15:34 (9)	16:19	15	15:41 (9)
29	05:43		20:23 (12)	06:38		19:26 (11)	07:34			07:31	15:41 (10)	15:08 (9)	08:58		15:26 (9)
	21:44	21	20:44 (12)	20:38	24	19:50 (11)	19:21			17:11	27 16:08 (10)	15:34 (9)	16:20	16	15:42 (9)
30	05:45		20:22 (12)	06:40		19:26 (11)	07:36			07:33	15:40 (10)	15:09 (9)	08:58		15:26 (9)
	21:42	23	20:45 (12)	20:36	25	19:51 (11)	19:19			17:09	29 16:09 (10)	15:35 (9)	16:21	17	15:43 (9)
31	05:47		20:22 (12)	06:42		19:25 (11)				07:35	15:40 (10)		08:58		15:26 (9)
	21:40	24	20:46 (12)	20:33	26	19:51 (11)				17:06	29 16:09 (10)		16:22	18	15:44 (9)
Potential sun hours	515			461			382			328		257		231	
Total, worst case		467			518			201			178		849		542
Sun reduction		0.27			0.27			0.29			0.23		0.20		0.12
Oper. time red.		1.00			1.00			1.00			1.00		1.00		1.00
Wind dir. red.		0.62			0.61			0.59			0.60		0.61		0.63
Total reduction		0.17			0.17			0.17			0.14		0.12		0.07
Total, real		77			86			35			25		103		41

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BQ - H69

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February	March	April	May	June	July	August	September	October	November		December		
1	08:58		15:16 (17)	08:27	07:29	07:12	06:02	05:11	05:07	05:48	06:44	07:38	07:37		08:33		15:01 (17)
	16:24	28	15:44 (17)	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04		16:19	32	15:33 (17)
2	08:58		15:16 (17)	08:25	07:26	07:10	06:00	05:10	05:08	05:50	06:45	07:40	07:39		08:35		15:01 (17)
	16:25	29	15:45 (17)	17:18	18:15	20:14	21:11	22:01	22:15	21:37	20:28	19:14	17:02		16:18	32	15:33 (17)
3	08:58		15:17 (17)	08:24	07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41		08:37		15:01 (17)
	16:26	29	15:46 (17)	17:20	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	17:00		16:17	32	15:33 (17)
4	08:58		15:17 (17)	08:22	07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43		08:38		15:02 (17)
	16:27	29	15:46 (17)	17:22	18:19	20:18	21:14	22:04	22:14	21:33	20:24	19:09	16:58		16:17	32	15:34 (17)
5	08:57		15:17 (17)	08:20	07:19	07:02	05:54	05:08	05:11	05:55	06:51	07:45	07:45		08:39		15:02 (17)
	16:28	30	15:47 (17)	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:56		16:16	31	15:33 (17)
6	08:57		15:17 (17)	08:18	07:17	07:00	05:52	05:07	05:11	05:57	06:53	07:47	07:47		08:41		15:03 (17)
	16:30	31	15:48 (17)	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:54		16:16	31	15:34 (17)
7	08:57		15:17 (17)	08:16	07:14	06:58	05:50	05:06	05:12	05:59	06:54	07:49	07:49		08:42		15:03 (17)
	16:31	31	15:48 (17)	17:28	18:24	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53		16:15	31	15:34 (17)
8	08:56		15:17 (17)	08:14	07:12	06:55	05:48	05:06	05:13	06:00	06:56	07:51	07:51		08:44		15:05 (17)
	16:33	31	15:48 (17)	17:30	18:26	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51		16:15	29	15:34 (17)
9	08:55		15:18 (17)	08:12	07:09	06:53	05:46	05:05	05:15	06:02	06:58	07:53	07:53		08:45		15:05 (17)
	16:34	32	15:50 (17)	17:32	18:28	20:27	21:24	22:09	22:10	21:23	20:11	18:56	16:49		16:14	29	15:34 (17)
10	08:55		15:18 (17)	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55		08:46		15:05 (17)
	16:36	32	15:50 (17)	17:34	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47		16:14	29	15:34 (17)
11	08:54		15:19 (17)	08:08	07:05	06:48	05:42	05:04	05:17	06:06	07:02	07:57	07:57	15:08 (17)	08:47		15:07 (17)
	16:37	32	15:51 (17)	17:36	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:51	16:45	8 15:16 (17)	16:14	28	15:35 (17)
12	08:53		15:19 (17)	08:06	07:02	06:45	05:40	05:04	05:18	06:07	07:03	07:59	07:59	15:05 (17)	08:48		15:07 (17)
	16:39	32	15:51 (17)	17:38	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	14 15:19 (17)	16:13	28	15:35 (17)
13	08:52		15:19 (17)	08:04	07:00	06:43	05:38	05:03	05:19	06:09	07:05	08:00	08:01	15:03 (17)	08:49		15:08 (17)
	16:40	33	15:52 (17)	17:40	18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	18 15:21 (17)	16:13	27	15:35 (17)
14	08:51		15:20 (17)	08:02	06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03	15:01 (17)	08:50		15:08 (17)
	16:42	32	15:52 (17)	17:42	18:38	20:37	21:32	22:12	22:05	21:13	19:59	18:44	16:40	21 15:22 (17)	16:13	27	15:35 (17)
15	08:51		15:19 (17)	08:00	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	15:00 (17)	08:51		15:09 (17)
	16:44	33	15:52 (17)	17:44	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	24 15:24 (17)	16:13	26	15:35 (17)
16	08:50		15:20 (17)	07:58	06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07	15:00 (17)	08:52		15:10 (17)
	16:45	32	15:52 (17)	17:46	18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	26 15:26 (17)	16:13	25	15:35 (17)
17	08:48		15:20 (17)	07:56	06:50	06:33	05:32	05:03	05:25	06:16	07:12	08:08	08:09	14:59 (17)	08:53		14:31 (18)
	16:47	33	15:53 (17)	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:37	16:36	27 15:26 (17)	16:14	29	15:35 (17)
18	08:47		15:21 (17)	07:54	06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11	14:59 (17)	08:54		14:30 (18)
	16:49	32	15:53 (17)	17:51	18:46	20:44	21:39	22:15	22:01	21:04	19:49	18:35	16:34	28 15:27 (17)	16:14	30	15:35 (17)
19	08:46		15:21 (17)	07:51	06:45	06:29	05:28	05:03	05:27	06:20	07:16	08:12	08:13	14:58 (17)	08:55		14:30 (18)
	16:51	32	15:53 (17)	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	30 15:28 (17)	16:14	31	15:35 (17)
20	08:45		15:22 (17)	07:49	06:42	06:26	05:27	05:03	05:29	06:22	07:18	08:14	08:14	14:58 (17)	08:55		14:31 (18)
	16:53	31	15:53 (17)	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	16:31	30 15:28 (17)	16:14	31	15:36 (17)
21	08:44		15:22 (17)	07:47	06:40	06:24	05:25	05:03	05:30	06:24	07:20	08:16	08:16	14:58 (17)	08:56		14:31 (18)
	16:54	31	15:53 (17)	17:57	18:51	20:50	21:44	22:16	21:57	20:57	19:41	18:28	16:30	31 15:29 (17)	16:15	31	15:36 (17)
22	08:42		15:23 (17)	07:45	06:37	06:22	05:24	05:03	05:32	06:25	07:21	08:18	08:18	14:58 (17)	08:56		14:32 (18)
	16:56	30	15:53 (17)	17:59	18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	32 15:30 (17)	16:15	31	15:37 (17)
23	08:41		15:23 (17)	07:42	06:35	06:20	05:22	05:03	05:33	06:27	07:23	08:20	08:20	14:58 (17)	08:57		14:32 (18)
	16:58	30	15:53 (17)	18:01	18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	32 15:30 (17)	16:16	31	15:37 (17)
24	08:40		15:25 (17)	07:40	06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22	14:58 (17)	08:57		14:32 (18)
	17:00	28	15:53 (17)	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	16:26	32 15:30 (17)	16:16	31	15:37 (17)
25	08:38		15:25 (17)	07:38	06:30	06:15	05:20	05:04	05:36	06:31	07:27	07:24	08:23	14:58 (17)	08:58		14:34 (18)
	17:02	27	15:52 (17)	18:05	18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19	16:25	33 15:31 (17)	16:17	30	15:38 (17)
26	08:37		15:26 (17)	07:36	06:27	06:13	05:18	05:04	05:38	06:33	07:29	07:26	08:25	14:59 (17)	08:58		14:35 (18)
	17:04	26	15:52 (17)	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:28	17:17	16:24	32 15:31 (17)	16:18	29	15:39 (17)
27	08:35		15:28 (17)	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28	08:27	14:59 (17)	08:58		14:37 (18)
	17:06	24	15:52 (17)	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	33 15:32 (17)	16:18	27	15:40 (17)
28	08:34		15:29 (17)	07:31	06:22	06:08	05:16	05:05	05:41	06:36	07:32	07:29	08:29	14:59 (17)	08:58		15:15 (17)
	17:08	21	15:50 (17)	18:11	19:05	21:03	21:55	22:16	21:46	20:40	19:23	17:13	16:22	32 15:31 (17)	16:19	25	15:40 (17)
29	08:32		15:31 (17)		07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31	08:30	14:59 (17)	08:59		15:15 (17)
	17:10	18	15:49 (17)		20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11	16:21	33 15:32 (17)	16:20	26	15:41 (17)
30	08:31		15:33 (17)		07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	15:00 (17)	08:59		15:16 (17)
	17:12	14	15:47 (17)		20:09	21:07	21:57	22:15	21:42	20:36	19:18	17:08	16:20	32 15:32 (17)	16:21	27	15:43 (17)
31	08:29		15:37 (17)		07:15		05:12		05:46	06:42		07:35			08:59		15:16 (17)
	17:14	7	15:44 (17)		20:10		21:59		21:40	20:33		17:06			16:22	28	15:44 (17)
Potential sun hours	248			272	367	421	496	513	515	461	383	327	257		230		
Total, worst case		880												548		906	
Sun reduction		0.17												0.20		0.12	
Oper. time red.		1.00												1.00		1.00	
Wind dir. red.		0.63												0.63		0.63	
Total reduction		0.11												0.13		0.08	
Total, real		94												69		68	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BR - H70

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April			May			June		
1	08:58	16:24	08:27	17:16	07:29	18:13	07:12	20:12		06:02	21:09		05:12	22:00	
2	08:58	16:25	08:25	17:18	07:26	18:15	07:10	20:14		06:00	21:11		05:11	22:01	
3	08:58	16:26	08:24	17:20	07:24	18:17	07:07	20:16		05:58	21:12	8	20:32 (10)	05:10	22:02
4	08:58	16:27	08:22	17:22	07:21	18:19	07:05	20:18		05:56	21:14	13	20:29 (10)	05:09	22:03
5	08:57	16:29	08:20	17:24	07:19	18:21	07:03	20:20		05:54	21:16	17	20:28 (10)	05:08	22:04
6	08:57	16:30	08:18	17:26	07:17	18:23	07:00	20:22		05:52	21:18	19	20:27 (10)	05:07	22:06
7	08:56	16:31	08:16	17:28	07:14	18:25	06:58	20:24		05:50	21:20	21	20:26 (10)	05:07	22:07
8	08:56	16:33	08:14	17:30	07:12	18:26	06:55	20:25	4	19:47 (9)	05:48		20:25 (10)	05:06	22:08
9	08:55	16:34	08:12	17:32	07:09	18:28	06:53	20:27	12	19:43 (9)	19:51 (9)	21:22	22	20:47 (10)	05:05	22:08
10	08:55	16:36	08:10	17:34	07:07	18:30	06:50	20:29	17	19:41 (9)	19:58 (9)	05:44	21:25	20:24 (10)	05:05	22:09
11	08:54	16:37	08:08	17:36	07:05	18:32	06:48	20:31	20	19:38 (9)	19:58 (9)	05:42	21:27	20:23 (10)	05:04	22:10
12	08:53	16:39	08:06	17:38	07:02	18:34	06:45	20:33	23	19:37 (9)	20:00 (9)	05:40	21:29	20:23 (10)	05:04	22:11
13	08:52	16:40	08:04	17:40	07:00	18:36	06:43	20:35	24	19:36 (9)	20:00 (9)	05:39	21:31	20:22 (10)	05:04	22:12
14	08:51	16:42	08:02	17:42	06:57	18:38	06:41	20:37	25	19:35 (9)	20:00 (9)	05:37	21:32	20:23 (10)	05:03	22:12
15	08:50	16:44	08:00	17:45	06:55	18:40	06:38	20:39	26	19:35 (9)	20:01 (9)	05:35	21:34	20:22 (10)	05:03	22:13
16	08:49	16:46	07:58	17:47	06:52	18:42	06:36	20:41	27	19:34 (9)	20:01 (9)	05:33	21:36	20:23 (10)	05:03	22:13	1	21:36 (11)
17	08:48	16:47	07:56	17:49	06:50	18:44	06:34	20:42	27	19:33 (9)	20:00 (9)	05:32	21:37	20:23 (10)	05:03	22:14	2	21:37 (11)
18	08:47	16:49	07:54	17:51	06:47	18:46	06:31	20:44	27	19:33 (9)	20:00 (9)	05:30	21:39	20:23 (10)	05:03	22:14	3	21:35 (11)
19	08:46	16:51	07:51	17:53	06:45	18:48	06:29	20:46	26	19:34 (9)	20:00 (9)	05:28	21:41	20:23 (10)	05:03	22:15	3	21:38 (11)
20	08:45	16:53	07:49	17:55	06:42	18:50	06:27	20:48	26	19:33 (9)	19:59 (9)	05:27	21:42	20:24 (10)	05:03	22:15	3	21:35 (11)
21	08:44	16:55	07:47	17:57	06:40	18:51	06:24	20:50	24	19:34 (9)	19:58 (9)	05:25	21:44	20:25 (10)	05:03	22:15	3	21:38 (11)
22	08:42	16:56	07:45	17:59	06:37	18:53	06:22	20:52	23	19:34 (9)	19:57 (9)	05:24	21:46	20:25 (10)	05:03	22:16	3	21:36 (11)
23	08:41	16:58	07:42	18:01	06:35	18:55	06:20	20:54	21	19:35 (9)	19:56 (9)	05:22	21:47	20:25 (10)	05:03	22:16	3	21:39 (11)
24	08:40	17:00	07:40	18:03	06:32	18:57	06:17	20:56	18	19:37 (9)	19:55 (9)	05:21	21:49	20:26 (10)	05:04	22:16	3	21:36 (11)
25	08:38	17:02	07:38	18:05	06:30	18:59	06:15	20:58	15	19:38 (9)	19:53 (9)	05:20	21:50	20:28 (10)	05:04	22:16	2	21:39 (11)
26	08:37	17:04	07:36	18:07	06:27	19:01	06:13	20:59	10	19:40 (9)	19:50 (9)	05:18	21:52	20:29 (10)	05:05	22:16	2	21:37 (11)
27	08:35	17:06	07:33	18:09	06:25	19:03	06:11	21:01			05:17	21:53	14	20:30 (10)	05:05	22:16	2	21:39 (11)
28	08:34	17:08	07:31	18:11	06:22	19:05	06:09	21:03			05:16	21:54	12	20:31 (10)	05:06	22:16		
29	08:32	17:10			07:20	20:07	06:06	21:05			05:15	21:56	9	20:43 (10)	05:06	22:15		
30	08:30	17:12			07:17	20:09	06:04	21:07			05:14	21:57	5	20:33 (10)	05:07	22:15		
31	08:29	17:14			07:15	20:10					05:13	21:59		20:40 (10)				
Potential sun hours	248		272		367		421				496				513			
Total, worst case								395				569				28		
Sun reduction								0.34				0.36				0.26		
Oper. time red.								1.00				1.00				1.00		
Wind dir. red.								0.59				0.62				0.64		
Total reduction								0.20				0.22				0.17		
Total, real								80				128				5		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BR - H70

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07		05:48	20:33 (10)	06:44	19:37 (9)	07:38	07:37	08:33
	22:15		21:39	26 20:59 (10)	20:31	20 19:57 (9)	19:16	17:04	16:19
2	05:08		05:50	20:34 (10)	06:45	19:39 (9)	07:40	07:39	08:35
	22:14		21:37	25 20:59 (10)	20:28	17 19:56 (9)	19:14	17:02	16:18
3	05:09		05:52	20:33 (10)	06:47	19:41 (9)	07:42	07:41	08:36
	22:14		21:35	25 20:58 (10)	20:26	12 19:53 (9)	19:11	17:00	16:18
4	05:10		05:53	20:34 (10)	06:49	19:44 (9)	07:44	07:43	08:38
	22:13		21:33	24 20:58 (10)	20:23	4 19:48 (9)	19:09	16:58	16:17
5	05:11		05:55	20:35 (10)	06:51		07:45	07:45	08:39
	22:13		21:31	23 20:58 (10)	20:21		19:06	16:56	16:16
6	05:12		05:57	20:35 (10)	06:53		07:47	07:47	08:41
	22:12		21:29	21 20:56 (10)	20:19		19:04	16:55	16:16
7	05:13		05:59	20:37 (10)	06:54		07:49	07:49	08:42
	22:12		21:27	18 20:55 (10)	20:16		19:01	16:53	16:15
8	05:14		06:00	20:38 (10)	06:56		07:51	07:51	08:43
	22:11		21:25	16 20:54 (10)	20:14		18:59	16:51	16:15
9	05:15		06:02	20:39 (10)	06:58		07:53	07:53	08:45
	22:10		21:23	12 20:51 (10)	20:11		18:56	16:49	16:14
10	05:16		06:04	20:43 (10)	07:00		07:55	07:55	08:46
	22:09		21:21	5 20:48 (10)	20:09		18:54	16:47	16:14
11	05:17		06:06		07:02		07:57	07:57	08:47
	22:08		21:19		20:06		18:52	16:45	16:14
12	05:18		06:08		07:03		07:58	07:59	08:48
	22:07		21:17		20:04		18:49	16:44	16:14
13	05:19		06:09		07:05		08:00	08:01	08:49
	22:06		21:15		20:01		18:47	16:42	16:14
14	05:21	20:42 (10)	06:11		07:07		08:02	08:03	08:50
	22:05	8 20:50 (10)	21:12		19:59		18:44	16:40	16:14
15	05:22	20:40 (10)	06:13		07:09		08:04	08:05	08:51
	22:04	11 20:51 (10)	21:10		19:56		18:42	16:39	16:14
16	05:23	20:39 (10)	06:15		07:11		08:06	08:07	08:52
	22:03	13 20:52 (10)	21:08		19:54		18:40	16:37	16:14
17	05:25	20:38 (10)	06:17	19:47 (9)	07:12		08:08	08:09	08:53
	22:02	15 20:53 (10)	21:06	11 19:58 (9)	19:51		18:37	16:36	16:14
18	05:26	20:38 (10)	06:18	19:44 (9)	07:14		08:10	08:11	08:54
	22:00	17 20:55 (10)	21:04	15 19:59 (9)	19:49		18:35	16:34	16:14
19	05:28	20:37 (10)	06:20	19:42 (9)	07:16		08:12	08:12	08:54
	21:59	19 20:56 (10)	21:01	19 20:01 (9)	19:46		18:33	16:33	16:14
20	05:29	20:36 (10)	06:22	19:41 (9)	07:18		08:14	08:14	08:55
	21:58	20 20:56 (10)	20:59	21 20:02 (9)	19:44		18:30	16:31	16:15
21	05:30	20:36 (10)	06:24	19:39 (9)	07:20		08:16	08:16	08:56
	21:56	21 20:57 (10)	20:57	23 20:02 (9)	19:41		18:28	16:30	16:15
22	05:32	20:35 (10)	06:26	19:38 (9)	07:22		08:18	08:18	08:56
	21:55	22 20:57 (10)	20:55	25 20:03 (9)	19:39		18:26	16:29	16:15
23	05:34	20:35 (10)	06:27	19:38 (9)	07:23		08:20	08:20	08:57
	21:54	24 20:59 (10)	20:52	25 20:03 (9)	19:36		18:24	16:27	16:16
24	05:35	20:34 (10)	06:29	19:37 (9)	07:25		08:22	08:22	08:57
	21:52	25 20:59 (10)	20:50	27 20:04 (9)	19:34		18:21	16:26	16:17
25	05:37	20:33 (10)	06:31	19:36 (9)	07:27		07:24	08:23	08:58
	21:50	25 20:58 (10)	20:48	27 20:03 (9)	19:31		17:19	16:25	16:17
26	05:38	20:33 (10)	06:33	19:36 (9)	07:29		07:25	08:25	08:58
	21:49	26 20:59 (10)	20:45	27 20:03 (9)	19:29		17:17	16:24	16:18
27	05:40	20:33 (10)	06:35	19:36 (9)	07:31		07:27	08:27	08:58
	21:47	26 20:59 (10)	20:43	27 20:03 (9)	19:26		17:15	16:23	16:19
28	05:42	20:33 (10)	06:36	19:35 (9)	07:32		07:29	08:28	08:58
	21:46	27 21:00 (10)	20:40	27 20:02 (9)	19:24		17:13	16:22	16:20
29	05:43	20:34 (10)	06:38	19:36 (9)	07:34		07:31	08:30	08:58
	21:44	26 21:00 (10)	20:38	25 20:01 (9)	19:21		17:11	16:21	16:20
30	05:45	20:33 (10)	06:40	19:36 (9)	07:36		07:33	08:32	08:58
	21:42	27 21:00 (10)	20:36	24 20:00 (9)	19:19		17:09	16:20	16:21
31	05:47	20:34 (10)	06:42	19:37 (9)			07:35		08:58
	21:40	26 21:00 (10)	20:33	23 20:00 (9)			17:06		16:22
Potential sun hours	515		461		382		328	257	231
Total, worst case		378		541		53			
Sun reduction		0.27		0.27		0.29			
Oper. time red.		1.00		1.00		1.00			
Wind dir. red.		0.62		0.60		0.59			
Total reduction		0.17		0.16		0.17			
Total, real		62		89		9			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BS - H71

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:11	20:12 (18)	05:07	20:21 (18)	05:48	20:25 (18)	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00 30	20:42 (18)	22:15 24	20:45 (18)	21:39 22	20:47 (18)	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	20:13 (18)	05:08	20:21 (18)	05:50	20:26 (18)	06:45	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01 29	20:42 (18)	22:14 25	20:46 (18)	21:37 20	20:46 (18)	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58	05:10	20:13 (18)	05:09	20:21 (18)	05:52	20:27 (18)	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02 28	20:41 (18)	22:14 25	20:46 (18)	21:35 17	20:44 (18)	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56	05:09	20:13 (18)	05:10	20:21 (18)	05:53	20:29 (18)	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03 28	20:41 (18)	22:13 25	20:46 (18)	21:33 13	20:42 (18)	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54	05:08	20:14 (18)	05:11	20:21 (18)	05:55	20:34 (18)	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16	22:05 28	20:42 (18)	22:13 26	20:47 (18)	21:31 5	20:39 (18)	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52	05:07	20:14 (18)	05:12	20:21 (18)	05:57		06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06 27	20:41 (18)	22:12 26	20:47 (18)	21:29		20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	20:15 (18)	05:13	20:21 (18)	05:59		06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20	22:07 27	20:42 (18)	22:12 27	20:48 (18)	21:27		20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	20:21 (18) 05:06	20:15 (18)	05:14	20:20 (18)	06:00		06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22 9	20:30 (18) 22:08	20:41 (18)	22:11 28	20:48 (18)	21:25		20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	20:18 (18) 05:05	20:16 (18)	05:15	20:20 (18)	06:02		06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23 15	20:33 (18) 22:09	20:41 (18)	22:10 29	20:49 (18)	21:23		20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44	20:16 (18) 05:05	20:16 (18)	05:16	20:20 (18)	06:04		07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25 18	20:34 (18) 22:09	20:41 (18)	22:09 29	20:49 (18)	21:21		20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42	20:15 (18) 05:04	20:17 (18)	05:17	20:20 (18)	06:06		07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27 21	20:36 (18) 22:10	20:41 (18)	22:08 29	20:49 (18)	21:19		20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40	20:14 (18) 05:04	20:18 (18)	05:18	20:20 (18)	06:07		07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29 23	20:37 (18) 22:11	20:41 (18)	22:07 30	20:50 (18)	21:17		20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38	20:13 (18) 05:04	20:17 (18)	05:19	20:19 (18)	06:09		07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31 25	20:38 (18) 22:12	21:22 (17)	22:06 31	20:50 (18)	21:15		20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37	20:12 (18) 05:03	20:18 (18)	05:21	20:20 (18)	06:11		07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32 27	20:39 (18) 22:12	21:24 (17)	22:05 31	20:51 (18)	21:12		19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35	20:11 (18) 05:03	20:18 (18)	05:22	20:20 (18)	06:13		07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34 28	20:39 (18) 22:13	21:25 (17)	22:04 31	20:51 (18)	21:10		19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33	20:11 (18) 05:03	20:19 (18)	05:23	20:20 (18)	06:15		07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36 29	20:40 (18) 22:14	21:26 (17)	22:03 31	20:51 (18)	21:08		19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32	20:10 (18) 05:03	20:19 (18)	05:25	20:19 (18)	06:16		07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37 30	20:40 (18) 22:14	21:27 (17)	22:02 32	20:51 (18)	21:06		19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:11 (18) 05:03	20:20 (18)	05:26	20:20 (18)	06:18		07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39 30	20:41 (18) 22:14	21:27 (17)	22:01 32	20:52 (18)	21:04		19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28	20:10 (18) 05:03	20:20 (18)	05:27	20:20 (18)	06:20		07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41 31	20:41 (18) 22:15	21:27 (17)	21:59 32	20:52 (18)	21:01		19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27	20:10 (18) 05:03	20:20 (18)	05:29	20:19 (18)	06:22		07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42 31	20:41 (18) 22:15	21:28 (17)	21:58 32	20:51 (18)	20:59		19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25	20:10 (18) 05:03	20:20 (18)	05:30	20:20 (18)	06:24		07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44 32	20:42 (18) 22:15	21:28 (17)	21:56 32	20:52 (18)	20:57		19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:10 (18) 05:03	20:21 (18)	05:32	20:20 (18)	06:25		07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46 31	20:41 (18) 22:16	21:29 (17)	21:55 32	20:52 (18)	20:55		19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22	20:10 (18) 05:03	20:21 (18)	05:33	20:20 (18)	06:27		07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47 32	20:42 (18) 22:16	21:28 (17)	21:54 31	20:51 (18)	20:52		19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21	20:10 (18) 05:04	20:21 (18)	05:35	20:20 (18)	06:29		07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49 32	20:42 (18) 22:16	21:28 (17)	21:52 32	20:52 (18)	20:50		19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20	20:10 (18) 05:04	20:21 (18)	05:37	20:20 (18)	06:31		07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50 32	20:42 (18) 22:16	21:29 (17)	21:50 31	20:51 (18)	20:48		19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18	20:11 (18) 05:04	20:21 (18)	05:38	20:21 (18)	06:33		07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52 32	20:43 (18) 22:16	21:28 (17)	21:49 30	20:51 (18)	20:45		19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:10 (18) 05:05	20:22 (18)	05:40	20:21 (18)	06:35		07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53 32	20:42 (18) 22:16	21:28 (17)	21:47 29	20:50 (18)	20:43		19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16	20:10 (18) 05:05	20:21 (18)	05:41	20:22 (18)	06:36		07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55 32	20:42 (18) 22:16	21:28 (17)	21:46 28	20:50 (18)	20:40		19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15	20:11 (18) 05:06	20:21 (18)	05:43	20:22 (18)	06:38		07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56 31	20:42 (18) 22:15	21:27 (17)	21:44 27	20:49 (18)	20:38		19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14	20:11 (18) 05:07	20:21 (18)	05:45	20:23 (18)	06:40		07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57 30	20:41 (18) 22:15	20:44 (18)	21:42 26	20:49 (18)	20:36		19:18	17:08	16:20	16:21
31	08:29		07:15		05:12	20:12 (18)		05:46	20:24 (18)	06:42			07:35		08:58
	17:14		20:10		21:59 30	20:42 (18)		21:40 25	20:49 (18)	20:33			17:06		16:22
Potential sun hours	248	272	367	421	496	513	515	461	383	327	257	230
Total, worst case					663	863	898	77				
Sun reduction					0.36	0.26	0.27	0.27				
Oper. time red.					1.00	1.00	1.00	1.00				
Wind dir. red.					0.62	0.62	0.62	0.62				
Total reduction					0.22	0.16	0.16	0.17				
Total, real					149	138	148	13				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BT - H72

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:38	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:45	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BU - H73

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02		05:11		20:19 (18)	05:07	20:26 (18)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09		22:00	32	20:51 (18)	22:15	30	20:56 (18)	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00		05:11		20:19 (18)	05:08	20:26 (18)	05:50	06:45	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11		22:01	32	20:51 (18)	22:14	31	20:57 (18)	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58		05:10		20:19 (18)	05:09	20:27 (18)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12		22:02	32	20:51 (18)	22:14	30	20:57 (18)	21:35	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56		05:09		20:19 (18)	05:10	20:26 (18)	05:53	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14		22:03	32	20:51 (18)	22:13	31	20:57 (18)	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54		05:08		20:20 (18)	05:11	20:26 (18)	05:55	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16		22:05	31	20:51 (18)	22:13	31	20:57 (18)	21:31	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52		05:07		20:20 (18)	05:12	20:26 (18)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18		22:06	31	20:51 (18)	22:12	31	20:57 (18)	21:29	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50		05:07		20:21 (18)	05:13	20:27 (18)	05:59	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20		22:07	31	20:52 (18)	22:12	31	20:58 (18)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48		05:06		20:21 (18)	05:14	20:27 (18)	06:00	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22		22:08	30	20:51 (18)	22:11	31	20:58 (18)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46		05:05		20:21 (18)	05:15	20:27 (18)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23		22:09	31	20:52 (18)	22:10	31	20:58 (18)	21:23	20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44		05:05		20:21 (18)	05:16	20:27 (18)	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25		22:09	30	20:51 (18)	22:09	31	20:58 (18)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42		05:04		20:22 (18)	05:17	20:27 (18)	06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27		22:10	30	20:52 (18)	22:08	32	20:59 (18)	21:19	20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40	20:33 (18)	05:04		20:22 (18)	05:18	20:27 (18)	06:07	07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29	1 20:34 (18)	22:11	30	20:52 (18)	22:07	32	20:59 (18)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38	20:27 (18)	05:04		20:22 (18)	05:19	20:27 (18)	06:09	07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31	12 20:39 (18)	22:12	29	20:51 (18)	22:06	32	20:59 (18)	21:15	20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37	20:26 (18)	05:03		20:22 (18)	05:21	20:28 (18)	06:11	07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32	15 20:41 (18)	22:12	30	20:52 (18)	22:05	32	21:00 (18)	21:12	19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35	20:24 (18)	05:03		20:23 (18)	05:22	20:28 (18)	06:13	07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34	19 20:43 (18)	22:13	29	20:52 (18)	22:04	31	20:59 (18)	21:10	19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33	20:23 (18)	05:03		20:23 (18)	05:23	20:28 (18)	06:15	07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36	21 20:44 (18)	22:14	29	20:52 (18)	22:03	31	20:59 (18)	21:08	19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32	20:22 (18)	05:03		20:24 (18)	05:25	20:27 (18)	06:16	07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	23 20:45 (18)	22:14	28	20:52 (18)	22:02	32	20:59 (18)	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:21 (18)	05:03		20:24 (18)	05:26	20:28 (18)	06:18	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	25 20:46 (18)	22:14	29	20:53 (18)	22:01	32	21:00 (18)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28	20:20 (18)	05:03		20:24 (18)	05:27	20:28 (18)	06:20	07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41	26 20:46 (18)	22:15	29	20:53 (18)	21:59	31	20:59 (18)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27	20:20 (18)	05:03		20:24 (18)	05:29	20:28 (18)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	27 20:47 (18)	22:15	29	20:53 (18)	21:58	31	20:59 (18)	20:59	19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25	20:20 (18)	05:03		20:24 (18)	05:30	20:29 (18)	06:24	07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44	28 20:48 (18)	22:15	29	20:53 (18)	21:56	30	20:59 (18)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:19 (18)	05:03		20:25 (18)	05:32	20:29 (18)	06:25	07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	29 20:48 (18)	22:16	29	20:54 (18)	21:55	29	20:58 (18)	20:55	19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22	20:19 (18)	05:03		20:25 (18)	05:33	20:30 (18)	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	30 20:49 (18)	22:16	29	20:54 (18)	21:54	27	20:57 (18)	20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21	20:19 (18)	05:04		20:25 (18)	05:35	20:31 (18)	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	30 20:49 (18)	22:16	29	20:54 (18)	21:52	27	20:58 (18)	20:50	19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20	20:19 (18)	05:04		20:26 (18)	05:37	20:31 (18)	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	31 20:50 (18)	22:16	28	20:54 (18)	21:50	25	20:56 (18)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18	20:19 (18)	05:04		20:25 (18)	05:38	20:32 (18)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	31 20:50 (18)	22:16	29	20:54 (18)	21:49	24	20:56 (18)	20:45	19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:18 (18)	05:05		20:26 (18)	05:40	20:32 (18)	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	32 20:50 (18)	22:16	29	20:55 (18)	21:47	23	20:55 (18)	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16	20:18 (18)	05:05		20:26 (18)	05:41	20:34 (18)	06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55	32 20:50 (18)	22:16	29	20:55 (18)	21:46	20	20:54 (18)	20:40	19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15	20:18 (18)	05:06		20:26 (18)	05:43	20:35 (18)	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	32 20:50 (18)	22:15	30	20:56 (18)	21:44	17	20:52 (18)	20:38	19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14	20:18 (18)	05:07		20:26 (18)	05:45	20:37 (18)	06:40	07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57	32 20:50 (18)	22:15	29	20:55 (18)	21:42	14	20:51 (18)	20:36	19:18	17:08	16:20	16:21
31	08:29		07:15		05:12	20:19 (18)				05:46	20:40 (18)	06:42			07:35		08:58
	17:14		20:10		21:59	32 20:51 (18)				21:40	9	20:49 (18)	20:33		17:06		16:22
Potential sun hours	248	272	367	421	496		513			515			461	383	327	257	230
Total, worst case						508		894			869						
Sun reduction						0.36		0.26			0.27						
Oper. time red.						1.00		1.00			1.00						
Wind dir. red.						0.62		0.62			0.62						
Total reduction						0.23		0.16			0.17						
Total, real						114		144			144						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BV - H74

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June		July		August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:11		05:07		21:01 (18)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00		22:15	18	21:19 (18)	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11		05:08		21:02 (18)	05:50	06:45	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01		22:14	17	21:19 (18)	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58	05:10		05:09		21:03 (18)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02		22:14	15	21:18 (18)	21:35	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56	05:09		05:10		21:03 (18)	05:53	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03		22:13	14	21:17 (18)	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54	05:08	21:03 (18)	05:11		21:05 (18)	05:55	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16	22:05	3	21:06 (18)	22:13	12	21:17 (18)	21:31	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52	05:07		21:00 (18)	05:12		21:06 (18)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06	9	21:09 (18)	22:12	10	21:16 (18)	21:29	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07		21:00 (18)	05:13		21:08 (18)	05:59	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20	22:07	11	21:11 (18)	22:12	6	21:14 (18)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06		20:58 (18)	05:14			06:00	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22	22:08	13	21:11 (18)	22:11			21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:05		20:58 (18)	05:15			06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23	22:09	15	21:13 (18)	22:10			21:23	20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44	05:05		20:57 (18)	05:16			06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	16	21:13 (18)	22:09			21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42	05:04		20:57 (18)	05:17			06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27	22:10	17	21:14 (18)	22:08			21:19	20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40	05:04		20:57 (18)	05:18			06:07	07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29	22:11	18	21:15 (18)	22:07			21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38	05:04		20:56 (18)	05:19			06:09	07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31	22:12	19	21:15 (18)	22:06			21:15	20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37	05:03		20:56 (18)	05:21			06:11	07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32	22:12	20	21:16 (18)	22:05			21:12	19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35	05:03		20:56 (18)	05:22			06:13	07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34	22:13	20	21:16 (18)	22:04			21:10	19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33	05:03		20:56 (18)	05:23			06:15	07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36	22:14	21	21:17 (18)	22:03			21:08	19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32	05:03		20:57 (18)	05:25			06:16	07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	22:14	20	21:17 (18)	22:02			21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03		20:57 (18)	05:26			06:18	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	21	21:18 (18)	22:01			21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28	05:03		20:57 (18)	05:27			06:20	07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41	22:15	21	21:18 (18)	21:59			21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27	05:03		20:57 (18)	05:29			06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21	21:18 (18)	21:58			20:59	19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25	05:03		20:57 (18)	05:30			06:24	07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44	22:15	21	21:18 (18)	21:56			20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:03		20:58 (18)	05:32			06:25	07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	22:16	21	21:19 (18)	21:55			20:55	19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22	05:03		20:58 (18)	05:33			06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	22:16	21	21:19 (18)	21:54			20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21	05:04		20:58 (18)	05:35			06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21	21:19 (18)	21:52			20:50	19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20	05:04		20:59 (18)	05:37			06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	22:16	20	21:19 (18)	21:50			20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18	05:04		20:59 (18)	05:38			06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	20	21:19 (18)	21:49			20:45	19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05		20:59 (18)	05:40			06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21	21:20 (18)	21:47			20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16	05:05		20:59 (18)	05:41			06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55	22:16	20	21:19 (18)	21:46			20:40	19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15	05:06		21:00 (18)	05:43			06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	19	21:19 (18)	21:44			20:38	19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14	05:07		21:00 (18)	05:45			06:40	07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57	22:15	19	21:19 (18)	21:42			20:36	19:18	17:08	16:20	16:21
31	08:29		07:15		05:13				05:46			06:42		07:35		08:58
	17:14		20:10		21:59				21:40			20:33		17:06		16:22
Potential sun hours	248	272	367	421	496	513			515			461	383	328	257	231
Total, worst case							468			92						
Sun reduction							0.26			0.27						
Oper. time red.							1.00			1.00						
Wind dir. red.							0.63			0.63						
Total reduction							0.16			0.17						
Total, real							76			15						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BW - H75

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:49	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:43	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:39	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:18	05:05	05:40	06:35	07:31	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:41	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BX - H76

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March			April			May			June
1	08:59	08:27	07:29			07:13			06:02		06:57 (8)	05:12
	16:24	17:16	18:13			20:13			21:09	18	07:15 (8)	22:00
2	08:58	08:26	07:26			07:10			06:00		06:59 (8)	05:11
	16:25	17:18	18:15			20:14			21:11	14	07:13 (8)	22:01
3	08:58	08:24	07:24			07:08			05:58		07:02 (8)	05:10
	16:26	17:20	18:17			20:16			21:13	9	07:11 (8)	22:02
4	08:58	08:22	07:22			07:05			05:56			05:09
	16:28	17:22	18:19			20:18			21:15			22:04
5	08:58	08:20	07:19			07:03			05:54			05:08
	16:29	17:24	18:21			20:20			21:16			22:05
6	08:57	08:18	07:17			07:00			05:52			05:08
	16:30	17:26	18:23			20:22			21:18			22:06
7	08:57	08:16	07:15			06:58			05:50			05:07
	16:32	17:28	18:25			20:24			21:20			22:07
8	08:56	08:15	07:12			06:55			05:48			05:06
	16:33	17:30	18:27			20:26			21:22			22:08
9	08:55	08:13	07:10			06:53			05:46			05:06
	16:34	17:32	18:29			20:28			21:24			22:09
10	08:55	08:11	07:07			06:51			05:44			05:05
	16:36	17:35	18:31			20:30			21:25			22:10
11	08:54	08:09	07:05			06:48			05:42			05:05
	16:37	17:37	18:33			20:31			21:27			22:10
12	08:53	08:07	07:02			06:46			05:41			05:04
	16:39	17:39	18:34			20:33			21:29			22:11
13	08:53	08:04	07:00		07:31 (7)	06:43		07:10 (8)	05:39			05:04
	16:41	17:41	18:36	14	07:45 (7)	20:35	1	07:11 (8)	21:31			22:12
14	08:52	08:02	06:57		07:29 (7)	06:41		07:05 (8)	05:37			05:04
	16:42	17:43	18:38	18	07:47 (7)	20:37	11	07:16 (8)	21:33			22:13
15	08:51	08:00	06:55		07:27 (7)	06:39		07:03 (8)	05:35			05:03
	16:44	17:45	18:40	21	07:48 (7)	20:39	15	07:18 (8)	21:34			22:13
16	08:50	07:58	06:52		07:26 (7)	06:36		07:01 (8)	05:34			05:03
	16:46	17:47	18:42	24	07:50 (7)	20:41	19	07:20 (8)	21:36			22:14
17	08:49	07:56	06:50		07:24 (7)	06:34		06:58 (8)	05:32			05:03
	16:47	17:49	18:44	26	07:50 (7)	20:43	22	07:20 (8)	21:38			22:14
18	08:48	07:54	06:47		07:23 (7)	06:31		06:57 (8)	05:30			05:03
	16:49	17:51	18:46	28	07:51 (7)	20:45	24	07:21 (8)	21:39			22:15
19	08:46	07:52	06:45		07:22 (7)	06:29		06:56 (8)	05:29			05:03
	16:51	17:53	18:48	28	07:50 (7)	20:46	26	07:22 (8)	21:41			22:15
20	08:45	07:49	06:43		07:22 (7)	06:27		06:55 (8)	05:27			05:03
	16:53	17:55	18:50	29	07:51 (7)	20:48	27	07:22 (8)	21:43			22:15
21	08:44	07:47	06:40		07:21 (7)	06:24		06:54 (8)	05:26			05:03
	16:55	17:57	18:52	29	07:50 (7)	20:50	28	07:22 (8)	21:44			22:16
22	08:43	07:45	06:38		07:21 (7)	06:22		06:54 (8)	05:24			05:03
	16:57	17:59	18:54	30	07:51 (7)	20:52	28	07:22 (8)	21:46			22:16
23	08:41	07:43	06:35		07:21 (7)	06:20		06:54 (8)	05:23			05:04
	16:58	18:01	18:56	28	07:49 (7)	20:54	28	07:22 (8)	21:47			22:16
24	08:40	07:40	06:33		07:21 (7)	06:18		06:54 (8)	05:21			05:04
	17:00	18:03	18:57	28	07:49 (7)	20:56	28	07:22 (8)	21:49			22:16
25	08:38	07:38	06:30		07:21 (7)	06:15		06:54 (8)	05:20			05:04
	17:02	18:05	18:59	27	07:48 (7)	20:58	27	07:21 (8)	21:50			22:16
26	08:37	07:36	06:28		07:22 (7)	06:13		06:54 (8)	05:19			05:05
	17:04	18:07	19:01	25	07:47 (7)	21:00	27	07:21 (8)	21:52			22:16
27	08:35	07:34	06:25		07:22 (7)	06:11		06:55 (8)	05:17			05:05
	17:06	18:09	19:03	23	07:45 (7)	21:02	25	07:20 (8)	21:53			22:16
28	08:34	07:31	06:23		07:24 (7)	06:09		06:55 (8)	05:16			05:06
	17:08	18:11	19:05	20	07:44 (7)	21:03	24	07:19 (8)	21:55			22:16
29	08:32		07:20		08:25 (7)	06:07		06:55 (8)	05:15			05:06
	17:10		20:07	16	08:41 (7)	21:05	22	07:17 (8)	21:56			22:16
30	08:31		07:18		08:28 (7)	06:04		06:56 (8)	05:14			05:07
	17:12		20:09	10	08:38 (7)	21:07	20	07:16 (8)	21:57			22:15
31	08:29		07:15						05:13			
	17:14		20:11						21:59			
Potential sun hours	248	272	367			421			496			513
Total, worst case				424			402			41		
Sun reduction				0.22			0.34			0.36		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.59			0.57			0.57		
Total reduction				0.13			0.20			0.21		
Total, real				56			78			8		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BX - H76

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October		November	December
1	05:08	05:48		06:44		07:38	08:13 (7)	07:38	08:34
	22:15	21:39		20:31		19:16	9 08:22 (7)	17:05	16:19
2	05:08	05:50		06:46		07:40		07:40	08:35
	22:15	21:37		20:29		19:14		17:03	16:19
3	05:09	05:52		06:47		07:42		07:42	08:37
	22:14	21:35		20:26		19:11		17:01	16:18
4	05:10	05:54		06:49		07:44		07:44	08:38
	22:14	21:33		20:24		19:09		16:59	16:17
5	05:11	05:55		06:51		07:46		07:46	08:40
	22:13	21:31		20:21		19:06		16:57	16:17
6	05:12	05:57		06:53		07:47		07:47	08:41
	22:12	21:29		20:19		19:04		16:55	16:16
7	05:13	05:59		06:55		07:49		07:49	08:42
	22:12	21:27		20:16		19:01		16:53	16:15
8	05:14	06:01		06:57		07:51		07:51	08:44
	22:11	21:25		20:14		18:59		16:51	16:15
9	05:15	06:02		06:58		07:53		07:53	08:45
	22:10	21:23		20:11		18:57		16:49	16:15
10	05:16	06:04	07:10 (8)	07:00		07:55		07:55	08:46
	22:09	21:21	10 07:20 (8)	20:09		18:54		16:47	16:14
11	05:17	06:06	07:08 (8)	07:02		07:57		07:57	08:47
	22:08	21:19	15 07:23 (8)	20:06		18:52		16:46	16:14
12	05:18	06:08	07:05 (8)	07:04		07:59		07:59	08:48
	22:08	21:17	19 07:24 (8)	20:04		18:49		16:44	16:14
13	05:20	06:10	07:04 (8)	07:06	08:18 (7)	08:01		08:01	08:49
	22:07	21:15	21 07:25 (8)	20:01	10 08:28 (7)	18:47		16:42	16:14
14	05:21	06:11	07:03 (8)	07:07	08:15 (7)	08:03		08:03	08:50
	22:05	21:13	23 07:26 (8)	19:59	16 08:31 (7)	18:45		16:41	16:14
15	05:22	06:13	07:02 (8)	07:09	08:13 (7)	08:04		08:05	08:51
	22:04	21:11	24 07:26 (8)	19:56	20 08:33 (7)	18:42		16:39	16:14
16	05:24	06:15	07:01 (8)	07:11	08:12 (7)	08:06		08:07	08:52
	22:03	21:08	26 07:27 (8)	19:54	22 08:34 (7)	18:40		16:37	16:14
17	05:25	06:17	07:01 (8)	07:13	08:09 (7)	08:08		08:09	08:53
	22:02	21:06	26 07:27 (8)	19:51	25 08:34 (7)	18:38		16:36	16:14
18	05:26	06:19	07:01 (8)	07:15	08:09 (7)	08:10		08:11	08:54
	22:01	21:04	27 07:28 (8)	19:49	26 08:35 (7)	18:35		16:34	16:14
19	05:28	06:20	06:59 (8)	07:16	08:08 (7)	08:12		08:13	08:55
	21:59	21:02	28 07:27 (8)	19:46	28 08:36 (7)	18:33		16:33	16:14
20	05:29	06:22	06:59 (8)	07:18	08:07 (7)	08:14		08:15	08:55
	21:58	20:59	28 07:27 (8)	19:44	29 08:36 (7)	18:31		16:32	16:15
21	05:31	06:24	07:00 (8)	07:20	08:07 (7)	08:16		08:16	08:56
	21:57	20:57	27 07:27 (8)	19:41	29 08:36 (7)	18:28		16:30	16:15
22	05:32	06:26	06:59 (8)	07:22	08:06 (7)	08:18		08:18	08:57
	21:55	20:55	27 07:26 (8)	19:39	29 08:35 (7)	18:26		16:29	16:16
23	05:34	06:28	06:59 (8)	07:24	08:05 (7)	08:20		08:20	08:57
	21:54	20:52	27 07:26 (8)	19:36	30 08:35 (7)	18:24		16:28	16:16
24	05:35	06:29	07:00 (8)	07:25	08:06 (7)	08:22		08:22	08:57
	21:52	20:50	25 07:25 (8)	19:34	28 08:34 (7)	18:22		16:26	16:17
25	05:37	06:31	06:59 (8)	07:27	08:06 (7)	07:24		08:24	08:58
	21:51	20:48	25 07:24 (8)	19:31	28 08:34 (7)	17:19		16:25	16:17
26	05:38	06:33	07:01 (8)	07:29	08:06 (7)	07:26		08:25	08:58
	21:49	20:45	22 07:23 (8)	19:29	27 08:33 (7)	17:17		16:24	16:18
27	05:40	06:35	07:03 (8)	07:31	08:06 (7)	07:28		08:27	08:58
	21:47	20:43	19 07:22 (8)	19:26	25 08:31 (7)	17:15		16:23	16:19
28	05:42	06:37	07:05 (8)	07:33	08:07 (7)	07:30		08:29	08:59
	21:46	20:41	15 07:20 (8)	19:24	22 08:29 (7)	17:13		16:22	16:20
29	05:43	06:38	07:06 (8)	07:35	08:08 (7)	07:32		08:30	08:59
	21:44	20:38	11 07:17 (8)	19:21	20 08:28 (7)	17:11		16:21	16:21
30	05:45	06:40		07:36	08:10 (7)	07:34		08:32	08:59
	21:42	20:36		19:19	15 08:25 (7)	17:09		16:20	16:22
31	05:47	06:42				07:36			08:59
	21:41	20:33				17:07			16:23
Potential sun hours	515	461		382		328		257	231
Total, worst case			445		429		9		
Sun reduction			0.27		0.29		0.23		
Oper. time red.			1.00		1.00		1.00		
Wind dir. red.			0.57		0.59		0.59		
Total reduction			0.16		0.17		0.14		
Total, real			69		74		1		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BY - H77

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May			June		
1	08:58			08:27		16:09 (9)	07:29		16:52 (10)	07:12			06:02			05:12		21:16 (13)
	16:24			17:16	25	16:34 (9)	18:13	24	17:16 (10)	20:12			21:09			22:00	9	21:25 (13)
2	08:58			08:25		16:09 (9)	07:26		16:52 (10)	07:10			06:00			05:11		21:15 (13)
	16:25			17:18	26	16:35 (9)	18:15	22	17:14 (10)	20:14			21:11			22:01	11	21:26 (13)
3	08:58			08:24		16:09 (9)	07:24		16:54 (10)	07:07			05:58			05:10		21:15 (13)
	16:26			17:20	26	16:35 (9)	18:17	19	17:13 (10)	20:16			21:12			22:02	12	21:27 (13)
4	08:58			08:22		16:09 (9)	07:21		16:56 (10)	07:05			05:56		20:34 (12)	05:09		21:15 (13)
	16:27			17:22	26	16:35 (9)	18:19	14	17:10 (10)	20:18			21:14	8	20:42 (12)	22:03	13	21:28 (13)
5	08:57			08:20		16:09 (9)	07:19		17:00 (10)	07:03			05:54		20:33 (12)	05:08		21:15 (13)
	16:29			17:24	26	16:35 (9)	18:21	6	17:06 (10)	20:20			21:16	12	20:45 (12)	22:05	14	21:29 (13)
6	08:57			08:18		16:10 (9)	07:17			07:00			05:52		20:31 (12)	05:07		21:14 (13)
	16:30			17:26	25	16:35 (9)	18:23			20:22			21:18	16	20:47 (12)	22:06	16	21:30 (13)
7	08:56			08:16		16:11 (9)	07:14			06:58			05:50		20:30 (12)	05:07		21:15 (13)
	16:31			17:28	23	16:34 (9)	18:25			20:24			21:20	18	20:48 (12)	22:07	16	21:31 (13)
8	08:56			08:14		16:11 (9)	07:12			06:55			05:48		20:29 (12)	05:06		21:14 (13)
	16:33			17:30	23	16:34 (9)	18:26			20:26			21:22	19	20:48 (12)	22:08	17	21:31 (13)
9	08:55			08:12		16:12 (9)	07:09			06:53			05:46		20:28 (12)	05:05		21:15 (13)
	16:34			17:32	20	16:32 (9)	18:28			20:27			21:23	21	20:49 (12)	22:09	17	21:32 (13)
10	08:55			08:10		16:13 (9)	07:07			06:50			05:44		20:27 (12)	05:05		21:14 (13)
	16:36			17:34	18	16:31 (9)	18:30			20:29			21:25	22	20:49 (12)	22:09	18	21:32 (13)
11	08:54			08:08		16:15 (9)	07:05			06:48			05:42		20:27 (12)	05:04		21:14 (13)
	16:37			17:36	15	16:30 (9)	18:32			20:31			21:27	23	20:50 (12)	22:10	19	21:33 (13)
12	08:53			08:06		16:18 (9)	07:02			06:45		19:53 (11)	05:40		20:27 (12)	05:04		21:15 (13)
	16:39			17:38	9	16:27 (9)	18:34			20:33	11	20:04 (11)	21:29	23	20:50 (12)	22:11	18	21:33 (13)
13	08:52			08:04			07:00			06:43		19:50 (11)	05:39		20:26 (12)	05:04		21:15 (13)
	16:40			17:40			18:36			20:35	16	20:06 (11)	21:31	23	20:49 (12)	22:12	19	21:34 (13)
14	08:51			08:02		16:59 (10)	06:57			06:41		19:49 (11)	05:37		20:27 (12)	05:03		21:15 (13)
	16:42			17:42	12	17:11 (10)	18:38			20:37	18	20:07 (11)	21:32	23	20:50 (12)	22:12	18	21:33 (13)
15	08:50			08:00		16:56 (10)	06:55			06:38		19:48 (11)	05:35		20:26 (12)	05:03		21:15 (13)
	16:44			17:45	17	17:13 (10)	18:40			20:39	20	20:08 (11)	21:34	23	20:49 (12)	22:13	19	21:34 (13)
16	08:49			07:58		16:54 (10)	06:52			06:36		19:47 (11)	05:33		20:27 (12)	05:03		21:15 (13)
	16:45			17:47	21	17:15 (10)	18:42			20:41	22	20:09 (11)	21:36	23	20:50 (12)	22:14	19	21:34 (13)
17	08:48			07:56		16:53 (10)	06:50			06:34		19:46 (11)	05:32		20:27 (12)	05:03		21:15 (13)
	16:47			17:49	24	17:17 (10)	18:44			20:42	22	20:08 (11)	21:37	22	20:49 (12)	22:14	19	21:34 (13)
18	08:47			07:54		16:53 (10)	06:47			06:31		19:46 (11)	05:30		20:28 (12)	05:03		21:15 (13)
	16:49			17:51	25	17:18 (10)	18:46			20:44	23	20:09 (11)	21:39	21	20:49 (12)	22:14	19	21:34 (13)
19	08:46			07:51		16:51 (10)	06:45			06:29		19:46 (11)	05:28		20:27 (12)	05:03		21:16 (13)
	16:51			17:53	27	17:18 (10)	18:48			20:46	23	20:09 (11)	21:41	21	20:48 (12)	22:15	19	21:35 (13)
20	08:45			07:49		16:51 (10)	06:42			06:27		19:45 (11)	05:27		20:28 (12)	05:03		21:16 (13)
	16:53			17:55	28	17:19 (10)	18:50			20:48	23	20:08 (11)	21:42	20	20:48 (12)	22:15	19	21:35 (13)
21	08:44			07:47		16:50 (10)	06:40			06:24		19:45 (11)	05:25		20:29 (12)	05:03		21:17 (13)
	16:54			17:57	30	17:20 (10)	18:51			20:50	22	20:07 (11)	21:44	19	20:48 (12)	22:15	19	21:36 (13)
22	08:42			07:45		16:49 (10)	06:37			06:22		19:45 (11)	05:24		20:29 (12)	05:03		21:17 (13)
	16:56			17:59	30	17:19 (10)	18:53			20:52	22	20:07 (11)	21:46	18	20:47 (12)	22:16	19	21:36 (13)
23	08:41		16:15 (9)	07:42		16:50 (10)	06:35			06:20		19:46 (11)	05:22		20:31 (12)	05:03		21:17 (13)
	16:58	8	16:23 (9)	18:01	29	17:19 (10)	18:55			20:54	20	20:06 (11)	21:47	15	20:46 (12)	22:16	19	21:36 (13)
24	08:40		16:13 (9)	07:40		16:50 (10)	06:32			06:17		19:47 (11)	05:21		20:32 (12)	05:04		21:17 (13)
	17:00	13	16:26 (9)	18:03	30	17:20 (10)	18:57			20:56	18	20:05 (11)	21:49	14	20:46 (12)	22:16	18	21:35 (13)
25	08:38		16:12 (9)	07:38		16:49 (10)	06:30			06:15		19:48 (11)	05:20		20:33 (12)	05:04		21:17 (13)
	17:02	16	16:28 (9)	18:05	30	17:19 (10)	18:59			20:58	16	20:04 (11)	21:50	12	20:45 (12)	22:16	19	21:36 (13)
26	08:37		16:10 (9)	07:36		16:50 (10)	06:27			06:13		19:49 (11)	05:18		20:35 (12)	05:05		21:17 (13)
	17:04	19	16:29 (9)	18:07	29	17:19 (10)	19:01			20:59	13	20:02 (11)	21:52	9	20:44 (12)	22:16	19	21:36 (13)
27	08:35		16:10 (9)	07:33		16:50 (10)	06:25			06:11		19:51 (11)	05:17		20:38 (12)	05:05		21:18 (13)
	17:06	21	16:31 (9)	18:09	27	17:17 (10)	19:03			21:01	8	19:59 (11)	21:53	3	20:41 (12)	22:16	19	21:37 (13)
28	08:34		16:10 (9)	07:31		16:51 (10)	06:22			06:09			05:16			05:06		21:18 (13)
	17:08	22	16:32 (9)	18:11	26	17:17 (10)	19:05			21:03			21:55			22:16	18	21:36 (13)
29	08:32		16:09 (9)				07:20			06:06			05:15		21:20 (13)	05:06		21:18 (13)
	17:10	23	16:32 (9)				20:07			21:05			21:56	2	21:22 (13)	22:15	19	21:37 (13)
30	08:31		16:09 (9)				07:17			06:04			05:14		21:18 (13)	05:07		21:18 (13)
	17:12	24	16:33 (9)				20:09			21:07			21:57	5	21:23 (13)	22:15	18	21:36 (13)
31	08:29		16:08 (9)				07:15						05:13		21:17 (13)			
	17:14	25	16:33 (9)				20:10						21:59	7	21:24 (13)			
Potential sun hours	248			272			367			421			496			513		
Total, worst case		171			647			85			297			442			518	
Sun reduction		0.17			0.22			0.22			0.34			0.36			0.26	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.60			0.59			0.58			0.59			0.62			0.63	
Total reduction		0.10			0.13			0.13			0.20			0.22			0.16	
Total, real		17			85			11			60			99			84	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BY - H77

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October		November		December
1	05:07	21:19 (13)	05:48	20:37 (12)	06:44	07:38		07:37	15:42 (9)	08:33
	22:15	18 21:37 (13)	21:39	23 21:00 (12)	20:31	19:16		17:04	19 16:01 (9)	16:19
2	05:08	21:19 (13)	05:50	20:38 (12)	06:45	07:40		07:39	15:41 (9)	08:35
	22:14	18 21:37 (13)	21:37	22 21:00 (12)	20:28	19:14		17:02	21 16:02 (9)	16:18
3	05:09	21:20 (13)	05:52	20:37 (12)	06:47	07:42		07:41	15:40 (9)	08:36
	22:14	18 21:38 (13)	21:35	22 20:59 (12)	20:26	19:11		17:00	22 16:02 (9)	16:18
4	05:10	21:19 (13)	05:53	20:38 (12)	06:49	07:44		07:43	15:40 (9)	08:38
	22:13	18 21:37 (13)	21:33	21 20:59 (12)	20:24	19:09		16:58	24 16:04 (9)	16:17
5	05:11	21:20 (13)	05:55	20:39 (12)	06:51	07:45		07:45	15:40 (9)	08:39
	22:13	17 21:37 (13)	21:31	19 20:58 (12)	20:21	19:06		16:56	24 16:04 (9)	16:16
6	05:12	21:20 (13)	05:57	20:39 (12)	06:53	07:47		07:47	15:39 (9)	08:41
	22:12	16 21:36 (13)	21:29	18 20:57 (12)	20:19	19:04		16:55	26 16:05 (9)	16:16
7	05:13	21:21 (13)	05:59	20:41 (12)	06:54	07:49		07:49	15:39 (9)	08:42
	22:12	15 21:36 (13)	21:27	15 20:56 (12)	20:16	19:01		16:53	26 16:05 (9)	16:15
8	05:14	21:21 (13)	06:00	20:43 (12)	06:56	07:51		07:51	15:39 (9)	08:43
	22:11	14 21:35 (13)	21:25	11 20:54 (12)	20:14	18:59		16:51	26 16:05 (9)	16:15
9	05:15	21:22 (13)	06:02	20:45 (12)	06:58	07:53	17:33 (10)	07:53	15:39 (9)	08:45
	22:10	12 21:34 (13)	21:23	6 20:51 (12)	20:11	18:56	11 17:44 (10)	16:49	25 16:04 (9)	16:14
10	05:16	21:23 (13)	06:04		07:00	07:55	17:30 (10)	07:55	15:40 (9)	08:46
	22:09	11 21:34 (13)	21:21		20:09	18:54	16 17:46 (10)	16:47	25 16:05 (9)	16:14
11	05:17	21:23 (13)	06:06		07:02	07:57	17:27 (10)	07:57	15:40 (9)	08:47
	22:08	10 21:33 (13)	21:19		20:06	18:52	21 17:48 (10)	16:45	25 16:05 (9)	16:14
12	05:18	21:24 (13)	06:08		07:03	07:59	17:26 (10)	07:59	15:40 (9)	08:48
	22:07	8 21:32 (13)	21:17		20:04	18:49	23 17:49 (10)	16:44	25 16:05 (9)	16:14
13	05:19	21:25 (13)	06:09		07:05	08:00	17:24 (10)	08:01	15:41 (9)	08:49
	22:06	6 21:31 (13)	21:15		20:01	18:47	26 17:50 (10)	16:42	23 16:04 (9)	16:14
14	05:21	21:27 (13)	06:11		07:07	08:02	17:23 (10)	08:03	15:42 (9)	08:50
	22:05	4 21:31 (13)	21:13		19:59	18:44	27 17:50 (10)	16:40	21 16:03 (9)	16:13
15	05:22		06:13		07:09	08:04	17:22 (10)	08:05	15:42 (9)	08:51
	22:04		21:10		19:56	18:42	29 17:51 (10)	16:39	21 16:03 (9)	16:13
16	05:23		06:15	19:58 (11)	07:11	08:06	17:22 (10)	08:07	15:43 (9)	08:52
	22:03		21:08	9 20:07 (11)	19:54	18:40	29 17:51 (10)	16:37	19 16:02 (9)	16:14
17	05:25	20:45 (12)	06:17	19:56 (11)	07:13	08:08	17:21 (10)	08:09	15:46 (9)	08:53
	22:02	6 20:51 (12)	21:06	13 20:09 (11)	19:51	18:37	30 17:51 (10)	16:36	16 16:02 (9)	16:14
18	05:26	20:44 (12)	06:18	19:53 (11)	07:14	08:10	17:21 (10)	08:11	15:47 (9)	08:54
	22:01	10 20:54 (12)	21:04	17 20:10 (11)	19:49	18:35	30 17:51 (10)	16:34	13 16:00 (9)	16:14
19	05:28	20:42 (12)	06:20	19:52 (11)	07:16	08:12	17:21 (10)	08:12	15:50 (9)	08:55
	21:59	13 20:55 (12)	21:01	19 20:11 (11)	19:46	18:33	30 17:51 (10)	16:33	8 15:58 (9)	16:14
20	05:29	20:41 (12)	06:22	19:52 (11)	07:18	08:14	17:21 (10)	08:14		08:55
	21:58	15 20:56 (12)	20:59	20 20:12 (11)	19:44	18:30	29 17:50 (10)	16:31		16:15
21	05:30	20:41 (12)	06:24	19:50 (11)	07:20	08:16	17:21 (10)	08:16		08:56
	21:56	16 20:57 (12)	20:57	22 20:12 (11)	19:41	18:28	29 17:50 (10)	16:30		16:15
22	05:32	20:39 (12)	06:26	19:50 (11)	07:22	08:18	17:21 (10)	08:18		08:56
	21:55	19 20:58 (12)	20:55	22 20:12 (11)	19:39	18:26	28 17:49 (10)	16:29		16:15
23	05:34	20:39 (12)	06:27	19:49 (11)	07:23	08:20	17:22 (10)	08:20		08:57
	21:54	20 20:59 (12)	20:52	23 20:12 (11)	19:36	18:24	26 17:48 (10)	16:27		16:16
24	05:35	20:38 (12)	06:29	19:49 (11)	07:25	08:22	17:22 (10)	08:22		08:57
	21:52	21 20:59 (12)	20:50	24 20:13 (11)	19:34	18:21	25 17:47 (10)	16:26		16:17
25	05:37	20:38 (12)	06:31	19:48 (11)	07:27	07:24	16:23 (10)	08:23		08:58
	21:51	21 20:59 (12)	20:48	23 20:11 (11)	19:31	17:19	23 16:46 (10)	16:25		16:17
26	05:38	20:38 (12)	06:33	19:49 (11)	07:29	07:26	16:24 (10)	08:25		08:58
	21:49	22 21:00 (12)	20:45	22 20:11 (11)	19:29	17:17	20 16:44 (10)	16:24		16:18
27	05:40	20:37 (12)	06:35	19:49 (11)	07:31	07:27	16:26 (10)	08:27		08:58
	21:47	23 21:00 (12)	20:43	22 20:11 (11)	19:26	17:15	16 16:42 (10)	16:23		16:19
28	05:42	20:37 (12)	06:36	19:49 (11)	07:32	07:29	16:29 (10)	08:28		08:58
	21:46	23 21:00 (12)	20:40	20 20:09 (11)	19:24	17:13	11 16:40 (10)	16:22		16:19
29	05:43	20:37 (12)	06:38	19:50 (11)	07:34	07:31		08:30		08:58
	21:44	23 21:00 (12)	20:38	18 20:08 (11)	19:21	17:11		16:21		16:20
30	05:45	20:37 (12)	06:40	19:51 (11)	07:36	07:33	15:47 (9)	08:32		08:58
	21:42	23 21:00 (12)	20:36	15 20:06 (11)	19:19	17:09	11 15:58 (9)	16:20		16:21
31	05:47	20:37 (12)	06:42	19:53 (11)		07:35	15:44 (9)			08:58
	21:40	24 21:01 (12)	20:33	11 20:04 (11)		17:06	16 16:00 (9)			16:22
Potential sun hours	515		461		382	328		257		231
Total, worst case		464		457			506		409	
Sun reduction		0.27		0.27			0.23		0.20	
Oper. time red.		1.00		1.00			1.00		1.00	
Wind dir. red.		0.63		0.60			0.58		0.60	
Total reduction		0.17		0.16			0.14		0.12	
Total, real		77		75			69		49	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BZ - H78

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April	May	June
1	08:58			08:27		15:56 (18)	07:29		16:54 (17)	07:12	06:02	05:11
	16:24			17:16	28	16:24 (18)	18:13	29	17:23 (17)	20:12	21:09	22:00
2	08:58			08:25		15:56 (18)	07:26		16:54 (17)	07:10	06:00	05:10
	16:25			17:18	28	16:24 (18)	18:15	28	17:22 (17)	20:14	21:11	22:01
3	08:58			08:24		15:56 (18)	07:24		16:54 (17)	07:07	05:58	05:10
	16:26			17:20	28	16:24 (18)	18:17	28	17:22 (17)	20:16	21:13	22:02
4	08:58			08:22		15:57 (18)	07:21		16:54 (17)	07:05	05:56	05:09
	16:27			17:22	27	16:24 (18)	18:19	27	17:21 (17)	20:18	21:14	22:03
5	08:57			08:20		15:57 (18)	07:19		16:56 (17)	07:02	05:54	05:08
	16:28			17:24	26	16:23 (18)	18:21	24	17:20 (17)	20:20	21:16	22:05
6	08:57			08:18		15:58 (18)	07:17		16:56 (17)	07:00	05:52	05:07
	16:30			17:26	25	16:23 (18)	18:23	22	17:18 (17)	20:22	21:18	22:06
7	08:56			08:16		15:59 (18)	07:14		16:58 (17)	06:58	05:50	05:06
	16:31			17:28	23	16:22 (18)	18:24	19	17:17 (17)	20:24	21:20	22:07
8	08:56			08:14		16:00 (18)	07:12		17:00 (17)	06:55	05:48	05:06
	16:33			17:30	22	16:22 (18)	18:26	14	17:14 (17)	20:25	21:22	22:08
9	08:55			08:12		16:00 (18)	07:09		17:05 (17)	06:53	05:46	05:05
	16:34			17:32	20	16:20 (18)	18:28	4	17:09 (17)	20:27	21:23	22:09
10	08:55			08:10		16:02 (18)	07:07			06:50	05:44	05:05
	16:36			17:34	17	16:19 (18)	18:30			20:29	21:25	22:09
11	08:54			08:08		16:05 (18)	07:05			06:48	05:42	05:04
	16:37			17:36	12	16:17 (18)	18:32			20:31	21:27	22:10
12	08:53			08:06		16:10 (18)	07:02			06:45	05:40	05:04
	16:39			17:38	2	16:12 (18)	18:34			20:33	21:29	22:11
13	08:52			08:04			07:00			06:43	05:38	05:03
	16:40			17:40			18:36			20:35	21:31	22:12
14	08:51			08:02			06:57			06:41	05:37	05:03
	16:42			17:42			18:38			20:37	21:32	22:12
15	08:51			08:00			06:55			06:38	05:35	05:03
	16:44			17:44			18:40			20:39	21:34	22:13
16	08:50			07:58			06:52			06:36	05:33	05:03
	16:45			17:46			18:42			20:41	21:36	22:14
17	08:48			07:56			06:50			06:33	05:32	05:03
	16:47			17:48			18:44			20:42	21:37	22:14
18	08:47			07:54		17:05 (17)	06:47			06:31	05:30	05:03
	16:49			17:51	9	17:14 (17)	18:46			20:44	21:39	22:15
19	08:46			07:51		17:02 (17)	06:45			06:29	05:28	05:03
	16:51			17:53	15	17:17 (17)	18:48			20:46	21:41	22:15
20	08:45		16:03 (18)	07:49		17:00 (17)	06:42			06:26	05:27	05:03
	16:52	7	16:10 (18)	17:55	19	17:19 (17)	18:50			20:48	21:42	22:15
21	08:44		16:01 (18)	07:47		16:59 (17)	06:40			06:24	05:25	05:03
	16:54	11	16:12 (18)	17:57	22	17:21 (17)	18:51			20:50	21:44	22:16
22	08:42		16:00 (18)	07:45		16:57 (17)	06:37			06:22	05:24	05:03
	16:56	15	16:15 (18)	17:59	24	17:21 (17)	18:53			20:52	21:46	22:16
23	08:41		15:58 (18)	07:42		16:56 (17)	06:35			06:20	05:22	05:03
	16:58	18	16:16 (18)	18:01	26	17:22 (17)	18:55			20:54	21:47	22:16
24	08:40		15:58 (18)	07:40		16:56 (17)	06:32			06:17	05:21	05:04
	17:00	20	16:18 (18)	18:03	27	17:23 (17)	18:57			20:56	21:49	22:16
25	08:38		15:57 (18)	07:38		16:54 (17)	06:30			06:15	05:20	05:04
	17:02	22	16:19 (18)	18:05	29	17:23 (17)	18:59			20:58	21:50	22:16
26	08:37		15:56 (18)	07:36		16:54 (17)	06:27			06:13	05:18	05:04
	17:04	23	16:19 (18)	18:07	30	17:24 (17)	19:01			20:59	21:52	22:16
27	08:35		15:57 (18)	07:33		16:53 (17)	06:25			06:11	05:17	05:05
	17:06	24	16:21 (18)	18:09	30	17:23 (17)	19:03			21:01	21:53	22:16
28	08:34		15:56 (18)	07:31		16:54 (17)	06:22			06:08	05:16	05:05
	17:08	26	16:22 (18)	18:11	29	17:23 (17)	19:05			21:03	21:55	22:16
29	08:32		15:56 (18)				07:20			06:06	05:15	05:06
	17:10	26	16:22 (18)				20:07			21:05	21:56	22:15
30	08:31		15:55 (18)				07:17			06:04	05:14	05:07
	17:12	27	16:22 (18)				20:08			21:07	21:57	22:15
31	08:29		15:55 (18)				07:15				05:12	
	17:14	27	16:22 (18)				20:10				21:59	
Potential sun hours	248			272			367			421	496	513
Total, worst case		246			518			195				
Sun reduction		0.17			0.22			0.22				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.61			0.60			0.58				
Total reduction		0.10			0.13			0.13				
Total, real		26			69			25				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: BZ - H78

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October		November		December
1	05:07	05:48	06:44	07:38		07:37		15:31 (18)	08:33
	22:15	21:39	20:31	19:16		17:04	17	15:48 (18)	16:19
2	05:08	05:50	06:45	07:40		07:39		15:30 (18)	08:35
	22:14	21:37	20:28	19:14		17:02	20	15:50 (18)	16:18
3	05:09	05:52	06:47	07:42		07:41		15:28 (18)	08:36
	22:14	21:35	20:26	19:11		17:00	23	15:51 (18)	16:17
4	05:10	05:53	06:49	07:43		07:43		15:28 (18)	08:38
	22:14	21:33	20:23	19:09		16:58	24	15:52 (18)	16:17
5	05:11	05:55	06:51	07:45		17:39 (17)	07:45		15:28 (18)	08:39
	22:13	21:31	20:21	19:06	10	17:49 (17)	16:56	25	15:53 (18)	16:16
6	05:11	05:57	06:53	07:47		17:35 (17)	07:47		15:27 (18)	08:41
	22:12	21:29	20:19	19:04	17	17:52 (17)	16:54	26	15:53 (18)	16:16
7	05:12	05:59	06:54	07:49		17:33 (17)	07:49		15:27 (18)	08:42
	22:12	21:27	20:16	19:01	20	17:53 (17)	16:53	26	15:53 (18)	16:15
8	05:13	06:00	06:56	07:51		17:31 (17)	07:51		15:26 (18)	08:43
	22:11	21:25	20:14	18:59	24	17:55 (17)	16:51	27	15:53 (18)	16:15
9	05:15	06:02	06:58	07:53		17:30 (17)	07:53		15:26 (18)	08:45
	22:10	21:23	20:11	18:56	25	17:55 (17)	16:49	28	15:54 (18)	16:14
10	05:16	06:04	07:00	07:55		17:29 (17)	07:55		15:27 (18)	08:46
	22:09	21:21	20:09	18:54	27	17:56 (17)	16:47	27	15:54 (18)	16:14
11	05:17	06:06	07:02	07:57		17:28 (17)	07:57		15:27 (18)	08:47
	22:08	21:19	20:06	18:51	28	17:56 (17)	16:45	27	15:54 (18)	16:14
12	05:18	06:07	07:03	07:58		17:28 (17)	07:59		15:27 (18)	08:48
	22:07	21:17	20:04	18:49	29	17:57 (17)	16:44	27	15:54 (18)	16:13
13	05:19	06:09	07:05	08:00		17:27 (17)	08:01		15:28 (18)	08:49
	22:06	21:15	20:01	18:47	30	17:57 (17)	16:42	26	15:54 (18)	16:13
14	05:21	06:11	07:07	08:02		17:27 (17)	08:03		15:28 (18)	08:50
	22:05	21:13	19:59	18:44	29	17:56 (17)	16:40	25	15:53 (18)	16:13
15	05:22	06:13	07:09	08:04		17:27 (17)	08:05		15:29 (18)	08:51
	22:04	21:10	19:56	18:42	29	17:56 (17)	16:39	24	15:53 (18)	16:13
16	05:23	06:15	07:11	08:06		17:27 (17)	08:07		15:29 (18)	08:52
	22:03	21:08	19:54	18:40	29	17:56 (17)	16:37	23	15:52 (18)	16:13
17	05:25	06:16	07:12	08:08		17:27 (17)	08:09		15:31 (18)	08:53
	22:02	21:06	19:51	18:37	28	17:55 (17)	16:36	22	15:53 (18)	16:14
18	05:26	06:18	07:14	08:10		17:27 (17)	08:11		15:32 (18)	08:54
	22:01	21:04	19:49	18:35	27	17:54 (17)	16:34	20	15:52 (18)	16:14
19	05:27	06:20	07:16	08:12		17:28 (17)	08:12		15:33 (18)	08:55
	21:59	21:01	19:46	18:33	25	17:53 (17)	16:33	18	15:51 (18)	16:14
20	05:29	06:22	07:18	08:14		17:28 (17)	08:14		15:35 (18)	08:55
	21:58	20:59	19:44	18:30	24	17:52 (17)	16:31	15	15:50 (18)	16:14
21	05:30	06:24	07:20	08:16		17:29 (17)	08:16		15:37 (18)	08:56
	21:57	20:57	19:41	18:28	22	17:51 (17)	16:30	11	15:48 (18)	16:15
22	05:32	06:25	07:21	08:18		17:31 (17)	08:18		15:39 (18)	08:56
	21:55	20:55	19:39	18:26	18	17:49 (17)	16:29	7	15:46 (18)	16:15
23	05:33	06:27	07:23	08:20		17:33 (17)	08:20			08:57
	21:54	20:52	19:36	18:24	13	17:46 (17)	16:27			16:16
24	05:35	06:29	07:25	08:22		17:36 (17)	08:22			08:57
	21:52	20:50	19:33	18:21	6	17:42 (17)	16:26			16:16
25	05:36	06:31	07:27	07:24			08:23			08:58
	21:51	20:48	19:31	17:19			16:25			08:17
26	05:38	06:33	07:29	07:26			08:25			08:58
	21:49	20:45	19:28	17:17			16:24			16:18
27	05:40	06:35	07:31	07:27			08:27			08:58
	21:47	20:43	19:26	17:15			16:23			16:18
28	05:41	06:36	07:32	07:29			08:29			08:58
	21:46	20:40	19:23	17:13			16:22			16:19
29	05:43	06:38	07:34	07:31			08:30			08:58
	21:44	20:38	19:21	17:10			16:21			16:20
30	05:45	06:40	07:36	07:33		15:37 (18)	08:32			08:59
	21:42	20:36	19:18	17:08	6	15:43 (18)	16:20			16:21
31	05:46	06:42		07:35		15:34 (18)				08:58
	21:40	20:33		17:06	13	15:47 (18)				16:22
Potential sun hours	515	461	383	327			257			230
Total, worst case					479			488		
Sun reduction					0.23			0.20		
Oper. time red.					1.00			1.00		
Wind dir. red.					0.58			0.61		
Total reduction					0.14			0.12		
Total, real					66			59		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CA - H79

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02		05:11		20:27 (18)	05:07	20:32 (18)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09		22:00	31	20:58 (18)	22:15	32	21:04 (18)	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00		05:11		20:27 (18)	05:08	20:33 (18)	05:50	06:45	07:40	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11		22:01	31	20:58 (18)	22:14	31	21:04 (18)	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58		05:10		20:26 (18)	05:09	20:33 (18)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12		22:02	32	20:58 (18)	22:14	32	21:05 (18)	21:35	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56		05:09		20:26 (18)	05:10	20:32 (18)	05:53	06:49	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14		22:03	32	20:58 (18)	22:13	32	21:04 (18)	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54		05:08		20:27 (18)	05:11	20:33 (18)	05:55	06:51	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16		22:05	32	20:59 (18)	22:13	31	21:04 (18)	21:31	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52		05:07		20:27 (18)	05:12	20:33 (18)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18		22:06	31	20:58 (18)	22:12	32	21:05 (18)	21:29	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50		05:07		20:27 (18)	05:13	20:33 (18)	05:59	06:54	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20		22:07	32	20:59 (18)	22:12	32	21:05 (18)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48		05:06		20:27 (18)	05:14	20:34 (18)	06:00	06:56	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22		22:08	32	20:59 (18)	22:11	31	21:05 (18)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46		05:05		20:28 (18)	05:15	20:34 (18)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23		22:09	31	20:59 (18)	22:10	31	21:05 (18)	21:23	20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44		05:05		20:27 (18)	05:16	20:34 (18)	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25		22:09	32	20:59 (18)	22:09	31	21:05 (18)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42		05:04		20:28 (18)	05:17	20:34 (18)	06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27		22:10	32	21:00 (18)	22:08	31	21:05 (18)	21:19	20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40		05:04		20:29 (18)	05:18	20:34 (18)	06:07	07:03	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29		22:11	31	21:00 (18)	22:07	31	21:05 (18)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38		05:04		20:28 (18)	05:19	20:34 (18)	06:09	07:05	08:00	08:01	08:49
	16:40	17:40	18:36	20:35	21:31		22:12	31	20:59 (18)	22:06	31	21:05 (18)	21:15	20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37		05:03		20:28 (18)	05:21	20:36 (18)	06:11	07:07	08:02	08:03	08:50
	16:42	17:42	18:38	20:37	21:32		22:12	32	21:00 (18)	22:05	30	21:06 (18)	21:12	19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35		05:03		20:29 (18)	05:22	20:36 (18)	06:13	07:09	08:04	08:05	08:51
	16:44	17:44	18:40	20:39	21:34		22:13	31	21:00 (18)	22:04	29	21:05 (18)	21:10	19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33		05:03		20:29 (18)	05:23	20:36 (18)	06:15	07:11	08:06	08:07	08:52
	16:45	17:46	18:42	20:41	21:36		22:14	31	21:00 (18)	22:03	29	21:05 (18)	21:08	19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32	20:36 (18)	05:03		20:29 (18)	05:25	20:36 (18)	06:16	07:12	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	9 20:45 (18)	22:14	32	21:01 (18)	22:02	28	21:04 (18)	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:34 (18)	05:03		20:30 (18)	05:26	20:37 (18)	06:18	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	14 20:48 (18)	22:14	31	21:01 (18)	22:01	28	21:05 (18)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28	20:32 (18)	05:03		20:30 (18)	05:27	20:38 (18)	06:20	07:16	08:12	08:12	08:55
	16:51	17:53	18:48	20:46	21:41	17 20:49 (18)	22:15	31	21:01 (18)	21:59	26	21:04 (18)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27	20:31 (18)	05:03		20:30 (18)	05:29	20:38 (18)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	20 20:51 (18)	22:15	31	21:01 (18)	21:58	25	21:03 (18)	20:59	19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25	20:30 (18)	05:03		20:30 (18)	05:30	20:39 (18)	06:24	07:20	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44	22 20:52 (18)	22:15	31	21:01 (18)	21:56	24	21:03 (18)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:29 (18)	05:03		20:31 (18)	05:32	20:40 (18)	06:25	07:21	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	23 20:52 (18)	22:16	31	21:02 (18)	21:55	22	21:02 (18)	20:55	19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22	20:28 (18)	05:03		20:31 (18)	05:33	20:40 (18)	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	25 20:53 (18)	22:16	31	21:02 (18)	21:54	21	21:01 (18)	20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21	20:28 (18)	05:04		20:31 (18)	05:35	20:42 (18)	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	26 20:54 (18)	22:16	31	21:02 (18)	21:52	18	21:00 (18)	20:50	19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20	20:28 (18)	05:04		20:31 (18)	05:37	20:43 (18)	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	27 20:55 (18)	22:16	32	21:03 (18)	21:50	16	20:59 (18)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18	20:28 (18)	05:04		20:31 (18)	05:38	20:45 (18)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	28 20:56 (18)	22:16	32	21:03 (18)	21:49	12	20:57 (18)	20:45	19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:27 (18)	05:05		20:32 (18)	05:40	20:47 (18)	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	28 20:55 (18)	22:16	31	21:03 (18)	21:47	7	20:54 (18)	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16	20:26 (18)	05:05		20:32 (18)	05:41			06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55	30 20:56 (18)	22:16	31	21:03 (18)	21:46			20:40	19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15	20:26 (18)	05:06		20:32 (18)	05:43			06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	30 20:56 (18)	22:15	32	21:04 (18)	21:44			20:38	19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14	20:26 (18)	05:07		20:32 (18)	05:45			06:40	07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57	30 20:56 (18)	22:15	31	21:03 (18)	21:42			20:36	19:18	17:08	16:20	16:21
31	08:29		07:15		05:13	20:27 (18)				05:46			06:42		07:35		08:58
	17:14		20:10		21:59	31 20:58 (18)				21:40			20:33		17:06		16:22
Potential sun hours	248	272	367	421	496		513			515		461	383	327	257	230	
Total, worst case						360		942		723							
Sun reduction						0.36		0.26		0.27							
Oper. time red.						1.00		1.00		1.00							
Wind dir. red.						0.62		0.62		0.62							
Total reduction						0.23		0.16		0.17							
Total, real						81		152		120							

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CB - H80

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April		May		June		
1	08:59	08:27		07:29		07:13		07:37 (13)	06:02	06:28 (15)	05:12	05:43 (14)
	16:24	17:16		18:13		20:12	4	07:41 (13)	21:09	16 06:44 (15)	22:00	9 05:52 (14)
2	08:58	08:26		07:26		07:10		07:34 (13)	06:00	06:26 (15)	05:11	05:42 (14)
	16:25	17:18		18:15		20:14	6	07:40 (13)	21:11	18 06:44 (15)	22:01	11 05:53 (14)
3	08:58	08:24		07:24		07:08		07:32 (13)	05:58	06:24 (15)	05:10	05:41 (14)
	16:26	17:20		18:17		20:16	9	07:41 (13)	21:13	19 06:43 (15)	22:02	12 05:53 (14)
4	08:58	08:22		07:22		07:05		07:29 (13)	05:56	06:25 (15)	05:09	05:41 (14)
	16:27	17:22		18:19		20:18	11	07:40 (13)	21:15	18 06:43 (15)	22:04	14 05:55 (14)
5	08:58	08:20		07:19		07:03		07:27 (13)	05:54	06:26 (15)	05:08	05:40 (14)
	16:29	17:24		18:21		20:20	13	07:40 (13)	21:16	16 06:42 (15)	22:05	15 05:55 (14)
6	08:57	08:18		07:17		07:00		07:24 (13)	05:52	06:27 (15)	05:07	05:39 (14)
	16:30	17:26		18:23		20:22	15	07:39 (13)	21:18	14 06:41 (15)	22:06	16 05:55 (14)
7	08:57	08:16		07:14	07:39 (12)	06:58		07:22 (13)	05:50	06:28 (15)	05:07	05:39 (14)
	16:31	17:28		18:25	2 07:41 (12)	20:24	17	07:39 (13)	21:20	11 06:39 (15)	22:07	17 05:56 (14)
8	08:56	08:14		07:12	07:37 (12)	06:55		07:19 (13)	05:48	06:31 (15)	05:06	05:38 (14)
	16:33	17:30		18:27	4 07:41 (12)	20:26	18	07:37 (13)	21:22	4 06:35 (15)	22:08	18 05:56 (14)
9	08:55	08:13		07:10	07:34 (12)	06:53		07:19 (13)	05:46		05:06	05:38 (14)
	16:34	17:32		18:29	7 07:41 (12)	20:28	17	07:36 (13)	21:24		22:09	19 05:57 (14)
10	08:55	08:11		07:07	07:32 (12)	06:50		07:21 (13)	05:44		05:05	05:38 (14)
	16:36	17:34		18:31	9 07:41 (12)	20:29	13	07:34 (13)	21:25		22:10	19 05:57 (14)
11	08:54	08:09		07:05	07:29 (12)	06:48		07:22 (13)	05:42		05:05	05:37 (14)
	16:37	17:36		18:32	10 07:39 (12)	20:31	9	07:31 (13)	21:27		22:10	20 05:57 (14)
12	08:53	08:06		07:02	07:27 (12)	06:46			05:40		05:04	05:37 (14)
	16:39	17:39		18:34	12 07:39 (12)	20:33			21:29		22:11	21 05:58 (14)
13	08:52	08:04		07:00	07:24 (12)	06:43			05:39		05:04	05:37 (14)
	16:41	17:41		18:36	13 07:37 (12)	20:35			21:31		22:12	21 05:58 (14)
14	08:52	08:02		06:57	07:25 (12)	06:41			05:37		05:03	05:37 (14)
	16:42	17:43		18:38	10 07:35 (12)	20:37			21:32		22:13	22 05:59 (14)
15	08:51	08:00		06:55		06:38			05:35		05:03	05:36 (14)
	16:44	17:45		18:40		20:39			21:34		22:13	22 05:58 (14)
16	08:50	07:58		06:52		06:36			05:33		05:03	05:36 (14)
	16:46	17:47		18:42		20:41			21:36		22:14	23 05:59 (14)
17	08:49	07:56		06:50		06:34			05:32		05:03	05:36 (14)
	16:47	17:49		18:44		20:43			21:38		22:14	23 05:59 (14)
18	08:48	07:54	08:20 (11)	06:47		06:31		06:56 (16)	05:30		05:03	05:36 (14)
	16:49	17:51	1 08:21 (11)	18:46		20:45	2	06:58 (16)	21:39		22:15	23 05:59 (14)
19	08:46	07:52	08:17 (11)	06:45		06:29		06:54 (16)	05:29		05:03	05:36 (14)
	16:51	17:53	4 08:21 (11)	18:48		20:46	4	06:58 (16)	21:41		22:15	23 05:59 (14)
20	08:45	07:49	08:15 (11)	06:42		06:27		06:52 (16)	05:27		05:03	05:37 (14)
	16:53	17:55	6 08:21 (11)	18:50		20:48	5	06:57 (16)	21:43		22:15	23 06:00 (14)
21	08:44	07:47	08:13 (11)	06:40		06:24		06:49 (16)	05:25		05:03	05:37 (14)
	16:55	17:57	8 08:21 (11)	18:52		20:50	7	06:56 (16)	21:44		22:16	23 06:00 (14)
22	08:43	07:45	08:10 (11)	06:37		06:22		06:47 (16)	05:24		05:03	05:37 (14)
	16:56	17:59	10 08:20 (11)	18:54		20:52	8	06:55 (16)	21:46		22:16	23 06:00 (14)
23	08:41	07:43	08:08 (11)	06:35		06:20		06:45 (16)	05:23		05:04	05:37 (14)
	16:58	18:01	11 08:19 (11)	18:55		20:54	9	06:54 (16)	21:47		22:16	23 06:00 (14)
24	08:40	07:40	08:06 (11)	06:32		06:18		06:43 (15)	05:21		05:04	05:38 (14)
	17:00	18:03	12 08:18 (11)	18:57		20:56	9	06:52 (16)	21:49		22:16	23 06:01 (14)
25	08:38	07:38	08:05 (11)	06:30		06:15		06:41 (15)	05:20		05:04	05:38 (14)
	17:02	18:05	11 08:16 (11)	18:59		20:58	4	06:45 (15)	21:50		22:16	23 06:01 (14)
26	08:37	07:36	08:09 (11)	06:27		06:13		06:39 (15)	05:19		05:05	05:38 (14)
	17:04	18:07	3 08:12 (11)	19:01		21:00	6	06:45 (15)	21:52		22:16	23 06:01 (14)
27	08:35	07:33		06:25		06:11		06:37 (15)	05:17		05:05	05:39 (14)
	17:06	18:09		19:03		21:01	9	06:46 (15)	21:53		22:16	22 06:01 (14)
28	08:34	07:31		06:23		06:09		06:34 (15)	05:16	05:47 (14)	05:06	05:39 (14)
	17:08	18:11		19:05		21:03	11	06:45 (15)	21:55	1 05:48 (14)	22:16	22 06:01 (14)
29	08:32			07:20		06:07		06:32 (15)	05:15	05:46 (14)	05:06	05:40 (14)
	17:10			20:07		21:05	13	06:45 (15)	21:56	4 05:50 (14)	22:16	22 06:02 (14)
30	08:31			07:18		06:04		06:30 (15)	05:14	05:45 (14)	05:07	05:41 (14)
	17:12			20:09		21:07	15	06:45 (15)	21:57	6 05:51 (14)	22:15	21 06:02 (14)
31	08:29			07:15					05:13	05:44 (14)		
	17:14			20:11					21:59	8 05:52 (14)		
Potential sun hours	248	272		367		421			496		513	
Total, worst case			66		67		234			135		596
Sun reduction			0.22		0.22		0.34			0.36		0.26
Oper. time red.			1.00		1.00		1.00			1.00		1.00
Wind dir. red.			0.62		0.59		0.58			0.58		0.58
Total reduction			0.14		0.13		0.20			0.21		0.15
Total, real			9		9		47			28		90

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CB - H80

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November	December
1	05:08		05:41 (14)	05:48			06:44		07:21 (13)	07:38		08:05 (12)	07:38	08:34
	22:15	20	06:01 (14)	21:39			20:31	9	07:30 (13)	19:16	12	08:17 (12)	17:05	16:19
2	05:08		05:42 (14)	05:50			06:46		07:18 (13)	07:40		08:07 (12)	07:40	08:35
	22:15	20	06:02 (14)	21:37			20:29	14	07:32 (13)	19:14	11	08:18 (12)	17:02	16:18
3	05:09		05:43 (14)	05:52			06:47		07:17 (13)	07:42		08:09 (12)	07:42	08:37
	22:14	19	06:02 (14)	21:35			20:26	17	07:34 (13)	19:11	10	08:19 (12)	17:00	16:18
4	05:10		05:44 (14)	05:54			06:49		07:17 (13)	07:44		08:10 (12)	07:43	08:38
	22:14	18	06:02 (14)	21:33			20:24	18	07:35 (13)	19:09	8	08:18 (12)	16:59	16:17
5	05:11		05:44 (14)	05:55		06:40 (15)	06:51		07:18 (13)	07:46		08:12 (12)	07:45	08:40
	22:13	17	06:01 (14)	21:31	7	06:47 (15)	20:21	17	07:35 (13)	19:06	6	08:18 (12)	16:57	16:16
6	05:12		05:45 (14)	05:57		06:37 (15)	06:53		07:20 (13)	07:47		08:14 (12)	07:47	08:41
	22:12	16	06:01 (14)	21:29	12	06:49 (15)	20:19	15	07:35 (13)	19:04	3	08:17 (12)	16:55	16:16
7	05:13		05:46 (14)	05:59		06:36 (15)	06:55		07:22 (13)	07:49		08:16 (12)	07:49	08:42
	22:12	15	06:01 (14)	21:27	15	06:51 (15)	20:16	13	07:35 (13)	19:01	1	08:17 (12)	16:53	16:15
8	05:14		05:47 (14)	06:01		06:35 (15)	06:56		07:24 (13)	07:51			07:51	08:44
	22:11	14	06:01 (14)	21:25	17	06:52 (15)	20:14	11	07:35 (13)	18:59			16:51	16:15
9	05:15		05:48 (14)	06:02		06:34 (15)	06:58		07:25 (13)	07:53			07:53	08:45
	22:10	13	06:01 (14)	21:23	18	06:52 (15)	20:11	9	07:34 (13)	18:57			16:49	16:15
10	05:16		05:49 (14)	06:04		06:34 (15)	07:00		07:27 (13)	07:55			07:55	08:46
	22:09	12	06:01 (14)	21:21	19	06:53 (15)	20:09	7	07:34 (13)	18:54			16:47	16:14
11	05:17		05:50 (14)	06:06		06:36 (15)	07:02		07:29 (13)	07:57			07:57	08:47
	22:08	10	06:00 (14)	21:19	18	06:54 (15)	20:06	4	07:33 (13)	18:52			16:46	16:14
12	05:18		05:51 (14)	06:08		06:37 (15)	07:04		07:31 (13)	07:59			07:59	08:48
	22:08	9	06:00 (14)	21:17	16	06:53 (15)	20:04	1	07:32 (13)	18:49			16:44	16:14
13	05:20		05:53 (14)	06:09		06:39 (15)	07:05			08:01			08:01	08:49
	22:07	7	06:00 (14)	21:15	14	06:53 (15)	20:01			18:47			16:42	16:14
14	05:21		05:54 (14)	06:11		06:41 (15)	07:07			08:02			08:03	08:50
	22:05	5	05:59 (14)	21:13	12	06:53 (15)	19:59			18:45			16:40	16:14
15	05:22		05:55 (14)	06:13		06:42 (15)	07:09			08:04			08:05	08:51
	22:04	2	05:57 (14)	21:11	10	06:52 (15)	19:56			18:42			16:39	16:14
16	05:23			06:15		06:44 (15)	07:11			08:06		08:39 (11)	08:07	08:52
	22:03			21:08	8	06:52 (15)	19:54			18:40	7	08:46 (11)	16:37	16:14
17	05:25			06:17		06:46 (15)	07:13			08:08		08:36 (11)	08:09	08:53
	22:02			21:06	6	06:52 (15)	19:51			18:37	13	08:49 (11)	16:36	16:14
18	05:26			06:18		06:47 (15)	07:14			08:10		08:38 (11)	08:11	08:54
	22:01			21:04	3	06:50 (15)	19:49			18:35	12	08:50 (11)	16:34	16:14
19	05:28			06:20		06:50 (16)	07:16			08:12		08:40 (11)	08:13	08:55
	21:59			21:02	8	06:58 (16)	19:46			18:33	11	08:51 (11)	16:33	16:14
20	05:29			06:22		06:51 (16)	07:18			08:14		08:42 (11)	08:15	08:55
	21:58			20:59	9	07:00 (16)	19:44			18:31	9	08:51 (11)	16:31	16:15
21	05:31			06:24		06:53 (16)	07:20			08:16		08:44 (11)	08:16	08:56
	21:57			20:57	8	07:01 (16)	19:41			18:28	7	08:51 (11)	16:30	16:15
22	05:32			06:26		06:54 (16)	07:22			08:18		08:46 (11)	08:18	08:57
	21:55			20:55	7	07:01 (16)	19:39			18:26	5	08:51 (11)	16:29	16:15
23	05:34			06:27		06:56 (16)	07:24			08:20		08:48 (11)	08:20	08:57
	21:54			20:52	5	07:01 (16)	19:36			18:24	3	08:51 (11)	16:27	16:16
24	05:35			06:29		06:58 (16)	07:25			08:22			08:22	08:57
	21:52			20:50	3	07:01 (16)	19:34			18:22			16:26	16:17
25	05:37			06:31		06:59 (16)	07:27			07:24			08:24	08:58
	21:51			20:48	1	07:00 (16)	19:31			17:19			16:25	16:17
26	05:38			06:33			07:29			07:26			08:25	08:58
	21:49			20:45			19:29			17:17			16:24	16:18
27	05:40			06:35			07:31			07:28			08:27	08:58
	21:47			20:43			19:26			17:15			16:23	16:19
28	05:42			06:37			07:33			07:30			08:29	08:59
	21:46			20:41			19:24			17:13			16:22	16:20
29	05:43			06:38			07:34		08:06 (12)	07:32			08:30	08:59
	21:44			20:38			19:21	7	08:13 (12)	17:11			16:21	16:20
30	05:45			06:40			07:36		08:04 (12)	07:34			08:32	08:59
	21:42			20:36			19:19	12	08:16 (12)	17:09			16:20	16:21
31	05:47			06:42						07:36				08:59
	21:41			20:33						17:07				16:22
Potential sun hours	515			461			383			328			257	231
Total, worst case		197			216			154			118			
Sun reduction		0.27			0.27			0.29			0.23			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.58			0.58			0.58			0.61			
Total reduction		0.16			0.16			0.17			0.14			
Total, real		31			34			26			17			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CC - H81

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:59	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:38	08:34
	16:24	17:16	18:13	20:13	21:09	22:00	22:15	21:39	20:31 11	07:23 (8) 19:16 22	08:34 (7) 17:05	16:19
2	08:58	08:26	07:26	07:10	06:00	05:11	05:08	05:50	06:46	07:40	08:14 (7) 07:40	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:15	21:37	20:29 3	07:17 (8) 19:14 18	08:32 (7) 17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	08:16 (7) 07:42	08:37
	16:26	17:20	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11 14	08:30 (7) 17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	08:19 (7) 07:44	08:38
	16:28	17:22	18:19	20:18	21:15	22:04	22:14	21:33	20:24	19:09 5	08:24 (7) 16:59	16:17
5	08:58	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:46	07:46	08:40
	16:29	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55	16:16
7	08:57	08:16	07:15	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	16:15
8	08:56	08:15	07:12	06:55	05:48	05:06	05:14	06:01	06:57	07:51	07:51	08:44
	16:33	17:30	18:27	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:13	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:28	21:24	22:09	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:11	07:07 07:39 (7)	06:51 07:16 (8)	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31 11	07:50 (7) 20:30 4	07:20 (8) 21:25	22:10	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:09	07:05	07:36 (7) 06:48	07:12 (8) 05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:37	17:37	18:33 16	07:52 (7) 20:31 11	07:23 (8) 21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:07	07:02	07:34 (7) 06:46	07:10 (8) 05:41	05:04	05:18	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34 20	07:54 (7) 20:33 15	07:25 (8) 21:29	22:11	22:08	21:17	20:04	18:49	16:44	16:14
13	08:53	08:04	07:00	07:32 (7) 06:43	07:08 (8) 05:39	05:04	05:20	06:10	07:06	08:01	08:01	08:49
	16:41	17:41	18:36 23	07:55 (7) 20:35 19	07:27 (8) 21:31	22:12	22:07	21:15	20:01	18:47	16:42	16:14
14	08:52	08:02	06:57	07:31 (7) 06:41	07:05 (8) 05:37	05:04	05:21	06:11 07:15 (8)	07:07	08:03	08:03	08:50
	16:42	17:43	18:38 25	07:56 (7) 20:37 22	07:27 (8) 21:33	22:13	22:05	21:13 11	07:26 (8) 19:59	18:45	16:41	16:14
15	08:51	08:00	06:55	07:29 (7) 06:39	07:04 (8) 05:35	05:03	05:22	06:13	07:12 (8) 07:09	08:04	08:05	08:51
	16:44	17:45	18:40 27	07:56 (7) 20:39 24	07:28 (8) 21:34	22:13	22:04	21:11 16	07:28 (8) 19:56	18:42	16:39	16:14
16	08:50	07:58	06:52	07:29 (7) 06:36	07:03 (8) 05:34	05:03	05:24	06:15	07:11 (8) 07:11	08:24 (7) 08:06	08:07	08:52
	16:46	17:47	18:42 28	07:57 (7) 20:41 26	07:29 (8) 21:36	22:14	22:03	21:08 19	07:30 (8) 19:54 8	08:32 (7) 18:40	16:37	16:14
17	08:49	07:56	06:50	07:28 (7) 06:34	07:02 (8) 05:32	05:03	05:25	06:17	07:10 (8) 07:13	08:20 (7) 08:08	08:09	08:53
	16:47	17:49	18:44 28	07:56 (7) 20:43 26	07:28 (8) 21:38	22:14	22:02	21:06 21	07:31 (8) 19:51 15	08:35 (7) 18:38	16:36	16:14
18	08:48	07:54	06:47	07:28 (7) 06:31	07:01 (8) 05:30	05:03	05:26	06:19	07:09 (8) 07:15	08:18 (7) 08:10	08:11	08:54
	16:49	17:51	18:46 29	07:57 (7) 20:45 28	07:29 (8) 21:39	22:15	22:01	21:04 23	07:32 (8) 19:49 19	08:37 (7) 18:35	16:34	16:14
19	08:46	07:52	06:45	07:27 (7) 06:29	07:01 (8) 05:29	05:03	05:28	06:20	07:07 (8) 07:16	08:16 (7) 08:12	08:13	08:55
	16:51	17:53	18:48 29	07:56 (7) 20:46 28	07:29 (8) 21:41	22:15	21:59	21:02 25	07:32 (8) 19:46 22	08:38 (7) 18:33	16:33	16:14
20	08:45	07:49	06:43	07:28 (7) 06:27	07:01 (8) 05:27	05:03	05:29	06:22	07:07 (8) 07:18	08:15 (7) 08:14	08:15	08:55
	16:53	17:55	18:50 28	07:56 (7) 20:48 28	07:29 (8) 21:43	22:15	21:58	20:59 26	07:33 (8) 19:44 24	08:39 (7) 18:31	16:32	16:15
21	08:44	07:47	06:40	07:27 (7) 06:24	07:00 (8) 05:26	05:03	05:31	06:24	07:06 (8) 07:20	08:14 (7) 08:16	08:16	08:56
	16:55	17:57	18:52 28	07:55 (7) 20:50 28	07:28 (8) 21:44	22:16	21:57	20:57 27	07:33 (8) 19:41 26	08:40 (7) 18:28	16:30	16:15
22	08:43	07:45	06:38	07:28 (7) 06:22	07:01 (8) 05:24	05:03	05:32	06:26	07:05 (8) 07:22	08:12 (7) 08:18	08:18	08:57
	16:57	17:59	18:54 26	07:54 (7) 20:52 26	07:27 (8) 21:46	22:16	21:55	20:55 27	07:32 (8) 19:39 27	08:39 (7) 18:26	16:29	16:16
23	08:41	07:43	06:35	07:28 (7) 06:20	07:01 (8) 05:23	05:04	05:34	06:28	07:05 (8) 07:24	08:11 (7) 08:20	08:20	08:57
	16:58	18:01	18:56 25	07:53 (7) 20:54 26	07:27 (8) 21:47	22:16	21:54	20:52 28	07:33 (8) 19:36 29	08:40 (7) 18:24	16:28	16:16
24	08:40	07:40	06:33	07:29 (7) 06:18	07:02 (8) 05:21	05:04	05:35	06:29	07:05 (8) 07:25	08:11 (7) 08:22	08:22	08:57
	17:00	18:03	18:57 23	07:52 (7) 20:56 24	07:26 (8) 21:49	22:16	21:52	20:50 28	07:33 (8) 19:34 29	08:40 (7) 18:22	16:26	16:17
25	08:38	07:38	06:30	07:30 (7) 06:15	07:02 (8) 05:20	05:04	05:37	06:31	07:04 (8) 07:27	08:11 (7) 07:24	08:24	08:58
	17:02	18:05	18:59 20	07:50 (7) 20:58 23	07:25 (8) 21:50	22:16	21:51	20:48 27	07:31 (8) 19:31 29	08:40 (7) 17:19	16:25	16:17
26	08:37	07:36	06:28	07:32 (7) 06:13	07:03 (8) 05:19	05:05	05:38	06:33	07:04 (8) 07:29	08:11 (7) 07:26	08:25	08:58
	17:04	18:07	19:01 16	07:48 (7) 21:00 21	07:24 (8) 21:52	22:16	21:49	20:45 27	07:31 (8) 19:29 28	08:39 (7) 17:17	16:24	16:18
27	08:35	07:34	06:25	07:34 (7) 06:11	07:05 (8) 05:17	05:05	05:40	06:35	07:05 (8) 07:31	08:10 (7) 07:28	08:27	08:58
	17:06	18:09	19:03 10	07:44 (7) 21:02 18	07:23 (8) 21:53	22:16	21:47	20:43 26	07:31 (8) 19:26 28	08:38 (7) 17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	07:06 (8) 05:16	05:06	05:42	06:37	07:06 (8) 07:33	08:10 (7) 07:30	08:29	08:59
	17:08	18:11	19:05	21:03 15	07:21 (8) 21:55	22:16	21:46	20:41 24	07:30 (8) 19:24 27	08:37 (7) 17:13	16:22	16:20
29	08:32		07:20	06:07	07:08 (8) 05:15	05:06	05:43	06:38	07:06 (8) 07:35	08:10 (7) 07:32	08:30	08:59
	17:10		20:07	21:05 9	07:17 (8) 21:56	22:16	21:44	20:38 22	07:28 (8) 19:21 26	08:36 (7) 17:11	16:21	16:21
30	08:31		07:18	06:04	05:14	05:07	05:45	06:40	07:08 (8) 07:36	08:11 (7) 07:34	08:32	08:59
	17:12		20:09	21:07	21:57	22:15	21:42	20:36 19	07:27 (8) 19:19 24	08:35 (7) 17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42	07:10 (8)	07:36		08:59
	17:14		20:11		21:59		21:41	20:33 15	07:25 (8)	17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case			412	421				411	375	59		
Sun reduction			0.22	0.34				0.27	0.29	0.23		
Oper. time red.			1.00	1.00				1.00	1.00	1.00		
Wind dir. red.			0.59	0.57				0.57	0.59	0.59		
Total reduction			0.13	0.19				0.16	0.17	0.14		
Total, real			55	82				64	65	8		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CD - H82

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02		05:11		20:29 (18)	05:07	20:34 (18)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09		22:00	30	20:59 (18)	22:15	31	21:05 (18)	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00		05:11		20:28 (18)	05:08	20:34 (18)	05:50	06:45	07:40	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11		22:01	31	20:59 (18)	22:14	31	21:05 (18)	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:07	05:58		05:10		20:28 (18)	05:09	20:35 (18)	05:52	06:47	07:42	07:41	07:41	08:36
	16:26	17:20	18:17	20:16	21:12		22:02	31	20:59 (18)	22:14	31	21:06 (18)	21:35	20:26	19:11	17:00	16:17
4	08:58	08:22	07:21	07:05	05:56		05:09		20:28 (18)	05:10	20:34 (18)	05:53	06:49	07:43	07:43	07:43	08:38
	16:27	17:22	18:19	20:18	21:14		22:03	31	20:59 (18)	22:13	31	21:05 (18)	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:02	05:54		05:08		20:29 (18)	05:11	20:34 (18)	05:55	06:51	07:45	07:45	07:45	08:39
	16:28	17:24	18:21	20:20	21:16		22:05	31	21:00 (18)	22:13	32	21:06 (18)	21:31	20:21	19:06	16:56	16:16
6	08:57	08:18	07:17	07:00	05:52		05:07		20:28 (18)	05:12	20:35 (18)	05:57	06:53	07:47	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18		22:06	31	20:59 (18)	22:12	31	21:06 (18)	21:29	20:19	19:04	16:54	16:16
7	08:56	08:16	07:14	06:58	05:50		05:07		20:29 (18)	05:13	20:35 (18)	05:59	06:54	07:49	07:49	07:49	08:42
	16:31	17:28	18:24	20:24	21:20		22:07	31	21:00 (18)	22:12	31	21:06 (18)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48		05:06		20:29 (18)	05:14	20:35 (18)	06:00	06:56	07:51	07:51	07:51	08:43
	16:33	17:30	18:26	20:25	21:22		22:08	31	21:00 (18)	22:11	31	21:06 (18)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46		05:05		20:29 (18)	05:15	20:36 (18)	06:02	06:58	07:53	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23		22:09	32	21:01 (18)	22:10	30	21:06 (18)	21:23	20:11	18:56	16:49	16:14
10	08:55	08:10	07:07	06:50	05:44		05:05		20:29 (18)	05:16	20:36 (18)	06:04	07:00	07:55	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25		22:09	31	21:00 (18)	22:09	30	21:06 (18)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:04	06:48	05:42		05:04		20:30 (18)	05:17	20:36 (18)	06:06	07:02	07:57	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27		22:10	31	21:01 (18)	22:08	30	21:06 (18)	21:19	20:06	18:51	16:45	16:14
12	08:53	08:06	07:02	06:45	05:40		05:04		20:30 (18)	05:18	20:36 (18)	06:07	07:03	07:58	07:59	07:59	08:48
	16:39	17:38	18:34	20:33	21:29		22:11	31	21:01 (18)	22:07	30	21:06 (18)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:38		05:04		20:30 (18)	05:19	20:36 (18)	06:09	07:05	08:00	08:01	08:01	08:49
	16:40	17:40	18:36	20:35	21:31		22:12	31	21:01 (18)	22:06	30	21:06 (18)	21:15	20:01	18:47	16:42	16:13
14	08:51	08:02	06:57	06:41	05:37		05:03		20:30 (18)	05:21	20:37 (18)	06:11	07:07	08:02	08:03	08:03	08:50
	16:42	17:42	18:38	20:37	21:32		22:12	31	21:01 (18)	22:05	30	21:07 (18)	21:12	19:59	18:44	16:40	16:13
15	08:50	08:00	06:55	06:38	05:35		05:03		20:30 (18)	05:22	20:38 (18)	06:13	07:09	08:04	08:05	08:05	08:51
	16:44	17:44	18:40	20:39	21:34		22:13	31	21:01 (18)	22:04	28	21:06 (18)	21:10	19:56	18:42	16:39	16:13
16	08:49	07:58	06:52	06:36	05:33		05:03		20:31 (18)	05:23	20:38 (18)	06:15	07:11	08:06	08:07	08:07	08:52
	16:45	17:46	18:42	20:41	21:36		22:14	31	21:02 (18)	22:03	28	21:06 (18)	21:08	19:54	18:40	16:37	16:13
17	08:48	07:56	06:50	06:33	05:32		05:03		20:31 (18)	05:25	20:38 (18)	06:16	07:12	08:08	08:09	08:09	08:53
	16:47	17:49	18:44	20:42	21:37		22:14	31	21:02 (18)	22:02	27	21:05 (18)	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30		20:37 (18)	05:03	20:31 (18)	05:26	20:39 (18)	06:18	07:14	08:10	08:11	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	10	20:47 (18)	22:14	31	21:02 (18)	22:01	27	21:06 (18)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:28		20:34 (18)	05:03	20:31 (18)	05:27	20:40 (18)	06:20	07:16	08:12	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	15	20:49 (18)	22:15	31	21:02 (18)	21:59	25	21:05 (18)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:26	05:27		20:33 (18)	05:03	20:31 (18)	05:29	20:40 (18)	06:22	07:18	08:14	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	18	20:51 (18)	22:15	31	21:02 (18)	21:58	24	21:04 (18)	20:59	19:44	18:30	16:31	16:14
21	08:44	07:47	06:40	06:24	05:25		20:33 (18)	05:03	20:31 (18)	05:30	20:41 (18)	06:24	07:20	08:16	08:16	08:16	08:56
	16:54	17:57	18:51	20:50	21:44	19	20:52 (18)	22:15	31	21:02 (18)	21:56	23	21:04 (18)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24		20:31 (18)	05:03	20:32 (18)	05:32	20:42 (18)	06:25	07:21	08:18	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:46	22	20:53 (18)	22:16	31	21:03 (18)	21:55	21	21:03 (18)	20:55	19:39	18:26	16:29	16:15
23	08:41	07:42	06:35	06:20	05:22		20:31 (18)	05:03	20:32 (18)	05:33	20:42 (18)	06:27	07:23	08:20	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	23	20:54 (18)	22:16	31	21:03 (18)	21:54	19	21:01 (18)	20:52	19:36	18:24	16:27	16:16
24	08:40	07:40	06:32	06:17	05:21		20:30 (18)	05:04	20:32 (18)	05:35	20:44 (18)	06:29	07:25	08:22	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	25	20:55 (18)	22:16	31	21:03 (18)	21:52	17	21:01 (18)	20:50	19:33	18:21	16:26	16:16
25	08:38	07:38	06:30	06:15	05:20		20:30 (18)	05:04	20:33 (18)	05:37	20:46 (18)	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	26	20:56 (18)	22:16	31	21:04 (18)	21:50	13	20:59 (18)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:18		20:30 (18)	05:04	20:33 (18)	05:38	20:49 (18)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	26	20:56 (18)	22:16	31	21:04 (18)	21:49	8	20:57 (18)	20:45	19:28	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17		20:28 (18)	05:05	20:34 (18)	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	28	20:56 (18)	22:16	30	21:04 (18)	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:08	05:16		20:28 (18)	05:05	20:33 (18)	05:41	06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:55	29	20:57 (18)	22:16	31	21:04 (18)	21:46	20:40	19:23	17:13	16:22	16:19
29	08:32		07:20	06:06	05:15		20:28 (18)	05:06	20:34 (18)	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	29	20:57 (18)	22:15	31	21:05 (18)	21:44	20:38	19:21	17:11	16:21	16:20
30	08:30		07:17	06:04	05:14		20:28 (18)	05:07	20:33 (18)	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:08	21:07	21:57	29	20:57 (18)	22:15	31	21:04 (18)	21:42	20:36	19:18	17:08	16:20	16:21
31	08:29		07:15		05:13		20:29 (18)				05:46	06:42		07:35		08:58
	17:14		20:10		21:59	30	20:59 (18)				21:40	20:33		17:06		16:22
Potential sun hours	248	272	367	421	496		513		515		461	383	327	257	230
Total, worst case						329		929		689					
Sun reduction						0.36		0.26		0.27					
Oper. time red.						1.00		1.00		1.00					
Wind dir. red.						0.63		0.63		0.63					
Total reduction						0.23		0.16		0.17					
Total, real						74		150		115					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CE - H83

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:49	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:43	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:39	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:18	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CF - H84

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April	May	June
1	08:59		08:27		09:10 (7)		07:29	07:58 (8)	07:13	06:02	05:12
	16:24		17:16	26	09:36 (7)		18:13	26	08:24 (8)	20:13	21:09	22:00
2	08:58		08:26		09:10 (7)		07:26	07:56 (8)	07:10	06:00	05:11
	16:25		17:18	26	09:36 (7)		18:15	28	08:24 (8)	20:14	21:11	22:01
3	08:58		08:24		09:10 (7)		07:24	07:56 (8)	07:08	05:58	05:10
	16:26		17:20	27	09:37 (7)		18:17	28	08:24 (8)	20:16	21:13	22:03
4	08:58		08:22		09:11 (7)		07:22	07:55 (8)	07:05	05:56	05:09
	16:28		17:22	26	09:37 (7)		18:19	29	08:24 (8)	20:18	21:15	22:04
5	08:58		08:20		09:11 (7)		07:19	07:56 (8)	07:03	05:54	05:08
	16:29		17:24	25	09:36 (7)		18:21	28	08:24 (8)	20:20	21:16	22:05
6	08:57		08:18		09:12 (7)		07:17	07:56 (8)	07:00	05:52	05:08
	16:30		17:26	24	09:36 (7)		18:23	28	08:24 (8)	20:22	21:18	22:06
7	08:57		08:16		09:12 (7)		07:15	07:55 (8)	06:58	05:50	05:07
	16:32		17:28	24	09:36 (7)		18:25	28	08:23 (8)	20:24	21:20	22:07
8	08:56		08:15		09:13 (7)		07:12	07:56 (8)	06:55	05:48	05:06
	16:33		17:30	22	09:35 (7)		18:27	27	08:23 (8)	20:26	21:22	22:08
9	08:56		08:13		09:14 (7)		07:10	07:56 (8)	06:53	05:46	05:06
	16:34		17:32	21	09:35 (7)		18:29	26	08:22 (8)	20:28	21:24	22:09
10	08:55		08:11		09:15 (7)		07:07	07:57 (8)	06:51	05:44	05:05
	16:36		17:35	19	09:34 (7)		18:31	24	08:21 (8)	20:30	21:25	22:10
11	08:54		08:09		09:16 (7)		07:05	07:58 (8)	06:48	05:42	05:05
	16:37		17:37	15	09:31 (7)		18:33	21	08:19 (8)	20:31	21:27	22:10
12	08:53		08:07		09:19 (7)		07:02	08:00 (8)	06:46	05:41	05:04
	16:39		17:39	10	09:29 (7)		18:34	17	08:17 (8)	20:33	21:29	22:11
13	08:53		08:04				07:00	08:01 (8)	06:43	05:39	05:04
	16:41		17:41				18:36	13	08:14 (8)	20:35	21:31	22:12
14	08:52		08:02				06:57		06:41	05:37	05:04
	16:42		17:43				18:38			20:37	21:33	22:13
15	08:51		08:00				06:55			06:39	05:35	05:03
	16:44		17:45				18:40			20:39	21:34	22:13
16	08:50		07:58				06:52			06:36	05:34	05:03
	16:46		17:47				18:42			20:41	21:36	22:14
17	08:49		07:56				06:50			06:34	05:32	05:03
	16:47		17:49				18:44			20:43	21:38	22:14
18	08:48		07:54				06:47			06:31	05:30	05:03
	16:49		17:51				18:46			20:45	21:39	22:15
19	08:46		07:52				06:45			06:29	05:29	05:03
	16:51		17:53				18:48			20:46	21:41	22:15
20	08:45		07:49				06:43			06:27	05:27	05:03
	16:53		17:55				18:50			20:48	21:43	22:15
21	08:44		07:47				06:40			06:24	05:26	05:03
	16:55		17:57				18:52			20:50	21:44	22:16
22	08:43		07:45				06:38			06:22	05:24	05:03
	16:57		17:59				18:54			20:52	21:46	22:16
23	08:41		09:16 (7)		07:43			06:35		06:20	05:23	05:04
	16:58	10	09:26 (7)		18:01			18:56		20:54	21:47	22:16
24	08:40		09:15 (7)		07:40		08:07 (8)	06:33		06:18	05:21	05:04
	17:00	13	09:28 (7)		18:03	10	08:17 (8)	18:57		20:56	21:49	22:16
25	08:38		09:13 (7)		07:38		08:03 (8)	06:30		06:15	05:20	05:04
	17:02	17	09:30 (7)		18:05	16	08:19 (8)	18:59		20:58	21:50	22:16
26	08:37		09:13 (7)		07:36		08:01 (8)	06:28		06:13	05:19	05:05
	17:04	19	09:32 (7)		18:07	20	08:21 (8)	19:01		21:00	21:52	22:16
27	08:36		09:12 (7)		07:34		08:00 (8)	06:25		06:11	05:17	05:05
	17:06	21	09:33 (7)		18:09	23	08:23 (8)	19:03		21:02	21:53	22:16
28	08:34		09:11 (7)		07:31		07:58 (8)	06:23		06:09	05:16	05:06
	17:08	22	09:33 (7)		18:11	25	08:23 (8)	19:05		21:03	21:55	22:16
29	08:32		09:10 (7)					07:20		06:07	05:15	05:06
	17:10	24	09:34 (7)					20:07		21:05	21:56	22:16
30	08:31		09:11 (7)					07:18		06:04	05:14	05:07
	17:12	24	09:35 (7)					20:09		21:07	21:57	22:15
31	08:29		09:11 (7)					07:15			05:13	
	17:14	25	09:36 (7)					20:11			21:59	
Potential sun hours	248			272			367		421	496	513
Total, worst case		175			359			323				
Sun reduction		0.17			0.22			0.22				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.65			0.64			0.61				
Total reduction		0.11			0.14			0.14				
Total, real		19			51			44				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CF - H84

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September			October			November			December
1	05:08	05:48	06:44			07:38		08:39 (8)	07:38		08:44 (7)	08:34
	22:15	21:39	20:31			19:16	16	08:55 (8)	17:05	18	09:02 (7)	16:19
2	05:08	05:50	06:46			07:40		08:37 (8)	07:40		08:44 (7)	08:35
	22:15	21:37	20:29			19:14	20	08:57 (8)	17:03	20	09:04 (7)	16:19
3	05:09	05:52	06:47			07:42		08:36 (8)	07:42		08:43 (7)	08:37
	22:14	21:35	20:26			19:11	22	08:58 (8)	17:01	22	09:05 (7)	16:18
4	05:10	05:54	06:49			07:44		08:34 (8)	07:44		08:42 (7)	08:38
	22:14	21:33	20:24			19:09	24	08:58 (8)	16:59	24	09:06 (7)	16:17
5	05:11	05:55	06:51			07:46		08:33 (8)	07:46		08:41 (7)	08:40
	22:13	21:31	20:21			19:06	26	08:59 (8)	16:57	25	09:06 (7)	16:16
6	05:12	05:57	06:53			07:47		08:32 (8)	07:47		08:41 (7)	08:41
	22:12	21:29	20:19			19:04	27	08:59 (8)	16:55	25	09:06 (7)	16:16
7	05:13	05:59	06:55			07:49		08:31 (8)	07:49		08:40 (7)	08:42
	22:12	21:27	20:16			19:01	28	08:59 (8)	16:53	26	09:06 (7)	16:15
8	05:14	06:01	06:57			07:51		08:31 (8)	07:51		08:41 (7)	08:44
	22:11	21:25	20:14			18:59	28	08:59 (8)	16:51	26	09:07 (7)	16:15
9	05:15	06:02	06:58			07:53		08:30 (8)	07:53		08:41 (7)	08:45
	22:10	21:23	20:11			18:57	29	08:59 (8)	16:49	26	09:07 (7)	16:15
10	05:16	06:04	07:00			07:55		08:30 (8)	07:55		08:41 (7)	08:46
	22:09	21:21	20:09			18:54	29	08:59 (8)	16:47	26	09:07 (7)	16:14
11	05:17	06:06	07:02			07:57		08:30 (8)	07:57		08:42 (7)	08:47
	22:09	21:19	20:06			18:52	28	08:58 (8)	16:46	25	09:07 (7)	16:14
12	05:18	06:08	07:04			07:59		08:31 (8)	07:59		08:42 (7)	08:48
	22:08	21:17	20:04			18:49	27	08:58 (8)	16:44	24	09:06 (7)	16:14
13	05:20	06:10	07:06			08:01		08:31 (8)	08:01		08:42 (7)	08:49
	22:07	21:15	20:01			18:47	26	08:57 (8)	16:42	24	09:06 (7)	16:14
14	05:21	06:11	07:07			08:03		08:32 (8)	08:03		08:43 (7)	08:51
	22:05	21:13	19:59			18:45	24	08:56 (8)	16:41	22	09:05 (7)	16:14
15	05:22	06:13	07:09			08:04		08:33 (8)	08:05		08:45 (7)	08:51
	22:04	21:11	19:56			18:42	21	08:54 (8)	16:39	21	09:06 (7)	16:14
16	05:24	06:15	07:11			08:06		08:34 (8)	08:07		08:46 (7)	08:52
	22:03	21:08	19:54			18:40	18	08:52 (8)	16:37	19	09:05 (7)	16:14
17	05:25	06:17	07:13			08:08		08:36 (8)	08:09		08:47 (7)	08:53
	22:02	21:06	19:51			18:38	14	08:50 (8)	16:36	17	09:04 (7)	16:14
18	05:26	06:19	07:15			08:10		08:40 (8)	08:11		08:49 (7)	08:54
	22:01	21:04	19:49			18:35	6	08:46 (8)	16:34	13	09:02 (7)	16:14
19	05:28	06:20	07:16			08:12			08:13		08:51 (7)	08:55
	21:59	21:02	19:46			18:33			16:33	10	09:01 (7)	16:14
20	05:29	06:22	07:18			08:14			08:15		08:55 (7)	08:55
	21:58	20:59	19:44			18:31			16:32	1	08:56 (7)	16:15
21	05:31	06:24	07:20			08:16			08:16			08:56
	21:57	20:57	19:41			18:28			16:30			16:15
22	05:32	06:26	07:22			08:18			08:18			08:57
	21:55	20:55	19:39			18:26			16:29			16:16
23	05:34	06:28	07:24			08:20			08:20			08:57
	21:54	20:52	19:36			18:24			16:28			16:16
24	05:35	06:29	07:25			08:22			08:22			08:57
	21:52	20:50	19:34			18:22			16:26			16:17
25	05:37	06:31	07:27			07:24			08:24			08:58
	21:51	20:48	19:31			17:19			16:25			16:17
26	05:38	06:33	07:29			07:26			08:25			08:58
	21:49	20:45	19:29			17:17			16:24			16:18
27	05:40	06:35	07:31			07:28			08:27			08:58
	21:48	20:43	19:26			17:15			16:23			16:19
28	05:42	06:37	07:33			07:30			08:29			08:59
	21:46	20:41	19:24			17:13			16:22			16:20
29	05:43	06:38	07:35			07:32			08:30			08:59
	21:44	20:38	19:21			17:11			16:21			16:21
30	05:45	06:40	07:36		08:43 (8)	07:34		08:48 (7)	08:32			08:59
	21:42	20:36	19:19	9	08:52 (8)	17:09	11	08:59 (7)	16:20			16:22
31	05:47	06:42				07:36		08:45 (7)				08:59
	21:41	20:33				17:07	16	09:01 (7)				16:23
Potential sun hours	515	461	382			328			257			231
Total, worst case				9			440			414		
Sun reduction				0.29			0.23			0.20		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.61			0.62			0.65		
Total reduction				0.18			0.14			0.13		
Total, real				2			64			54		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CG - H85

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May	June	July	August		September		October		November	December
1	08:59	08:27	07:29		07:13		06:02	05:12	05:08	05:48		06:44	07:12 (8)	07:38	08:14 (7)	07:38	08:34
	16:24	17:16	18:13		20:13		21:09	22:00	22:15	21:39		20:31	20 07:32 (8)	19:16	26 08:40 (7)	17:05	16:19
2	08:58	08:26	07:26		07:10		06:00	05:11	05:08	05:50		06:46	07:13 (8)	07:40	08:15 (7)	07:40	08:35
	16:25	17:18	18:15		20:14		21:11	22:01	22:15	21:37		20:29	17 07:30 (8)	19:14	24 08:39 (7)	17:03	16:19
3	08:58	08:24	07:24		07:08		05:58	05:10	05:09	05:52		06:47	07:15 (8)	07:42	08:16 (7)	07:42	08:37
	16:26	17:20	18:17		20:16		21:13	22:02	22:14	21:35		20:26	13 07:28 (8)	19:11	22 08:38 (7)	17:01	16:18
4	08:58	08:22	07:22		07:05		05:56	05:09	05:10	05:54		06:49	07:17 (8)	07:44	08:16 (7)	07:44	08:38
	16:28	17:22	18:19		20:18		21:15	22:04	22:14	21:33		20:24	8 07:25 (8)	19:09	19 08:35 (7)	16:59	16:17
5	08:58	08:20	07:19		07:03		05:54	05:08	05:11	05:55		06:51		07:46	08:18 (7)	07:46	08:40
	16:29	17:24	18:21		20:20		21:16	22:05	22:13	21:31		20:21		19:06	15 08:33 (7)	16:57	16:17
6	08:57	08:18	07:17		07:00		05:52	05:08	05:12	05:57		06:53		07:47	08:22 (7)	07:47	08:41
	16:30	17:26	18:23		20:22		21:18	22:06	22:12	21:29		20:19		19:04	7 08:29 (7)	16:55	16:16
7	08:57	08:16	07:15		06:58		05:50	05:07	05:13	05:59		06:55		07:49		07:49	08:42
	16:32	17:28	18:25		20:24		21:20	22:07	22:12	21:27		20:16		19:01		16:53	16:15
8	08:56	08:15	07:12	07:44 (7)	06:55	07:20 (8)	05:48	05:06	05:14	06:01		06:57		07:51		07:51	08:44
	16:33	17:30	18:27	11 07:55 (7)	20:26	8 07:28 (8)	21:22	22:08	22:11	21:25		20:14		18:59		16:51	16:15
9	08:55	08:13	07:10	07:40 (7)	06:53	07:17 (8)	05:46	05:06	05:15	06:02		06:58		07:53		07:53	08:45
	16:34	17:32	18:29	17 07:57 (7)	20:28	13 07:30 (8)	21:24	22:09	22:10	21:23		20:11		18:57		16:49	16:15
10	08:55	08:11	07:07	07:39 (7)	06:51	07:15 (8)	05:44	05:05	05:16	06:04		07:00		07:55		07:55	08:46
	16:36	17:35	18:31	20 07:59 (7)	20:30	17 07:32 (8)	21:25	22:10	22:09	21:21		20:09		18:54		16:47	16:14
11	08:54	08:09	07:05	07:37 (7)	06:48	07:12 (8)	05:42	05:05	05:17	06:06		07:02		07:57		07:57	08:47
	16:37	17:37	18:33	23 08:00 (7)	20:31	20 07:32 (8)	21:27	22:10	22:09	21:19		20:06		18:52		16:46	16:14
12	08:53	08:07	07:02	07:36 (7)	06:46	07:10 (8)	05:41	05:04	05:18	06:08		07:04		07:59		07:59	08:48
	16:39	17:39	18:34	25 08:01 (7)	20:33	24 07:34 (8)	21:29	22:11	22:08	21:17		20:04		18:49		16:44	16:14
13	08:53	08:04	07:00	07:34 (7)	06:43	07:09 (8)	05:39	05:04	05:20	06:10		07:06		08:01		08:01	08:49
	16:41	17:41	18:36	27 08:01 (7)	20:35	25 07:34 (8)	21:31	22:12	22:07	21:15		20:01		18:47		16:42	16:14
14	08:52	08:02	06:57	07:34 (7)	06:41	07:08 (8)	05:37	05:04	05:21	06:11		07:07		08:03		08:03	08:50
	16:42	17:43	18:38	28 08:02 (7)	20:37	26 07:34 (8)	21:33	22:13	22:05	21:13		19:59		18:45		16:41	16:14
15	08:51	08:00	06:55	07:33 (7)	06:39	07:08 (8)	05:35	05:03	05:22	06:13		07:09		08:04		08:05	08:51
	16:44	17:45	18:40	28 08:01 (7)	20:39	26 07:34 (8)	21:34	22:13	22:04	21:11		19:56		18:42		16:39	16:14
16	08:50	07:58	06:52	07:33 (7)	06:36	07:07 (8)	05:34	05:03	05:24	06:15		07:11		08:06		08:07	08:52
	16:46	17:47	18:42	28 08:01 (7)	20:41	28 07:35 (8)	21:36	22:14	22:03	21:08		19:54		18:40		16:37	16:14
17	08:49	07:56	06:50	07:32 (7)	06:34	07:06 (8)	05:32	05:03	05:25	06:17	07:20 (8)	07:13		08:08		08:09	08:53
	16:47	17:49	18:44	29 08:01 (7)	20:43	28 07:34 (8)	21:38	22:14	22:02	21:06	11 07:31 (8)	19:51		18:38		16:36	16:14
18	08:48	07:54	06:47	07:33 (7)	06:31	07:06 (8)	05:30	05:03	05:26	06:19	07:18 (8)	07:15		08:10		08:11	08:54
	16:49	17:51	18:46	28 08:01 (7)	20:45	28 07:34 (8)	21:39	22:15	22:01	21:04	15 07:33 (8)	19:49		18:35		16:34	16:14
19	08:46	07:52	06:45	07:32 (7)	06:29	07:07 (8)	05:29	05:03	05:28	06:20	07:15 (8)	07:16	08:25 (7)	08:12		08:13	08:55
	16:51	17:53	18:48	27 07:59 (7)	20:46	26 07:33 (8)	21:41	22:15	21:59	21:02	19 07:34 (8)	19:46	12 08:37 (7)	18:33		16:33	16:14
20	08:45	07:49	06:43	07:33 (7)	06:27	07:07 (8)	05:27	05:03	05:29	06:22	07:14 (8)	07:18	08:22 (7)	08:14		08:15	08:55
	16:53	17:55	18:50	26 07:59 (7)	20:48	26 07:33 (8)	21:43	22:15	21:58	20:59	21 07:35 (8)	19:44	18 08:40 (7)	18:31		16:32	16:15
21	08:44	07:47	06:40	07:33 (7)	06:24	07:07 (8)	05:26	05:03	05:31	06:24	07:13 (8)	07:20	08:21 (7)	08:16		08:16	08:56
	16:55	17:57	18:52	24 07:57 (7)	20:50	24 07:31 (8)	21:44	22:16	21:57	20:57	23 07:36 (8)	19:41	20 08:41 (7)	18:28		16:30	16:15
22	08:43	07:45	06:38	07:35 (7)	06:22	07:08 (8)	05:24	05:03	05:32	06:26	07:11 (8)	07:22	08:18 (7)	08:18		08:18	08:57
	16:57	17:59	18:54	21 07:56 (7)	20:52	22 07:30 (8)	21:46	22:16	21:55	20:55	25 07:36 (8)	19:39	24 08:42 (7)	18:26		16:29	16:16
23	08:41	07:43	06:35	07:35 (7)	06:20	07:08 (8)	05:23	05:04	05:34	06:28	07:11 (8)	07:24	08:17 (7)	08:20		08:20	08:57
	16:58	18:01	18:56	19 07:54 (7)	20:54	21 07:29 (8)	21:47	22:16	21:54	20:52	26 07:37 (8)	19:36	25 08:42 (7)	18:24		16:28	16:16
24	08:40	07:40	06:33	07:38 (7)	06:18	07:10 (8)	05:21	05:04	05:35	06:29	07:10 (8)	07:25	08:16 (7)	08:22		08:22	08:57
	17:00	18:03	18:57	14 07:52 (7)	20:56	18 07:28 (8)	21:49	22:16	21:52	20:50	27 07:37 (8)	19:34	27 08:43 (7)	18:22		16:26	16:17
25	08:38	07:38	06:30	07:41 (7)	06:15	07:11 (8)	05:20	05:04	05:37	06:31	07:09 (8)	07:27	08:16 (7)	07:24		08:24	08:58
	17:02	18:05	18:59	6 07:47 (7)	20:58	15 07:26 (8)	21:50	22:16	21:51	20:48	27 07:36 (8)	19:31	27 08:43 (7)	17:19		16:25	16:17
26	08:37	07:36	06:28		06:13	07:14 (8)	05:19	05:05	05:38	06:33	07:09 (8)	07:29	08:15 (7)	07:26		08:25	08:58
	17:04	18:07	19:01		21:00	9 07:23 (8)	21:52	22:16	21:49	20:45	28 07:37 (8)	19:29	28 08:43 (7)	17:17		16:24	16:18
27	08:35	07:34	06:25		06:11		05:17	05:05	05:40	06:35	07:09 (8)	07:31	08:14 (7)	07:28		08:27	08:58
	17:06	18:09	19:03		21:02		21:53	22:16	21:47	20:43	27 07:36 (8)	19:26	28 08:42 (7)	17:15		16:23	16:19
28	08:34	07:31	06:23		06:09		05:16	05:06	05:42	06:37	07:09 (8)	07:33	08:14 (7)	07:30		08:29	08:59
	17:08	18:11	19:05		21:03		21:55	22:16	21:46	20:41	27 07:36 (8)	19:24	28 08:42 (7)	17:13		16:22	16:20
29	08:32		07:20		06:07		05:15	05:06	05:43	06:38	07:09 (8)	07:35	08:14 (7)	07:32		08:30	08:59
	17:10		20:07		21:05		21:56	22:16	21:44	20:38	26 07:35 (8)	19:21	28 08:42 (7)	17:11		16:21	16:21
30	08:31		07:18		06:04		05:14	05:07	05:45	06:40	07:09 (8)	07:36	08:14 (7)	07:34		08:32	08:59
	17:12		20:09		21:07		21:57	22:15	21:42	20:36	25 07:34 (8)	19:19	27 08:41 (7)	17:09		16:20	16:22
31	08:29		07:15				05:13		05:47	06:42	07:10 (8)			07:36			08:59
	17:14		20:11				21:59		21:41	20:33	23 07:33 (8)			17:07			16:23
Potential sun hours	248	272	367		421		496	513	515	461		382		328		257	231
Total, worst case				401		404					350		350		113		
Sun reduction				0.22		0.34					0.27		0.29		0.23		
Oper. time red.				1.00		1.00					1.00		1.00		1.00		
Wind dir. red.				0.60		0.57					0.57		0.59		0.60		
Total reduction				0.13		0.20					0.16		0.17		0.14		
Total, real				54		79					55		61		16		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CH - H87

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April			May			June		
1	08:58	08:27	07:29	07:12			06:02		19:57 (18)	05:11		20:49 (17)
	16:24	17:16	18:13	20:12			21:09	22	20:19 (18)	22:00	22	21:11 (17)
2	08:58	08:25	07:26	07:10			06:00		19:56 (18)	05:11		20:49 (17)
	16:25	17:18	18:15	20:14			21:11	24	20:20 (18)	22:01	23	21:12 (17)
3	08:58	08:24	07:24	07:07			05:58		19:55 (18)	05:10		20:48 (17)
	16:26	17:20	18:17	20:16			21:12	26	20:21 (18)	22:02	24	21:12 (17)
4	08:58	08:22	07:21	07:05			05:56		19:54 (18)	05:09		20:48 (17)
	16:27	17:22	18:19	20:18			21:14	27	20:21 (18)	22:03	24	21:12 (17)
5	08:57	08:20	07:19	07:02			05:54		19:53 (18)	05:08		20:49 (17)
	16:28	17:24	18:21	20:20			21:16	28	20:21 (18)	22:05	24	21:13 (17)
6	08:57	08:18	07:17	07:00			05:52		19:54 (18)	05:07		20:48 (17)
	16:30	17:26	18:23	20:22			21:18	28	20:22 (18)	22:06	25	21:13 (17)
7	08:56	08:16	07:14	06:58			05:50		19:53 (18)	05:06		20:49 (17)
	16:31	17:28	18:24	20:24			21:20	29	20:22 (18)	22:07	25	21:14 (17)
8	08:56	08:14	07:12	06:55			05:48		19:53 (18)	05:06		20:48 (17)
	16:33	17:30	18:26	20:25			21:22	29	20:22 (18)	22:08	25	21:13 (17)
9	08:55	08:12	07:09	06:53			05:46		19:52 (18)	05:05		20:49 (17)
	16:34	17:32	18:28	20:27			21:23	30	20:22 (18)	22:09	25	21:14 (17)
10	08:55	08:10	07:07	06:50			05:44		19:52 (18)	05:05		20:48 (17)
	16:36	17:34	18:30	20:29			21:25	30	20:22 (18)	22:09	26	21:14 (17)
11	08:54	08:08	07:04	06:48			05:42		19:53 (18)	05:04		20:49 (17)
	16:37	17:36	18:32	20:31			21:27	29	20:22 (18)	22:10	25	21:14 (17)
12	08:53	08:06	07:02	06:45			05:40		19:53 (18)	05:04		20:49 (17)
	16:39	17:38	18:34	20:33			21:29	29	20:22 (18)	22:11	26	21:15 (17)
13	08:52	08:04	07:00	06:43			05:38		19:53 (18)	05:04		20:49 (17)
	16:40	17:40	18:36	20:35			21:31	28	20:21 (18)	22:12	25	21:14 (17)
14	08:51	08:02	06:57	06:41			05:37		19:54 (18)	05:03		20:49 (17)
	16:42	17:42	18:38	20:37			21:32	27	20:21 (18)	22:12	26	21:15 (17)
15	08:50	08:00	06:55	06:38			05:35		19:54 (18)	05:03		20:49 (17)
	16:44	17:44	18:40	20:39			21:34	26	20:20 (18)	22:13	26	21:15 (17)
16	08:49	07:58	06:52	06:36			05:33		19:55 (18)	05:03		20:50 (17)
	16:45	17:46	18:42	20:41			21:36	25	20:20 (18)	22:14	26	21:16 (17)
17	08:48	07:56	06:50	06:33			05:32		19:55 (18)	05:03		20:50 (17)
	16:47	17:49	18:44	20:42			21:37	24	20:19 (18)	22:14	26	21:16 (17)
18	08:47	07:54	06:47	06:31			05:30		19:56 (18)	05:03		20:50 (17)
	16:49	17:51	18:46	20:44			21:39	23	20:19 (18)	22:14	26	21:16 (17)
19	08:46	07:51	06:45	06:29			05:28		19:57 (18)	05:03		20:50 (17)
	16:51	17:53	18:48	20:46			21:41	21	20:18 (18)	22:15	26	21:16 (17)
20	08:45	07:49	06:42	06:26			05:27		19:58 (18)	05:03		20:50 (17)
	16:53	17:55	18:50	20:48			21:42	19	20:17 (18)	22:15	26	21:16 (17)
21	08:44	07:47	06:40	06:24			05:25		20:00 (18)	05:03		20:50 (17)
	16:54	17:57	18:51	20:50			21:44	16	20:16 (18)	22:15	26	21:16 (17)
22	08:42	07:45	06:37	06:22			05:24		20:01 (18)	05:03		20:51 (17)
	16:56	17:59	18:53	20:52			21:46	13	20:14 (18)	22:16	26	21:17 (17)
23	08:41	07:42	06:35	06:20			05:22		20:03 (18)	05:03		20:51 (17)
	16:58	18:01	18:55	20:54			21:47	10	20:13 (18)	22:16	26	21:17 (17)
24	08:40	07:40	06:32	06:17			05:21		20:06 (18)	05:04		20:51 (17)
	17:00	18:03	18:57	20:56			21:49	13	21:04 (17)	22:16	26	21:17 (17)
25	08:38	07:38	06:30	06:15			05:20		20:53 (17)	05:04		20:52 (17)
	17:02	18:05	18:59	20:58			21:50	12	21:05 (17)	22:16	26	21:18 (17)
26	08:37	07:36	06:27	06:13			05:18		20:52 (17)	05:04		20:52 (17)
	17:04	18:07	19:01	20:59			21:52	15	21:07 (17)	22:16	26	21:18 (17)
27	08:35	07:33	06:25	06:11		20:06 (18)	05:17		20:50 (17)	05:05		20:53 (17)
	17:06	18:09	19:03	21:01	5	20:11 (18)	21:53	17	21:07 (17)	22:16	25	21:18 (17)
28	08:34	07:31	06:22	06:08		20:02 (18)	05:16		20:50 (17)	05:05		20:52 (17)
	17:08	18:11	19:05	21:03	13	20:15 (18)	21:55	18	21:08 (17)	22:16	26	21:18 (17)
29	08:32		07:20	06:06		20:00 (18)	05:15		20:49 (17)	05:06		20:53 (17)
	17:10		20:07	21:05	17	20:17 (18)	21:56	20	21:09 (17)	22:15	26	21:19 (17)
30	08:30		07:17	06:04		19:58 (18)	05:14		20:49 (17)	05:07		20:53 (17)
	17:12		20:08	21:07	20	20:18 (18)	21:57	20	21:09 (17)	22:15	25	21:18 (17)
31	08:29		07:15				05:12		20:50 (17)			
	17:14		20:10				21:59	21	21:11 (17)			
Potential sun hours	248	272	367	421			496			513		
Total, worst case					55			699			759	
Sun reduction					0.34			0.36			0.26	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.61			0.61			0.63	
Total reduction					0.21			0.22			0.16	
Total, real					11			155			123	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CH - H87

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October	November	December
1	05:07		05:48		06:44	07:38	07:37	08:33
	22:15	26	21:39	29	20:31	19:16	17:04	16:19
2	05:08		05:50		06:45	07:40	07:39	08:35
	22:14	25	21:37	30	20:28	19:14	17:02	16:18
3	05:09		05:52		06:47	07:42	07:41	08:36
	22:14	26	21:35	29	20:26	19:11	17:00	16:17
4	05:10		05:53		06:49	07:43	07:43	08:38
	22:13	25	21:33	29	20:23	19:09	16:58	16:17
5	05:11		05:55		06:51	07:45	07:45	08:39
	22:13	25	21:31	30	20:21	19:06	16:56	16:16
6	05:12		05:57		06:53	07:47	07:47	08:41
	22:12	24	21:29	29	20:19	19:04	16:54	16:16
7	05:13		05:59		06:54	07:49	07:49	08:42
	22:12	24	21:27	29	20:16	19:01	16:53	16:15
8	05:14		06:00		06:56	07:51	07:51	08:43
	22:11	24	21:25	28	20:14	18:59	16:51	16:15
9	05:15		06:02		06:58	07:53	07:53	08:45
	22:10	23	21:23	27	20:11	18:56	16:49	16:14
10	05:16		06:04		07:00	07:55	07:55	08:46
	22:09	23	21:21	26	20:09	18:54	16:47	16:14
11	05:17		06:06		07:02	07:57	07:57	08:47
	22:08	23	21:19	24	20:06	18:51	16:45	16:14
12	05:18		06:07		07:03	07:58	07:59	08:48
	22:07	22	21:17	22	20:04	18:49	16:44	16:14
13	05:19		06:09		07:05	08:00	08:01	08:49
	22:06	21	21:15	19	20:01	18:47	16:42	16:13
14	05:21		06:11		07:07	08:02	08:03	08:50
	22:05	20	21:12	16	19:59	18:44	16:40	16:13
15	05:22		06:13		07:09	08:04	08:05	08:51
	22:04	19	21:10	11	19:56	18:42	16:39	16:13
16	05:23		06:15		07:11	08:06	08:07	08:52
	22:03	17	21:08		19:54	18:40	16:37	16:13
17	05:25		06:16		07:12	08:08	08:09	08:53
	22:02	16	21:06		19:51	18:37	16:36	16:14
18	05:26		06:18		07:14	08:10	08:11	08:54
	22:01	14	21:04		19:49	18:35	16:34	16:14
19	05:27		06:20		07:16	08:12	08:12	08:55
	21:59	11	21:01		19:46	18:33	16:33	16:14
20	05:29		06:22		07:18	08:14	08:14	08:55
	21:58	14	20:59		19:44	18:30	16:31	16:14
21	05:30		06:24		07:20	08:16	08:16	08:56
	21:56	12	20:57		19:41	18:28	16:30	16:15
22	05:32		06:25		07:21	08:18	08:18	08:56
	21:55	15	20:55		19:39	18:26	16:29	16:15
23	05:33		06:27		07:23	08:20	08:20	08:57
	21:54	17	20:52		19:36	18:24	16:27	16:16
24	05:35		06:29		07:25	08:22	08:22	08:57
	21:52	20	20:50		19:33	18:21	16:26	16:16
25	05:37		06:31		07:27	07:24	08:23	08:58
	21:50	21	20:48		19:31	17:19	16:25	16:17
26	05:38		06:33		07:29	07:25	08:25	08:58
	21:49	24	20:45		19:28	17:17	16:24	16:18
27	05:40		06:35		07:31	07:27	08:27	08:58
	21:47	25	20:43		19:26	17:15	16:23	16:19
28	05:41		06:36		07:32	07:29	08:28	08:58
	21:46	26	20:40		19:23	17:13	16:22	16:19
29	05:43		06:38		07:34	07:31	08:30	08:58
	21:44	27	20:38		19:21	17:11	16:21	16:20
30	05:45		06:40		07:36	07:33	08:32	08:58
	21:42	28	20:36		19:18	17:08	16:20	16:21
31	05:46		06:42			07:35		08:58
	21:40	28	20:33			17:06		16:22
Potential sun hours	515		461		383	327	257	230
Total, worst case		665		378				
Sun reduction		0.27		0.27				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.62		0.61				
Total reduction		0.16		0.17				
Total, real		110		63				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CI - H88

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:49	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:33	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:43	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:39	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:54	20:52	21:45	22:16	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:05	05:37	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:18	05:05	05:40	06:35	07:31	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:41	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:07	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:11		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CJ - H89

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:59	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:38	08:34
	16:24	17:16	18:13	20:13	21:09	22:00	22:15	21:39	20:31 22 07:34 (8)	19:16 27 08:42 (7)	17:05	16:19
2	08:58	08:26	07:26	07:10	06:00	05:11	05:08	05:50	06:46 07:13 (8)	07:40 08:16 (7)	07:40	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:15	21:37	20:29 19 07:32 (8)	19:14 25 08:41 (7)	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47 07:15 (8)	07:42 08:16 (7)	07:42	08:37
	16:26	17:20	18:17	20:16	21:13	22:02	22:14	21:35	20:26 16 07:31 (8)	19:11 23 08:39 (7)	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49 07:17 (8)	07:44 08:17 (7)	07:44	08:38
	16:28	17:22	18:19	20:18	21:15	22:04	22:14	21:33	20:24 12 07:29 (8)	19:09 20 08:37 (7)	16:59	16:17
5	08:58	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51 07:18 (8)	07:46 08:18 (7)	07:46	08:40
	16:29	17:24	18:21	20:20	21:16	22:05	22:13	21:31	20:21 6 07:24 (8)	19:06 17 08:35 (7)	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47 08:21 (7)	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04 11 08:32 (7)	16:55	16:16
7	08:57	08:16	07:15 07:47 (7)	06:58 07:22 (8)	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25 7 07:54 (7)	20:24 5 07:27 (8)	21:20	22:07	22:12	21:27	20:16	19:01	16:53	16:15
8	08:56	08:15	07:12 07:43 (7)	06:55 07:20 (8)	05:48	05:06	05:14	06:01	06:57	07:51	07:51	08:44
	16:33	17:30	18:27 15 07:58 (7)	20:26 11 07:31 (8)	21:22	22:08	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:13	07:10 07:40 (7)	06:53 07:17 (8)	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29 19 07:59 (7)	20:28 16 07:33 (8)	21:24	22:09	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:11	07:07 07:39 (7)	06:51 07:15 (8)	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31 22 08:01 (7)	20:30 19 07:34 (8)	21:25	22:10	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:09	07:05 07:37 (7)	06:48 07:12 (8)	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:37	17:37	18:33 24 08:01 (7)	20:31 22 07:34 (8)	21:27	22:10	22:09	21:19	20:06	18:52	16:46	16:14
12	08:53	08:07	07:02 07:37 (7)	06:46 07:11 (8)	05:41	05:04	05:18	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34 25 08:02 (7)	20:33 24 07:35 (8)	21:29	22:11	22:08	21:17	20:04	18:49	16:44	16:14
13	08:53	08:04	07:00 07:35 (7)	06:43 07:10 (8)	05:39	05:04	05:20	06:10	07:06	08:01	08:01	08:49
	16:41	17:41	18:36 27 08:02 (7)	20:35 26 07:36 (8)	21:31	22:12	22:07	21:15	20:01	18:47	16:42	16:14
14	08:52	08:02	06:57 07:35 (7)	06:41 07:09 (8)	05:37	05:04	05:21	06:11	07:07	08:03	08:03	08:50
	16:42	17:43	18:38 28 08:03 (7)	20:37 27 07:36 (8)	21:33	22:13	22:05	21:13	19:59	18:45	16:41	16:14
15	08:51	08:00	06:55 07:34 (7)	06:39 07:09 (8)	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40 28 08:02 (7)	20:39 27 07:36 (8)	21:34	22:13	22:04	21:11	19:56	18:42	16:39	16:14
16	08:50	07:58	06:52 07:34 (7)	06:36 07:09 (8)	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42 28 08:02 (7)	20:41 27 07:36 (8)	21:36	22:14	22:03	21:08	19:54	18:40	16:37	16:14
17	08:49	07:56	06:50 07:34 (7)	06:34 07:08 (8)	05:32	05:03	05:25	06:17 07:25 (8)	07:13	08:08	08:09	08:53
	16:47	17:49	18:44 28 08:02 (7)	20:43 27 07:35 (8)	21:38	22:14	22:02	21:06 4 07:29 (8)	19:51	18:38	16:36	16:14
18	08:48	07:54	06:47 07:34 (7)	06:31 07:08 (8)	05:30	05:03	05:26	06:19 07:21 (8)	07:15	08:10	08:11	08:54
	16:49	17:51	18:46 27 08:01 (7)	20:45 27 07:35 (8)	21:39	22:15	22:01	21:04 12 07:33 (8)	19:49	18:35	16:34	16:14
19	08:46	07:52	06:45 07:34 (7)	06:29 07:08 (8)	05:29	05:03	05:28	06:20 07:18 (8)	07:16 08:28 (7)	08:12	08:13	08:55
	16:51	17:53	18:48 26 08:00 (7)	20:46 26 07:34 (8)	21:41	22:15	21:59	21:02 16 07:34 (8)	19:46 8 08:36 (7)	18:33	16:33	16:14
20	08:45	07:49	06:43 07:35 (7)	06:27 07:09 (8)	05:27	05:03	05:29	06:22 07:16 (8)	07:18 08:25 (7)	08:14	08:15	08:55
	16:53	17:55	18:50 24 07:59 (7)	20:48 25 07:34 (8)	21:43	22:15	21:58	20:59 20 07:36 (8)	19:44 14 08:39 (7)	18:31	16:32	16:15
21	08:44	07:47	06:40 07:35 (7)	06:24 07:09 (8)	05:26	05:03	05:31	06:24 07:15 (8)	07:20 08:23 (7)	08:16	08:16	08:56
	16:55	17:57	18:52 23 07:58 (7)	20:50 23 07:32 (8)	21:44	22:16	21:57	20:57 22 07:37 (8)	19:41 18 08:41 (7)	18:28	16:30	16:15
22	08:43	07:45	06:38 07:37 (7)	06:22 07:10 (8)	05:24	05:03	05:32	06:26 07:13 (8)	07:22 08:20 (7)	08:18	08:18	08:57
	16:57	17:59	18:54 19 07:56 (7)	20:52 21 07:31 (8)	21:46	22:16	21:55	20:55 24 07:37 (8)	19:39 22 08:42 (7)	18:26	16:29	16:16
23	08:41	07:43	06:35 07:38 (7)	06:20 07:11 (8)	05:23	05:04	05:34	06:28 07:13 (8)	07:24 08:19 (7)	08:20	08:20	08:57
	16:58	18:01	18:56 15 07:53 (7)	20:54 19 07:30 (8)	21:47	22:16	21:54	20:52 25 07:38 (8)	19:36 24 08:43 (7)	18:24	16:28	16:16
24	08:40	07:40	06:33 07:41 (7)	06:18 07:12 (8)	05:21	05:04	05:35	06:29 07:12 (8)	07:25 08:18 (7)	08:22	08:22	08:57
	17:00	18:03	18:57 10 07:51 (7)	20:56 16 07:28 (8)	21:49	22:16	21:52	20:50 26 07:38 (8)	19:34 26 08:44 (7)	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15 07:15 (8)	05:20	05:04	05:37	06:31 07:11 (8)	07:27 08:17 (7)	07:24	08:24	08:58
	17:02	18:05	18:59	20:58 11 07:26 (8)	21:50	22:16	21:51	20:48 27 07:38 (8)	19:31 27 08:44 (7)	17:19	16:25	16:17
26	08:37	07:36	06:28	06:13	05:19	05:05	05:38	06:33 07:11 (8)	07:29 08:16 (7)	07:26	08:25	08:58
	17:04	18:07	19:01	21:00	21:52	22:16	21:49	20:45 27 07:38 (8)	19:29 28 08:44 (7)	17:17	16:24	16:18
27	08:35	07:34	06:25	06:11	05:17	05:05	05:40	06:35 07:11 (8)	07:31 08:15 (7)	07:28	08:27	08:58
	17:06	18:09	19:03	21:02	21:53	22:16	21:47	20:43 27 07:38 (8)	19:26 28 08:43 (7)	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37 07:11 (8)	07:33 08:15 (7)	07:30	08:29	08:59
	17:08	18:11	19:05	21:03	21:55	22:16	21:46	20:41 27 07:38 (8)	19:24 28 08:43 (7)	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38 07:10 (8)	07:35 08:15 (7)	07:32	08:30	08:59
	17:10		20:07	21:05	21:56	22:16	21:44	20:38 26 07:36 (8)	19:21 28 08:43 (7)	17:11	16:21	16:21
30	08:31		07:18	06:04	05:14	05:07	05:45	06:40 07:10 (8)	07:36 08:15 (7)	07:34	08:32	08:59
	17:12		20:09	21:07	21:57	22:15	21:42	20:36 26 07:36 (8)	19:19 27 08:42 (7)	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42 07:11 (8)		07:36		08:59
	17:14		20:11		21:59		21:41	20:33 24 07:35 (8)		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case			395	399				333	353	123		
Sun reduction			0.22	0.34				0.27	0.29	0.23		
Oper. time red.			1.00	1.00				1.00	1.00	1.00		
Wind dir. red.			0.60	0.57				0.57	0.59	0.60		
Total reduction			0.13	0.20				0.16	0.17	0.14		
Total, real			53	78				52	61	17		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CK - H90

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June	
1	08:58	08:27	07:29	07:12		06:02		19:34 (18)	05:11		20:30 (17)
	16:24	17:16	18:13	20:12		21:09	28	20:02 (18)	22:00	25	20:55 (17)
2	08:58	08:25	07:26	07:10		06:00		19:35 (18)	05:11		20:30 (17)
	16:25	17:18	18:15	20:14		21:11	27	20:02 (18)	22:01	25	20:55 (17)
3	08:58	08:24	07:24	07:07		05:58		19:35 (18)	05:10		20:30 (17)
	16:26	17:20	18:17	20:16		21:12	26	20:01 (18)	22:02	24	20:54 (17)
4	08:58	08:22	07:21	07:05		05:56		19:36 (18)	05:09		20:31 (17)
	16:27	17:22	18:19	20:18		21:14	24	20:00 (18)	22:03	23	20:54 (17)
5	08:57	08:20	07:19	07:02		05:54		19:36 (18)	05:08		20:32 (17)
	16:28	17:24	18:21	20:20		21:16	23	19:59 (18)	22:05	23	20:55 (17)
6	08:57	08:18	07:17	07:00		05:52		19:38 (18)	05:07		20:32 (17)
	16:30	17:26	18:23	20:22		21:18	21	19:59 (18)	22:06	22	20:54 (17)
7	08:56	08:16	07:14	06:58		05:50		19:39 (18)	05:06		20:33 (17)
	16:31	17:28	18:24	20:24		21:20	18	19:57 (18)	22:07	22	20:55 (17)
8	08:56	08:14	07:12	06:55		05:48		19:41 (18)	05:06		20:33 (17)
	16:33	17:30	18:26	20:25		21:22	15	19:56 (18)	22:08	21	20:54 (17)
9	08:55	08:12	07:09	06:53		05:46		19:43 (18)	05:05		20:33 (17)
	16:34	17:32	18:28	20:27		21:23	10	19:53 (18)	22:09	22	20:55 (17)
10	08:55	08:10	07:07	06:50		05:44			05:05		20:33 (17)
	16:36	17:34	18:30	20:29		21:25			22:09	21	20:54 (17)
11	08:54	08:08	07:04	06:48		05:42			05:04		20:34 (17)
	16:37	17:36	18:32	20:31		21:27			22:10	20	20:54 (17)
12	08:53	08:06	07:02	06:45		05:40			05:04		20:35 (17)
	16:39	17:38	18:34	20:33		21:29			22:11	19	20:54 (17)
13	08:52	08:04	07:00	06:43		05:38		20:36 (17)	05:04		20:35 (17)
	16:40	17:40	18:36	20:35		21:31	9	20:45 (17)	22:12	19	20:54 (17)
14	08:51	08:02	06:57	06:41		05:37		20:34 (17)	05:03		20:35 (17)
	16:42	17:42	18:38	20:37		21:32	14	20:48 (17)	22:12	19	20:54 (17)
15	08:50	08:00	06:55	06:38		05:35		20:33 (17)	05:03		20:36 (17)
	16:44	17:44	18:40	20:39		21:34	16	20:49 (17)	22:13	18	20:54 (17)
16	08:49	07:58	06:52	06:36		05:33		20:32 (17)	05:03		20:36 (17)
	16:45	17:46	18:42	20:41		21:36	18	20:50 (17)	22:14	18	20:54 (17)
17	08:48	07:56	06:50	06:33		05:32		20:31 (17)	05:03		20:37 (17)
	16:47	17:49	18:44	20:42		21:37	20	20:51 (17)	22:14	17	20:54 (17)
18	08:47	07:54	06:47	06:31	19:46 (18)	05:30		20:30 (17)	05:03		20:37 (17)
	16:49	17:51	18:46	20:44	10 19:56 (18)	21:39	22	20:52 (17)	22:14	17	20:54 (17)
19	08:46	07:51	06:45	06:29	19:43 (18)	05:28		20:29 (17)	05:03		20:37 (17)
	16:51	17:53	18:48	20:46	16 19:59 (18)	21:41	23	20:52 (17)	22:15	17	20:54 (17)
20	08:45	07:49	06:42	06:26	19:40 (18)	05:27		20:29 (17)	05:03		20:37 (17)
	16:53	17:55	18:50	20:48	20 20:00 (18)	21:42	24	20:53 (17)	22:15	17	20:54 (17)
21	08:44	07:47	06:40	06:24	19:39 (18)	05:25		20:29 (17)	05:03		20:37 (17)
	16:54	17:57	18:51	20:50	22 20:01 (18)	21:44	25	20:54 (17)	22:15	17	20:54 (17)
22	08:42	07:45	06:37	06:22	19:38 (18)	05:24		20:28 (17)	05:03		20:38 (17)
	16:56	17:59	18:53	20:52	24 20:02 (18)	21:46	25	20:53 (17)	22:16	17	20:55 (17)
23	08:41	07:42	06:35	06:20	19:37 (18)	05:22		20:29 (17)	05:03		20:38 (17)
	16:58	18:01	18:55	20:54	26 20:03 (18)	21:47	25	20:54 (17)	22:16	17	20:55 (17)
24	08:40	07:40	06:32	06:17	19:36 (18)	05:21		20:29 (17)	05:04		20:38 (17)
	17:00	18:03	18:57	20:56	28 20:04 (18)	21:49	25	20:54 (17)	22:16	17	20:55 (17)
25	08:38	07:38	06:30	06:15	19:35 (18)	05:20		20:29 (17)	05:04		20:39 (17)
	17:02	18:05	18:59	20:58	28 20:03 (18)	21:50	26	20:55 (17)	22:16	17	20:56 (17)
26	08:37	07:36	06:27	06:13	19:35 (18)	05:18		20:29 (17)	05:04		20:38 (17)
	17:04	18:07	19:01	20:59	28 20:03 (18)	21:52	26	20:55 (17)	22:16	18	20:56 (17)
27	08:35	07:33	06:25	06:11	19:34 (18)	05:17		20:28 (17)	05:05		20:39 (17)
	17:06	18:09	19:03	21:01	29 20:03 (18)	21:53	26	20:54 (17)	22:16	18	20:57 (17)
28	08:34	07:31	06:22	06:08	19:34 (18)	05:16		20:28 (17)	05:05		20:38 (17)
	17:08	18:11	19:05	21:03	29 20:03 (18)	21:55	26	20:54 (17)	22:16	19	20:57 (17)
29	08:32		07:20	06:06	19:34 (18)	05:15		20:29 (17)	05:06		20:39 (17)
	17:10		20:07	21:05	29 20:03 (18)	21:56	25	20:54 (17)	22:15	19	20:58 (17)
30	08:30		07:17	06:04	19:34 (18)	05:14		20:29 (17)	05:07		20:38 (17)
	17:12		20:08	21:07	29 20:03 (18)	21:57	25	20:54 (17)	22:15	20	20:58 (17)
31	08:29		07:15			05:12		20:30 (17)			
	17:14		20:10			21:59	25	20:55 (17)			
Potential sun hours	248	272	367	421		496			513		
Total, worst case					318		617			588	
Sun reduction					0.34		0.36			0.26	
Oper. time red.					1.00		1.00			1.00	
Wind dir. red.					0.59		0.61			0.62	
Total reduction					0.20		0.22			0.16	
Total, real					64		137			95	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CK - H90

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October	November	December
1	05:07	20:38 (17)	05:48		06:44	07:38	07:37	08:33
	22:15	20 20:58 (17)	21:39		20:31	19:16	17:04	16:19
2	05:08	20:39 (17)	05:50		06:45	07:40	07:39	08:35
	22:14	20 20:59 (17)	21:37		20:28	19:13	17:02	16:18
3	05:09	20:39 (17)	05:52	19:55 (18)	06:47	07:42	07:41	08:36
	22:14	21 21:00 (17)	21:35	6 20:01 (18)	20:26	19:11	17:00	16:17
4	05:10	20:38 (17)	05:53	19:52 (18)	06:49	07:43	07:43	08:38
	22:13	21 20:59 (17)	21:33	12 20:04 (18)	20:23	19:09	16:58	16:17
5	05:11	20:38 (17)	05:55	19:50 (18)	06:51	07:45	07:45	08:39
	22:13	22 21:00 (17)	21:31	16 20:06 (18)	20:21	19:06	16:56	16:16
6	05:12	20:38 (17)	05:57	19:48 (18)	06:53	07:47	07:47	08:41
	22:12	22 21:00 (17)	21:29	19 20:07 (18)	20:19	19:04	16:54	16:16
7	05:12	20:38 (17)	05:59	19:47 (18)	06:54	07:49	07:49	08:42
	22:12	23 21:01 (17)	21:27	22 20:09 (18)	20:16	19:01	16:53	16:15
8	05:14	20:38 (17)	06:00	19:46 (18)	06:56	07:51	07:51	08:43
	22:11	23 21:01 (17)	21:25	23 20:09 (18)	20:14	18:59	16:51	16:15
9	05:15	20:38 (17)	06:02	19:45 (18)	06:58	07:53	07:53	08:45
	22:10	24 21:02 (17)	21:23	25 20:10 (18)	20:11	18:56	16:49	16:14
10	05:16	20:38 (17)	06:04	19:44 (18)	07:00	07:55	07:55	08:46
	22:09	24 21:02 (17)	21:21	27 20:11 (18)	20:09	18:54	16:47	16:14
11	05:17	20:38 (17)	06:06	19:43 (18)	07:02	07:57	07:57	08:47
	22:08	24 21:02 (17)	21:19	27 20:10 (18)	20:06	18:51	16:45	16:14
12	05:18	20:38 (17)	06:07	19:43 (18)	07:03	07:58	07:59	08:48
	22:07	25 21:03 (17)	21:17	28 20:11 (18)	20:04	18:49	16:44	16:14
13	05:19	20:37 (17)	06:09	19:43 (18)	07:05	08:00	08:01	08:49
	22:06	26 21:03 (17)	21:15	28 20:11 (18)	20:01	18:47	16:42	16:13
14	05:21	20:38 (17)	06:11	19:42 (18)	07:07	08:02	08:03	08:50
	22:05	26 21:04 (17)	21:12	29 20:11 (18)	19:59	18:44	16:40	16:13
15	05:22	20:38 (17)	06:13	19:42 (18)	07:09	08:04	08:05	08:51
	22:04	26 21:04 (17)	21:10	29 20:11 (18)	19:56	18:42	16:39	16:13
16	05:23	20:38 (17)	06:15	19:42 (18)	07:11	08:06	08:07	08:52
	22:03	26 21:04 (17)	21:08	29 20:11 (18)	19:54	18:40	16:37	16:13
17	05:25	20:38 (17)	06:16	19:42 (18)	07:12	08:08	08:09	08:53
	22:02	26 21:04 (17)	21:06	29 20:11 (18)	19:51	18:37	16:36	16:14
18	05:26	20:38 (17)	06:18	19:42 (18)	07:14	08:10	08:11	08:54
	22:01	26 21:04 (17)	21:04	27 20:09 (18)	19:49	18:35	16:34	16:14
19	05:27	20:38 (17)	06:20	19:42 (18)	07:16	08:12	08:12	08:55
	21:59	26 21:04 (17)	21:01	27 20:09 (18)	19:46	18:33	16:33	16:14
20	05:29	20:38 (17)	06:22	19:43 (18)	07:18	08:14	08:14	08:55
	21:58	26 21:04 (17)	20:59	25 20:08 (18)	19:44	18:30	16:31	16:14
21	05:30	20:39 (17)	06:24	19:43 (18)	07:20	08:16	08:16	08:56
	21:56	25 21:04 (17)	20:57	24 20:07 (18)	19:41	18:28	16:30	16:15
22	05:32	20:39 (17)	06:25	19:44 (18)	07:21	08:18	08:18	08:56
	21:55	25 21:04 (17)	20:55	22 20:06 (18)	19:39	18:26	16:29	16:15
23	05:33	20:39 (17)	06:27	19:45 (18)	07:23	08:20	08:20	08:57
	21:54	24 21:03 (17)	20:52	19 20:04 (18)	19:36	18:24	16:27	16:16
24	05:35	20:40 (17)	06:29	19:46 (18)	07:25	08:22	08:22	08:57
	21:52	23 21:03 (17)	20:50	15 20:01 (18)	19:33	18:21	16:26	16:16
25	05:37	20:40 (17)	06:31	19:49 (18)	07:27	07:24	08:23	08:58
	21:50	22 21:02 (17)	20:48	9 19:58 (18)	19:31	17:19	16:25	16:17
26	05:38	20:41 (17)	06:33		07:29	07:25	08:25	08:58
	21:49	21 21:02 (17)	20:45		19:28	17:17	16:24	16:18
27	05:40	20:41 (17)	06:35		07:31	07:27	08:27	08:58
	21:47	20 21:01 (17)	20:43		19:26	17:15	16:23	16:19
28	05:41	20:43 (17)	06:36		07:32	07:29	08:28	08:58
	21:46	17 21:00 (17)	20:40		19:23	17:13	16:22	16:19
29	05:43	20:43 (17)	06:38		07:34	07:31	08:30	08:58
	21:44	16 20:59 (17)	20:38		19:21	17:11	16:21	16:20
30	05:45	20:45 (17)	06:40		07:36	07:33	08:32	08:58
	21:42	12 20:57 (17)	20:36		19:18	17:08	16:20	16:21
31	05:46	20:47 (17)	06:42			07:35		08:58
	21:40	7 20:54 (17)	20:33			17:06		16:22
Potential sun hours	515		461		383	327	257	230
Total, worst case		689		517				
Sun reduction		0.27		0.27				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.62		0.59				
Total reduction		0.17		0.16				
Total, real		114		83				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CL - H91

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May			June		
1	08:58			08:27		16:15 (9)	07:29		16:56 (10)	07:12			06:02			05:12		21:10 (13)
	16:24			17:16	24	16:39 (9)	18:13	25	17:21 (10)	20:12			21:09			22:00	15	21:25 (13)
2	08:58			08:25		16:15 (9)	07:26		16:56 (10)	07:10			06:00		20:32 (12)	05:11		21:10 (13)
	16:25			17:18	24	16:39 (9)	18:15	23	17:19 (10)	20:14			21:11	7	20:39 (12)	22:01	16	21:26 (13)
3	08:58			08:24		16:15 (9)	07:24		16:58 (10)	07:07			05:58		20:29 (12)	05:10		21:09 (13)
	16:26			17:20	24	16:39 (9)	18:17	20	17:18 (10)	20:16			21:12	12	20:41 (12)	22:02	17	21:26 (13)
4	08:58			08:22		16:15 (9)	07:21		16:59 (10)	07:05			05:56		20:27 (12)	05:09		21:10 (13)
	16:27			17:22	25	16:40 (9)	18:19	17	17:16 (10)	20:18			21:14	16	20:43 (12)	22:03	18	21:28 (13)
5	08:57			08:20		16:15 (9)	07:19		17:02 (10)	07:03			05:54		20:27 (12)	05:08		21:10 (13)
	16:29			17:24	25	16:40 (9)	18:21	11	17:13 (10)	20:20			21:16	18	20:45 (12)	22:05	18	21:28 (13)
6	08:57			08:18		16:15 (9)	07:17			07:00			05:52		20:26 (12)	05:07		21:09 (13)
	16:30			17:26	25	16:40 (9)	18:23			20:22			21:18	19	20:45 (12)	22:06	18	21:27 (13)
7	08:56			08:16		16:16 (9)	07:14			06:58			05:50		20:25 (12)	05:07		21:10 (13)
	16:31			17:28	24	16:40 (9)	18:25			20:24			21:20	21	20:46 (12)	22:07	18	21:28 (13)
8	08:56			08:14		16:16 (9)	07:12			06:55			05:48		20:24 (12)	05:06		21:10 (13)
	16:33			17:30	24	16:40 (9)	18:26			20:26			21:22	22	20:46 (12)	22:08	18	21:28 (13)
9	08:55			08:12		16:16 (9)	07:09			06:53			05:46		20:24 (12)	05:05		21:10 (13)
	16:34			17:32	22	16:38 (9)	18:28			20:27			21:23	22	20:46 (12)	22:09	19	21:29 (13)
10	08:55			08:10		16:17 (9)	07:07			06:50			05:44		20:23 (12)	05:05		21:10 (13)
	16:36			17:34	21	16:38 (9)	18:30			20:29			21:25	23	20:46 (12)	22:09	18	21:28 (13)
11	08:54			08:08		16:18 (9)	07:05			06:48		19:52 (11)	05:42		20:24 (12)	05:04		21:10 (13)
	16:37			17:36	19	16:37 (9)	18:32			20:31	10	20:02 (11)	21:27	22	20:46 (12)	22:10	19	21:29 (13)
12	08:53			08:06		16:20 (9)	07:02			06:45		19:50 (11)	05:40		20:24 (12)	05:04		21:11 (13)
	16:39			17:38	16	16:36 (9)	18:34			20:33	15	20:05 (11)	21:29	22	20:46 (12)	22:11	18	21:29 (13)
13	08:52			08:04		16:22 (9)	07:00			06:43		19:48 (11)	05:39		20:23 (12)	05:04		21:11 (13)
	16:40			17:40	12	16:34 (9)	18:36			20:35	17	20:05 (11)	21:31	22	20:45 (12)	22:12	19	21:30 (13)
14	08:51			08:02		16:28 (9)	06:57			06:41		19:47 (11)	05:37		20:24 (12)	05:03		21:11 (13)
	16:42			17:42	1	16:29 (9)	18:38			20:37	19	20:06 (11)	21:32	22	20:46 (12)	22:12	18	21:29 (13)
15	08:50			08:00		17:06 (10)	06:55			06:38		19:46 (11)	05:35		20:24 (12)	05:03		21:11 (13)
	16:44			17:45	6	17:12 (10)	18:40			20:39	21	20:07 (11)	21:34	21	20:45 (12)	22:13	19	21:30 (13)
16	08:49			07:58		17:02 (10)	06:52			06:36		19:46 (11)	05:33		20:25 (12)	05:03		21:11 (13)
	16:45			17:47	14	17:16 (10)	18:42			20:41	21	20:07 (11)	21:36	20	20:45 (12)	22:14	19	21:30 (13)
17	08:48			07:56		17:00 (10)	06:50			06:34		19:44 (11)	05:32		20:25 (12)	05:03		21:11 (13)
	16:47			17:49	18	17:18 (10)	18:44			20:42	23	20:07 (11)	21:37	19	20:44 (12)	22:14	19	21:30 (13)
18	08:47			07:54		16:59 (10)	06:47			06:31		19:44 (11)	05:30		20:26 (12)	05:03		21:12 (13)
	16:49			17:51	21	17:20 (10)	18:46			20:44	23	20:07 (11)	21:39	18	20:44 (12)	22:14	18	21:30 (13)
19	08:46			07:51		16:57 (10)	06:45			06:29		19:45 (11)	05:28		20:27 (12)	05:03		21:12 (13)
	16:51			17:53	23	17:20 (10)	18:48			20:46	22	20:07 (11)	21:41	16	20:43 (12)	22:15	18	21:30 (13)
20	08:45			07:49		16:56 (10)	06:42			06:27		19:44 (11)	05:27		20:28 (12)	05:03		21:12 (13)
	16:53			17:55	26	17:22 (10)	18:50			20:48	21	20:05 (11)	21:42	14	20:42 (12)	22:15	18	21:30 (13)
21	08:44			07:47		16:56 (10)	06:40			06:24		19:44 (11)	05:25		20:30 (12)	05:03		21:13 (13)
	16:54			17:57	26	17:22 (10)	18:51			20:50	21	20:05 (11)	21:44	11	20:41 (12)	22:15	18	21:31 (13)
22	08:42			07:45		16:55 (10)	06:37			06:22		19:45 (11)	05:24		20:31 (12)	05:03		21:13 (13)
	16:56			17:59	27	17:22 (10)	18:53			20:52	19	20:04 (11)	21:46	8	20:39 (12)	22:16	18	21:31 (13)
23	08:41			07:42		16:55 (10)	06:35			06:20		19:46 (11)	05:22			05:03		21:13 (13)
	16:58			18:01	28	17:23 (10)	18:55			20:54	17	20:03 (11)	21:47			22:16	18	21:31 (13)
24	08:40			07:40		16:55 (10)	06:32			06:17		19:48 (11)	05:21			05:04		21:13 (13)
	17:00			18:03	28	17:23 (10)	18:57			20:56	13	20:01 (11)	21:49			22:16	18	21:31 (13)
25	08:38		16:24 (9)	07:38		16:54 (10)	06:30			06:15		19:50 (11)	05:20			05:04		21:14 (13)
	17:02	2	16:26 (9)	18:05	28	17:22 (10)	18:59			20:58	9	19:59 (11)	21:50			22:16	18	21:32 (13)
26	08:37		16:20 (9)	07:36		16:54 (10)	06:27			06:13			05:18		21:14 (13)	05:05		21:13 (13)
	17:04	10	16:30 (9)	18:07	29	17:23 (10)	19:01			20:59			21:52	4	21:18 (13)	22:16	19	21:32 (13)
27	08:35		16:19 (9)	07:33		16:54 (10)	06:25			06:11			05:17		21:13 (13)	05:05		21:14 (13)
	17:06	14	16:33 (9)	18:09	27	17:21 (10)	19:03			21:01			21:53	6	21:19 (13)	22:16	19	21:33 (13)
28	08:34		16:18 (9)	07:31		16:55 (10)	06:22			06:09			05:16		21:12 (13)	05:06		21:14 (13)
	17:08	16	16:34 (9)	18:11	26	17:21 (10)	19:05			21:03			21:55	8	21:20 (13)	22:16	18	21:32 (13)
29	08:32		16:16 (9)				07:20			06:06			05:15		21:11 (13)	05:06		21:14 (13)
	17:10	19	16:35 (9)				20:07			21:05			21:56	11	21:22 (13)	22:15	19	21:33 (13)
30	08:31		16:16 (9)				07:17			06:04			05:14		21:11 (13)	05:07		21:14 (13)
	17:12	20	16:36 (9)				20:09			21:07			21:57	12	21:23 (13)	22:15	19	21:33 (13)
31	08:29		16:15 (9)				07:15						05:13		21:11 (13)			
	17:14	22	16:37 (9)				20:10						21:59	13	21:24 (13)			
Potential sun hours	248			272			367			421			496			513		
Total, worst case		103			613			96			271			429			544	
Sun reduction		0.17			0.22			0.22			0.34			0.36			0.26	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.59			0.59			0.58			0.59			0.62			0.63	
Total reduction		0.10			0.13			0.13			0.20			0.22			0.16	
Total, real		10			80			13			55			96			88	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CL - H91

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December
1	05:07		21:14 (13)	05:48		20:34 (12)	06:44		19:51 (11)	07:38			07:37		15:46 (9)	08:33
	22:15	19	21:33 (13)	21:39	22	20:56 (12)	20:31	10	20:01 (11)	19:16			17:04	21	16:07 (9)	16:19
2	05:08		21:15 (13)	05:50		20:34 (12)	06:45			07:40			07:39		15:45 (9)	08:35
	22:14	19	21:34 (13)	21:37	23	20:57 (12)	20:28			19:14			17:02	23	16:08 (9)	16:18
3	05:09		21:15 (13)	05:52		20:34 (12)	06:47			07:42			07:41		15:45 (9)	08:36
	22:14	19	21:34 (13)	21:35	22	20:56 (12)	20:26			19:11			17:00	23	16:08 (9)	16:18
4	05:10		21:15 (13)	05:53		20:34 (12)	06:49			07:44			07:43		15:45 (9)	08:38
	22:13	18	21:33 (13)	21:33	22	20:56 (12)	20:24			19:09			16:58	25	16:10 (9)	16:17
5	05:11		21:15 (13)	05:55		20:35 (12)	06:51			07:45			07:45		15:45 (9)	08:39
	22:13	19	21:34 (13)	21:31	21	20:56 (12)	20:21			19:06			16:56	25	16:10 (9)	16:16
6	05:12		21:16 (13)	05:57		20:35 (12)	06:53			07:47			07:47		15:45 (9)	08:41
	22:12	18	21:34 (13)	21:29	20	20:55 (12)	20:19			19:04			16:55	25	16:10 (9)	16:16
7	05:13		21:16 (13)	05:59		20:36 (12)	06:54			07:49			07:49		15:45 (9)	08:42
	22:12	18	21:34 (13)	21:27	18	20:54 (12)	20:16			19:01			16:53	24	16:09 (9)	16:15
8	05:14		21:16 (13)	06:00		20:37 (12)	06:56			07:51		17:39 (10)	07:51		15:45 (9)	08:43
	22:11	18	21:34 (13)	21:25	17	20:54 (12)	20:14			18:59	7	17:46 (10)	16:51	24	16:09 (9)	16:15
9	05:15		21:17 (13)	06:02		20:37 (12)	06:58			07:53		17:35 (10)	07:53		15:45 (9)	08:45
	22:10	17	21:34 (13)	21:23	15	20:52 (12)	20:11			18:56	15	17:50 (10)	16:49	24	16:09 (9)	16:14
10	05:16		21:17 (13)	06:04		20:39 (12)	07:00			07:55		17:33 (10)	07:55		15:46 (9)	08:46
	22:09	17	21:34 (13)	21:21	11	20:50 (12)	20:09			18:54	18	17:51 (10)	16:47	23	16:09 (9)	16:14
11	05:17		21:17 (13)	06:06		20:41 (12)	07:02			07:57		17:31 (10)	07:57		15:47 (9)	08:47
	22:08	16	21:33 (13)	21:19	5	20:46 (12)	20:06			18:52	22	17:53 (10)	16:45	22	16:09 (9)	16:14
12	05:18		21:18 (13)	06:08			07:03			07:59		17:30 (10)	07:59		15:48 (9)	08:48
	22:07	14	21:32 (13)	21:17			20:04			18:49	24	17:54 (10)	16:44	20	16:08 (9)	16:14
13	05:19		21:18 (13)	06:09			07:05			08:00		17:28 (10)	08:01		15:48 (9)	08:49
	22:06	13	21:31 (13)	21:15			20:01			18:47	26	17:54 (10)	16:42	19	16:07 (9)	16:14
14	05:21		21:20 (13)	06:11			07:07			08:02		17:28 (10)	08:03		15:49 (9)	08:50
	22:05	11	21:31 (13)	21:13			19:59			18:44	27	17:55 (10)	16:40	17	16:06 (9)	16:13
15	05:22		21:20 (13)	06:13			07:09			08:04		17:27 (10)	08:05		15:51 (9)	08:51
	22:04	10	21:30 (13)	21:10			19:56			18:42	28	17:55 (10)	16:39	14	16:05 (9)	16:13
16	05:23		21:21 (13)	06:15			07:11			08:06		17:26 (10)	08:07		15:53 (9)	08:52
	22:03	7	21:28 (13)	21:08			19:54			18:40	29	17:55 (10)	16:37	10	16:03 (9)	16:14
17	05:25		21:22 (13)	06:17			07:12			08:08		17:26 (10)	08:09		15:58 (9)	08:53
	22:02	5	21:27 (13)	21:06			19:51			18:37	29	17:55 (10)	16:36	2	16:00 (9)	16:14
18	05:26		21:25 (13)	06:18		19:55 (11)	07:14			08:10		17:26 (10)	08:11			08:54
	22:01	2	21:27 (13)	21:04	10	20:05 (11)	19:49			18:35	28	17:54 (10)	16:34			16:14
19	05:28			06:20		19:53 (11)	07:16			08:12		17:26 (10)	08:12			08:55
	21:59			21:01	14	20:07 (11)	19:46			18:33	28	17:54 (10)	16:33			16:14
20	05:29			06:22		19:52 (11)	07:18			08:14		17:26 (10)	08:14			08:55
	21:58			20:59	17	20:09 (11)	19:44			18:30	27	17:53 (10)	16:31			16:15
21	05:30		20:43 (12)	06:24		19:50 (11)	07:20			08:16		17:26 (10)	08:16			08:56
	21:56	5	20:48 (12)	20:57	19	20:09 (11)	19:41			18:28	27	17:53 (10)	16:30			16:15
22	05:32		20:40 (12)	06:26		19:49 (11)	07:22			08:18		17:27 (10)	08:18			08:56
	21:55	10	20:50 (12)	20:55	20	20:09 (11)	19:39			18:26	25	17:52 (10)	16:29			16:15
23	05:34		20:40 (12)	06:27		19:49 (11)	07:23			08:20		17:28 (10)	08:20			08:57
	21:54	12	20:52 (12)	20:52	21	20:10 (11)	19:36			18:24	22	17:50 (10)	16:27			16:16
24	05:35		20:38 (12)	06:29		19:48 (11)	07:25			08:22		17:29 (10)	08:22			08:57
	21:52	15	20:53 (12)	20:50	22	20:10 (11)	19:34			18:21	20	17:49 (10)	16:26			16:17
25	05:37		20:37 (12)	06:31		19:47 (11)	07:27			07:24		16:30 (10)	08:23			08:58
	21:51	16	20:53 (12)	20:48	22	20:09 (11)	19:31			17:19	17	16:47 (10)	16:25			16:17
26	05:38		20:36 (12)	06:33		19:47 (11)	07:29			07:26		16:32 (10)	08:25			08:58
	21:49	19	20:55 (12)	20:45	22	20:09 (11)	19:29			17:17	12	16:44 (10)	16:24			16:18
27	05:40		20:35 (12)	06:35		19:47 (11)	07:31			07:27		16:37 (10)	08:27			08:58
	21:47	20	20:55 (12)	20:43	22	20:09 (11)	19:26			17:15	2	16:39 (10)	16:23			16:19
28	05:41		20:35 (12)	06:36		19:47 (11)	07:32			07:29		15:55 (9)	08:28			08:58
	21:46	21	20:56 (12)	20:40	21	20:08 (11)	19:24			17:13	6	16:01 (9)	16:22			16:19
29	05:43		20:34 (12)	06:38		19:48 (11)	07:34			07:31		15:51 (9)	08:30			08:58
	21:44	22	20:56 (12)	20:38	19	20:07 (11)	19:21			17:11	13	16:04 (9)	16:21			16:20
30	05:45		20:34 (12)	06:40		19:49 (11)	07:36			07:33		15:49 (9)	08:32			08:58
	21:42	22	20:56 (12)	20:36	17	20:06 (11)	19:19			17:08	16	16:05 (9)	16:20			16:21
31	05:47		20:35 (12)	06:42		19:50 (11)				07:35		15:48 (9)				08:58
	21:40	22	20:57 (12)	20:33	15	20:05 (11)				17:06	19	16:07 (9)				16:22
Potential sun hours	515			461			382			328			257			231
Total, worst case		444			457			10			487			341		
Sun reduction		0.27			0.27			0.29			0.23			0.20		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.62			0.60			0.59			0.58			0.59		
Total reduction		0.17			0.16			0.17			0.14			0.12		
Total, real		74			75			2			67			40		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CM - H92

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March	April	May	June	July	August	September	October	November	December
1	08:58	08:27		07:29	07:12	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16		18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04	16:19
2	08:58	08:25		07:26	07:10	06:00	05:11	05:08	05:50	06:45	07:40	07:39	08:35
	16:25	17:18		18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24		07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20		18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:00	16:18
4	08:58	08:22		07:21	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43	08:38
	16:27	17:22		18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:58	16:17
5	08:57	08:20		16:51 (1)	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	08:39
	16:29	17:24	2	16:53 (1)	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:56	6	16:25 (1)	16:16
6	08:57	08:18		16:50 (1)	07:17	07:00	05:52	05:07	05:12	05:57	06:53	07:47	07:47	16:21 (1)	08:41
	16:30	17:26	5	16:55 (1)	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55	1	16:22 (1)	16:16
7	08:56	08:16		16:49 (1)	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49			08:42
	16:31	17:28	9	16:58 (1)	18:25	20:24	21:20	22:07	22:11	21:27	20:16	19:01	16:53			16:15
8	08:56	08:14		16:47 (1)	07:12	06:55	05:48	05:06	05:14	06:00	06:56	07:51	07:51			08:43
	16:33	17:30	12	16:59 (1)	18:27	20:25	21:22	22:08	22:11	21:25	20:14	18:59	16:51			16:15
9	08:55	08:12		16:46 (1)	07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53			08:45
	16:34	17:32	15	17:01 (1)	18:28	20:27	21:23	22:08	22:10	21:23	20:11	18:56	16:49			16:14
10	08:55	08:10		16:46 (1)	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55			08:46
	16:36	17:34	18	17:04 (1)	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47			16:14
11	08:54	08:08		16:46 (1)	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57			08:47
	16:37	17:36	20	17:06 (1)	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:45			16:14
12	08:53	08:06		16:46 (1)	07:02	06:46	05:40	05:04	05:18	06:08	07:04	07:59	07:59			08:48
	16:39	17:38	22	17:08 (1)	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44			16:14
13	08:52	08:04		16:46 (1)	07:00	06:43	05:39	05:04	05:20	06:09	07:05	08:00	08:01			08:49
	16:41	17:40	25	17:11 (1)	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42			16:14
14	08:51	08:02		16:46 (1)	06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03			08:50
	16:42	17:43	26	17:12 (1)	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:44	16:40			16:14
15	08:50	08:00		16:46 (1)	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05			08:51
	16:44	17:45	25	17:11 (1)	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39			16:14
16	08:49	07:58		16:46 (1)	06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07			08:52
	16:46	17:47	24	17:10 (1)	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37			16:14
17	08:48	07:56		16:47 (1)	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09			08:53
	16:47	17:49	23	17:10 (1)	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36			16:14
18	08:47	07:54		16:48 (1)	06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11			08:54
	16:49	17:51	21	17:09 (1)	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34			16:14
19	08:46	07:51		16:49 (1)	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12			08:54
	16:51	17:53	19	17:08 (1)	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33			16:14
20	08:45	07:49		16:51 (1)	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	17:27 (1)	08:14		08:55
	16:53	17:55	15	17:06 (1)	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:30	5	17:32 (1)	16:31			16:15
21	08:44	07:47		16:53 (1)	06:40	06:24	05:25	05:03	05:31	06:24	07:20	08:16		17:23 (1)	08:16			08:56
	16:55	17:57	11	17:04 (1)	18:51	20:50	21:44	22:15	21:56	20:57	19:41	18:28	12	17:35 (1)	16:30			16:15
22	08:42	07:45			06:37	06:22	05:24	05:03	05:32	06:26	07:22	08:18		17:20 (1)	08:18			08:56
	16:56	17:59			18:53	20:52	21:45	22:16	21:55	20:55	19:39	18:26	17	17:37 (1)	16:29			16:15
23	08:41	07:42			06:35	06:20	05:23	05:04	05:34	06:27	07:23	08:20		17:19 (1)	08:20			08:57
	16:58	18:01			18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	19	17:38 (1)	16:27			16:16
24	08:40	07:40			06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22		17:17 (1)	08:22			08:57
	17:00	18:03			18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	22	17:39 (1)	16:26			16:17
25	08:38	07:38			06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24		16:16 (1)	08:23			08:58
	17:02	18:05			18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	24	16:40 (1)	16:25			16:17
26	08:37	07:36			06:27	06:13	05:19	05:05	05:38	06:33	07:29	07:25		16:16 (1)	08:25			08:58
	17:04	18:07			19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	24	16:40 (1)	16:24			16:18
27	08:35	07:33			06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27		16:15 (1)	08:27			08:58
	17:06	18:09			19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	25	16:40 (1)	16:23			16:19
28	08:34	07:31			06:22	06:09	05:16	05:06	05:42	06:36	07:32	07:29		16:16 (1)	08:28			08:58
	17:08	18:11			19:05	21:03	21:54	22:16	21:46	20:40	19:24	17:13	25	16:41 (1)	16:22			16:20
29	08:32				07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:31		16:15 (1)	08:30			08:58
	17:10				20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	25	16:40 (1)	16:21			16:20
30	08:30				07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33		16:15 (1)	08:32			08:58
	17:12				20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	22	16:37 (1)	16:20			16:21
31	08:29				07:15		05:13		05:47	06:42		07:35		16:15 (1)				08:58
	17:14				20:10		21:58		21:40	20:33		17:06	20	16:35 (1)				16:22
Potential sun hours	248	272		367	421	496	513	515	461	382	328	257	231
Total, worst case			292								240	58	
Sun reduction			0.22								0.23	0.20	
Oper. time red.			1.00								1.00	1.00	
Wind dir. red.			0.58								0.58	0.58	
Total reduction			0.13								0.14	0.12	
Total, real			38								33	7	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CN - H93

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:38	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CO - H94

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April		May		June
1	08:58	08:27	07:29	07:12		06:02		05:11
	16:24	17:16	18:13	20:12		21:09		22:00
2	08:58	08:25	07:26	07:10		06:00		05:10
	16:25	17:18	18:15	20:14		21:11		22:01
3	08:58	08:24	07:24	07:07		05:58		05:10
	16:26	17:20	18:17	20:16		21:12		22:02
4	08:58	08:22	07:21	07:05		05:56	20:19 (17)	05:09
	16:27	17:22	18:19	20:18		21:14	10 20:29 (17)	22:03
5	08:57	08:20	07:19	07:02		05:54	20:16 (17)	05:08
	16:28	17:24	18:21	20:20		21:16	15 20:31 (17)	22:05
6	08:57	08:18	07:17	07:00		05:52	20:16 (17)	05:07
	16:30	17:26	18:23	20:22		21:18	17 20:33 (17)	22:06
7	08:56	08:16	07:14	06:58		05:50	20:14 (17)	05:06
	16:31	17:28	18:24	20:24		21:20	20 20:34 (17)	22:07
8	08:56	08:14	07:12	06:55		05:48	20:13 (17)	05:06
	16:33	17:30	18:26	20:25		21:22	22 20:35 (17)	22:08
9	08:55	08:12	07:09	06:53		05:46	20:12 (17)	05:05
	16:34	17:32	18:28	20:27		21:23	23 20:35 (17)	22:09
10	08:55	08:10	07:07	06:50	19:28 (18)	05:44	20:11 (17)	05:05
	16:36	17:34	18:30	20:29	13 19:41 (18)	21:25	24 20:35 (17)	22:09
11	08:54	08:08	07:04	06:48	19:26 (18)	05:42	20:12 (17)	05:04
	16:37	17:36	18:32	20:31	17 19:43 (18)	21:27	24 20:36 (17)	22:10
12	08:53	08:06	07:02	06:45	19:25 (18)	05:40	20:11 (17)	05:04
	16:39	17:38	18:34	20:33	20 19:45 (18)	21:29	25 20:36 (17)	22:11
13	08:52	08:04	07:00	06:43	19:23 (18)	05:38	20:11 (17)	05:04
	16:40	17:40	18:36	20:35	22 19:45 (18)	21:31	25 20:36 (17)	22:12
14	08:51	08:02	06:57	06:41	19:22 (18)	05:37	20:11 (17)	05:03
	16:42	17:42	18:38	20:37	24 19:46 (18)	21:32	26 20:37 (17)	22:12
15	08:50	08:00	06:55	06:38	19:21 (18)	05:35	20:11 (17)	05:03
	16:44	17:44	18:40	20:39	26 19:47 (18)	21:34	25 20:36 (17)	22:13
16	08:49	07:58	06:52	06:36	19:20 (18)	05:33	20:11 (17)	05:03
	16:45	17:46	18:42	20:41	27 19:47 (18)	21:36	26 20:37 (17)	22:14
17	08:48	07:56	06:50	06:33	19:19 (18)	05:32	20:11 (17)	05:03
	16:47	17:49	18:44	20:42	28 19:47 (18)	21:37	25 20:36 (17)	22:14
18	08:47	07:54	06:47	06:31	19:19 (18)	05:30	20:12 (17)	05:03
	16:49	17:51	18:46	20:44	28 19:47 (18)	21:39	24 20:36 (17)	22:14
19	08:46	07:51	06:45	06:29	19:19 (18)	05:28	20:12 (17)	05:03
	16:51	17:53	18:48	20:46	28 19:47 (18)	21:41	23 20:35 (17)	22:15
20	08:45	07:49	06:42	06:26	19:18 (18)	05:27	20:12 (17)	05:03
	16:53	17:55	18:50	20:48	28 19:46 (18)	21:42	24 20:36 (17)	22:15
21	08:44	07:47	06:40	06:24	19:19 (18)	05:25	20:13 (17)	05:03
	16:54	17:57	18:51	20:50	27 19:46 (18)	21:44	22 20:35 (17)	22:15
22	08:42	07:45	06:37	06:22	19:19 (18)	05:24	20:13 (17)	05:03
	16:56	17:59	18:53	20:52	26 19:45 (18)	21:46	21 20:34 (17)	22:16
23	08:41	07:42	06:35	06:20	19:20 (18)	05:22	20:14 (17)	05:03
	16:58	18:01	18:55	20:54	25 19:45 (18)	21:47	20 20:34 (17)	22:16
24	08:40	07:40	06:32	06:17	19:21 (18)	05:21	20:15 (17)	05:04
	17:00	18:03	18:57	20:56	23 19:44 (18)	21:49	19 20:34 (17)	22:16
25	08:38	07:38	06:30	06:15	19:21 (18)	05:20	20:16 (17)	05:04
	17:02	18:05	18:59	20:58	21 19:42 (18)	21:50	17 20:33 (17)	22:16
26	08:37	07:36	06:27	06:13	19:22 (18)	05:18	20:17 (17)	05:04
	17:04	18:07	19:01	20:59	19 19:41 (18)	21:52	16 20:33 (17)	22:16
27	08:35	07:33	06:25	06:11	19:23 (18)	05:17	20:18 (17)	05:05
	17:06	18:09	19:03	21:01	16 19:39 (18)	21:53	13 20:31 (17)	22:16
28	08:34	07:31	06:22	06:08	19:26 (18)	05:16	20:19 (17)	05:05
	17:08	18:11	19:05	21:03	11 19:37 (18)	21:55	11 20:30 (17)	22:16
29	08:32		07:20	06:06		05:15	20:21 (17)	05:06
	17:10		20:07	21:05		21:56	7 20:28 (17)	22:15
30	08:30		07:17	06:04		05:14		05:07
	17:12		20:08	21:07		21:57		22:15
31	08:29		07:15			05:12		
	17:14		20:10			21:59		
Potential sun hours	248	272	367	421		496		513
Total, worst case					429		524	
Sun reduction					0.34		0.36	
Oper. time red.					1.00		1.00	
Wind dir. red.					0.59		0.62	
Total reduction					0.20		0.22	
Total, real					87		117	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CO - H94

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07		05:48	20:22 (17)	06:44	19:25 (18)	07:38	07:37	08:33
	22:15		21:39	25 20:47 (17)	20:31	17 19:42 (18)	19:16	17:04	16:19
2	05:08		05:50	20:22 (17)	06:45	19:27 (18)	07:40	07:39	08:35
	22:14		21:37	25 20:47 (17)	20:28	13 19:40 (18)	19:13	17:02	16:18
3	05:09		05:52	20:22 (17)	06:47		07:42	07:41	08:36
	22:14		21:35	23 20:45 (17)	20:26		19:11	17:00	16:17
4	05:10		05:53	20:23 (17)	06:49		07:43	07:43	08:38
	22:13		21:33	22 20:45 (17)	20:23		19:09	16:58	16:17
5	05:11		05:55	20:23 (17)	06:51		07:45	07:45	08:39
	22:13		21:31	21 20:44 (17)	20:21		19:06	16:56	16:16
6	05:12		05:57	20:24 (17)	06:53		07:47	07:47	08:41
	22:12		21:29	19 20:43 (17)	20:19		19:04	16:54	16:16
7	05:12		05:59	20:26 (17)	06:54		07:49	07:49	08:42
	22:12		21:27	16 20:42 (17)	20:16		19:01	16:53	16:15
8	05:14		06:00	20:26 (17)	06:56		07:51	07:51	08:43
	22:11		21:25	14 20:40 (17)	20:14		18:59	16:51	16:15
9	05:15		06:02	20:29 (17)	06:58		07:53	07:53	08:45
	22:10		21:23	9 20:38 (17)	20:11		18:56	16:49	16:14
10	05:16		06:04		07:00		07:55	07:55	08:46
	22:09		21:21		20:09		18:54	16:47	16:14
11	05:17		06:06		07:02		07:57	07:57	08:47
	22:08		21:19		20:06		18:51	16:45	16:14
12	05:18		06:07		07:03		07:58	07:59	08:48
	22:07		21:17		20:04		18:49	16:44	16:14
13	05:19		06:09		07:05		08:00	08:01	08:49
	22:06		21:15		20:01		18:47	16:42	16:13
14	05:21	20:32 (17)	06:11	19:36 (18)	07:07		08:02	08:03	08:50
	22:05	4 20:36 (17)	21:12	5 19:41 (18)	19:59		18:44	16:40	16:13
15	05:22	20:30 (17)	06:13	19:33 (18)	07:09		08:04	08:05	08:51
	22:04	8 20:38 (17)	21:10	12 19:45 (18)	19:56		18:42	16:39	16:13
16	05:23	20:28 (17)	06:15	19:31 (18)	07:11		08:06	08:07	08:52
	22:03	12 20:40 (17)	21:08	16 19:47 (18)	19:54		18:40	16:37	16:13
17	05:25	20:27 (17)	06:16	19:29 (18)	07:12		08:08	08:09	08:53
	22:02	14 20:41 (17)	21:06	20 19:49 (18)	19:51		18:37	16:36	16:14
18	05:26	20:26 (17)	06:18	19:27 (18)	07:14		08:10	08:11	08:54
	22:01	16 20:42 (17)	21:04	22 19:49 (18)	19:49		18:35	16:34	16:14
19	05:27	20:25 (17)	06:20	19:26 (18)	07:16		08:12	08:12	08:55
	21:59	18 20:43 (17)	21:01	24 19:50 (18)	19:46		18:33	16:33	16:14
20	05:29	20:24 (17)	06:22	19:25 (18)	07:18		08:14	08:14	08:55
	21:58	19 20:43 (17)	20:59	26 19:51 (18)	19:44		18:30	16:31	16:14
21	05:30	20:24 (17)	06:24	19:24 (18)	07:20		08:16	08:16	08:56
	21:56	21 20:45 (17)	20:57	26 19:50 (18)	19:41		18:28	16:30	16:15
22	05:32	20:23 (17)	06:25	19:23 (18)	07:21		08:18	08:18	08:56
	21:55	22 20:45 (17)	20:55	28 19:51 (18)	19:38		18:26	16:29	16:15
23	05:33	20:22 (17)	06:27	19:23 (18)	07:23		08:20	08:20	08:57
	21:54	23 20:45 (17)	20:52	28 19:51 (18)	19:36		18:24	16:27	16:16
24	05:35	20:23 (17)	06:29	19:22 (18)	07:25		08:22	08:22	08:57
	21:52	23 20:46 (17)	20:50	28 19:50 (18)	19:33		18:21	16:26	16:16
25	05:37	20:22 (17)	06:31	19:22 (18)	07:27		07:24	08:23	08:58
	21:50	24 20:46 (17)	20:48	28 19:50 (18)	19:31		17:19	16:25	16:17
26	05:38	20:22 (17)	06:33	19:22 (18)	07:29		07:25	08:25	08:58
	21:49	25 20:47 (17)	20:45	28 19:50 (18)	19:28		17:17	16:24	16:18
27	05:40	20:21 (17)	06:35	19:22 (18)	07:31		07:27	08:27	08:58
	21:47	26 20:47 (17)	20:43	27 19:49 (18)	19:26		17:15	16:23	16:19
28	05:41	20:22 (17)	06:36	19:22 (18)	07:32		07:29	08:28	08:58
	21:46	25 20:47 (17)	20:40	26 19:48 (18)	19:23		17:13	16:22	16:19
29	05:43	20:21 (17)	06:38	19:23 (18)	07:34		07:31	08:30	08:58
	21:44	26 20:47 (17)	20:38	24 19:47 (18)	19:21		17:10	16:21	16:20
30	05:45	20:22 (17)	06:40	19:24 (18)	07:36		07:33	08:32	08:58
	21:42	25 20:47 (17)	20:36	22 19:46 (18)	19:18		17:08	16:20	16:21
31	05:46	20:21 (17)	06:42	19:24 (18)			07:35		08:58
	21:40	25 20:46 (17)	20:33	20 19:44 (18)			17:06		16:22
Potential sun hours	515		461		383		327	257	230
Total, worst case		356		584		30			
Sun reduction		0.27		0.27		0.29			
Oper. time red.		1.00		1.00		1.00			
Wind dir. red.		0.62		0.60		0.59			
Total reduction		0.16		0.16		0.17			
Total, real		58		96		5			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CP - H95

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May			June		July			August			September		October		November		December	
1	08:58		08:27		07:29		07:12		06:02			05:12		05:08			05:48			20:38 (1)		06:44		07:38		07:37		08:33
	16:24		17:16		18:13		20:12		21:09			22:00		22:15			21:38		28	21:06 (1)		20:31		19:16		17:04		16:19
2	08:58		08:25		07:26		07:10		06:00		20:37 (1)	05:11		05:08			05:50			20:38 (1)		06:46		07:40		07:39		08:35
	16:25		17:18		18:15		20:14		21:11	3	20:40 (1)	22:01		22:14			21:37		27	21:05 (1)		20:28		19:14		17:02		16:18
3	08:58		08:24		07:24		07:08		05:58		20:34 (1)	05:10		05:09			05:52			20:38 (1)		06:47		07:42		07:41		08:36
	16:26		17:20		18:17		20:16		21:12	7	20:41 (1)	22:02		22:14			21:35		25	21:03 (1)		20:26		19:11		17:00		16:18
4	08:58		08:22		07:21		07:05		05:56		20:32 (1)	05:09		05:10			05:53			20:39 (1)		06:49		07:44		07:43		08:38
	16:27		17:22		18:19		20:18		21:14	11	20:43 (1)	22:03		22:13			21:33		22	21:01 (1)		20:23		19:09		16:58		16:17
5	08:57		08:20		07:19		07:03		05:54		20:32 (1)	05:08		05:11			05:55			20:40 (1)		06:51		07:45		07:45		08:39
	16:29		17:24		18:21		20:20		21:16	14	20:46 (1)	22:04		22:13			21:31		20	21:00 (1)		20:21		19:06		16:57		16:16
6	08:57		08:18		07:17		07:00		05:52		20:31 (1)	05:07		05:12			05:57			20:39 (1)		06:53		07:47		07:47		08:41
	16:30		17:26		18:23		20:22		21:18	16	20:47 (1)	22:05		22:12			21:29		18	20:57 (1)		20:19		19:04		16:55		16:16
7	08:56		08:16		07:14		06:58		05:50		20:30 (1)	05:07		05:13			05:59			20:41 (1)		06:55		07:49		07:49		08:42
	16:31		17:28		18:25		20:24		21:20	19	20:49 (1)	22:06		22:11			21:27		15	20:56 (1)		20:16		19:01		16:53		16:15
8	08:56		08:14		07:12		06:55		05:48		20:29 (1)	05:06		05:14			06:01			20:42 (1)		06:56		07:51		07:51		08:43
	16:33		17:30		18:27		20:25		21:22	21	20:50 (1)	22:07		22:11			21:25		12	20:54 (1)		20:14		18:59		16:51		16:15
9	08:55		08:12		07:09		06:53		05:46		20:28 (1)	05:06		05:15			06:02			20:42 (1)		06:58		07:53		07:53		08:45
	16:34		17:32		18:28		20:27		21:23	24	20:52 (1)	22:08		22:10			21:23		10	20:52 (1)		20:11		18:56		16:49		16:15
10	08:55		08:10		07:07		06:50		05:44		20:28 (1)	05:05		05:16			06:04			20:44 (1)		07:00		07:55		07:55		08:46
	16:36		17:34		18:30		20:29		21:25	26	20:54 (1)	22:09		22:09			21:21		6	20:50 (1)		20:09		18:54		16:47		16:14
11	08:54		08:08		07:05		06:48		05:42		20:28 (1)	05:05		05:17			06:06			20:47 (1)		07:02		07:57		07:57		08:47
	16:37		17:36		18:32		20:31		21:27	27	20:55 (1)	22:10		22:08			21:19		2	20:49 (1)		20:06		18:52		16:46		16:14
12	08:53		08:06		07:02		06:46		05:40		20:27 (1)	05:04		05:18		20:49 (1)	06:08					07:04		07:58		07:59		08:48
	16:39		17:38		18:34		20:33		21:29	29	20:56 (1)	22:11		22:07	4	20:53 (1)	21:17					20:04		18:49		16:44		16:14
13	08:52		08:04		07:00		06:43		05:39		20:28 (1)	05:04		05:20		20:48 (1)	06:09					07:05		08:00		08:01		08:49
	16:41		17:41		18:36		20:35		21:30	29	20:57 (1)	22:12		22:06	9	20:57 (1)	21:15					20:01		18:47		16:42		16:14
14	08:51		08:02		06:57		06:41		05:37		20:27 (1)	05:04		05:21		20:46 (1)	06:11					07:07		08:02		08:03		08:50
	16:42		17:43		18:38		20:37		21:32	30	20:57 (1)	22:12		22:05	12	20:58 (1)	21:12					19:59		18:44		16:40		16:14
15	08:50		08:00		06:55		06:38		05:35		20:27 (1)	05:03		05:22		20:45 (1)	06:13					07:09		08:04		08:05		08:51
	16:44		17:45		18:40		20:39		21:34	29	20:56 (1)	22:13		22:04	14	20:59 (1)	21:10					19:56		18:42		16:39		16:14
16	08:49		07:58		06:52		06:36		05:33		20:28 (1)	05:03		05:23		20:43 (1)	06:15					07:11		08:06		08:07		08:52
	16:46		17:47		18:42		20:41		21:36	29	20:57 (1)	22:13		22:03	17	21:00 (1)	21:08					19:54		18:40		16:37		16:14
17	08:48		07:56		06:50		06:34		05:32		20:27 (1)	05:03		05:25		20:42 (1)	06:17					07:13		08:08		08:09		08:53
	16:47		17:49		18:44		20:42		21:37	29	20:56 (1)	22:14		22:02	19	21:01 (1)	21:06					19:51		18:37		16:36		16:14
18	08:47		07:54		06:47		06:31		05:30		20:28 (1)	05:03		05:26		20:42 (1)	06:18					07:14		08:10		08:10		08:54
	16:49		17:51		18:46		20:44		21:39	28	20:56 (1)	22:14		22:00	21	21:03 (1)	21:04					19:49		18:35		16:34		16:14
19	08:46		07:51		06:45		06:29		05:29		20:29 (1)	05:03		05:28		20:41 (1)	06:20					07:16		08:12		08:12		08:54
	16:51		17:53		18:48		20:46		21:41	27	20:56 (1)	22:15		21:59	22	21:03 (1)	21:01					19:46		18:33		16:33		16:14
20	08:45		07:49		06:42		06:27		05:27		20:29 (1)	05:03		05:29		20:40 (1)	06:22					07:18		08:14		08:14		08:55
	16:53		17:55		18:50		20:48		21:42	26	20:55 (1)	22:15		21:58	23	21:03 (1)	20:59					19:44		18:30		16:31		16:15
21	08:44		07:47		06:40		06:24		05:26		20:29 (1)	05:03		05:31		20:40 (1)	06:24					07:20		08:16		08:16		08:56
	16:55		17:57		18:51		20:50		21:44	26	20:55 (1)	22:15		21:56	25	21:05 (1)	20:57					19:41		18:28		16:30		16:15
22	08:42		07:45		06:37		06:22		05:24		20:30 (1)	05:03		05:32		20:39 (1)	06:26					07:22		08:18		08:18		08:56
	16:56		17:59		18:53		20:52		21:45	25	20:55 (1)	22:16		21:55	26	21:05 (1)	20:55					19:39		18:26		16:29		16:16
23	08:41		07:42		06:35		06:20		05:23		20:30 (1)	05:04		05:34		20:40 (1)	06:27					07:23		08:20		08:20		08:57
	16:58		18:01		18:55		20:54		21:47	24	20:54 (1)	22:16		21:53	26	21:06 (1)	20:52					19:36		18:24		16:28		16:16
24	08:40		07:40		06:32		06:18		05:21		20:31 (1)	05:04		05:35		20:39 (1)	06:29					07:25		08:22		08:21		08:57
	17:00		18:03		18:57		20:56		21:49	23	20:54 (1)	22:16		21:52	27	21:06 (1)	20:50					19:34		18:21		16:26		16:17
25	08:38		07:38		06:30		06:15		05:20		20:32 (1)	05:04		05:37		20:39 (1)	06:31					07:27		07:24		08:23		08:57
	17:02		18:05		18:59		20:57		21:50	21	20:53 (1)	22:16		21:50	28	21:07 (1)	20:48					19:31		17:19		16:25		16:17
26	08:37		07:36		06:27		06:13		05:19		20:33 (1)	05:05		05:38		20:38 (1)	06:33					07:29		07:25		08:25		08:58
	17:04		18:07		19:01		20:59		21:52	20	20:53 (1)	22:16		21:49	29	21:07 (1)	20:45					19:29		17:17		16:24		16:18
27	08:35		07:33		06:25		06:11		05:17		20:34 (1)	05:05		05:40		20:39 (1)	06:35					07:31		07:27		08:27		08:58
	17:06		18:09		19:03		21:01		21:53	18	20:52 (1)	22:16		21:47	28	21:07 (1)	20:43					19:26		17:15		16:23		16:19
28	08:34		07:31		06:22		06:09		05:16		20:35 (1)	05:06		05:42		20:38 (1)	06:36					07:32		07:29		08:28		08:58
	17:08		18:11		19:05		21:03		21:54	16	20:51 (1)	22:15		21:46	29	21:07 (1)	20:40					19:24		17:13		16:22		16:20
29	08:32				07:20		06:06		05:15		20:37 (1)	05:06		05:43		20:38 (1)	06:38					07:34		07:31		08:30		08:58
	17:10				20:07		21:05		21:56	13	20:50 (1)	22:15		21:44	30	21:08 (1)	20:38					19:21		17:11		16:21		16:21
30	08:30				07:17		06:04		05:14		20:38 (1)	05:07		05:45		20:38 (1)	06:40					07:36		07:33		08:32		08:58
	17:12				20:09		21:07		21:57	11	20:49 (1)	22:15		21:42	29	21:07 (1)	20:36					19:19		17:09		16:20		16:21
31	08:29				07:15				05:13		20:40 (1)			05:47		20:38 (1)	06:42							07:35				08:58
	17:14				20:10				21:58	7	20:47 (1)			21:40	29	21:07 (1)	20:33							17:07				16:22
Potential sun hours	248		272		367		421		496			513		515			461			382		328		257		231	
Total, worst case										628					447			185									
Sun reduction										0.36					0.27			0.27									
Oper. time red.										1.00					1.00			1.00									
Wind dir. red.										0.62					0.62			0.62									
Total reduction										0.23					0.17			0.17									
Total, real										141					74			32									

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CQ - H96

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June	
1	08:58	08:27	07:29		07:12		19:06 (9)	06:02	19:52 (10)	05:12	21:03 (11)
	16:24	17:16	18:13		20:12	25	19:31 (9)	21:09	17 20:09 (10)	22:00	18 21:21 (11)
2	08:58	08:25	07:26		07:10		19:06 (9)	06:00	19:53 (10)	05:11	21:03 (11)
	16:25	17:18	18:15		20:14	25	19:31 (9)	21:11	15 20:08 (10)	22:01	18 21:21 (11)
3	08:58	08:24	07:24		07:07		19:05 (9)	05:58	19:56 (10)	05:10	21:03 (11)
	16:26	17:20	18:17		20:16	24	19:29 (9)	21:12	9 20:05 (10)	22:02	18 21:21 (11)
4	08:58	08:22	07:21		07:05		19:06 (9)	05:56		05:09	21:04 (11)
	16:27	17:22	18:19		20:18	23	19:29 (9)	21:14		22:03	17 21:21 (11)
5	08:57	08:20	07:19		07:03		19:07 (9)	05:54		05:08	21:04 (11)
	16:29	17:24	18:21		20:20	21	19:28 (9)	21:16		22:04	17 21:21 (11)
6	08:57	08:18	07:17		07:00		19:08 (9)	05:52		05:07	21:04 (11)
	16:30	17:26	18:23		20:22	18	19:26 (9)	21:18		22:06	17 21:21 (11)
7	08:56	08:16	07:14		06:58		19:10 (9)	05:50		05:07	21:05 (11)
	16:31	17:28	18:25		20:24	14	19:24 (9)	21:20		22:07	16 21:21 (11)
8	08:56	08:14	07:12		06:55		19:12 (9)	05:48		05:06	21:04 (11)
	16:33	17:30	18:26		20:25	8	19:20 (9)	21:22		22:08	17 21:21 (11)
9	08:55	08:12	07:09		06:53			05:46		05:05	21:05 (11)
	16:34	17:32	18:28		20:27			21:23		22:08	16 21:21 (11)
10	08:55	08:10	07:07		06:50			05:44		05:05	21:05 (11)
	16:36	17:34	18:30		20:29			21:25		22:09	16 21:21 (11)
11	08:54	08:08	07:05		06:48			05:42		05:04	21:06 (11)
	16:37	17:36	18:32		20:31			21:27		22:10	15 21:21 (11)
12	08:53	08:06	07:02		06:45			05:40		05:04	21:06 (11)
	16:39	17:38	18:34		20:33			21:29		22:11	15 21:21 (11)
13	08:52	08:04	07:00		06:43			05:39		05:04	21:07 (11)
	16:40	17:40	18:36		20:35			21:31		22:12	15 21:22 (11)
14	08:51	08:02	06:57		06:41			05:37		05:03	21:07 (11)
	16:42	17:42	18:38		20:37			21:32		22:12	14 21:21 (11)
15	08:50	08:00	06:55		06:38		20:01 (10)	05:35		05:03	21:07 (11)
	16:44	17:45	18:40		20:39	7	20:08 (10)	21:34		22:13	14 21:21 (11)
16	08:49	07:58	06:52		06:36		19:57 (10)	05:33		05:03	21:07 (11)
	16:46	17:47	18:42		20:41	13	20:10 (10)	21:36		22:13	14 21:21 (11)
17	08:48	07:56	06:50		06:34		19:55 (10)	05:32		05:03	21:08 (11)
	16:47	17:49	18:44		20:42	17	20:12 (10)	21:37		22:14	13 21:21 (11)
18	08:47	07:54	06:47		06:31		19:53 (10)	05:30		05:03	21:08 (11)
	16:49	17:51	18:46		20:44	20	20:13 (10)	21:39		22:14	14 21:22 (11)
19	08:46	07:51	06:45		06:29		19:52 (10)	05:28		05:03	21:08 (11)
	16:51	17:53	18:48		20:46	22	20:14 (10)	21:41		22:15	14 21:22 (11)
20	08:45	07:49	06:42		06:27		19:51 (10)	05:27		05:03	21:08 (11)
	16:53	17:55	18:50		20:48	23	20:14 (10)	21:42		22:15	14 21:22 (11)
21	08:44	07:47	06:40		06:24		19:50 (10)	05:25	21:08 (11)	05:03	21:10 (11)
	16:55	17:57	18:51		20:50	25	20:15 (10)	21:44	3 21:11 (11)	22:15	13 21:23 (11)
22	08:42	07:45	06:37		06:22		19:50 (10)	05:24	21:05 (11)	05:03	21:09 (11)
	16:56	17:59	18:53		20:52	25	20:15 (10)	21:46	7 21:12 (11)	22:16	14 21:23 (11)
23	08:41	07:42	06:35		06:20		19:50 (10)	05:22	21:05 (11)	05:03	21:09 (11)
	16:58	18:01	18:55		20:54	25	20:15 (10)	21:47	8 21:13 (11)	22:16	14 21:23 (11)
24	08:40	07:40	06:32	18:15 (9)	06:17		19:49 (10)	05:21	21:04 (11)	05:04	21:09 (11)
	17:00	18:03	18:57	11 18:26 (9)	20:56	26	20:15 (10)	21:49	11 21:15 (11)	22:16	14 21:23 (11)
25	08:38	07:38	06:30	18:13 (9)	06:15		19:49 (10)	05:20	21:04 (11)	05:04	21:10 (11)
	17:02	18:05	18:59	16 18:29 (9)	20:58	26	20:15 (10)	21:50	12 21:16 (11)	22:16	14 21:24 (11)
26	08:37	07:36	06:27	18:11 (9)	06:13		19:49 (10)	05:18	21:04 (11)	05:05	21:10 (11)
	17:04	18:07	19:01	18 18:29 (9)	20:59	25	20:14 (10)	21:52	14 21:18 (11)	22:16	13 21:23 (11)
27	08:35	07:33	06:25	18:10 (9)	06:11		19:49 (10)	05:17	21:03 (11)	05:05	21:10 (11)
	17:06	18:09	19:03	21 18:31 (9)	21:01	24	20:13 (10)	21:53	16 21:19 (11)	22:16	14 21:24 (11)
28	08:34	07:31	06:22	18:08 (9)	06:09		19:49 (10)	05:16	21:03 (11)	05:06	21:10 (11)
	17:08	18:11	19:05	23 18:31 (9)	21:03	24	20:13 (10)	21:54	17 21:20 (11)	22:16	14 21:24 (11)
29	08:32		07:20	19:08 (9)	06:06		19:50 (10)	05:15	21:03 (11)	05:06	21:10 (11)
	17:10		20:07	24 19:32 (9)	21:05	22	20:12 (10)	21:56	17 21:20 (11)	22:15	15 21:25 (11)
30	08:30		07:17	19:06 (9)	06:04		19:51 (10)	05:14	21:03 (11)	05:07	21:10 (11)
	17:12		20:09	25 19:31 (9)	21:07	20	20:11 (10)	21:57	18 21:21 (11)	22:15	15 21:25 (11)
31	08:29		07:15	19:06 (9)				05:13	21:03 (11)		
	17:14		20:10	25 19:31 (9)				21:59	18 21:21 (11)		
Potential sun hours	248	272	367		421			496		513	
Total, worst case				163		502			182		452
Sun reduction				0.22		0.34			0.36		0.26
Oper. time red.				1.00		1.00			1.00		1.00
Wind dir. red.				0.59		0.59			0.62		0.63
Total reduction				0.13		0.20			0.22		0.16
Total, real				21		102			41		73

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CQ - H96

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October	November	December
1	05:07		21:10 (11)	05:48		06:44		07:38	07:37	08:33
	22:15	15	21:25 (11)	21:39		20:31		19:16	17:04	16:19
2	05:08		21:10 (11)	05:50		06:45		07:40	07:39	08:35
	22:14	16	21:26 (11)	21:37		20:28		19:14	17:02	16:18
3	05:09		21:11 (11)	05:52		06:47		07:42	07:41	08:36
	22:14	16	21:27 (11)	21:35		20:26		19:11	17:00	16:18
4	05:10		21:10 (11)	05:53		06:49	19:09 (9)	07:44	07:43	08:38
	22:13	16	21:26 (11)	21:33		20:23	8	19:17 (9)	19:09	16:58	16:17
5	05:11		21:10 (11)	05:55		06:51	19:06 (9)	07:45	07:45	08:39
	22:13	17	21:27 (11)	21:31		20:21	14	19:20 (9)	19:06	16:56	16:16
6	05:12		21:10 (11)	05:57		06:53	19:04 (9)	07:47	07:47	08:41
	22:12	17	21:27 (11)	21:29		20:19	18	19:22 (9)	19:04	16:55	16:16
7	05:13		21:10 (11)	05:59		06:54	19:03 (9)	07:49	07:49	08:42
	22:12	17	21:27 (11)	21:27		20:16	20	19:23 (9)	19:01	16:53	16:15
8	05:14		21:10 (11)	06:00		06:56	19:01 (9)	07:51	07:51	08:43
	22:11	18	21:28 (11)	21:25		20:14	22	19:23 (9)	18:59	16:51	16:15
9	05:15		21:10 (11)	06:02	20:08 (10)	06:58	19:00 (9)	07:53	07:53	08:45
	22:10	18	21:28 (11)	21:23	4	20:12 (10)	20:11	23	19:23 (9)	18:56	16:49	16:14
10	05:16		21:10 (11)	06:04	20:04 (10)	07:00	18:59 (9)	07:55	07:55	08:46
	22:09	18	21:28 (11)	21:21	12	20:16 (10)	20:09	25	19:24 (9)	18:54	16:47	16:14
11	05:17		21:11 (11)	06:06	20:01 (10)	07:02	18:59 (9)	07:57	07:57	08:47
	22:08	17	21:28 (11)	21:19	16	20:17 (10)	20:06	25	19:24 (9)	18:52	16:45	16:14
12	05:18		21:11 (11)	06:08	20:00 (10)	07:03	18:58 (9)	07:58	07:59	08:48
	22:07	17	21:28 (11)	21:17	18	20:18 (10)	20:04	25	19:23 (9)	18:49	16:44	16:14
13	05:19		21:11 (11)	06:09	19:59 (10)	07:05	18:58 (9)	08:00	08:01	08:49
	22:06	17	21:28 (11)	21:15	21	20:20 (10)	20:01	25	19:23 (9)	18:47	16:42	16:14
14	05:21		21:12 (11)	06:11	19:58 (10)	07:07	18:58 (9)	08:02	08:03	08:50
	22:05	17	21:29 (11)	21:12	23	20:21 (10)	19:59	24	19:22 (9)	18:44	16:40	16:13
15	05:22		21:12 (11)	06:13	19:57 (10)	07:09	18:58 (9)	08:04	08:05	08:51
	22:04	17	21:29 (11)	21:10	23	20:20 (10)	19:56	23	19:21 (9)	18:42	16:39	16:14
16	05:23		21:12 (11)	06:15	19:56 (10)	07:11	18:58 (9)	08:06	08:07	08:52
	22:03	16	21:28 (11)	21:08	25	20:21 (10)	19:54	21	19:19 (9)	18:40	16:37	16:14
17	05:25		21:12 (11)	06:17	19:56 (10)	07:12	18:59 (9)	08:08	08:09	08:53
	22:02	15	21:27 (11)	21:06	25	20:21 (10)	19:51	19	19:18 (9)	18:37	16:36	16:14
18	05:26		21:13 (11)	06:18	19:55 (10)	07:14	19:00 (9)	08:10	08:11	08:54
	22:00	14	21:27 (11)	21:04	26	20:21 (10)	19:49	16	19:16 (9)	18:35	16:34	16:14
19	05:28		21:14 (11)	06:20	19:55 (10)	07:16	19:02 (9)	08:12	08:12	08:54
	21:59	11	21:25 (11)	21:01	26	20:21 (10)	19:46	12	19:14 (9)	18:33	16:33	16:14
20	05:29		21:14 (11)	06:22	19:55 (10)	07:18		08:14	08:14	08:55
	21:58	10	21:24 (11)	20:59	26	20:21 (10)	19:44			18:30	16:31	16:15
21	05:30		21:16 (11)	06:24	19:54 (10)	07:20		08:16	08:16	08:56
	21:56	7	21:23 (11)	20:57	26	20:20 (10)	19:41			18:28	16:30	16:15
22	05:32		21:16 (11)	06:26	19:55 (10)	07:22		08:18	08:18	08:56
	21:55	5	21:21 (11)	20:55	24	20:19 (10)	19:39			18:26	16:29	16:15
23	05:34		21:19 (11)	06:27	19:55 (10)	07:23		08:20	08:20	08:57
	21:54	2	21:21 (11)	20:52	24	20:19 (10)	19:36			18:24	16:27	16:16
24	05:35			06:29	19:56 (10)	07:25		08:22	08:22	08:57
	21:52			20:50	22	20:18 (10)	19:34			18:21	16:26	16:17
25	05:37			06:31	19:56 (10)	07:27		07:24	08:23	08:58
	21:50			20:48	20	20:16 (10)	19:31			17:19	16:25	16:17
26	05:38			06:33	19:58 (10)	07:29		07:25	08:25	08:58
	21:49			20:45	17	20:15 (10)	19:29			17:17	16:24	16:18
27	05:40			06:35	20:00 (10)	07:31		07:27	08:27	08:58
	21:47			20:43	13	20:13 (10)	19:26			17:15	16:23	16:19
28	05:42			06:36	20:02 (10)	07:32		07:29	08:28	08:58
	21:46			20:40	6	20:08 (10)	19:24			17:13	16:22	16:20
29	05:43			06:38		07:34		07:31	08:30	08:58
	21:44			20:38		19:21		17:11	16:21	16:20
30	05:45			06:40		07:36		07:33	08:32	08:58
	21:42			20:36		19:19		17:09	16:20	16:21
31	05:47			06:42				07:35		08:58
	21:40			20:33				17:06		16:22
Potential sun hours	515			461		382		328	257	231
Total, worst case		333			397		320				
Sun reduction		0.27			0.27		0.29				
Oper. time red.		1.00			1.00		1.00				
Wind dir. red.		0.63			0.59		0.59				
Total reduction		0.17			0.16		0.17				
Total, real		56			65		55				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CR - H97

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March	April	May	June
1	08:59		15:29 (14)	08:27		07:29	07:12	06:02	05:12
	16:24	16	15:45 (14)	17:16		18:13	20:12	21:09	22:00
2	08:58		15:29 (14)	08:26		07:26	07:10	06:00	05:11
	16:25	17	15:46 (14)	17:18		18:15	20:14	21:11	22:01
3	08:58		15:30 (14)	08:24	08:52 (17)	07:24	07:07	05:58	05:10
	16:26	18	15:48 (14)	17:20	1 08:53 (17)	18:17	20:16	21:13	22:02
4	08:58		15:29 (14)	08:22	08:50 (17)	07:22	07:05	05:56	05:09
	16:27	20	15:49 (14)	17:22	4 08:54 (17)	18:19	20:18	21:14	22:04
5	08:57		15:30 (14)	08:20	08:48 (17)	07:19	07:03	05:54	05:08
	16:29	21	15:51 (14)	17:24	7 08:55 (17)	18:21	20:20	21:16	22:05
6	08:57		15:30 (14)	08:18	08:46 (17)	07:17	07:00	05:52	05:07
	16:30	22	15:52 (14)	17:26	10 08:56 (17)	18:23	20:22	21:18	22:06
7	08:57		15:30 (14)	08:16	08:44 (17)	07:14	06:58	05:50	05:07
	16:31	23	15:53 (14)	17:28	12 08:56 (17)	18:25	20:24	21:20	22:07
8	08:56		15:31 (14)	08:14	08:42 (17)	07:12	06:55	05:48	05:06
	16:33	24	15:55 (14)	17:30	15 08:57 (17)	18:27	20:26	21:22	22:08
9	08:55		15:30 (14)	08:12	08:40 (17)	07:10	06:53	05:46	05:05
	16:34	26	15:56 (14)	17:32	17 08:57 (17)	18:28	20:27	21:24	22:09
10	08:55		15:31 (14)	08:10	08:37 (17)	07:07	06:50	05:44	05:05
	16:36	25	15:56 (14)	17:34	19 08:56 (17)	18:30	20:29	21:25	22:10
11	08:54		15:31 (14)	08:08	08:35 (17)	07:05	06:48	05:42	05:04
	16:37	26	15:57 (14)	17:36	21 08:56 (17)	18:32	20:31	21:27	22:10
12	08:53		15:31 (14)	08:06	08:33 (17)	07:02	06:45	05:40	05:04
	16:39	26	15:57 (14)	17:38	23 08:56 (17)	18:34	20:33	21:29	22:11
13	08:52		15:31 (14)	08:04	08:32 (17)	07:00	06:43	05:39	05:04
	16:40	27	15:58 (14)	17:40	23 08:55 (17)	18:36	20:35	21:31	22:12
14	08:52		15:32 (14)	08:02	08:33 (17)	06:57	06:41	05:37	05:03
	16:42	27	15:59 (14)	17:42	22 08:55 (17)	18:38	20:37	21:32	22:13
15	08:51		15:32 (14)	08:00	08:34 (17)	06:55	06:38	05:35	05:03
	16:44	27	15:59 (14)	17:45	19 08:53 (17)	18:40	20:39	21:34	22:13
16	08:50		15:32 (14)	07:58	08:35 (17)	06:52	06:36	05:33	05:03
	16:45	27	15:59 (14)	17:47	17 08:52 (17)	18:42	20:41	21:36	22:14
17	08:49		09:20 (18)	07:56	08:37 (17)	06:50	06:34	05:32	05:03
	16:47	30	15:59 (14)	17:49	13 08:50 (17)	18:44	20:43	21:38	22:14
18	08:47		09:19 (18)	07:54	08:42 (17)	06:47	06:31	05:30	05:03
	16:49	32	16:00 (14)	17:51	4 08:46 (17)	18:46	20:44	21:39	22:15
19	08:46		09:17 (18)	07:52		06:45	06:29	05:28	05:03
	16:51	32	15:59 (14)	17:53		18:48	20:46	21:41	22:15
20	08:45		09:16 (18)	07:49		06:42	06:27	05:27	05:03
	16:53	34	16:00 (14)	17:55		18:50	20:48	21:43	22:15
21	08:44		09:14 (18)	07:47		06:40	06:24	05:25	05:03
	16:54	35	15:59 (14)	17:57		18:52	20:50	21:44	22:16
22	08:43		09:13 (18)	07:45		06:37	06:22	05:24	05:03
	16:56	37	16:00 (14)	17:59		18:53	20:52	21:46	22:16
23	08:41		09:11 (18)	07:43		06:35	06:20	05:22	05:03
	16:58	38	15:59 (14)	18:01		18:55	20:54	21:47	22:16
24	08:40		09:10 (18)	07:40		06:32	06:17	05:21	05:04
	17:00	39	16:00 (14)	18:03		18:57	20:56	21:49	22:16
25	08:38		09:08 (18)	07:38		06:30	06:15	05:20	05:04
	17:02	39	15:59 (14)	18:05		18:59	20:58	21:50	22:16
26	08:37		09:07 (18)	07:36		06:27	06:13	05:18	05:04
	17:04	39	15:59 (14)	18:07		19:01	21:00	21:52	22:16
27	08:35		09:06 (18)	07:33		06:25	06:11	05:17	05:05
	17:06	37	15:58 (14)	18:09		19:03	21:01	21:53	22:16
28	08:34		09:07 (18)	07:31		06:22	06:09	05:16	05:05
	17:08	31	15:56 (14)	18:11		19:05	21:03	21:55	22:16
29	08:32		09:08 (18)			07:20	06:06	05:15	05:06
	17:10	24	15:54 (14)			20:07	21:05	21:56	22:16
30	08:31		09:09 (18)			07:17	06:04	05:14	05:07
	17:12	13	09:22 (18)			20:09	21:07	21:57	22:15
31	08:29		09:12 (18)			07:15		05:13	
	17:14	9	09:21 (18)			20:10		21:59	
Potential sun hours	248			272		367	421	496	513
Total, worst case		841			227				
Sun reduction		0.17			0.22				
Oper. time red.		1.00			1.00				
Wind dir. red.		0.63			0.63				
Total reduction		0.11			0.14				
Total, real		90			32				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CR - H97

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October			November			December		
1	05:07	05:48	06:44	07:38			07:37		08:07 (17)	08:34		15:13 (14)
	22:15	21:39	20:31	19:16			17:04	19	08:26 (17)	16:19	26	15:39 (14)
2	05:08	05:50	06:45	07:40			07:39		08:09 (17)	08:35		15:14 (14)
	22:15	21:37	20:29	19:14			17:02	16	08:25 (17)	16:18	25	15:39 (14)
3	05:09	05:52	06:47	07:42			07:41		08:12 (17)	08:37		15:14 (14)
	22:14	21:35	20:26	19:11			17:00	14	08:26 (17)	16:18	25	15:39 (14)
4	05:10	05:53	06:49	07:44			07:43		08:14 (17)	08:38		15:15 (14)
	22:14	21:33	20:24	19:09			16:58	12	08:26 (17)	16:17	24	15:39 (14)
5	05:11	05:55	06:51	07:45			07:45		08:16 (17)	08:40		15:15 (14)
	22:13	21:31	20:21	19:06			16:56	9	08:25 (17)	16:16	23	15:38 (14)
6	05:12	05:57	06:53	07:47			07:47		08:18 (17)	08:41		15:16 (14)
	22:12	21:29	20:19	19:04			16:55	7	08:25 (17)	16:16	22	15:38 (14)
7	05:13	05:59	06:55	07:49			07:49		08:20 (17)	08:42		15:16 (14)
	22:12	21:27	20:16	19:01			16:53	4	08:24 (17)	16:15	21	15:37 (14)
8	05:14	06:00	06:56	07:51			07:51		08:22 (17)	08:44		15:17 (14)
	22:11	21:25	20:14	18:59			16:51	1	08:23 (17)	16:15	20	15:37 (14)
9	05:15	06:02	06:58	07:53			07:53			08:45		15:18 (14)
	22:10	21:23	20:11	18:56			16:49			16:14	18	15:36 (14)
10	05:16	06:04	07:00	07:55			07:55			08:46		15:18 (14)
	22:09	21:21	20:09	18:54			16:47			16:14	17	15:35 (14)
11	05:17	06:06	07:02	07:57			07:57		08:43 (18)	08:47		15:20 (14)
	22:08	21:19	20:06	18:52			16:45	9	08:52 (18)	16:14	16	15:36 (14)
12	05:18	06:08	07:04	07:59			07:59		08:41 (18)	08:48		15:20 (14)
	22:08	21:17	20:04	18:49			16:44	13	08:54 (18)	16:14	15	15:35 (14)
13	05:19	06:09	07:05	08:00			08:01		08:40 (18)	08:49		15:21 (14)
	22:06	21:15	20:01	18:47			16:42	25	15:26 (14)	16:13	14	15:35 (14)
14	05:21	06:11	07:07	08:02			08:03		08:39 (18)	08:50		15:22 (14)
	22:05	21:13	19:59	18:44			16:40	31	15:28 (14)	16:13	13	15:35 (14)
15	05:22	06:13	07:09	08:04			08:05		08:38 (18)	08:51		15:22 (14)
	22:04	21:10	19:56	18:42			16:39	37	15:30 (14)	16:13	13	15:35 (14)
16	05:23	06:15	07:11	08:06			08:07		08:40 (18)	08:52		15:23 (14)
	22:03	21:08	19:54	18:40			16:37	39	15:32 (14)	16:13	12	15:35 (14)
17	05:25	06:16	07:13	08:08			08:09		08:42 (18)	08:53		15:24 (14)
	22:02	21:06	19:51	18:37			16:36	39	15:33 (14)	16:14	11	15:35 (14)
18	05:26	06:18	07:14	08:10			08:11		08:44 (18)	08:54		15:24 (14)
	22:01	21:04	19:49	18:35			16:34	38	15:33 (14)	16:14	11	15:35 (14)
19	05:27	06:20	07:16	08:12			08:13		08:46 (18)	08:55		15:25 (14)
	21:59	21:02	19:46	18:33			16:33	38	15:34 (14)	16:14	10	15:35 (14)
20	05:29	06:22	07:18	08:14			08:14		08:48 (18)	08:55		15:26 (14)
	21:58	20:59	19:44	18:30			16:31	37	15:35 (14)	16:14	10	15:36 (14)
21	05:30	06:24	07:20	08:16			08:16		08:50 (18)	08:56		15:26 (14)
	21:57	20:57	19:41	18:28			16:30	35	15:35 (14)	16:15	10	15:36 (14)
22	05:32	06:26	07:22	08:18			08:18		08:52 (18)	08:57		15:27 (14)
	21:55	20:55	19:39	18:26			16:29	34	15:36 (14)	16:15	10	15:37 (14)
23	05:33	06:27	07:23	08:20			08:20		08:54 (18)	08:57		15:27 (14)
	21:54	20:52	19:36	18:24			16:27	33	15:36 (14)	16:16	10	15:37 (14)
24	05:35	06:29	07:25	08:22		09:09 (17)	08:22		08:56 (18)	08:57		15:28 (14)
	21:52	20:50	19:34	18:21	8	09:17 (17)	16:26	32	15:37 (14)	16:16	10	15:38 (14)
25	05:37	06:31	07:27	07:24		08:06 (17)	08:24		08:58 (18)	08:58		15:28 (14)
	21:51	20:48	19:31	17:19	14	08:20 (17)	16:25	30	15:37 (14)	16:17	10	15:38 (14)
26	05:38	06:33	07:29	07:26		08:04 (17)	08:25		09:00 (18)	08:58		15:28 (14)
	21:49	20:45	19:29	17:17	18	08:22 (17)	16:24	28	15:38 (14)	16:18	11	15:39 (14)
27	05:40	06:35	07:31	07:28		08:04 (17)	08:27		15:11 (14)	08:58		15:28 (14)
	21:47	20:43	19:26	17:15	20	08:24 (17)	16:23	27	15:38 (14)	16:19	12	15:40 (14)
28	05:41	06:36	07:33	07:30		08:03 (17)	08:29		15:12 (14)	08:58		15:28 (14)
	21:46	20:41	19:24	17:13	21	08:24 (17)	16:22	27	15:39 (14)	16:19	12	15:40 (14)
29	05:43	06:38	07:34	07:32		08:02 (17)	08:30		15:11 (14)	08:59		15:28 (14)
	21:44	20:38	19:21	17:11	23	08:25 (17)	16:21	27	15:38 (14)	16:20	13	15:41 (14)
30	05:45	06:40	07:36	07:34		08:03 (17)	08:32		15:12 (14)	08:59		15:29 (14)
	21:42	20:36	19:19	17:08	22	08:25 (17)	16:20	26	15:38 (14)	16:21	14	15:43 (14)
31	05:46	06:42		07:36		08:05 (17)				08:59		15:29 (14)
	21:41	20:33		17:06	21	08:26 (17)				16:22	15	15:44 (14)
Potential sun hours	515	461	383	327			257			230		
Total, worst case					147			687			473	
Sun reduction					0.23			0.20			0.12	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.63			0.63			0.62	
Total reduction					0.15			0.13			0.07	
Total, real					22			87			35	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CS - H98

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May	June
1	08:59		15:44 (14)	08:27		08:56 (17)	07:29	07:12	06:02	05:12
	16:24	1	15:45 (14)	17:16	8	09:04 (17)	18:13	20:12	21:09	22:00
2	08:58		15:43 (14)	08:26		08:54 (17)	07:26	07:10	06:00	05:11
	16:25	3	15:46 (14)	17:18	10	09:04 (17)	18:15	20:14	21:11	22:01
3	08:58		15:44 (14)	08:24		08:52 (17)	07:24	07:07	05:58	05:10
	16:26	4	15:48 (14)	17:20	13	09:05 (17)	18:17	20:16	21:13	22:02
4	08:58		15:43 (14)	08:22		08:50 (17)	07:22	07:05	05:56	05:09
	16:27	6	15:49 (14)	17:22	15	09:05 (17)	18:19	20:18	21:14	22:04
5	08:57		15:43 (14)	08:20		08:48 (17)	07:19	07:03	05:54	05:08
	16:29	8	15:51 (14)	17:24	17	09:05 (17)	18:21	20:20	21:16	22:05
6	08:57		15:43 (14)	08:18		08:46 (17)	07:17	07:00	05:52	05:07
	16:30	9	15:52 (14)	17:26	19	09:05 (17)	18:23	20:22	21:18	22:06
7	08:57		15:42 (14)	08:16		08:44 (17)	07:14	06:58	05:50	05:07
	16:31	11	15:53 (14)	17:28	22	09:06 (17)	18:25	20:24	21:20	22:07
8	08:56		15:43 (14)	08:14		08:42 (17)	07:12	06:55	05:48	05:06
	16:33	13	15:56 (14)	17:30	23	09:05 (17)	18:27	20:26	21:22	22:08
9	08:55		15:43 (14)	08:12		08:40 (17)	07:09	06:53	05:46	05:05
	16:34	14	15:57 (14)	17:32	25	09:05 (17)	18:28	20:27	21:24	22:09
10	08:55		09:28 (18)	08:10		08:40 (17)	07:07	06:50	05:44	05:05
	16:36	18	15:59 (14)	17:34	24	09:04 (17)	18:30	20:29	21:25	22:10
11	08:54		09:27 (18)	08:08		08:41 (17)	07:05	06:48	05:42	05:04
	16:37	20	16:00 (14)	17:36	22	09:03 (17)	18:32	20:31	21:27	22:10
12	08:53		09:26 (18)	08:06		08:42 (17)	07:02	06:45	05:40	05:04
	16:39	24	16:02 (14)	17:38	20	09:02 (17)	18:34	20:33	21:29	22:11
13	08:52		09:25 (18)	08:04		08:43 (17)	07:00	06:43	05:39	05:04
	16:40	28	16:04 (14)	17:40	18	09:01 (17)	18:36	20:35	21:31	22:12
14	08:52		09:24 (18)	08:02		08:45 (17)	06:57	06:41	05:37	05:03
	16:42	31	16:06 (14)	17:42	14	08:59 (17)	18:38	20:37	21:32	22:13
15	08:51		09:23 (18)	08:00		08:48 (17)	06:55	06:38	05:35	05:03
	16:44	33	16:07 (14)	17:45	8	08:56 (17)	18:40	20:39	21:34	22:13
16	08:50		09:21 (18)	07:58			06:52	06:36	05:33	05:03
	16:45	36	16:07 (14)	17:47			18:42	20:41	21:36	22:14
17	08:49		09:20 (18)	07:56			06:50	06:34	05:32	05:03
	16:47	38	16:08 (14)	17:49			18:44	20:43	21:38	22:14
18	08:47		09:19 (18)	07:54			06:47	06:31	05:30	05:03
	16:49	40	16:09 (14)	17:51			18:46	20:44	21:39	22:15
19	08:46		09:17 (18)	07:52			06:45	06:29	05:28	05:03
	16:51	42	16:09 (14)	17:53			18:48	20:46	21:41	22:15
20	08:45		09:16 (18)	07:49			06:42	06:27	05:27	05:03
	16:53	42	16:09 (14)	17:55			18:50	20:48	21:43	22:15
21	08:44		09:14 (18)	07:47			06:40	06:24	05:25	05:03
	16:54	45	16:09 (14)	17:57			18:52	20:50	21:44	22:16
22	08:43		09:13 (18)	07:45			06:37	06:22	05:24	05:03
	16:56	46	16:10 (14)	17:59			18:53	20:52	21:46	22:16
23	08:41		09:13 (18)	07:43			06:35	06:20	05:22	05:03
	16:58	45	16:09 (14)	18:01			18:55	20:54	21:47	22:16
24	08:40		09:14 (18)	07:40			06:32	06:17	05:21	05:04
	17:00	43	16:10 (14)	18:03			18:57	20:56	21:49	22:16
25	08:38		09:15 (18)	07:38			06:30	06:15	05:20	05:04
	17:02	40	16:09 (14)	18:05			18:59	20:58	21:50	22:16
26	08:37		09:17 (18)	07:36			06:27	06:13	05:18	05:04
	17:04	38	16:10 (14)	18:07			19:01	21:00	21:52	22:16
27	08:35		09:19 (18)	07:33			06:25	06:11	05:17	05:05
	17:06	32	16:09 (14)	18:09			19:03	21:01	21:53	22:16
28	08:34		09:21 (18)	07:31			06:22	06:09	05:16	05:05
	17:08	26	16:08 (14)	18:11			19:05	21:03	21:55	22:16
29	08:32		15:50 (14)				07:20	06:06	05:15	05:06
	17:10	17	16:07 (14)				20:07	21:05	21:56	22:16
30	08:31		08:59 (17)				07:17	06:04	05:14	05:07
	17:12	15	16:05 (14)				20:09	21:07	21:57	22:15
31	08:29		08:58 (17)				07:15		05:13	
	17:14	14	16:04 (14)				20:10		21:59	
Potential sun hours	248			272			367	421	496	513
Total, worst case		782			258					
Sun reduction		0.17			0.22					
Oper. time red.		1.00			1.00					
Wind dir. red.		0.63			0.63					
Total reduction		0.11			0.14					
Total, real		84			36					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CS - H98

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October			November			December		
1	05:07	05:48	06:44	07:38			07:37		08:09 (17)	08:34		09:09 (18)
	22:15	21:39	20:31	19:16			17:04	24	08:33 (17)	16:19	21	15:42 (14)
2	05:08	05:50	06:45	07:40			07:39		08:09 (17)	08:35		09:11 (18)
	22:15	21:37	20:29	19:14			17:02	25	08:34 (17)	16:18	18	15:42 (14)
3	05:09	05:52	06:47	07:42			07:41		08:12 (17)	08:37		15:26 (14)
	22:14	21:35	20:26	19:11			17:00	23	08:35 (17)	16:17	14	15:40 (14)
4	05:10	05:53	06:49	07:44			07:43		08:14 (17)	08:38		15:27 (14)
	22:14	21:33	20:24	19:09			16:58	21	08:35 (17)	16:17	13	15:40 (14)
5	05:11	05:55	06:51	07:45			07:45		08:16 (17)	08:40		15:27 (14)
	22:13	21:31	20:21	19:06			16:56	19	08:35 (17)	16:16	11	15:38 (14)
6	05:12	05:57	06:53	07:47			07:47		08:18 (17)	08:41		15:29 (14)
	22:12	21:29	20:19	19:04			16:55	17	08:35 (17)	16:16	9	15:38 (14)
7	05:13	05:59	06:55	07:49			07:49		08:20 (17)	08:42		15:29 (14)
	22:12	21:27	20:16	19:01			16:53	15	08:35 (17)	16:15	8	15:37 (14)
8	05:14	06:00	06:56	07:51			07:51		08:22 (17)	08:44		15:31 (14)
	22:11	21:25	20:14	18:59			16:51	12	08:34 (17)	16:15	6	15:37 (14)
9	05:15	06:02	06:58	07:53			07:53		08:25 (17)	08:45		15:32 (14)
	22:10	21:23	20:11	18:56			16:49	10	08:35 (17)	16:14	4	15:36 (14)
10	05:16	06:04	07:00	07:55			07:55		08:27 (17)	08:46		15:33 (14)
	22:09	21:21	20:09	18:54			16:47	7	08:34 (17)	16:14	2	15:35 (14)
11	05:17	06:06	07:02	07:57			07:57		08:29 (17)	08:47		15:34 (14)
	22:08	21:19	20:06	18:52			16:45	14	15:35 (14)	16:14	2	15:36 (14)
12	05:18	06:07	07:04	07:59			07:59		08:31 (17)	08:48		
	22:08	21:17	20:04	18:49			16:44	15	15:37 (14)	16:14		
13	05:19	06:09	07:05	08:00			08:01		15:22 (14)	08:49		
	22:06	21:15	20:01	18:47			16:42	17	15:39 (14)	16:13		
14	05:21	06:11	07:07	08:02			08:03		08:53 (18)	08:50		
	22:05	21:13	19:59	18:44			16:40	26	15:40 (14)	16:13		
15	05:22	06:13	07:09	08:04			08:05		08:50 (18)	08:51		
	22:04	21:10	19:56	18:42			16:39	33	15:41 (14)	16:13		
16	05:23	06:15	07:11	08:06			08:07		08:50 (18)	08:52		
	22:03	21:08	19:54	18:40			16:37	38	15:43 (14)	16:13		
17	05:25	06:16	07:13	08:08			08:09		08:49 (18)	08:53		
	22:02	21:06	19:51	18:37			16:36	40	15:43 (14)	16:14		
18	05:26	06:18	07:14	08:10			08:11		08:48 (18)	08:54		
	22:01	21:04	19:49	18:35			16:34	43	15:44 (14)	16:14		
19	05:27	06:20	07:16	08:12			08:13		08:48 (18)	08:55		
	21:59	21:02	19:46	18:33			16:33	45	15:44 (14)	16:14		
20	05:29	06:22	07:18	08:14			08:14		08:48 (18)	08:55		
	21:58	20:59	19:44	18:30			16:31	46	15:45 (14)	16:14		
21	05:30	06:24	07:20	08:16			08:16		08:50 (18)	08:56		
	21:57	20:57	19:41	18:28			16:30	45	15:45 (14)	16:15		
22	05:32	06:26	07:22	08:18			08:18		08:52 (18)	08:57		
	21:55	20:55	19:39	18:26			16:29	42	15:45 (14)	16:15		
23	05:33	06:27	07:23	08:20			08:20		08:54 (18)	08:57		
	21:54	20:52	19:36	18:24			16:27	42	15:46 (14)	16:16		
24	05:35	06:29	07:25	08:22			08:22		08:56 (18)	08:57		
	21:52	20:50	19:34	18:21			16:26	40	15:46 (14)	16:16		
25	05:37	06:31	07:27	07:24			08:23		08:58 (18)	08:58		
	21:51	20:48	19:31	17:19			16:25	38	15:46 (14)	16:17		
26	05:38	06:33	07:29	07:26			08:25		09:00 (18)	08:58		
	21:49	20:45	19:29	17:17			16:24	36	15:46 (14)	16:18		
27	05:40	06:35	07:31	07:28		08:17 (17)	08:27		09:02 (18)	08:58		
	21:47	20:43	19:26	17:15	10	08:27 (17)	16:23	34	15:47 (14)	16:19		
28	05:41	06:36	07:33	07:30		08:14 (17)	08:29		09:04 (18)	08:58		
	21:46	20:41	19:24	17:13	15	08:29 (17)	16:22	31	15:46 (14)	16:19		
29	05:43	06:38	07:34	07:32		08:13 (17)	08:30		09:05 (18)	08:59		
	21:44	20:38	19:21	17:11	18	08:31 (17)	16:21	27	15:44 (14)	16:20		
30	05:45	06:40	07:36	07:34		08:11 (17)	08:32		09:07 (18)	08:59		
	21:42	20:36	19:19	17:08	21	08:32 (17)	16:20	24	15:43 (14)	16:21		
31	05:46	06:42		07:35		08:10 (17)				08:59		
	21:41	20:33		17:06	23	08:33 (17)				16:22		
Potential sun hours	515	461	383	327			257			230		
Total, worst case					87			849			108	
Sun reduction					0.23			0.20			0.12	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.63			0.63			0.62	
Total reduction					0.15			0.13			0.07	
Total, real					13			107			8	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CT - H99

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April	May	June
1	08:58			08:27		15:56 (18)	07:29		16:53 (17)	07:12	06:02	05:11
	16:24			17:16	23	16:19 (18)	18:13	16	17:09 (17)	20:12	21:09	22:00
2	08:58			08:25		15:56 (18)	07:26		16:55 (17)	07:10	06:00	05:10
	16:25			17:18	23	16:19 (18)	18:15	11	17:06 (17)	20:14	21:11	22:01
3	08:58			08:24		15:57 (18)	07:24			07:07	05:58	05:10
	16:26			17:20	22	16:19 (18)	18:17			20:16	21:13	22:02
4	08:58			08:22		15:58 (18)	07:21			07:05	05:56	05:09
	16:27			17:22	20	16:18 (18)	18:19			20:18	21:14	22:03
5	08:57			08:20		15:59 (18)	07:19			07:02	05:54	05:08
	16:28			17:24	18	16:17 (18)	18:21			20:20	21:16	22:05
6	08:57			08:18		16:01 (18)	07:17			07:00	05:52	05:07
	16:30			17:26	15	16:16 (18)	18:23			20:22	21:18	22:06
7	08:56			08:16		16:03 (18)	07:14			06:58	05:50	05:06
	16:31			17:28	11	16:14 (18)	18:24			20:24	21:20	22:07
8	08:56			08:14			07:12			06:55	05:48	05:06
	16:33			17:30			18:26			20:25	21:22	22:08
9	08:55			08:12			07:09			06:53	05:46	05:05
	16:34			17:32			18:28			20:27	21:23	22:09
10	08:55			08:10			07:07			06:50	05:44	05:05
	16:36			17:34			18:30			20:29	21:25	22:09
11	08:54			08:08			07:05			06:48	05:42	05:04
	16:37			17:36			18:32			20:31	21:27	22:10
12	08:53			08:06			07:02			06:45	05:40	05:04
	16:39			17:38			18:34			20:33	21:29	22:11
13	08:52			08:04		16:57 (17)	07:00			06:43	05:38	05:03
	16:40			17:40	9	17:06 (17)	18:36			20:35	21:31	22:12
14	08:51			08:02		16:55 (17)	06:57			06:41	05:37	05:03
	16:42			17:42	14	17:09 (17)	18:38			20:37	21:32	22:12
15	08:51			08:00		16:52 (17)	06:55			06:38	05:35	05:03
	16:44			17:44	18	17:10 (17)	18:40			20:39	21:34	22:13
16	08:50		16:02 (18)	07:58		16:51 (17)	06:52			06:36	05:33	05:03
	16:45	1	16:03 (18)	17:46	21	17:12 (17)	18:42			20:41	21:36	22:14
17	08:48		15:59 (18)	07:56		16:50 (17)	06:50			06:33	05:32	05:03
	16:47	9	16:08 (18)	17:48	23	17:13 (17)	18:44			20:42	21:37	22:14
18	08:47		15:58 (18)	07:54		16:50 (17)	06:47			06:31	05:30	05:03
	16:49	12	16:10 (18)	17:51	24	17:14 (17)	18:46			20:44	21:39	22:15
19	08:46		15:56 (18)	07:51		16:48 (17)	06:45			06:29	05:28	05:03
	16:51	15	16:11 (18)	17:53	26	17:14 (17)	18:48			20:46	21:41	22:15
20	08:45		15:56 (18)	07:49		16:48 (17)	06:42			06:26	05:27	05:03
	16:52	17	16:13 (18)	17:55	27	17:15 (17)	18:50			20:48	21:42	22:15
21	08:44		15:55 (18)	07:47		16:48 (17)	06:40			06:24	05:25	05:03
	16:54	19	16:14 (18)	17:57	27	17:15 (17)	18:51			20:50	21:44	22:16
22	08:42		15:55 (18)	07:45		16:47 (17)	06:37			06:22	05:24	05:03
	16:56	20	16:15 (18)	17:59	27	17:14 (17)	18:53			20:52	21:46	22:16
23	08:41		15:54 (18)	07:42		16:48 (17)	06:35			06:20	05:22	05:03
	16:58	22	16:16 (18)	18:01	27	17:15 (17)	18:55			20:54	21:47	22:16
24	08:40		15:54 (18)	07:40		16:48 (17)	06:32			06:17	05:21	05:04
	17:00	23	16:17 (18)	18:03	27	17:15 (17)	18:57			20:56	21:49	22:16
25	08:38		15:54 (18)	07:38		16:48 (17)	06:30			06:15	05:20	05:04
	17:02	23	16:17 (18)	18:05	25	17:13 (17)	18:59			20:58	21:50	22:16
26	08:37		15:53 (18)	07:36		16:49 (17)	06:27			06:13	05:18	05:04
	17:04	25	16:18 (18)	18:07	24	17:13 (17)	19:01			20:59	21:52	22:16
27	08:35		15:54 (18)	07:33		16:49 (17)	06:25			06:11	05:17	05:05
	17:06	25	16:19 (18)	18:09	22	17:11 (17)	19:03			21:01	21:53	22:16
28	08:34		15:54 (18)	07:31		16:51 (17)	06:22			06:08	05:16	05:05
	17:08	25	16:19 (18)	18:11	19	17:10 (17)	19:05			21:03	21:55	22:16
29	08:32		15:54 (18)				07:20			06:06	05:15	05:06
	17:10	25	16:19 (18)				20:07			21:05	21:56	22:15
30	08:31		15:54 (18)				07:17			06:04	05:14	05:07
	17:12	25	16:19 (18)				20:08			21:07	21:57	22:15
31	08:29		15:54 (18)				07:15				05:12	
	17:14	25	16:19 (18)				20:10				21:59	
Potential sun hours	248			272			367			421	496	513
Total, worst case		311			492			27				
Sun reduction		0.17			0.22			0.22				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.61			0.59			0.58				
Total reduction		0.10			0.13			0.13				
Total, real		32			64			4				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CT - H99

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October		November		December
1	05:07	05:48	06:44	07:38		07:37		08:33
	22:15	21:39	20:31	19:16		17:04		16:19
2	05:08	05:50	06:45	07:40		07:39		08:35
	22:14	21:37	20:28	19:14		17:02		16:18
3	05:09	05:52	06:47	07:42		07:41	15:35 (18)	08:36
	22:14	21:35	20:26	19:11		17:00	4 15:39 (18)	16:17
4	05:10	05:53	06:49	07:43		07:43	15:32 (18)	08:38
	22:14	21:33	20:23	19:09		16:58	12 15:44 (18)	16:17
5	05:11	05:55	06:51	07:45		07:45	15:30 (18)	08:39
	22:13	21:31	20:21	19:06		16:56	16 15:46 (18)	16:16
6	05:11	05:57	06:53	07:47		07:47	15:29 (18)	08:41
	22:12	21:29	20:19	19:04		16:54	18 15:47 (18)	16:16
7	05:12	05:58	06:54	07:49		07:49	15:27 (18)	08:42
	22:12	21:27	20:16	19:01		16:53	21 15:48 (18)	16:15
8	05:13	06:00	06:56	07:51		07:51	15:27 (18)	08:43
	22:11	21:25	20:14	18:59		16:51	21 15:48 (18)	16:15
9	05:15	06:02	06:58	07:53		07:53	15:26 (18)	08:45
	22:10	21:23	20:11	18:56		16:49	23 15:49 (18)	16:14
10	05:16	06:04	07:00	07:55		07:55	15:26 (18)	08:46
	22:09	21:21	20:09	18:54		16:47	24 15:50 (18)	16:14
11	05:17	06:06	07:02	07:57	17:31 (17)	07:57	15:26 (18)	08:47
	22:08	21:19	20:06	18:51	7 17:38 (17)	16:45	25 15:51 (18)	16:14
12	05:18	06:07	07:03	07:58	17:27 (17)	07:59	15:26 (18)	08:48
	22:07	21:17	20:04	18:49	14 17:41 (17)	16:44	25 15:51 (18)	16:13
13	05:19	06:09	07:05	08:00	17:25 (17)	08:01	15:26 (18)	08:49
	22:06	21:15	20:01	18:47	18 17:43 (17)	16:42	25 15:51 (18)	16:13
14	05:21	06:11	07:07	08:02	17:23 (17)	08:03	15:26 (18)	08:50
	22:05	21:13	19:59	18:44	21 17:44 (17)	16:40	25 15:51 (18)	16:13
15	05:22	06:13	07:09	08:04	17:22 (17)	08:05	15:26 (18)	08:51
	22:04	21:10	19:56	18:42	23 17:45 (17)	16:39	25 15:51 (18)	16:13
16	05:23	06:15	07:11	08:06	17:21 (17)	08:07	15:26 (18)	08:52
	22:03	21:08	19:54	18:40	24 17:45 (17)	16:37	25 15:51 (18)	16:13
17	05:25	06:16	07:12	08:08	17:20 (17)	08:09	15:28 (18)	08:53
	22:02	21:06	19:51	18:37	26 17:46 (17)	16:36	23 15:51 (18)	16:14
18	05:26	06:18	07:14	08:10	17:19 (17)	08:11	15:28 (18)	08:54
	22:01	21:04	19:49	18:35	27 17:46 (17)	16:34	23 15:51 (18)	16:14
19	05:27	06:20	07:16	08:12	17:19 (17)	08:12	15:29 (18)	08:55
	21:59	21:01	19:46	18:33	27 17:46 (17)	16:33	22 15:51 (18)	16:14
20	05:29	06:22	07:18	08:14	17:19 (17)	08:14	15:30 (18)	08:55
	21:58	20:59	19:44	18:30	27 17:46 (17)	16:31	20 15:50 (18)	16:14
21	05:30	06:24	07:20	08:16	17:19 (17)	08:16	15:31 (18)	08:56
	21:57	20:57	19:41	18:28	26 17:45 (17)	16:30	19 15:50 (18)	16:15
22	05:32	06:25	07:21	08:18	17:19 (17)	08:18	15:32 (18)	08:56
	21:55	20:55	19:39	18:26	26 17:45 (17)	16:28	17 15:49 (18)	16:15
23	05:33	06:27	07:23	08:20	17:19 (17)	08:20	15:33 (18)	08:57
	21:54	20:52	19:36	18:24	25 17:44 (17)	16:27	15 15:48 (18)	16:16
24	05:35	06:29	07:25	08:22	17:19 (17)	08:22	15:35 (18)	08:57
	21:52	20:50	19:33	18:21	24 17:43 (17)	16:26	12 15:47 (18)	16:16
25	05:36	06:31	07:27	07:24	16:20 (17)	08:23	15:37 (18)	08:58
	21:51	20:48	19:31	17:19	22 16:42 (17)	16:25	9 15:46 (18)	16:17
26	05:38	06:33	07:29	07:26	16:21 (17)	08:25	15:41 (18)	08:58
	21:49	20:45	19:28	17:17	20 16:41 (17)	16:24	2 15:43 (18)	16:18
27	05:40	06:34	07:31	07:27	16:22 (17)	08:27		08:58
	21:47	20:43	19:26	17:15	17 16:39 (17)	16:23		16:18
28	05:41	06:36	07:32	07:29	16:25 (17)	08:29		08:58
	21:46	20:40	19:23	17:13	13 16:38 (17)	16:22		16:19
29	05:43	06:38	07:34	07:31	16:28 (17)	08:30		08:58
	21:44	20:38	19:21	17:10	7 16:35 (17)	16:21		16:20
30	05:45	06:40	07:36	07:33		08:32		08:59
	21:42	20:36	19:18	17:08		16:20		16:21
31	05:46	06:42		07:35				08:58
	21:40	20:33		17:06				16:22
Potential sun hours	515	461	383	327		257		230
Total, worst case				394		451		
Sun reduction				0.23		0.20		
Oper. time red.				1.00		1.00		
Wind dir. red.				0.58		0.61		
Total reduction				0.14		0.12		
Total, real				54		55		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CU - H100

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May	June
1	08:58			08:27		15:51 (18)	07:29	07:12	06:02	05:11
	16:24			17:16	17	16:08 (18)	18:13	20:12	21:09	22:00
2	08:58			08:25		15:53 (18)	07:26	07:10	06:00	05:10
	16:25			17:18	14	16:07 (18)	18:15	20:14	21:11	22:01
3	08:58			08:24		15:55 (18)	07:24	07:07	05:58	05:10
	16:26			17:20	10	16:05 (18)	18:17	20:16	21:13	22:02
4	08:58			08:22			07:21	07:05	05:56	05:09
	16:27			17:22			18:19	20:18	21:14	22:03
5	08:57			08:20			07:19	07:02	05:54	05:08
	16:28			17:24			18:21	20:20	21:16	22:05
6	08:57			08:18			07:17	07:00	05:52	05:07
	16:30			17:26			18:23	20:22	21:18	22:06
7	08:56			08:16			07:14	06:58	05:50	05:06
	16:31			17:28			18:24	20:24	21:20	22:07
8	08:56			08:14		16:50 (17)	07:12	06:55	05:48	05:06
	16:33			17:30	6	16:56 (17)	18:26	20:25	21:22	22:08
9	08:55		15:52 (18)	08:12		16:46 (17)	07:09	06:53	05:46	05:05
	16:34	2	15:54 (18)	17:32	13	16:59 (17)	18:28	20:27	21:23	22:09
10	08:55		15:49 (18)	08:10		16:44 (17)	07:07	06:50	05:44	05:05
	16:36	8	15:57 (18)	17:34	17	17:01 (17)	18:30	20:29	21:25	22:09
11	08:54		15:48 (18)	08:08		16:43 (17)	07:05	06:48	05:42	05:04
	16:37	11	15:59 (18)	17:36	20	17:03 (17)	18:32	20:31	21:27	22:10
12	08:53		15:47 (18)	08:06		16:42 (17)	07:02	06:45	05:40	05:04
	16:39	14	16:01 (18)	17:38	22	17:04 (17)	18:34	20:33	21:29	22:11
13	08:52		15:46 (18)	08:04		16:41 (17)	07:00	06:43	05:38	05:03
	16:40	16	16:02 (18)	17:40	24	17:05 (17)	18:36	20:35	21:31	22:12
14	08:51		15:46 (18)	08:02		16:41 (17)	06:57	06:41	05:37	05:03
	16:42	17	16:03 (18)	17:42	25	17:06 (17)	18:38	20:37	21:32	22:12
15	08:51		15:45 (18)	08:00		16:39 (17)	06:55	06:38	05:35	05:03
	16:44	19	16:04 (18)	17:44	27	17:06 (17)	18:40	20:39	21:34	22:13
16	08:50		15:45 (18)	07:58		16:39 (17)	06:52	06:36	05:33	05:03
	16:45	20	16:05 (18)	17:46	27	17:06 (17)	18:42	20:41	21:36	22:14
17	08:48		15:45 (18)	07:56		16:39 (17)	06:50	06:33	05:32	05:03
	16:47	21	16:06 (18)	17:48	28	17:07 (17)	18:44	20:42	21:37	22:14
18	08:47		15:45 (18)	07:54		16:40 (17)	06:47	06:31	05:30	05:03
	16:49	22	16:07 (18)	17:51	27	17:07 (17)	18:46	20:44	21:39	22:15
19	08:46		15:44 (18)	07:51		16:39 (17)	06:45	06:29	05:28	05:03
	16:51	23	16:07 (18)	17:53	27	17:06 (17)	18:48	20:46	21:41	22:15
20	08:45		15:45 (18)	07:49		16:40 (17)	06:42	06:26	05:27	05:03
	16:52	23	16:08 (18)	17:55	26	17:06 (17)	18:50	20:48	21:42	22:15
21	08:44		15:44 (18)	07:47		16:40 (17)	06:40	06:24	05:25	05:03
	16:54	24	16:08 (18)	17:57	26	17:06 (17)	18:51	20:50	21:44	22:16
22	08:42		15:45 (18)	07:45		16:40 (17)	06:37	06:22	05:24	05:03
	16:56	24	16:09 (18)	17:59	24	17:04 (17)	18:53	20:52	21:46	22:16
23	08:41		15:45 (18)	07:42		16:42 (17)	06:35	06:20	05:22	05:03
	16:58	24	16:09 (18)	18:01	21	17:03 (17)	18:55	20:54	21:47	22:16
24	08:40		15:45 (18)	07:40		16:43 (17)	06:32	06:17	05:21	05:04
	17:00	25	16:10 (18)	18:03	19	17:02 (17)	18:57	20:56	21:49	22:16
25	08:38		15:45 (18)	07:38		16:44 (17)	06:30	06:15	05:20	05:04
	17:02	25	16:10 (18)	18:05	16	17:00 (17)	18:59	20:58	21:50	22:16
26	08:37		15:45 (18)	07:36		16:48 (17)	06:27	06:13	05:18	05:04
	17:04	25	16:10 (18)	18:07	9	16:57 (17)	19:01	20:59	21:52	22:16
27	08:35		15:47 (18)	07:33			06:25	06:11	05:17	05:05
	17:06	24	16:11 (18)	18:09			19:03	21:01	21:53	22:16
28	08:34		15:47 (18)	07:31			06:22	06:08	05:16	05:05
	17:08	23	16:10 (18)	18:11			19:05	21:03	21:55	22:16
29	08:32		15:47 (18)				07:20	06:06	05:15	05:06
	17:10	23	16:10 (18)				20:07	21:05	21:56	22:15
30	08:31		15:48 (18)				07:17	06:04	05:14	05:07
	17:12	21	16:09 (18)				20:08	21:07	21:57	22:15
31	08:29		15:49 (18)				07:15		05:12	
	17:14	19	16:08 (18)				20:10		21:59	
Potential sun hours	248			272			367	421	496	513
Total, worst case		453			445					
Sun reduction		0.17			0.22					
Oper. time red.		1.00			1.00					
Wind dir. red.		0.62			0.58					
Total reduction		0.11			0.13					
Total, real		48			58					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CU - H100

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October			November			December		
1	05:07	05:48	06:44	07:38			07:37		16:14 (17)	08:33		15:30 (18)
	22:15	21:39	20:31	19:16			17:04	16	16:30 (17)	16:19	11	15:41 (18)
2	05:08	05:50	06:45	07:40			07:39		16:16 (17)	08:35		15:31 (18)
	22:14	21:37	20:28	19:14			17:02	12	16:28 (17)	16:18	8	15:39 (18)
3	05:09	05:51	06:47	07:42			07:41		16:19 (17)	08:36		15:34 (18)
	22:14	21:35	20:26	19:11			17:00	5	16:24 (17)	16:17	3	15:37 (18)
4	05:10	05:53	06:49	07:43			07:43			08:38		
	22:14	21:33	20:23	19:09			16:58			16:17		
5	05:11	05:55	06:51	07:45			07:45			08:39		
	22:13	21:31	20:21	19:06			16:56			16:16		
6	05:11	05:57	06:53	07:47			07:47			08:41		
	22:12	21:29	20:19	19:04			16:54			16:16		
7	05:12	05:58	06:54	07:49			07:49			08:42		
	22:12	21:27	20:16	19:01			16:53			16:15		
8	05:13	06:00	06:56	07:51			07:51		15:25 (18)	08:43		
	22:11	21:25	20:14	18:59			16:51	10	15:35 (18)	16:15		
9	05:15	06:02	06:58	07:53			07:53		15:22 (18)	08:45		
	22:10	21:23	20:11	18:56			16:49	15	15:37 (18)	16:14		
10	05:16	06:04	07:00	07:55			07:55		15:22 (18)	08:46		
	22:09	21:21	20:09	18:54			16:47	17	15:39 (18)	16:14		
11	05:17	06:06	07:02	07:57			07:57		15:21 (18)	08:47		
	22:08	21:19	20:06	18:51			16:45	19	15:40 (18)	16:14		
12	05:18	06:07	07:03	07:58			07:59		15:20 (18)	08:48		
	22:07	21:17	20:04	18:49			16:44	21	15:41 (18)	16:13		
13	05:19	06:09	07:05	08:00			08:01		15:19 (18)	08:49		
	22:06	21:15	20:01	18:47			16:42	23	15:42 (18)	16:13		
14	05:21	06:11	07:07	08:02			08:03		15:19 (18)	08:50		
	22:05	21:13	19:59	18:44			16:40	23	15:42 (18)	16:13		
15	05:22	06:13	07:09	08:04		17:24 (17)	08:05		15:19 (18)	08:51		
	22:04	21:10	19:56	18:42	2	17:26 (17)	16:39	24	15:43 (18)	16:13		
16	05:23	06:15	07:11	08:06		17:19 (17)	08:07		15:18 (18)	08:52		
	22:03	21:08	19:54	18:40	12	17:31 (17)	16:37	25	15:43 (18)	16:13		
17	05:25	06:16	07:12	08:08		17:16 (17)	08:09		15:19 (18)	08:53		
	22:02	21:06	19:51	18:37	17	17:33 (17)	16:36	25	15:44 (18)	16:14		
18	05:26	06:18	07:14	08:10		17:14 (17)	08:11		15:19 (18)	08:54		
	22:01	21:04	19:49	18:35	20	17:34 (17)	16:34	25	15:44 (18)	16:14		
19	05:27	06:20	07:16	08:12		17:13 (17)	08:12		15:20 (18)	08:55		
	21:59	21:01	19:46	18:33	22	17:35 (17)	16:33	24	15:44 (18)	16:14		
20	05:29	06:22	07:18	08:14		17:11 (17)	08:14		15:20 (18)	08:55		
	21:58	20:59	19:44	18:30	25	17:36 (17)	16:31	24	15:44 (18)	16:14		
21	05:30	06:24	07:20	08:16		17:11 (17)	08:16		15:20 (18)	08:56		
	21:57	20:57	19:41	18:28	25	17:36 (17)	16:30	24	15:44 (18)	16:15		
22	05:32	06:25	07:21	08:18		17:10 (17)	08:18		15:21 (18)	08:56		
	21:55	20:55	19:39	18:26	26	17:36 (17)	16:28	23	15:44 (18)	16:15		
23	05:33	06:27	07:23	08:20		17:09 (17)	08:20		15:21 (18)	08:57		
	21:54	20:52	19:36	18:24	27	17:36 (17)	16:27	23	15:44 (18)	16:16		
24	05:35	06:29	07:25	08:22		17:09 (17)	08:22		15:22 (18)	08:57		
	21:52	20:50	19:33	18:21	27	17:36 (17)	16:26	22	15:44 (18)	16:16		
25	05:36	06:31	07:27	07:24		16:09 (17)	08:23		15:23 (18)	08:58		
	21:51	20:48	19:31	17:19	27	16:36 (17)	16:25	21	15:44 (18)	16:17		
26	05:38	06:33	07:29	07:26		16:09 (17)	08:25		15:24 (18)	08:58		
	21:49	20:45	19:28	17:17	27	16:36 (17)	16:24	20	15:44 (18)	16:18		
27	05:40	06:34	07:31	07:27		16:09 (17)	08:27		15:25 (18)	08:58		
	21:47	20:43	19:26	17:15	26	16:35 (17)	16:23	19	15:44 (18)	16:18		
28	05:41	06:36	07:32	07:29		16:10 (17)	08:29		15:25 (18)	08:58		
	21:46	20:40	19:23	17:13	25	16:35 (17)	16:22	17	15:42 (18)	16:19		
29	05:43	06:38	07:34	07:31		16:11 (17)	08:30		15:27 (18)	08:58		
	21:44	20:38	19:21	17:10	23	16:34 (17)	16:21	15	15:42 (18)	16:20		
30	05:45	06:40	07:36	07:33		16:12 (17)	08:32		15:28 (18)	08:59		
	21:42	20:36	19:18	17:08	21	16:33 (17)	16:20	14	15:42 (18)	16:21		
31	05:46	06:42		07:35		16:12 (17)				08:59		
	21:40	20:33		17:06	20	16:32 (17)				16:22		
Potential sun hours	515	461	383	327			257			230		
Total, worst case					372			506			22	
Sun reduction					0.23			0.20			0.12	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.58			0.62			0.62	
Total reduction					0.14			0.12			0.07	
Total, real					51			62			2	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CV - H101

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April			May		June		
1	08:58	08:27		16:39 (9)	07:29		17:08 (10)	07:12			06:02		20:33 (12)	05:12		21:07 (13)
	16:24	17:16	4	16:43 (9)	18:13	26	17:34 (10)	20:12			21:09	5	20:38 (12)	22:00	17	21:24 (13)
2	08:58	08:25		16:35 (9)	07:26		17:07 (10)	07:10			06:00		20:29 (12)	05:11		21:07 (13)
	16:25	17:18	11	16:46 (9)	18:15	27	17:34 (10)	20:14			21:11	11	20:40 (12)	22:01	17	21:24 (13)
3	08:58	08:24		16:34 (9)	07:24		17:08 (10)	07:07			05:58		20:28 (12)	05:10		21:06 (13)
	16:26	17:20	14	16:48 (9)	18:17	26	17:34 (10)	20:16			21:12	14	20:42 (12)	22:02	18	21:24 (13)
4	08:58	08:22		16:32 (9)	07:21		17:07 (10)	07:05			05:56		20:26 (12)	05:09		21:07 (13)
	16:27	17:22	18	16:50 (9)	18:19	25	17:32 (10)	20:18			21:14	17	20:43 (12)	22:03	18	21:25 (13)
5	08:57	08:20		16:32 (9)	07:19		17:08 (10)	07:03			05:54		20:25 (12)	05:08		21:07 (13)
	16:29	17:24	19	16:51 (9)	18:21	24	17:32 (10)	20:20			21:16	18	20:43 (12)	22:05	18	21:25 (13)
6	08:57	08:18		16:31 (9)	07:17		17:09 (10)	07:00			05:52		20:26 (12)	05:07		21:07 (13)
	16:30	17:26	21	16:52 (9)	18:23	21	17:30 (10)	20:22			21:18	19	20:45 (12)	22:06	17	21:24 (13)
7	08:56	08:16		16:30 (9)	07:14		17:10 (10)	06:58			05:50		20:25 (12)	05:07		21:08 (13)
	16:31	17:28	23	16:53 (9)	18:25	19	17:29 (10)	20:24			21:20	20	20:45 (12)	22:07	17	21:25 (13)
8	08:56	08:14		16:30 (9)	07:12		17:12 (10)	06:55			05:48		20:24 (12)	05:06		21:07 (13)
	16:33	17:30	23	16:53 (9)	18:26	15	17:27 (10)	20:26			21:22	21	20:45 (12)	22:08	18	21:25 (13)
9	08:55	08:12		16:29 (9)	07:09		17:15 (10)	06:53			05:46		20:24 (12)	05:05		21:08 (13)
	16:34	17:32	24	16:53 (9)	18:28	9	17:24 (10)	20:27			21:23	21	20:45 (12)	22:09	17	21:25 (13)
10	08:55	08:10		16:29 (9)	07:07			06:50			05:44		20:24 (12)	05:05		21:08 (13)
	16:36	17:34	24	16:53 (9)	18:30			20:29			21:25	21	20:45 (12)	22:09	17	21:25 (13)
11	08:54	08:08		16:29 (9)	07:05			06:48		19:58 (11)	05:42		20:24 (12)	05:04		21:08 (13)
	16:37	17:36	24	16:53 (9)	18:32			20:31	4	20:02 (11)	21:27	21	20:45 (12)	22:10	17	21:25 (13)
12	08:53	08:06		16:30 (9)	07:02			06:45		19:54 (11)	05:40		20:24 (12)	05:04		21:09 (13)
	16:39	17:38	23	16:53 (9)	18:34			20:33	11	20:05 (11)	21:29	21	20:45 (12)	22:11	17	21:26 (13)
13	08:52	08:04		16:31 (9)	07:00			06:43		19:51 (11)	05:39		20:24 (12)	05:04		21:09 (13)
	16:40	17:40	22	16:53 (9)	18:36			20:35	15	20:06 (11)	21:31	20	20:44 (12)	22:12	17	21:26 (13)
14	08:51	08:02		16:31 (9)	06:57			06:41		19:50 (11)	05:37		20:25 (12)	05:03		21:09 (13)
	16:42	17:42	21	16:52 (9)	18:38			20:37	18	20:08 (11)	21:32	19	20:44 (12)	22:12	16	21:25 (13)
15	08:50	08:00		16:31 (9)	06:55			06:38		19:50 (11)	05:35		20:26 (12)	05:03		21:09 (13)
	16:44	17:45	20	16:51 (9)	18:40			20:39	18	20:08 (11)	21:34	17	20:43 (12)	22:13	17	21:26 (13)
16	08:49	07:58		16:33 (9)	06:52			06:36		19:48 (11)	05:33		20:27 (12)	05:03		21:10 (13)
	16:45	17:47	17	16:50 (9)	18:42			20:41	20	20:08 (11)	21:36	16	20:43 (12)	22:14	16	21:26 (13)
17	08:48	07:56		16:35 (9)	06:50			06:34		19:48 (11)	05:32		20:27 (12)	05:03		21:10 (13)
	16:47	17:49	13	16:48 (9)	18:44			20:42	20	20:08 (11)	21:37	14	20:41 (12)	22:14	16	21:26 (13)
18	08:47	07:54		16:38 (9)	06:47			06:31		19:48 (11)	05:30		20:29 (12)	05:03		21:10 (13)
	16:49	17:51	8	16:46 (9)	18:46			20:44	21	20:09 (11)	21:39	12	20:41 (12)	22:14	16	21:26 (13)
19	08:46	07:51			06:45			06:29		19:48 (11)	05:28		20:30 (12)	05:03		21:10 (13)
	16:51	17:53			18:48			20:46	20	20:08 (11)	21:41	8	20:38 (12)	22:15	16	21:26 (13)
20	08:45	07:49			06:42			06:27		19:47 (11)	05:27			05:03		21:11 (13)
	16:53	17:55			18:50			20:48	20	20:07 (11)	21:42			22:15	15	21:26 (13)
21	08:44	07:47		17:17 (10)	06:40			06:24		19:48 (11)	05:25			05:03		21:12 (13)
	16:54	17:57	10	17:27 (10)	18:51			20:50	19	20:07 (11)	21:44			22:15	15	21:27 (13)
22	08:42	07:45		17:13 (10)	06:37			06:22		19:48 (11)	05:24			05:03		21:12 (13)
	16:56	17:59	16	17:29 (10)	18:53			20:52	18	20:06 (11)	21:46			22:16	15	21:27 (13)
23	08:41	07:42		17:12 (10)	06:35			06:20		19:50 (11)	05:22		21:12 (13)	05:03		21:11 (13)
	16:58	18:01	19	17:31 (10)	18:55			20:54	15	20:05 (11)	21:47	1	21:13 (13)	22:16	16	21:27 (13)
24	08:40	07:40		17:11 (10)	06:32			06:17		19:51 (11)	05:21		21:10 (13)	05:04		21:11 (13)
	17:00	18:03	22	17:33 (10)	18:57			20:56	12	20:03 (11)	21:49	5	21:15 (13)	22:16	16	21:27 (13)
25	08:38	07:38		17:09 (10)	06:30			06:15		19:53 (11)	05:20		21:09 (13)	05:04		21:12 (13)
	17:02	18:05	24	17:33 (10)	18:59			20:58	8	20:01 (11)	21:50	7	21:16 (13)	22:16	16	21:28 (13)
26	08:37	07:36		17:09 (10)	06:27			06:13			05:18		21:09 (13)	05:05		21:12 (13)
	17:04	18:07	25	17:34 (10)	19:01			20:59			21:52	9	21:18 (13)	22:16	16	21:28 (13)
27	08:35	07:33		17:08 (10)	06:25			06:11			05:17		21:08 (13)	05:05		21:12 (13)
	17:06	18:09	26	17:34 (10)	19:03			21:01			21:53	11	21:19 (13)	22:16	17	21:29 (13)
28	08:34	07:31		17:08 (10)	06:22			06:09			05:16		21:08 (13)	05:06		21:12 (13)
	17:08	18:11	26	17:34 (10)	19:05			21:03			21:55	12	21:20 (13)	22:16	16	21:28 (13)
29	08:32				07:20			06:06			05:15		21:08 (13)	05:06		21:13 (13)
	17:10				20:07			21:05			21:56	14	21:22 (13)	22:15	16	21:29 (13)
30	08:30				07:17			06:04			05:14		21:07 (13)	05:07		21:12 (13)
	17:12				20:09			21:07			21:57	16	21:23 (13)	22:15	17	21:29 (13)
31	08:29				07:15						05:13		21:07 (13)			
	17:14				20:10						21:59	17	21:24 (13)			
Potential sun hours	248	272			367			421			496			513		
Total, worst case			497			192			239			407			497	
Sun reduction			0.22			0.22			0.34			0.36			0.26	
Oper. time red.			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.			0.58			0.58			0.59			0.62			0.63	
Total reduction			0.13			0.13			0.20			0.22			0.16	
Total, real			64			25			48			91			80	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CV - H101

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December
1	05:07		21:13 (13)	05:48		20:35 (12)	06:44		19:57 (11)	07:38			07:37		15:59 (9)	08:33
	22:15	16	21:29 (13)	21:39	20	20:55 (12)	20:31	4	20:01 (11)	19:16			17:04	23	16:22 (9)	16:19
2	05:08		21:13 (13)	05:50		20:35 (12)	06:45			07:40			07:39		15:59 (9)	08:35
	22:14	17	21:30 (13)	21:37	21	20:56 (12)	20:28			19:14			17:02	23	16:22 (9)	16:18
3	05:09		21:13 (13)	05:52		20:34 (12)	06:47			07:42			07:41		15:59 (9)	08:36
	22:14	18	21:31 (13)	21:35	21	20:55 (12)	20:26			19:11			17:00	23	16:22 (9)	16:18
4	05:10		21:13 (13)	05:53		20:34 (12)	06:49			07:44		17:54 (10)	07:43		16:00 (9)	08:38
	22:13	17	21:30 (13)	21:33	21	20:55 (12)	20:24			19:09	5	17:59 (10)	16:58	22	16:22 (9)	16:17
5	05:11		21:13 (13)	05:55		20:35 (12)	06:51			07:45		17:50 (10)	07:45		16:01 (9)	08:39
	22:13	17	21:30 (13)	21:31	20	20:55 (12)	20:21			19:06	13	18:03 (10)	16:56	20	16:21 (9)	16:16
6	05:12		21:13 (13)	05:57		20:34 (12)	06:53			07:47		17:47 (10)	07:47		16:01 (9)	08:41
	22:12	18	21:31 (13)	21:29	20	20:54 (12)	20:19			19:04	18	18:05 (10)	16:55	20	16:21 (9)	16:16
7	05:13		21:13 (13)	05:59		20:35 (12)	06:54			07:49		17:45 (10)	07:49		16:02 (9)	08:42
	22:12	18	21:31 (13)	21:27	19	20:54 (12)	20:16			19:01	21	18:06 (10)	16:53	17	16:19 (9)	16:15
8	05:14		21:14 (13)	06:00		20:36 (12)	06:56			07:51		17:44 (10)	07:51		16:04 (9)	08:43
	22:11	17	21:31 (13)	21:25	18	20:54 (12)	20:14			18:59	23	18:07 (10)	16:51	14	16:18 (9)	16:15
9	05:15		21:14 (13)	06:02		20:36 (12)	06:58			07:53		17:43 (10)	07:53		16:05 (9)	08:45
	22:10	17	21:31 (13)	21:23	16	20:52 (12)	20:11			18:56	24	18:07 (10)	16:49	11	16:16 (9)	16:14
10	05:16		21:14 (13)	06:04		20:38 (12)	07:00			07:55		17:42 (10)	07:55		16:10 (9)	08:46
	22:09	17	21:31 (13)	21:21	12	20:50 (12)	20:09			18:54	26	18:08 (10)	16:47	3	16:13 (9)	16:14
11	05:17		21:14 (13)	06:06		20:39 (12)	07:02			07:57		17:42 (10)	07:57			08:47
	22:08	17	21:31 (13)	21:19	9	20:48 (12)	20:06			18:52	26	18:08 (10)	16:45			16:14
12	05:18		21:14 (13)	06:08			07:03			07:59		17:41 (10)	07:59			08:48
	22:07	17	21:31 (13)	21:17			20:04			18:49	27	18:08 (10)	16:44			16:14
13	05:19		21:15 (13)	06:09			07:05			08:00		17:41 (10)	08:01			08:49
	22:06	16	21:31 (13)	21:15			20:01			18:47	26	18:07 (10)	16:42			16:14
14	05:21		21:16 (13)	06:11			07:07			08:02		17:41 (10)	08:03			08:50
	22:05	15	21:31 (13)	21:12			19:59			18:44	26	18:07 (10)	16:40			16:13
15	05:22		21:16 (13)	06:13			07:09			08:04		17:41 (10)	08:05			08:51
	22:04	14	21:30 (13)	21:10			19:56			18:42	26	18:07 (10)	16:39			16:13
16	05:23		21:16 (13)	06:15			07:11			08:06		17:41 (10)	08:07			08:52
	22:03	12	21:28 (13)	21:08			19:54			18:40	25	18:06 (10)	16:37			16:14
17	05:25		21:17 (13)	06:17			07:12			08:08		17:42 (10)	08:09			08:53
	22:02	10	21:27 (13)	21:06			19:51			18:37	23	18:05 (10)	16:36			16:14
18	05:26		21:18 (13)	06:18		19:58 (11)	07:14			08:10		17:43 (10)	08:11			08:54
	22:01	9	21:27 (13)	21:04	9	20:07 (11)	19:49			18:35	21	18:04 (10)	16:34			16:14
19	05:28		21:19 (13)	06:20		19:56 (11)	07:16			08:12		17:44 (10)	08:12			08:55
	21:59	6	21:25 (13)	21:01	13	20:09 (11)	19:46			18:33	18	18:02 (10)	16:33			16:14
20	05:29		21:20 (13)	06:22		19:55 (11)	07:18			08:14		17:45 (10)	08:14			08:55
	21:58	4	21:24 (13)	20:59	16	20:11 (11)	19:44			18:30	15	18:00 (10)	16:31			16:15
21	05:30			06:24		19:53 (11)	07:20			08:16		17:48 (10)	08:16			08:56
	21:56			20:57	18	20:11 (11)	19:41			18:28	9	17:57 (10)	16:30			16:15
22	05:32			06:26		19:52 (11)	07:22			08:18			08:18			08:56
	21:55			20:55	19	20:11 (11)	19:39			18:26			16:29			16:15
23	05:34			06:27		19:52 (11)	07:23			08:20			08:20			08:57
	21:54			20:52	20	20:12 (11)	19:36			18:24			16:27			16:16
24	05:35		20:42 (12)	06:29		19:52 (11)	07:25			08:22		17:06 (9)	08:22			08:57
	21:52	6	20:48 (12)	20:50	20	20:12 (11)	19:34			18:21	10	17:16 (9)	16:26			16:16
25	05:37		20:40 (12)	06:31		19:50 (11)	07:27			07:24		16:04 (9)	08:23			08:58
	21:50	10	20:50 (12)	20:48	21	20:11 (11)	19:31			17:19	14	16:18 (9)	16:25			16:17
26	05:38		20:39 (12)	06:33		19:51 (11)	07:29			07:26		16:02 (9)	08:25			08:58
	21:49	13	20:52 (12)	20:45	20	20:11 (11)	19:29			17:17	18	16:20 (9)	16:24			16:18
27	05:40		20:37 (12)	06:35		19:51 (11)	07:31			07:27		16:01 (9)	08:27			08:58
	21:47	15	20:52 (12)	20:43	20	20:11 (11)	19:26			17:15	19	16:20 (9)	16:23			16:19
28	05:41		20:37 (12)	06:36		19:50 (11)	07:32			07:29		16:01 (9)	08:28			08:58
	21:46	16	20:53 (12)	20:40	19	20:09 (11)	19:24			17:13	21	16:22 (9)	16:22			16:19
29	05:43		20:36 (12)	06:38		19:51 (11)	07:34			07:31		16:00 (9)	08:30			08:58
	21:44	17	20:53 (12)	20:38	17	20:08 (11)	19:21			17:11	22	16:22 (9)	16:21			16:20
30	05:45		20:35 (12)	06:40		19:52 (11)	07:36			07:33		15:59 (9)	08:32			08:58
	21:42	19	20:54 (12)	20:36	15	20:07 (11)	19:19			17:08	24	16:23 (9)	16:20			16:21
31	05:47		20:35 (12)	06:42		19:54 (11)				07:35		15:59 (9)				08:58
	21:40	20	20:55 (12)	20:33	11	20:05 (11)				17:06	24	16:23 (9)				16:22
Potential sun hours	515			461			382			328			257			231
Total, worst case		408			435			4			524			176		
Sun reduction		0.27			0.27			0.29			0.23			0.20		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.62			0.60			0.59			0.58			0.58		
Total reduction		0.17			0.16			0.17			0.14			0.12		
Total, real		68			72			1			71			20		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CW - H102

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April	May	June	July	August	September	October		November	December
1	08:59	08:27		07:29	07:59 (6)	07:13	06:02	05:12	05:08	05:48	06:44	07:38		07:38	08:34
	16:24	17:16		18:13	23 08:22 (6)	20:13	21:09	22:00	22:15	21:39	20:31	19:16		17:05	16:19
2	08:58	08:26		07:26	07:51 (5)	07:10	06:00	05:11	05:08	05:50	06:46	07:40	08:18 (5)	07:40	08:35
	16:25	17:18		18:15	24 08:20 (6)	20:14	21:11	22:01	22:15	21:37	20:29	19:14	10 08:28 (5)	17:03	16:19
3	08:58	08:24		07:24	07:49 (5)	07:08	05:58	05:10	05:09	05:52	06:48	07:42	08:16 (5)	07:42	08:37
	16:26	17:20		18:17	26 08:19 (6)	20:16	21:13	22:02	22:14	21:35	20:26	19:11	14 08:30 (5)	17:01	16:18
4	08:58	08:22		07:22	07:46 (5)	07:05	05:56	05:09	05:10	05:54	06:49	07:44	08:14 (5)	07:43	08:38
	16:28	17:22		18:19	25 08:17 (6)	20:18	21:15	22:04	22:14	21:33	20:24	19:09	16 08:30 (5)	16:59	16:17
5	08:57	08:20		07:19	07:44 (5)	07:03	05:54	05:08	05:11	05:55	06:51	07:46	08:12 (5)	07:45	08:40
	16:29	17:24		18:21	22 08:14 (6)	20:20	21:16	22:05	22:13	21:31	20:21	19:06	19 08:31 (5)	16:57	16:17
6	08:57	08:18		07:17	07:42 (5)	07:00	05:52	05:08	05:12	05:57	06:53	07:47	08:14 (5)	07:47	08:41
	16:30	17:26		18:23	14 07:56 (5)	20:22	21:18	22:06	22:12	21:29	20:19	19:04	17 08:31 (5)	16:55	16:16
7	08:57	08:16		07:14	07:39 (5)	06:58	05:50	05:07	05:13	05:59	06:55	07:49	08:16 (5)	07:49	08:42
	16:32	17:28		18:25	16 07:55 (5)	20:24	21:20	22:07	22:12	21:27	20:16	19:01	15 08:31 (5)	16:53	16:15
8	08:56	08:14		07:12	07:37 (5)	06:55	05:48	05:06	05:14	06:01	06:57	07:51	08:18 (5)	07:51	08:44
	16:33	17:30		18:27	18 07:55 (5)	20:26	21:22	22:08	22:11	21:25	20:14	18:59	19 08:47 (6)	16:51	16:15
9	08:55	08:13		07:10	07:36 (5)	06:53	05:46	05:06	05:15	06:02	06:58	07:53	08:20 (5)	07:53	08:45
	16:34	17:32		18:29	17 07:53 (5)	20:28	21:24	22:09	22:10	21:23	20:11	18:57	25 08:51 (6)	16:49	16:15
10	08:55	08:11		07:07	07:37 (5)	06:51	05:44	05:05	05:16	06:04	07:00	07:55	08:22 (5)	07:55	08:46
	16:36	17:35		18:31	16 07:53 (5)	20:29	21:25	22:10	22:09	21:21	20:09	18:54	25 08:52 (6)	16:47	16:14
11	08:54	08:09		07:05	07:38 (5)	06:48	05:42	05:05	05:17	06:06	07:02	07:57	08:24 (5)	07:57	08:47
	16:38	17:37		18:33	12 07:50 (5)	20:31	21:27	22:10	22:08	21:19	20:06	18:52	25 08:54 (6)	16:46	16:14
12	08:53	08:06		07:02	07:42 (5)	06:46	05:41	05:04	05:18	06:08	07:04	07:59	08:26 (5)	07:59	08:48
	16:39	17:39		18:34	5 07:47 (5)	20:33	21:29	22:11	22:07	21:17	20:04	18:49	23 08:54 (6)	16:44	16:14
13	08:52	08:04		07:00		06:43	05:39	05:04	05:20	06:10	07:06	08:01	08:32 (6)	08:01	08:49
	16:41	17:41		18:36		20:35	21:31	22:12	22:06	21:15	20:01	18:47	23 08:55 (6)	16:42	16:14
14	08:52	08:02		06:57		06:41	05:37	05:04	05:21	06:11	07:07	08:03	08:31 (6)	08:03	08:50
	16:42	17:43		18:38		20:37	21:32	22:13	22:05	21:13	19:59	18:45	24 08:55 (6)	16:41	16:14
15	08:51	08:00		06:55		06:39	05:35	05:03	05:22	06:13	07:09	08:04	08:32 (6)	08:05	08:51
	16:44	17:45		18:40		20:39	21:34	22:13	22:04	21:11	19:56	18:42	23 08:55 (6)	16:39	16:14
16	08:50	07:58		06:52		06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:34 (6)	08:07	08:52
	16:46	17:47		18:42		20:41	21:36	22:14	22:03	21:08	19:54	18:40	21 08:55 (6)	16:37	16:14
17	08:49	07:56		06:50		06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:36 (6)	08:09	08:53
	16:48	17:49		18:44		20:43	21:38	22:14	22:02	21:06	19:51	18:38	19 08:55 (6)	16:36	16:14
18	08:47	07:54		06:47		06:31	05:30	05:03	05:26	06:19	07:15	08:10	08:38 (6)	08:11	08:54
	16:49	17:51		18:46		20:45	21:39	22:15	22:01	21:04	19:49	18:35	16 08:54 (6)	16:34	16:14
19	08:46	07:52		08:17 (6)	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:40 (6)	08:13	08:55
	16:51	17:53	1	08:18 (6)	18:48	20:46	21:41	22:15	21:59	21:02	19:46	18:33	14 08:54 (6)	16:33	16:14
20	08:45	07:49		08:15 (6)	06:43	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:42 (6)	08:14	08:55
	16:53	17:55	5	08:20 (6)	18:50	20:48	21:43	22:15	21:58	20:59	19:44	18:31	11 08:53 (6)	16:32	16:15
21	08:44	07:47		08:13 (6)	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:44 (6)	08:16	08:56
	16:55	17:57	8	08:21 (6)	18:52	20:50	21:44	22:16	21:57	20:57	19:41	18:28	7 08:51 (6)	16:30	16:15
22	08:43	07:45		08:10 (6)	06:38	06:22	05:24	05:03	05:32	06:26	07:22	08:18	08:46 (6)	08:18	08:56
	16:57	17:59	12	08:22 (6)	18:54	20:52	21:46	22:16	21:55	20:55	19:39	18:26	4 08:50 (6)	16:29	16:16
23	08:41	07:43		08:08 (6)	06:35	06:20	05:23	05:04	05:34	06:28	07:24	08:20		08:20	08:57
	16:59	18:01	14	08:22 (6)	18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24		16:28	16:16
24	08:40	07:40		08:06 (6)	06:33	06:18	05:21	05:04	05:35	06:29	07:25	08:22		08:22	08:57
	17:00	18:03	17	08:23 (6)	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22		16:26	16:17
25	08:38	07:38		08:03 (6)	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24		08:24	08:58
	17:02	18:05	20	08:23 (6)	18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19		16:25	16:17
26	08:37	07:36		08:01 (6)	06:28	06:13	05:19	05:05	05:39	06:33	07:29	07:26		08:25	08:58
	17:04	18:07	22	08:23 (6)	19:01	21:00	21:52	22:16	21:49	20:45	19:29	17:17		16:24	16:18
27	08:35	07:33		07:59 (6)	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28		08:27	08:58
	17:06	18:09	24	08:23 (6)	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15		16:23	16:19
28	08:34	07:31		07:58 (6)	06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:30		08:29	08:58
	17:08	18:11	24	08:22 (6)	19:05	21:03	21:55	22:16	21:46	20:41	19:24	17:13		16:22	16:20
29	08:32				07:20	06:07	05:15	05:06	05:43	06:38	07:35	07:32		08:30	08:59
	17:10				20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11		16:21	16:21
30	08:31				07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:34		08:32	08:59
	17:12				20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09		16:20	16:22
31	08:29				07:15		05:13		05:47	06:42		07:36			08:59
	17:14				20:11		21:59		21:41	20:33		17:07			16:23
Potential sun hours	248	272		367		421	496	513	515	461	382	328		257	231
Total, worst case			147		218								370		
Sun reduction			0.22		0.22								0.23		
Oper. time red.			1.00		1.00								1.00		
Wind dir. red.			0.62		0.61								0.61		
Total reduction			0.14		0.14								0.14		
Total, real			20		30								53		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CX - H103

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	05:12	20:47 (1)	05:08	20:55 (1)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	28 21:15 (1)	22:15	23 21:18 (1)	21:38	20:31	19:16	17:04	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	20:48 (1)	05:08	20:56 (1)	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	26 21:14 (1)	22:14	23 21:19 (1)	21:37	20:28	19:14	17:02	16:18
3	08:58	08:24	07:24	07:08	05:58	05:10	20:48 (1)	05:09	20:56 (1)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	26 21:14 (1)	22:14	23 21:19 (1)	21:35	20:26	19:11	17:00	16:18
4	08:58	08:22	07:21	07:05	05:56	05:09	20:49 (1)	05:10	20:56 (1)	05:53	06:49	07:44	07:43	08:38
	16:27	17:22	18:19	20:18	21:14	22:03	26 21:15 (1)	22:13	24 21:20 (1)	21:33	20:23	19:09	16:58	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	20:49 (1)	05:11	20:55 (1)	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	25 21:14 (1)	22:13	25 21:20 (1)	21:31	20:21	19:06	16:57	16:16
6	08:57	08:18	07:17	07:00	05:52	05:07	20:49 (1)	05:12	20:55 (1)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	25 21:14 (1)	22:12	25 21:20 (1)	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	20:50 (1)	05:13	20:55 (1)	05:59	06:55	07:49	07:49	08:42
	16:31	17:28	18:25	20:24	21:20	22:06	24 21:14 (1)	22:11	26 21:21 (1)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	20:50 (1)	05:14	20:55 (1)	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:25	21:22	22:07	24 21:14 (1)	22:11	26 21:21 (1)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	20:51 (1)	05:15	20:55 (1)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:28	20:27	21:23	22:08	23 21:14 (1)	22:10	26 21:21 (1)	21:23	20:11	18:56	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	05:05	20:51 (1)	05:16	20:55 (1)	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	24 21:15 (1)	22:09	27 21:22 (1)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	20:51 (1)	05:17	20:55 (1)	06:06	07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27	22:10	23 21:14 (1)	22:08	27 21:22 (1)	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:40	20:55 (1) 05:04	20:52 (1)	05:18	20:55 (1)	06:08	07:04	07:58	07:59	08:48
	16:39	17:38	18:34	20:33	21:29	2 20:57 (1) 22:11	22 21:14 (1)	22:07	27 21:22 (1)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	20:53 (1) 05:04	20:52 (1)	05:20	20:56 (1)	06:09	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	6 20:59 (1) 22:12	23 21:15 (1)	22:06	27 21:23 (1)	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	20:51 (1) 05:04	20:53 (1)	05:21	20:56 (1)	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	9 21:00 (1) 22:12	22 21:15 (1)	22:05	27 21:23 (1)	21:12	19:59	18:44	16:40	16:14
15	08:50	08:00	06:55	06:38	05:35	20:50 (1) 05:03	20:53 (1)	05:22	20:55 (1)	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	11 21:01 (1) 22:13	21 21:14 (1)	22:04	28 21:23 (1)	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:33	20:49 (1) 05:03	20:53 (1)	05:23	20:55 (1)	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	14 21:03 (1) 22:13	21 21:14 (1)	22:03	28 21:23 (1)	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	20:48 (1) 05:03	20:53 (1)	05:25	20:55 (1)	06:17	07:13	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	16 21:04 (1) 22:14	21 21:14 (1)	22:02	28 21:23 (1)	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:48 (1) 05:03	20:54 (1)	05:26	20:56 (1)	06:18	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	18 21:06 (1) 22:14	20 21:14 (1)	22:00	28 21:24 (1)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	20:48 (1) 05:03	20:54 (1)	05:28	20:56 (1)	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	20 21:08 (1) 22:15	20 21:14 (1)	21:59	28 21:24 (1)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	20:47 (1) 05:03	20:55 (1)	05:29	20:56 (1)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22 21:09 (1) 22:15	20 21:15 (1)	21:58	27 21:23 (1)	20:59	19:44	18:30	16:31	16:15
21	08:44	07:47	06:40	06:24	05:26	20:47 (1) 05:03	20:55 (1)	05:31	20:56 (1)	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:51	20:50	21:44	24 21:11 (1) 22:15	20 21:15 (1)	21:56	27 21:23 (1)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:47 (1) 05:03	20:55 (1)	05:32	20:56 (1)	06:26	07:22	08:18	08:18	08:56
	16:56	17:59	18:53	20:52	21:45	25 21:12 (1) 22:15	20 21:15 (1)	21:55	25 21:21 (1)	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	20:46 (1) 05:04	20:55 (1)	05:34	20:57 (1)	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	27 21:13 (1) 22:16	20 21:15 (1)	21:53	23 21:20 (1)	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	20:46 (1) 05:04	20:56 (1)	05:35	20:57 (1)	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	28 21:14 (1) 22:16	20 21:16 (1)	21:52	22 21:19 (1)	20:50	19:34	18:21	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	20:46 (1) 05:04	20:56 (1)	05:37	20:58 (1)	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:57	21:50	28 21:14 (1) 22:16	20 21:16 (1)	21:50	20 21:18 (1)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	20:46 (1) 05:05	20:55 (1)	05:38	20:58 (1)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	29 21:15 (1) 22:16	21 21:16 (1)	21:49	18 21:16 (1)	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:47 (1) 05:05	20:56 (1)	05:40	21:00 (1)	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	28 21:15 (1) 22:16	21 21:17 (1)	21:47	15 21:15 (1)	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	20:47 (1) 05:06	20:55 (1)	05:42	21:00 (1)	06:36	07:32	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	28 21:15 (1) 22:15	22 21:17 (1)	21:45	13 21:13 (1)	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:06	05:15	20:47 (1) 05:06	20:56 (1)	05:43	21:01 (1)	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	28 21:15 (1) 22:15	22 21:18 (1)	21:44	11 21:12 (1)	20:38	19:21	17:11	16:21	16:21
30	08:30		07:17	06:04	05:14	20:47 (1) 05:07	20:56 (1)	05:45	21:02 (1)	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	28 21:15 (1) 22:15	22 21:18 (1)	21:42	8 21:10 (1)	20:36	19:19	17:09	16:20	16:21
31	08:29		07:15		05:13	20:47 (1)		05:47	21:04 (1)	06:42		07:35		08:58
	17:14		20:10		21:58	28 21:15 (1)		21:40	4 21:08 (1)	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case					419	672	709					
Sun reduction					0.36	0.26	0.27					
Oper. time red.					1.00	1.00	1.00					
Wind dir. red.					0.63	0.63	0.63					
Total reduction					0.23	0.16	0.17					
Total, real					95	109	118					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CY - H104

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:38	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:42	21:37	22:14	22:02	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	22:15	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:51	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:45	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:06	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:10		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: CZ - H105

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:49	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:46	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:33	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:43	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:13	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:39	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:25	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:54	20:52	21:45	22:16	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:24	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:27	16:17
25	08:38	07:38	06:30	06:15	05:20	05:05	05:37	06:31	07:27	07:24	08:23	08:58
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:18	05:05	05:40	06:35	07:31	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:41	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:07	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:11		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DA - H106

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March	April		May			June		
1	08:58	08:27		07:29	07:12			06:02			05:12	20:55 (16)
	16:24	17:16		18:13	20:12			21:09			22:00	17 21:12 (16)
2	08:58	08:25		07:26	07:10			06:00			05:11	20:55 (16)
	16:25	17:18		18:15	20:14			21:11			22:01	17 21:12 (16)
3	08:58	08:24		07:24	07:07		19:37 (12)	05:58			05:10	20:55 (16)
	16:26	17:20		18:17	20:16	9	19:46 (12)	21:12			22:02	17 21:12 (16)
4	08:58	08:22		07:21	07:05		19:35 (12)	05:56			05:09	20:56 (16)
	16:27	17:22		18:19	20:18	13	19:48 (12)	21:14			22:03	17 21:13 (16)
5	08:57	08:20		07:19	07:02		19:34 (12)	05:54			05:08	20:56 (16)
	16:29	17:24		18:21	20:20	15	19:49 (12)	21:16			22:05	16 21:12 (16)
6	08:57	08:18		07:17	07:00		19:33 (12)	05:52			05:07	20:56 (16)
	16:30	17:26		18:23	20:22	16	19:49 (12)	21:18			22:06	16 21:12 (16)
7	08:56	08:16		07:14	06:58		19:33 (12)	05:50			05:07	20:57 (16)
	16:31	17:28		18:25	20:24	16	19:49 (12)	21:20			22:07	16 21:13 (16)
8	08:56	08:14		07:12	06:55		19:32 (12)	05:48			05:06	20:56 (16)
	16:33	17:30		18:26	20:25	16	19:48 (12)	21:22			22:08	16 21:12 (16)
9	08:55	08:12		07:09	06:53		19:32 (12)	05:46			05:05	20:57 (16)
	16:34	17:32		18:28	20:27	16	19:48 (12)	21:23			22:09	15 21:12 (16)
10	08:55	08:10	16:55 (10)	07:07	06:50		19:32 (12)	05:44			05:05	20:57 (16)
	16:36	17:34	8 17:03 (10)	18:30	20:29	14	19:46 (12)	21:25			22:09	15 21:12 (16)
11	08:54	08:08	16:53 (10)	07:05	06:48		19:33 (12)	05:42			05:04	20:58 (16)
	16:37	17:36	12 17:05 (10)	18:32	20:31	12	19:45 (12)	21:27			22:10	14 21:12 (16)
12	08:53	08:06	16:52 (10)	07:02	06:45		19:35 (12)	05:40			05:04	20:59 (16)
	16:39	17:38	14 17:06 (10)	18:34	20:33	8	19:43 (12)	21:29			22:11	14 21:13 (16)
13	08:52	08:04	16:51 (10)	07:00	06:43			05:39			05:04	20:59 (16)
	16:40	17:40	16 17:07 (10)	18:36	20:35			21:31			22:12	14 21:13 (16)
14	08:51	08:02	16:51 (10)	06:57	06:41			05:37			05:03	20:59 (16)
	16:42	17:42	17 17:08 (10)	18:38	20:37			21:32			22:12	13 21:12 (16)
15	08:50	08:00	16:50 (10)	06:55	06:38			05:35			05:03	20:59 (16)
	16:44	17:44	18 17:08 (10)	18:40	20:39			21:34			22:13	13 21:12 (16)
16	08:49	07:58	16:50 (10)	06:52	06:36			05:33			05:03	21:00 (16)
	16:45	17:47	18 17:08 (10)	18:42	20:41			21:36			22:14	12 21:12 (16)
17	08:48	07:56	16:51 (10)	06:50	06:34			05:32			05:03	21:00 (16)
	16:47	17:49	17 17:08 (10)	18:44	20:42			21:37			22:14	12 21:12 (16)
18	08:47	07:54	16:52 (10)	06:47	06:31			05:30			05:03	21:01 (16)
	16:49	17:51	16 17:08 (10)	18:46	20:44			21:39			22:14	11 21:12 (16)
19	08:46	07:51	16:52 (10)	06:45	06:29			05:28			05:03	21:01 (16)
	16:51	17:53	14 17:06 (10)	18:48	20:46			21:41			22:15	12 21:13 (16)
20	08:45	07:49	16:53 (10)	06:42	06:27			05:27		21:00 (16)	05:03	21:01 (16)
	16:53	17:55	12 17:05 (10)	18:50	20:48			21:42	4	21:04 (16)	22:15	12 21:13 (16)
21	08:44	07:47	16:55 (10)	06:40	06:24			05:25		20:58 (16)	05:03	21:02 (16)
	16:54	17:57	8 17:03 (10)	18:51	20:50			21:44	9	21:07 (16)	22:15	12 21:14 (16)
22	08:42	07:45		06:37	06:22			05:24		20:56 (16)	05:03	21:02 (16)
	16:56	17:59		18:53	20:52			21:46	11	21:07 (16)	22:16	12 21:14 (16)
23	08:41	07:42		06:35	06:20			05:22		20:56 (16)	05:03	21:02 (16)
	16:58	18:01		18:55	20:54			21:47	12	21:08 (16)	22:16	12 21:14 (16)
24	08:40	07:40		06:32	06:17			05:21		20:56 (16)	05:04	21:02 (16)
	17:00	18:03		18:57	20:56			21:49	13	21:09 (16)	22:16	11 21:13 (16)
25	08:38	07:38		06:30	06:15			05:20		20:55 (16)	05:04	21:02 (16)
	17:02	18:05		18:59	20:58			21:50	15	21:10 (16)	22:16	12 21:14 (16)
26	08:37	07:36		06:27	06:13			05:18		20:55 (16)	05:04	21:02 (16)
	17:04	18:07		19:01	20:59			21:52	16	21:11 (16)	22:16	12 21:14 (16)
27	08:35	07:33		06:25	06:11			05:17		20:54 (16)	05:05	21:03 (16)
	17:06	18:09		19:03	21:01			21:53	16	21:10 (16)	22:16	12 21:15 (16)
28	08:34	07:31		06:22	06:09			05:16		20:54 (16)	05:05	21:02 (16)
	17:08	18:11		19:05	21:03			21:54	17	21:11 (16)	22:16	13 21:15 (16)
29	08:32			07:20	06:06			05:15		20:54 (16)	05:06	21:02 (16)
	17:10			20:07	21:05			21:56	17	21:11 (16)	22:15	14 21:16 (16)
30	08:30			07:17	06:04			05:14		20:55 (16)	05:07	21:02 (16)
	17:12			20:08	21:07			21:57	17	21:12 (16)	22:15	14 21:16 (16)
31	08:29			07:15				05:13		20:55 (16)		
	17:14			20:10				21:59	17	21:12 (16)		
Potential sun hours	248	272		367	421			496			513	
Total, worst case			170			135			164			413
Sun reduction			0.22			0.34			0.36			0.26
Oper. time red.			1.00			1.00			1.00			1.00
Wind dir. red.			0.58			0.59			0.63			0.63
Total reduction			0.13			0.20			0.23			0.16
Total, real			22			27			37			67

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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F91 RHH9 Sligo
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DA - H106

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December
1	05:07	21:02 (16)	05:48		06:44	19:32 (12)	07:38		07:37	16:25 (10)	08:33
	22:15	14 21:16 (16)	21:39		20:31	12 19:44 (12)	19:16		17:04	7 16:32 (10)	16:19
2	05:08	21:02 (16)	05:50		06:45	19:31 (12)	07:40		07:39		08:35
	22:14	15 21:17 (16)	21:37		20:28	14 19:45 (12)	19:14		17:02		16:18
3	05:09	21:03 (16)	05:52		06:47	19:30 (12)	07:42		07:41		08:36
	22:14	15 21:18 (16)	21:35		20:26	16 19:46 (12)	19:11		17:00		16:18
4	05:10	21:02 (16)	05:53		06:49	19:29 (12)	07:44		07:43		08:38
	22:13	15 21:17 (16)	21:33		20:23	16 19:45 (12)	19:09		16:58		16:17
5	05:11	21:02 (16)	05:55		06:51	19:29 (12)	07:45		07:45		08:39
	22:13	16 21:18 (16)	21:31		20:21	16 19:45 (12)	19:06		16:56		16:16
6	05:12	21:02 (16)	05:57		06:53	19:29 (12)	07:47		07:47		08:41
	22:12	16 21:18 (16)	21:29		20:19	16 19:45 (12)	19:04		16:54		16:16
7	05:13	21:02 (16)	05:59		06:54	19:29 (12)	07:49		07:49		08:42
	22:12	17 21:19 (16)	21:27		20:16	15 19:44 (12)	19:01		16:53		16:15
8	05:14	21:02 (16)	06:00		06:56	19:29 (12)	07:51		07:51		08:43
	22:11	17 21:19 (16)	21:25		20:14	13 19:42 (12)	18:59		16:51		16:15
9	05:15	21:02 (16)	06:02		06:58	19:31 (12)	07:53		07:53		08:45
	22:10	17 21:19 (16)	21:23		20:11	9 19:40 (12)	18:56		16:49		16:14
10	05:16	21:02 (16)	06:04		07:00	19:34 (12)	07:55		07:55		08:46
	22:09	18 21:20 (16)	21:21		20:09	3 19:37 (12)	18:54		16:47		16:14
11	05:17	21:02 (16)	06:06		07:02		07:57		07:57		08:47
	22:08	18 21:20 (16)	21:19		20:06		18:52		16:45		16:14
12	05:18	21:02 (16)	06:07		07:03		07:58		07:59		08:48
	22:07	18 21:20 (16)	21:17		20:04		18:49		16:44		16:14
13	05:19	21:02 (16)	06:09		07:05		08:00		08:01		08:49
	22:06	18 21:20 (16)	21:15		20:01		18:47		16:42		16:13
14	05:21	21:03 (16)	06:11		07:07		08:02		08:03		08:50
	22:05	18 21:21 (16)	21:12		19:59		18:44		16:40		16:13
15	05:22	21:03 (16)	06:13		07:09		08:04		08:05		08:51
	22:04	17 21:20 (16)	21:10		19:56		18:42		16:39		16:13
16	05:23	21:03 (16)	06:15		07:11		08:06		08:07		08:52
	22:03	17 21:20 (16)	21:08		19:54		18:40		16:37		16:14
17	05:25	21:04 (16)	06:16		07:12		08:08		08:09		08:53
	22:02	16 21:20 (16)	21:06		19:51		18:37		16:36		16:14
18	05:26	21:05 (16)	06:18		07:14		08:10		08:11		08:54
	22:01	15 21:20 (16)	21:04		19:49		18:35		16:34		16:14
19	05:27	21:05 (16)	06:20		07:16		08:12		08:12		08:54
	21:59	14 21:19 (16)	21:01		19:46		18:33		16:33		16:14
20	05:29	21:05 (16)	06:22		07:18		08:14		08:14		08:55
	21:58	14 21:19 (16)	20:59		19:44		18:30		16:31		16:14
21	05:30	21:07 (16)	06:24		07:20		08:16	17:25 (10)	08:16		08:56
	21:56	11 21:18 (16)	20:57		19:41		18:28	10 17:35 (10)	16:30		16:15
22	05:32	21:07 (16)	06:26		07:22		08:18	17:23 (10)	08:18		08:56
	21:55	10 21:17 (16)	20:55		19:39		18:26	13 17:36 (10)	16:29		16:15
23	05:33	21:09 (16)	06:27		07:23		08:20	17:22 (10)	08:20		08:57
	21:54	6 21:15 (16)	20:52		19:36		18:24	15 17:37 (10)	16:27		16:16
24	05:35		06:29		07:25		08:22	17:21 (10)	08:22		08:57
	21:52		20:50		19:34		18:21	16 17:37 (10)	16:26		16:16
25	05:37		06:31		07:27		07:24	16:20 (10)	08:23		08:58
	21:50		20:48		19:31		17:19	17 16:37 (10)	16:25		16:17
26	05:38		06:33		07:29		07:25	16:20 (10)	08:25		08:58
	21:49		20:45		19:28		17:17	17 16:37 (10)	16:24		16:18
27	05:40		06:35		07:31		07:27	16:20 (10)	08:27		08:58
	21:47		20:43		19:26		17:15	17 16:37 (10)	16:23		16:19
28	05:41		06:36		07:32		07:29	16:21 (10)	08:28		08:58
	21:46		20:40		19:23		17:13	17 16:38 (10)	16:22		16:19
29	05:43		06:38		07:34		07:31	16:21 (10)	08:30		08:58
	21:44		20:38		19:21		17:11	16 16:37 (10)	16:21		16:20
30	05:45		06:40		07:36		07:33	16:22 (10)	08:32		08:58
	21:42		20:36		19:19		17:08	14 16:36 (10)	16:20		16:21
31	05:46		06:42	19:35 (12)			07:35	16:23 (10)			08:58
	21:40		20:33	8 19:43 (12)			17:06	11 16:34 (10)			16:22
Potential sun hours	515		461		383		328		257		231
Total, worst case		352		8		130		163		7	
Sun reduction		0.27		0.27		0.29		0.23		0.20	
Oper. time red.		1.00		1.00		1.00		1.00		1.00	
Wind dir. red.		0.63		0.59		0.59		0.58		0.58	
Total reduction		0.17		0.16		0.17		0.14		0.12	
Total, real		59		1		22		22		1	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DB - H109

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April	May	June	July	August	September		October		November	December
1	08:59	08:27		07:29	08:22 (7)	07:13	06:02	05:12	05:08	05:48	06:44		07:38		07:38	08:34
	16:24	17:16		18:13	19 08:41 (7)	20:13	21:09	22:00	22:15	21:39	20:31		19:16		17:05	16:19
2	08:58	08:26		07:26	08:22 (7)	07:10	06:00	05:11	05:08	05:50	06:46		07:40		07:40	08:35
	16:25	17:18		18:15	16 08:38 (7)	20:14	21:11	22:01	22:15	21:37	20:29		19:14		17:03	16:19
3	08:58	08:24		07:24	08:25 (7)	07:08	05:58	05:10	05:09	05:52	06:48		07:42		07:42	08:37
	16:26	17:20		18:17	11 08:36 (7)	20:16	21:13	22:03	22:14	21:35	20:26		19:11		17:01	16:18
4	08:58	08:22		07:22		07:05	05:56	05:09	05:10	05:54	06:49		07:44		07:44	08:38
	16:28	17:22		18:19		20:18	21:15	22:04	22:14	21:33	20:24		19:09		16:59	16:17
5	08:58	08:20		07:19		07:03	05:54	05:08	05:11	05:55	06:51		07:46		07:46	08:40
	16:29	17:24		18:21		20:20	21:16	22:05	22:13	21:31	20:21		19:06		16:57	16:16
6	08:57	08:18		07:17		07:00	05:52	05:08	05:12	05:57	06:53		07:47		07:48	08:41
	16:30	17:26		18:23		20:22	21:18	22:06	22:12	21:29	20:19		19:04		16:55	16:16
7	08:57	08:16		07:15		06:58	05:50	05:07	05:13	05:59	06:55		07:49		07:49	08:42
	16:32	17:28		18:25		20:24	21:20	22:07	22:12	21:27	20:16		19:01		16:53	16:15
8	08:56	08:15		07:12		06:55	05:48	05:06	05:14	06:01	06:57		07:51		07:51	08:44
	16:33	17:30		18:27		20:26	21:22	22:08	22:11	21:25	20:14		18:59		16:51	16:15
9	08:56	08:13		07:10		06:53	05:46	05:06	05:15	06:02	06:58		07:53		07:53	08:45
	16:34	17:32		18:29		20:28	21:24	22:09	22:10	21:23	20:11		18:57		16:49	16:15
10	08:55	08:11		07:07		06:51	05:44	05:05	05:16	06:04	07:00		07:55	09:01 (7)	07:55	08:46
	16:36	17:35		18:31		20:30	21:25	22:10	22:09	21:21	20:09		18:54	7 09:08 (7)	16:47	16:14
11	08:54	08:09		07:05		06:48	05:42	05:05	05:17	06:06	07:02		07:57		08:58 (7)	08:47
	16:37	17:37		18:33		20:31	21:27	22:10	22:09	21:19	20:06		18:52	13 09:11 (7)	16:46	16:14
12	08:53	08:07		07:02		06:46	05:41	05:04	05:18	06:08	07:04	08:02 (8)	07:59		08:56 (7)	08:48
	16:39	17:39		18:34		20:33	21:29	22:11	22:08	21:17	20:04	9 08:11 (8)	18:49	17 09:13 (7)	16:44	16:14
13	08:53	08:04		07:00		06:43	05:39	05:04	05:20	06:10	07:06	07:58 (8)	08:01		08:54 (7)	08:49
	16:41	17:41		18:36		20:35	21:31	22:12	22:07	21:15	20:01	14 08:12 (8)	18:47	20 09:14 (7)	16:42	16:14
14	08:52	08:02		06:57		06:41	05:37	05:04	05:21	06:11	07:07	07:56 (8)	08:03		08:53 (7)	08:51
	16:42	17:43		18:38		20:37	21:33	22:13	22:05	21:13	19:59	18 08:14 (8)	18:45	22 09:15 (7)	16:41	16:14
15	08:51	08:00		06:55		06:39	05:35	05:03	05:22	06:13	07:09	07:55 (8)	08:04		08:52 (7)	08:51
	16:44	17:45		18:40		20:39	21:34	22:13	22:04	21:11	19:56	20 08:15 (8)	18:42	23 09:15 (7)	16:39	16:14
16	08:50	07:58	08:28 (7)	06:52	07:17 (8)	06:36	05:34	05:03	05:24	06:15	07:11	07:54 (8)	08:06		08:52 (7)	08:52
	16:46	17:47	8 08:36 (7)	18:42	6 07:23 (8)	20:41	21:36	22:14	22:03	21:08	19:54	22 08:16 (8)	18:40	24 09:16 (7)	16:37	16:14
17	08:49	07:56	08:25 (7)	06:50	07:14 (8)	06:34	05:32	05:03	05:25	06:17	07:13	07:52 (8)	08:08		08:51 (7)	08:53
	16:47	17:49	14 08:39 (7)	18:44	12 07:26 (8)	20:43	21:38	22:14	22:02	21:06	19:51	24 08:16 (8)	18:38	25 09:16 (7)	16:36	16:14
18	08:48	07:54	08:24 (7)	06:48	07:12 (8)	06:31	05:30	05:03	05:26	06:19	07:15	07:52 (8)	08:10		08:51 (7)	08:54
	16:49	17:51	17 08:41 (7)	18:46	16 07:28 (8)	20:45	21:39	22:15	22:01	21:04	19:49	24 08:16 (8)	18:35	24 09:15 (7)	16:34	16:14
19	08:46	07:52	08:23 (7)	06:45	07:09 (8)	06:29	05:29	05:03	05:28	06:20	07:16	07:51 (8)	08:12		08:51 (7)	08:55
	16:51	17:53	19 08:42 (7)	18:48	19 07:28 (8)	20:46	21:41	22:15	21:59	21:02	19:46	25 08:16 (8)	18:33	24 09:15 (7)	16:33	16:14
20	08:45	07:49	08:21 (7)	06:43	07:07 (8)	06:27	05:27	05:03	05:29	06:22	07:18	07:51 (8)	08:14		08:51 (7)	08:55
	16:53	17:55	22 08:43 (7)	18:50	23 07:30 (8)	20:48	21:43	22:15	21:58	20:59	19:44	25 08:16 (8)	18:31	23 09:14 (7)	16:32	16:15
21	08:44	07:47	08:21 (7)	06:40	07:06 (8)	06:24	05:26	05:03	05:31	06:24	07:20	07:51 (8)	08:16		08:51 (7)	08:56
	16:55	17:57	23 08:44 (7)	18:52	23 07:29 (8)	20:50	21:44	22:16	21:57	20:57	19:41	25 08:16 (8)	18:28	23 09:14 (7)	16:30	16:15
22	08:43	07:45	08:20 (7)	06:38	07:05 (8)	06:22	05:24	05:03	05:32	06:26	07:22	07:50 (8)	08:18		08:52 (7)	08:57
	16:57	17:59	24 08:44 (7)	18:54	25 07:30 (8)	20:52	21:46	22:16	21:55	20:55	19:39	24 08:14 (8)	18:26	21 09:13 (7)	16:29	16:16
23	08:41	07:43	08:19 (7)	06:35	07:04 (8)	06:20	05:23	05:04	05:34	06:28	07:24	07:51 (8)	08:20		08:52 (7)	08:57
	16:58	18:01	25 08:44 (7)	18:56	25 07:29 (8)	20:54	21:47	22:16	21:54	20:52	19:36	22 08:13 (8)	18:24	20 09:12 (7)	16:28	16:16
24	08:40	07:40	08:20 (7)	06:33	07:05 (8)	06:18	05:21	05:04	05:35	06:29	07:25	07:52 (8)	08:22		08:54 (7)	08:57
	17:00	18:03	24 08:44 (7)	18:57	25 07:30 (8)	20:56	21:49	22:16	21:52	20:50	19:34	20 08:12 (8)	18:22	16 09:10 (7)	16:26	16:17
25	08:38	07:38	08:19 (7)	06:30	07:04 (8)	06:15	05:20	05:04	05:37	06:31	07:27	07:54 (8)	07:24		07:55 (7)	08:58
	17:02	18:05	24 08:43 (7)	18:59	25 07:29 (8)	20:58	21:50	22:16	21:51	20:48	19:31	17 08:11 (8)	17:19	13 08:08 (7)	16:25	16:17
26	08:37	07:36	08:20 (7)	06:28	07:05 (8)	06:13	05:19	05:05	05:38	06:33	07:29	07:56 (8)	07:26		08:00 (7)	08:58
	17:04	18:07	23 08:43 (7)	19:01	23 07:28 (8)	21:00	21:52	22:16	21:49	20:45	19:29	13 08:09 (8)	17:17	5 08:05 (7)	16:24	16:18
27	08:36	07:34	08:20 (7)	06:25	07:04 (8)	06:11	05:17	05:05	05:40	06:35	07:31	07:57 (8)	07:28		08:27	08:58
	17:06	18:09	23 08:43 (7)	19:03	23 07:27 (8)	21:02	21:53	22:16	21:48	20:43	19:26	8 08:05 (8)	17:15		16:23	16:19
28	08:34	07:31	08:20 (7)	06:23	07:05 (8)	06:09	05:16	05:06	05:42	06:37	07:33		07:30		08:29	08:59
	17:08	18:11	21 08:41 (7)	19:05	21 07:26 (8)	21:03	21:55	22:16	21:46	20:41	19:24		17:13		16:22	16:20
29	08:32			07:20	08:06 (8)	06:07	05:15	05:06	05:43	06:38	07:35		07:32		08:30	08:59
	17:10			20:07	18 08:24 (8)	21:05	21:56	22:16	21:44	20:38	19:21		17:11		16:21	16:21
30	08:31			07:18	08:08 (8)	06:04	05:14	05:07	05:45	06:40	07:36		07:34		08:32	08:59
	17:12			20:09	14 08:22 (8)	21:07	21:57	22:15	21:42	20:36	19:19		17:09		16:20	16:22
31	08:29			07:15	08:09 (8)		05:13		05:47	06:42			07:36			08:59
	17:14			20:11	10 08:19 (8)		21:59		21:41	20:34			17:07			16:23
Potential sun hours	248	272		367		421	496	513	515	461	382		328		257	231
Total, worst case			267		354							310		320		
Sun reduction			0.22		0.22							0.29		0.23		
Oper. time red.			1.00		1.00							1.00		1.00		
Wind dir. red.			0.62		0.59							0.59		0.62		
Total reduction			0.14		0.13							0.17		0.15		
Total, real			37		47							54		47		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DC - H110

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April	May	June		July	August	September		October		November	December
1	08:58	08:27		07:29		07:12	06:02	05:12		05:08	05:48	06:44		07:38		07:37	08:33
	16:24	17:16		18:13		20:12	21:09	22:00		22:15	21:38	20:31		19:16		17:04	16:19
2	08:58	08:25		07:26		07:10	06:00	05:11		05:08	05:50	06:46		07:40		07:39	08:35
	16:25	17:18		18:15		20:14	21:11	22:01		22:14	21:37	20:28		19:14		17:02	16:18
3	08:58	08:24		07:24		07:08	05:58	05:10		05:09	05:52	06:47		07:42		07:41	08:36
	16:26	17:20		18:17		20:16	21:12	22:02		22:14	21:35	20:26		19:11		17:00	16:18
4	08:58	08:22		07:21		07:05	05:56	05:09		05:10	05:54	06:49		07:44		07:43	08:38
	16:27	17:22		18:19		20:18	21:14	22:03		22:13	21:33	20:23		19:09		16:58	16:17
5	08:57	08:20		07:19		07:03	05:54	05:08		05:11	05:55	06:51		07:45		07:45	08:39
	16:29	17:24		18:21		20:20	21:16	22:04		22:13	21:31	20:21		19:06		16:57	16:16
6	08:57	08:18		07:17		07:00	05:52	05:07		05:12	05:57	06:53		07:47		07:47	08:41
	16:30	17:26		18:23		20:22	21:18	22:05		22:12	21:29	20:19		19:04		16:55	16:16
7	08:56	08:16		07:14		06:58	05:50	05:07		05:13	05:59	06:55		07:49		07:49	08:42
	16:31	17:28		18:25		20:24	21:20	22:06		22:11	21:27	20:16		19:01		16:53	16:15
8	08:56	08:14		07:12		06:55	05:48	05:06		05:14	06:01	06:56		07:51		07:51	08:43
	16:33	17:30		18:27		20:25	21:22	22:07		22:11	21:25	20:14		18:59		16:51	16:15
9	08:55	08:12		07:09		06:53	05:46	05:06		05:15	06:02	06:58		07:53		07:53	08:45
	16:34	17:32		18:28		20:27	21:23	22:08		22:10	21:23	20:11		18:56		16:49	16:15
10	08:54	08:10		07:07		06:50	05:44	05:05		05:16	06:04	07:00		07:55		07:55	08:46
	16:36	17:34		18:30		20:29	21:25	22:09		22:09	21:21	20:09		18:54		16:47	16:14
11	08:54	08:08		07:05		06:48	05:42	05:05		05:17	06:06	07:02		07:57		07:57	08:47
	16:37	17:36		18:32		20:31	21:27	22:10		22:08	21:19	20:06		18:52		16:46	16:14
12	08:53	08:06		07:02		06:46	05:41	05:04		05:18	06:08	07:04		07:58		07:59	08:48
	16:39	17:38		18:34		20:33	21:29	22:11		22:07	21:17	20:04		18:49		16:44	16:14
13	08:52	08:04		07:00		06:43	05:39	05:04		05:20	06:09	07:05		08:00		08:01	08:49
	16:41	17:41		18:36		20:35	21:30	22:12		22:06	21:15	20:01		18:47		16:42	16:14
14	08:51	08:02		06:57		06:41	05:37	05:04		05:21	06:11	07:07		08:02		08:03	08:50
	16:42	17:43		18:38		20:37	21:32	22:12		22:05	21:12	19:59		18:44		16:40	16:14
15	08:50	08:00	17:11 (2)	06:55		06:38	05:35	05:03		05:22	06:13	07:09		08:04		08:05	08:51
	16:44	17:45 4	17:15 (2)	18:40		20:39	21:34	22:13		22:04	21:10	19:56		18:42		16:39	16:14
16	08:49	07:58	17:10 (2)	06:52	18:14 (4)	06:36	05:33	05:03		05:23	06:15	07:11		08:06		08:07	08:52
	16:46	17:47 7	17:17 (2)	18:42 1	18:15 (4)	20:41	21:36	22:13		22:03	21:08	19:54		18:40		16:37	16:14
17	08:48	07:56	17:10 (2)	06:50	18:13 (4)	06:34	05:32	05:03		05:25	06:17	07:13		08:08		08:09	08:53
	16:47	17:49 10	17:20 (2)	18:44 4	18:17 (4)	20:42	21:37	22:14		22:02	21:06	19:51		18:37		16:36	16:14
18	08:47	07:54	17:10 (2)	06:47	18:11 (4)	06:31	05:30	05:03		05:26	06:18	07:14	19:04 (4)	08:10		08:10	08:54
	16:49	17:51 12	17:22 (2)	18:46 8	18:19 (4)	20:44	21:39	22:14		22:00	21:04	19:49 1	19:05 (4)	18:35		16:34	16:14
19	08:46	07:51	17:10 (2)	06:45	18:11 (4)	06:29	05:29	05:03	21:37 (1)	05:28	06:20	07:16	19:00 (4)	08:12	17:45 (2)	08:12	08:54
	16:51	17:53 14	17:24 (2)	18:48 10	18:21 (4)	20:46	21:41	22:15 1	21:38 (1)	21:59	21:01	19:46 9	19:09 (4)	18:33 8	17:53 (2)	16:33	16:14
20	08:45	07:49	17:10 (2)	06:42	18:10 (4)	06:27	05:27	05:03	21:38 (1)	05:29	06:22	07:18	18:58 (4)	08:14	17:43 (2)	08:14	08:55
	16:53	17:55 15	17:25 (2)	18:50 12	18:22 (4)	20:48	21:42	22:15 1	21:39 (1)	21:58	20:59	19:44 13	19:11 (4)	18:30 12	17:55 (2)	16:31	16:15
21	08:44	07:47	17:11 (2)	06:40	18:10 (4)	06:24	05:26	05:03	21:38 (1)	05:31	06:24	07:20	18:56 (4)	08:16	17:41 (2)	08:16	08:56
	16:55	17:57 14	17:25 (2)	18:51 15	18:25 (4)	20:50	21:44	22:15 1	21:39 (1)	21:56	20:57	19:41 14	19:10 (4)	18:28 14	17:55 (2)	16:30	16:15
22	08:42	07:45	17:12 (2)	06:37	18:10 (4)	06:22	05:24	05:03	21:38 (1)	05:32	06:26	07:22	18:55 (4)	08:18	17:41 (2)	08:18	08:56
	16:56	17:59 11	17:23 (2)	18:53 15	18:25 (4)	20:52	21:45	22:15 1	21:39 (1)	21:55	20:55	19:39 15	19:10 (4)	18:26 15	17:56 (2)	16:29	16:16
23	08:41	07:42	17:15 (2)	06:35	18:11 (4)	06:20	05:23	05:04	21:38 (1)	05:34	06:27	07:23	18:54 (4)	08:20	17:40 (2)	08:20	08:57
	16:58	18:01 6	17:21 (2)	18:55 13	18:24 (4)	20:54	21:47	22:16 1	21:39 (1)	21:53	20:52	19:36 14	19:08 (4)	18:24 13	17:53 (2)	16:28	16:16
24	08:40	07:40		06:32	18:12 (4)	06:18	05:21	05:04		05:35	06:29	07:25	18:54 (4)	08:22	17:40 (2)	08:21	08:57
	17:00	18:03		18:57 10	18:22 (4)	20:56	21:49	22:16		21:52	20:50	19:34 11	19:05 (4)	18:21 11	17:51 (2)	16:26	16:17
25	08:38	07:38		06:30	18:15 (4)	06:15	05:20	05:04		05:37	06:31	07:27	18:55 (4)	07:24	16:40 (2)	08:23	08:57
	17:02	18:05		18:59 4	18:19 (4)	20:57	21:50	22:16		21:50	20:48	19:31 8	19:03 (4)	17:19 8	16:48 (2)	16:25	16:17
26	08:37	07:36		06:27		06:13	05:19	05:05		05:38	06:33	07:29	18:54 (4)	07:25	16:40 (2)	08:25	08:58
	17:04	18:07		19:01		20:59	21:52	22:16		21:49	20:45	19:29 6	19:00 (4)	17:17 6	16:46 (2)	16:24	16:18
27	08:35	07:33		06:25		06:11	05:17	05:05		05:40	06:35	07:31	18:55 (4)	07:27	16:41 (2)	08:27	08:58
	17:06	18:09		19:03		21:01	21:53	22:16		21:47	20:43	19:26 2	18:57 (4)	17:15 3	16:44 (2)	16:23	16:19
28	08:34	07:31		06:22		06:09	05:16	05:06		05:42	06:36	07:32		07:29		08:28	08:58
	17:08	18:11		19:05		21:03	21:54	22:15		21:45	20:40	19:24		17:13		16:22	16:20
29	08:32			07:20		06:06	05:15	05:06		05:43	06:38	07:34		07:31		08:30	08:58
	17:10			20:07		21:05	21:56	22:15		21:44	20:38	19:21		17:11		16:21	16:21
30	08:30			07:17		06:04	05:14	05:07		05:45	06:40	07:36		07:33		08:32	08:58
	17:12			20:09		21:07	21:57	22:15		21:42	20:36	19:19		17:09		16:20	16:22
31	08:29			07:15			05:13			05:47	06:42			07:35			08:58
	17:14			20:10			21:58			21:40	20:33			17:07			16:23
Potential sun hours	248	272		367		421	496	513		515	461	382		328		257	231
Total, worst case			93		92				5				93		90		
Sun reduction			0.22		0.22				0.26				0.29		0.23		
Oper. time red.			1.00		1.00				1.00				1.00		1.00		
Wind dir. red.			0.58		0.58				0.65				0.58		0.58		
Total reduction			0.13		0.13				0.17				0.17		0.14		
Total, real			12		12				1				16		12		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DD - H111

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May	June	July	August	September	October	November			December		
1	08:59		09:33 (18)	08:27		08:56 (17)	07:29	07:12	06:02	05:12	05:07	05:48	06:44	07:38	07:37			08:34		09:09 (18)
	16:24	19	15:45 (14)	17:16	22	09:18 (17)	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:04			16:19	38	15:37 (14)
2	08:58		09:33 (18)	08:26		08:54 (17)	07:26	07:10	06:00	05:11	05:08	05:50	06:45	07:40	07:39		08:30 (17)	08:35		09:11 (18)
	16:25	21	15:46 (14)	17:18	23	09:17 (17)	18:15	20:14	21:11	22:01	22:15	21:37	20:29	19:14	17:02	9	08:39 (17)	16:18	36	15:37 (14)
3	08:58		09:33 (18)	08:24		08:53 (17)	07:24	07:07	05:58	05:10	05:09	05:52	06:47	07:42	07:41		08:28 (17)	08:37		09:12 (18)
	16:26	23	15:48 (14)	17:20	24	09:17 (17)	18:17	20:16	21:13	22:02	22:14	21:35	20:26	19:11	17:00	14	08:42 (17)	16:17	35	15:37 (14)
4	08:58		09:32 (18)	08:22		08:54 (17)	07:22	07:05	05:56	05:09	05:10	05:53	06:49	07:44	07:43		08:27 (17)	08:38		09:14 (18)
	16:27	25	15:49 (14)	17:22	23	09:17 (17)	18:19	20:18	21:14	22:04	22:14	21:33	20:24	19:09	16:58	17	08:44 (17)	16:17	33	15:38 (14)
5	08:57		09:32 (18)	08:20		08:55 (17)	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45		08:25 (17)	08:40		09:15 (18)
	16:29	28	15:51 (14)	17:24	21	09:16 (17)	18:21	20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:56	20	08:45 (17)	16:16	31	15:37 (14)
6	08:57		09:31 (18)	08:18		08:56 (17)	07:17	07:00	05:52	05:07	05:12	05:57	06:53	07:47	07:47		08:24 (17)	08:41		09:17 (18)
	16:30	31	15:52 (14)	17:26	19	09:15 (17)	18:23	20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55	22	08:46 (17)	16:16	30	15:38 (14)
7	08:57		09:30 (18)	08:16		08:57 (17)	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49		08:23 (17)	08:42		09:18 (18)
	16:31	32	15:52 (14)	17:28	17	09:14 (17)	18:25	20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	23	08:46 (17)	16:15	28	15:37 (14)
8	08:56		09:30 (18)	08:14		08:59 (17)	07:12	06:55	05:48	05:06	05:14	06:00	06:56	07:51	07:51		08:23 (17)	08:44		09:20 (18)
	16:33	33	15:53 (14)	17:30	13	09:12 (17)	18:27	20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	24	08:47 (17)	16:15	26	15:37 (14)
9	08:55		09:29 (18)	08:12		09:02 (17)	07:09	06:53	05:46	05:05	05:15	06:02	06:58	07:53	07:53		08:25 (17)	08:45		09:21 (18)
	16:34	35	15:54 (14)	17:32	7	09:09 (17)	18:28	20:27	21:24	22:09	22:10	21:23	20:11	18:56	16:49	23	08:48 (17)	16:14	23	15:36 (14)
10	08:55		09:28 (18)	08:10			07:07	06:50	05:44	05:05	05:16	06:04	07:00	07:55	07:55		08:27 (17)	08:46		09:22 (18)
	16:36	36	15:54 (14)	17:34			18:30	20:29	21:25	22:10	22:09	21:21	20:09	18:54	16:47	21	08:48 (17)	16:14	21	15:35 (14)
11	08:54		09:27 (18)	08:08			07:05	06:48	05:42	05:04	05:17	06:06	07:02	07:57	07:57		08:29 (17)	08:47		09:24 (18)
	16:37	38	15:55 (14)	17:36			18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:45	20	08:49 (17)	16:14	19	15:36 (14)
12	08:53		09:26 (18)	08:06			07:02	06:45	05:40	05:04	05:18	06:07	07:04	07:59	07:59		08:31 (17)	08:48		09:25 (18)
	16:39	40	15:55 (14)	17:38			18:34	20:33	21:29	22:11	22:08	21:17	20:04	18:49	16:44	18	08:49 (17)	16:14	18	15:35 (14)
13	08:52		09:25 (18)	08:04			07:00	06:43	05:39	05:04	05:19	06:09	07:05	08:00	08:01		08:33 (17)	08:49		15:19 (14)
	16:40	40	15:55 (14)	17:40			18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16	08:49 (17)	16:13	16	15:35 (14)
14	08:52		09:24 (18)	08:02			06:57	06:41	05:37	05:03	05:21	06:11	07:07	08:02	08:03		08:35 (17)	08:50		15:19 (14)
	16:42	42	15:56 (14)	17:42			18:38	20:37	21:32	22:13	22:05	21:13	19:59	18:44	16:40	13	08:48 (17)	16:13	16	15:35 (14)
15	08:51		09:23 (18)	08:00			06:55	06:38	05:35	05:03	05:22	06:13	07:09	08:04	08:05		08:37 (17)	08:51		15:20 (14)
	16:44	42	15:56 (14)	17:45			18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	11	08:48 (17)	16:13	15	15:35 (14)
16	08:50		09:21 (18)	07:58			06:52	06:36	05:33	05:03	05:23	06:15	07:11	08:06	08:07		08:40 (17)	08:52		15:21 (14)
	16:45	44	15:56 (14)	17:47			18:42	20:41	21:36	22:14	22:03	21:08	19:54	18:40	16:37	9	08:49 (17)	16:13	14	15:35 (14)
17	08:49		09:22 (18)	07:56			06:50	06:34	05:32	05:03	05:25	06:16	07:13	08:08	08:09		08:42 (17)	08:53		15:22 (14)
	16:47	42	15:56 (14)	17:49			18:44	20:43	21:38	22:14	22:02	21:06	19:51	18:37	16:36	17	15:26 (14)	16:14	13	15:35 (14)
18	08:47		09:23 (18)	07:54			06:47	06:31	05:30	05:03	05:26	06:18	07:14	08:10	08:11		08:44 (17)	08:54		15:21 (14)
	16:49	40	15:56 (14)	17:51			18:46	20:44	21:39	22:15	22:01	21:04	19:49	18:35	16:34	18	15:28 (14)	16:14	14	15:35 (14)
19	08:46		09:23 (18)	07:52			06:45	06:29	05:28	05:03	05:27	06:20	07:16	08:12	08:13		08:46 (17)	08:55		15:22 (14)
	16:51	39	15:56 (14)	17:53			18:48	20:46	21:41	22:15	21:59	21:02	19:46	18:33	16:33	21	15:29 (14)	16:14	13	15:35 (14)
20	08:45		09:25 (18)	07:49			06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14		09:03 (18)	08:55		15:23 (14)
	16:53	36	15:56 (14)	17:55			18:50	20:48	21:43	22:15	21:58	20:59	19:44	18:30	16:31	28	15:30 (14)	16:14	13	15:36 (14)
21	08:44		09:26 (18)	07:47			06:40	06:24	05:25	05:03	05:30	06:24	07:20	08:16	08:16		09:02 (18)	08:56		15:23 (14)
	16:54	33	15:55 (14)	17:57			18:52	20:50	21:44	22:16	21:57	20:57	19:41	18:28	16:30	33	15:31 (14)	16:15	13	15:36 (14)
22	08:43		09:28 (18)	07:45			06:37	06:22	05:24	05:03	05:32	06:26	07:22	08:18	08:18		09:01 (18)	08:57		15:24 (14)
	16:56	28	15:55 (14)	17:59			18:53	20:52	21:46	22:16	21:55	20:55	19:39	18:26	16:29	36	15:32 (14)	16:15	13	15:37 (14)
23	08:41		09:11 (17)	07:43			06:35	06:20	05:22	05:03	05:33	06:27	07:23	08:20	08:20		09:00 (18)	08:57		15:24 (14)
	16:58	21	15:54 (14)	18:01			18:55	20:54	21:47	22:16	21:54	20:52	19:36	18:24	16:27	39	15:33 (14)	16:16	13	15:37 (14)
24	08:40		09:10 (17)	07:40			06:32	06:17	05:21	05:04	05:35	06:29	07:25	08:22	08:22		09:00 (18)	08:57		15:25 (14)
	17:00	18	15:54 (14)	18:03			18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:21	16:26	40	15:33 (14)	16:16	13	15:38 (14)
25	08:38		09:08 (17)	07:38			06:30	06:15	05:20	05:04	05:37	06:31	07:27	07:24	08:24		09:00 (18)	08:58		15:25 (14)
	17:02	17	15:52 (14)	18:05			18:59	20:58	21:50	22:16	21:51	20:48	19:31	17:19	16:25	42	15:34 (14)	16:17	13	15:38 (14)
26	08:37		09:07 (17)	07:36			06:27	06:13	05:18	05:04	05:38	06:33	07:29	07:26	08:25		09:00 (18)	08:58		15:25 (14)
	17:04	9	09:16 (17)	18:07			19:01	21:00	21:52	22:16	21:49	20:45	19:29	17:17	16:24	44	15:35 (14)	16:18	14	15:39 (14)
27	08:35		09:05 (17)	07:33			06:25	06:11	05:17	05:05	05:40	06:35	07:31	07:28	08:27		09:02 (18)	08:58		15:26 (14)
	17:06	11	09:16 (17)	18:09			19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	43	15:35 (14)	16:19	14	15:40 (14)
28	08:34		09:03 (17)	07:31			06:22	06:09	05:16	05:05	05:41	06:36	07:33	07:30	08:29		09:04 (18)	08:58		15:26 (14)
	17:08	14	09:17 (17)	18:11			19:05	21:03	21:55	22:16	21:46	20:41	19:24	17:13	16:22	42	15:36 (14)	16:19	14	15:40 (14)
29	08:32		09:01 (17)				07:20	06:06	05:15	05:06	05:43	06:38	07:34	07:32	08:30		09:05 (18)	08:59		15:26 (14)
	17:10	16	09:17 (17)				20:07	21:05	21:56	22:16	21:44	20:38	19:21	17:11	16:21	41	15:36 (14)	16:20	15	15:41 (14)
30	08:31		08:59 (17)				07:17	06:04	05:14	05:07	05:45	06:40	07:36	07:34	08:32		09:07 (18)	08:59		15:27 (14)
	17:12	18	09:17 (17)				20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:08	16:20	40	15:36 (14)	16:21	16	15:43 (14)
31	08:29		08:58 (17)				07:15		05:13		05:46	06:42		07:36				08:59		15:27 (14)
	17:14	20	09:18 (17)				20:10		21:59		21:41	20:33		17:06				16:22	17	15:44 (14)
Potential sun hours	248			272			367	421	496	513	515	461	383	327	257			230		
Total, worst case		891			169											744			607	
Sun reduction		0.17			0.22											0.20			0.12	
Oper. time red.		1.00			1.00											1.00			1.00	
Wind dir. red.		0.64			0.64											0.64			0.63	
Total reduction		0.11			0.14											0.13			0.08	
Total, real		97			24											95			46	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DE - H112

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February			March			April	May	June	July	August	September			October			November	December
1	08:59	08:27			07:29		07:54 (6)	07:13	06:02	05:12	05:08	05:48	06:44			07:38		08:05 (5)	07:38	08:34
	16:24	17:16			18:13	10	08:04 (6)	20:13	21:09	22:00	22:15	21:39	20:31			19:16	23	08:34 (6)	17:05	16:19
2	08:58	08:26			07:26		07:51 (6)	07:10	06:00	05:11	05:08	05:50	06:46			07:40		08:07 (5)	07:40	08:35
	16:25	17:18			18:15	13	08:04 (6)	20:14	21:11	22:01	22:15	21:37	20:29			19:14	27	08:37 (6)	17:03	16:19
3	08:58	08:24			07:24		07:49 (6)	07:08	05:58	05:10	05:09	05:52	06:48			07:42		08:09 (5)	07:42	08:37
	16:26	17:20			18:17	16	08:05 (6)	20:16	21:13	22:02	22:14	21:35	20:26			19:11	28	08:38 (6)	17:01	16:18
4	08:58	08:22			07:22		07:46 (6)	07:05	05:56	05:09	05:10	05:54	06:49			07:44		08:10 (5)	07:43	08:38
	16:28	17:22			18:19	18	08:04 (6)	20:18	21:15	22:04	22:14	21:33	20:24			19:09	27	08:38 (6)	16:59	16:17
5	08:57	08:20			07:19		07:44 (6)	07:03	05:54	05:08	05:11	05:55	06:51			07:46		08:12 (5)	07:45	08:40
	16:29	17:24			18:21	20	08:04 (6)	20:20	21:16	22:05	22:13	21:31	20:21			19:06	27	08:39 (6)	16:57	16:17
6	08:57	08:18			07:17		07:42 (6)	07:00	05:52	05:08	05:12	05:57	06:53			07:47		08:14 (5)	07:47	08:41
	16:30	17:26			18:23	23	08:05 (6)	20:22	21:18	22:06	22:12	21:29	20:19			19:04	24	08:39 (6)	16:55	16:16
7	08:57	08:16			07:14		07:39 (6)	06:58	05:50	05:07	05:13	05:59	06:55			07:49		08:16 (6)	07:49	08:42
	16:32	17:28			18:25	25	08:04 (6)	20:24	21:20	22:07	22:12	21:27	20:16			19:01	24	08:40 (6)	16:53	16:15
8	08:56	08:14			07:12		07:37 (5)	06:55	05:48	05:06	05:14	06:01	06:57			07:51		08:18 (6)	07:51	08:44
	16:33	17:30			18:27	26	08:03 (6)	20:26	21:22	22:08	22:11	21:25	20:14			18:59	22	08:40 (6)	16:51	16:15
9	08:55	08:13			07:10		07:34 (5)	06:53	05:46	05:06	05:15	06:02	06:58			07:53		08:20 (6)	07:53	08:45
	16:34	17:33			18:29	28	08:02 (6)	20:28	21:24	22:09	22:10	21:23	20:11			18:57	19	08:39 (6)	16:49	16:15
10	08:55	08:11			07:07		07:32 (5)	06:51	05:44	05:05	05:16	06:04	07:00			07:55		08:22 (6)	07:55	08:46
	16:36	17:35			18:31	29	08:01 (6)	20:29	21:25	22:10	22:09	21:21	20:09			18:54	17	08:39 (6)	16:47	16:14
11	08:54	08:09			07:05		07:29 (5)	06:48	05:42	05:05	05:17	06:06	07:02			07:57		08:24 (6)	07:57	08:47
	16:38	17:37			18:33	28	07:59 (6)	20:31	21:27	22:10	22:08	21:19	20:06			18:52	14	08:38 (6)	16:46	16:14
12	08:53	08:06			07:02		07:27 (5)	06:46	05:41	05:04	05:18	06:08	07:04			07:59		08:26 (6)	07:59	08:48
	16:39	17:39			18:34	26	07:57 (6)	20:33	21:29	22:11	22:07	21:17	20:04			18:49	11	08:37 (6)	16:44	16:14
13	08:52	08:04			07:00		07:24 (5)	06:43	05:39	05:04	05:20	06:10	07:06			08:01		08:28 (6)	08:01	08:49
	16:41	17:41			18:36	17	07:51 (6)	20:35	21:31	22:12	22:06	21:15	20:01			18:47	8	08:36 (6)	16:42	16:14
14	08:52	08:02			06:57		07:22 (5)	06:41	05:37	05:04	05:21	06:11	07:07			08:03		08:30 (6)	08:03	08:50
	16:42	17:43			18:38	17	07:39 (5)	20:37	21:32	22:13	22:05	21:13	19:59			18:45	5	08:35 (6)	16:41	16:14
15	08:51	08:00			06:55		07:20 (5)	06:39	05:35	05:03	05:22	06:13	07:09			08:04		08:32 (6)	08:05	08:51
	16:44	17:45			18:40	18	07:38 (5)	20:39	21:34	22:13	22:04	21:10	19:56			18:42	1	08:33 (6)	16:39	16:14
16	08:50	07:58			06:52		07:22 (5)	06:36	05:34	05:03	05:24	06:15	07:11			08:06			08:07	08:52
	16:46	17:47			18:42	15	07:37 (5)	20:41	21:36	22:14	22:03	21:08	19:54			18:40			16:37	16:14
17	08:49	07:56			06:50		07:23 (5)	06:34	05:32	05:03	05:25	06:17	07:13			08:08			08:09	08:53
	16:48	17:49			18:44	11	07:34 (5)	20:43	21:38	22:14	22:02	21:06	19:51			18:38			16:36	16:14
18	08:47	07:54			06:47		07:27 (5)	06:31	05:30	05:03	05:26	06:19	07:15			08:10			08:11	08:54
	16:49	17:51			18:46	4	07:31 (5)	20:45	21:39	22:15	22:01	21:04	19:49			18:35			16:34	16:14
19	08:46	07:52			06:45			06:29	05:29	05:03	05:28	06:20	07:16			08:12			08:13	08:55
	16:51	17:53			18:48			20:46	21:41	22:15	21:59	21:02	19:46			18:33			16:33	16:14
20	08:45	07:49			06:43			06:27	05:27	05:03	05:29	06:22	07:18			08:14			08:14	08:55
	16:53	17:55			18:50			20:48	21:43	22:15	21:58	20:59	19:44			18:31			16:32	16:15
21	08:44	07:47			06:40			06:25	05:26	05:03	05:31	06:24	07:20			08:16			08:16	08:56
	16:55	17:57			18:52			20:50	21:44	22:16	21:57	20:57	19:41			18:28			16:30	16:15
22	08:43	07:45			06:38			06:22	05:24	05:03	05:32	06:26	07:22			08:18			08:18	08:56
	16:57	17:59			18:54			20:52	21:46	22:16	21:55	20:55	19:39			18:26			16:29	16:16
23	08:41	07:43			06:35			06:20	05:23	05:04	05:34	06:28	07:24			08:20			08:20	08:57
	16:59	18:01			18:55			20:54	21:47	22:16	21:54	20:52	19:36			18:24			16:28	16:16
24	08:40	07:40			06:33			06:18	05:21	05:04	05:35	06:29	07:25			08:22			08:22	08:57
	17:00	18:03			18:57			20:56	21:49	22:16	21:52	20:50	19:34			18:22			16:26	16:17
25	08:38	07:38			06:30			06:15	05:20	05:04	05:37	06:31	07:27			07:24			08:23	08:58
	17:02	18:05			18:59			20:58	21:50	22:16	21:51	20:48	19:31			17:19			16:25	16:17
26	08:37	07:36			06:28			06:13	05:19	05:05	05:39	06:33	07:29		08:06 (5)	07:26			08:25	08:58
	17:04	18:07			19:01			21:00	21:52	22:16	21:49	20:45	19:29	10	08:16 (5)	17:17			16:24	16:18
27	08:35	07:33		07:59 (6)	06:25			06:11	05:17	05:05	05:40	06:35	07:31		08:03 (5)	07:28			08:27	08:58
	17:06	18:09	3	08:02 (6)	19:03			21:01	21:53	22:16	21:47	20:43	19:26	14	08:17 (5)	17:15			16:23	16:19
28	08:34	07:31		07:56 (6)	06:23			06:09	05:16	05:06	05:42	06:37	07:33		08:01 (5)	07:30			08:29	08:58
	17:08	18:11	6	08:02 (6)	19:05			21:03	21:55	22:16	21:46	20:41	19:24	17	08:18 (5)	17:13			16:22	16:20
29	08:32				07:20			06:07	05:15	05:06	05:43	06:38	07:35		08:01 (5)	07:32			08:30	08:59
	17:10				20:07			21:05	21:56	22:16	21:44	20:38	19:21	18	08:19 (5)	17:11			16:21	16:21
30	08:31				07:18			06:05	05:14	05:07	05:45	06:40	07:36		08:03 (5)	07:34			08:32	08:59
	17:12				20:09			21:07	21:57	22:15	21:42	20:36	19:19	16	08:19 (5)	17:09			16:20	16:22
31	08:29				07:15				05:13		05:47	06:42				07:36				08:59
	17:14				20:11				21:59		21:41	20:33				17:07				16:23
Potential sun hours	248	272			367			421	496	513	515	461	382			328			257	231
Total, worst case			9			344								75			277			
Sun reduction			0.22			0.22								0.29			0.23			
Oper. time red.			1.00			1.00								1.00			1.00			
Wind dir. red.			0.61			0.60								0.59			0.60			
Total reduction			0.13			0.13								0.17			0.14			
Total, real			1			46								13			39			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DF - H113

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	05:08	05:49	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	05:09	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	22:14	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	05:09	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22	07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	22:13	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	05:11	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	22:13	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	22:12	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	22:11	21:27	20:16	19:01	16:53	16:16
8	08:56	08:14	07:12	06:55	05:48	05:06	05:14	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	22:11	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:10	06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:35	17:33	18:29	20:27	21:23	22:08	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:10	07:07	06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31	20:29	21:25	22:09	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:43	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:38	17:37	18:32	20:31	21:27	22:10	22:08	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	05:19	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	22:07	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	05:20	06:10	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:31	22:12	22:06	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	05:21	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	22:05	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:39	05:35	05:04	05:22	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	22:04	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	05:24	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	22:03	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	05:03	05:25	06:17	07:13	08:08	08:09	08:53
	16:48	17:49	18:44	20:43	21:37	22:14	22:02	21:06	19:51	18:38	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	05:03	05:26	06:19	07:14	08:10	08:11	08:54
	16:49	17:51	18:46	20:44	21:39	22:14	22:00	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	05:03	05:28	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	22:15	21:59	21:01	19:46	18:33	16:33	16:15
20	08:45	07:49	06:42	06:27	05:27	05:03	05:29	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	22:15	21:58	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:25	05:26	05:03	05:31	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	22:15	21:56	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	05:04	05:32	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:54	20:52	21:45	22:16	21:55	20:55	19:39	18:26	16:29	16:16
23	08:41	07:43	06:35	06:20	05:23	05:04	05:34	06:28	07:23	08:20	08:20	08:57
	16:59	18:01	18:55	20:54	21:47	22:16	21:53	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	05:04	05:35	06:29	07:25	08:22	08:22	08:57
	17:00	18:03	18:57	20:56	21:49	22:16	21:52	20:50	19:34	18:22	16:27	16:17
25	08:38	07:38	06:30	06:15	05:20	05:05	05:37	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:58	21:50	22:16	21:50	20:48	19:31	17:19	16:25	16:18
26	08:37	07:36	06:27	06:13	05:19	05:05	05:39	06:33	07:29	07:26	08:25	08:58
	17:04	18:07	19:01	20:59	21:52	22:16	21:49	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:18	05:05	05:40	06:35	07:31	07:28	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	22:16	21:47	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:23	06:09	05:16	05:06	05:42	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	22:15	21:46	20:41	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	05:07	05:43	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	22:15	21:44	20:38	19:21	17:11	16:21	16:21
30	08:30		07:18	06:05	05:14	05:07	05:45	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	22:15	21:42	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13		05:47	06:42		07:35		08:58
	17:14		20:11		21:58		21:40	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DG - H114

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March	April		May			June		
1	08:58	08:27		07:29	07:12		06:02			05:12		20:57 (16)
	16:24	17:16		18:13	20:12		21:09			22:00	17	21:14 (16)
2	08:58	08:25		07:26	07:10		06:00			05:11		20:56 (16)
	16:25	17:18		18:15	20:14		21:11			22:01	17	21:13 (16)
3	08:58	08:24		07:24	07:07		05:58			05:10		20:56 (16)
	16:26	17:20		18:17	20:16		21:12			22:02	17	21:13 (16)
4	08:58	08:22		07:21	07:05		19:41 (12)	05:56		05:09		20:57 (16)
	16:27	17:22		18:19	20:18	7	19:48 (12)	21:14		22:03	17	21:14 (16)
5	08:57	08:20		07:19	07:02		19:39 (12)	05:54		05:08		20:57 (16)
	16:29	17:24		18:21	20:20	11	19:50 (12)	21:16		22:05	17	21:14 (16)
6	08:57	08:18		07:17	07:00		19:37 (12)	05:52		05:07		20:57 (16)
	16:30	17:26		18:23	20:22	14	19:51 (12)	21:18		22:06	17	21:14 (16)
7	08:56	08:16		07:14	06:58		19:36 (12)	05:50		05:07		20:58 (16)
	16:31	17:28		18:24	20:24	15	19:51 (12)	21:20		22:07	16	21:14 (16)
8	08:56	08:14		07:12	06:55		19:35 (12)	05:48		05:06		20:58 (16)
	16:33	17:30		18:26	20:25	16	19:51 (12)	21:22		22:08	16	21:14 (16)
9	08:55	08:12		07:09	06:53		19:35 (12)	05:46		05:05		20:59 (16)
	16:34	17:32		18:28	20:27	16	19:51 (12)	21:23		22:09	15	21:14 (16)
10	08:55	08:10		07:07	06:50		19:34 (12)	05:44		05:05		20:58 (16)
	16:36	17:34		18:30	20:29	16	19:50 (12)	21:25		22:09	16	21:14 (16)
11	08:54	08:08		07:05	06:48		19:35 (12)	05:42		05:04		20:59 (16)
	16:37	17:36		18:32	20:31	14	19:49 (12)	21:27		22:10	15	21:14 (16)
12	08:53	08:06	17:01 (10)	07:02	06:45		19:36 (12)	05:40		05:04		21:00 (16)
	16:39	17:38	6 17:07 (10)	18:34	20:33	13	19:49 (12)	21:29		22:11	14	21:14 (16)
13	08:52	08:04	16:59 (10)	07:00	06:43		19:37 (12)	05:39		05:04		21:00 (16)
	16:40	17:40	11 17:10 (10)	18:36	20:35	9	19:46 (12)	21:31		22:12	15	21:15 (16)
14	08:51	08:02	16:58 (10)	06:57	06:41		19:40 (12)	05:37		05:03		21:00 (16)
	16:42	17:42	13 17:11 (10)	18:38	20:37	3	19:43 (12)	21:32		22:12	14	21:14 (16)
15	08:50	08:00	16:56 (10)	06:55	06:38			05:35		05:03		21:00 (16)
	16:44	17:44	15 17:11 (10)	18:40	20:39			21:34		22:13	14	21:14 (16)
16	08:49	07:58	16:56 (10)	06:52	06:36			05:33		05:03		21:01 (16)
	16:45	17:47	16 17:12 (10)	18:42	20:41			21:36		22:14	13	21:14 (16)
17	08:48	07:56	16:56 (10)	06:50	06:34			05:32		05:03		21:01 (16)
	16:47	17:49	17 17:13 (10)	18:44	20:42			21:37		22:14	13	21:14 (16)
18	08:47	07:54	16:56 (10)	06:47	06:31			05:30		05:03		21:02 (16)
	16:49	17:51	17 17:13 (10)	18:46	20:44			21:39		22:14	12	21:14 (16)
19	08:46	07:51	16:55 (10)	06:45	06:29			05:28		05:03		21:02 (16)
	16:51	17:53	17 17:12 (10)	18:48	20:46			21:41		22:15	12	21:14 (16)
20	08:45	07:49	16:56 (10)	06:42	06:27			05:27		05:03		21:02 (16)
	16:53	17:55	16 17:12 (10)	18:50	20:48			21:42		22:15	12	21:14 (16)
21	08:44	07:47	16:57 (10)	06:40	06:24			05:25	21:02 (16)	05:03		21:03 (16)
	16:54	17:57	14 17:11 (10)	18:51	20:50			21:44	4 21:06 (16)	22:15	12	21:15 (16)
22	08:42	07:45	16:57 (10)	06:37	06:22			05:24	20:59 (16)	05:03		21:03 (16)
	16:56	17:59	13 17:10 (10)	18:53	20:52			21:46	8 21:07 (16)	22:16	12	21:15 (16)
23	08:41	07:42	17:00 (10)	06:35	06:20			05:22	20:58 (16)	05:03		21:03 (16)
	16:58	18:01	8 17:08 (10)	18:55	20:54			21:47	11 21:09 (16)	22:16	12	21:15 (16)
24	08:40	07:40		06:32	06:17			05:21	20:58 (16)	05:04		21:03 (16)
	17:00	18:03		18:57	20:56			21:49	12 21:10 (16)	22:16	12	21:15 (16)
25	08:38	07:38		06:30	06:15			05:20	20:57 (16)	05:04		21:03 (16)
	17:02	18:05		18:59	20:58			21:50	14 21:11 (16)	22:16	13	21:16 (16)
26	08:37	07:36		06:27	06:13			05:18	20:57 (16)	05:04		21:03 (16)
	17:04	18:07		19:01	20:59			21:52	15 21:12 (16)	22:16	13	21:16 (16)
27	08:35	07:33		06:25	06:11			05:17	20:56 (16)	05:05		21:04 (16)
	17:06	18:09		19:03	21:01			21:53	15 21:11 (16)	22:16	13	21:17 (16)
28	08:34	07:31		06:22	06:09			05:16	20:56 (16)	05:05		21:03 (16)
	17:08	18:11		19:05	21:03			21:54	16 21:12 (16)	22:16	14	21:17 (16)
29	08:32			07:20	06:06			05:15	20:56 (16)	05:06		21:04 (16)
	17:10			20:07	21:05			21:56	16 21:12 (16)	22:15	14	21:18 (16)
30	08:30			07:17	06:04			05:14	20:57 (16)	05:07		21:03 (16)
	17:12			20:08	21:07			21:57	16 21:13 (16)	22:15	14	21:17 (16)
31	08:29			07:15				05:13	20:57 (16)			
	17:14			20:10				21:59	17 21:14 (16)			
Potential sun hours	248	272		367	421			496		513		
Total, worst case			163			134			144			428
Sun reduction			0.22			0.34			0.36			0.26
Oper. time red.			1.00			1.00			1.00			1.00
Wind dir. red.			0.58			0.59			0.63			0.63
Total reduction			0.13			0.20			0.23			0.16
Total, real			21			27			33			69

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DG - H114

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:07	21:03 (16)	05:48		06:44	19:34 (12)	07:38		07:37	08:33
	22:15	15 21:18 (16)	21:39		20:31	14 19:48 (12)	19:16		17:04	16:19
2	05:08	21:04 (16)	05:50		06:45	19:33 (12)	07:40		07:39	08:35
	22:14	15 21:19 (16)	21:37		20:28	16 19:49 (12)	19:14		17:02	16:18
3	05:09	21:04 (16)	05:52		06:47	19:33 (12)	07:42		07:41	08:36
	22:14	15 21:19 (16)	21:35		20:26	16 19:49 (12)	19:11		17:00	16:18
4	05:10	21:03 (16)	05:53		06:49	19:32 (12)	07:44		07:43	08:38
	22:13	16 21:19 (16)	21:33		20:23	16 19:48 (12)	19:09		16:58	16:17
5	05:11	21:03 (16)	05:55		06:51	19:32 (12)	07:45		07:45	08:39
	22:13	16 21:19 (16)	21:31		20:21	15 19:47 (12)	19:06		16:56	16:16
6	05:12	21:04 (16)	05:57		06:53	19:33 (12)	07:47		07:47	08:41
	22:12	16 21:20 (16)	21:29		20:19	14 19:47 (12)	19:04		16:54	16:16
7	05:13	21:04 (16)	05:59		06:54	19:34 (12)	07:49		07:49	08:42
	22:12	16 21:20 (16)	21:27		20:16	11 19:45 (12)	19:01		16:53	16:15
8	05:14	21:04 (16)	06:00		06:56	19:35 (12)	07:51		07:51	08:43
	22:11	16 21:20 (16)	21:25		20:14	7 19:42 (12)	18:59		16:51	16:15
9	05:15	21:04 (16)	06:02		06:58		07:53		07:53	08:45
	22:10	17 21:21 (16)	21:23		20:11		18:56		16:49	16:14
10	05:16	21:04 (16)	06:04		07:00		07:55		07:55	08:46
	22:09	17 21:21 (16)	21:21		20:09		18:54		16:47	16:14
11	05:17	21:04 (16)	06:06		07:02		07:57		07:57	08:47
	22:08	17 21:21 (16)	21:19		20:06		18:52		16:45	16:14
12	05:18	21:04 (16)	06:07		07:03		07:58		07:59	08:48
	22:07	17 21:21 (16)	21:17		20:04		18:49		16:44	16:14
13	05:19	21:04 (16)	06:09		07:05		08:00		08:01	08:49
	22:06	17 21:21 (16)	21:15		20:01		18:47		16:42	16:13
14	05:21	21:05 (16)	06:11		07:07		08:02		08:03	08:50
	22:05	17 21:22 (16)	21:12		19:59		18:44		16:40	16:13
15	05:22	21:05 (16)	06:13		07:09		08:04		08:05	08:51
	22:04	16 21:21 (16)	21:10		19:56		18:42		16:39	16:13
16	05:23	21:05 (16)	06:15		07:11		08:06		08:07	08:52
	22:03	16 21:21 (16)	21:08		19:54		18:40		16:37	16:14
17	05:25	21:06 (16)	06:16		07:12		08:08		08:09	08:53
	22:02	15 21:21 (16)	21:06		19:51		18:37		16:36	16:14
18	05:26	21:07 (16)	06:18		07:14		08:10	17:34 (10)	08:11	08:54
	22:01	14 21:21 (16)	21:04		19:49		18:35	3 17:37 (10)	16:34	16:14
19	05:27	21:07 (16)	06:20		07:16		08:12	17:30 (10)	08:12	08:54
	21:59	13 21:20 (16)	21:01		19:46		18:33	10 17:40 (10)	16:33	16:14
20	05:29	21:08 (16)	06:22		07:18		08:14	17:28 (10)	08:14	08:55
	21:58	11 21:19 (16)	20:59		19:44		18:30	13 17:41 (10)	16:31	16:14
21	05:30	21:09 (16)	06:24		07:20		08:16	17:27 (10)	08:16	08:56
	21:56	10 21:19 (16)	20:57		19:41		18:28	15 17:42 (10)	16:30	16:15
22	05:32	21:11 (16)	06:25		07:22		08:18	17:26 (10)	08:18	08:56
	21:55	6 21:17 (16)	20:55		19:39		18:26	16 17:42 (10)	16:29	16:15
23	05:33		06:27		07:23		08:20	17:25 (10)	08:20	08:57
	21:54		20:52		19:36		18:24	18 17:43 (10)	16:27	16:16
24	05:35		06:29		07:25		08:22	17:25 (10)	08:22	08:57
	21:52		20:50		19:34		18:21	18 17:43 (10)	16:26	16:16
25	05:37		06:31		07:27		07:24	16:25 (10)	08:23	08:58
	21:50		20:48		19:31		17:19	17 16:42 (10)	16:25	16:17
26	05:38		06:33		07:29		07:25	16:25 (10)	08:25	08:58
	21:49		20:45		19:28		17:17	17 16:42 (10)	16:24	16:18
27	05:40		06:35		07:31		07:27	16:26 (10)	08:27	08:58
	21:47		20:43		19:26		17:15	15 16:41 (10)	16:23	16:19
28	05:41		06:36		07:32		07:29	16:27 (10)	08:28	08:58
	21:46		20:40		19:23		17:13	13 16:40 (10)	16:22	16:19
29	05:43		06:38	19:40 (12)	07:34		07:31	16:29 (10)	08:30	08:58
	21:44		20:38	4 19:44 (12)	19:21		17:11	10 16:39 (10)	16:21	16:20
30	05:45		06:40	19:37 (12)	07:36		07:33	16:32 (10)	08:32	08:58
	21:42		20:36	10 19:47 (12)	19:19		17:08	4 16:36 (10)	16:20	16:21
31	05:46		06:42	19:36 (12)			07:35			08:58
	21:40		20:33	12 19:48 (12)			17:06			16:22
Potential sun hours	515		461		383		328		257	231
Total, worst case		328		26		109		169		
Sun reduction		0.27		0.27		0.29		0.23		
Oper. time red.		1.00		1.00		1.00		1.00		
Wind dir. red.		0.63		0.59		0.59		0.58		
Total reduction		0.17		0.16		0.17		0.14		
Total, real		55		4		19		23		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DH - H115

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March	April	May	June
1	08:58			08:27		15:55 (18)	07:29	07:12	06:02	05:11
	16:24			17:16	8	16:03 (18)	18:13	20:12	21:09	22:00
2	08:58			08:25			07:26	07:10	06:00	05:10
	16:25			17:18			18:15	20:14	21:11	22:01
3	08:58			08:24			07:24	07:07	05:58	05:10
	16:26			17:20			18:17	20:16	21:13	22:02
4	08:58			08:22			07:21	07:05	05:56	05:09
	16:27			17:22			18:19	20:18	21:14	22:03
5	08:57			08:20		16:46 (17)	07:19	07:02	05:54	05:08
	16:28			17:24	4	16:50 (17)	18:21	20:20	21:16	22:05
6	08:57			08:18		16:42 (17)	07:17	07:00	05:52	05:07
	16:30			17:26	12	16:54 (17)	18:22	20:22	21:18	22:06
7	08:56		15:50 (18)	08:16		16:41 (17)	07:14	06:58	05:50	05:06
	16:31	1	15:51 (18)	17:28	15	16:56 (17)	18:24	20:24	21:20	22:07
8	08:56		15:47 (18)	08:14		16:39 (17)	07:12	06:55	05:48	05:06
	16:33	7	15:54 (18)	17:30	19	16:58 (17)	18:26	20:25	21:22	22:08
9	08:55		15:47 (18)	08:12		16:37 (17)	07:09	06:53	05:46	05:05
	16:34	10	15:57 (18)	17:32	21	16:58 (17)	18:28	20:27	21:23	22:09
10	08:55		15:46 (18)	08:10		16:37 (17)	07:07	06:50	05:44	05:05
	16:36	12	15:58 (18)	17:34	22	16:59 (17)	18:30	20:29	21:25	22:09
11	08:54		15:45 (18)	08:08		16:36 (17)	07:05	06:48	05:42	05:04
	16:37	15	16:00 (18)	17:36	24	17:00 (17)	18:32	20:31	21:27	22:10
12	08:53		15:45 (18)	08:06		16:36 (17)	07:02	06:45	05:40	05:04
	16:39	16	16:01 (18)	17:38	24	17:00 (17)	18:34	20:33	21:29	22:11
13	08:52		15:45 (18)	08:04		16:36 (17)	07:00	06:43	05:38	05:03
	16:40	17	16:02 (18)	17:40	25	17:01 (17)	18:36	20:35	21:31	22:12
14	08:51		15:44 (18)	08:02		16:36 (17)	06:57	06:41	05:37	05:03
	16:42	19	16:03 (18)	17:42	25	17:01 (17)	18:38	20:37	21:32	22:12
15	08:51		15:43 (18)	08:00		16:35 (17)	06:55	06:38	05:35	05:03
	16:44	20	16:03 (18)	17:44	26	17:01 (17)	18:40	20:39	21:34	22:13
16	08:50		15:44 (18)	07:58		16:36 (17)	06:52	06:36	05:33	05:03
	16:45	20	16:04 (18)	17:46	25	17:01 (17)	18:42	20:41	21:36	22:14
17	08:48		15:44 (18)	07:56		16:36 (17)	06:50	06:33	05:32	05:03
	16:47	21	16:05 (18)	17:48	24	17:00 (17)	18:44	20:42	21:37	22:14
18	08:47		15:44 (18)	07:54		16:37 (17)	06:47	06:31	05:30	05:03
	16:49	22	16:06 (18)	17:51	23	17:00 (17)	18:46	20:44	21:39	22:15
19	08:46		15:44 (18)	07:51		16:37 (17)	06:45	06:29	05:28	05:03
	16:51	22	16:06 (18)	17:53	22	16:59 (17)	18:48	20:46	21:41	22:15
20	08:45		15:44 (18)	07:49		16:38 (17)	06:42	06:26	05:27	05:03
	16:52	23	16:07 (18)	17:55	20	16:58 (17)	18:50	20:48	21:42	22:15
21	08:44		15:44 (18)	07:47		16:40 (17)	06:40	06:24	05:25	05:03
	16:54	23	16:07 (18)	17:57	17	16:57 (17)	18:51	20:50	21:44	22:16
22	08:42		15:44 (18)	07:45		16:42 (17)	06:37	06:22	05:24	05:03
	16:56	24	16:08 (18)	17:59	12	16:54 (17)	18:53	20:52	21:46	22:16
23	08:41		15:44 (18)	07:42		16:46 (17)	06:35	06:20	05:22	05:03
	16:58	24	16:08 (18)	18:01	4	16:50 (17)	18:55	20:54	21:47	22:16
24	08:40		15:45 (18)	07:40			06:32	06:17	05:21	05:04
	17:00	23	16:08 (18)	18:03			18:57	20:56	21:49	22:16
25	08:38		15:45 (18)	07:38			06:30	06:15	05:20	05:04
	17:02	23	16:08 (18)	18:05			18:59	20:58	21:50	22:16
26	08:37		15:46 (18)	07:36			06:27	06:13	05:18	05:04
	17:04	22	16:08 (18)	18:07			19:01	20:59	21:52	22:16
27	08:35		15:47 (18)	07:33			06:25	06:11	05:17	05:05
	17:06	21	16:08 (18)	18:09			19:03	21:01	21:53	22:16
28	08:34		15:48 (18)	07:31			06:22	06:08	05:16	05:05
	17:08	19	16:07 (18)	18:11			19:05	21:03	21:55	22:16
29	08:32		15:49 (18)				07:20	06:06	05:15	05:06
	17:10	18	16:07 (18)				20:07	21:05	21:56	22:15
30	08:31		15:50 (18)				07:17	06:04	05:13	05:07
	17:12	16	16:06 (18)				20:08	21:07	21:57	22:15
31	08:29		15:51 (18)				07:15		05:12	
	17:14	13	16:04 (18)				20:10		21:59	
Potential sun hours	248			272			367	421	496	513
Total, worst case		451			372					
Sun reduction		0.17			0.22					
Oper. time red.		1.00			1.00					
Wind dir. red.		0.62			0.58					
Total reduction		0.11			0.13					
Total, real		48			48					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DH - H115

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October			November			December		
1	05:07		05:48		06:44		07:38			07:37		16:07 (17)	08:33		15:27 (18)
	22:15		21:39		20:31		19:16			17:04	21	16:28 (17)	16:19	15	15:42 (18)
2	05:08		05:50		06:45		07:40			07:39		16:07 (17)	08:35		15:28 (18)
	22:14		21:37		20:28		19:13			17:02	20	16:27 (17)	16:18	12	15:40 (18)
3	05:09		05:51		06:47		07:42			07:41		16:08 (17)	08:36		15:30 (18)
	22:14		21:35		20:26		19:11			17:00	18	16:26 (17)	16:17	10	15:40 (18)
4	05:10		05:53		06:49		07:43			07:43		16:10 (17)	08:38		15:32 (18)
	22:14		21:33		20:23		19:09			16:58	15	16:25 (17)	16:17	7	15:39 (18)
5	05:11		05:55		06:51		07:45			07:45		16:12 (17)	08:39		15:34 (18)
	22:13		21:31		20:21		19:06			16:56	11	16:23 (17)	16:16	3	15:37 (18)
6	05:11		05:57		06:53		07:47			07:47			08:41		
	22:12		21:29		20:19		19:04			16:54			16:16		
7	05:12		05:58		06:54		07:49			07:49			08:42		
	22:12		21:27		20:16		19:01			16:53			16:15		
8	05:13		06:00		06:56		07:51			07:51			08:43		
	22:11		21:25		20:14		18:59			16:51			16:15		
9	05:15		06:02		06:58		07:53			07:53			08:45		
	22:10		21:23		20:11		18:56			16:49			16:14		
10	05:16		06:04		07:00		07:55			07:55		15:25 (18)	08:46		
	22:09		21:21		20:09		18:54			16:47	9	15:34 (18)	16:14		
11	05:17		06:06		07:02		07:57			07:57		15:23 (18)	08:47		
	22:08		21:19		20:06		18:51			16:45	13	15:36 (18)	16:14		
12	05:18		06:07		07:03		07:58			07:59		15:21 (18)	08:48		
	22:07		21:17		20:04		18:49			16:44	17	15:38 (18)	16:13		
13	05:19		06:09		07:05		08:00			08:01		15:20 (18)	08:49		
	22:06		21:15		20:01		18:47			16:42	19	15:39 (18)	16:13		
14	05:21		06:11		07:07		08:02			08:03		15:20 (18)	08:50		
	22:05		21:13		19:59		18:44			16:40	19	15:39 (18)	16:13		
15	05:22		06:13		07:09		08:04			08:05		15:19 (18)	08:51		
	22:04		21:10		19:56		18:42			16:39	21	15:40 (18)	16:13		
16	05:23		06:15		07:11		08:06			08:07		15:19 (18)	08:52		
	22:03		21:08		19:54		18:40			16:37	22	15:41 (18)	16:13		
17	05:25		06:16		07:12		08:08			08:09		15:19 (18)	08:53		
	22:02		21:06		19:51		18:37			16:36	23	15:42 (18)	16:14		
18	05:26		06:18		07:14		08:10			08:11		15:19 (18)	08:54		
	22:01		21:04		19:49		18:35			16:34	23	15:42 (18)	16:14		
19	05:27		06:20		07:16		08:12		17:15 (17)	08:12		15:19 (18)	08:55		
	21:59		21:01		19:46		18:33	8	17:23 (17)	16:33	24	15:43 (18)	16:14		
20	05:29		06:22		07:18		08:14		17:12 (17)	08:14		15:19 (18)	08:55		
	21:58		20:59		19:44		18:30	14	17:26 (17)	16:31	24	15:43 (18)	16:14		
21	05:30		06:24		07:20		08:16		17:10 (17)	08:16		15:20 (18)	08:56		
	21:57		20:57		19:41		18:28	18	17:28 (17)	16:30	23	15:43 (18)	16:15		
22	05:32		06:25		07:21		08:18		17:08 (17)	08:18		15:20 (18)	08:56		
	21:55		20:55		19:39		18:26	21	17:29 (17)	16:28	23	15:43 (18)	16:15		
23	05:33		06:27		07:23		08:20		17:07 (17)	08:20		15:21 (18)	08:57		
	21:54		20:52		19:36		18:24	22	17:29 (17)	16:27	22	15:43 (18)	16:16		
24	05:35		06:29		07:25		08:22		17:06 (17)	08:22		15:21 (18)	08:57		
	21:52		20:50		19:33		18:21	24	17:30 (17)	16:26	22	15:43 (18)	16:16		
25	05:36		06:31		07:27		07:24		16:06 (17)	08:23		15:22 (18)	08:58		
	21:51		20:48		19:31		17:19	24	16:30 (17)	16:25	21	15:43 (18)	16:17		
26	05:38		06:33		07:29		07:26		16:05 (17)	08:25		15:23 (18)	08:58		
	21:49		20:45		19:28		17:17	25	16:30 (17)	16:24	20	15:43 (18)	16:18		
27	05:40		06:34		07:31		07:27		16:05 (17)	08:27		15:24 (18)	08:58		
	21:47		20:43		19:26		17:15	25	16:30 (17)	16:23	19	15:43 (18)	16:18		
28	05:41		06:36		07:32		07:29		16:06 (17)	08:29		15:24 (18)	08:58		
	21:46		20:40		19:23		17:13	25	16:31 (17)	16:22	18	15:42 (18)	16:19		
29	05:43		06:38		07:34		07:31		16:06 (17)	08:30		15:25 (18)	08:58		
	21:44		20:38		19:21		17:10	24	16:30 (17)	16:21	17	15:42 (18)	16:20		
30	05:45		06:40		07:36		07:33		16:06 (17)	08:32		15:26 (18)	08:59		
	21:42		20:36		19:18		17:08	24	16:30 (17)	16:20	16	15:42 (18)	16:21		
31	05:46		06:42				07:35		16:06 (17)				08:59		
	21:40		20:33				17:06	23	16:29 (17)				16:22		
Potential sun hours	515		461		383		327			257			230		
Total, worst case								277			500			47	
Sun reduction								0.23			0.20			0.12	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.58			0.61			0.62	
Total reduction								0.14			0.12			0.07	
Total, real								38			61			3	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DI - H116

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March		April		May		June
1	08:58	08:27	07:29		07:12		18:53 (18)	06:02	19:44 (17)	05:11
	16:24	17:16	18:13		20:12	24	19:17 (18)	21:09	8	19:52 (17)	22:00
2	08:58	08:25	07:26		07:10		18:53 (18)	06:00		05:10
	16:25	17:18	18:15		20:14	24	19:17 (18)	21:11		22:01
3	08:58	08:24	07:24		07:07		18:52 (18)	05:58		05:10
	16:26	17:20	18:17		20:16	24	19:16 (18)	21:12		22:02
4	08:58	08:22	07:21		07:05		18:53 (18)	05:56		05:09
	16:27	17:22	18:19		20:18	22	19:15 (18)	21:14		22:03
5	08:57	08:20	07:19		07:02		18:53 (18)	05:54		05:08
	16:28	17:24	18:21		20:20	21	19:14 (18)	21:16		22:05
6	08:57	08:18	07:17		07:00		18:54 (18)	05:52		05:07
	16:30	17:26	18:22		20:22	19	19:13 (18)	21:18		22:06
7	08:56	08:16	07:14		06:58		18:56 (18)	05:50		05:06
	16:31	17:28	18:24		20:24	15	19:11 (18)	21:20		22:07
8	08:56	08:14	07:12		06:55		18:58 (18)	05:48		05:06
	16:33	17:30	18:26		20:25	10	19:08 (18)	21:22		22:08
9	08:55	08:12	07:09		06:53			05:46		05:05
	16:34	17:32	18:28		20:27			21:23		22:09
10	08:55	08:10	07:07		06:50			05:44		05:05
	16:36	17:34	18:30		20:29			21:25		22:09
11	08:54	08:08	07:04		06:48			05:42		05:04
	16:37	17:36	18:32		20:31			21:27		22:10
12	08:53	08:06	07:02		06:45			05:40		05:04
	16:39	17:38	18:34		20:33			21:29		22:11
13	08:52	08:04	07:00		06:43			05:38		05:04
	16:40	17:40	18:36		20:35			21:31		22:12
14	08:51	08:02	06:57		06:41			05:37		05:03
	16:42	17:42	18:38		20:37			21:32		22:12
15	08:50	08:00	06:55		06:38		19:48 (17)	05:35		05:03
	16:44	17:44	18:40		20:39	7	19:55 (17)	21:34		22:13
16	08:49	07:58	06:52		06:36		19:44 (17)	05:33		05:03
	16:45	17:46	18:42		20:41	13	19:57 (17)	21:36		22:14
17	08:48	07:56	06:50		06:33		19:42 (17)	05:32		05:03
	16:47	17:48	18:44		20:42	16	19:58 (17)	21:37		22:14
18	08:47	07:54	06:47		06:31		19:41 (17)	05:30		05:03
	16:49	17:51	18:46		20:44	19	20:00 (17)	21:39		22:14
19	08:46	07:51	06:45		06:29		19:40 (17)	05:28		05:03
	16:51	17:53	18:48		20:46	21	20:01 (17)	21:41		22:15
20	08:45	07:49	06:42		06:26		19:39 (17)	05:27		05:03
	16:53	17:55	18:50		20:48	21	20:00 (17)	21:42		22:15
21	08:44	07:47	06:40		06:24		19:38 (17)	05:25		05:03
	16:54	17:57	18:51		20:50	23	20:01 (17)	21:44		22:15
22	08:42	07:45	06:37		06:22		19:38 (17)	05:24		05:03
	16:56	17:59	18:53		20:52	23	20:01 (17)	21:46		22:16
23	08:41	07:42	06:35		06:20		19:38 (17)	05:22		05:03
	16:58	18:01	18:55		20:54	23	20:01 (17)	21:47		22:16
24	08:40	07:40	06:32		06:17		19:38 (17)	05:21		05:04
	17:00	18:03	18:57		20:56	23	20:01 (17)	21:49		22:16
25	08:38	07:38	06:30	18:02 (18)	06:15		19:37 (17)	05:20		05:04
	17:02	18:05	18:59	11	18:13 (18)	20:58	22	19:59 (17)	21:50		22:16
26	08:37	07:36	06:27	17:59 (18)	06:13		19:38 (17)	05:18		05:04
	17:04	18:07	19:01	15	18:14 (18)	20:59	21	19:59 (17)	21:52		22:16
27	08:35	07:33	06:25	17:58 (18)	06:11		19:38 (17)	05:17		05:05
	17:06	18:09	19:03	18	18:16 (18)	21:01	20	19:58 (17)	21:53		22:16
28	08:34	07:31	06:22	17:56 (18)	06:08		19:39 (17)	05:16		05:05
	17:08	18:11	19:05	21	18:17 (18)	21:03	18	19:57 (17)	21:55		22:16
29	08:32		07:20	18:55 (18)	06:06		19:40 (17)	05:15		05:06
	17:10		20:07	22	19:17 (18)	21:05	16	19:56 (17)	21:56		22:15
30	08:30		07:17	18:54 (18)	06:04		19:41 (17)	05:14		05:07
	17:12		20:08	23	19:17 (18)	21:07	14	19:55 (17)	21:57		22:15
31	08:29		07:15	18:54 (18)				05:12		
	17:14		20:10	24	19:18 (18)				21:59		
Potential sun hours	248	272	367		421			496		513
Total, worst case				134		459			8	
Sun reduction				0.22		0.34			0.36	
Oper. time red.				1.00		1.00			1.00	
Wind dir. red.				0.58		0.59			0.59	
Total reduction				0.13		0.20			0.21	
Total, real				17		92			2	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DI - H116

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August		September		October	November	December
1	05:07	05:48		06:44		07:38	07:37	08:33
	22:15	21:39		20:31		19:16	17:04	16:19
2	05:08	05:50		06:45		07:40	07:39	08:35
	22:14	21:37		20:28		19:13	17:02	16:18
3	05:09	05:52		06:47		07:42	07:41	08:36
	22:14	21:35		20:26		19:11	17:00	16:17
4	05:10	05:53		06:49	18:55 (18)	07:43	07:43	08:38
	22:13	21:33		20:23	10 19:05 (18)	19:09	16:58	16:17
5	05:11	05:55		06:51	18:52 (18)	07:45	07:45	08:39
	22:13	21:31		20:21	15 19:07 (18)	19:06	16:56	16:16
6	05:11	05:57		06:53	18:51 (18)	07:47	07:47	08:41
	22:12	21:29		20:19	18 19:09 (18)	19:04	16:54	16:16
7	05:12	05:59		06:54	18:49 (18)	07:49	07:49	08:42
	22:12	21:27		20:16	21 19:10 (18)	19:01	16:53	16:15
8	05:14	06:00		06:56	18:47 (18)	07:51	07:51	08:43
	22:11	21:25		20:14	22 19:09 (18)	18:59	16:51	16:15
9	05:15	06:02		06:58	18:47 (18)	07:53	07:53	08:45
	22:10	21:23		20:11	23 19:10 (18)	18:56	16:49	16:14
10	05:16	06:04		07:00	18:46 (18)	07:55	07:55	08:46
	22:09	21:21		20:09	24 19:10 (18)	18:54	16:47	16:14
11	05:17	06:06		07:02	18:46 (18)	07:57	07:57	08:47
	22:08	21:19		20:06	24 19:10 (18)	18:51	16:45	16:14
12	05:18	06:07	19:51 (17)	07:03	18:45 (18)	07:58	07:59	08:48
	22:07	21:17	10 20:01 (17)	20:04	24 19:09 (18)	18:49	16:44	16:13
13	05:19	06:09	19:50 (17)	07:05	18:45 (18)	08:00	08:01	08:49
	22:06	21:15	13 20:03 (17)	20:01	24 19:09 (18)	18:47	16:42	16:13
14	05:21	06:11	19:47 (17)	07:07	18:45 (18)	08:02	08:03	08:50
	22:05	21:12	17 20:04 (17)	19:59	23 19:08 (18)	18:44	16:40	16:13
15	05:22	06:13	19:46 (17)	07:09	18:46 (18)	08:04	08:05	08:51
	22:04	21:10	19 20:05 (17)	19:56	21 19:07 (18)	18:42	16:39	16:13
16	05:23	06:15	19:46 (17)	07:11	18:46 (18)	08:06	08:07	08:52
	22:03	21:08	20 20:06 (17)	19:54	19 19:05 (18)	18:40	16:37	16:13
17	05:25	06:16	19:44 (17)	07:12	18:47 (18)	08:08	08:09	08:53
	22:02	21:06	22 20:06 (17)	19:51	16 19:03 (18)	18:37	16:36	16:14
18	05:26	06:18	19:44 (17)	07:14	18:49 (18)	08:10	08:11	08:54
	22:01	21:04	22 20:06 (17)	19:49	12 19:01 (18)	18:35	16:34	16:14
19	05:27	06:20	19:43 (17)	07:16	18:53 (18)	08:12	08:12	08:55
	21:59	21:01	23 20:06 (17)	19:46	3 18:56 (18)	18:33	16:33	16:14
20	05:29	06:22	19:43 (17)	07:18		08:14	08:14	08:55
	21:58	20:59	24 20:07 (17)	19:44		18:30	16:31	16:14
21	05:30	06:24	19:43 (17)	07:20		08:16	08:16	08:56
	21:56	20:57	23 20:06 (17)	19:41		18:28	16:30	16:15
22	05:32	06:25	19:43 (17)	07:21		08:18	08:18	08:56
	21:55	20:55	22 20:05 (17)	19:38		18:26	16:29	16:15
23	05:33	06:27	19:43 (17)	07:23		08:20	08:20	08:57
	21:54	20:52	22 20:05 (17)	19:36		18:24	16:27	16:16
24	05:35	06:29	19:43 (17)	07:25		08:22	08:22	08:57
	21:52	20:50	20 20:03 (17)	19:33		18:21	16:26	16:16
25	05:37	06:31	19:44 (17)	07:27		07:24	08:23	08:58
	21:50	20:48	18 20:02 (17)	19:31		17:19	16:25	16:17
26	05:38	06:33	19:45 (17)	07:29		07:25	08:25	08:58
	21:49	20:45	16 20:01 (17)	19:28		17:17	16:24	16:18
27	05:40	06:34	19:47 (17)	07:31		07:27	08:27	08:58
	21:47	20:43	12 19:59 (17)	19:26		17:15	16:23	16:18
28	05:41	06:36	19:49 (17)	07:32		07:29	08:28	08:58
	21:46	20:40	6 19:55 (17)	19:23		17:13	16:22	16:19
29	05:43	06:38		07:34		07:31	08:30	08:58
	21:44	20:38		19:21		17:10	16:21	16:20
30	05:45	06:40		07:36		07:33	08:32	08:58
	21:42	20:36		19:18		17:08	16:20	16:21
31	05:46	06:42				07:35		08:58
	21:40	20:33				17:06		16:22
Potential sun hours	515	461		383		327	257	230
Total, worst case		309		299				
Sun reduction		0.27		0.29				
Oper. time red.		1.00		1.00				
Wind dir. red.		0.59		0.58				
Total reduction		0.16		0.17				
Total, real		50		51				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DJ - H117

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:59	08:27	07:29	08:25 (7)	07:13	06:02	05:12	05:08	05:48	06:44	07:38	07:38	08:34
	16:24	17:16	18:13	14 08:39 (7)	20:13	21:09	22:00	22:15	21:39	20:31	19:16	17:05	16:19
2	08:58	08:26	07:26	08:27 (7)	07:10	06:00	05:11	05:08	05:50	06:46	07:40	07:40	08:35
	16:25	17:18	18:15	9 08:36 (7)	20:14	21:11	22:01	22:15	21:37	20:29	19:14	17:03	16:19
3	08:58	08:24	07:24		07:08	05:58	05:10	05:09	05:52	06:48	07:42	07:42	08:37
	16:26	17:20	18:17		20:16	21:13	22:03	22:14	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:22		07:05	05:56	05:09	05:10	05:54	06:49	07:44	07:44	08:38
	16:28	17:22	18:19		20:18	21:15	22:04	22:14	21:33	20:24	19:09	16:59	16:17
5	08:58	08:20	07:19		07:03	05:54	05:08	05:11	05:55	06:51	07:46	07:46	08:40
	16:29	17:24	18:21		20:20	21:16	22:05	22:13	21:31	20:21	19:06	16:57	16:16
6	08:57	08:18	07:17		07:00	05:52	05:08	05:12	05:57	06:53	07:47	07:48	08:41
	16:30	17:26	18:23		20:22	21:18	22:06	22:12	21:29	20:19	19:04	16:55	16:16
7	08:57	08:16	07:15		06:58	05:50	05:07	05:13	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25		20:24	21:20	22:07	22:12	21:27	20:16	19:01	16:53	16:15
8	08:56	08:15	07:12		06:55	05:48	05:06	05:14	06:01	06:57	07:51	07:51	08:44
	16:33	17:30	18:27		20:26	21:22	22:08	22:11	21:25	20:14	18:59	16:51	16:15
9	08:56	08:13	07:10		06:53	05:46	05:06	05:15	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29		20:28	21:24	22:09	22:10	21:23	20:11	18:57	16:49	16:15
10	08:55	08:11	07:07		06:51	05:44	05:05	05:16	06:04	07:00	07:55	07:55	08:46
	16:36	17:35	18:31		20:30	21:25	22:10	22:09	21:21	20:09	18:54	16:47	16:14
11	08:54	08:09	07:05		06:48	05:42	05:05	05:17	06:06	07:02	07:57	07:57	08:47
	16:37	17:37	18:33		20:31	21:27	22:10	22:09	21:19	20:06	18:52	16:46	16:14
12	08:53	08:07	07:02		06:46	05:41	05:04	05:18	06:08	07:04	07:59	09:00 (7)	07:59	08:48
	16:39	17:39	18:34		20:33	21:29	22:11	22:08	21:17	20:04	18:49	11 09:11 (7)	16:44	16:14
13	08:53	08:04	07:00		06:43	05:39	05:04	05:20	06:10	07:06	08:01	08:58 (7)	08:01	08:50
	16:41	17:41	18:36		20:35	21:31	22:12	22:07	21:15	20:01	18:47	15 09:13 (7)	16:42	16:14
14	08:52	08:02	06:57	07:22 (8)	06:41	05:37	05:04	05:21	06:11	07:07	08:06 (8)	08:03	08:56 (7)	08:03	08:51
	16:42	17:43	18:38	4 07:26 (8)	20:37	21:33	22:13	22:05	21:13	19:59	5 08:11 (8)	18:45	19 09:15 (7)	16:41	16:14
15	08:51	08:00	08:30 (7)	07:19 (8)	06:39	05:35	05:03	05:22	06:13	07:09	08:02 (8)	08:04	08:55 (7)	08:05	08:51
	16:44	17:45	8 08:38 (7)	10 07:29 (8)	20:39	21:34	22:13	22:04	21:11	19:56	13 08:15 (8)	18:42	20 09:15 (7)	16:39	16:14
16	08:50	07:58	08:27 (7)	07:17 (8)	06:36	05:34	05:03	05:24	06:15	07:11	08:00 (8)	08:06	08:54 (7)	08:07	08:52
	16:46	17:47	13 08:40 (7)	14 07:31 (8)	20:41	21:36	22:14	22:03	21:08	19:54	17 08:17 (8)	18:40	22 09:16 (7)	16:37	16:14
17	08:49	07:56	08:25 (7)	07:14 (8)	06:34	05:32	05:03	05:25	06:17	07:13	07:58 (8)	08:08	08:53 (7)	08:09	08:53
	16:47	17:49	17 08:42 (7)	18 07:32 (8)	20:43	21:38	22:14	22:02	21:06	19:51	19 08:17 (8)	18:38	23 09:16 (7)	16:36	16:14
18	08:48	07:54	08:24 (7)	07:12 (8)	06:31	05:30	05:03	05:26	06:19	07:15	07:56 (8)	08:10	08:53 (7)	08:11	08:54
	16:49	17:51	19 08:43 (7)	21 07:33 (8)	20:45	21:39	22:15	22:01	21:04	19:49	22 08:18 (8)	18:35	23 09:16 (7)	16:34	16:14
19	08:46	07:52	08:23 (7)	07:10 (8)	06:29	05:29	05:03	05:28	06:20	07:16	07:56 (8)	08:12	08:52 (7)	08:13	08:55
	16:51	17:53	22 08:45 (7)	23 07:33 (8)	20:46	21:41	22:15	21:59	21:02	19:46	22 08:18 (8)	18:33	24 09:16 (7)	16:33	16:14
20	08:45	07:49	08:22 (7)	07:10 (8)	06:27	05:27	05:03	05:29	06:22	07:18	07:55 (8)	08:14	08:52 (7)	08:15	08:55
	16:53	17:55	22 08:44 (7)	24 07:34 (8)	20:48	21:43	22:15	21:58	20:59	19:44	24 08:19 (8)	18:31	24 09:16 (7)	16:32	16:15
21	08:44	07:47	08:22 (7)	07:09 (8)	06:24	05:26	05:03	05:31	06:24	07:20	07:55 (8)	08:16	08:52 (7)	08:16	08:56
	16:55	17:57	23 08:45 (7)	24 07:33 (8)	20:50	21:44	22:16	21:57	20:57	19:41	24 08:19 (8)	18:28	23 09:15 (7)	16:30	16:15
22	08:43	07:45	08:22 (7)	07:09 (8)	06:22	05:24	05:03	05:32	06:26	07:22	07:53 (8)	08:18	08:53 (7)	08:18	08:57
	16:57	17:59	24 08:46 (7)	24 07:33 (8)	20:52	21:46	22:16	21:55	20:55	19:39	25 08:18 (8)	18:26	22 09:15 (7)	16:29	16:16
23	08:41	07:43	08:21 (7)	07:08 (8)	06:20	05:23	05:04	05:34	06:28	07:24	07:53 (8)	08:20	08:53 (7)	08:20	08:57
	16:58	18:01	24 08:45 (7)	24 07:32 (8)	20:54	21:47	22:16	21:54	20:52	19:36	24 08:17 (8)	18:24	21 09:14 (7)	16:28	16:16
24	08:40	07:40	08:22 (7)	07:09 (8)	06:18	05:21	05:04	05:35	06:29	07:25	07:54 (8)	08:22	08:54 (7)	08:22	08:57
	17:00	18:03	23 08:45 (7)	23 07:32 (8)	20:56	21:49	22:16	21:52	20:50	19:34	23 08:17 (8)	18:22	19 09:13 (7)	16:26	16:17
25	08:39	07:38	08:21 (7)	07:09 (8)	06:15	05:20	05:04	05:37	06:31	07:27	07:54 (8)	07:24	07:55 (7)	08:24	08:58
	17:02	18:05	23 08:44 (7)	22 07:31 (8)	20:58	21:50	22:16	21:51	20:48	19:31	22 08:16 (8)	17:19	16 08:11 (7)	16:25	16:17
26	08:37	07:36	08:22 (7)	07:10 (8)	06:13	05:19	05:05	05:38	06:33	07:29	07:56 (8)	07:26	07:58 (7)	08:25	08:58
	17:04	18:07	22 08:44 (7)	20 07:30 (8)	21:00	21:52	22:16	21:49	20:45	19:29	19 08:15 (8)	17:17	12 08:10 (7)	16:24	16:18
27	08:36	07:34	08:23 (7)	07:10 (8)	06:11	05:17	05:05	05:40	06:35	07:31	07:57 (8)	07:28	08:01 (7)	08:27	08:58
	17:06	18:09	20 08:43 (7)	18 07:28 (8)	21:02	21:53	22:16	21:48	20:43	19:26	16 08:13 (8)	17:15	6 08:07 (7)	16:23	16:19
28	08:34	07:31	08:24 (7)	07:12 (8)	06:09	05:16	05:06	05:42	06:37	07:33	07:59 (8)	07:30		08:29	08:59
	17:08	18:11	17 08:41 (7)	14 07:26 (8)	21:03	21:55	22:16	21:46	20:41	19:24	12 08:11 (8)	17:13		16:22	16:20
29	08:32		07:20	08:15 (8)	06:07	05:15	05:06	05:43	06:38	07:35	08:01 (8)	07:32		08:30	08:59
	17:10		20:07	7 08:22 (8)	21:05	21:56	22:16	21:44	20:38	19:21	7 08:08 (8)	17:11		16:21	16:21
30	08:31		07:18		06:04	05:14	05:07	05:45	06:40	07:36		07:34		08:32	08:59
	17:12		20:09		21:07	21:57	22:15	21:42	20:36	19:19		17:09		16:20	16:22
31	08:29		07:15			05:13		05:47	06:42			07:36			08:59
	17:14		20:11			21:59		21:41	20:34			17:07			16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case		277	313						294	300		
Sun reduction		0.22	0.22						0.29	0.23		
Oper. time red.		1.00	1.00						1.00	1.00		
Wind dir. red.		0.62	0.59						0.59	0.62		
Total reduction		0.14	0.13						0.17	0.15		
Total, real		38	42						51	44		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DK - H119

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27		16:23 (9)		07:29		17:01 (10)		07:12	
	16:24		17:16	19	16:42 (9)		18:13	16	17:17 (10)		20:12	
2	08:58		08:25		16:23 (9)		07:26		17:03 (10)		07:10	
	16:25		17:18	20	16:43 (9)		18:15	11	17:14 (10)		20:14	
3	08:58		08:24		16:23 (9)		07:24				07:07	
	16:26		17:20	21	16:44 (9)		18:17				20:16	
4	08:58		08:22		16:22 (9)		07:21				07:05	
	16:27		17:22	22	16:44 (9)		18:19				20:18	4
5	08:57		08:20		16:22 (9)		07:19				07:03	
	16:29		17:24	22	16:44 (9)		18:21				20:20	12
6	08:57		08:18		16:22 (9)		07:17				07:00	
	16:30		17:26	22	16:44 (9)		18:23				20:22	15
7	08:56		08:16		16:23 (9)		07:14				06:58	
	16:31		17:28	21	16:44 (9)		18:25				20:24	17
8	08:56		08:14		16:23 (9)		07:12				06:55	
	16:33		17:30	21	16:44 (9)		18:26				20:26	19
9	08:55		08:12		16:23 (9)		07:09				06:53	
	16:34		17:32	20	16:43 (9)		18:28				20:27	19
10	08:55		08:10		16:24 (9)		07:07				06:50	
	16:36		17:34	18	16:42 (9)		18:30				20:29	20
11	08:54		08:08		16:25 (9)		07:05				06:48	
	16:37		17:36	16	16:41 (9)		18:32				20:31	20
12	08:53		08:06		16:27 (9)		07:02				06:45	
	16:39		17:38	13	16:40 (9)		18:34				20:33	20
13	08:52		08:04		16:29 (9)		07:00				06:43	
	16:40		17:40	9	16:38 (9)		18:36				20:35	18
14	08:51		08:02				06:57				06:41	
	16:42		17:42				18:38				20:37	18
15	08:50		08:00		17:05 (10)		06:55				06:38	
	16:44		17:45	9	17:14 (10)		18:40				20:39	15
16	08:49		07:58		17:03 (10)		06:52				06:36	
	16:45		17:47	14	17:17 (10)		18:42				20:41	12
17	08:48		07:56		17:01 (10)		06:50				06:34	
	16:47		17:49	18	17:19 (10)		18:44				20:42	6
18	08:47		07:54		17:00 (10)		06:47				06:31	
	16:49		17:51	20	17:20 (10)		18:46				20:44	
19	08:46		07:51		16:59 (10)		06:45				06:29	
	16:51		17:53	22	17:21 (10)		18:48				20:46	
20	08:45		07:49		16:58 (10)		06:42				06:27	
	16:53		17:55	23	17:21 (10)		18:50				20:48	
21	08:44		07:47		16:58 (10)		06:40				06:24	
	16:54		17:57	24	17:22 (10)		18:51				20:50	
22	08:42		07:45		16:57 (10)		06:37				06:22	
	16:56		17:59	25	17:22 (10)		18:53				20:52	
23	08:41		07:42		16:57 (10)		06:35				06:20	
	16:58		18:01	25	17:22 (10)		18:55				20:54	7
24	08:40		07:40		16:58 (10)		06:32				06:17	
	17:00		18:03	24	17:22 (10)		18:57				20:56	11
25	08:38		07:38		16:57 (10)		06:30				06:15	
	17:02		18:05	24	17:21 (10)		18:59				20:58	15
26	08:37		07:36		16:58 (10)		06:27				06:13	
	17:04		18:07	23	17:21 (10)		19:01				20:59	17
27	08:35		07:33		16:58 (10)		06:25				06:11	
	17:06		18:09	21	17:19 (10)		19:03				21:01	19
28	08:34		07:31		16:59 (10)		06:22				06:09	
	17:08	7	18:11	19	17:18 (10)		19:05				21:03	20
29	08:32						07:20				06:06	
	17:10	11					20:07				21:05	20
30	08:30						07:17				06:04	
	17:12	15					20:09				21:07	20
31	08:29						07:15					
	17:14	17					20:10					
Potential sun hours	248		272		367		421		496		513	
Total, worst case	50		535		27		344		386		43	
Sun reduction	0.17		0.22		0.22		0.34		0.36		0.26	
Oper. time red.	1.00		1.00		1.00		1.00		1.00		1.00	
Wind dir. red.	0.59		0.59		0.58		0.60		0.62		0.63	
Total reduction	0.10		0.13		0.13		0.21		0.22		0.16	
Total, real	5		70		4		71		87		7	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DK - H119

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July			August			September			October			November			December
1	05:07			05:48			06:44		19:34 (11)	07:38			07:37		15:53 (9)	08:33
	22:15			21:39			20:31	20	19:54 (11)	19:16			17:04	19	16:12 (9)	16:19
2	05:08			05:50			06:45		19:34 (11)	07:40			07:39		15:52 (9)	08:35
	22:14			21:37			20:28	20	19:54 (11)	19:14			17:02	21	16:13 (9)	16:18
3	05:09			05:52			06:47		19:34 (11)	07:42			07:41		15:52 (9)	08:36
	22:14			21:35			20:26	19	19:53 (11)	19:11			17:00	21	16:13 (9)	16:18
4	05:10			05:53		20:26 (12)	06:49		19:33 (11)	07:44			07:43		15:52 (9)	08:38
	22:13			21:33	5	20:31 (12)	20:24	19	19:52 (11)	19:09			16:58	22	16:14 (9)	16:17
5	05:11			05:55		20:24 (12)	06:51		19:34 (11)	07:45			07:45		15:52 (9)	08:39
	22:13			21:31	10	20:34 (12)	20:21	17	19:51 (11)	19:06			16:56	22	16:14 (9)	16:16
6	05:12			05:57		20:22 (12)	06:53		19:35 (11)	07:47			07:47		15:52 (9)	08:41
	22:12			21:29	13	20:35 (12)	20:19	15	19:50 (11)	19:04			16:55	22	16:14 (9)	16:16
7	05:13		21:07 (13)	05:59		20:21 (12)	06:54		19:36 (11)	07:49			07:49		15:52 (9)	08:42
	22:12	2	21:09 (13)	21:27	15	20:36 (12)	20:16	12	19:48 (11)	19:01			16:53	22	16:14 (9)	16:15
8	05:14		21:05 (13)	06:00		20:19 (12)	06:56		19:39 (11)	07:51			07:51		15:52 (9)	08:43
	22:11	6	21:11 (13)	21:25	17	20:36 (12)	20:14	5	19:44 (11)	18:59			16:51	21	16:13 (9)	16:15
9	05:15		21:04 (13)	06:02		20:19 (12)	06:58			07:53			07:53		15:53 (9)	08:45
	22:10	8	21:12 (13)	21:23	18	20:37 (12)	20:11			18:56			16:49	20	16:13 (9)	16:14
10	05:16		21:03 (13)	06:04		20:18 (12)	07:00			07:55			07:55		15:54 (9)	08:46
	22:09	10	21:13 (13)	21:21	20	20:38 (12)	20:09			18:54			16:47	19	16:13 (9)	16:14
11	05:17		21:03 (13)	06:06		20:17 (12)	07:02			07:57		17:39 (10)	07:57		15:55 (9)	08:47
	22:08	11	21:14 (13)	21:19	20	20:37 (12)	20:06			18:52	7	17:46 (10)	16:45	17	16:12 (9)	16:14
12	05:18		21:02 (13)	06:08		20:17 (12)	07:03			07:59		17:36 (10)	07:59		15:56 (9)	08:48
	22:07	13	21:15 (13)	21:17	21	20:38 (12)	20:04			18:49	13	17:49 (10)	16:44	15	16:11 (9)	16:14
13	05:19		21:02 (13)	06:09		20:17 (12)	07:05			08:00		17:34 (10)	08:01		15:58 (9)	08:49
	22:06	13	21:15 (13)	21:15	21	20:38 (12)	20:01			18:47	17	17:51 (10)	16:42	11	16:09 (9)	16:14
14	05:21		21:02 (13)	06:11		20:18 (12)	07:07			08:02		17:32 (10)	08:03		16:00 (9)	08:50
	22:05	15	21:17 (13)	21:12	20	20:38 (12)	19:59			18:44	20	17:52 (10)	16:40	7	16:07 (9)	16:13
15	05:22		21:02 (13)	06:13		20:17 (12)	07:09			08:04		17:31 (10)	08:05			08:51
	22:04	15	21:17 (13)	21:10	19	20:36 (12)	19:56			18:42	22	17:53 (10)	16:39			16:13
16	05:23		21:01 (13)	06:15		20:18 (12)	07:11			08:06		17:30 (10)	08:07			08:52
	22:03	16	21:17 (13)	21:08	18	20:36 (12)	19:54			18:40	23	17:53 (10)	16:37			16:14
17	05:25		21:01 (13)	06:16		20:19 (12)	07:12			08:08		17:29 (10)	08:09			08:53
	22:02	16	21:17 (13)	21:06	16	20:35 (12)	19:51			18:37	24	17:53 (10)	16:36			16:14
18	05:26		21:01 (13)	06:18		20:19 (12)	07:14			08:10		17:29 (10)	08:11			08:54
	22:01	17	21:18 (13)	21:04	14	20:33 (12)	19:49			18:35	24	17:53 (10)	16:34			16:14
19	05:28		21:01 (13)	06:20		20:21 (12)	07:16			08:12		17:29 (10)	08:12			08:55
	21:59	17	21:18 (13)	21:01	11	20:32 (12)	19:46			18:33	24	17:53 (10)	16:33			16:14
20	05:29		21:01 (13)	06:22		20:24 (12)	07:18			08:14		17:28 (10)	08:14			08:55
	21:58	17	21:18 (13)	20:59	5	20:29 (12)	19:44			18:30	25	17:53 (10)	16:31			16:14
21	05:30		21:01 (13)	06:24			07:20			08:16		17:28 (10)	08:16			08:56
	21:56	18	21:19 (13)	20:57			19:41			18:28	24	17:52 (10)	16:30			16:15
22	05:32		21:01 (13)	06:26			07:22			08:18		17:29 (10)	08:18			08:56
	21:55	17	21:18 (13)	20:55			19:39			18:26	23	17:52 (10)	16:29			16:15
23	05:33		21:02 (13)	06:27			07:23			08:20		17:29 (10)	08:20			08:57
	21:54	17	21:19 (13)	20:52			19:36			18:24	22	17:51 (10)	16:27			16:16
24	05:35		21:02 (13)	06:29			07:25			08:22		17:30 (10)	08:22			08:57
	21:52	16	21:18 (13)	20:50			19:34			18:21	19	17:49 (10)	16:26			16:16
25	05:37		21:02 (13)	06:31			07:27			07:24		16:31 (10)	08:23			08:58
	21:50	15	21:17 (13)	20:48			19:31			17:19	17	16:48 (10)	16:25			16:17
26	05:38		21:03 (13)	06:33		19:43 (11)	07:29			07:26		16:33 (10)	08:25			08:58
	21:49	13	21:16 (13)	20:45	6	19:49 (11)	19:29			17:17	13	16:46 (10)	16:24			16:18
27	05:40		21:03 (13)	06:35		19:40 (11)	07:31			07:27		16:35 (10)	08:27			08:58
	21:47	11	21:14 (13)	20:43	12	19:52 (11)	19:26			17:15	8	16:43 (10)	16:23			16:19
28	05:41		21:05 (13)	06:36		19:37 (11)	07:32			07:29			08:28			08:58
	21:46	8	21:13 (13)	20:40	15	19:52 (11)	19:24			17:13			16:22			16:19
29	05:43		21:06 (13)	06:38		19:36 (11)	07:34			07:31		15:58 (9)	08:30			08:58
	21:44	5	21:11 (13)	20:38	17	19:53 (11)	19:21			17:11	10	16:08 (9)	16:21			16:20
30	05:45			06:40		19:36 (11)	07:36			07:33		15:56 (9)	08:32			08:58
	21:42			20:36	18	19:54 (11)	19:19			17:08	14	16:10 (9)	16:20			16:21
31	05:46			06:42		19:35 (11)				07:35		15:54 (9)				08:58
	21:40			20:33	20	19:55 (11)				17:06	17	16:11 (9)				16:22
Potential sun hours	515			461			382			328			257			231
Total, worst case		296			351			127			366			259		
Sun reduction		0.27			0.27			0.29			0.23			0.20		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.63			0.60			0.59			0.58			0.59		
Total reduction		0.17			0.17			0.17			0.14			0.12		
Total, real		49			58			22			50			30		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DL - H121

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April	May	June	July	August	September		October		November	December
1	08:59	08:27		07:29	07:54 (6)	07:13	06:02	05:12	05:08	05:48	06:44		07:38	08:10 (5)	07:38	08:34
	16:24	17:16		18:13	17 08:11 (6)	20:13	21:09	22:00	22:15	21:39	20:31		19:16	13 08:23 (5)	17:05	16:19
2	08:58	08:26		07:26	07:51 (6)	07:10	06:00	05:11	05:08	05:50	06:46		07:40	08:08 (5)	07:40	08:35
	16:25	17:18		18:15	19 08:10 (6)	20:14	21:11	22:01	22:15	21:37	20:29		19:14	16 08:24 (5)	17:03	16:19
3	08:58	08:24		07:24	07:49 (6)	07:08	05:58	05:10	05:09	05:52	06:48		07:42	08:09 (5)	07:42	08:37
	16:26	17:20		18:17	21 08:10 (6)	20:16	21:13	22:02	22:14	21:35	20:26		19:11	16 08:25 (5)	17:01	16:18
4	08:58	08:22		07:22	07:48 (6)	07:05	05:56	05:09	05:10	05:54	06:49		07:44	08:10 (5)	07:43	08:38
	16:28	17:22		18:19	21 08:09 (6)	20:18	21:15	22:04	22:14	21:33	20:24		19:09	14 08:24 (5)	16:59	16:17
5	08:57	08:20		07:19	07:44 (5)	07:03	05:54	05:08	05:11	05:55	06:51		07:46	08:12 (5)	07:45	08:40
	16:29	17:24		18:21	23 08:09 (6)	20:20	21:16	22:05	22:13	21:31	20:21		19:06	18 08:37 (6)	16:57	16:17
6	08:57	08:18		07:17	07:42 (5)	07:00	05:52	05:08	05:12	05:57	06:53		07:47	08:14 (5)	07:47	08:41
	16:30	17:26		18:23	24 08:08 (6)	20:22	21:18	22:06	22:12	21:29	20:19		19:04	22 08:40 (6)	16:55	16:16
7	08:57	08:16		07:14	07:39 (5)	06:58	05:50	05:07	05:13	05:59	06:55		07:49	08:16 (5)	07:49	08:42
	16:32	17:28		18:25	23 08:05 (6)	20:24	21:20	22:07	22:12	21:27	20:16		19:01	23 08:42 (6)	16:53	16:15
8	08:56	08:14		07:12	07:37 (5)	06:55	05:48	05:06	05:14	06:01	06:57		07:51	08:18 (5)	07:51	08:44
	16:33	17:30		18:27	21 08:03 (6)	20:26	21:22	22:08	22:11	21:25	20:14		18:59	22 08:43 (6)	16:51	16:15
9	08:55	08:13		07:10	07:34 (5)	06:53	05:46	05:06	05:15	06:02	06:58		07:53	08:20 (5)	07:53	08:45
	16:34	17:33		18:29	13 07:47 (5)	20:28	21:24	22:09	22:10	21:23	20:11		18:57	22 08:44 (6)	16:49	16:15
10	08:55	08:11		07:07	07:32 (5)	06:51	05:44	05:05	05:16	06:04	07:00		07:55	08:23 (6)	07:55	08:46
	16:36	17:35		18:31	15 07:47 (5)	20:29	21:25	22:10	22:09	21:21	20:09		18:54	21 08:44 (6)	16:47	16:14
11	08:54	08:09		07:05	07:29 (5)	06:48	05:42	05:05	05:17	06:06	07:02		07:57	08:24 (6)	07:57	08:47
	16:38	17:37		18:33	17 07:46 (5)	20:31	21:27	22:10	22:08	21:19	20:06		18:52	20 08:44 (6)	16:46	16:14
12	08:53	08:07		07:02	07:30 (5)	06:46	05:41	05:04	05:18	06:08	07:04		07:59	08:26 (6)	07:59	08:48
	16:39	17:39		18:34	15 07:45 (5)	20:33	21:29	22:11	22:07	21:17	20:04		18:49	18 08:44 (6)	16:44	16:14
13	08:52	08:04		07:00	07:31 (5)	06:43	05:39	05:04	05:20	06:10	07:06		08:01	08:28 (6)	08:01	08:49
	16:41	17:41		18:36	11 07:42 (5)	20:35	21:31	22:12	22:06	21:15	20:01		18:47	16 08:44 (6)	16:42	16:14
14	08:52	08:02		06:57	07:35 (5)	06:41	05:37	05:04	05:21	06:11	07:07		08:03	08:30 (6)	08:03	08:50
	16:42	17:43		18:38	4 07:39 (5)	20:37	21:32	22:13	22:05	21:13	19:59		18:45	13 08:43 (6)	16:41	16:14
15	08:51	08:00		06:55		06:39	05:35	05:03	05:22	06:13	07:09		08:04	08:32 (6)	08:05	08:51
	16:44	17:45		18:40		20:39	21:34	22:13	22:04	21:11	19:56		18:42	11 08:43 (6)	16:39	16:14
16	08:50	07:58		06:52		06:36	05:34	05:03	05:24	06:15	07:11		08:06	08:34 (6)	08:07	08:52
	16:46	17:47		18:42		20:41	21:36	22:14	22:03	21:08	19:54		18:40	8 08:42 (6)	16:37	16:14
17	08:49	07:56		06:50		06:34	05:32	05:03	05:25	06:17	07:13		08:08	08:36 (6)	08:09	08:53
	16:48	17:49		18:44		20:43	21:38	22:14	22:02	21:06	19:51		18:38	4 08:40 (6)	16:36	16:14
18	08:47	07:54		06:47		06:31	05:30	05:03	05:26	06:19	07:15		08:10	08:38 (6)	08:11	08:54
	16:49	17:51		18:46		20:45	21:39	22:15	22:01	21:04	19:49		18:35	1 08:39 (6)	16:34	16:14
19	08:46	07:52		06:45		06:29	05:29	05:03	05:28	06:20	07:16		08:12		08:13	08:55
	16:51	17:53		18:48		20:46	21:41	22:15	21:59	21:02	19:46		18:33		16:33	16:14
20	08:45	07:49		06:43		06:27	05:27	05:03	05:29	06:22	07:18		08:14		08:14	08:55
	16:53	17:55		18:50		20:48	21:43	22:15	21:58	20:59	19:44		18:31		16:32	16:15
21	08:44	07:47		06:40		06:25	05:26	05:03	05:31	06:24	07:20		08:16		08:16	08:56
	16:55	17:57		18:52		20:50	21:44	22:16	21:57	20:57	19:41		18:28		16:30	16:15
22	08:43	07:45		06:38		06:22	05:24	05:03	05:32	06:26	07:22		08:18		08:18	08:56
	16:57	17:59		18:54		20:52	21:46	22:16	21:55	20:55	19:39		18:26		16:29	16:16
23	08:41	07:43		06:35		06:20	05:23	05:04	05:34	06:28	07:24		08:20		08:20	08:57
	16:59	18:01		18:56		20:54	21:47	22:16	21:54	20:52	19:36		18:24		16:28	16:16
24	08:40	07:40	08:06 (6)	06:33		06:18	05:21	05:04	05:35	06:29	07:25		08:22		08:22	08:57
	17:00	18:03	2 08:08 (6)	18:57		20:56	21:49	22:16	21:52	20:50	19:34		18:22		16:26	16:17
25	08:38	07:38	08:03 (6)	06:30		06:15	05:20	05:04	05:37	06:31	07:27		07:24		08:24	08:58
	17:02	18:05	6 08:09 (6)	18:59		20:58	21:50	22:16	21:51	20:48	19:31		17:19		16:25	16:17
26	08:37	07:36	08:01 (6)	06:28		06:13	05:19	05:05	05:39	06:33	07:29		07:26		08:25	08:58
	17:04	18:07	9 08:10 (6)	19:01		21:00	21:52	22:16	21:49	20:45	19:29		17:17		16:24	16:18
27	08:35	07:33	07:59 (6)	06:25		06:11	05:17	05:05	05:40	06:35	07:31		07:28		08:27	08:58
	17:06	18:09	12 08:11 (6)	19:03		21:01	21:53	22:16	21:47	20:43	19:26		17:15		16:23	16:19
28	08:34	07:31	07:56 (6)	06:23		06:09	05:16	05:06	05:42	06:37	07:33		07:30		08:29	08:58
	17:08	18:11	15 08:11 (6)	19:05		21:03	21:55	22:16	21:46	20:41	19:24		17:13		16:22	16:20
29	08:32			07:20		06:07	05:15	05:06	05:43	06:38	07:35		07:32		08:30	08:59
	17:10			20:07		21:05	21:56	22:16	21:44	20:38	19:21		17:11		16:21	16:21
30	08:31			07:18		06:05	05:14	05:07	05:45	06:40	07:36	08:12 (5)	07:34		08:32	08:59
	17:12			20:09		21:07	21:57	22:15	21:42	20:36	19:19	9 08:21 (5)	17:09		16:20	16:22
31	08:29			07:15			05:13		05:47	06:42			07:36			08:59
	17:14			20:11			21:59		21:41	20:33			17:07			16:23
Potential sun hours	248	272		367		421	496	513	515	461	382		328		257	231
Total, worst case		44		244							9		278			
Sun reduction		0.22		0.22							0.29		0.23			
Oper. time red.		1.00		1.00							1.00		1.00			
Wind dir. red.		0.61		0.60							0.59		0.61			
Total reduction		0.14		0.14							0.17		0.14			
Total, real		6		33							2		40			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DM - H122

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:13	06:02	05:12	20:54 (2)	05:08	21:00 (2)	05:48	06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09	22:00	26 21:20 (2)	22:15	33 21:38 (3)	21:38	20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	05:11	20:54 (2)	05:08	21:01 (2)	05:50	06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11	22:01	26 21:20 (2)	22:14	31 21:38 (3)	21:37	20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	05:10	20:55 (2)	05:09	21:01 (2)	05:52	06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12	22:02	26 21:21 (2)	22:14	31 21:38 (3)	21:35	20:26	19:11	17:01	16:18
4	08:58	08:22	07:21	07:05	05:56	05:09	20:55 (2)	05:10	21:01 (2)	05:54	06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14	22:03	25 21:20 (2)	22:13	31 21:38 (3)	21:33	20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	05:08	20:55 (2)	05:11	21:02 (2)	05:55	06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16	22:04	25 21:20 (2)	22:13	29 21:37 (3)	21:31	20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	05:08	20:56 (2)	05:12	21:01 (2)	05:57	06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18	22:05	27 21:30 (3)	22:12	28 21:36 (3)	21:29	20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	05:07	20:55 (2)	05:13	21:01 (2)	05:59	06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20	22:06	30 21:31 (3)	22:11	27 21:35 (3)	21:27	20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	05:06	20:56 (2)	05:14	21:01 (2)	06:01	06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:26	21:22	22:07	30 21:32 (3)	22:11	26 21:27 (2)	21:25	20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	05:06	20:56 (2)	05:15	21:01 (2)	06:02	06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23	22:08	31 21:32 (3)	22:10	26 21:27 (2)	21:23	20:11	18:56	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	05:05	20:56 (2)	05:16	21:01 (2)	06:04	07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25	22:09	31 21:33 (3)	22:09	26 21:27 (2)	21:21	20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	05:05	20:56 (2)	05:17	21:01 (2)	06:06	07:02	07:57	07:57	08:47
	16:37	17:37	18:32	20:31	21:27	22:10	32 21:33 (3)	22:08	26 21:27 (2)	21:19	20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	05:04	20:57 (2)	05:18	21:03 (2)	06:08	07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29	22:11	32 21:34 (3)	22:07	25 21:28 (2)	21:17	20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	05:04	20:57 (2)	05:20	21:03 (2)	06:09	07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30	22:12	33 21:35 (3)	22:06	25 21:28 (2)	21:15	20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	05:04	20:58 (2)	05:21	21:03 (2)	06:11	07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32	22:12	34 21:36 (3)	22:05	25 21:28 (2)	21:12	19:59	18:45	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	05:03	20:58 (2)	05:22	21:03 (2)	06:13	07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34	22:13	34 21:37 (3)	22:04	25 21:28 (2)	21:10	19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	05:03	20:58 (2)	05:24	21:03 (2)	06:15	07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36	22:13	33 21:36 (3)	22:03	25 21:28 (2)	21:08	19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	21:02 (2) 05:03	20:58 (2)	05:25	21:04 (2)	06:17	07:13	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37	2 21:04 (2) 22:14	34 21:37 (3)	22:02	24 21:28 (2)	21:06	19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	21:00 (2) 05:03	20:58 (2)	05:26	21:04 (2)	06:18	07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39	6 21:06 (2) 22:14	35 21:37 (3)	22:00	22 21:26 (2)	21:04	19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	20:59 (2) 05:03	20:59 (2)	05:28	21:04 (2)	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41	9 21:08 (2) 22:15	36 21:39 (3)	21:59	21 21:25 (2)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	20:57 (2) 05:03	20:59 (2)	05:29	21:05 (2)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42	12 21:09 (2) 22:15	36 21:39 (3)	21:58	19 21:24 (2)	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	20:56 (2) 05:03	20:59 (2)	05:31	21:06 (2)	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44	15 21:11 (2) 22:15	36 21:39 (3)	21:56	17 21:23 (2)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:56 (2) 05:03	20:59 (2)	05:32	21:06 (2)	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45	16 21:12 (2) 22:15	36 21:39 (3)	21:55	15 21:21 (2)	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	20:55 (2) 05:04	20:59 (2)	05:34	21:07 (2)	06:28	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47	18 21:13 (2) 22:16	36 21:39 (3)	21:53	13 21:20 (2)	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	20:55 (2) 05:04	21:00 (2)	05:35	21:08 (2)	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49	19 21:14 (2) 22:16	35 21:39 (3)	21:52	10 21:18 (2)	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15	05:20	20:55 (2) 05:04	21:00 (2)	05:37	21:10 (2)	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:57	21:50	21 21:16 (2) 22:16	34 21:39 (3)	21:50	8 21:18 (2)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13	05:19	20:54 (2) 05:05	21:01 (2)	05:38	21:11 (2)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59	21:51	23 21:17 (2) 22:16	34 21:40 (3)	21:49	5 21:16 (2)	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11	05:17	20:54 (2) 05:05	21:00 (2)	05:40		06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01	21:53	25 21:19 (2) 22:16	34 21:39 (3)	21:47		20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09	05:16	20:54 (2) 05:06	21:01 (2)	05:42		06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03	21:54	25 21:19 (2) 22:15	33 21:39 (3)	21:45		20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07	05:15	20:54 (2) 05:06	21:00 (2)	05:43		06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05	21:56	25 21:19 (2) 22:15	35 21:39 (3)	21:44		20:38	19:21	17:11	16:21	16:21
30	08:30		07:17	06:04	05:14	20:54 (2) 05:07	21:01 (2)	05:45		06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07	21:57	26 21:20 (2) 22:15	33 21:39 (3)	21:42		20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13	20:54 (2)		05:47		06:42		07:35		08:58
	17:14		20:10		21:58	26 21:20 (2)		21:40		20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513		515		461	382	328	257	231
Total, worst case					268	962		593						
Sun reduction					0.36	0.26		0.27						
Oper. time red.					1.00	1.00		1.00						
Wind dir. red.					0.63	0.63		0.63						
Total reduction					0.23	0.16		0.17						
Total, real					61	156		99						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DN - H123

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:58	08:27	07:29	07:12	06:02	20:16 (2) 05:12	20:52 (3) 05:08	05:48	20:28 (2) 06:44	07:38	07:37	08:33
	16:24	17:16	18:13	20:12	21:09 22	20:38 (2) 22:00	12 21:04 (3) 22:15	21:38 23	21:06 (3) 20:31	19:16	17:05	16:19
2	08:58	08:25	07:26	07:10	06:00	20:15 (2) 05:11	20:53 (3) 05:08	05:50	20:28 (2) 06:46	07:40	07:39	08:35
	16:25	17:18	18:15	20:14	21:11 24	20:39 (2) 22:01	10 21:03 (3) 22:14	21:37 21	21:05 (3) 20:28	19:14	17:03	16:19
3	08:58	08:24	07:24	07:08	05:58	20:15 (2) 05:10	20:54 (3) 05:09	05:52	20:27 (2) 06:47	07:42	07:41	08:36
	16:26	17:20	18:17	20:16	21:12 24	20:39 (2) 22:02	8 21:02 (3) 22:14	21:35 21	20:48 (2) 20:26	19:11	17:01	16:18
4	08:58	08:22	07:21	07:05	05:56	20:16 (2) 05:09	20:56 (3) 05:10	05:54	20:26 (2) 06:49	07:44	07:43	08:38
	16:28	17:22	18:19	20:18	21:14 24	20:40 (2) 22:03	6 21:02 (3) 22:13	21:33 22	20:48 (2) 20:24	19:09	16:59	16:17
5	08:57	08:20	07:19	07:03	05:54	20:15 (2) 05:08	05:11	05:55	20:26 (2) 06:51	07:45	07:45	08:39
	16:29	17:24	18:21	20:20	21:16 25	20:40 (2) 22:04	22:13	21:31 23	20:49 (2) 20:21	19:06	16:57	16:17
6	08:57	08:18	07:17	07:00	05:52	20:15 (2) 05:08	05:12	05:57	20:25 (2) 06:53	07:47	07:47	08:41
	16:30	17:26	18:23	20:22	21:18 25	20:40 (2) 22:05	22:12	21:29 24	20:49 (2) 20:19	19:04	16:55	16:16
7	08:56	08:16	07:14	06:58	05:50	20:15 (2) 05:07	05:13	05:59	20:25 (2) 06:55	07:49	07:49	08:42
	16:32	17:28	18:25	20:24	21:20 24	20:39 (2) 22:06	22:11	21:27 24	20:49 (2) 20:16	19:01	16:53	16:15
8	08:56	08:14	07:12	06:55	05:48	20:15 (2) 05:06	05:14 21:04 (3)	06:01	20:25 (2) 06:56	07:51	07:51	08:43
	16:33	17:30	18:27	20:25	21:22 23	20:38 (2) 22:07	22:11 3 21:07 (3)	21:25 24	20:49 (2) 20:14	18:59	16:51	16:15
9	08:55	08:12	07:09	06:53	05:46	20:16 (2) 05:06	05:15 21:02 (3)	06:02	20:24 (2) 06:58	07:53	07:53	08:45
	16:34	17:32	18:29	20:27	21:23 22	20:38 (2) 22:08	22:10 7 21:09 (3)	21:23 25	20:49 (2) 20:11	18:56	16:49	16:15
10	08:54	08:10	07:07	06:50	05:44	20:17 (2) 05:05	05:16 21:01 (3)	06:04	20:24 (2) 07:00	07:55	07:55	08:46
	16:36	17:34	18:30	20:29	21:25 21	20:38 (2) 22:09	22:09 9 21:10 (3)	21:21 25	20:49 (2) 20:09	18:54	16:47	16:14
11	08:54	08:08	07:05	06:48	05:42	20:18 (2) 05:05	05:17 21:00 (3)	06:06	20:25 (2) 07:02	07:57	07:57	08:47
	16:37	17:36	18:32	20:31	21:27 21	20:55 (3) 22:10	22:08 11 21:11 (3)	21:19 24	20:49 (2) 20:06	18:52	16:46	16:14
12	08:53	08:06	07:02	06:46	05:41	20:18 (2) 05:04	05:18 21:00 (3)	06:08	20:24 (2) 07:04	07:59	07:59	08:48
	16:39	17:39	18:34	20:33	21:29 23	20:56 (3) 22:11	22:07 13 21:13 (3)	21:17 22	20:46 (2) 20:04	18:49	16:44	16:14
13	08:52	08:04	07:00	06:43	05:39	20:20 (2) 05:04	05:20 20:59 (3)	06:09	20:25 (2) 07:05	08:00	08:01	08:49
	16:41	17:41	18:36	20:35	21:30 24	20:59 (3) 22:12	22:06 15 21:14 (3)	21:15 19	20:44 (2) 20:01	18:47	16:42	16:14
14	08:51	08:02	06:57	06:41	05:37	20:22 (2) 05:04	05:21 20:59 (3)	06:11	20:26 (2) 07:07	08:02	08:03	08:50
	16:42	17:43	18:38	20:37	21:32 22	21:00 (3) 22:12	22:05 15 21:14 (3)	21:12 17	20:43 (2) 19:59	18:44	16:41	16:14
15	08:50	08:00	06:55	06:38	05:35	20:24 (2) 05:03	05:22 20:58 (3)	06:13	20:26 (2) 07:09	08:04	08:05	08:51
	16:44	17:45	18:40	20:39	21:34 19	21:01 (3) 22:13	22:04 17 21:15 (3)	21:10 14	20:40 (2) 19:56	18:42	16:39	16:14
16	08:49	07:58	06:52	06:36	05:34	20:47 (3) 05:03	05:24 20:57 (3)	06:15	20:27 (2) 07:11	08:06	08:07	08:52
	16:46	17:47	18:42	20:41	21:36 16	21:03 (3) 22:13	22:03 18 21:15 (3)	21:08 11	20:38 (2) 19:54	18:40	16:37	16:14
17	08:48	07:56	06:50	06:34	05:32	20:46 (3) 05:03	05:25 20:58 (3)	06:17	20:29 (2) 07:13	08:08	08:09	08:53
	16:47	17:49	18:44	20:42	21:37 18	21:04 (3) 22:14	22:02 19 21:17 (3)	21:06 7	20:36 (2) 19:51	18:37	16:36	16:14
18	08:47	07:54	06:47	06:31	05:30	20:47 (3) 05:03	05:26 20:57 (3)	06:18	20:31 (2) 07:14	08:10	08:10	08:54
	16:49	17:51	18:46	20:44	21:39 19	21:06 (3) 22:14	22:00 20 21:17 (3)	21:04 3	20:34 (2) 19:49	18:35	16:34	16:14
19	08:46	07:51	06:45	06:29	05:29	20:47 (3) 05:03	05:28 20:57 (3)	06:20	07:16	08:12	08:12	08:54
	16:51	17:53	18:48	20:46	21:41 21	21:08 (3) 22:15	21:59 20 21:17 (3)	21:01	19:46	18:33	16:33	16:14
20	08:45	07:49	06:42	06:27	05:27	20:46 (3) 05:03	05:29 20:57 (3)	06:22	07:18	08:14	08:14	08:55
	16:53	17:55	18:50	20:48	21:42 21	21:07 (3) 22:15	21:58 21 21:18 (3)	20:59	19:44	18:31	16:32	16:15
21	08:44	07:47	06:40	06:24	05:26	20:47 (3) 05:03	05:31 20:57 (3)	06:24	07:20	08:16	08:16	08:56
	16:55	17:57	18:52	20:50	21:44 21	21:08 (3) 22:15	21:56 21 21:18 (3)	20:57	19:41	18:28	16:30	16:15
22	08:42	07:45	06:37	06:22	05:24	20:47 (3) 05:03	05:32 20:56 (3)	06:26	07:22	08:18	08:18	08:56
	16:57	17:59	18:53	20:52	21:45 21	21:08 (3) 22:15	21:55 21 21:17 (3)	20:55	19:39	18:26	16:29	16:16
23	08:41	07:42	06:35	06:20	05:23	20:46 (3) 05:04	05:34 20:57 (3)	06:27	07:23	08:20	08:20	08:57
	16:58	18:01	18:55	20:54	21:47 21	21:07 (3) 22:16	21:53 21 21:18 (3)	20:52	19:36	18:24	16:28	16:16
24	08:40	07:40	06:32	06:18	05:21	20:47 (3) 05:04	05:35 20:57 (3)	06:29	07:25	08:22	08:21	08:57
	17:00	18:03	18:57	20:56	21:49 20	21:07 (3) 22:16	21:52 21 21:18 (3)	20:50	19:34	18:22	16:26	16:17
25	08:38	07:38	06:30	06:15 20:25 (2)	05:20	20:48 (3) 05:04	05:37 20:57 (3)	06:31	07:27	07:24	08:23	08:57
	17:02	18:05	18:59	20:57 3 20:28 (2)	21:50 19	21:07 (3) 22:16	21:50 21 21:18 (3)	20:48	19:31	17:19	16:25	16:17
26	08:37	07:36	06:27	06:13 20:22 (2)	05:19	20:48 (3) 05:05	05:38 20:57 (3)	06:33	07:29	07:25	08:25	08:58
	17:04	18:07	19:01	20:59 8 20:30 (2)	21:51 19	21:07 (3) 22:16	21:49 19 21:16 (3)	20:45	19:29	17:17	16:24	16:18
27	08:35	07:33	06:25	06:11 20:20 (2)	05:17	20:49 (3) 05:05	05:40 20:58 (3)	06:35	07:31	07:27	08:27	08:58
	17:06	18:09	19:03	21:01 11 20:31 (2)	21:53 18	21:07 (3) 22:16	21:47 17 21:15 (3)	20:43	19:26	17:15	16:23	16:19
28	08:34	07:31	06:22	06:09 20:18 (2)	05:16	20:49 (3) 05:06	05:42 20:58 (3)	06:37	07:33	07:29	08:28	08:58
	17:08	18:11	19:05	21:03 15 20:33 (2)	21:54 18	21:07 (3) 22:15	21:45 15 21:13 (3)	20:40	19:24	17:13	16:22	16:20
29	08:32		07:20	06:07 20:17 (2)	05:15	20:50 (3) 05:06	05:43 20:34 (2)	06:38	07:34	07:31	08:30	08:58
	17:10		20:07	21:05 18 20:35 (2)	21:56 16	21:06 (3) 22:15	21:44 21 21:12 (3)	20:38	19:21	17:11	16:21	16:21
30	08:30		07:17	06:04 20:16 (2)	05:14	20:51 (3) 05:07	05:45 20:31 (2)	06:40	07:36	07:33	08:32	08:58
	17:12		20:09	21:07 20 20:36 (2)	21:57 15	21:06 (3) 22:15	21:42 24 21:10 (3)	20:36	19:19	17:09	16:20	16:22
31	08:29		07:15		05:13	20:51 (3)	05:47 20:30 (2)	06:42		07:35		08:58
	17:14		20:10		21:58 14	21:05 (3)	21:40 23 21:08 (3)	20:33		17:07		16:23
Potential sun hours	248	272	367	421	496	513	515	461	382	328	257	231
Total, worst case				75	640	36	412	349				
Sun reduction				0.34	0.36	0.26	0.27	0.27				
Oper. time red.				1.00	1.00	1.00	1.00	1.00				
Wind dir. red.				0.61	0.62	0.63	0.63	0.62				
Total reduction				0.21	0.22	0.16	0.17	0.17				
Total, real				16	144	6	69	59				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DO - H284

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January			February			March			April			May	June
1	08:58			08:27		16:12 (18)	07:29		17:32 (16)	07:12		18:27 (17)	06:02	05:11
	16:24			17:16	23	16:35 (18)	18:13	13	17:45 (16)	20:12	39	19:06 (17)	21:09	22:00
2	08:58			08:25		16:10 (18)	07:26		17:32 (16)	07:10		18:28 (17)	06:00	05:10
	16:25			17:18	26	16:36 (18)	18:15	15	17:47 (16)	20:14	38	19:06 (17)	21:11	22:01
3	08:58			08:24		16:09 (18)	07:24		17:32 (16)	07:07		18:28 (17)	05:58	05:10
	16:26			17:20	29	16:38 (18)	18:17	15	17:47 (16)	20:16	36	19:04 (17)	21:13	22:02
4	08:58			08:22		16:08 (18)	07:21		17:33 (16)	07:05		18:30 (17)	05:56	05:09
	16:27			17:22	31	16:39 (18)	18:19	13	17:46 (16)	20:18	33	19:03 (17)	21:14	22:03
5	08:57			08:20		16:07 (18)	07:19		17:35 (16)	07:02		18:31 (17)	05:54	05:08
	16:28			17:24	33	16:40 (18)	18:21	9	17:44 (16)	20:20	31	19:02 (17)	21:16	22:05
6	08:57			08:18		16:06 (18)	07:17		17:38 (16)	07:00		18:32 (17)	05:52	05:07
	16:30			17:26	35	16:41 (18)	18:23	2	17:40 (16)	20:22	27	18:59 (17)	21:18	22:06
7	08:56			08:16		16:06 (18)	07:14			06:58		18:35 (17)	05:50	05:06
	16:31			17:28	36	16:42 (18)	18:24			20:24	22	18:57 (17)	21:20	22:07
8	08:56			08:14		16:05 (18)	07:12			06:55		18:37 (17)	05:48	05:06
	16:33			17:30	38	16:43 (18)	18:26			20:26	16	18:53 (17)	21:22	22:08
9	08:55			08:12		16:04 (18)	07:09			06:53		18:44 (17)	05:46	05:05
	16:34			17:32	38	16:42 (18)	18:28			20:27	3	18:47 (17)	21:23	22:09
10	08:55			08:10		16:03 (18)	07:07			06:50			05:44	05:05
	16:36			17:34	40	16:43 (18)	18:30			20:29			21:25	22:09
11	08:54			08:08		16:03 (18)	07:05			06:48			05:42	05:04
	16:37			17:36	41	16:44 (18)	18:32			20:31			21:27	22:10
12	08:53			08:06		16:03 (18)	07:02		17:49 (17)	06:45			05:40	05:04
	16:39			17:38	41	16:44 (18)	18:34	7	17:56 (17)	20:33			21:29	22:11
13	08:52			08:04		16:03 (18)	07:00		17:44 (17)	06:43			05:38	05:04
	16:40			17:40	41	16:44 (18)	18:36	18	18:02 (17)	20:35			21:31	22:12
14	08:51			08:02		16:03 (18)	06:57		17:40 (17)	06:41			05:37	05:03
	16:42			17:42	42	16:45 (18)	18:38	24	18:04 (17)	20:37			21:32	22:12
15	08:51			08:00		16:03 (18)	06:55		17:38 (17)	06:38			05:35	05:03
	16:44			17:44	41	16:44 (18)	18:40	28	18:06 (17)	20:39			21:34	22:13
16	08:50			07:58		16:03 (18)	06:52		17:36 (17)	06:36			05:33	05:03
	16:45			17:46	41	16:44 (18)	18:42	31	18:07 (17)	20:41			21:36	22:14
17	08:48			07:56		16:04 (18)	06:50		17:34 (17)	06:33			05:32	05:03
	16:47			17:49	40	16:44 (18)	18:44	35	18:09 (17)	20:42			21:37	22:14
18	08:47			07:54		16:04 (18)	06:47		17:33 (17)	06:31			05:30	05:03
	16:49			17:51	40	16:44 (18)	18:46	36	18:09 (17)	20:44			21:39	22:15
19	08:46			07:51		16:04 (18)	06:45		17:32 (17)	06:29			05:28	05:03
	16:51			17:53	39	16:43 (18)	18:48	38	18:10 (17)	20:46			21:41	22:15
20	08:45			07:49		16:05 (18)	06:42		17:30 (17)	06:26			05:27	05:03
	16:53			17:55	37	16:42 (18)	18:50	40	18:10 (17)	20:48			21:42	22:15
21	08:44			07:47		16:06 (18)	06:40		17:30 (17)	06:24			05:25	05:03
	16:54			17:57	36	16:42 (18)	18:51	41	18:11 (17)	20:50			21:44	22:16
22	08:42			07:45		16:06 (18)	06:37		17:28 (17)	06:22			05:24	05:03
	16:56			17:59	34	16:40 (18)	18:53	43	18:11 (17)	20:52			21:46	22:16
23	08:41			07:42		16:07 (18)	06:35		17:28 (17)	06:20			05:22	05:03
	16:58			18:01	33	16:40 (18)	18:55	44	18:12 (17)	20:54			21:47	22:16
24	08:40			07:40		16:09 (18)	06:32		17:27 (17)	06:17			05:21	05:04
	17:00			18:03	29	16:38 (18)	18:57	44	18:11 (17)	20:56			21:49	22:16
25	08:38			07:38		16:10 (18)	06:30		17:27 (17)	06:15			05:20	05:04
	17:02			18:05	28	17:36 (16)	18:59	44	18:11 (17)	20:58			21:50	22:16
26	08:37			07:36		16:13 (18)	06:27		17:26 (17)	06:13			05:18	05:04
	17:04			18:07	26	17:39 (16)	19:01	45	18:11 (17)	20:59			21:52	22:16
27	08:35			07:33		16:15 (18)	06:25		17:27 (17)	06:11			05:17	05:05
	17:06			18:09	24	17:40 (16)	19:03	44	18:11 (17)	21:01			21:53	22:16
28	08:34			07:31		16:22 (18)	06:22		17:26 (17)	06:08			05:16	05:05
	17:08			18:11	14	17:43 (16)	19:05	44	18:10 (17)	21:03			21:55	22:16
29	08:32		16:21 (18)				07:20		18:27 (17)	06:06			05:15	05:06
	17:10	1	16:22 (18)				20:07	43	19:10 (17)	21:05			21:56	22:15
30	08:31		16:15 (18)				07:17		18:26 (17)	06:04			05:14	05:07
	17:12	14	16:29 (18)				20:08	42	19:08 (17)	21:07			21:57	22:15
31	08:29		16:12 (18)				07:15		18:27 (17)				05:12	
	17:14	19	16:31 (18)				20:10	41	19:08 (17)				21:59	
Potential sun hours	248			272			367			421			496	513
Total, worst case		34			956			799			245			
Sun reduction		0.17			0.22			0.22			0.34			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.59			0.59			0.57			0.57			
Total reduction		0.10			0.13			0.13			0.20			
Total, real		3			126			102			48			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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SHADOW - Calendar

Calculation: Tirawley Shadow Flicker Worst Case Shadow receptor: DO - H284

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October		November		December
1	05:07	05:48	06:44		07:38		18:26 (17)	07:37	15:33 (18)	08:33
	22:15	21:39	20:31		19:16	13	18:39 (17)	17:04	40	16:13 (18)	16:19
2	05:08	05:50	06:45		07:40			07:39		15:33 (18)	08:35
	22:14	21:37	20:28		19:14			17:02	39	16:12 (18)	16:18
3	05:09	05:52	06:47		18:42 (17)	07:42		07:41		15:34 (18)	08:36
	22:14	21:35	20:26	2	18:44 (17)	19:11		17:00	37	16:11 (18)	16:17
4	05:10	05:53	06:49		18:34 (17)	07:44		07:43		15:35 (18)	08:38
	22:14	21:33	20:24	16	18:50 (17)	19:09		16:58	37	16:12 (18)	16:17
5	05:11	05:55	06:51		18:31 (17)	07:45		07:45		15:36 (18)	08:39
	22:13	21:31	20:21	22	18:53 (17)	19:06		16:56	35	16:11 (18)	16:16
6	05:12	05:57	06:53		18:28 (17)	07:47		07:47		15:37 (18)	08:41
	22:12	21:29	20:19	27	18:55 (17)	19:04		16:54	33	16:10 (18)	16:16
7	05:12	05:59	06:54		18:26 (17)	07:49		07:49		15:38 (18)	08:42
	22:12	21:27	20:16	31	18:57 (17)	19:01		16:53	31	16:09 (18)	16:15
8	05:14	06:00	06:56		18:24 (17)	07:51	18:11 (16)	07:51		15:39 (18)	08:43
	22:11	21:25	20:14	33	18:57 (17)	18:59	7	18:18 (16)	16:51	28	16:07 (18)	16:15
9	05:15	06:02	06:58		18:22 (17)	07:53		18:09 (16)	07:53		15:40 (18)	08:45
	22:10	21:23	20:11	36	18:58 (17)	18:56	11	18:20 (16)	16:49	26	16:06 (18)	16:14
10	05:16	06:04	07:00		18:21 (17)	07:55		18:07 (16)	07:55		15:43 (18)	08:46
	22:09	21:21	20:09	38	18:59 (17)	18:54	14	18:21 (16)	16:47	22	16:05 (18)	16:14
11	05:17	06:06	07:02		18:20 (17)	07:57		18:06 (16)	07:57		15:44 (18)	08:47
	22:08	21:19	20:06	40	19:00 (17)	18:51	16	18:22 (16)	16:45	19	16:03 (18)	16:14
12	05:18	06:07	07:03		18:18 (17)	07:58		18:06 (16)	07:59		15:47 (18)	08:48
	22:07	21:17	20:04	41	18:59 (17)	18:49	14	18:20 (16)	16:44	13	16:00 (18)	16:14
13	05:19	06:09	07:05		18:18 (17)	08:00		18:05 (16)	08:01			08:49
	22:06	21:15	20:01	42	19:00 (17)	18:47	12	18:17 (16)	16:42			16:13
14	05:21	06:11	07:07		18:17 (17)	08:02		16:51 (18)	08:03			08:50
	22:05	21:13	19:59	43	19:00 (17)	18:44	20	18:15 (16)	16:40			16:13
15	05:22	06:13	07:09		18:17 (17)	08:04		16:47 (18)	08:05			08:51
	22:04	21:10	19:56	43	19:00 (17)	18:42	26	18:13 (16)	16:39			16:13
16	05:23	06:15	07:11		18:15 (17)	08:06		16:44 (18)	08:07			08:52
	22:03	21:08	19:54	44	18:59 (17)	18:40	27	18:10 (16)	16:37			16:13
17	05:25	06:16	07:12		18:15 (17)	08:08		16:42 (18)	08:09			08:53
	22:02	21:06	19:51	44	18:59 (17)	18:37	28	18:08 (16)	16:36			16:14
18	05:26	06:18	07:14		18:15 (17)	08:10		16:40 (18)	08:11			08:54
	22:01	21:04	19:49	44	18:59 (17)	18:35	30	17:10 (18)	16:34			16:14
19	05:27	06:20	07:16		18:15 (17)	08:12		16:38 (18)	08:12			08:55
	21:59	21:01	19:46	44	18:59 (17)	18:33	33	17:11 (18)	16:33			16:14
20	05:29	06:22	07:18		18:14 (17)	08:14		16:37 (18)	08:14			08:55
	21:58	20:59	19:44	43	18:57 (17)	18:30	35	17:12 (18)	16:31			16:14
21	05:30	06:24	07:20		18:14 (17)	08:16		16:36 (18)	08:16			08:56
	21:57	20:57	19:41	43	18:57 (17)	18:28	36	17:12 (18)	16:30			16:15
22	05:32	06:25	07:21		18:14 (17)	08:18		16:35 (18)	08:18			08:56
	21:55	20:55	19:39	42	18:56 (17)	18:26	38	17:13 (18)	16:29			16:15
23	05:33	06:27	07:23		18:15 (17)	08:20		16:34 (18)	08:20			08:57
	21:54	20:52	19:36	40	18:55 (17)	18:24	39	17:13 (18)	16:27			16:16
24	05:35	06:29	07:25		18:15 (17)	08:22		16:33 (18)	08:22			08:57
	21:52	20:50	19:34	39	18:54 (17)	18:21	40	17:13 (18)	16:26			16:16
25	05:37	06:31	07:27		18:16 (17)	07:24		15:33 (18)	08:23			08:58
	21:51	20:48	19:31	37	18:53 (17)	17:19	41	16:14 (18)	16:25			16:17
26	05:38	06:33	07:29		18:16 (17)	07:26		15:32 (18)	08:25			08:58
	21:49	20:45	19:28	35	18:51 (17)	17:17	42	16:14 (18)	16:24			16:18
27	05:40	06:35	07:31		18:17 (17)	07:27		15:32 (18)	08:27			08:58
	21:47	20:43	19:26	33	18:50 (17)	17:15	41	16:13 (18)	16:23			16:19
28	05:41	06:36	07:32		18:18 (17)	07:29		15:33 (18)	08:29			08:58
	21:46	20:40	19:23	30	18:48 (17)	17:13	41	16:14 (18)	16:22			16:19
29	05:43	06:38	07:34		18:20 (17)	07:31		15:33 (18)	08:30			08:58
	21:44	20:38	19:21	26	18:46 (17)	17:11	41	16:14 (18)	16:21			16:20
30	05:45	06:40	07:36		18:22 (17)	07:33		15:33 (18)	08:32			08:59
	21:42	20:36	19:18	21	18:43 (17)	17:08	41	16:14 (18)	16:20			16:21
31	05:46	06:42				07:35		15:33 (18)				08:58
	21:40	20:33				17:06	40	16:13 (18)				16:22
Potential sun hours	515	461	383			327			257			230
Total, worst case				979			726			360		
Sun reduction				0.29			0.23			0.20		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.57			0.59			0.59		
Total reduction				0.17			0.14			0.12		
Total, real				163			101			43		

Table layout: For each day in each month the following matrix apply

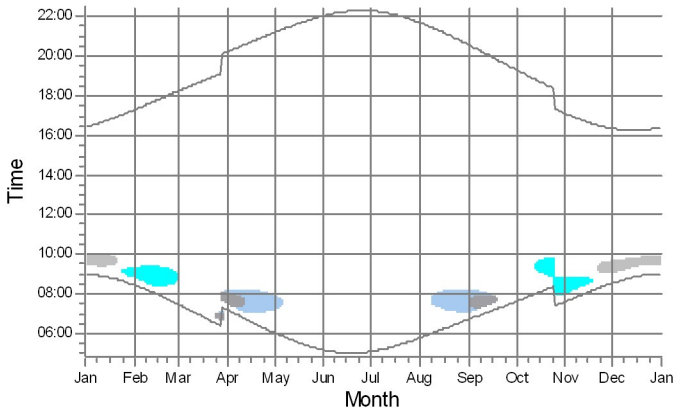
Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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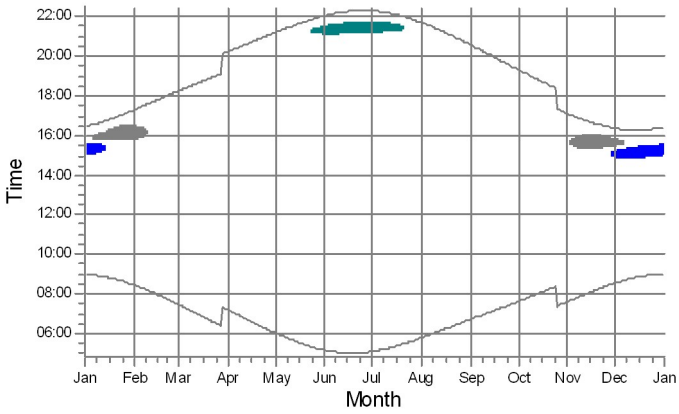
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

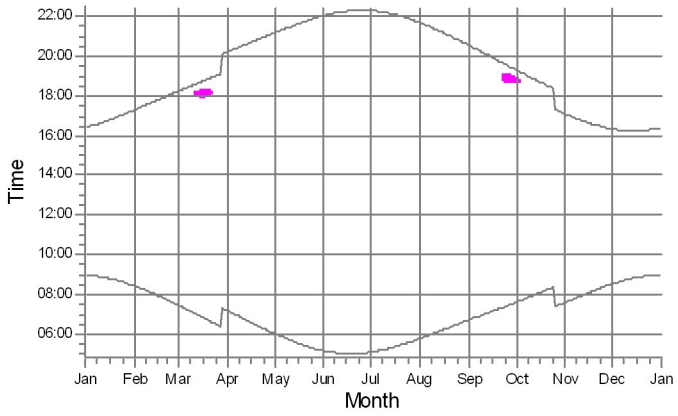
A: H1



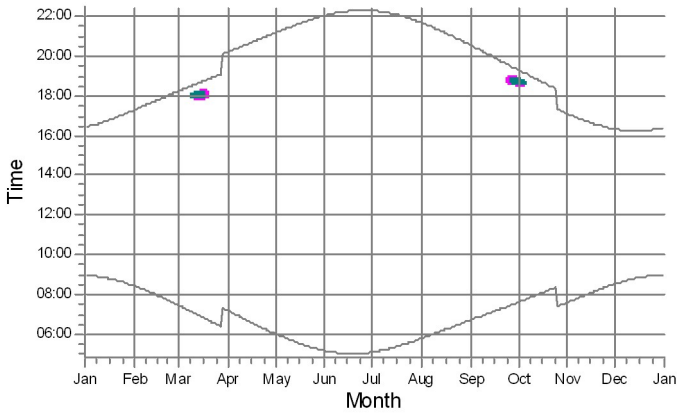
B: H2



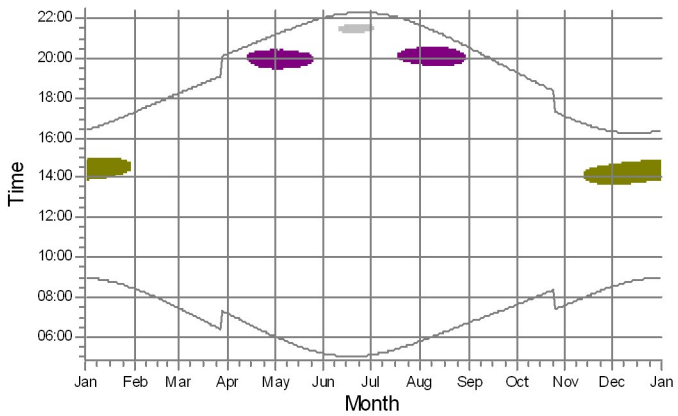
C: H3



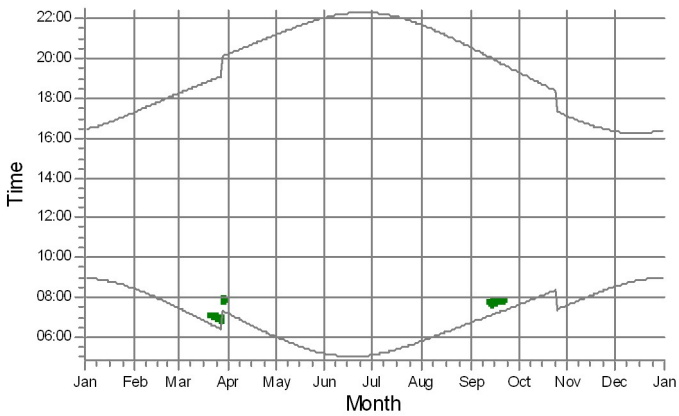
D: H4



E: H5



F: H6



WTGs

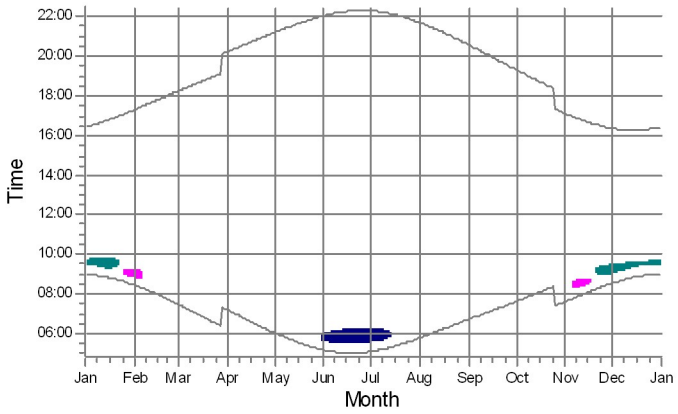
1: AT01	5: AT05	11: AT11	15: AT15
3: AT03	6: AT06	12: AT12	16: AT16
4: AT04	10: AT10	13: AT13	

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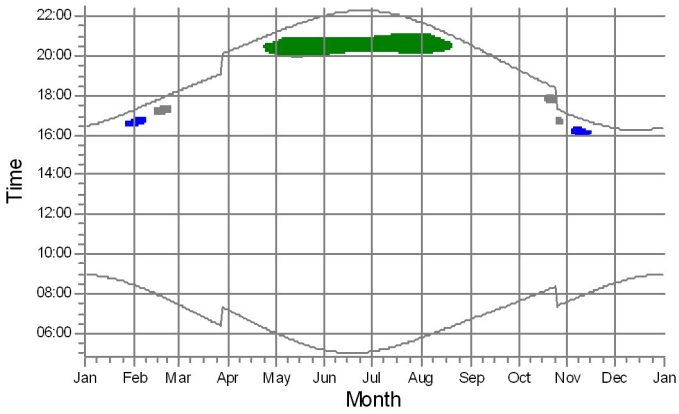
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

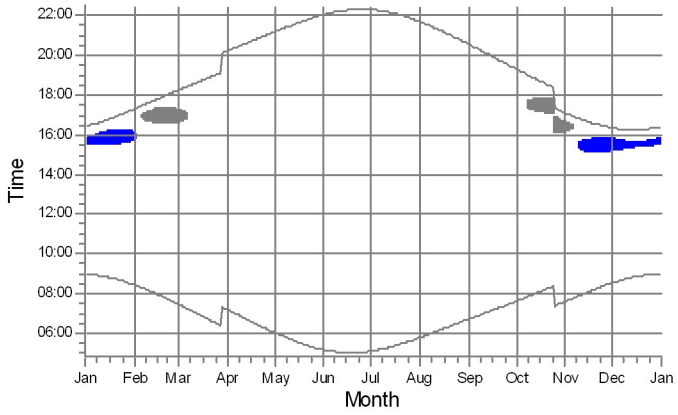
G: H7



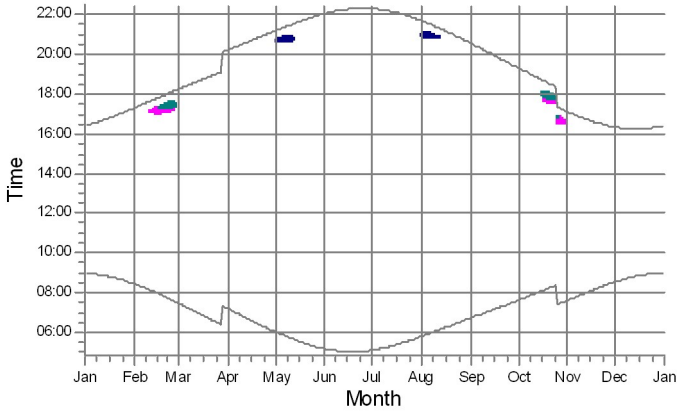
H: H8



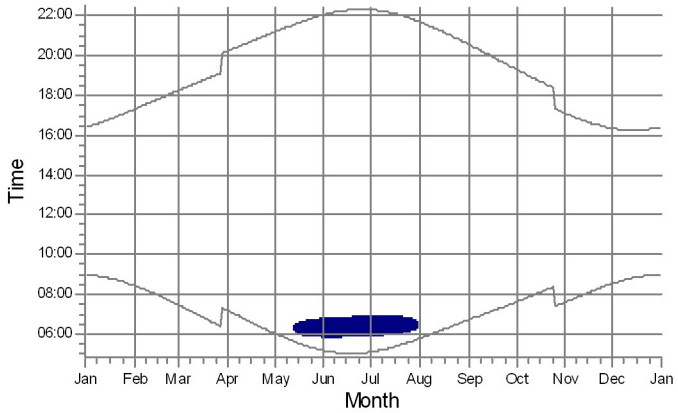
I: H9



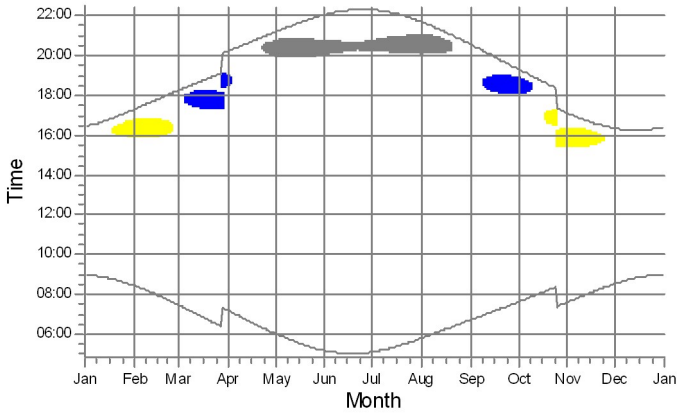
J: H10



K: H11



L: H12



WTGs

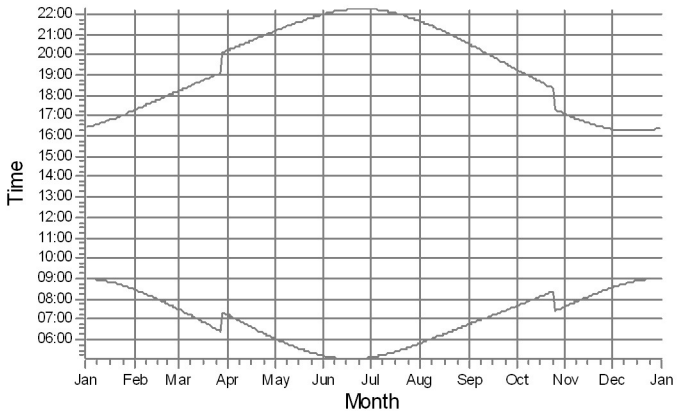
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	2: AT02		4: AT04		6: AT06		

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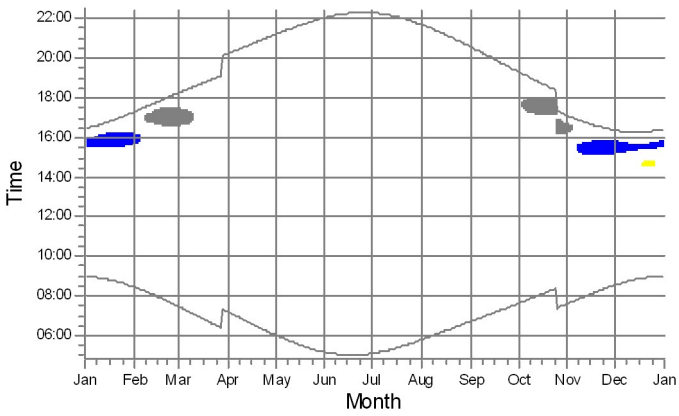
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

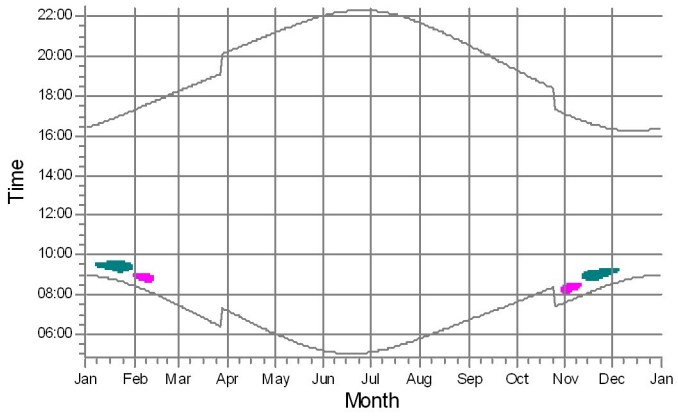
M: H13



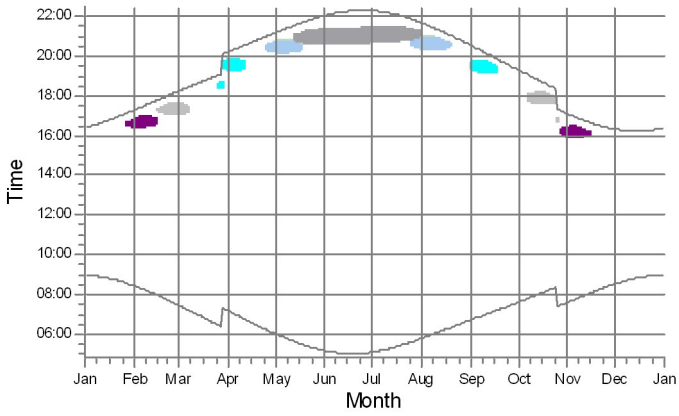
N: H14



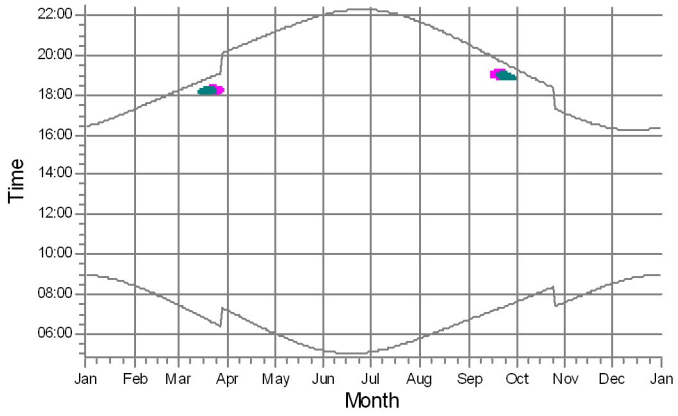
O: H15



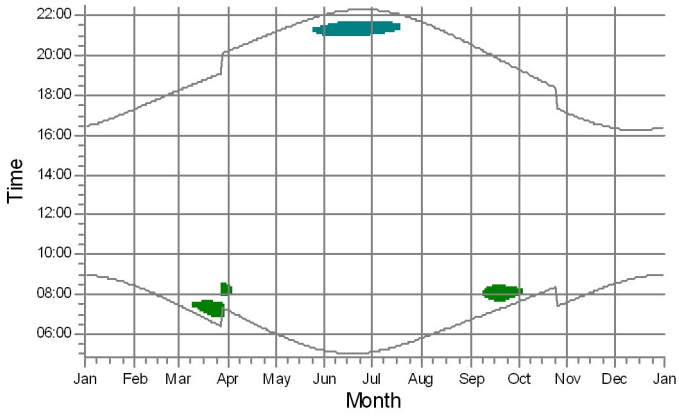
P: H16



Q: H17



R: H18



WTGs

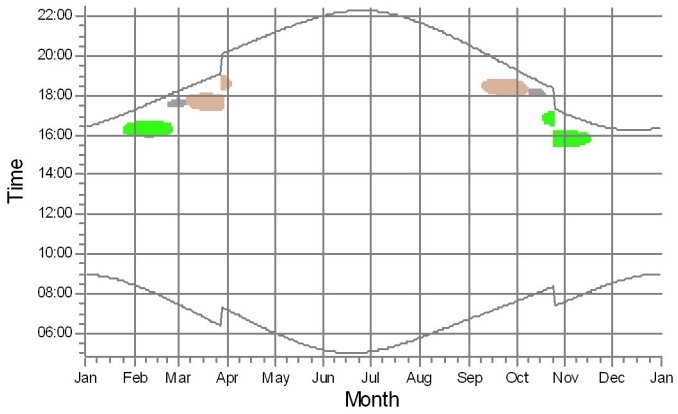
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3: AT03	6: AT06	13: AT13	16: AT16

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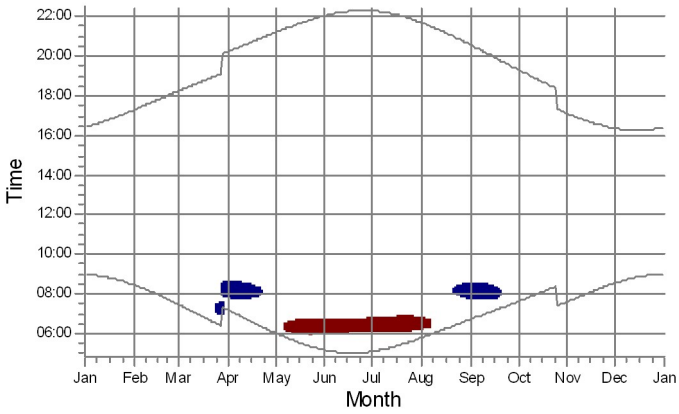
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

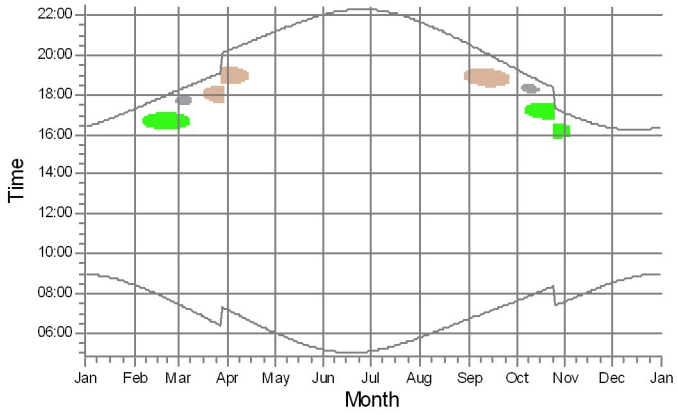
S: H19



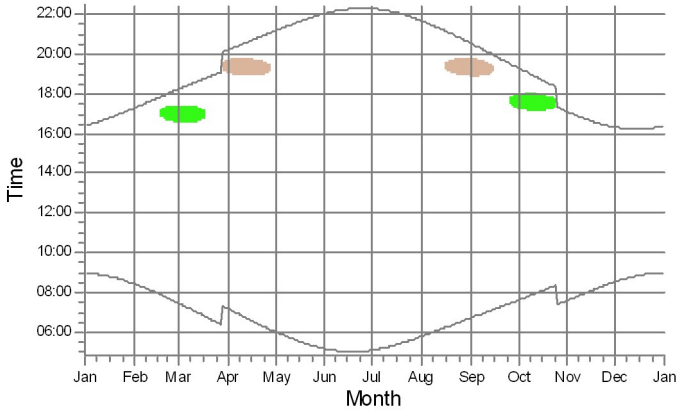
T: H20



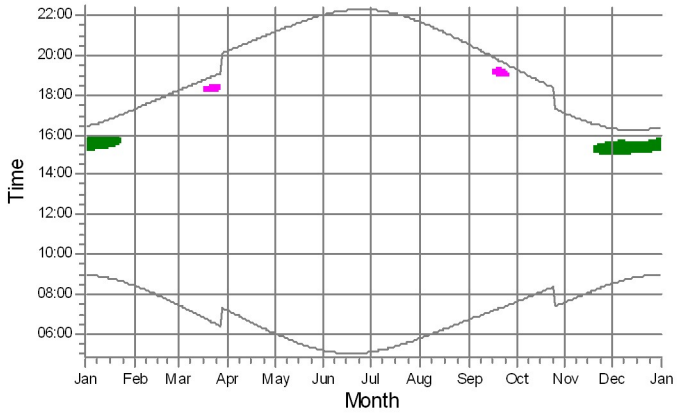
U: H21



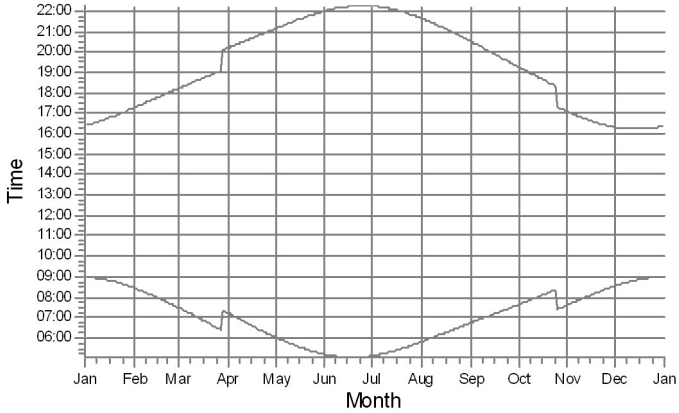
V: H22



W: H23



X: H24



WTGs

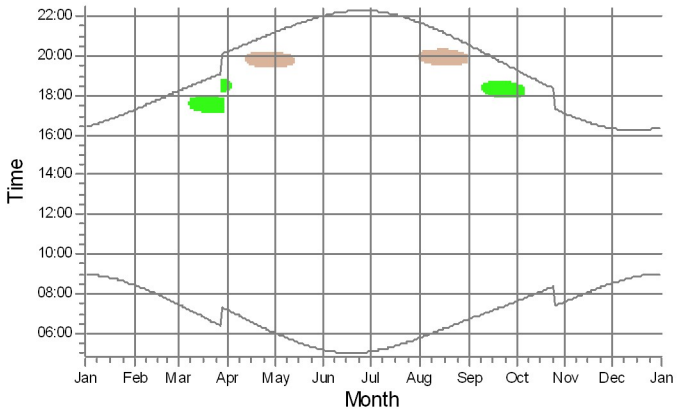
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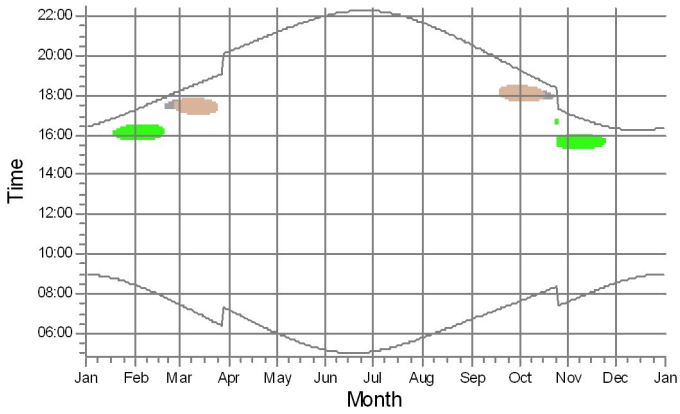
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

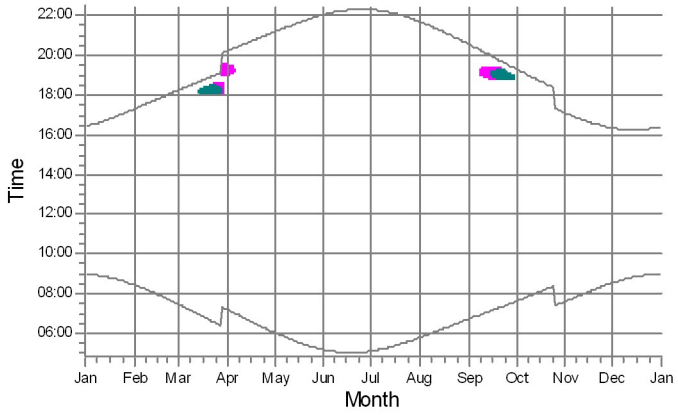
Y: H25



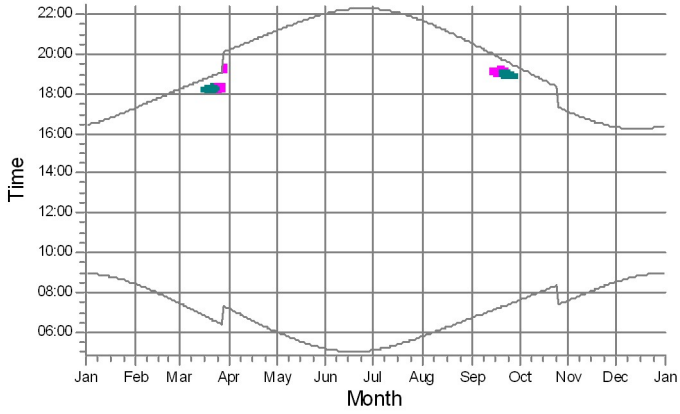
Z: H26



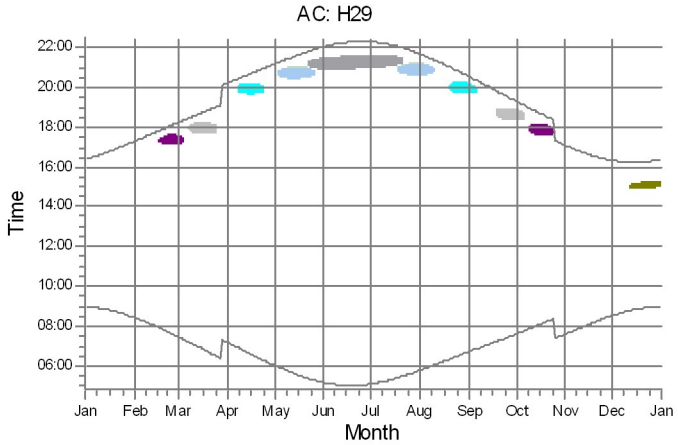
AA: H27



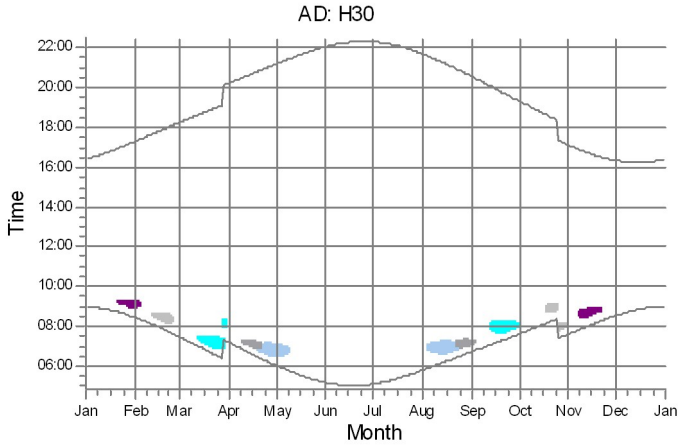
AB: H28



AC: H29



AD: H30



WTGs

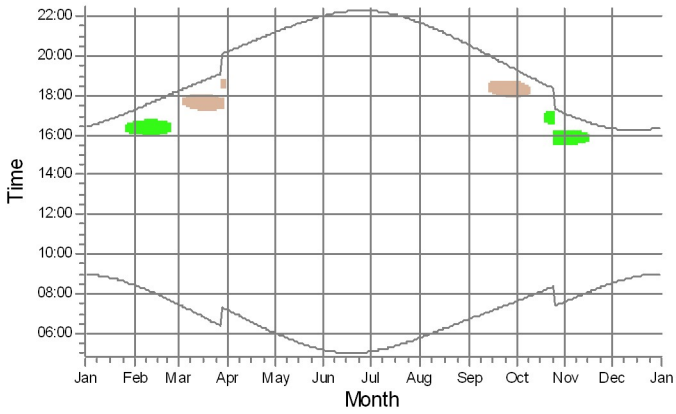
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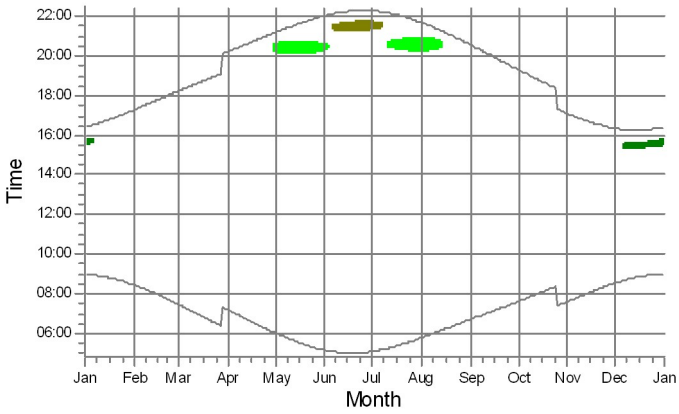
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

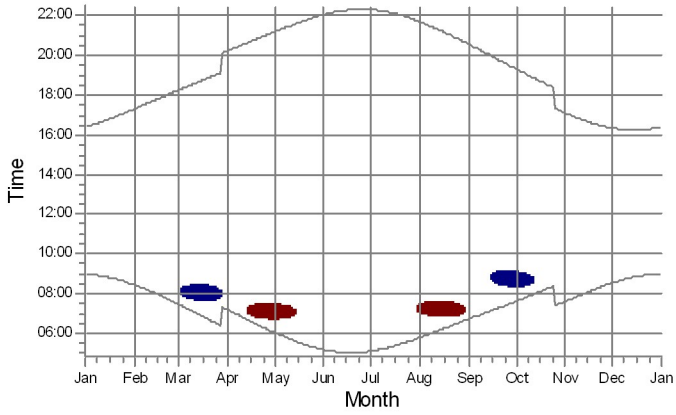
AE: H31



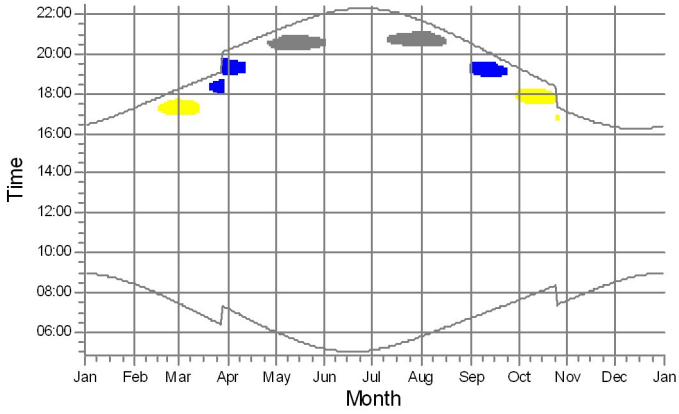
AF: H32



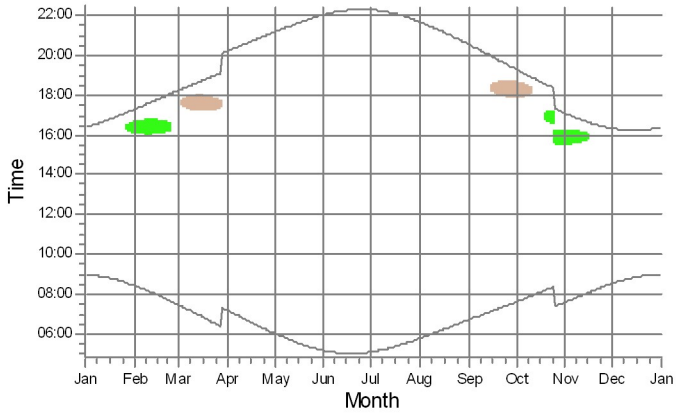
AG: H33



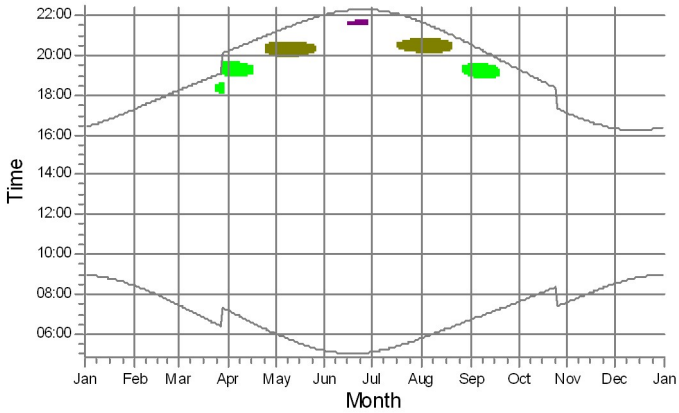
AH: H34



AI: H35



AJ: H36



WTGs

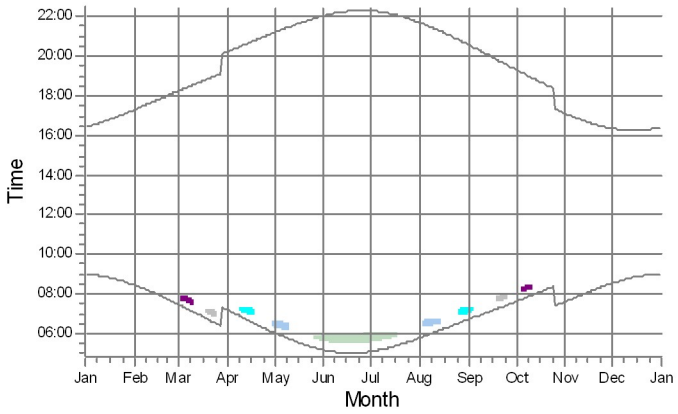
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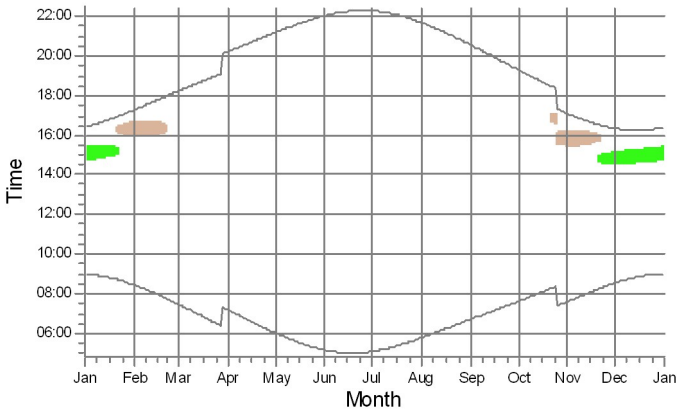
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

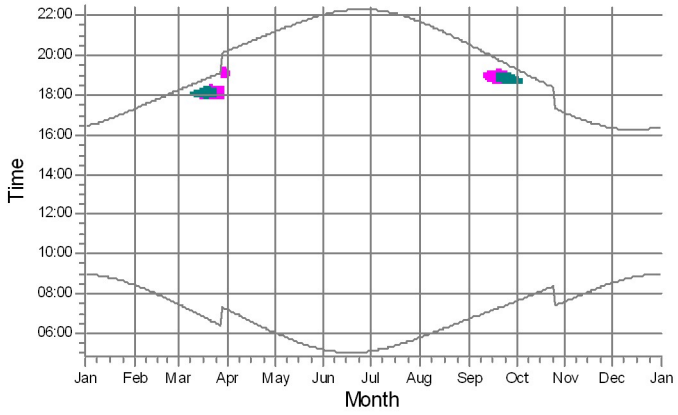
AK: H37



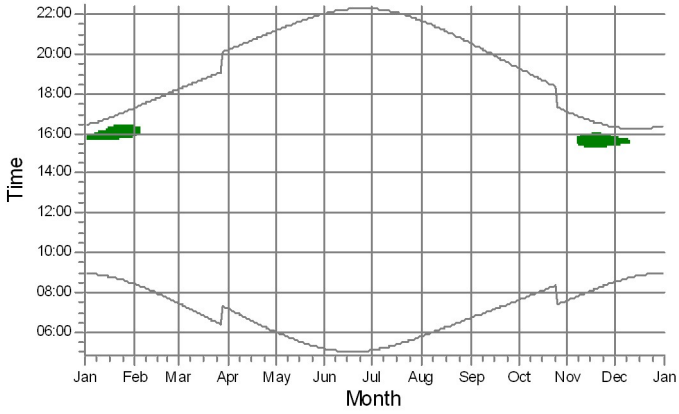
AL: H38



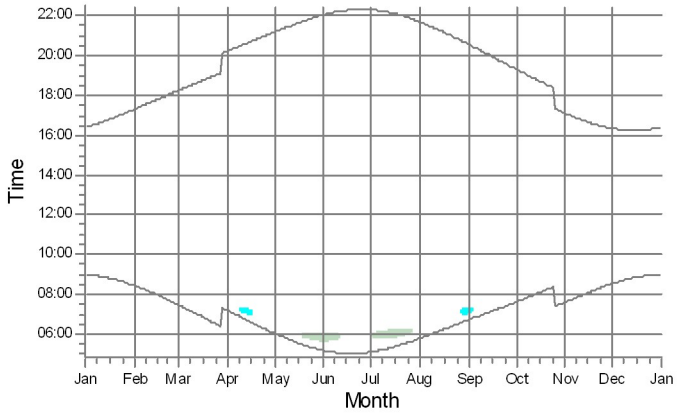
AM: H39



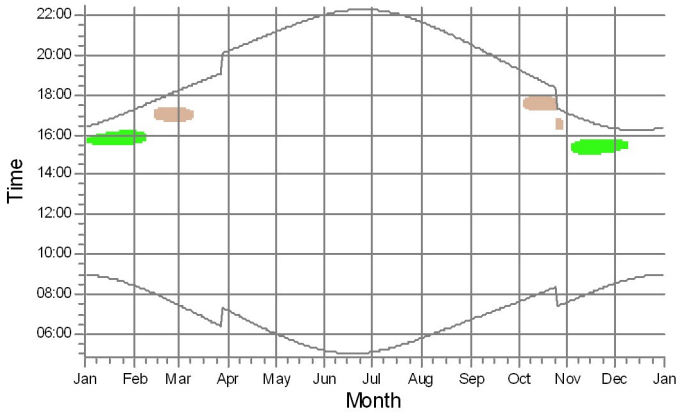
AN: H40



AO: H41



AP: H42



WTGs

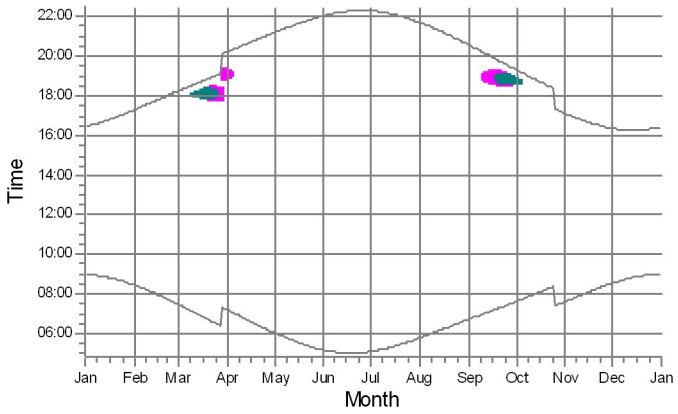
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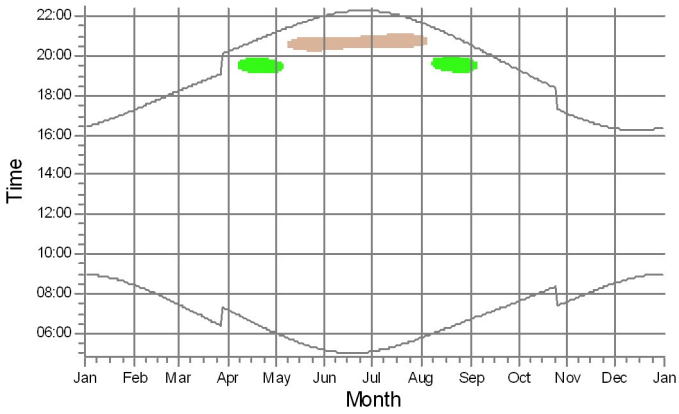
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

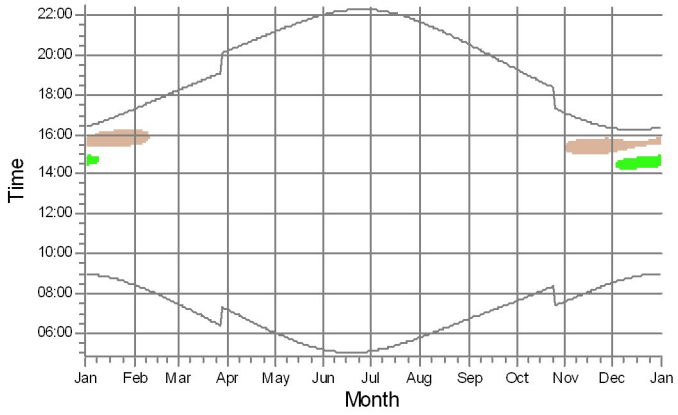
AQ: H43



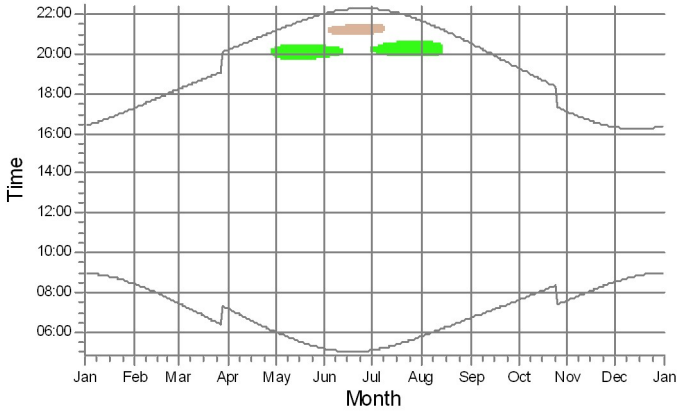
AR: H44



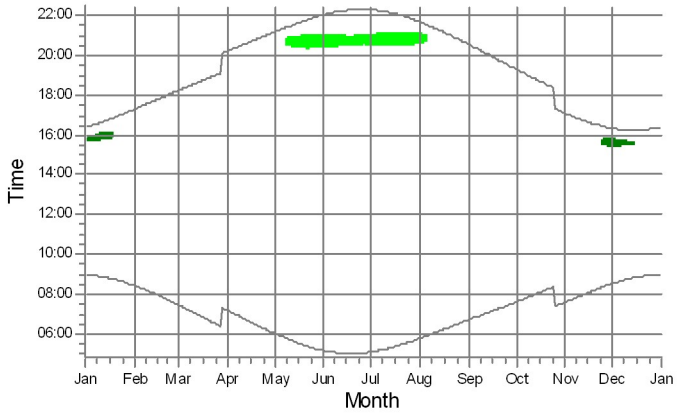
AS: H45



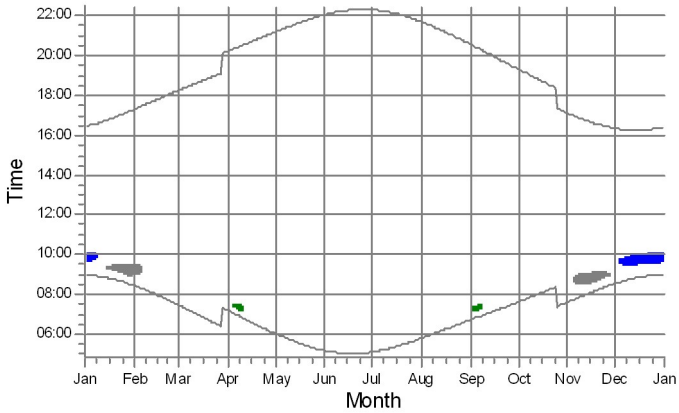
AT: H46



AU: H47



AV: H48



WTGs

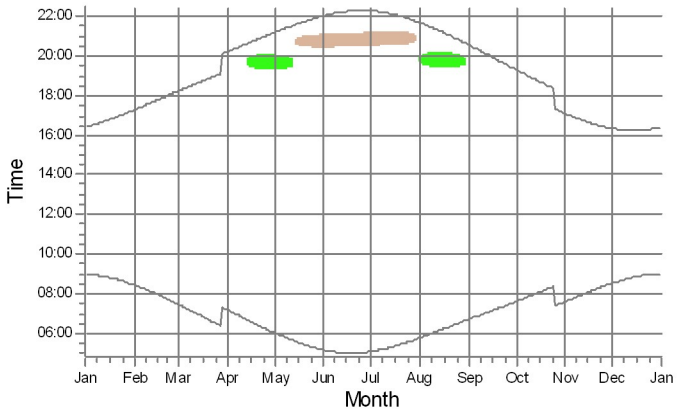
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3: AT03	5: AT05	9: AT09	18: AT18

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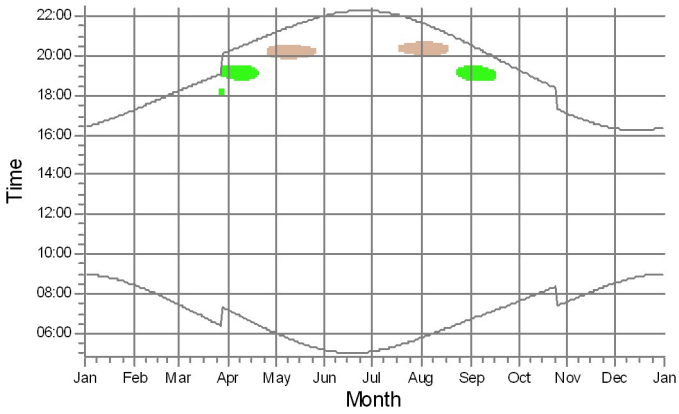
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

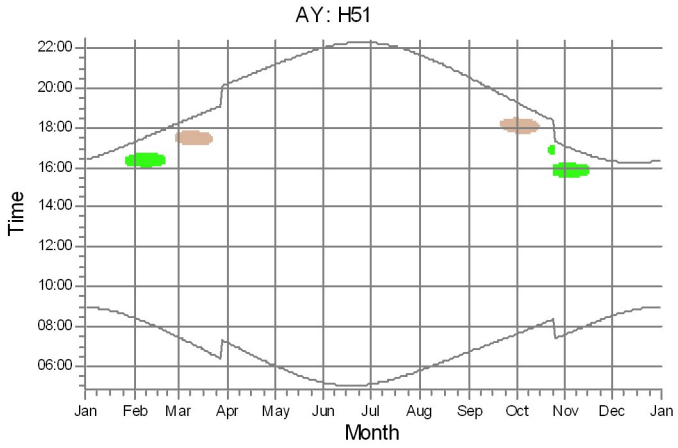
AW: H49



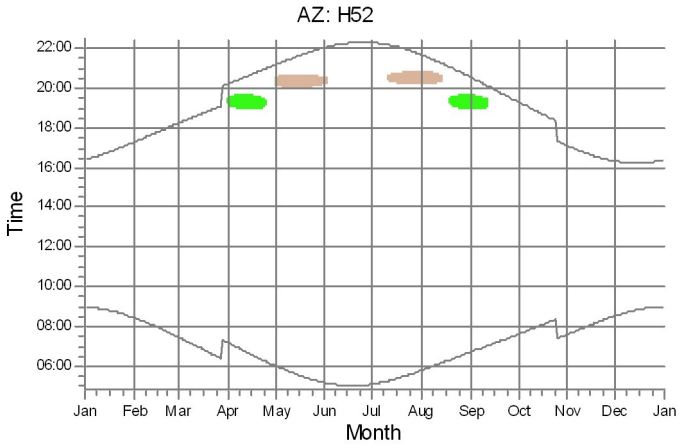
AX: H50



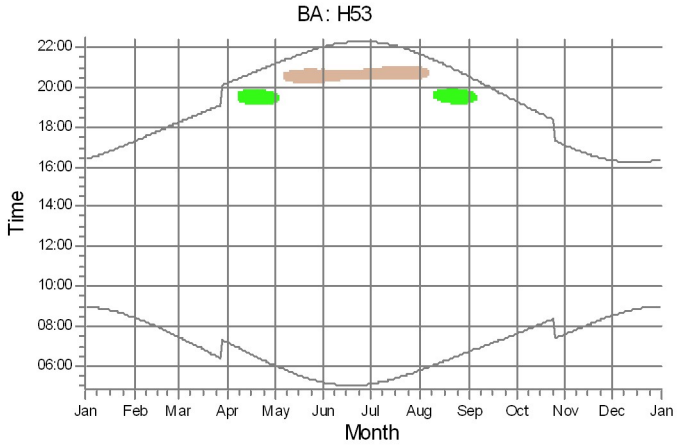
AY: H51



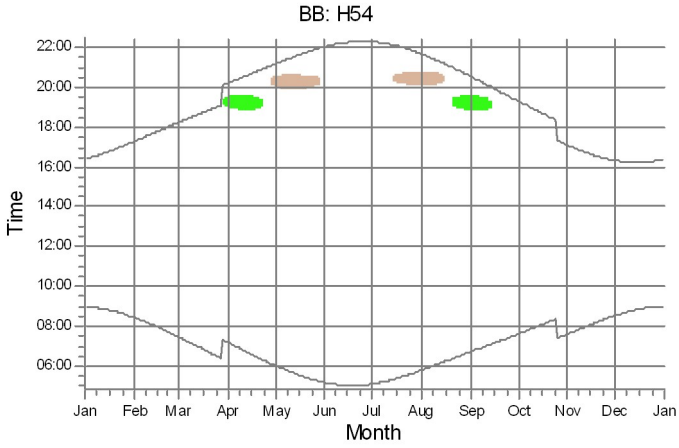
AZ: H52



BA: H53



BB: H54



WTGs

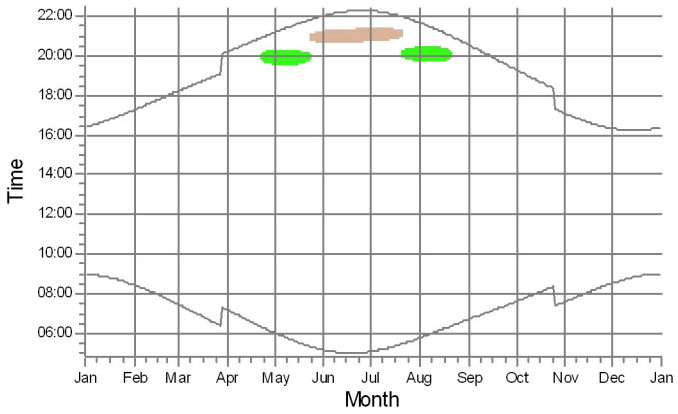
17: AT17 18: AT18

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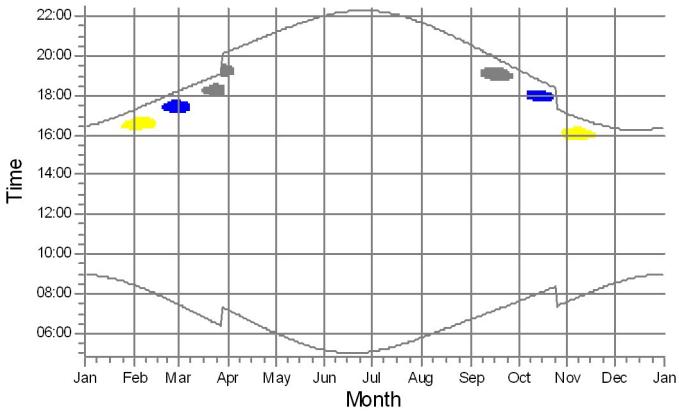
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

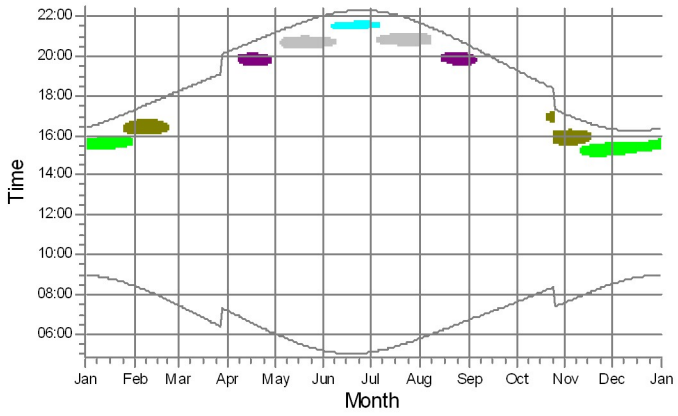
BC: H55



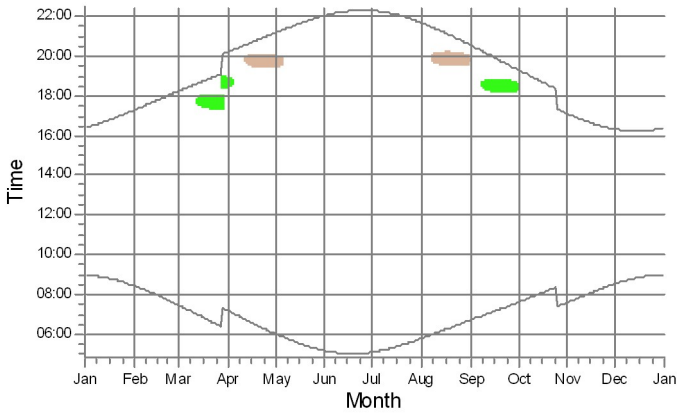
BD: H56



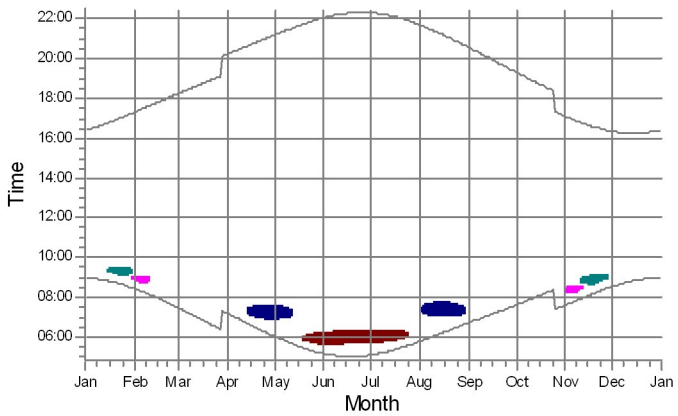
BE: H57



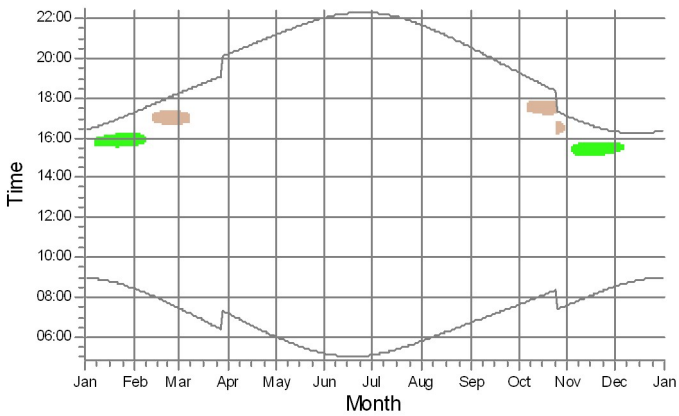
BF: H58



BG: H59



BH: H60



WTGs

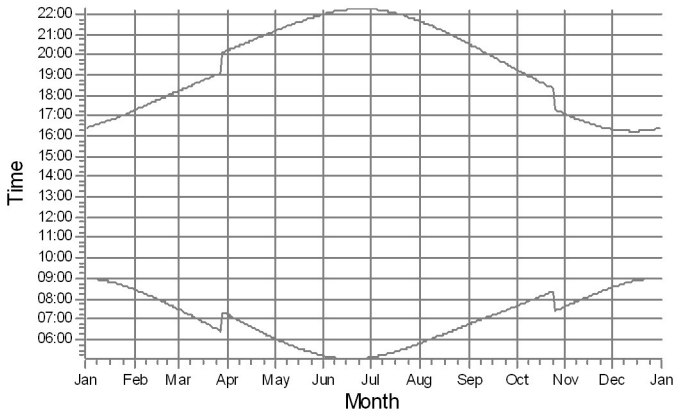
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	3: AT03		6: AT06		9: AT09		12: AT12		18: AT18
	4: AT04		7: AT07		10: AT10		13: AT13		

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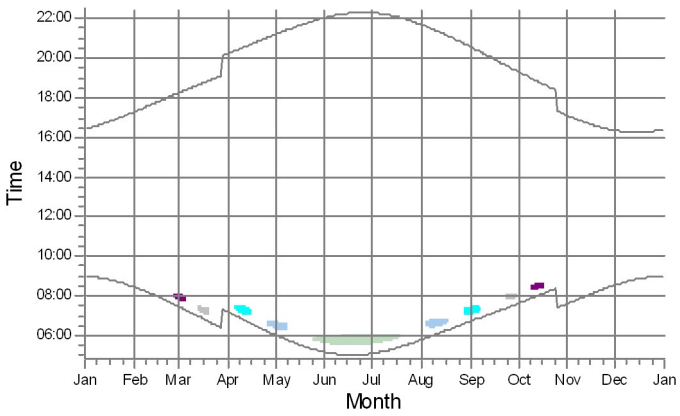
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

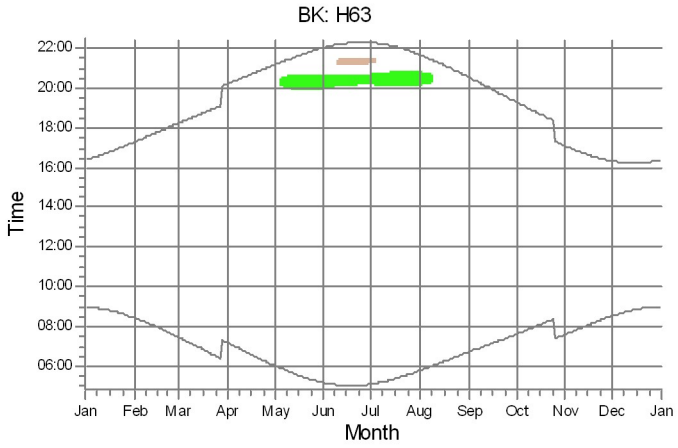
BI: H61



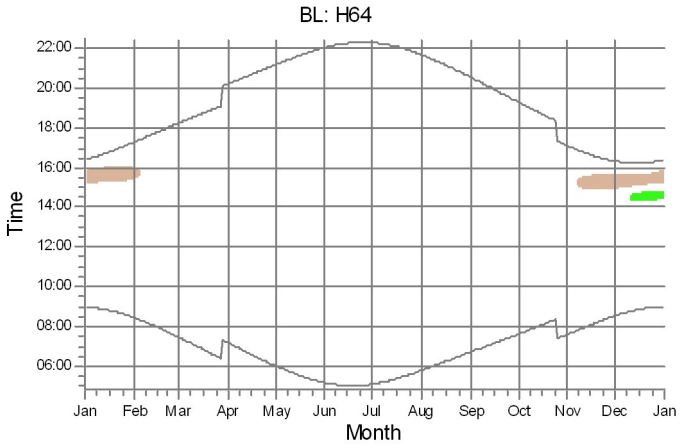
BJ: H62



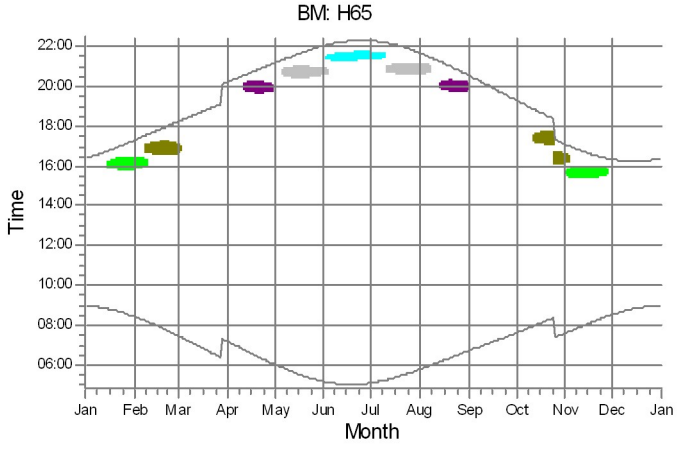
BK: H63



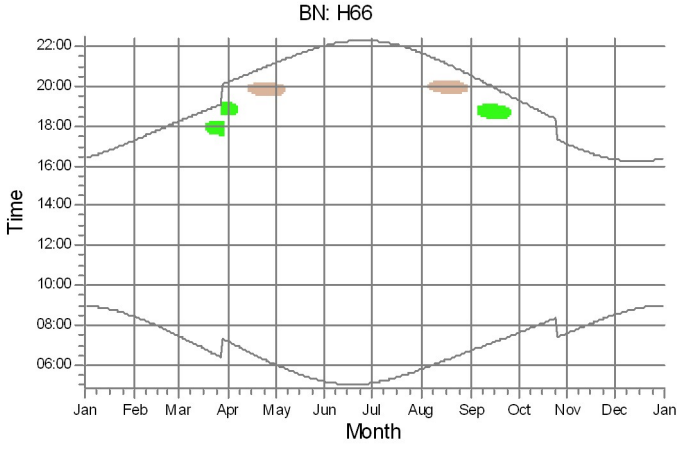
BL: H64



BM: H65



BN: H66



WTGs

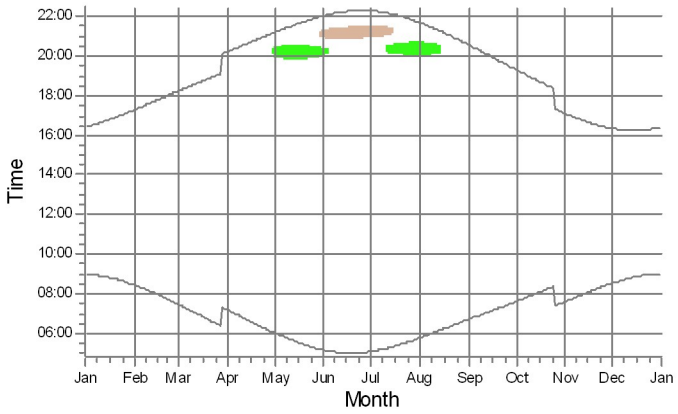
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	10: AT10		12: AT12		14: AT14		17: AT17		

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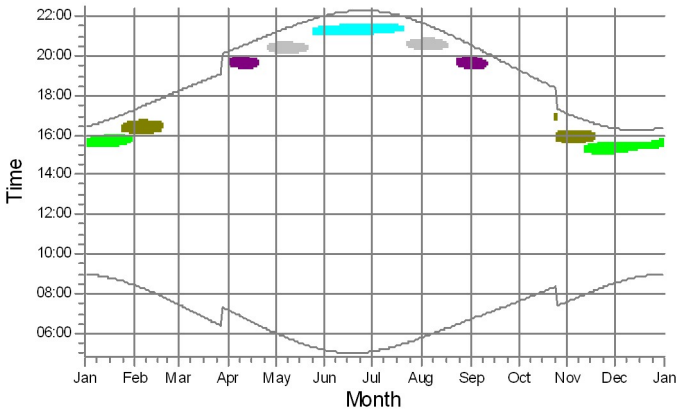
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

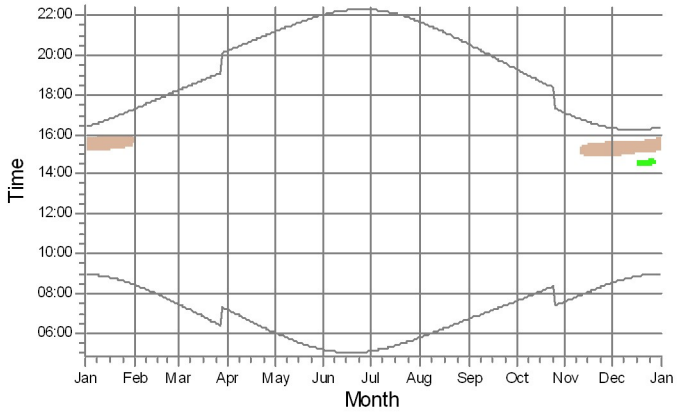
BO: H67



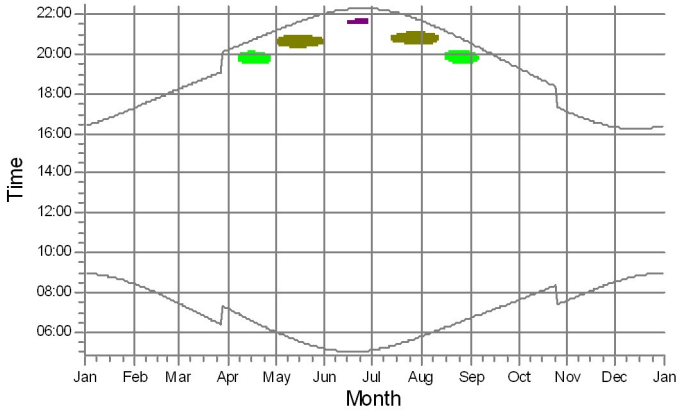
BP: H68



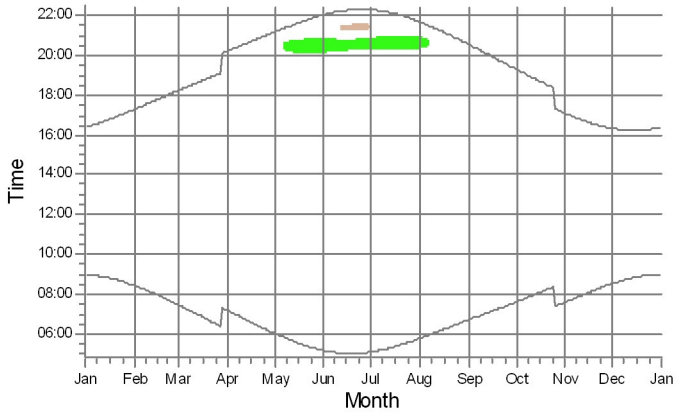
BQ: H69



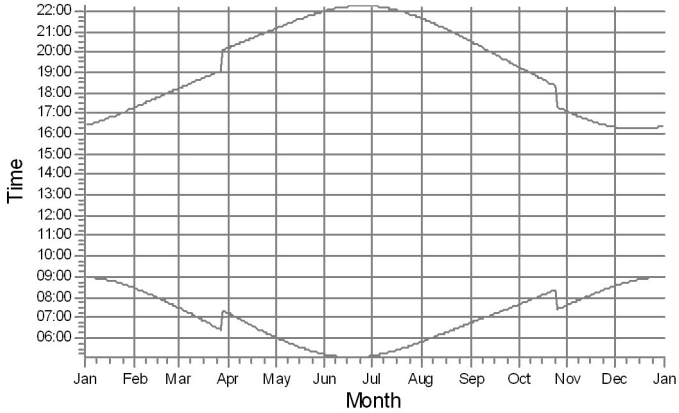
BR: H70



BS: H71



BT: H72



WTGs

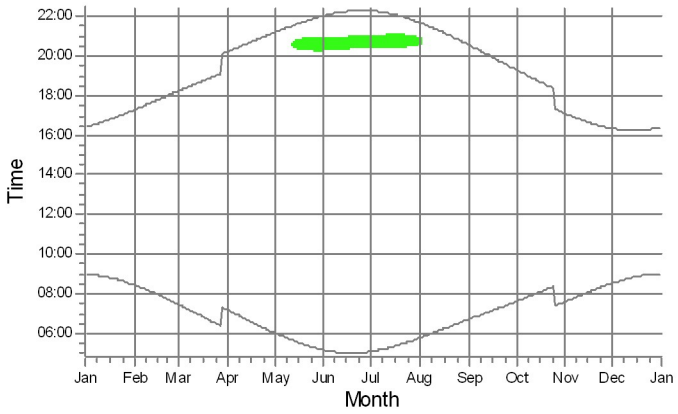
	9: AT09		11: AT11		13: AT13		18: AT18
	10: AT10		12: AT12		17: AT17		

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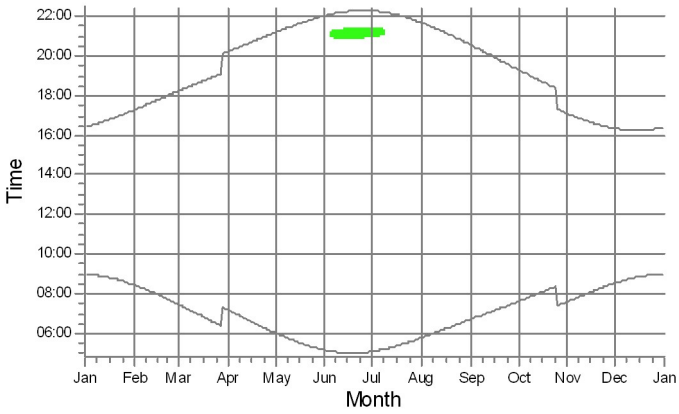
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

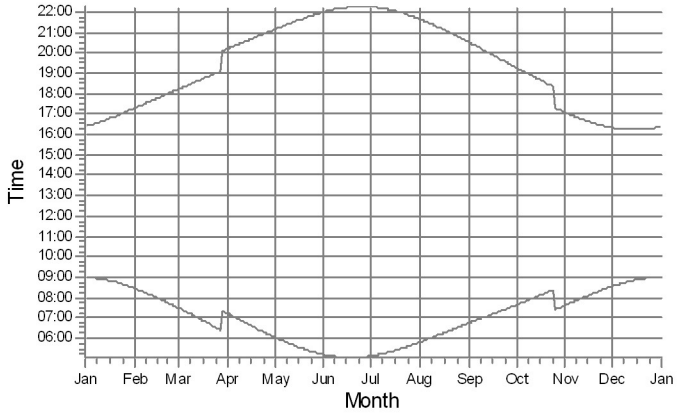
BU: H73



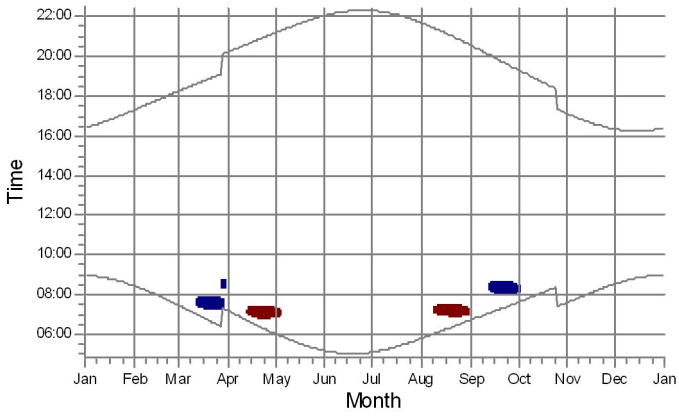
BV: H74



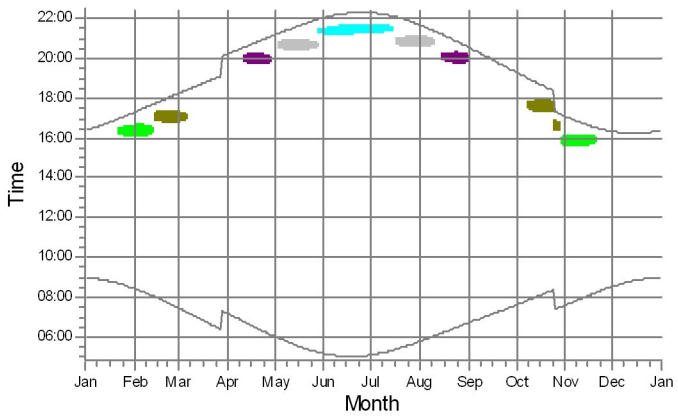
BW: H75



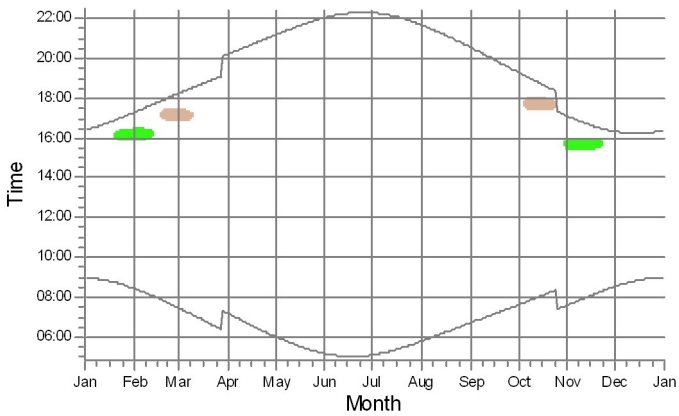
BX: H76



BY: H77



BZ: H78



WTGs

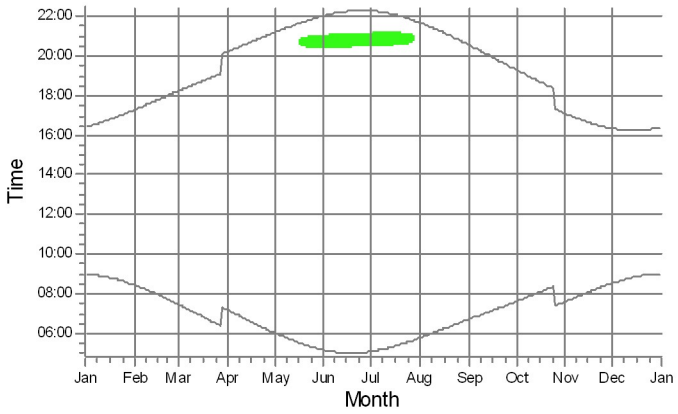
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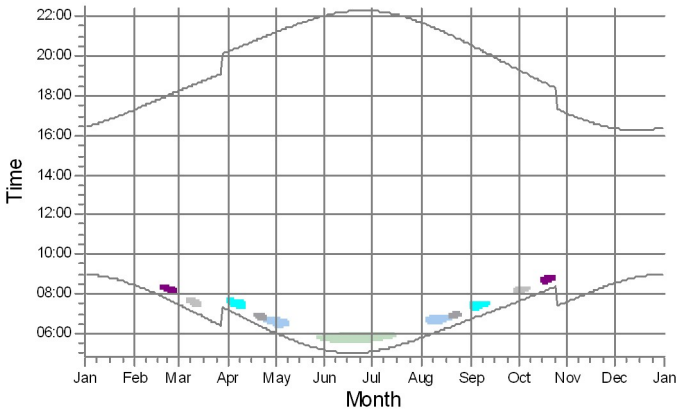
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

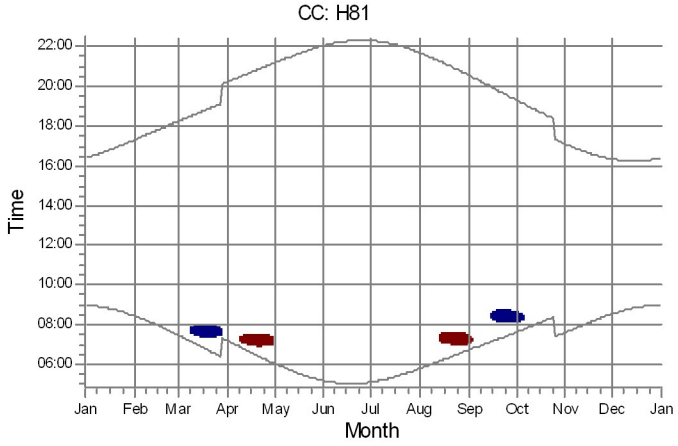
CA: H79



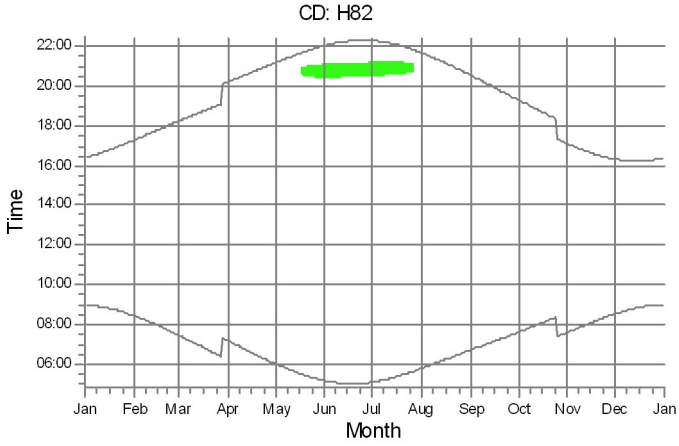
CB: H80



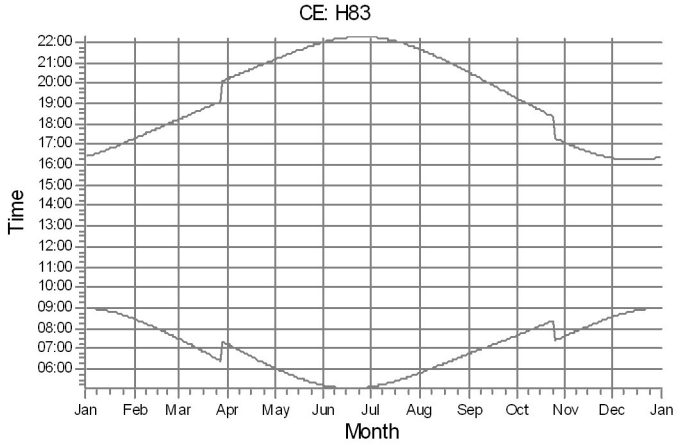
CC: H81



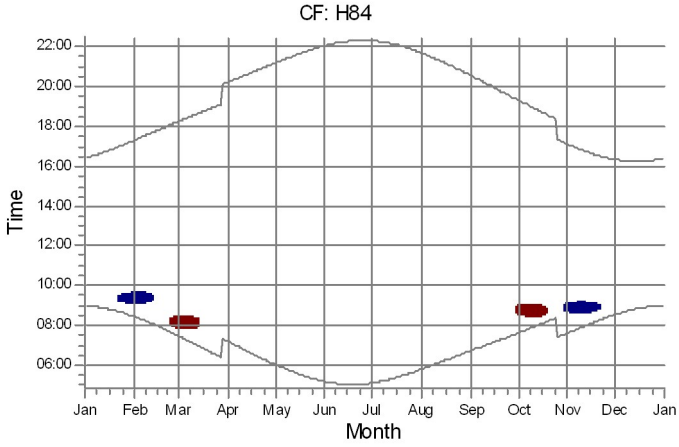
CD: H82



CE: H83



CF: H84



WTGs

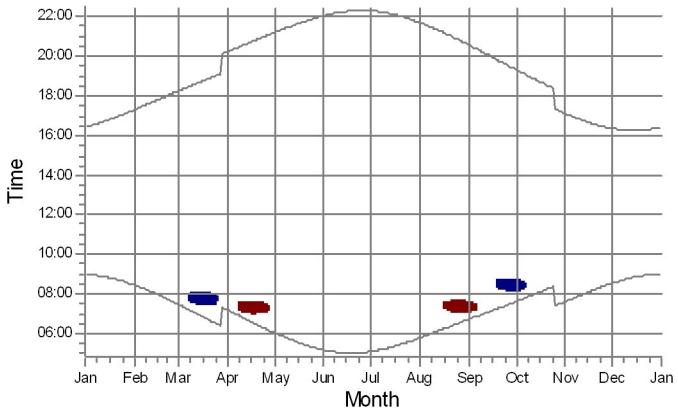
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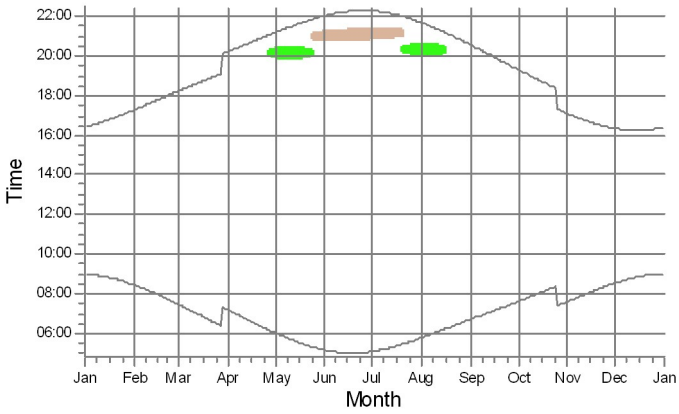
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

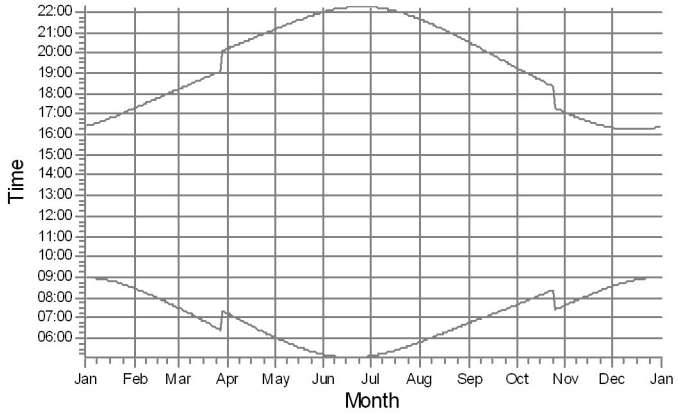
CG: H85



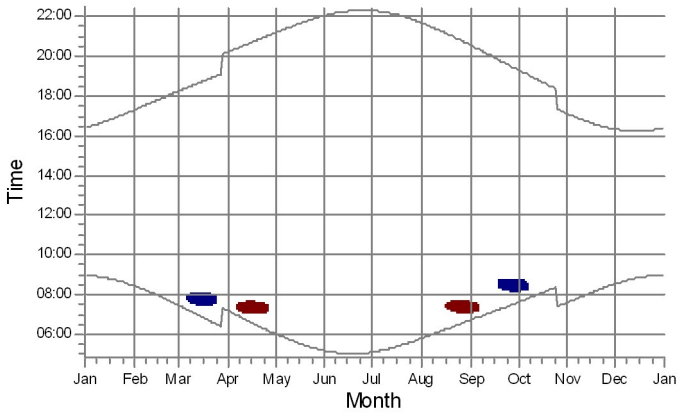
CH: H87



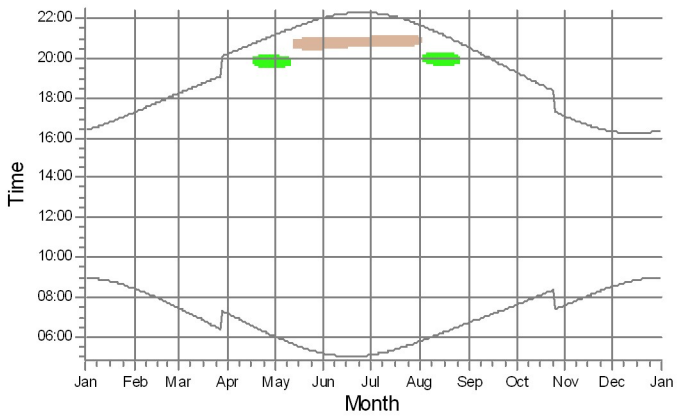
CI: H88



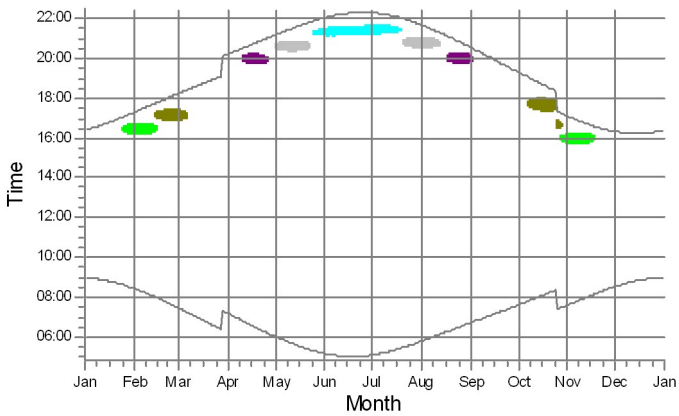
CJ: H89



CK: H90



CL: H91



WTGs

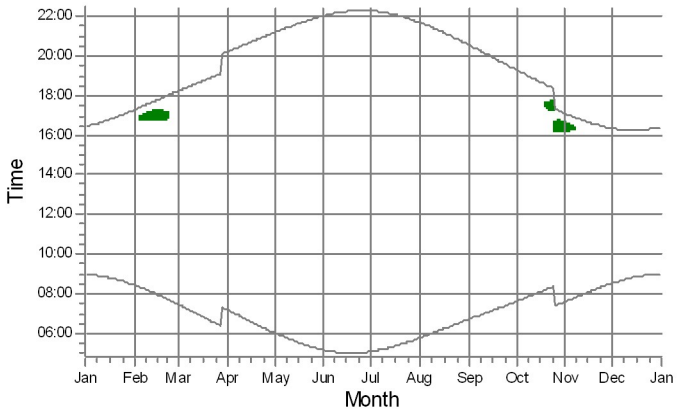
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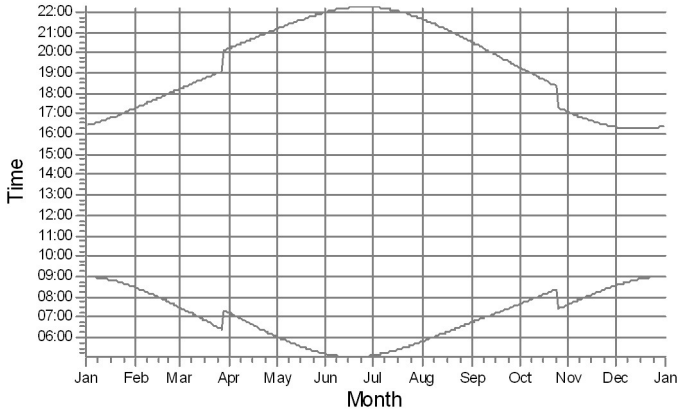
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

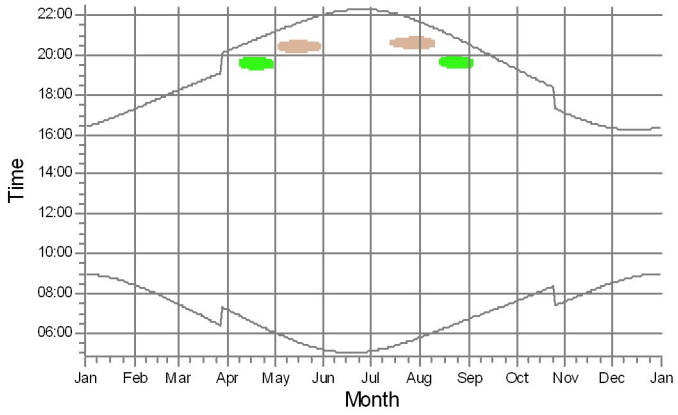
CM: H92



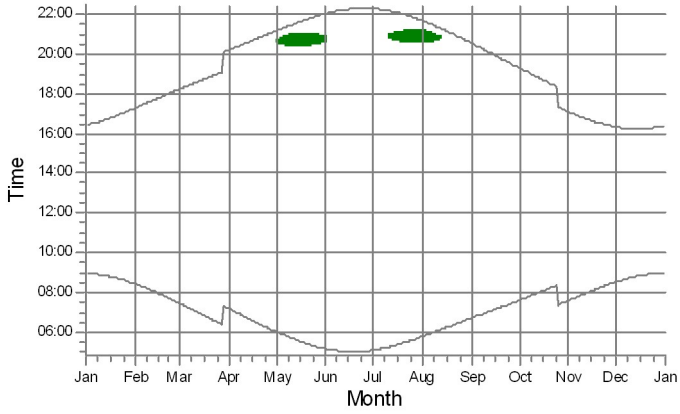
CN: H93



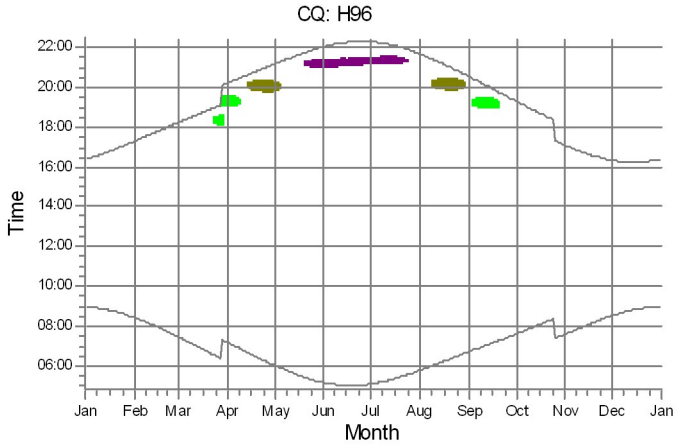
CO: H94



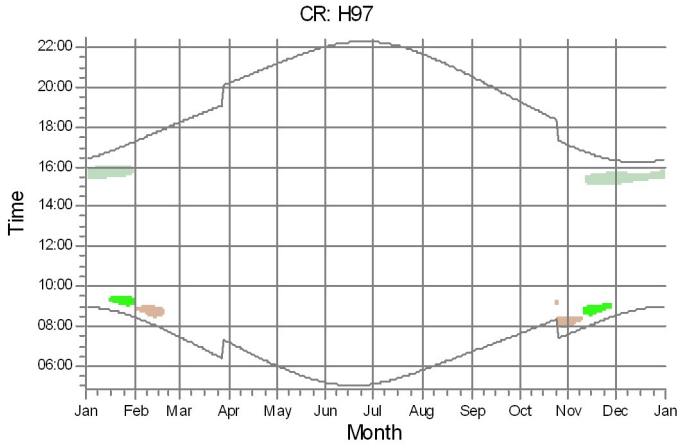
CP: H95



CQ: H96



CR: H97



WTGs

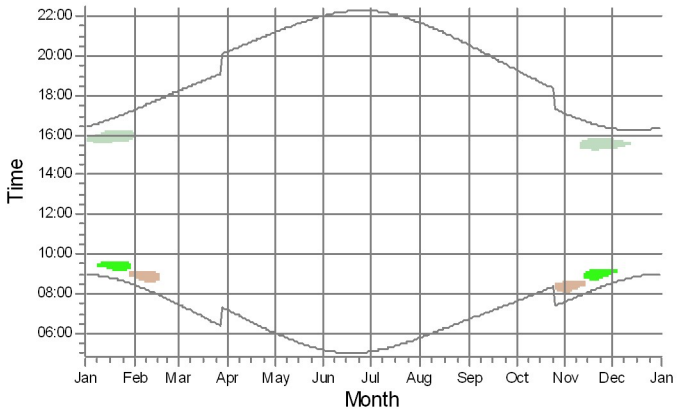
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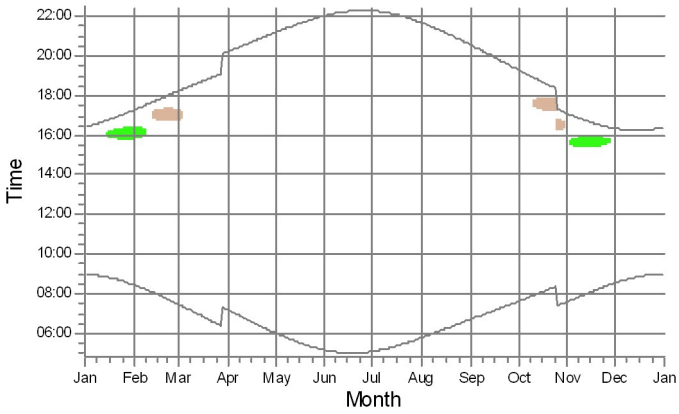
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

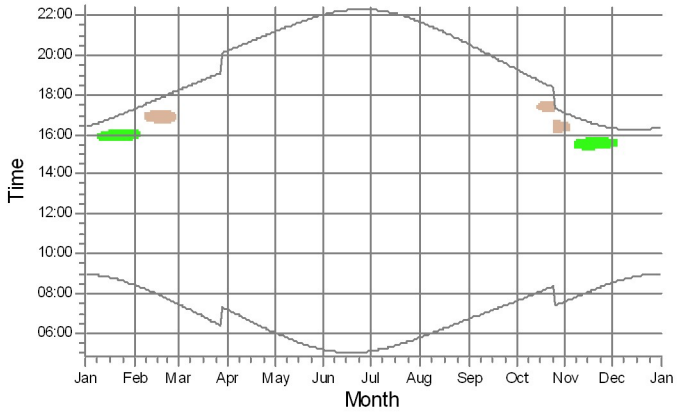
CS: H98



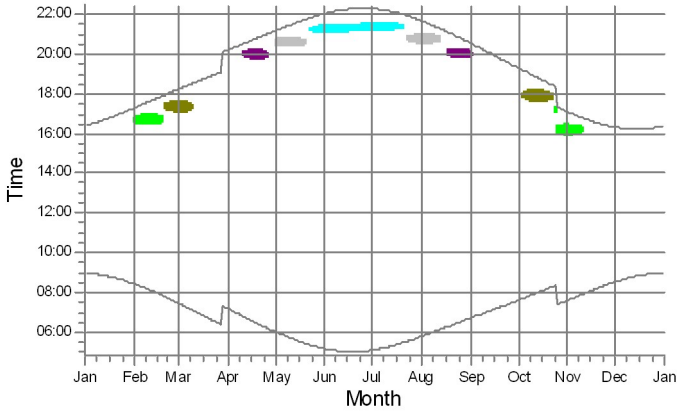
CT: H99



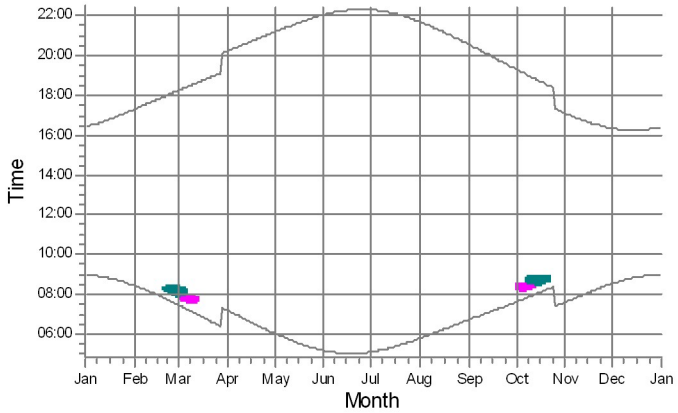
CU: H100



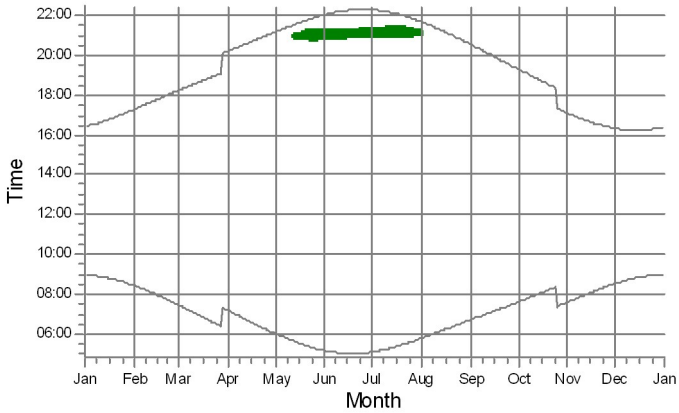
CV: H101



CW: H102



CX: H103



WTGs

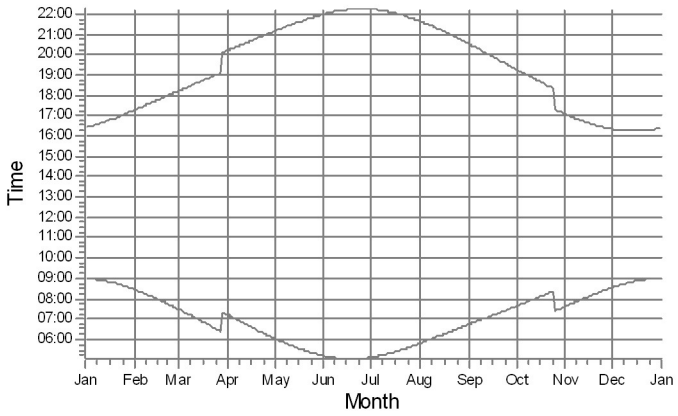
1: AT01	9: AT09	12: AT12	17: AT17
5: AT05	10: AT10	13: AT13	18: AT18
6: AT06	11: AT11	14: AT14	

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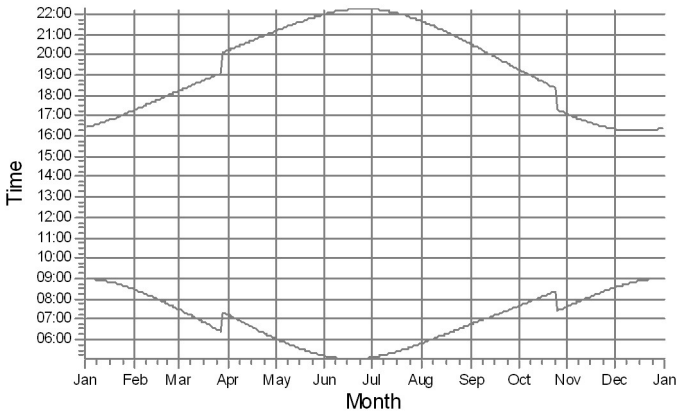
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

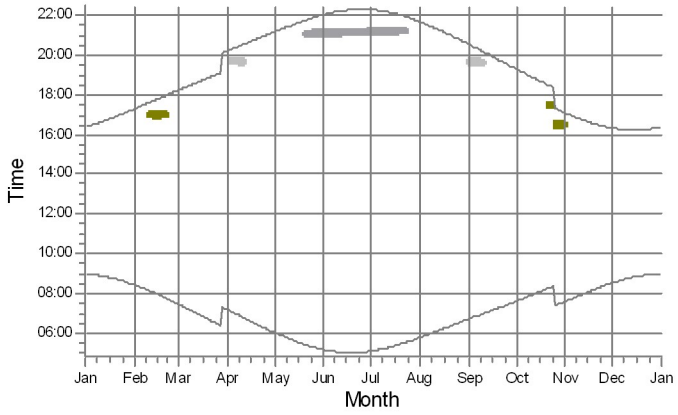
CY: H104



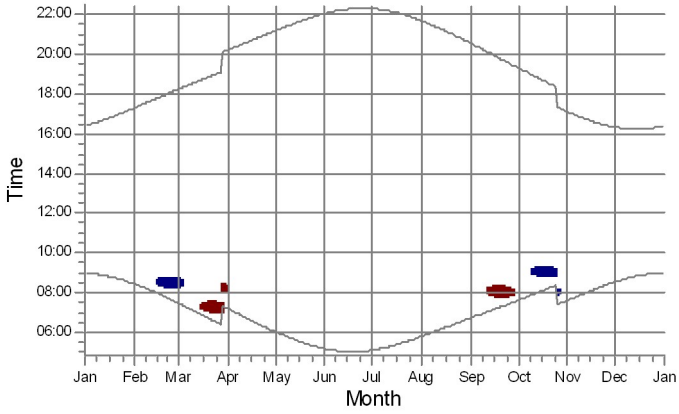
CZ: H105



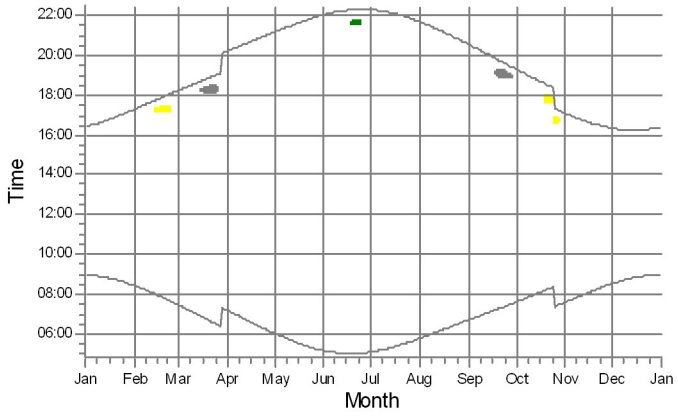
DA: H106



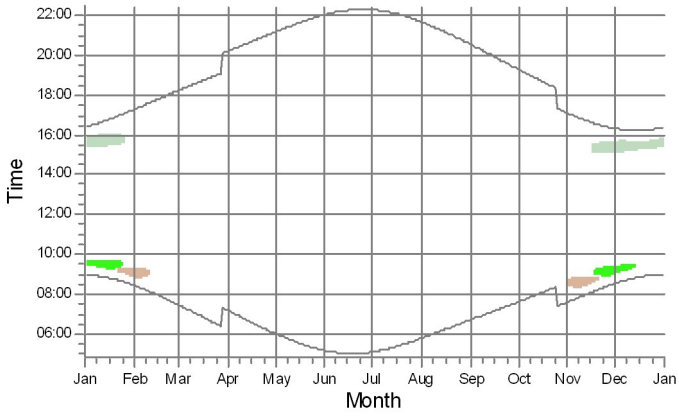
DB: H109



DC: H110



DD: H111



WTGs

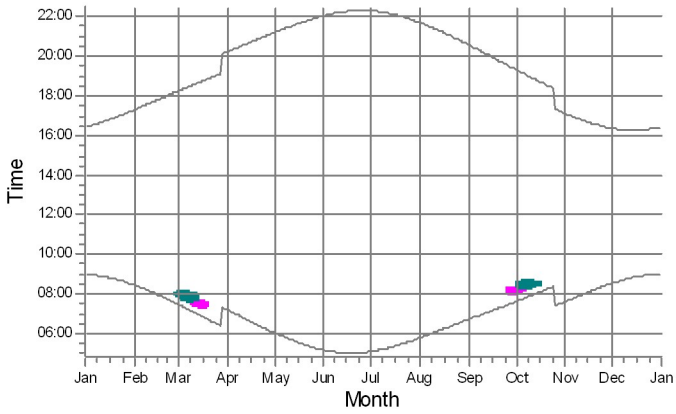
	1: AT01		7: AT07		12: AT12		17: AT17
	2: AT02		8: AT08		14: AT14		18: AT18
	4: AT04		10: AT10		16: AT16		

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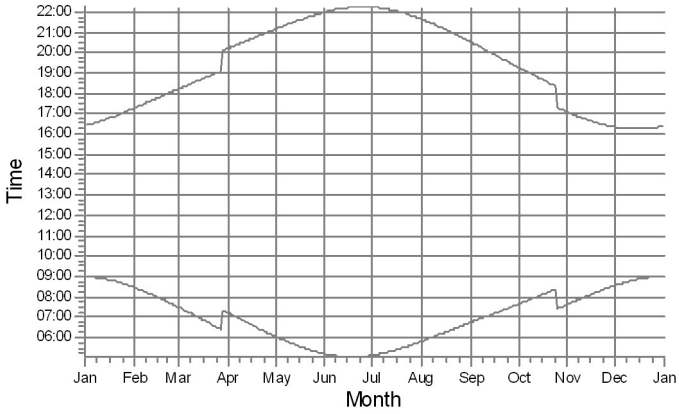
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

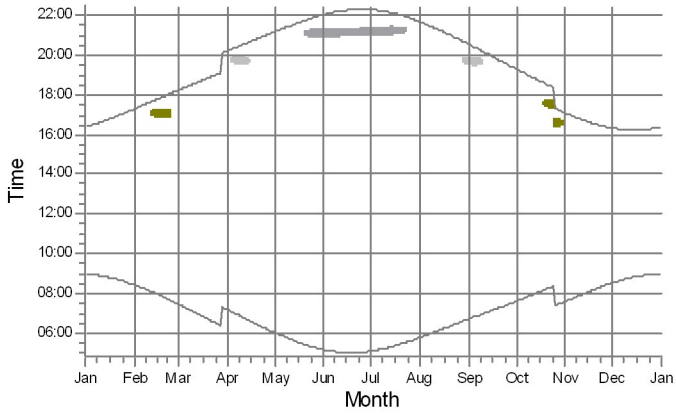
DE: H112



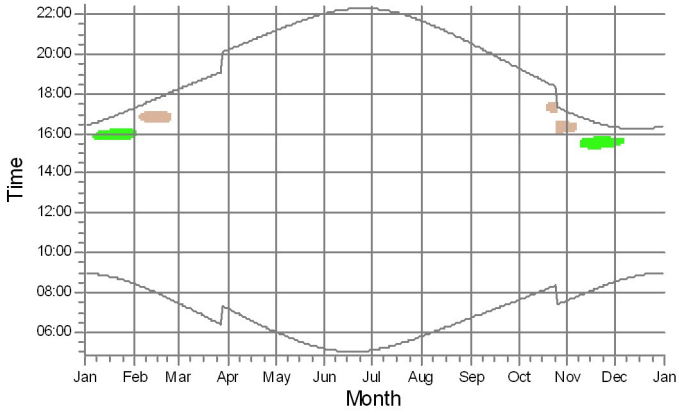
DF: H113



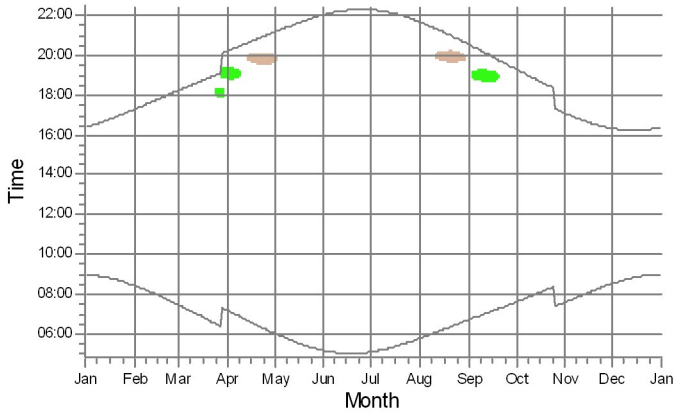
DG: H114



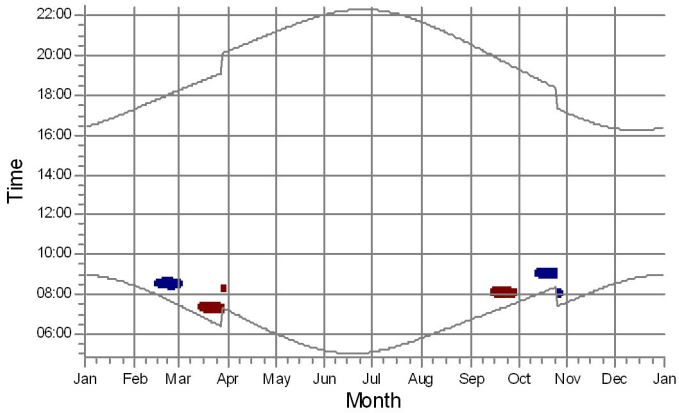
DH: H115



DI: H116



DJ: H117



WTGs

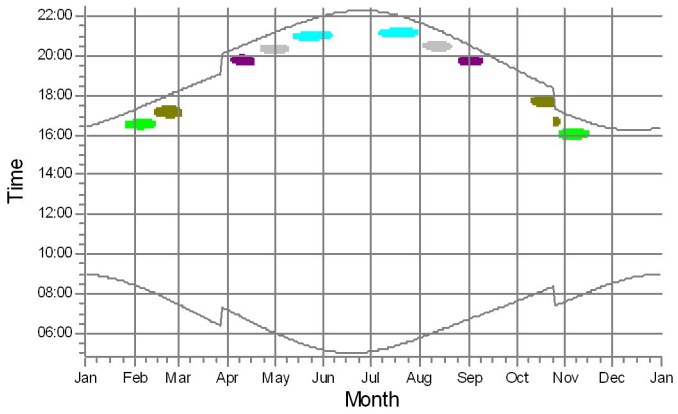
	5: AT05		7: AT07		10: AT10		16: AT16		18: AT18
	6: AT06		8: AT08		12: AT12		17: AT17		

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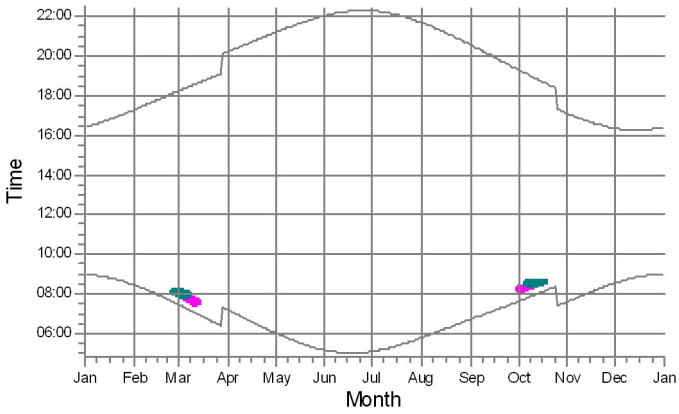
SHADOW - Calendar, graphical

Calculation: Tirawley Shadow Flicker Worst Case

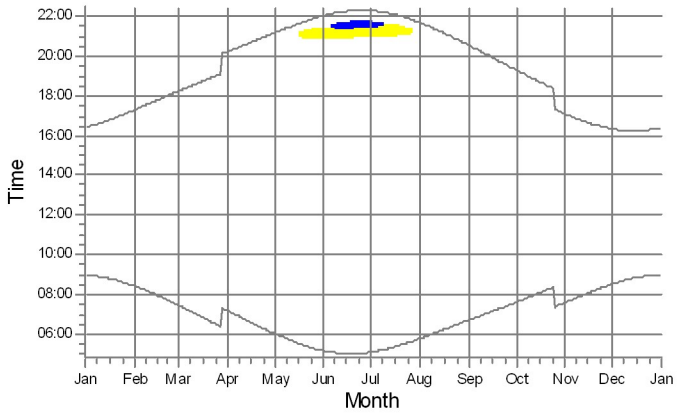
DK: H119



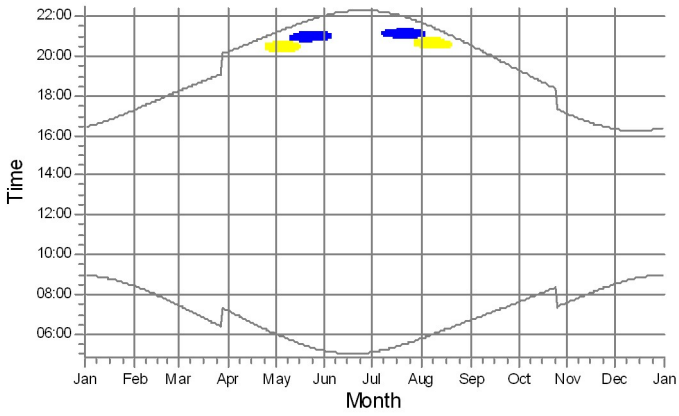
DL: H121



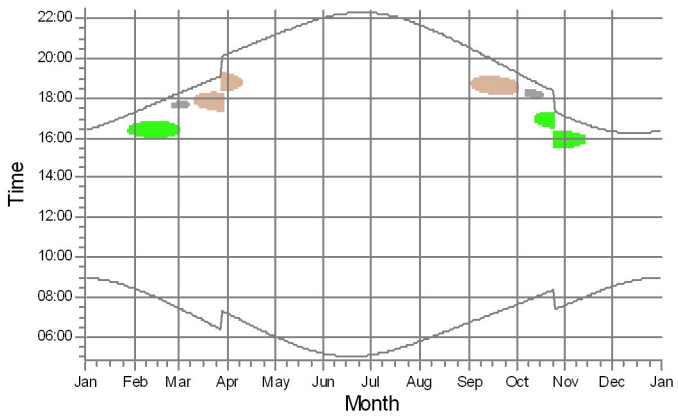
DM: H122



DN: H123



DO: H284



WTGs

	2: AT02		6: AT06		11: AT11		16: AT16
	3: AT03		9: AT09		12: AT12		17: AT17
	5: AT05		10: AT10		13: AT13		18: AT18

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 1 - AT01

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 15:17-15:45/28 16:24	08:27 15:57-16:17/20 17:16	07:29 18:13	07:12 08:04-08:21/17 20:12	06:02 20:07-20:38/31 21:09	05:12 20:06-21:15/69 22:00
2	08:58 15:18-15:47/29 16:25	08:25 16:00-16:16/16 17:18	07:26 18:15	07:10 08:09-08:16/7 20:14	06:00 20:06-20:40/34 21:11	05:11 20:06-21:14/68 22:01
3	08:58 15:18-15:48/30 16:26	08:24 16:03-16:14/11 17:20	07:24 18:17	07:08 20:16	05:58 20:05-20:41/36 21:12	05:10 20:07-21:14/67 22:02
4	08:58 15:19-15:49/30 16:27	08:22 17:22	07:22 18:19	07:05 20:18	05:56 20:04-20:43/39 21:14	05:09 20:08-21:15/67 22:03
5	08:57 15:19-15:50/31 16:29	08:20 16:51-16:53/2 17:24	07:19 18:21	07:03 07:27-07:29/2 20:20	05:54 20:04-20:46/42 21:16	05:08 20:49-21:14/25 22:04 20:08-20:48/40
6	08:57 15:20-15:52/32 16:30	08:18 16:50-16:55/5 17:26	07:17 18:23	07:00 07:24-07:28/4 20:22	05:52 20:03-20:47/44 21:18	05:08 20:49-21:14/25 22:06 20:08-20:48/40
7	08:56 15:21-15:54/33 16:31	08:16 16:49-16:58/9 17:28	07:14 18:25	06:58 07:22-07:27/5 20:24	05:50 20:02-20:49/47 21:20	05:07 20:50-21:14/24 22:07 20:09-20:48/39
8	08:56 15:21-15:55/34 16:33	08:14 16:47-16:59/12 17:30	07:12 18:27	06:55 07:20-07:26/6 20:26	05:48 20:02-20:50/48 21:22	05:06 20:50-21:14/24 22:08 20:10-20:48/38
9	08:55 15:21-15:56/35 16:34	08:12 16:46-17:01/15 17:32	07:09 18:29	06:53 07:17-07:23/6 20:27	05:46 20:01-20:52/51 21:23	05:06 20:51-21:14/23 22:08 20:11-20:48/37
10	08:55 15:23-15:59/36 16:36	08:10 16:46-17:04/18 17:34	07:07 18:30	06:50 20:29	05:44 20:02-20:54/52 21:25	05:05 20:51-21:15/24 22:09 20:11-20:48/37
11	08:54 15:23-16:01/38 16:37	08:08 16:46-17:06/20 17:36	07:05 07:29-07:30/1 18:32	06:48 20:31	05:42 20:01-20:55/54 21:27	05:05 20:51-21:14/23 22:10 20:11-20:48/37
12	08:53 15:24-16:02/38 16:39	08:06 16:46-17:08/22 17:39	07:02 07:26-07:32/6 18:34	06:46 20:33	05:41 20:00-20:57/57 21:29	05:04 20:52-21:14/22 22:11 20:12-20:48/36
13	08:52 15:25-16:04/39 16:41	08:04 16:46-17:11/25 17:41	07:00 07:24-07:33/9 18:36	06:43 20:35	05:39 20:01-20:59/58 21:31	05:04 20:52-21:15/23 22:12 20:13-20:48/35
14	08:51 15:25-16:05/40 16:42	08:02 16:46-17:12/26 17:43	06:57 07:21-07:34/13 18:38	06:41 20:37	05:37 20:01-21:00/59 21:32	05:04 20:53-21:15/22 22:12 20:14-20:48/34
15	08:50 15:26-16:07/41 16:44	08:00 16:46-17:11/25 17:45	06:55 07:19-07:35/16 18:40	06:38 20:39	05:35 20:00-21:01/61 21:34	05:03 20:53-21:14/21 22:13 20:13-20:47/34
16	08:49 15:27-16:10/43 16:46	07:58 16:46-17:10/24 17:47	06:52 07:16-07:35/19 18:42	06:36 20:41	05:34 20:01-21:03/62 21:36	05:03 20:53-21:14/21 22:13 20:14-20:47/33
17	08:48 15:28-16:12/44 16:47	07:56 16:47-17:10/23 17:49	06:50 07:14-07:36/22 18:44	06:34 20:43	05:32 20:00-21:04/64 21:37	05:03 20:53-21:14/21 22:14 20:14-20:47/33
18	08:47 15:30-16:14/44 16:49	07:54 16:48-17:09/21 17:51	06:47 07:11-07:36/25 18:46	06:31 20:44	05:30 20:01-21:06/65 21:39	05:03 20:54-21:14/20 22:14 20:14-20:47/33
19	08:46 15:31-16:15/44 16:51	07:51 16:49-17:08/19 17:53	06:45 07:09-07:36/27 18:48	06:29 20:46	05:29 20:01-21:08/67 21:41	05:03 21:37-21:38/1 20:15-20:48/33 22:15 20:54-21:14/20
20	08:45 15:33-16:18/45 16:53	07:49 16:51-17:06/15 17:55	06:42 07:06-07:36/30 18:50	06:27 20:48	05:27 20:01-21:09/68 21:42	05:03 21:38-21:39/1 20:16-20:49/33 22:15 20:55-21:15/20
21	08:44 15:34-16:19/45 16:55	07:47 16:53-17:04/11 17:57	06:40 07:04-07:36/32 18:52	06:24 20:50	05:26 20:02-21:11/69 21:44	05:03 21:38-21:39/1 20:16-20:49/33 22:15 20:55-21:15/20
22	08:42 15:49-16:21/32 16:57 15:38-15:47/9	07:45 17:59	06:37 07:01-07:35/34 18:53	06:22 20:52	05:24 20:02-21:12/70 21:46	05:03 21:38-21:39/1 20:16-20:49/33 22:16 20:55-21:15/20
23	08:41 15:49-16:21/32 16:58	07:43 18:01	06:35 06:59-07:35/36 18:55	06:20 20:54	05:23 20:02-21:13/71 21:47	05:04 21:38-21:39/1 20:16-20:49/33 22:16 20:55-21:15/20
24	08:40 15:50-16:22/32 17:00	07:40 18:03	06:32 06:56-07:34/38 18:57	06:18 20:24-20:27/3 20:56	05:21 20:02-21:14/72 21:49	05:04 20:56-21:16/20 22:16 20:16-20:49/33
25	08:38 15:51-16:21/30 17:02	07:38 18:05	06:30 06:54-07:33/39 18:59	06:15 20:19-20:28/9 20:58	05:20 20:03-21:14/71 21:50	05:04 20:56-21:16/20 22:16 20:16-20:49/33
26	08:37 15:51-16:21/30 17:04	07:36 18:07	06:27 06:51-07:32/41 19:01	06:13 20:16-20:30/14 20:59	05:19 20:03-21:15/72 21:52	05:05 20:55-21:16/21 22:16 20:16-20:49/33
27	08:35 15:52-16:21/29 17:06	07:33 18:09	06:25 06:49-07:31/42 19:03	06:11 20:13-20:31/18 21:01	05:17 20:04-21:15/71 21:53	05:05 20:56-21:17/21 22:16 20:16-20:50/34
28	08:34 15:53-16:21/28 17:08	07:31 18:11	06:22 06:46-07:29/43 19:05	06:09 20:11-20:33/22 21:03	05:16 20:04-21:15/71 21:54	05:06 20:55-21:17/22 22:16 20:16-20:50/34
29	08:32 15:54-16:20/26 17:10		07:20 07:45-08:28/43 20:07	06:07 20:09-20:35/26 21:05	05:15 20:05-21:15/70 21:56	05:06 20:56-21:18/22 22:15 20:16-20:51/35
30	08:30 15:55-16:19/24 17:12		07:17 07:46-08:26/40 20:09	06:04 20:08-20:36/28 21:07	05:14 20:05-21:15/70 21:57	05:07 20:56-21:18/22 22:15 20:16-20:52/36
31	08:29 15:56-16:18/22 17:14		07:15 08:02-08:24/22 20:10 07:48-07:58/10		05:13 20:06-21:15/69 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	1073	339	588	167	1815	1751

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 1 - AT01

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 20:55-21:18/23 22:15 20:16-20:52/36	05:48 20:11-21:06/55 21:39	06:44 20:31	07:38 08:05-08:12/7 19:16	07:37 16:16-16:33/17 17:05	08:33 15:06-15:43/37 16:19
2	05:08 20:56-21:19/23 22:14 20:16-20:52/36	05:50 20:11-21:05/54 21:37	06:46 20:28	07:40 08:07-08:10/3 19:14	07:39 16:16-16:30/14 17:02	08:35 15:05-15:41/36 16:18
3	05:09 20:56-21:19/23 22:14 20:16-20:53/37	05:52 20:11-21:03/52 21:35	06:47 07:15-07:21/6 20:26	07:42 19:11	07:41 16:17-16:28/11 17:00	08:36 15:05-15:41/36 16:18
4	05:10 20:56-21:20/24 22:13 20:16-20:54/38	05:54 20:12-21:01/49 21:33	06:49 07:17-07:23/6 20:24	07:44 19:09	07:43 16:18-16:27/9 16:59	08:38 15:06-15:40/34 16:17
5	05:11 20:55-21:20/25 22:13 20:15-20:53/38	05:55 20:12-21:00/48 21:31	06:51 07:18-07:23/5 20:21	07:45 19:06	07:45 16:19-16:25/6 16:57	08:39 15:06-15:39/33 16:16
6	05:12 20:55-21:20/25 22:12 20:15-20:54/39	05:57 20:12-20:57/45 21:29	06:53 07:20-07:24/4 20:19	07:47 19:04	07:47 16:21-16:22/1 16:55	08:41 15:06-15:39/33 16:16
7	05:13 20:15-21:21/66 22:12	05:59 20:13-20:56/43 21:27	06:55 07:22-07:24/2 20:16	07:49 19:01	07:49 16:53	08:42 15:06-15:38/32 16:15
8	05:14 20:15-21:21/66 22:11	06:01 20:14-20:55/41 21:25	06:56 20:14	07:51 18:59	07:51 15:32-15:44/12 16:51	08:43 15:07-15:38/31 16:15
9	05:15 20:14-21:21/67 22:10	06:02 20:13-20:52/39 21:23	06:58 20:11	07:53 18:56	07:53 15:30-15:46/16 16:49	08:45 15:07-15:37/30 16:15
10	05:16 20:14-21:22/68 22:09	06:04 20:14-20:50/36 21:21	07:00 08:03-08:08/5 20:09	07:55 18:54	07:55 15:29-15:49/20 16:47	08:46 15:07-15:36/29 16:14
11	05:17 20:14-21:22/68 22:08	06:06 20:16-20:49/33 21:19	07:02 07:58-08:13/15 20:06	07:57 18:52	07:57 15:27-15:50/23 16:46	08:47 15:07-15:35/28 16:14
12	05:18 20:13-21:22/69 22:07	06:08 20:16-20:46/30 21:17	07:04 07:55-08:16/21 20:04 07:41-07:50/9	07:59 18:49	07:59 15:26-15:51/25 16:44	08:48 15:09-15:36/27 16:14
13	05:20 20:14-21:23/69 22:06	06:09 20:17-20:44/27 21:15	07:05 07:52-08:17/25 20:01 07:37-07:51/14	08:00 18:47	08:01 15:25-15:52/27 16:42	08:49 15:09-15:36/27 16:14
14	05:21 20:14-21:23/69 22:05	06:11 20:18-20:43/25 21:13	07:07 07:35-08:18/43 19:59	08:02 18:44	08:03 15:25-15:52/27 16:41	08:50 15:09-15:35/26 16:14
15	05:22 20:13-21:23/70 22:04	06:13 20:19-20:40/21 21:10	07:09 07:36-08:20/44 19:56	08:04 18:42	08:05 15:24-15:53/29 16:39	08:51 15:10-15:35/25 16:14
16	05:24 20:13-21:23/70 22:03	06:15 20:21-20:38/17 21:08	07:11 07:38-08:21/43 19:54	08:06 18:40	08:07 15:24-15:54/30 16:37	08:52 15:10-15:35/25 16:14
17	05:25 20:13-21:23/70 22:02	06:17 20:23-20:36/13 21:06	07:13 07:39-08:20/41 19:51	08:08 18:37	08:09 15:24-15:54/30 16:36	08:53 15:10-15:35/25 16:14
18	05:26 20:13-21:24/71 22:00	06:18 20:25-20:34/9 21:04	07:14 07:41-08:21/40 19:49	08:10 18:35	08:11 15:24-15:56/32 16:34	08:54 15:11-15:35/24 16:14
19	05:28 20:12-21:24/72 21:59	06:20 20:31-20:32/1 21:01	07:16 07:43-08:21/38 19:46	08:12 18:33	08:12 15:24-15:56/32 16:33	08:54 15:12-15:36/24 16:14
20	05:29 20:12-21:23/71 21:58	06:22 20:59	07:18 07:45-08:21/36 19:44	08:14 17:27-17:32/5 18:31	08:14 15:24-15:56/32 16:31 15:13-15:22/9	08:55 15:12-15:36/24 16:15
21	05:31 20:12-21:23/71 21:56	06:24 20:57	07:20 07:46-08:21/35 19:41	08:16 17:23-17:35/12 18:28	08:16 15:10-15:56/46 16:30	08:56 15:12-15:36/24 16:15
22	05:32 20:11-21:21/70 21:55	06:26 20:55	07:22 07:48-08:20/32 19:39	08:18 17:20-17:37/17 18:26	08:18 15:09-15:54/45 16:29	08:56 15:13-15:37/24 16:16
23	05:34 20:12-21:20/68 21:54	06:27 20:52	07:23 07:50-08:20/30 19:36	08:20 17:19-17:38/19 18:24	08:20 15:08-15:53/45 16:28	08:57 15:13-15:37/24 16:16
24	05:35 20:11-21:19/68 21:52	06:29 20:50	07:25 07:52-08:20/28 19:34	08:22 17:17-17:39/22 18:22	08:22 15:07-15:51/44 16:26	08:57 15:13-15:37/24 16:17
25	05:37 20:12-21:18/66 21:50	06:31 20:48	07:27 07:54-08:19/25 19:31	07:24 16:16-16:40/24 17:19	08:23 15:07-15:50/43 16:25	08:58 15:15-15:39/24 16:17
26	05:38 20:11-21:16/65 21:49	06:33 20:45	07:29 07:55-08:18/23 19:29	07:26 16:16-16:40/24 17:17	08:25 15:06-15:49/43 16:24	08:58 15:15-15:39/24 16:18
27	05:40 20:12-21:15/63 21:47	06:35 20:43	07:31 07:57-08:17/20 19:26	07:28 16:15-16:40/25 17:15	08:27 15:05-15:47/42 16:23	08:58 15:15-15:40/25 16:19
28	05:42 20:11-21:13/62 21:46	06:37 20:41	07:33 07:59-08:16/17 19:24	07:29 16:16-16:41/25 17:13	08:28 15:05-15:45/40 16:22	08:58 15:16-15:41/25 16:20
29	05:43 20:11-21:12/61 21:44	06:38 20:38	07:34 08:01-08:15/14 19:21	07:31 16:15-16:40/25 17:11	08:30 15:05-15:45/40 16:21	08:58 15:16-15:42/26 16:21
30	05:45 20:11-21:10/59 21:42	06:40 20:36	07:36 08:03-08:14/11 19:19	07:33 16:15-16:37/22 17:09	08:32 15:05-15:44/39 16:20	08:58 15:17-15:43/26 16:22
31	05:47 20:11-21:08/57 21:40	06:42 20:33		07:35 16:15-16:35/20 17:07		08:58 15:17-15:44/27 16:23
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	2043	638	632	250	829	859

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 2 - AT02

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 16:24	08:27 15:58-16:43/45 17:16	07:29 17:00-17:38/38 18:13	07:13 20:12	06:02 20:16-20:38/22 21:09	05:12 20:54-21:20/26 22:00
2	08:58 16:25	08:25 15:58-16:46/48 17:18	07:26 16:59-17:37/38 18:15	07:10 20:14	06:00 20:15-20:39/24 21:11	05:11 20:54-21:20/26 22:01
3	08:58 16:26	08:24 15:58-16:48/50 17:20	07:24 16:59-17:37/38 18:17	07:08 20:16	05:58 20:15-20:39/24 21:12	05:10 20:55-21:21/26 22:02
4	08:58 16:28	08:22 15:58-16:48/50 17:22	07:22 16:59-17:36/37 18:19	07:05 20:18	05:56 20:16-20:40/24 21:14	05:09 20:55-21:20/25 22:03
5	08:57 16:29	08:20 15:57-16:48/51 17:24	07:19 16:59-17:36/37 18:21	07:03 20:20	05:54 20:15-20:40/25 21:16	05:08 20:55-21:20/25 22:04
6	08:57 16:30	08:18 15:57-16:48/51 17:26	07:17 16:59-17:35/36 18:23	07:00 20:22	05:52 20:15-20:40/25 21:18	05:08 20:56-21:21/25 22:06
7	08:56 16:32	08:16 15:57-16:48/51 17:28	07:14 17:00-17:34/34 18:25	06:58 20:24	05:50 20:15-20:39/24 21:20	05:07 20:55-21:21/26 22:07
8	08:56 16:33	08:14 15:57-16:46/49 17:30	07:12 17:00-17:33/33 18:27	06:55 20:26	05:48 20:15-20:38/23 21:22	05:06 20:56-21:21/25 22:07
9	08:55 16:34	08:12 15:57-16:46/49 17:32	07:10 17:02-17:32/30 18:29	06:53 20:27	05:46 20:16-20:38/22 21:23	05:06 20:56-21:21/25 22:08
10	08:55 16:36	08:10 15:57-16:45/48 17:35	07:07 17:03-17:30/27 18:31	06:50 20:29	05:44 20:17-20:38/21 21:25	05:05 20:56-21:21/25 22:09
11	08:54 16:38	08:08 15:58-16:44/46 17:37	07:05 17:05-17:28/23 18:32	06:48 20:31	05:42 20:18-20:36/18 21:27	05:05 20:56-21:21/25 22:10
12	08:53 16:39	08:06 15:58-16:43/45 17:39	07:02 17:06-17:25/19 18:34	06:46 20:33	05:41 20:18-20:35/17 21:29	05:04 20:57-21:21/24 22:11
13	08:52 16:41	08:04 15:59-16:43/44 17:41	07:00 17:10-17:22/12 18:36	06:43 20:35	05:39 20:20-20:34/14 21:31	05:04 20:57-21:21/24 22:12
14	08:51 16:42	08:02 15:59-16:43/44 17:43	06:57 18:38	06:41 20:37	05:37 20:22-20:32/10 21:32	05:04 20:58-21:22/24 22:12
15	08:50 16:44	08:00 17:11-17:15/4 17:45 15:59-16:42/43	06:55 18:40	06:38 20:39	05:35 20:24-20:29/5 21:34	05:03 20:58-21:22/24 22:13
16	08:49 16:46	07:58 17:10-17:17/7 17:47 16:00-16:41/41	06:52 18:42	06:36 20:41	05:34 21:36	05:03 20:58-21:21/23 22:13
17	08:48 16:48	07:56 17:10-17:20/10 17:49 16:01-16:41/40	06:50 18:44	06:34 20:43	05:32 21:02-21:04/2 21:37	05:03 20:58-21:21/23 22:14
18	08:47 16:49	07:54 17:10-17:22/12 17:51 16:03-16:40/37	06:47 18:46	06:31 20:44	05:30 21:00-21:06/6 21:39	05:03 20:58-21:22/24 22:14
19	08:46 16:10-16:16/6 16:51	07:51 17:08-17:24/16 17:53 16:03-16:38/35	06:45 18:48	06:29 20:46	05:29 20:59-21:08/9 21:41	05:03 20:59-21:23/24 22:15
20	08:45 16:08-16:18/10 16:53	07:49 17:06-17:26/20 17:55 16:05-16:37/32	06:42 18:50	06:27 20:48	05:27 20:57-21:09/12 21:42	05:03 20:59-21:23/24 22:15
21	08:44 16:06-16:20/14 16:55	07:47 17:05-17:29/24 17:57 16:07-16:36/29	06:40 18:52	06:24 20:50	05:26 20:56-21:11/15 21:44	05:03 20:59-21:23/24 22:15
22	08:42 16:05-16:22/17 16:57	07:45 17:03-17:30/27 17:59 16:08-16:33/25	06:37 18:53	06:22 20:52	05:24 20:56-21:12/16 21:46	05:04 20:59-21:23/24 22:16
23	08:41 16:03-16:24/21 16:59	07:43 17:03-17:33/30 18:01 16:12-16:30/18	06:35 18:55	06:20 20:54	05:23 20:55-21:13/18 21:47	05:04 20:59-21:23/24 22:16
24	08:40 16:03-16:27/24 17:00	07:40 17:02-17:35/33 18:03 16:17-16:26/9	06:32 18:57	06:18 20:56	05:21 20:55-21:14/19 21:49	05:04 21:00-21:24/24 22:16
25	08:38 16:02-16:28/26 17:02	07:38 17:01-17:37/36 18:05	06:30 18:59	06:15 20:25-20:28/3 20:58	05:20 20:55-21:16/21 21:50	05:04 21:00-21:23/23 22:16
26	08:37 16:01-16:30/29 17:04	07:36 17:00-17:37/37 18:07	06:27 19:01	06:13 20:22-20:30/8 20:59	05:19 20:54-21:17/23 21:52	05:05 21:01-21:24/23 22:16
27	08:35 16:01-16:33/32 17:06	07:33 16:59-17:37/38 18:09	06:25 19:03	06:11 20:20-20:31/11 21:01	05:17 20:54-21:19/25 21:53	05:05 21:00-21:24/24 22:16
28	08:34 16:00-16:35/35 17:08	07:31 16:59-17:38/39 18:11	06:22 19:05	06:09 20:18-20:33/15 21:03	05:16 20:54-21:19/25 21:54	05:06 21:01-21:25/24 22:16
29	08:32 15:59-16:37/38 17:10		07:20 20:07	06:07 20:17-20:35/18 21:05	05:15 20:54-21:19/25 21:56	05:06 21:00-21:25/25 22:15
30	08:30 15:59-16:39/40 17:12		07:18 20:09	06:04 20:16-20:36/20 21:07	05:14 20:54-21:20/26 21:57	05:07 21:01-21:25/24 22:15
31	08:29 15:58-16:41/43 17:14		07:15 20:10		05:13 20:54-21:20/26 21:58	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	335	1313	402	75	566	732

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 2 - AT02

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 21:00-21:25/25 22:15	05:48 20:28-20:46/18 21:39	06:44 20:31	07:38 17:48-18:04/16 19:16	07:37 15:27-16:15/48 17:05	08:33 16:19
2	05:08 21:01-21:25/24 22:14	05:50 20:28-20:47/19 21:37	06:46 20:28	07:40 17:44-18:05/21 19:14	07:39 15:26-16:15/49 17:03	08:35 16:19
3	05:09 21:01-21:26/25 22:14	05:52 20:27-20:48/21 21:35	06:47 20:26	07:42 17:41-18:07/26 19:11	07:41 15:26-16:16/50 17:01	08:36 16:18
4	05:10 21:01-21:26/25 22:13	05:54 20:26-20:48/22 21:33	06:49 20:24	07:44 17:40-18:08/28 19:09	07:43 15:27-16:17/50 16:59	08:38 16:17
5	05:11 21:02-21:27/25 22:13	05:55 20:26-20:49/23 21:31	06:51 20:21	07:45 17:38-18:09/31 19:06	07:45 15:27-16:18/51 16:57	08:39 16:17
6	05:12 21:01-21:26/25 22:12	05:57 20:25-20:49/24 21:29	06:53 20:19	07:47 17:37-18:10/33 19:04	07:47 15:27-16:18/51 16:55	08:41 16:16
7	05:13 21:01-21:27/26 22:11	05:59 20:25-20:49/24 21:27	06:55 20:16	07:49 17:36-18:11/35 19:01	07:49 15:27-16:18/51 16:53	08:42 16:15
8	05:14 21:01-21:27/26 22:11	06:01 20:25-20:49/24 21:25	06:56 20:14	07:51 17:35-18:11/36 18:59	07:51 15:28-16:18/50 16:51	08:43 16:15
9	05:15 21:01-21:27/26 22:10	06:02 20:24-20:49/25 21:23	06:58 20:11	07:53 17:34-18:11/37 18:57	07:53 15:28-16:16/48 16:49	08:45 16:15
10	05:16 21:01-21:27/26 22:09	06:04 20:24-20:49/25 21:21	07:00 20:09	07:55 17:34-18:11/37 18:54	07:55 15:29-16:15/46 16:47	08:46 16:14
11	05:17 21:01-21:27/26 22:08	06:06 20:25-20:49/24 21:19	07:02 20:06	07:57 17:33-18:11/38 18:52	07:57 15:30-16:13/43 16:46	08:47 16:14
12	05:19 21:03-21:28/25 22:07	06:08 20:24-20:46/22 21:17	07:04 20:04	07:59 17:33-18:11/38 18:49	07:59 15:30-16:11/41 16:44	08:48 16:14
13	05:20 21:03-21:28/25 22:06	06:10 20:25-20:44/19 21:15	07:05 20:01	08:00 17:33-18:11/38 18:47	08:01 15:31-16:09/38 16:42	08:49 16:14
14	05:21 21:03-21:28/25 22:05	06:11 20:26-20:43/17 21:13	07:07 19:59	08:02 17:33-18:11/38 18:45	08:03 15:32-16:07/35 16:41	08:50 16:14
15	05:22 21:03-21:28/25 22:04	06:13 20:26-20:40/14 21:10	07:09 19:56	08:04 17:33-18:10/37 18:42	08:05 15:33-16:05/32 16:39	08:51 16:14
16	05:24 21:03-21:28/25 22:03	06:15 20:27-20:38/11 21:08	07:11 19:54	08:06 17:33-18:09/36 18:40	08:07 15:34-16:03/29 16:37	08:52 16:14
17	05:25 21:04-21:28/24 22:02	06:17 20:29-20:36/7 21:06	07:13 19:51	08:08 17:33-18:08/35 18:38	08:09 15:35-16:01/26 16:36	08:53 16:14
18	05:26 21:04-21:26/22 22:00	06:19 20:31-20:34/3 21:04	07:14 19:49	08:10 17:34-18:05/31 18:35 16:46-16:59/13	08:11 15:37-16:01/24 16:34	08:54 16:14
19	05:28 21:04-21:25/21 21:59	06:20 21:01	07:16 19:46	08:12 17:34-18:03/29 18:33 16:42-17:03/21	08:12 15:38-15:59/21 16:33	08:54 14:37-14:39/2 16:14
20	05:29 21:05-21:24/19 21:58	06:22 20:59	07:18 19:44	08:14 17:35-18:01/26 18:31 16:39-17:05/26	08:14 15:40-15:57/17 16:32	08:55 14:36-14:40/4 16:15
21	05:31 21:06-21:23/17 21:56	06:24 20:57	07:20 19:41	08:16 17:36-17:58/22 18:28 16:37-17:06/29	08:16 15:42-15:56/14 16:30	08:56 14:37-14:41/4 16:15
22	05:32 21:06-21:21/15 21:55	06:26 20:55	07:22 19:39	08:18 17:37-17:56/19 18:26 16:35-17:08/33	08:18 15:44-15:54/10 16:29	08:56 14:37-14:41/4 16:16
23	05:34 21:07-21:20/13 21:54	06:28 20:52	07:23 19:36	08:20 17:39-17:53/14 18:24 16:33-17:09/36	08:20 15:47-15:53/6 16:28	08:57 14:38-14:42/4 16:16
24	05:35 21:08-21:18/10 21:52	06:29 20:50	07:25 19:34	08:22 17:40-17:51/11 18:22 16:32-17:10/38	08:22 16:26	08:57 14:39-14:41/2 16:17
25	05:37 21:10-21:18/8 21:50	06:31 20:48	07:27 19:31	07:24 16:40-16:48/8 17:19 15:30-16:10/40	08:23 16:25	08:58 16:17
26	05:39 21:11-21:16/5 21:49	06:33 20:45	07:29 19:29	07:26 16:40-16:46/6 17:17 15:29-16:11/42	08:25 16:24	08:58 16:18
27	05:40 21:47	06:35 20:43	07:31 19:26	07:28 16:41-16:44/3 17:15 15:29-16:11/42	08:27 16:23	08:58 16:19
28	05:42 21:46	06:37 20:41	07:33 19:24	07:29 15:29-16:13/44 17:13	08:28 16:22	08:58 16:20
29	05:43 20:34-20:42/8 21:44	06:38 20:38	07:34 19:21	07:31 15:28-16:13/45 17:11	08:30 16:21	08:58 16:21
30	05:45 20:31-20:44/13 21:42	06:40 20:36	07:36 17:52-18:00/8 19:19	07:33 15:28-16:13/45 17:09	08:32 16:20	08:58 16:22
31	05:47 20:30-20:45/15 21:40	06:42 20:33		07:35 15:27-16:14/47 17:07		08:58 16:23
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	594	342	8	1230	830	20

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 3 - AT03

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 09:44-10:01/17 15:04-15:26/22	08:27 15:44-16:05/21	07:29 17:13-17:38/25	07:13 19:02-19:37/35	06:02	05:12 20:52-21:04/12
	16:24 15:32-15:45/13	17:16 16:33-16:43/10	18:13	20:12 18:32-18:53/21	21:09	22:00
2	08:58 09:45-10:01/16 15:05-15:27/22	08:25 15:47-16:04/17	07:26 17:13-17:37/24	07:10 19:02-19:37/35	06:00	05:11 20:53-21:03/10
	16:25 15:33-15:47/14	17:18 16:34-16:46/12	18:15	20:14 18:36-18:50/14	21:11	22:01
3	08:58 09:46-10:01/15 15:05-15:26/21	08:24 15:50-16:01/11	07:24 17:14-17:36/22	07:08 19:03-19:37/34	05:58	05:10 20:54-21:02/8
	16:26 15:32-15:48/16	17:20 16:35-16:49/14	18:17	20:16	21:12	22:02
4	08:58 09:47-10:01/14 15:06-15:27/21	08:22 16:36-16:50/14	07:22 17:14-17:34/20	07:05 19:02-19:35/33	05:56	05:09 20:56-21:02/6
	16:28 15:33-15:50/17	17:22	18:19	20:18	21:14	22:03
5	08:57 09:48-10:00/12 15:07-15:27/20	08:20 16:37-16:49/12	07:19 17:16-17:33/17	07:03 19:03-19:35/32	05:54	05:08
	16:29 15:32-15:51/19	17:24	18:21	20:20	21:16	22:04
6	08:57 09:50-10:00/10 15:08-15:27/19	08:18 16:38-16:48/10	07:17 17:17-17:31/14	07:00 19:03-19:33/30	05:52	05:08 21:28-21:30/2
	16:30 15:33-15:53/20	17:26	18:23 17:43-17:55/12	20:22	21:18	22:06
7	08:56 09:51-09:59/8 15:09-15:27/18	08:16 16:41-16:46/5	07:14 17:21-17:27/6	06:58 19:04-19:32/28	05:50	05:07 21:27-21:31/4
	16:32 15:33-15:54/21	17:28	18:25 17:40-17:58/18	20:24	21:20	22:07
8	08:56 09:54-09:57/3 15:10-15:26/16	08:14	07:12 17:36-17:59/23	06:55 19:04-19:30/26	05:48	05:06 21:27-21:32/5
	16:33 15:33-15:55/22	17:30	18:27	20:26	21:22	22:08
9	08:55 15:33-15:57/24	08:12	07:10 17:35-18:02/27	06:53 19:06-19:29/23	05:46	05:06 21:26-21:32/6
	16:34 15:11-15:26/15	17:32	18:29	20:27	21:23	22:08
10	08:55 15:34-15:59/25	08:10	07:07 17:32-18:03/31	06:50 19:08-19:27/19	05:44	05:05 21:27-21:33/6
	16:36 15:13-15:26/13	17:35	18:31	20:29	21:25	22:09
11	08:54 15:34-16:01/27	08:08	07:05 17:31-18:05/34	06:48 19:10-19:24/14	05:42 20:52-20:55/3	05:05 21:26-21:33/7
	16:38 15:15-15:25/10	17:37	18:32	20:31	21:27	22:10
12	08:53 15:34-16:03/29	08:06	07:02 17:29-18:07/38	06:46	05:41 20:50-20:56/6	05:04 21:26-21:34/8
	16:39 15:17-15:23/6	17:39	18:34	20:33	21:29	22:11
13	08:52 15:34-16:05/31	08:04	07:00 17:29-18:08/39	06:43	05:39 20:49-20:59/10	05:04 21:26-21:35/9
	16:41	17:41	18:36	20:35	21:31	22:12
14	08:51 15:33-16:05/32	08:02	06:57 17:27-18:08/41	06:41	05:37 20:48-21:00/12	05:04 21:26-21:36/10
	16:42	17:43	18:38	20:37	21:32	22:12
15	08:50 15:33-16:06/33	08:00	06:55 17:27-18:09/42	06:38	05:35 20:47-21:01/14	05:03 21:27-21:37/10
	16:44	17:45	18:40	20:39	21:34	22:13
16	08:49 15:34-16:07/33	07:58	06:52 17:26-18:09/43	06:36	05:34 20:47-21:03/16	05:03 21:26-21:36/10
	16:46	17:47	18:42	20:41	21:36	22:13
17	08:48 15:34-16:08/34	07:56	06:50 17:25-18:10/45	06:34	05:32 20:46-21:04/18	05:03 21:26-21:37/11
	16:48	17:49	18:44	20:43	21:37	22:14
18	08:47 15:34-16:08/34	07:54	06:47 17:24-18:09/45	06:31	05:30 20:47-21:06/19	05:03 21:26-21:37/11
	16:49	17:51	18:46	20:44	21:39	22:14
19	08:46 15:35-16:08/33	07:51 17:22-17:24/2	06:45 17:25-18:09/44	06:29	05:29 20:47-21:08/21	05:03 21:27-21:39/12
	16:51	17:53	18:48	20:46	21:41	22:15
20	08:45 15:35-16:09/34	07:49 17:19-17:26/7	06:42 17:24-18:09/45	06:27	05:27 20:46-21:07/21	05:03 21:27-21:39/12
	16:53	17:55	18:50	20:48	21:42	22:15
21	08:44 15:35-16:09/34	07:47 17:18-17:29/11	06:40 18:18-18:25/7	06:24	05:26 20:47-21:08/21	05:03 21:27-21:39/12
	16:55	17:57	18:52 17:24-18:09/45	20:50	21:44	22:15
22	08:42 15:36-16:09/33	07:45 17:16-17:30/14	06:37 18:14-18:26/12	06:22	05:24 20:47-21:08/21	05:04 21:27-21:39/12
	16:57	17:59	18:53 17:24-18:08/44	20:52	21:46	22:16
23	08:41 15:36-16:09/33	07:43 17:15-17:33/18	06:35 18:12-18:29/17	06:20	05:23 20:46-21:07/21	05:04 21:27-21:39/12
	16:59	18:01	18:55 17:24-18:08/44	20:54	21:47	22:16
24	08:40 15:37-16:10/33	07:40 17:14-17:35/21	06:32 18:09-18:30/21	06:18	05:21 20:47-21:07/20	05:04 21:28-21:39/11
	17:00	18:03	18:57 17:24-18:06/42	20:56	21:49	22:16
25	08:38 15:37-16:09/32	07:38 17:13-17:37/24	06:30 18:08-18:32/24	06:15	05:20 20:48-21:07/19	05:04 21:28-21:39/11
	17:02	18:05	18:59 17:25-18:06/41	20:58	21:50	22:16
26	08:37 15:38-16:09/31	07:36 17:13-17:38/25	06:27 18:06-18:34/28	06:13	05:19 20:48-21:07/19	05:05 21:29-21:40/11
	17:04	18:07	19:01 17:25-18:04/39	20:59	21:52	22:16
27	08:35 15:39-16:09/30	07:33 17:12-17:38/26	06:25 18:06-18:36/30	06:11	05:17 20:49-21:07/18	05:05 21:29-21:39/10
	17:06	18:09	19:03 17:26-18:04/38	21:01	21:53	22:16
28	08:34 15:40-16:09/29	07:31 17:13-17:38/25	06:22 18:04-18:37/33	06:09	05:16 20:49-21:07/18	05:06 21:30-21:39/9
	17:08 16:34-16:35/1	18:11	19:05 17:26-18:02/36	21:03	21:54	22:16
29	08:32 15:41-16:08/27		07:20 19:04-19:38/34	06:07	05:15 20:50-21:06/16	05:06 21:29-21:39/10
	17:10 16:34-16:37/3		20:07 18:28-19:01/33	21:05	21:56	22:15
30	08:31 15:42-16:07/25		07:18 19:03-19:37/34	06:04	05:14 20:51-21:06/15	05:07 21:30-21:39/9
	17:12 16:33-16:39/6		20:09 18:28-18:58/30	21:07	21:57	22:15
31	08:29 15:43-16:06/23		07:15 19:03-19:38/35		05:13 20:51-21:05/14	
	17:14 16:33-16:41/8		20:10 18:31-18:57/26		21:58	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	1157	299	1348	344	342	266

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 3 - AT03

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 21:30-21:38/8 22:15	05:48 21:01-21:06/5 21:39	06:44 19:09-19:23/14 20:31	07:38 18:09-18:48/39 19:16	07:37 17:05	08:33 15:16-15:43/27 16:19 14:57-15:07/10
2	05:08 21:31-21:38/7 22:14	05:50 21:03-21:05/2 21:37	06:46 19:06-19:25/19 20:28	07:40 18:10-18:45/35 19:14	07:39 17:03	08:35 15:16-15:41/25 16:19 14:55-15:08/13
3	05:09 21:32-21:38/6 22:14	05:52 21:35	06:47 19:04-19:27/23 20:26	07:42 18:10-18:42/32 19:11	07:41 17:01	08:36 15:17-15:41/24 16:18 14:55-15:10/15
4	05:10 21:32-21:38/6 22:13	05:54 21:33	06:49 19:02-19:28/26 20:24	07:44 18:11-18:40/29 19:09	07:43 16:10-16:16/6 16:59	08:38 09:39-09:42/3 14:55-15:11/16 16:17 15:18-15:40/22
5	05:11 21:33-21:37/4 22:13	05:55 21:31	06:51 19:00-19:28/28 20:21	07:45 18:12-18:37/25 19:06	07:45 16:08-16:18/10 16:57	08:39 09:36-09:44/8 14:54-15:12/18 16:17 15:18-15:39/21
6	05:12 21:33-21:36/3 22:12	05:57 21:29	06:53 18:59-19:29/30 20:19	07:47 18:14-18:35/21 19:04	07:47 16:06-16:19/13 16:55	08:41 09:36-09:46/10 14:54-15:13/19 16:16 15:19-15:39/20
7	05:13 21:34-21:35/1 22:11	05:59 21:27	06:55 18:58-19:30/32 20:16	07:49 17:55-18:05/10 19:01 18:17-18:32/15	07:49 16:05-16:20/15 16:53	08:42 09:35-09:47/12 14:54-15:14/20 16:15 15:20-15:38/18
8	05:14 21:04-21:07/3 22:11	06:01 21:25	06:56 18:57-19:30/33 20:14	07:51 17:52-18:08/16 18:59 18:22-18:30/8	07:51 15:20-15:32/12 16:51 16:05-16:18/13	08:43 09:35-09:49/14 14:53-15:14/21 16:15 15:20-15:37/17
9	05:15 21:02-21:09/7 22:10	06:02 21:23	06:58 18:56-19:30/34 20:11	07:53 17:50-18:09/19 18:57	07:53 15:17-15:34/17 16:49 16:04-16:16/12	08:45 09:35-09:50/15 14:54-15:15/21 16:15 15:21-15:37/16
10	05:16 21:01-21:10/9 22:09	06:04 21:21	07:00 18:55-19:30/35 20:09 18:30-18:43/13	07:55 17:49-18:10/21 18:54	07:55 15:16-15:37/21 16:47 16:05-16:15/10	08:46 09:34-09:50/16 14:54-15:16/22 16:14 15:22-15:36/14
11	05:17 21:00-21:11/11 22:08	06:06 21:19	07:02 18:55-19:30/35 20:06 18:26-18:46/20	07:57 17:48-18:11/23 18:52	07:57 15:15-15:38/23 16:46 16:05-16:13/8	08:47 09:34-09:51/17 14:54-15:16/22 16:14 15:22-15:36/14
12	05:18 21:00-21:13/13 22:07	06:08 21:17	07:04 18:54-19:29/35 20:04 18:22-18:48/26	07:59 17:47-18:11/24 18:49	07:59 15:13-15:39/26 16:44 16:05-16:11/6	08:48 09:35-09:53/18 14:55-15:18/23 16:14 15:24-15:36/12
13	05:20 20:59-21:14/15 22:06	06:10 21:15	07:05 18:54-19:29/35 20:01 18:20-18:49/29	08:00 17:46-18:11/25 18:47	08:01 15:12-15:40/28 16:42 16:05-16:09/4	08:49 09:35-09:53/18 14:55-15:18/23 16:14 15:24-15:36/12
14	05:21 20:59-21:14/15 22:05	06:11 21:13	07:07 18:54-19:28/34 19:59 18:18-18:51/33	08:02 17:46-18:11/25 18:45	08:03 15:12-15:40/28 16:41 16:06-16:07/1	08:50 09:35-09:54/19 14:55-15:19/24 16:14 15:25-15:36/11
15	05:22 20:58-21:15/17 22:04	06:13 21:10	07:09 18:54-19:28/34 19:56 18:17-18:52/35	08:04 17:45-18:11/26 18:42	08:05 15:11-15:41/30 16:39	08:51 09:36-09:55/19 14:56-15:19/23 16:14 15:26-15:36/10
16	05:24 20:57-21:15/18 22:03	06:15 21:08	07:11 18:54-19:25/31 19:54 18:15-18:53/38	08:06 17:45-18:10/25 18:40	08:07 15:11-15:42/31 16:37	08:52 09:36-09:55/19 14:56-15:20/24 16:14 15:27-15:36/9
17	05:25 20:58-21:17/19 22:02	06:17 21:06	07:13 18:55-19:23/28 19:51 18:13-18:53/40	08:08 17:46-18:08/22 18:38	08:09 15:10-15:42/32 16:36	08:53 09:36-09:55/19 14:56-15:20/24 16:14 15:26-15:35/9
18	05:26 20:57-21:17/20 22:00	06:19 21:04	07:14 18:55-19:20/25 19:49 18:12-18:53/41	08:10 17:46-18:05/19 18:35	08:11 15:11-15:44/33 16:34	08:54 09:36-09:56/20 14:56-15:20/24 16:14 15:27-15:35/8
19	05:28 20:57-21:17/20 21:59	06:20 21:01	07:16 18:56-19:18/22 19:46 18:11-18:54/43	08:12 17:47-18:03/16 18:33	08:12 15:11-15:44/33 16:33	08:54 09:37-09:57/20 14:57-15:21/24 16:14 15:28-15:36/8
20	05:29 20:57-21:18/21 21:58	06:22 20:59	07:18 18:58-19:16/18 19:44 18:11-18:54/43	08:14 17:47-18:01/14 18:31	08:14 15:11-15:44/33 16:32	08:55 09:38-09:58/20 14:57-15:21/24 16:15 15:28-15:35/7
21	05:31 20:57-21:18/21 21:56	06:24 20:57	07:20 18:59-19:12/13 19:41 18:09-18:53/44	08:16 17:49-17:58/9 18:28	08:16 15:11-15:45/34 16:30	08:56 09:37-09:58/21 14:58-15:22/24 16:15 15:29-15:36/7
22	05:32 20:56-21:17/21 21:55	06:26 20:55	07:22 19:01-19:10/9 19:39 18:09-18:53/44	08:18 17:50-17:56/6 18:26	08:18 15:11-15:45/34 16:29	08:56 09:38-09:59/21 14:59-15:23/24 16:16 15:29-15:36/7
23	05:34 20:57-21:18/21 21:54	06:28 20:52	07:23 18:08-18:53/45 19:36	08:20 18:24	08:20 15:12-15:45/33 16:28	08:57 09:39-09:59/20 14:59-15:23/24 16:16 15:30-15:37/7
24	05:35 20:57-21:18/21 21:52	06:29 20:50	07:25 18:08-18:53/45 19:34	08:22 18:22	08:22 15:12-15:46/34 16:26	08:57 09:39-09:59/20 14:59-15:23/24 16:17 15:30-15:38/8
25	05:37 20:57-21:18/21 21:50	06:31 20:48	07:27 18:08-18:53/45 19:31	07:24 17:19	08:23 15:12-15:46/34 16:25	08:58 09:40-10:00/20 15:00-15:24/24 16:17 15:30-15:38/8
26	05:39 20:57-21:16/19 21:49	06:33 20:45	07:29 18:07-18:51/44 19:29	07:26 17:17	08:25 15:13-15:46/33 16:24	08:58 09:40-10:00/20 15:01-15:25/24 16:18 15:31-15:40/9
27	05:40 20:58-21:15/17 21:47	06:35 20:43	07:31 18:07-18:51/44 19:26	07:28 17:15	08:27 15:13-15:45/32 16:23	08:58 09:41-10:00/19 15:01-15:25/24 16:19 15:32-15:40/8
28	05:42 20:58-21:13/15 21:46	06:37 20:41	07:33 18:07-18:50/43 19:24	07:29 17:13	08:28 15:13-15:46/33 16:22	08:58 09:41-10:01/20 15:02-15:25/23 16:20 15:32-15:41/9
29	05:43 20:59-21:12/13 21:44	06:38 20:38	07:34 18:08-18:50/42 19:21	07:31 17:11	08:30 15:14-15:45/31 16:21	08:58 09:42-10:01/19 15:02-15:26/24 16:21 15:32-15:42/10
30	05:45 20:59-21:10/11 21:42	06:40 20:36	07:36 18:08-18:49/41 19:19	07:33 17:09	08:32 15:15-15:44/29 16:20 14:59-15:04/5	08:58 09:43-10:01/18 15:03-15:26/23 16:22 15:32-15:43/11
31	05:47 21:00-21:08/8 21:40	06:42 20:33		07:35 17:07		08:58 09:44-10:02/18 15:04-15:27/23 16:23 15:32-15:44/12
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	411	7	1391	504	777	1554

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 4 - AT04

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27	09:04-09:27/23	07:29	16:41-17:21/40	07:13	19:04-19:23/19	06:02	20:01-20:38/37	05:12	20:05-20:39/34
	16:24		17:16	15:53-16:23/30	18:13		20:12		21:09		22:00	
2	08:58		08:25	09:04-09:26/22	07:26	16:41-17:19/38	07:10	19:06-19:21/15	06:00	20:00-20:40/40	05:11	20:05-20:38/33
	16:25		17:18	15:54-16:22/28	18:15		20:14		21:11		22:01	
3	08:58		08:24	09:06-09:25/19	07:24	16:42-17:18/36	07:08	19:09-19:18/9	05:58	19:59-20:41/42	05:10	20:07-20:39/32
	16:26		17:20	15:55-16:21/26	18:17		20:16		21:13		22:02	
4	08:58		08:22	09:07-09:23/16	07:22	16:42-17:17/35	07:05		05:56	19:59-20:44/45	05:09	20:07-20:38/31
	16:28		17:22	15:56-16:21/25	18:19		20:18		21:14		22:03	
5	08:57		08:20	09:10-09:21/11	07:19	16:44-17:16/32	07:03		05:54	19:59-20:46/47	05:08	20:08-20:37/29
	16:29		17:24	15:58-16:19/21	18:21		20:20		21:16		22:04	
6	08:57		08:18	16:52-16:55/3	07:17	16:45-17:13/28	07:00		05:52	19:58-20:47/49	05:08	20:09-20:37/28
	16:30		17:26	16:00-16:18/18	18:23		20:22		21:18		22:06	
7	08:56	15:52-15:54/2	08:16	16:49-16:58/9	07:14	16:47-17:12/25	06:58		05:50	19:57-20:49/52	05:07	20:10-20:36/26
	16:32		17:28	16:02-16:16/14	18:25		20:24		21:20		22:07	
8	08:56	15:51-15:55/4	08:14	16:46-17:00/14	07:12	16:49-17:09/20	06:55		05:48	19:57-20:49/52	05:06	20:11-20:37/26
	16:33		17:30	16:07-16:11/4	18:27		20:26		21:22		22:08	
9	08:55	15:51-15:57/6	08:12	16:44-17:01/17	07:10	16:53-17:05/12	06:53		05:46	19:56-20:49/53	05:06	20:11-20:36/25
	16:34		17:32		18:29		20:27		21:23		22:08	
10	08:55	15:51-15:59/8	08:10	16:43-17:04/21	07:07		06:50		05:44	19:57-20:50/53	05:05	20:12-20:36/24
	16:36		17:34		18:31		20:29		21:25		22:09	
11	08:54	15:51-16:01/10	08:08	16:42-17:06/24	07:05		06:48		05:42	19:57-20:49/52	05:05	20:12-20:35/23
	16:37		17:37		18:32		20:31		21:27		22:10	
12	08:53	15:50-16:03/13	08:06	16:41-17:08/27	07:02		06:46		05:41	19:56-20:49/53	05:04	20:13-20:35/22
	16:39		17:39		18:34		20:33		21:29		22:11	
13	08:52	15:50-16:04/14	08:04	16:40-17:11/31	07:00		06:43		05:39	19:57-20:49/52	05:04	20:14-20:35/21
	16:41		17:41		18:36		20:35		21:31		22:12	
14	08:51	15:49-16:05/16	08:02	16:40-17:13/33	06:57		06:41		05:37	19:56-20:49/53	05:04	20:15-20:34/19
	16:42		17:43		18:38		20:37		21:32		22:12	
15	08:50	15:49-16:07/18	08:00	16:38-17:15/37	06:55		06:38		05:35	19:56-20:48/52	05:03	20:15-20:33/18
	16:44		17:45		18:40		20:39		21:34		22:13	
16	08:49	09:21-09:22/1	07:58	16:38-17:17/39	06:52	18:14-18:15/1	06:36		05:34	19:57-20:48/51	05:03	20:16-20:33/17
	16:46	15:49-16:10/21	17:47		18:42		20:41		21:36		22:13	
17	08:48	09:20-09:23/3	07:56	16:38-17:20/42	06:50	18:13-18:17/4	06:34		05:32	19:56-20:48/52	05:03	20:16-20:33/17
	16:47	15:49-16:12/23	17:49		18:44		20:43		21:37		22:14	
18	08:47	09:19-09:24/5	07:54	16:38-17:22/44	06:47	18:11-18:19/8	06:31		05:30	19:57-20:48/51	05:03	20:17-20:33/16
	16:49	15:50-16:14/24	17:51		18:46		20:44		21:39		22:14	
19	08:46	09:17-09:25/8	07:51	16:37-17:24/47	06:45	18:09-18:21/12	06:29		05:29	19:58-20:48/50	05:03	20:17-20:33/16
	16:51	15:49-16:16/27	17:53		18:48		20:46		21:41		22:15	
20	08:45	09:16-09:26/10	07:49	16:37-17:26/49	06:42	18:07-18:22/15	06:27		05:27	19:58-20:47/49	05:03	20:19-20:34/15
	16:53	15:49-16:18/29	17:55		18:50		20:48		21:42		22:15	
21	08:44	09:14-09:26/12	07:47	16:37-17:25/48	06:40	18:06-18:25/19	06:24		05:26	19:58-20:46/48	05:03	20:19-20:34/15
	16:55	15:49-16:20/31	17:57		18:52		20:50		21:44		22:15	
22	08:42	09:13-09:27/14	07:45	16:37-17:23/46	06:37	18:04-18:26/22	06:22		05:24	19:59-20:46/47	05:03	20:19-20:34/15
	16:57	15:49-16:22/33	17:59		18:53		20:52		21:46		22:16	
23	08:41	09:11-09:27/16	07:43	16:37-17:23/46	06:35	18:04-18:29/25	06:20	20:21-20:23/2	05:23	19:59-20:45/46	05:04	20:18-20:34/16
	16:58	15:49-16:22/33	18:01		18:55		20:54		21:47		22:16	
24	08:40	09:10-09:28/18	07:40	16:38-17:23/45	06:32	18:02-18:30/28	06:18	20:14-20:26/12	05:21	20:00-20:45/45	05:04	20:19-20:35/16
	17:00	15:50-16:23/33	18:03		18:57		20:56		21:49		22:16	
25	08:38	09:08-09:28/20	07:38	16:38-17:22/44	06:30	18:02-18:30/28	06:15	20:11-20:28/17	05:20	20:00-20:44/44	05:04	20:19-20:35/16
	17:02	15:50-16:23/33	18:05		18:59		20:58		21:50		22:16	
26	08:37	09:06-09:27/21	07:36	16:39-17:22/43	06:27	18:02-18:29/27	06:13	20:09-20:30/21	05:19	20:01-20:43/42	05:05	20:18-20:35/17
	17:04	15:49-16:23/34	18:07		19:01		20:59		21:52		22:16	
27	08:35	09:05-09:28/23	07:33	16:39-17:21/42	06:25	18:02-18:29/27	06:11	20:07-20:32/25	05:17	20:02-20:43/41	05:05	20:18-20:36/18
	17:06	15:50-16:24/34	18:09		19:03		21:01		21:53		22:16	
28	08:34	09:03-09:28/25	07:31	16:40-17:21/41	06:22	18:01-18:28/27	06:09	20:05-20:33/28	05:16	20:02-20:42/40	05:06	20:19-20:37/18
	17:08	15:51-16:23/32	18:11		19:05		21:03		21:54		22:16	
29	08:32	09:01-09:28/27			07:20	19:02-19:28/26	06:07	20:03-20:35/32	05:15	20:03-20:41/38	05:06	20:18-20:37/19
	17:10	15:51-16:23/32			20:07		21:05		21:56		22:15	
30	08:31	09:01-09:27/26			07:18	19:02-19:26/24	06:04	20:02-20:36/34	05:14	20:04-20:40/36	05:07	20:18-20:39/21
	17:12	15:51-16:23/32			20:09		21:07		21:57		22:15	
31	08:29	09:02-09:27/25			07:15	19:03-19:25/22			05:13	20:04-20:39/35		
	17:14	15:52-16:22/30			20:11				21:59			
Potential sun hours	248		272		367		421		496		513	
Sum of minutes with flicker	826		1049		581		214		1447		643	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Finisklin Business Park
F91 RHH9 Sligo
+353719161416
Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 4 - AT04

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 20:17-20:39/22 22:15	05:48 20:06-20:59/53 21:39	06:44 20:31	07:38 19:16	07:37 16:12-16:33/21 17:05	08:33 15:33-15:43/10 16:19
2	05:08 20:17-20:40/23 22:14	05:50 20:07-21:00/53 21:37	06:46 20:28	07:40 19:14	07:39 16:14-16:31/17 17:03	08:35 15:33-15:41/8 16:19
3	05:09 20:17-20:41/24 22:14	05:52 20:07-21:00/53 21:35	06:47 20:26	07:42 19:11	07:41 16:15-16:28/13 17:01 15:35-15:41/6	08:36 15:35-15:41/6 16:18
4	05:10 20:16-20:42/26 22:13	05:54 20:07-20:59/52 21:33	06:49 20:24	07:44 17:34-17:39/5 19:09	07:43 16:19-16:27/8 16:59 15:32-15:46/14	08:38 15:36-15:40/4 16:17
5	05:11 20:16-20:42/26 22:13	05:55 20:07-20:59/52 21:31	06:51 20:21	07:45 17:28-17:44/16 19:06	07:45 08:43-08:47/4 15:29-15:48/19 16:57 16:22-16:25/3	08:39 15:37-15:39/2 16:17
6	05:12 20:15-20:42/27 22:12	05:57 20:07-20:57/50 21:29	06:53 20:19	07:47 17:24-17:47/23 19:04	07:47 08:39-08:51/12 16:55 15:27-15:49/22	08:41 16:16
7	05:13 20:15-20:43/28 22:12	05:59 20:08-20:56/48 21:27	06:55 20:16	07:49 17:22-17:49/27 19:01	07:49 08:37-08:53/16 16:53 15:26-15:50/24	08:42 16:15
8	05:14 20:14-20:44/30 22:11	06:01 20:08-20:54/46 21:25	06:56 20:14	07:51 17:20-17:50/30 18:59	07:51 08:35-08:55/20 16:51 15:25-15:51/26	08:43 16:15
9	05:15 20:14-20:45/31 22:10	06:02 20:08-20:52/44 21:23	06:58 19:03-19:11/8 20:11	07:53 17:18-17:51/33 18:57	07:53 08:35-08:57/22 16:49 15:24-15:52/28	08:45 16:15
10	05:16 20:13-20:45/32 22:09	06:04 20:09-20:50/41 21:21	07:00 19:00-19:14/14 20:09	07:55 17:17-17:52/35 18:54	07:55 08:34-08:58/24 16:47 15:24-15:54/30	08:46 16:14
11	05:17 20:13-20:46/33 22:08	06:06 20:10-20:49/39 21:19	07:02 18:57-19:16/19 20:06	07:57 17:15-17:53/38 18:52	07:57 08:34-08:59/25 16:46 15:24-15:54/30	08:47 16:14
12	05:18 20:13-20:48/35 22:07	06:08 20:10-20:46/36 21:17	07:04 18:55-19:16/21 20:04	07:59 17:14-17:53/39 18:49	07:59 08:33-08:59/26 16:44 15:23-15:55/32	08:48 16:14
13	05:20 20:12-20:48/36 22:06	06:10 20:11-20:44/33 21:15	07:05 18:54-19:17/23 20:01	08:00 17:13-17:54/41 18:47	08:01 08:33-09:00/27 16:42 15:23-15:55/32	08:49 16:14
14	05:21 20:12-20:48/36 22:05	06:11 20:12-20:43/31 21:13	07:07 18:53-19:18/25 19:59	08:02 17:13-17:54/41 18:45	08:03 08:35-09:00/25 16:41 15:23-15:55/32	08:50 16:14
15	05:22 20:11-20:50/39 22:04	06:13 20:12-20:40/28 21:10	07:09 18:52-19:18/26 19:56	08:04 17:11-17:54/43 18:42	08:05 08:37-09:00/23 16:39 15:22-15:55/33	08:51 16:14
16	05:24 20:10-20:51/41 22:03	06:15 20:14-20:38/24 21:08	07:11 18:50-19:18/28 19:54	08:06 17:10-17:54/44 18:40	08:07 08:39-09:00/21 16:37 15:22-15:56/34	08:52 16:14
17	05:25 20:11-20:53/42 22:02	06:17 20:16-20:36/20 21:06	07:13 18:50-19:18/28 19:51	08:08 17:10-17:54/44 18:38	08:09 08:42-09:02/20 16:36 15:22-15:56/34	08:53 16:14
18	05:26 20:10-20:53/43 22:00	06:19 20:17-20:34/17 21:04	07:14 18:50-19:17/27 19:49	08:10 17:09-17:54/45 18:35	08:11 08:44-09:02/18 16:34 15:24-15:57/33	08:54 16:14
19	05:28 20:09-20:54/45 21:59	06:20 20:21-20:32/11 21:01	07:16 18:50-19:17/27 19:46	08:12 17:08-17:54/46 18:33	08:12 08:46-09:02/16 16:33 15:24-15:57/33	08:54 16:14
20	05:29 20:10-20:55/45 21:58	06:22 20:59	07:18 18:50-19:16/26 19:44	08:14 17:08-17:55/47 18:31	08:14 08:48-09:02/14 16:32 15:24-15:57/33	08:55 16:15
21	05:31 20:09-20:56/47 21:56	06:24 20:57	07:20 18:49-19:12/23 19:41	08:16 17:07-17:56/49 18:28	08:16 08:50-09:02/12 16:30 15:25-15:56/31	08:56 16:15
22	05:32 20:08-20:56/48 21:55	06:26 20:55	07:22 18:50-19:10/20 19:39	08:18 17:07-17:56/49 18:26	08:18 08:52-09:02/10 16:29 15:25-15:54/29	08:56 16:16
23	05:34 20:09-20:57/48 21:54	06:28 20:52	07:23 18:51-19:08/17 19:36	08:20 17:07-17:53/46 18:24	08:20 08:54-09:02/8 16:28 15:26-15:53/27	08:57 16:16
24	05:35 20:08-20:57/49 21:52	06:29 20:50	07:25 18:52-19:05/13 19:34	08:22 17:07-17:51/44 18:22	08:22 08:56-09:02/6 16:26 15:27-15:51/24	08:57 16:17
25	05:37 20:08-20:58/50 21:50	06:31 20:48	07:27 18:54-19:03/9 19:31	07:24 16:07-16:48/41 17:19	08:23 08:58-09:01/3 16:25 15:27-15:50/23	08:58 16:17
26	05:39 20:07-20:58/51 21:49	06:33 20:45	07:29 18:54-19:00/6 19:29	07:26 16:07-16:46/39 17:17	08:25 09:00-09:01/1 16:24 15:28-15:49/21	08:58 16:18
27	05:40 20:08-20:59/51 21:47	06:35 20:43	07:31 18:55-18:57/2 19:26	07:28 16:08-16:44/36 17:15	08:27 15:28-15:47/19 16:23	08:58 16:19
28	05:42 20:07-20:59/52 21:46	06:37 20:41	07:33 19:24	07:30 16:09-16:42/33 17:13	08:28 15:29-15:46/17 16:22	08:58 16:20
29	05:43 20:07-21:00/53 21:44	06:38 20:38	07:34 19:21	07:31 16:10-16:40/30 17:11	08:30 15:30-15:45/15 16:21	08:58 16:21
30	05:45 20:07-20:59/52 21:42	06:40 20:36	07:36 19:19	07:33 16:11-16:37/26 17:09	08:32 15:31-15:44/13 16:20	08:58 16:22
31	05:47 20:07-21:00/53 21:40	06:42 20:33	 	07:35 16:11-16:35/24 17:07	 	08:58 16:23
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	1218	731	362	1014	1129	30

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 5 - AT05

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58	08:27 08:56-09:09/13	07:29	07:13 18:53-19:25/32	06:02	05:12
	16:24	17:16	18:13	20:12	21:09	22:00
2	08:58	08:25 08:54-09:09/15	07:26 07:51-07:54/3	07:10 18:55-19:23/28	06:00	05:11
	16:25	17:18	18:15	20:14	21:11	22:01
3	08:58	08:24 08:52-09:08/16	07:24 07:49-07:56/7	07:08 19:01-19:05/4	05:58	05:10
	16:26	17:20	18:17	20:16 19:08-19:21/13	21:13	22:02
4	08:58	08:22 08:50-09:06/16	07:22 07:46-07:55/9	07:05 19:12-19:15/3	05:56	05:09
	16:28	17:22	18:19	20:18	21:14	22:03
5	08:57	08:20 08:48-09:04/16	07:19 07:44-07:56/12	07:03	05:54	05:08
	16:29	17:24	18:21	20:20	21:16	22:05
6	08:57	08:18 08:46-09:00/14	07:17 07:42-07:56/14	07:00	05:52	05:08
	16:30	17:26	18:23	20:22	21:18	22:06
7	08:56	08:16 08:44-09:00/16	07:14 07:39-07:55/16	06:58	05:50	05:07
	16:32	17:28	18:25	20:24	21:20	22:07
8	08:56	08:14 08:42-08:58/16	07:12 07:37-07:55/18	06:55	05:48	05:06
	16:33	17:30	18:27	20:26	21:22	22:08
9	08:55	08:12 08:40-08:57/17	07:10 07:34-07:53/19	06:53	05:46	05:06
	16:34	17:32	18:29 17:58-18:01/3	20:28	21:24	22:09
10	08:55	08:10 08:40-08:55/15	07:07 07:32-07:53/21	06:50	05:44	05:05
	16:36	17:34	18:31 17:56-18:03/7	20:29	21:25	22:09
11	08:54	08:08 08:42-08:54/12	07:05 07:29-07:50/21	06:48	05:42	05:05
	16:37	17:37 17:05-17:06/1	18:32 17:56-18:05/9	20:31	21:27	22:10
12	08:53	08:06 08:45-08:51/6	07:02 07:27-07:47/20	06:46	05:41	05:04
	16:39	17:39 17:05-17:08/3	18:34 17:54-18:07/13	20:33	21:29	22:11
13	08:52	08:04 17:04-17:11/7	07:00 07:24-07:42/18	06:43	05:39	05:04
	16:41	17:41	18:36 17:54-18:09/15	20:35	21:31	22:12
14	08:51	08:02 17:04-17:13/9	06:57 07:22-07:39/17	06:41	05:37	05:04
	16:42	17:43	18:38 17:54-18:11/17	20:37	21:32	22:12
15	08:51	08:00 17:03-17:15/12	06:55 07:20-07:38/18	06:38	05:35	05:03
	16:44	17:45	18:40 17:54-18:13/19	20:39	21:34	22:13
16	08:50	07:58 17:03-17:17/14	06:52 07:22-07:37/15	06:36	05:34	05:03
	16:46	17:47	18:42 17:53-18:15/22	20:41	21:36	22:14
17	08:48	07:56 17:04-17:19/15	06:50 07:23-07:34/11	06:34	05:32	05:03
	16:47	17:49	18:44 17:52-18:17/25	20:43	21:37	22:14
18	08:47	07:54 17:04-17:22/18	06:47 07:27-07:31/4	06:31	05:30	05:03
	16:49	17:51	18:46 17:50-18:19/29	20:44	21:39	22:15
19	08:46	07:52 17:04-17:23/19	06:45 17:50-18:21/31	06:29	05:29	05:03
	16:51	17:53	18:48	20:46	21:41	22:15
20	08:45	07:49 17:04-17:26/22	06:42 17:49-18:22/33	06:27	05:27	05:03
	16:53	17:55	18:50	20:48	21:42	22:15
21	08:44	07:47 17:05-17:28/23	06:40 17:49-18:25/36	06:24	05:26	05:03
	16:55	17:57	18:52	20:50	21:44	22:15
22	08:42	07:45 17:06-17:27/21	06:37 17:48-18:26/38	06:22	05:24	05:03
	16:57	17:59	18:54	20:52	21:46	22:16
23	08:41	07:43 17:07-17:26/19	06:35 17:48-18:29/41	06:20	05:23	05:04
	16:58	18:01	18:55	20:54	21:47	22:16
24	08:40	07:40 17:10-17:25/15	06:32 17:47-18:30/43	06:18	05:21	05:04
	17:00	18:03	18:57	20:56	21:49	22:16
25	08:38	07:38 17:12-17:21/9	06:30 17:48-18:32/44	06:15	05:20	05:04
	17:02	18:05	18:59	20:58	21:50	22:16
26	08:37 09:06-09:08/2	07:36	06:27 17:47-18:31/44	06:13	05:19	05:05
	17:04	18:07	19:01	21:00	21:52	22:16
27	08:35 09:05-09:09/4	07:33	06:25 17:48-18:31/43	06:11	05:17	05:05
	17:06	18:09	19:03	21:01	21:53	22:16
28	08:34 09:03-09:09/6	07:31	06:22 17:48-18:30/42	06:09	05:16	05:06
	17:08	18:11	19:05	21:03	21:55	22:16
29	08:32 09:01-09:09/8		07:20 18:49-19:29/40	06:07	05:15	05:06
	17:10		20:07	21:05	21:56	22:15
30	08:31 08:59-09:09/10		07:18 18:50-19:28/38	06:04	05:14	05:07
	17:12		20:09	21:07	21:57	22:15
31	08:29 08:58-09:10/12		07:15 18:51-19:27/36		05:13	
	17:14		20:11		21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	42	379	911	80	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 5 - AT05

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September		October		November		December
1	05:08	05:48	06:44		07:38	08:05-08:23/18	07:37	08:09-08:25/16	08:33
	22:15	21:39	20:31		19:16	18:34-18:48/14	17:05		16:19
2	05:08	05:50	06:46		07:40	08:07-08:28/21	07:39	08:09-08:26/17	08:35
	22:14	21:37	20:29		19:14	18:34-18:45/11	17:03		16:19
3	05:09	05:52	06:47		07:42	08:09-08:30/21	07:41	08:12-08:28/16	08:36
	22:14	21:35	20:26		19:11	18:34-18:42/8	17:01		16:18
4	05:10	05:54	06:49		07:44	08:10-08:30/20	07:43	08:14-08:29/15	08:38
	22:13	21:33	20:24		19:09	18:35-18:40/5	16:59		16:17
5	05:11	05:55	06:51		07:46	08:12-08:31/19	07:45	08:16-08:30/14	08:39
	22:13	21:31	20:21		19:06	18:36-18:37/1	16:57		16:16
6	05:12	05:57	06:53		07:47	08:14-08:31/17	07:47	08:18-08:34/16	08:41
	22:12	21:29	20:19		19:04		16:55		16:16
7	05:13	05:59	06:55		07:49	08:16-08:31/15	07:49	08:20-08:36/16	08:42
	22:12	21:27	20:16		19:01		16:53		16:15
8	05:14	06:01	06:56		07:51	08:18-08:31/13	07:51	08:22-08:38/16	08:43
	22:11	21:25	20:14		18:59		16:51		16:15
9	05:15	06:02	06:58	19:01-19:14/13	07:53	08:20-08:31/11	07:53	08:25-08:39/14	08:45
	22:10	21:23	20:11		18:57		16:49		16:15
10	05:16	06:04	07:00	18:49-19:16/27	07:55	08:22-08:30/8	07:55	08:27-08:40/13	08:46
	22:09	21:21	20:09		18:54		16:47		16:14
11	05:17	06:06	07:02	18:46-19:18/32	07:57	08:24-08:29/5	07:57	08:29-08:41/12	08:47
	22:08	21:19	20:06		18:52		16:46		16:14
12	05:18	06:08	07:04	18:43-19:18/35	07:59	08:26-08:28/2	07:59	08:31-08:41/10	08:48
	22:07	21:17	20:04		18:49		16:44		16:14
13	05:20	06:09	07:05	18:41-19:19/38	08:01		08:01	08:33-08:41/8	08:49
	22:06	21:15	20:01		18:47		16:42		16:14
14	05:21	06:11	07:07	18:40-19:20/40	08:02		08:03	08:35-08:41/6	08:50
	22:05	21:13	19:59		18:45		16:41		16:14
15	05:22	06:13	07:09	18:39-19:20/41	08:04		08:05	08:37-08:41/4	08:51
	22:04	21:10	19:56		18:42		16:39		16:14
16	05:24	06:15	07:11	18:38-19:19/41	08:06		08:07	08:40-08:42/2	08:52
	22:03	21:08	19:54		18:40		16:37		16:14
17	05:25	06:17	07:13	18:36-19:19/43	08:08	17:43-17:54/11	08:09		08:53
	22:02	21:06	19:51		18:37		16:36		16:14
18	05:26	06:18	07:14	18:35-19:19/44	08:10	17:40-17:56/16	08:11		08:54
	22:01	21:04	19:49		18:35		16:34		16:14
19	05:28	06:20	07:16	18:35-19:18/43	08:12	17:38-17:58/20	08:13		08:55
	21:59	21:02	19:46		18:33		16:33		16:14
20	05:29	06:22	07:18	18:34-19:16/42	08:14	17:37-17:59/22	08:14		08:55
	21:58	20:59	19:44		18:31		16:32		16:15
21	05:31	06:24	07:20	18:33-19:12/39	08:16	17:35-17:58/23	08:16		08:56
	21:57	20:57	19:41		18:28		16:30		16:15
22	05:32	06:26	07:22	18:33-19:10/37	08:18	17:35-17:56/21	08:18		08:56
	21:55	20:55	19:39		18:26		16:29		16:16
23	05:34	06:28	07:23	18:33-19:08/35	08:20	17:34-17:53/19	08:20		08:57
	21:54	20:52	19:36		18:24		16:28		16:16
24	05:35	06:29	07:25	18:33-19:05/32	08:22	17:33-17:51/18	08:22		08:57
	21:52	20:50	19:34		18:22		16:26		16:17
25	05:37	06:31	07:27	18:34-19:03/29	07:24	16:33-16:48/15	08:23		08:58
	21:51	20:48	19:31		17:19		16:25		16:17
26	05:38	06:33	07:29	08:06-08:16/10	07:26	16:33-16:46/13	08:25		08:58
	21:49	20:45	19:29	18:33-19:00/27	17:17		16:24		16:18
27	05:40	06:35	07:31	08:03-08:17/14	07:28	16:34-16:45/11	08:27		08:58
	21:47	20:43	19:26	18:34-18:57/23	17:15		16:23		16:19
28	05:42	06:37	07:33	08:01-08:18/17	07:30	16:34-16:42/8	08:29		08:58
	21:46	20:41	19:24	18:35-18:55/20	17:13		16:22		16:20
29	05:43	06:38	07:34	08:01-08:19/18	07:32	16:34-16:40/6	08:30		08:58
	21:44	20:38	19:21	18:35-18:53/18	17:11		16:21		16:21
30	05:45	06:40	07:36	08:03-08:21/18	07:34	08:14-08:21/7	08:32		08:59
	21:42	20:36	19:19	18:34-18:50/16	17:09	16:34-16:37/3	16:20		16:22
31	05:47	06:42			07:35	08:11-08:24/13			08:58
	21:40	20:33			17:07				16:23
Potential sun hours	515	461	382		328		257		231
Sum of minutes with flicker	0	0	792		435		195		0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 6 - AT06

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 09:33-09:40/7	08:27	07:29 07:54-08:22/28	07:13	06:02	05:12 21:04-21:25/21
	16:24	17:16	18:13	20:12	21:09	22:00
2	08:58 09:33-09:40/7	08:25	07:26 07:51-08:20/29	07:10	06:00	05:11 21:03-21:26/23
	16:25	17:18	18:15	20:14	21:11	22:01
3	08:58 09:33-09:41/8	08:24	07:24 07:49-08:19/30	07:08	05:58	05:10 21:03-21:26/23
	16:26	17:20	18:17	20:16	21:13	22:02
4	08:58 09:32-09:41/9	08:22	07:22 07:46-08:17/31	07:05	05:56	05:09 21:03-21:28/25
	16:28	17:22	18:19	20:18	21:14	22:03
5	08:57 09:32-09:42/10	08:20	07:19 07:44-08:14/30	07:03	05:54	05:08 21:02-21:29/27
	16:29	17:24	18:21	20:20	21:16	22:05
6	08:57 09:31-09:42/11	08:18	07:17 07:42-08:08/26	07:00	05:52	05:08 21:03-21:30/27
	16:30	17:26	18:23	20:22	21:18	22:06
7	08:56 09:30-09:42/12	08:16	07:14 07:39-08:05/26	06:58	05:50	05:07 21:02-21:31/29
	16:32	17:28	18:25	20:24	21:20	22:07
8	08:56 09:30-09:43/13	08:14	07:12 07:40-08:03/23	06:55	05:48	05:06 21:01-21:31/30
	16:33	17:30	18:27	20:26	21:22	22:08
9	08:55 09:29-09:44/15	08:12	07:10 07:40-08:02/22	06:53	05:46	05:06 21:02-21:32/30
	16:34	17:32	18:29 17:58-18:01/3	20:28	21:24	22:09
10	08:55 09:28-09:44/16	08:10	07:07 07:41-08:01/20	06:50	05:44	05:05 21:02-21:34/32
	16:36	17:34	18:31 17:57-18:03/6	20:29	21:25	22:09
11	08:54 09:27-09:44/17	08:08	07:05 07:42-07:59/17	06:48	05:42	05:05 21:01-21:33/32
	16:37	17:37	18:32 17:57-18:05/8	20:31	21:27	22:10
12	08:53 09:26-09:44/18	08:06	07:02 07:44-07:57/13	06:46	05:41	05:04 21:02-21:34/32
	16:39	17:39	18:34 17:56-18:07/11	20:33	21:29	22:11
13	08:52 09:25-09:44/19	08:04	07:00 07:49-07:51/2	06:43	05:39	05:04 21:02-21:35/33
	16:41	17:41	18:36 17:56-18:09/13	20:35	21:31	22:12
14	08:51 09:24-09:44/20	08:02	06:57 17:55-18:11/16	06:41	05:37	05:04 21:02-21:35/33
	16:42	17:43	18:38	20:37	21:32	22:12
15	08:51 09:23-09:44/21	08:00	06:55 17:54-18:13/19	06:38	05:35	05:03 21:01-21:35/34
	16:44	17:45	18:40	20:39	21:34	22:13
16	08:50 09:21-09:43/22	07:58	06:52 17:53-18:15/22	06:36	05:34	05:03 21:02-21:35/33
	16:46	17:47	18:42	20:41	21:36	22:14
17	08:48 09:20-09:43/23	07:56 17:18-17:19/1	06:50 17:53-18:17/24	06:34	05:32	05:03 21:02-21:35/33
	16:47	17:49	18:44	20:43	21:37	22:14
18	08:47 09:19-09:43/24	07:54 17:18-17:22/4	06:47 17:53-18:19/26	06:31	05:30	05:03 21:02-21:36/34
	16:49	17:51	18:46	20:44	21:39	22:15
19	08:46 09:17-09:42/25	07:52 08:17-08:18/1	06:45 17:53-18:21/28	06:29	05:29	05:03 21:02-21:36/34
	16:51	17:53 17:17-17:23/6	18:48	20:46	21:41	22:15
20	08:45 09:16-09:41/25	07:49 08:15-08:20/5	06:42 17:53-18:22/29	06:27	05:27	05:03 21:03-21:37/34
	16:53	17:55 17:17-17:26/9	18:50	20:48	21:42	22:15
21	08:44 09:14-09:39/25	07:47 08:13-08:21/8	06:40 17:54-18:25/31	06:24	05:26	05:03 21:03-21:37/34
	16:55	17:57 17:18-17:28/10	18:52	20:50	21:44	22:15
22	08:43 09:13-09:36/23	07:45 08:10-08:22/12	06:37 17:54-18:25/31	06:22	05:24	05:03 21:03-21:37/34
	16:57	17:59 17:18-17:30/12	18:54	20:52	21:46	22:16
23	08:41 09:11-09:36/25	07:43 08:08-08:22/14	06:35 17:56-18:25/29	06:20	05:23	05:04 21:03-21:37/34
	16:58	18:01 17:19-17:32/13	18:55	20:54	21:47	22:16
24	08:40 09:10-09:36/26	07:40 08:06-08:23/17	06:32 17:57-18:23/26	06:18	05:21 21:13-21:15/2	05:04 21:04-21:38/34
	17:00	18:03 17:20-17:35/15	18:57	20:56	21:49	22:16
25	08:38 09:10-09:35/25	07:38 08:03-08:23/20	06:30 18:00-18:22/22	06:15	05:20 21:12-21:16/4	05:04 21:04-21:37/33
	17:02	18:05 17:21-17:34/13	18:59	20:58	21:50	22:16
26	08:37 09:11-09:34/23	07:36 08:01-08:23/22	06:27 18:06-18:19/13	06:13	05:19 21:11-21:18/7	05:05 21:04-21:37/33
	17:04	18:07 17:24-17:31/7	19:01	21:00	21:52	22:16
27	08:35 09:12-09:34/22	07:33 07:59-08:23/24	06:25 18:09-18:17/8	06:11	05:17 21:10-21:19/9	05:05 21:05-21:38/33
	17:06	18:09	19:03	21:01	21:53	22:16
28	08:34 09:13-09:32/19	07:31 07:56-08:22/26	06:23	06:09	05:16 21:08-21:20/12	05:06 21:04-21:37/33
	17:08	18:11	19:05	21:03	21:55	22:16
29	08:32 09:15-09:29/14		07:20	06:07	05:15 21:07-21:21/14	05:06 21:05-21:38/33
	17:10		20:07	21:05	21:56	22:15
30	08:31 09:18-09:21/3		07:18	06:04	05:14 21:06-21:23/17	05:07 21:06-21:38/32
	17:12		20:09	21:07	21:57	22:15
31	08:29		07:15		05:13 21:05-21:24/19	
	17:14		20:11		21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	527	239	662	0	84	932

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 6 - AT06

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 21:06-21:38/32	05:48	06:44	07:38 08:25-08:34/9	07:37	08:33 09:09-09:26/17
	22:15	21:39	20:31	19:16 18:36-18:48/12	17:05	16:19
2	05:08 21:06-21:38/32	05:50	06:46	07:40 08:22-08:37/15	07:39	08:35 09:11-09:27/16
	22:14	21:37	20:29	19:14 18:36-18:45/9	17:03	16:19
3	05:09 21:07-21:38/31	05:52	06:47	07:42 08:20-08:38/18	07:41	08:36 09:12-09:27/15
	22:14	21:35	20:26	19:11 18:35-18:42/7	17:01	16:18
4	05:10 21:08-21:38/30	05:54	06:49	07:44 08:18-08:38/20	07:43	08:38 09:14-09:28/14
	22:14	21:33	20:24	19:09 18:35-18:40/5	16:59	16:17
5	05:11 21:07-21:36/29	05:55	06:51	07:46 08:16-08:39/23	07:45	08:39 09:15-09:27/12
	22:13	21:31	20:21	19:06 18:36-18:37/1	16:57	16:16
6	05:12 21:08-21:36/28	05:57	06:53	07:47 08:16-08:40/24	07:47	08:41 09:17-09:28/11
	22:12	21:29	20:19	19:04	16:55	16:16
7	05:13 21:08-21:35/27	05:59	06:55	07:49 08:16-08:42/26	07:49	08:42 09:18-09:28/10
	22:12	21:27	20:16	19:01	16:53	16:15
8	05:14 21:09-21:35/26	06:01	06:56	07:51 08:18-08:47/29	07:51	08:43 09:20-09:29/9
	22:11	21:25	20:14	18:59	16:51	16:15
9	05:15 21:10-21:34/24	06:02	06:58	07:53 08:20-08:51/31	07:53	08:45 09:21-09:29/8
	22:10	21:23	20:11	18:57	16:49	16:15
10	05:16 21:10-21:33/23	06:04	07:00	07:55 08:22-08:52/30	07:55	08:46 09:22-09:30/8
	22:09	21:21	20:09	18:54	16:47	16:14
11	05:17 21:11-21:33/22	06:06	07:02	07:57 08:24-08:54/30	07:57	08:47 09:24-09:31/7
	22:08	21:19	20:06	18:52	16:46	16:14
12	05:18 21:13-21:33/20	06:08	07:04	07:59 08:26-08:54/28	07:59 08:49-08:53/4	08:48 09:25-09:31/6
	22:07	21:17	20:04	18:49	16:44	16:14
13	05:20 21:14-21:32/18	06:10	07:05	08:01 08:28-08:55/27	08:01 08:46-09:01/15	08:49 09:26-09:31/5
	22:06	21:15	20:01	18:47	16:42	16:14
14	05:21 21:15-21:31/16	06:11	07:07	08:02 08:30-08:55/25	08:03 08:45-09:04/19	08:50 09:27-09:32/5
	22:05	21:13	19:59	18:45	16:41	16:14
15	05:22 21:16-21:29/13	06:13	07:09	08:04 08:32-08:55/23	08:05 08:45-09:06/21	08:51 09:28-09:32/4
	22:04	21:10	19:56	18:42	16:39	16:14
16	05:24 21:17-21:28/11	06:15	07:11 18:59-19:04/5	08:06 08:34-08:55/21	08:07 08:44-09:08/24	08:52 09:29-09:32/3
	22:03	21:08	19:54	18:40 17:55-18:04/9	16:37	16:14
17	05:25 21:20-21:28/8	06:17	07:13 18:55-19:07/12	08:08 08:36-08:55/19	08:09 08:44-09:09/25	08:53 09:30-09:33/3
	22:02	21:06	19:51	18:38 17:53-18:06/13	16:36	16:14
18	05:26 21:21-21:26/5	06:19	07:14 18:49-19:09/20	08:10 08:38-08:54/16	08:11 08:44-09:10/26	08:54 09:30-09:33/3
	22:01	21:04	19:49	18:35 17:51-18:05/14	16:34	16:14
19	05:28 21:22-21:25/3	06:20	07:16 18:45-19:10/25	08:12 08:40-08:54/14	08:13 08:46-09:11/25	08:55 09:31-09:33/2
	21:59	21:02	19:46	18:33 17:50-18:03/13	16:33	16:14
20	05:29	06:22	07:18 18:43-19:11/28	08:14 08:42-08:53/11	08:14 08:48-09:11/23	08:55 09:32-09:34/2
	21:58	20:59	19:44	18:31 17:49-18:00/11	16:32	16:15
21	05:31	06:24	07:20 18:40-19:10/30	08:16 08:44-08:51/7	08:16 08:50-09:15/25	08:56 09:32-09:34/2
	21:57	20:57	19:41	18:28 17:48-17:58/10	16:30	16:15
22	05:32	06:26	07:22 18:39-19:10/31	08:18 08:46-08:50/4	08:18 08:52-09:17/25	08:56 09:33-09:35/2
	21:55	20:55	19:39	18:26 17:48-17:56/8	16:29	16:16
23	05:34	06:28	07:24 18:38-19:08/30	08:20 17:47-17:53/6	08:20 08:54-09:19/25	08:57 09:33-09:35/2
	21:54	20:52	19:36	18:24	16:28	16:16
24	05:35	06:29	07:25 18:37-19:05/28	08:22 17:47-17:51/4	08:22 08:56-09:20/24	08:57 09:33-09:35/2
	21:52	20:50	19:34	18:22	16:26	16:17
25	05:37	06:31	07:27 18:36-19:03/27	07:24 16:47-16:48/1	08:23 08:58-09:21/23	08:58 09:34-09:37/3
	21:51	20:48	19:31	17:19	16:25	16:17
26	05:38	06:33	07:29 18:35-19:00/25	07:26	08:25 09:00-09:23/23	08:58 09:34-09:37/3
	21:49	20:45	19:29	17:17	16:24	16:18
27	05:40	06:35	07:31 18:35-18:57/22	07:28	08:27 09:02-09:24/22	08:58 09:34-09:37/3
	21:47	20:43	19:26	17:15	16:23	16:19
28	05:42	06:37	07:33 18:35-18:55/20	07:30	08:29 09:04-09:24/20	08:58 09:34-09:38/4
	21:46	20:41	19:24	17:13	16:22	16:20
29	05:43	06:38	07:34 18:35-18:53/18	07:32	08:30 09:05-09:24/19	08:58 09:34-09:38/4
	21:44	20:38	19:21	17:11	16:21	16:21
30	05:45	06:40	07:36 18:36-18:50/14	07:34	08:32 09:07-09:25/18	08:59 09:34-09:39/5
	21:42	20:36	19:19	17:09	16:20	16:22
31	05:47	06:42		07:35		08:58 09:34-09:40/6
	21:40	20:33		17:07		16:23
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	398	0	335	573	406	196

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 7 - AT07

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:59		08:27	09:10-09:36/26	07:29	08:22-08:41/19	07:13	07:55-08:34/39	06:02	07:00-07:32/32	05:12	05:57-06:44/47
	16:24		17:16		18:13		20:12		21:09		22:00	05:46-05:56/10
2	08:58		08:26	09:10-09:36/26	07:26	08:22-08:38/16	07:10	07:54-08:33/39	06:00	07:00-07:31/31	05:11	05:43-06:44/61
	16:25		17:18		18:15		20:14		21:11	20:38-20:40/2	22:01	
3	08:58		08:24	09:10-09:37/27	07:24	08:25-08:36/11	07:08	07:54-08:34/40	05:58	07:01-07:32/31	05:10	05:43-06:46/63
	16:26		17:20		18:17		20:16		21:13	20:38-20:42/4	22:02	
4	08:58		08:22	09:11-09:37/26	07:22	07:59-08:12/13	07:05	07:52-08:34/42	05:56	07:02-07:31/29	05:09	05:41-06:46/65
	16:27		17:22		18:19		20:18		21:14	20:38-20:44/6	22:04	
5	08:57		08:20	09:11-09:36/25	07:19	07:56-08:16/20	07:03	07:52-08:34/42	05:54	07:02-07:30/28	05:08	05:40-06:46/66
	16:29		17:24		18:21		20:20		21:16	20:38-20:46/8	22:05	
6	08:57		08:18	09:12-09:36/24	07:17	07:54-08:18/24	07:00	07:51-08:33/42	05:52	07:03-07:28/25	05:08	05:40-06:47/67
	16:30		17:26		18:23		20:22		21:18	20:38-20:47/9	22:06	
7	08:57		08:16	09:12-09:36/24	07:14	07:47-08:19/32	06:58	07:51-08:33/42	05:50	07:04-07:27/23	05:07	05:39-06:46/67
	16:31		17:28		18:25		20:24		21:20	20:38-20:49/11	22:07	
8	08:56		08:14	09:13-09:35/22	07:12	07:43-08:21/38	06:55	07:51-08:33/42	05:48	07:05-07:25/20	05:06	05:39-06:47/68
	16:33		17:30		18:27		20:26		21:22	20:38-20:50/12	22:08	
9	08:55		08:12	09:14-09:35/21	07:10	07:40-08:21/41	06:53	07:51-08:32/41	05:46	07:06-07:23/17	05:06	05:38-06:47/69
	16:34		17:32		18:29		20:28		21:24	20:39-20:52/13	22:09	
10	08:55		08:11	09:15-09:34/19	07:07	07:39-08:22/43	06:50	07:51-08:32/41	05:44	07:09-07:21/12	05:05	05:38-06:48/70
	16:36		17:34		18:31		20:29		21:25	20:40-20:52/12	22:10	
11	08:54		08:09	09:16-09:31/15	07:05	07:36-08:22/46	06:48	07:51-08:31/40	05:42	20:41-20:50/9	05:05	05:37-06:47/70
	16:37		17:37		18:32		20:31		21:27		22:10	
12	08:53		08:06	09:19-09:29/10	07:02	07:34-08:23/49	06:46	07:51-08:30/39	05:41	20:44-20:46/2	05:04	05:37-06:48/71
	16:39		17:39		18:34		20:33		21:29		22:11	
13	08:52		08:04		07:00	07:31-08:23/52	06:43	07:52-08:29/37	05:39		05:04	05:37-06:48/71
	16:41		17:41		18:36		20:35		21:31		22:12	
14	08:52		08:02		06:57	07:29-08:23/54	06:41	07:52-08:27/35	05:37	06:15-06:24/9	05:04	05:37-06:49/72
	16:42		17:43		18:38		20:37		21:32		22:13	
15	08:51		08:00	08:30-08:38/8	06:55	07:27-08:23/56	06:38	07:15-07:25/10	05:35	06:12-06:28/16	05:03	05:36-06:48/72
	16:44		17:45		18:40		20:39	07:53-08:26/33	21:34		22:13	
16	08:50		07:58	08:27-08:40/13	06:52	07:26-08:23/57	06:36	07:11-07:28/17	05:34	06:09-06:30/21	05:03	05:36-06:49/73
	16:46		17:47		18:42		20:41	07:54-08:25/31	21:36		22:14	
17	08:49		07:56	08:25-08:42/17	06:50	07:24-08:22/58	06:34	07:08-07:29/21	05:32	06:08-06:33/25	05:03	05:36-06:49/73
	16:47		17:49		18:44		20:43	07:54-08:23/29	21:38		22:14	
18	08:47		07:54	08:24-08:43/19	06:47	07:23-08:22/59	06:31	07:07-07:31/24	05:30	06:06-06:34/28	05:03	05:36-06:49/73
	16:49		17:51		18:46		20:45	07:56-08:21/25	21:39		22:15	
19	08:46		07:52	08:23-08:45/22	06:45	07:22-08:20/58	06:29	07:05-07:32/27	05:29	06:05-06:35/30	05:03	05:36-06:49/73
	16:51		17:53		18:48		20:46	07:58-08:19/21	21:41		22:15	
20	08:45		07:49	08:21-08:44/23	06:42	07:22-08:20/58	06:27	07:04-07:33/29	05:27	06:03-06:36/33	05:03	05:37-06:50/73
	16:53		17:55		18:50		20:48	08:01-08:16/15	21:43		22:15	
21	08:44		07:47	08:21-08:45/24	06:40	07:21-08:18/57	06:24	07:02-07:33/31	05:26	06:02-06:37/35	05:03	05:37-06:50/73
	16:55		17:57		18:52		20:50	08:05-08:09/4	21:44		22:16	
22	08:43		07:45	08:20-08:46/26	06:37	07:21-08:18/57	06:22	07:02-07:34/32	05:24	06:02-06:39/37	05:03	05:37-06:50/73
	16:57		17:59		18:54		20:52		21:46		22:16	
23	08:41	09:16-09:26/10	07:43	08:19-08:45/26	06:35	07:21-08:16/55	06:20	07:01-07:34/33	05:23	06:00-06:39/39	05:04	05:37-06:50/73
	16:58		18:01		18:55		20:54		21:47		22:16	
24	08:40	09:15-09:28/13	07:40	08:20-08:45/25	06:32	07:21-08:13/52	06:18	07:01-07:34/33	05:21	06:00-06:40/40	05:04	05:38-06:51/73
	17:00		18:03		18:57		20:56		21:49		22:16	
25	08:38	09:13-09:30/17	07:38	08:19-08:44/25	06:30	07:09-08:12/63	06:15	07:01-07:35/34	05:20	05:59-06:41/42	05:04	05:38-06:51/73
	17:02		18:05		18:59		20:58		21:50		22:16	
26	08:37	09:13-09:32/19	07:36	08:20-08:44/24	06:28	07:05-07:48/43	06:13	07:00-07:35/35	05:19	05:59-06:41/42	05:05	05:38-06:51/73
	17:04		18:07		19:01	07:50-08:08/18	21:00		21:52		22:16	
27	08:35	09:12-09:33/21	07:33	08:20-08:43/23	06:25	07:03-07:45/42	06:11	07:00-07:35/35	05:17	05:59-06:42/43	05:05	05:39-06:51/72
	17:06		18:09		19:03	07:53-08:05/12	21:01		21:53		22:16	
28	08:34	09:11-09:33/22	07:31	08:20-08:41/21	06:23	07:01-07:44/43	06:09	07:00-07:34/34	05:16	05:58-06:43/45	05:06	05:40-06:52/72
	17:08		18:11		19:05		21:03		21:55		22:16	
29	08:32	09:10-09:34/24			07:20	07:59-08:41/42	06:07	06:59-07:33/34	05:15	05:58-06:43/45	05:06	05:40-06:52/72
	17:10				20:07		21:05		21:56		22:16	
30	08:31	09:11-09:35/24			07:18	07:58-08:38/40	06:04	06:59-07:33/34	05:14	05:58-06:44/46	05:07	05:41-06:52/71
	17:12				20:09		21:07		21:57		22:15	
31	08:29	09:11-09:36/25			07:15	07:56-08:33/37			05:13	05:58-06:44/46		
	17:14				20:11				21:59			
Potential sun hours	248		272		367		421		496		513	
Sum of minutes with flicker	175		561		1365		1182		958		2099	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 7 - AT07

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 05:41-06:52/71 22:15	05:48 20:53-20:58/5 21:39	06:44 07:51-08:30/39 20:31	07:38 08:12-09:02/50 19:16	07:38 08:44-09:02/18 17:05	08:34 16:19
2	05:08 05:42-06:52/70 22:15	05:50 07:22-07:29/7 21:37 20:51-21:01/10	06:46 07:49-08:30/41 20:29	07:40 08:14-09:01/47 19:14	07:40 08:44-09:04/20 17:03	08:35 16:18
3	05:09 05:43-06:52/69 22:14	05:52 07:19-07:33/14 21:35 20:49-21:01/12	06:47 07:49-08:30/41 20:26	07:42 08:16-09:01/45 19:11	07:41 08:43-09:05/22 17:01	08:37 16:18
4	05:10 05:44-06:53/69 22:14	05:54 07:16-07:34/18 21:33 20:49-21:01/12	06:49 07:48-08:30/42 20:24	07:44 08:16-08:59/43 19:09	07:43 08:42-09:06/24 16:59	08:38 16:17
5	05:11 05:45-06:53/68 22:13	05:55 07:15-07:36/21 21:31 20:48-21:00/12	06:51 07:47-08:29/42 20:21	07:46 08:18-08:57/39 19:06	07:45 08:41-09:06/25 16:57	08:40 16:16
6	05:12 05:45-06:52/67 22:12	05:57 07:13-07:37/24 21:29 20:47-20:58/11	06:53 07:47-08:29/42 20:19	07:47 08:21-08:56/35 19:04	07:47 08:41-09:06/25 16:55	08:41 16:16
7	05:13 05:46-06:52/66 22:12	05:59 07:12-07:38/26 21:27 20:47-20:56/9	06:55 07:47-08:29/42 20:16	07:49 08:28-08:54/26 19:01	07:49 08:40-09:06/26 16:53	08:42 16:15
8	05:14 05:47-06:52/65 22:11	06:01 07:12-07:39/27 21:25 20:47-20:55/8	06:56 07:47-08:29/42 20:14	07:51 08:30-08:52/22 18:59	07:51 08:41-09:07/26 16:51	08:44 16:15
9	05:15 05:48-06:52/64 22:10	06:02 07:10-07:39/29 21:23 20:47-20:52/5	06:58 07:47-08:27/40 20:11	07:53 08:33-08:49/16 18:57	07:53 08:41-09:07/26 16:49	08:45 16:15
10	05:16 05:50-06:52/62 22:09	06:04 07:10-07:40/30 21:21 20:47-20:50/3	07:00 07:47-08:27/40 20:09	07:55 09:01-09:08/7 18:54 08:37-08:45/8	07:55 08:41-09:07/26 16:47	08:46 16:14
11	05:17 06:05-06:52/47 22:08 05:52-06:04/12	06:06 07:09-07:41/32 21:19 20:48-20:49/1	07:02 07:48-08:26/38 20:06	07:57 08:58-09:11/13 18:52	07:57 08:42-09:07/25 16:46	08:47 16:14
12	05:18 06:06-06:53/47 22:07 05:56-06:02/6	06:08 07:08-07:41/33 21:17	07:04 07:48-08:25/37 20:04	07:59 08:56-09:13/17 18:49	07:59 08:42-09:06/24 16:44	08:48 16:14
13	05:20 06:06-06:52/46 22:06	06:09 07:08-07:41/33 21:15	07:05 07:48-08:28/40 20:01	08:01 08:54-09:14/20 18:47	08:01 08:42-09:06/24 16:42	08:49 16:14
14	05:21 06:06-06:52/46 22:05	06:11 07:08-07:42/34 21:13	07:07 07:49-08:31/42 19:59	08:02 08:53-09:15/22 18:45	08:03 08:43-09:05/22 16:41	08:50 16:14
15	05:22 06:07-06:51/44 22:04	06:13 07:07-07:41/34 21:10	07:09 07:50-08:33/43 19:56	08:04 08:52-09:15/23 18:42	08:05 08:45-09:06/21 16:39	08:51 16:14
16	05:24 06:07-06:51/44 22:03	06:15 07:07-07:41/34 21:08	07:11 07:52-08:34/42 19:54 08:44-08:53/9	08:06 08:52-09:16/24 18:40	08:07 08:46-09:05/19 16:37	08:52 16:14
17	05:25 06:08-06:51/43 22:02	06:17 07:07-07:41/34 21:06	07:13 07:53-08:35/42 19:51 08:39-08:56/17	08:08 08:51-09:16/25 18:38	08:09 08:47-09:04/17 16:36	08:53 16:14
18	05:26 06:09-06:50/41 22:01	06:18 07:07-07:41/34 21:04	07:14 07:56-08:59/63 19:49	08:10 08:51-09:16/25 18:35	08:11 08:49-09:02/13 16:34	08:54 16:14
19	05:28 06:09-06:50/41 21:59	06:20 07:07-07:40/33 21:02	07:16 08:08-09:00/52 19:46 08:02-08:06/4	08:12 08:51-09:16/25 18:33	08:13 08:51-09:01/10 16:33	08:55 16:14
20	05:29 06:10-06:50/40 21:58	06:22 07:07-07:40/33 20:59	07:18 08:07-09:02/55 19:44	08:14 08:51-09:16/25 18:31	08:14 08:55-08:56/1 16:32	08:55 16:15
21	05:31 06:11-06:49/38 21:57	06:24 07:08-07:39/31 20:57	07:20 08:07-09:03/56 19:41	08:16 08:51-09:15/24 18:28	08:16 16:30	08:56 16:15
22	05:32 06:11-06:48/37 21:55	06:26 07:07-07:38/31 20:55 08:09-08:15/6	07:22 08:06-09:03/57 19:39	08:18 08:52-09:15/23 18:26	08:18 16:29	08:56 16:16
23	05:34 06:13-06:47/34 21:54	06:28 07:08-07:37/29 20:52 08:04-08:20/16	07:24 08:05-09:03/58 19:36	08:20 08:52-09:14/22 18:24	08:20 16:28	08:57 16:16
24	05:35 06:14-06:46/32 21:52	06:29 07:09-07:36/27 20:50 08:01-08:23/22	07:25 08:06-09:04/58 19:34	08:22 08:54-09:13/19 18:22	08:22 16:26	08:57 16:17
25	05:37 06:16-06:45/29 21:51	06:31 07:10-07:33/23 20:48 07:59-08:24/25	07:27 08:06-09:04/58 19:31	07:24 07:55-08:11/16 17:19	08:23 16:25	08:58 16:17
26	05:38 06:17-06:43/26 21:49	06:33 07:11-07:32/21 20:45 07:57-08:26/29	07:29 08:06-09:04/58 19:29	07:26 07:58-08:10/12 17:17	08:25 16:24	08:58 16:18
27	05:40 06:19-06:42/23 21:47	06:35 07:13-07:30/17 20:43 07:56-08:27/31	07:31 08:06-09:03/57 19:26	07:28 08:01-08:07/6 17:15	08:27 16:23	08:58 16:19
28	05:42 06:20-06:40/20 21:46	06:37 07:17-07:26/9 20:41 07:55-08:28/33	07:33 08:07-09:03/56 19:24	07:30 17:13	08:29 16:22	08:58 16:20
29	05:43 06:24-06:37/13 21:44	06:38 07:53-08:28/35 20:38	07:34 08:08-09:03/55 19:21	07:32 17:11	08:30 16:21	08:59 16:21
30	05:45 21:42	06:40 07:52-08:29/37 20:36	07:36 08:10-09:03/53 19:19	07:34 08:48-08:59/11 17:09	08:32 16:20	08:59 16:22
31	05:47 21:41	06:42 07:51-08:30/39 20:33		07:36 08:45-09:01/16 17:07		08:59 16:23
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	1380	1079	1461	706	414	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 8 - AT08

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February		March		April		May		June	
1	08:59	08:27		07:29	07:58-08:24/26	07:13		06:02	06:49-07:24/35	05:12	05:45-06:41/56
	16:24	17:16		18:13		20:12		21:09		22:00	
2	08:58	08:26		07:26	07:56-08:24/28	07:10		06:00	06:49-07:24/35	05:11	05:45-06:40/55
	16:25	17:18		18:15		20:14		21:11		22:01	
3	08:58	08:24		07:24	07:56-08:24/28	07:08		05:58	06:50-07:24/34	05:10	05:46-06:41/55
	16:26	17:20		18:17		20:16		21:13		22:02	
4	08:58	08:22		07:22	07:55-08:24/29	07:05		05:56	06:50-07:23/33	05:09	05:45-06:41/56
	16:27	17:22		18:19		20:18		21:15		22:04	
5	08:57	08:20		07:19	07:56-08:24/28	07:03		05:54	06:51-07:23/32	05:08	05:45-06:40/55
	16:29	17:24		18:21		20:20		21:16		22:05	
6	08:57	08:18		07:17	07:56-08:24/28	07:00		05:52	06:51-07:22/31	05:07	05:46-06:41/55
	16:30	17:26		18:23		20:22		21:18		22:06	
7	08:57	08:16		07:14	07:55-08:23/28	06:58	07:22-07:27/5	05:50	06:52-07:20/28	05:07	05:45-06:41/56
	16:31	17:28		18:25		20:24		21:20	06:19-06:25/6	22:07	
8	08:56	08:14		07:12	07:56-08:23/27	06:55	07:20-07:31/11	05:48	06:52-07:19/27	05:06	05:46-06:41/55
	16:33	17:30		18:27		20:26		21:22	06:15-06:29/14	22:08	
9	08:55	08:13		07:10	07:56-08:22/26	06:53	07:17-07:33/16	05:46	06:53-07:18/25	05:06	05:46-06:41/55
	16:34	17:32		18:29		20:28		21:24	06:13-06:31/18	22:09	
10	08:55	08:11		07:07	07:57-08:21/24	06:50	07:15-07:34/19	05:44	06:55-07:17/22	05:05	05:46-06:41/55
	16:36	17:34		18:31		20:29		21:25	06:12-06:33/21	22:10	
11	08:54	08:09		07:05	07:58-08:19/21	06:48	07:12-07:34/22	05:42	06:56-07:15/19	05:05	05:46-06:40/54
	16:37	17:37		18:32		20:31		21:27	06:10-06:34/24	22:10	
12	08:53	08:06		07:02	08:00-08:17/17	06:46	07:10-07:35/25	05:41	06:58-07:12/14	05:04	05:46-06:41/55
	16:39	17:39		18:34		20:33		21:29	06:08-06:35/27	22:11	
13	08:52	08:04		07:00	08:01-08:14/13	06:43	07:08-07:36/28	05:39	07:02-07:10/8	05:04	05:47-06:41/54
	16:41	17:41		18:36		20:35		21:31	06:08-06:36/28	22:12	
14	08:52	08:02		06:57	07:22-07:26/4	06:41	07:05-07:36/31	05:37	06:06-06:36/30	05:04	05:47-06:41/54
	16:42	17:43		18:38		20:37		21:32		22:13	
15	08:51	08:00		06:55	07:19-07:29/10	06:38	07:03-07:36/33	05:35	06:06-06:38/32	05:03	05:47-06:40/53
	16:44	17:45		18:40		20:39		21:34		22:13	
16	08:50	07:58		06:52	07:17-07:31/14	06:36	07:01-07:36/35	05:34	06:05-06:38/33	05:03	05:47-06:41/54
	16:46	17:47		18:42		20:41		21:36		22:14	
17	08:49	07:56		06:50	07:14-07:32/18	06:34	06:58-07:35/37	05:32	06:05-06:39/34	05:03	05:47-06:41/54
	16:47	17:49		18:44		20:43		21:38		22:14	
18	08:47	07:54		06:47	07:12-07:33/21	06:31	06:57-07:35/38	05:30	06:04-06:39/35	05:03	05:47-06:41/54
	16:49	17:51		18:46		20:45		21:39		22:15	
19	08:46	07:52		06:45	07:09-07:33/24	06:29	06:55-07:34/39	05:29	06:05-06:39/34	05:03	05:48-06:41/53
	16:51	17:53		18:48		20:46		21:41		22:15	
20	08:45	07:49		06:42	07:07-07:34/27	06:27	06:54-07:34/40	05:27	05:56-06:00/4	05:03	05:48-06:42/54
	16:53	17:55		18:50		20:48		21:43	06:04-06:39/35	22:15	
21	08:44	07:47		06:40	07:06-07:33/27	06:24	06:52-07:32/40	05:26	05:55-06:03/8	05:03	05:48-06:42/54
	16:55	17:57		18:52		20:50		21:44	06:04-06:40/36	22:16	
22	08:43	07:45		06:37	07:05-07:33/28	06:22	06:52-07:31/39	05:24	05:54-06:40/46	05:03	05:48-06:42/54
	16:57	17:59		18:54		20:52		21:46		22:16	
23	08:41	07:43		06:35	07:04-07:32/28	06:20	06:51-07:30/39	05:23	05:52-06:40/48	05:04	05:48-06:42/54
	16:58	18:01		18:55		20:54		21:47		22:16	
24	08:40	07:40	08:07-08:17/10	06:32	07:05-07:32/27	06:18	06:51-07:28/37	05:21	05:51-06:40/49	05:04	05:49-06:43/54
	17:00	18:03		18:57		20:56		21:49		22:16	
25	08:38	07:38	08:03-08:19/16	06:30	07:04-07:31/27	06:15	06:50-07:26/36	05:20	05:50-06:40/50	05:04	05:49-06:43/54
	17:02	18:05		18:59		20:58		21:50		22:16	
26	08:37	07:36	08:01-08:21/20	06:28	07:05-07:30/25	06:13	06:50-07:26/36	05:19	05:49-06:41/52	05:05	05:50-06:43/53
	17:04	18:07		19:01		21:00		21:52		22:16	
27	08:35	07:33	08:00-08:23/23	06:25	07:04-07:28/24	06:11	06:50-07:26/36	05:17	05:48-06:41/53	05:05	05:49-06:43/54
	17:06	18:09		19:03		21:01		21:53		22:16	
28	08:34	07:31	07:58-08:23/25	06:23	07:05-07:26/21	06:09	06:49-07:26/37	05:16	05:47-06:41/54	05:06	05:50-06:44/54
	17:08	18:11		19:05		21:03		21:55		22:16	
29	08:32			07:20	08:06-08:24/18	06:07	06:48-07:25/37	05:15	05:46-06:41/55	05:06	05:50-06:44/54
	17:10			20:07		21:05		21:56		22:16	
30	08:31			07:18	08:08-08:22/14	06:04	06:48-07:25/37	05:14	05:46-06:41/55	05:07	05:50-06:45/55
	17:12			20:09		21:07		21:57		22:15	
31	08:29			07:15	08:09-08:19/10			05:13	05:45-06:41/56		
	17:14			20:11				21:59			
Potential sun hours	248	272		367		421		496		513	
Sum of minutes with flicker	0	94		690		753		1280		1632	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 8 - AT08

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:08	05:50-06:44/54	05:48	07:08-07:24/16	06:44	07:12-07:34/22	07:38	08:39-08:55/16	07:38	08:34
	22:15		21:39	06:19-06:45/26	20:31		19:16		17:05	16:19
2	05:08	05:50-06:45/55	05:50	07:06-07:26/20	06:46	07:13-07:32/19	07:40	08:37-08:57/20	07:40	08:35
	22:15		21:37	06:21-06:44/23	20:29		19:14		17:03	16:18
3	05:09	05:51-06:46/55	05:52	07:05-07:28/23	06:47	07:15-07:31/16	07:42	08:36-08:58/22	07:41	08:37
	22:14		21:35	06:23-06:43/20	20:26		19:11		17:01	16:18
4	05:10	05:51-06:46/55	05:54	07:03-07:28/25	06:49	07:17-07:29/12	07:44	08:34-08:58/24	07:43	08:38
	22:14		21:33	06:24-06:40/16	20:24		19:09		16:59	16:17
5	05:11	05:52-06:47/55	05:55	07:02-07:30/28	06:51	07:18-07:24/6	07:46	08:33-08:59/26	07:45	08:40
	22:13		21:31	06:26-06:38/12	20:21		19:06		16:57	16:16
6	05:12	05:51-06:46/55	05:57	07:01-07:30/29	06:53		07:47	08:32-08:59/27	07:47	08:41
	22:12		21:29		20:19		19:04		16:55	16:16
7	05:13	05:51-06:47/56	05:59	07:00-07:31/31	06:55		07:49	08:31-08:59/28	07:49	08:42
	22:12		21:27		20:16		19:01		16:53	16:15
8	05:14	05:52-06:47/55	06:01	07:00-07:32/32	06:56		07:51	08:31-08:59/28	07:51	08:44
	22:11		21:25		20:14		18:59		16:51	16:15
9	05:15	05:52-06:47/55	06:02	06:59-07:32/33	06:58		07:53	08:30-08:59/29	07:53	08:45
	22:10		21:23		20:11		18:57		16:49	16:15
10	05:16	05:52-06:48/56	06:04	06:58-07:33/35	07:00		07:55	08:30-08:59/29	07:55	08:46
	22:09		21:21		20:09		18:54		16:47	16:14
11	05:17	05:52-06:48/56	06:06	06:58-07:33/35	07:02		07:57	08:30-08:58/28	07:57	08:47
	22:08		21:19		20:06		18:52		16:46	16:14
12	05:18	05:54-06:49/55	06:08	06:57-07:33/36	07:04	08:02-08:11/9	07:59	08:31-08:58/27	07:59	08:48
	22:07		21:17		20:04		18:49		16:44	16:14
13	05:20	05:54-06:49/55	06:09	06:57-07:33/36	07:05	07:58-08:12/14	08:01	08:31-08:57/26	08:01	08:49
	22:06		21:15		20:01		18:47		16:42	16:14
14	05:21	05:54-06:49/55	06:11	06:57-07:34/37	07:07	07:56-08:14/18	08:02	08:32-08:56/24	08:03	08:50
	22:05		21:13		19:59		18:45		16:41	16:14
15	05:22	05:55-06:49/54	06:13	06:56-07:33/37	07:09	07:55-08:15/20	08:04	08:33-08:54/21	08:05	08:51
	22:04		21:10		19:56		18:42		16:39	16:14
16	05:24	05:56-06:49/53	06:15	06:56-07:33/37	07:11	07:54-08:17/23	08:06	08:34-08:52/18	08:07	08:52
	22:03		21:08		19:54		18:40		16:37	16:14
17	05:25	05:58-06:50/52	06:17	06:56-07:33/37	07:13	07:52-08:17/25	08:08	08:36-08:50/14	08:09	08:53
	22:02		21:06		19:51		18:38		16:36	16:14
18	05:26	05:59-06:50/51	06:18	06:57-07:33/36	07:14	07:52-08:18/26	08:10	08:40-08:46/6	08:11	08:54
	22:01		21:04		19:49		18:35		16:34	16:14
19	05:28	06:00-06:50/50	06:20	06:56-07:34/38	07:16	07:51-08:18/27	08:12		08:13	08:55
	21:59		21:02		19:46		18:33		16:33	16:14
20	05:29	06:02-06:50/48	06:22	06:57-07:36/39	07:18	07:51-08:19/28	08:14		08:14	08:55
	21:58		20:59		19:44		18:31		16:31	16:15
21	05:31	06:03-06:50/47	06:24	06:57-07:37/40	07:20	07:51-08:19/28	08:16		08:16	08:56
	21:57		20:57		19:41		18:28		16:30	16:15
22	05:32	06:04-06:50/46	06:26	06:57-07:37/40	07:22	07:50-08:18/28	08:18		08:18	08:57
	21:55		20:55		19:39		18:26		16:29	16:16
23	05:34	06:06-06:13/7	06:28	06:58-07:38/40	07:24	07:51-08:17/26	08:20		08:20	08:57
	21:54	06:14-06:50/36	20:52		19:36		18:24		16:28	16:16
24	05:35	06:14-06:49/35	06:29	06:59-07:38/39	07:25	07:52-08:17/25	08:22		08:22	08:57
	21:52		20:50		19:34		18:22		16:26	16:17
25	05:37	06:15-06:50/35	06:31	06:59-07:38/39	07:27	07:54-08:16/22	07:24		08:24	08:58
	21:51		20:48		19:31		17:19		16:25	16:17
26	05:38	06:15-06:49/34	06:33	07:01-07:38/37	07:29	07:56-08:15/19	07:26		08:25	08:58
	21:49		20:45		19:29		17:17		16:24	16:18
27	05:40	06:16-06:49/33	06:35	07:03-07:38/35	07:31	07:57-08:13/16	07:28		08:27	08:58
	21:47		20:43		19:26		17:15		16:23	16:19
28	05:42	06:16-06:48/32	06:37	07:05-07:38/33	07:33	07:59-08:11/12	07:30		08:29	08:58
	21:46		20:41		19:24		17:13		16:22	16:20
29	05:43	06:17-06:48/31	06:38	07:06-07:36/30	07:34	08:01-08:08/7	07:32		08:30	08:59
	21:44		20:38		19:21		17:11		16:21	16:21
30	05:45	06:17-06:47/30	06:40	07:08-07:36/28	07:36	08:43-08:52/9	07:34		08:32	08:59
	21:42		20:36		19:19		17:09		16:20	16:22
31	05:47	07:11-07:22/11	06:42	07:10-07:35/25			07:36			08:59
	21:41	06:18-06:46/28	20:33				17:07			16:23
Potential sun hours	515		461		382		328		257	231
Sum of minutes with flicker	1485		1123		457		413		0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 9 - AT09

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58	15:21-15:45/24	08:27	15:56-16:43/47	07:29		07:12	19:02-19:34/32	06:02	20:16-20:32/16	05:12	20:21-20:54/33
	16:24		17:16		18:13		20:12		21:09		22:00	
2	08:58	15:21-15:47/26	08:25	15:56-16:46/50	07:26		07:10	19:02-19:35/33	06:00	20:14-20:34/20	05:11	20:27-20:54/27
	16:25		17:18		18:15		20:14		21:11		22:01	20:24-20:26/2
3	08:58	15:22-15:48/26	08:24	15:57-16:48/51	07:24		07:08	19:00-19:34/34	05:58	20:12-20:35/23	05:10	20:27-20:53/26
	16:26		17:20		18:17		20:16		21:13		22:02	
4	08:58	15:21-15:48/27	08:22	15:58-16:50/52	07:22		07:05	19:00-19:34/34	05:56	20:11-20:36/25	05:09	20:28-20:54/26
	16:27		17:22		18:19		20:18		21:14		22:03	
5	08:57	15:21-15:48/27	08:20	15:59-16:51/52	07:19		07:03	19:01-19:34/33	05:54	20:11-20:38/27	05:08	20:28-20:53/25
	16:29		17:24		18:21		20:20		21:16		22:05	
6	08:57	15:22-15:50/28	08:18	16:00-16:52/52	07:17		07:00	19:00-19:33/33	05:52	20:10-20:38/28	05:07	20:28-20:53/25
	16:30		17:26		18:23		20:22		21:18		22:06	
7	08:56	15:22-15:50/28	08:16	16:02-16:53/51	07:14		06:58	19:00-19:33/33	05:50	20:09-20:39/30	05:07	20:29-20:53/24
	16:31		17:28		18:25		20:24		21:20		22:07	
8	08:56	15:22-15:51/29	08:14	16:05-16:53/48	07:12		06:55	19:00-19:32/32	05:48	20:08-20:39/31	05:06	20:29-20:53/24
	16:33		17:30		18:27		20:26	19:47-19:51/4	21:22		22:08	
9	08:55	15:23-15:52/29	08:12	16:12-16:53/41	07:09		06:53	19:43-19:55/12	05:46	20:08-20:44/36	05:06	20:30-20:53/23
	16:34		17:32		18:28		20:27	19:01-19:31/30	21:23		22:09	
10	08:55	15:23-15:53/30	08:10	16:13-16:53/40	07:07		06:50	19:41-19:58/17	05:44	20:08-20:47/39	05:05	20:30-20:52/22
	16:36		17:34		18:30		20:29	19:02-19:31/29	21:25		22:09	
11	08:54	15:23-15:53/30	08:08	16:15-16:53/38	07:05		06:48	19:38-19:58/20	05:42	20:07-20:48/41	05:05	20:31-20:52/21
	16:37		17:36		18:32		20:31	19:02-19:29/27	21:27		22:10	
12	08:53	15:23-15:54/31	08:06	16:18-16:53/35	07:02		06:46	19:37-20:00/23	05:40	20:07-20:49/42	05:04	20:32-20:53/21
	16:39		17:38		18:34		20:33	19:03-19:28/25	21:29		22:11	
13	08:52	15:23-15:54/31	08:04	16:22-16:53/31	07:00		06:43	19:36-20:00/24	05:39	20:08-20:51/43	05:04	20:33-20:53/20
	16:41		17:41		18:36		20:35	19:04-19:25/21	21:31		22:12	
14	08:51	15:24-15:55/31	08:02	16:31-16:52/21	06:57		06:41	19:35-20:00/25	05:37	20:07-20:51/44	05:03	20:32-20:52/20
	16:42		17:43	16:28-16:29/1	18:38		20:37	19:06-19:23/17	21:32		22:12	
15	08:50	15:23-15:54/31	08:00	16:31-16:51/20	06:55		06:38	19:35-20:01/26	05:35	20:07-20:51/44	05:03	20:33-20:52/19
	16:44	16:01-16:06/5	17:45		18:40		20:39	19:09-19:21/12	21:34		22:13	
16	08:49	15:24-15:55/31	07:58	16:33-16:50/17	06:52		06:36	19:34-20:01/27	05:33	20:08-20:52/44	05:03	20:33-20:52/19
	16:46	15:59-16:09/10	17:47		18:42		20:41		21:36		22:14	
17	08:48	15:24-15:56/32	07:56	16:35-16:48/13	06:50		06:34	19:33-20:00/27	05:32	20:07-20:52/45	05:03	20:34-20:52/18
	16:47	15:58-16:11/13	17:49		18:44		20:43		21:37		22:14	
18	08:47	15:25-15:56/31	07:54	16:38-16:46/8	06:47		06:31	19:33-20:00/27	05:30	20:08-20:53/45	05:03	20:34-20:52/18
	16:49	15:57-16:13/16	17:51		18:46		20:44		21:39		22:14	
19	08:46	15:25-16:14/49	07:51		06:45		06:29	19:34-20:00/26	05:29	20:08-20:53/45	05:03	20:34-20:52/18
	16:51		17:53		18:48		20:46		21:41		22:15	
20	08:45	15:26-16:16/50	07:49		06:42		06:27	19:33-19:59/26	05:27	20:09-20:53/44	05:03	20:35-20:52/17
	16:53		17:55		18:50		20:48		21:42		22:15	
21	08:44	15:26-16:16/50	07:47		06:40		06:24	19:34-19:58/24	05:25	20:10-20:54/44	05:03	20:36-20:53/17
	16:55		17:57		18:52		20:50		21:44		22:15	
22	08:42	15:27-16:18/51	07:45		06:37		06:22	19:34-19:57/23	05:24	20:09-20:53/44	05:03	20:36-20:53/17
	16:56		17:59		18:53		20:52		21:46		22:16	
23	08:41	15:27-16:23/56	07:43		06:35		06:20	19:35-19:56/21	05:23	20:10-20:54/44	05:04	20:35-20:53/18
	16:58		18:01		18:55		20:54		21:47		22:16	
24	08:40	15:28-16:26/58	07:40		06:32	18:15-18:26/11	06:17	19:37-19:55/18	05:21	20:11-20:54/43	05:04	20:35-20:53/18
	17:00		18:03		18:57		20:56		21:49		22:16	
25	08:38	15:29-16:28/59	07:38		06:30	18:13-18:29/16	06:15	19:38-19:53/15	05:20	20:12-20:54/42	05:04	20:36-20:54/18
	17:02		18:05		18:59		20:58		21:50		22:16	
26	08:37	15:30-16:30/60	07:36		06:27	18:11-18:29/18	06:13	19:40-19:50/10	05:19	20:13-20:55/42	05:05	20:36-20:54/18
	17:04		18:07		19:01		20:59		21:52		22:16	
27	08:35	15:32-16:33/61	07:33		06:25	18:09-18:31/22	06:11		05:17	20:14-20:55/41	05:05	20:36-20:55/19
	17:06		18:09		19:03		21:01		21:53		22:16	
28	08:34	15:54-16:35/41	07:31		06:22	18:07-18:32/25	06:09		05:16	20:15-20:55/40	05:06	20:35-20:55/20
	17:08	15:33-15:52/19	18:11		19:05		21:03		21:55		22:16	
29	08:32	15:54-16:37/43			07:20	19:06-19:33/27	06:06		05:15	20:16-20:55/39	05:06	20:36-20:56/20
	17:10	15:35-15:49/14			20:07		21:05		21:56		22:15	
30	08:31	15:54-16:39/45			07:17	19:04-19:33/29	06:04	20:18-20:30/12	05:14	20:18-20:54/36	05:07	20:36-20:57/21
	17:12	15:38-15:46/8			20:09		21:07		21:57		22:15	
31	08:29	15:54-16:40/46			07:15	19:03-19:34/31			05:13	20:19-20:54/35		
	17:14				20:10				21:59			
Potential sun hours	248		272		367		421		496		513	
Sum of minutes with flicker	1276		668		179		832		1162		634	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 9 - AT09

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 20:35-20:57/22 22:15	05:48 20:17-20:59/42 21:39	06:44 19:37-19:57/20 20:31 19:01-19:28/27	07:38 19:16	07:37 15:42-16:22/40 17:04	08:33 15:05-15:35/30 16:19
2	05:08 20:36-20:57/21 22:14	05:50 20:18-20:58/40 21:37	06:46 19:39-19:56/17 20:28 19:00-19:29/29	07:40 19:14	07:39 15:41-16:22/41 17:02 15:38-15:39/1	08:35 15:05-15:35/30 16:18
3	05:09 20:36-20:58/22 22:14	05:52 20:17-20:55/38 21:35	06:47 19:41-19:53/12 20:26 18:59-19:29/30	07:42 19:11	07:41 15:33-16:22/49 17:00	08:36 15:06-15:35/29 16:18
4	05:10 20:35-20:58/23 22:13	05:53 20:18-20:53/35 21:33	06:49 18:57-19:29/32 20:24 19:44-19:48/4	07:44 19:09	07:43 15:31-16:22/51 16:58	08:38 15:07-15:36/29 16:17
5	05:11 20:35-20:58/23 22:13	05:55 20:19-20:49/30 21:31	06:51 18:56-19:29/33 20:21	07:45 19:06	07:45 15:30-16:21/51 16:57	08:39 15:07-15:35/28 16:16
6	05:12 20:35-20:59/24 22:12	05:57 20:19-20:48/29 21:29	06:53 18:56-19:29/33 20:19	07:47 19:04	07:47 15:28-16:21/53 16:55	08:41 15:08-15:36/28 16:16
7	05:13 20:35-21:00/25 22:12	05:59 20:19-20:47/28 21:27	06:55 18:56-19:30/34 20:16	07:49 19:01	07:49 15:27-16:19/52 16:53	08:42 15:08-15:35/27 16:15
8	05:14 20:35-21:00/25 22:11	06:00 20:21-20:47/26 21:25	06:56 18:55-19:28/33 20:14	07:51 18:59	07:51 15:26-16:18/52 16:51	08:43 15:09-15:36/27 16:15
9	05:15 20:34-21:01/27 22:10	06:02 20:21-20:45/24 21:23	06:58 18:55-19:28/33 20:11	07:53 18:56	07:53 15:26-16:16/50 16:49	08:45 15:10-15:36/26 16:14
10	05:16 20:34-21:01/27 22:09	06:04 20:22-20:44/22 21:21	07:00 18:55-19:28/33 20:09	07:55 18:54	07:55 15:26-16:13/47 16:47	08:46 15:10-15:36/26 16:14
11	05:17 20:29-21:01/32 22:08	06:06 20:24-20:43/19 21:19	07:02 18:55-19:27/32 20:06	07:57 18:52	07:57 15:26-16:12/46 16:45	08:47 15:11-15:35/24 16:14
12	05:18 20:27-21:02/35 22:07	06:08 20:25-20:40/15 21:17	07:04 18:55-19:26/31 20:04	07:59 18:49	07:59 15:26-16:11/45 16:44 15:10-15:18/8	08:48 15:12-15:36/24 16:14
13	05:20 20:27-21:03/36 22:06	06:09 20:28-20:37/9 21:15	07:05 18:55-19:25/30 20:01	08:00 18:47	08:01 15:26-16:09/43 16:42 15:07-15:21/14	08:49 15:13-15:35/22 16:14
14	05:21 20:26-21:03/37 22:05	06:11 21:13	07:07 18:56-19:24/28 19:59	08:02 18:44	08:03 15:26-16:07/41 16:40 15:05-15:24/19	08:50 15:13-15:35/22 16:14
15	05:22 20:24-21:03/39 22:04	06:13 21:10	07:09 18:57-19:22/25 19:56	08:04 18:42	08:05 15:04-16:05/61 16:39	08:51 15:14-15:35/21 16:14
16	05:23 20:23-21:03/40 22:03	06:15 21:08	07:11 18:58-19:19/21 19:54	08:06 18:40	08:07 15:03-16:03/60 16:37	08:52 15:15-15:35/20 16:14
17	05:25 20:22-21:03/41 22:02	06:17 19:47-19:58/11 21:06	07:13 18:59-19:18/19 19:51	08:08 18:37	08:09 15:03-16:02/59 16:36	08:53 15:16-15:35/19 16:14
18	05:26 20:22-21:04/42 22:01	06:18 19:44-19:59/15 21:04	07:14 19:00-19:16/16 19:49	08:10 18:35	08:11 15:02-16:00/58 16:34	08:54 15:16-15:35/19 16:14
19	05:28 20:21-21:04/43 21:59	06:20 19:42-20:01/19 21:01	07:16 19:02-19:14/12 19:46	08:12 18:33	08:12 15:02-15:58/56 16:33	08:55 15:16-15:35/19 16:14
20	05:29 20:20-21:04/44 21:58	06:22 19:41-20:02/21 20:59	07:18 19:44	08:14 18:30	08:14 15:02-15:53/51 16:31	08:55 15:17-15:36/19 16:15
21	05:31 20:20-21:04/44 21:57	06:24 19:39-20:02/23 20:57	07:20 19:41	08:16 18:28	08:16 15:02-15:52/50 16:30	08:56 15:17-15:36/19 16:15
22	05:32 20:20-21:04/44 21:55	06:26 19:38-20:03/25 20:55	07:22 19:39	08:18 18:26	08:18 15:02-15:52/50 16:29	08:56 15:18-15:37/19 16:15
23	05:34 20:20-21:04/44 21:54	06:27 19:38-20:03/25 20:52	07:23 19:36	08:20 18:24	08:20 15:02-15:51/49 16:27	08:57 15:18-15:37/19 16:16
24	05:35 20:19-21:04/45 21:52	06:29 19:37-20:04/27 20:50	07:25 19:34	08:22 17:06-17:16/10 18:21	08:22 15:02-15:33/31 16:26 15:34-15:50/16	08:57 15:18-15:37/19 16:17
25	05:37 20:18-21:03/45 21:51	06:31 19:36-20:03/27 20:48	07:27 19:31	07:24 16:04-16:18/14 17:19	08:23 15:02-15:34/32 16:25 15:36-15:49/13	08:58 15:20-15:39/19 16:17
26	05:38 20:18-21:03/45 21:49	06:33 19:36-20:03/27 20:45	07:29 19:29	07:26 16:02-16:20/18 17:17	08:25 15:03-15:34/31 16:24 15:38-15:48/10	08:58 15:20-15:39/19 16:18
27	05:40 20:18-21:02/44 21:47	06:35 19:36-20:03/27 20:43	07:31 19:26	07:28 16:01-16:20/19 17:15	08:27 15:03-15:35/32 16:23 15:41-15:46/5	08:58 15:20-15:40/20 16:19
28	05:42 20:18-21:02/44 21:46	06:36 19:35-20:02/27 20:41 19:10-19:22/12	07:33 19:24	07:29 15:55-16:22/27 17:13	08:29 15:03-15:34/31 16:22	08:58 15:20-15:41/21 16:20
29	05:43 20:18-21:02/44 21:44	06:38 19:36-20:01/25 20:38 19:07-19:24/17	07:34 19:21	07:31 15:51-16:22/31 17:11	08:30 15:03-15:34/31 16:21	08:58 15:20-15:42/22 16:20
30	05:45 20:18-21:01/43 21:42	06:40 19:36-20:00/24 20:36 19:05-19:26/21	07:36 19:19	07:33 15:47-16:23/36 17:09	08:32 15:04-15:35/31 16:20	08:58 15:21-15:43/22 16:21
31	05:47 20:18-21:01/43 21:40	06:42 19:37-20:00/23 20:33 19:03-19:28/25		07:35 15:44-16:23/39 17:06		08:58 15:21-15:44/23 16:22
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	1113	778	584	194	1460	711

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 10 - AT10

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 13:58-14:51/53 16:24	08:27 16:09-16:39/30 17:16	07:29 16:45-17:34/49 18:13	07:12 20:12	06:02 19:52-20:33/41 21:09	05:12 22:00
2	08:58 13:59-14:51/52 16:25	08:25 16:09-16:39/30 17:18	07:26 16:49-17:34/45 18:15	07:10 20:14	06:00 19:53-20:33/40 21:11	05:11 22:01
3	08:58 14:00-14:52/52 16:26	08:24 16:08-16:40/32 17:20	07:24 16:54-17:34/40 18:17	07:08 20:16	05:58 19:56-20:40/44 21:13	05:10 22:02
4	08:58 14:00-14:52/52 16:27	08:22 16:08-16:41/33 17:22	07:22 16:56-17:32/36 18:19	07:05 20:18	05:56 20:01-20:42/41 21:14	05:09 22:03
5	08:57 14:00-14:52/52 16:29	08:20 16:07-16:41/34 17:24	07:19 17:00-17:32/32 18:21	07:03 20:20	05:54 20:01-20:45/44 21:16	05:08 22:05
6	08:57 14:01-14:53/52 16:30	08:18 16:07-16:42/35 17:26	07:17 17:09-17:30/21 18:23	07:00 20:22	05:52 20:01-20:46/45 21:18	05:07 22:06
7	08:56 14:01-14:53/52 16:31	08:16 16:07-16:42/35 17:28	07:14 17:10-17:29/19 18:25	06:58 20:24	05:50 20:00-20:47/47 21:20	05:07 21:23-21:29/6 22:07
8	08:56 14:02-14:53/51 16:33	08:14 16:07-16:42/35 17:30 16:51-16:55/4	07:12 17:12-17:27/15 18:27	06:55 20:26	05:48 20:00-20:47/47 21:22	05:06 21:21-21:30/9 22:08
9	08:55 14:03-14:54/51 16:34	08:12 16:06-16:41/35 17:32 16:45-16:59/14	07:09 17:15-17:24/9 18:28	06:53 20:27	05:46 20:00-20:48/48 21:23	05:05 21:21-21:32/11 22:09
10	08:55 14:04-14:54/50 16:36	08:10 16:43-17:03/20 17:34 16:07-16:42/35	07:07 18:30	06:50 20:29	05:44 20:01-20:49/48 21:25	05:05 21:20-21:32/12 22:09
11	08:54 14:04-14:54/50 16:37	08:08 16:07-17:05/58 17:36	07:05 18:32	06:48 20:31	05:42 20:01-20:49/48 21:27	05:04 21:19-21:34/15 22:10
12	08:53 14:05-14:54/49 16:39	08:06 16:07-17:07/60 17:38	07:02 18:34	06:46 20:33	05:40 20:01-20:49/48 21:29	05:04 21:19-21:35/16 22:11
13	08:52 14:06-14:54/48 16:41	08:04 16:08-17:10/62 17:40	07:00 18:36	06:43 20:35	05:39 20:01-20:49/48 21:31	05:04 21:19-21:36/17 22:12
14	08:51 14:07-14:54/47 16:42	08:02 16:09-17:11/62 17:43	06:57 18:38	06:41 20:37	05:37 20:01-20:49/48 21:32	05:03 21:18-21:35/17 22:12
15	08:50 14:06-14:53/47 16:44	08:00 16:09-17:14/65 17:45	06:55 18:40	06:38 20:01-20:08/7 20:39	05:35 20:02-20:49/47 21:34	05:03 21:19-21:36/17 22:13
16	08:50 14:08-14:53/45 16:46	07:58 16:10-17:17/67 17:47	06:52 18:42	06:36 19:57-20:10/13 20:41	05:33 20:03-20:49/46 21:36	05:03 21:19-21:36/17 22:14
17	08:48 14:09-14:54/45 16:47	07:56 16:11-17:19/68 17:49	06:50 18:44	06:34 19:55-20:12/17 20:43	05:32 20:03-20:49/46 21:37	05:03 21:19-21:37/18 22:14
18	08:47 14:10-14:54/44 16:49	07:54 16:13-17:20/67 17:51	06:47 18:46	06:31 19:53-20:13/20 20:44	05:30 20:04-20:49/45 21:39	05:03 21:19-21:37/18 22:15
19	08:46 14:10-14:53/43 16:51	07:51 16:36-17:21/45 17:53 16:14-16:34/20	06:45 18:48	06:29 19:52-20:14/22 20:46	05:29 20:04-20:48/44 21:41	05:03 21:19-21:38/19 22:15
20	08:45 14:12-14:53/41 16:53	07:49 16:36-17:22/46 17:55 16:17-16:32/15	06:42 18:50	06:27 19:51-20:14/23 20:48	05:27 20:06-20:48/42 21:42	05:03 21:19-21:38/19 22:15
21	08:44 14:13-14:52/39 16:55	07:47 16:37-17:27/50 17:57 16:22-16:28/6	06:40 18:52	06:24 19:50-20:15/25 20:50	05:25 20:07-20:48/41 21:44	05:03 21:20-21:39/19 22:15
22	08:42 14:14-14:52/38 16:56	07:45 16:36-17:29/53 17:59	06:37 18:53	06:22 19:50-20:15/25 20:52	05:24 20:08-20:47/39 21:46	05:03 21:20-21:39/19 22:16
23	08:41 14:15-14:50/35 16:58	07:43 16:37-17:31/54 18:01	06:35 18:55	06:20 19:50-20:15/25 20:54	05:23 20:09-20:47/38 21:47	05:04 21:20-21:39/19 22:16
24	08:40 14:18-14:50/32 17:00	07:40 16:38-17:33/55 18:03	06:32 18:57	06:17 19:49-20:15/26 20:56	05:21 20:26-20:46/20 21:49 20:11-20:25/14	05:04 21:20-21:38/18 22:16
25	08:38 16:17-16:28/11 17:02 14:19-14:48/29	07:38 16:38-17:33/55 18:05	06:30 18:59	06:15 19:49-20:26/37 20:58	05:20 20:28-20:46/18 21:50 20:13-20:23/10	05:04 21:21-21:39/18 22:16
26	08:37 16:15-16:30/15 17:04 14:21-14:47/26	07:36 16:39-17:34/55 18:07	06:27 19:01	06:13 19:49-20:27/38 20:59	05:18 20:29-20:45/16 21:52	05:05 21:21-21:39/18 22:16
27	08:35 16:14-16:33/19 17:06 14:24-14:45/21	07:33 16:40-17:34/54 18:09	06:25 19:03	06:11 19:49-20:29/40 21:01	05:17 20:30-20:44/14 21:53	05:05 21:22-21:39/17 22:16
28	08:34 16:13-16:34/21 17:08 14:28-14:42/14	07:31 16:42-17:34/52 18:11	06:22 19:05	06:09 19:49-20:30/41 21:03	05:16 20:31-20:43/12 21:55	05:06 21:21-21:39/18 22:16
29	08:32 16:11-16:35/24 17:10		07:20 20:07	06:06 19:50-20:32/42 21:05	05:15 20:33-20:42/9 21:56	05:06 21:22-21:39/17 22:15
30	08:31 16:10-16:36/26 17:12		07:17 20:09	06:04 19:51-20:32/41 21:07	05:14 20:35-20:40/5 21:57	05:07 21:23-21:39/16 22:15
31	08:29 16:09-16:37/28 17:14		07:15 20:10		05:13 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	1354	1441	266	442	1143	390

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 10 - AT10

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:08 21:23-21:38/15 22:15	05:48 20:11-20:59/48 21:39	06:44 20:31	07:38 19:16	07:37 16:13-16:32/19 17:04 15:36-16:11/35	08:33 13:46-14:36/50 16:19
2	05:08 21:24-21:38/14 22:14	05:50 20:11-20:59/48 21:37	06:46 20:28	07:40 19:14	07:39 15:36-16:11/35 17:02 16:15-16:28/13	08:35 13:46-14:36/50 16:18
3	05:09 21:26-21:38/12 22:14	05:52 20:10-20:58/48 21:35	06:47 20:26	07:42 19:11	07:41 15:36-16:11/35 17:00	08:36 13:46-14:37/51 16:18
4	05:10 21:26-21:36/10 22:13	05:53 20:10-20:58/48 21:33	06:49 20:24	07:44 17:54-17:59/5 19:09	07:43 15:37-16:12/35 16:58	08:38 13:47-14:38/51 16:17
5	05:11 21:27-21:35/8 22:13	05:55 20:11-20:58/47 21:31	06:51 20:21	07:45 17:50-18:03/13 19:06	07:45 15:37-16:11/34 16:57	08:39 13:46-14:38/52 16:16
6	05:12 21:30-21:33/3 22:12	05:57 20:10-20:56/46 21:29	06:53 20:19	07:47 17:47-18:05/18 19:04	07:47 15:37-16:11/34 16:55	08:41 13:47-14:39/52 16:16
7	05:13 22:12	05:59 20:10-20:55/45 21:27	06:55 20:16	07:49 17:45-18:06/21 19:01	07:49 15:37-16:10/33 16:53	08:42 13:47-14:39/52 16:15
8	05:14 22:11	06:00 20:11-20:54/43 21:25	06:56 20:14	07:51 17:39-18:07/28 18:59	07:51 15:38-16:10/32 16:51	08:43 13:48-14:40/52 16:15
9	05:15 22:10	06:02 20:08-20:51/43 21:23	06:58 20:11	07:53 17:33-18:07/34 18:56	07:53 15:38-16:09/31 16:49	08:45 13:48-14:40/52 16:14
10	05:16 22:09	06:04 20:04-20:48/44 21:21	07:00 20:09	07:55 17:30-18:08/38 18:54	07:55 15:40-16:09/29 16:47	08:46 13:48-14:40/52 16:14
11	05:17 22:08	06:06 20:01-20:43/42 21:19	07:02 20:06	07:57 17:27-18:08/41 18:52	07:57 15:41-16:09/28 16:45	08:47 13:48-14:41/53 16:14
12	05:18 22:07	06:08 20:00-20:41/41 21:17	07:04 20:04	07:59 17:20-18:08/48 18:49	07:59 15:42-16:08/26 16:44	08:48 13:49-14:42/53 16:14
13	05:19 22:06	06:09 19:59-20:41/42 21:15	07:05 20:01	08:00 17:17-18:07/50 18:47	08:01 15:43-16:07/24 16:42	08:49 14:58-15:02/4 16:14 13:49-14:42/53
14	05:21 20:42-20:50/8 22:05	06:11 19:58-20:40/42 21:13	07:07 19:59	08:02 17:14-18:07/53 18:44	08:03 15:45-16:06/21 16:40 14:00-14:14/14	08:50 14:57-15:03/6 16:14 13:50-14:43/53
15	05:22 20:40-20:51/11 22:04	06:13 19:57-20:38/41 21:10	07:09 19:56	08:04 17:12-18:07/55 18:42	08:05 15:46-16:04/18 16:39 13:56-14:17/21	08:51 14:57-15:05/8 16:14 13:50-14:43/53
16	05:23 20:39-20:52/13 22:03	06:15 19:56-20:36/40 21:08	07:11 19:54	08:06 17:11-18:06/55 18:40	08:07 15:48-16:03/15 16:37 13:54-14:20/26	08:52 14:57-15:06/9 16:14 13:51-14:44/53
17	05:25 20:38-20:53/15 22:02	06:17 19:56-20:34/38 21:06	07:13 19:51	08:08 17:10-18:05/55 18:37	08:09 15:51-16:01/10 16:36 13:53-14:22/29	08:53 14:57-15:07/10 16:14 13:51-14:45/54
18	05:26 20:38-20:55/17 22:01 20:24-20:31/7	06:18 19:55-20:31/36 21:04	07:14 19:49	08:10 17:09-18:04/55 18:35	08:11 13:52-14:24/32 16:34	08:54 14:57-15:07/10 16:14 13:51-14:44/53
19	05:28 20:37-20:56/19 21:59 20:22-20:34/12	06:20 19:55-20:21/26 21:01	07:16 19:46	08:12 17:08-18:02/54 18:33	08:12 13:50-14:25/35 16:33	08:55 14:57-15:08/11 16:14 13:52-14:45/53
20	05:29 20:36-20:56/20 21:58 20:20-20:35/15	06:22 19:55-20:21/26 20:59	07:18 19:44	08:14 17:07-18:00/53 18:30	08:14 13:49-14:27/38 16:31	08:55 14:58-15:09/11 16:15 13:53-14:46/53
21	05:31 20:19-20:57/38 21:57	06:24 19:54-20:20/26 20:57	07:20 19:41	08:16 17:07-17:57/50 18:28 16:50-17:00/10	08:16 13:49-14:28/39 16:30	08:56 14:58-15:09/11 16:15 13:53-14:46/53
22	05:32 20:17-20:57/40 21:55	06:26 19:55-20:19/24 20:55	07:22 19:39	08:18 17:07-17:52/45 18:26 16:47-17:03/16	08:18 13:48-14:29/41 16:29	08:56 14:59-15:10/11 16:15 13:54-14:47/53
23	05:34 20:17-20:59/42 21:54	06:27 19:55-20:19/24 20:52	07:23 19:36	08:20 17:06-17:51/45 18:24 16:44-17:05/21	08:20 13:47-14:30/43 16:27	08:57 14:59-15:10/11 16:16 13:54-14:47/53
24	05:35 20:16-20:59/43 21:52	06:29 19:56-20:18/22 20:50	07:25 19:34	08:22 16:42-17:49/67 18:21	08:22 13:47-14:31/44 16:26	08:57 14:59-15:10/11 16:17 13:54-14:47/53
25	05:37 20:14-20:58/44 21:51	06:31 19:56-20:16/20 20:48	07:27 19:31	07:24 15:40-16:48/68 17:19	08:23 13:47-14:32/45 16:25	08:58 15:00-15:11/11 16:17 13:55-14:48/53
26	05:38 20:14-20:59/45 21:49	06:33 19:58-20:15/17 20:45	07:29 19:29	07:26 15:39-16:46/67 17:17	08:25 13:47-14:33/46 16:24	08:58 15:01-15:11/10 16:18 13:55-14:48/53
27	05:40 20:13-20:59/46 21:47	06:35 20:00-20:13/13 20:43	07:31 19:26	07:28 15:38-16:43/65 17:15	08:27 13:47-14:33/46 16:23	08:58 15:02-15:11/9 16:19 13:56-14:49/53
28	05:42 20:13-21:00/47 21:46	06:36 20:02-20:08/6 20:41	07:33 19:24	07:30 15:38-16:40/62 17:13	08:29 13:46-14:33/47 16:22	08:58 15:03-15:11/8 16:20 13:56-14:49/53
29	05:43 20:13-21:00/47 21:44	06:38 20:38	07:34 19:21	07:31 15:37-16:39/62 17:11	08:30 13:46-14:34/48 16:21	08:58 15:04-15:10/6 16:20 13:57-14:50/53
30	05:45 20:12-21:00/48 21:42	06:40 20:36	07:36 19:19	07:33 15:37-16:36/59 17:09	08:32 13:46-14:35/49 16:20	08:58 15:06-15:10/4 16:21 13:57-14:50/53
31	05:47 20:12-21:00/48 21:40	06:42 20:33		07:35 16:12-16:34/22 17:06 15:36-16:11/35		08:58 13:58-14:51/53 16:22
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	687	986	0	1370	1150	1789

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 11 - AT11

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February		March		April		May		June	
1	08:58		08:27	09:00-09:15/15	07:29	07:54-08:00/6	07:12		06:02	19:32-20:19/47	05:12	21:03-21:21/18
	16:24		17:16	16:29-16:44/15	18:13	17:11-17:30/19	20:12		21:09		22:00	
2	08:58		08:25	09:02-09:14/12	07:26	07:51-07:58/7	07:10		06:00	19:32-20:18/46	05:11	21:03-21:21/18
	16:25		17:18	16:28-16:46/18	18:15	17:12-17:28/16	20:14		21:11		22:01	
3	08:58		08:24	09:05-09:11/6	07:24	07:49-07:57/8	07:08	19:34-19:46/12	05:58	19:32-20:18/46	05:10	21:03-21:21/18
	16:26		17:20	16:28-16:48/20	18:17	17:15-17:26/11	20:16		21:13		22:02	
4	08:58		08:22	16:28-16:50/22	07:22	07:46-07:54/8	07:05	19:32-19:49/17	05:56	19:32-20:18/46	05:09	21:04-21:21/17
	16:27		17:22		18:19		20:18		21:14		22:04	
5	08:57		08:20	16:28-16:53/25	07:19	07:44-07:47/3	07:03	19:31-19:53/22	05:54	19:33-20:19/46	05:08	21:04-21:21/17
	16:29		17:24		18:21		20:20		21:16		22:05	
6	08:57		08:18	16:28-16:54/26	07:17	07:41-07:46/5	07:00	19:29-19:54/25	05:52	19:33-20:18/45	05:07	21:04-21:21/17
	16:30		17:26		18:23		20:22		21:18		22:06	
7	08:57		08:16	16:28-16:54/26	07:14	07:39-07:45/6	06:58	19:28-19:55/27	05:50	19:33-20:18/45	05:07	21:05-21:21/16
	16:31		17:28		18:25		20:24		21:20		22:07	
8	08:56		08:14	16:29-16:53/24	07:12	07:37-07:44/7	06:55	19:27-19:55/28	05:48	19:33-20:17/44	05:06	21:04-21:21/17
	16:33		17:30		18:27		20:26		21:22		22:08	
9	08:55		08:12	16:29-16:52/23	07:10	07:35-07:40/5	06:53	19:26-19:57/31	05:46	19:33-20:16/43	05:05	21:05-21:21/16
	16:34		17:32		18:29		20:27		21:24		22:09	
10	08:55		08:10	16:30-16:52/22	07:07		06:50	19:26-19:59/33	05:44	19:34-20:17/43	05:05	21:05-21:21/16
	16:36		17:34		18:30		20:29		21:25		22:09	
11	08:54		08:08	16:31-16:51/20	07:05		06:48	19:25-20:02/37	05:42	19:34-20:16/42	05:04	21:06-21:21/15
	16:37		17:36		18:32		20:31		21:27		22:10	
12	08:53		08:06	16:32-16:50/18	07:02		06:46	19:26-20:05/39	05:40	19:35-20:15/40	05:04	21:06-21:21/15
	16:39		17:38		18:34		20:33		21:29		22:11	
13	08:52		08:04	16:34-16:48/14	07:00		06:43	19:25-20:06/41	05:39	19:36-20:15/39	05:04	21:07-21:22/15
	16:41		17:41		18:36		20:35		21:31		22:12	
14	08:51		08:02	16:37-16:46/9	06:57		06:41	19:26-20:08/42	05:37	19:36-20:14/38	05:03	21:07-21:21/14
	16:42		17:43		18:38		20:37		21:32		22:12	
15	08:51		08:00		06:55		06:38	19:26-20:08/42	05:35	19:37-20:12/35	05:03	21:07-21:21/14
	16:44		17:45		18:40		20:39		21:34		22:13	
16	08:50		07:58		06:52		06:36	19:27-20:09/42	05:33	19:38-20:12/34	05:03	21:07-21:21/14
	16:46		17:47		18:42		20:41		21:36		22:14	21:36-21:37/1
17	08:49		07:56	17:17-17:19/2	06:50		06:34	19:28-20:09/41	05:32	19:39-20:11/32	05:03	21:08-21:21/13
	16:47		17:49		18:44		20:43		21:38		22:14	21:35-21:37/2
18	08:47		07:54	08:20-08:21/1	06:47		06:31	19:30-20:12/42	05:30	19:40-20:10/30	05:03	21:08-21:22/14
	16:49		17:51	17:15-17:22/7	18:46		20:44		21:39		22:15	21:35-21:38/3
19	08:46		07:52	08:17-08:21/4	06:45		06:29	19:33-20:13/40	05:29	19:41-20:09/28	05:03	21:08-21:22/14
	16:51		17:53	17:13-17:23/10	18:48		20:46		21:41		22:15	21:35-21:38/3
20	08:45		07:49	08:15-08:21/6	06:42		06:27	19:34-20:14/40	05:27	19:43-20:08/25	05:03	21:08-21:22/14
	16:53		17:55	17:12-17:26/14	18:50		20:48		21:42		22:15	21:35-21:38/3
21	08:44	09:14-09:16/2	07:47	08:13-08:21/8	06:40		06:24	19:34-20:15/41	05:25	21:08-21:11/3	05:03	21:10-21:23/13
	16:55		17:57	17:11-17:28/17	18:52		20:50		21:44	19:45-20:07/22	22:16	21:36-21:39/3
22	08:43	09:13-09:17/4	07:45	08:10-08:20/10	06:37		06:22	19:35-20:16/41	05:24	21:05-21:12/7	05:03	21:09-21:23/14
	16:56		17:59	17:10-17:30/20	18:53		20:52		21:46	19:46-20:05/19	22:16	21:36-21:39/3
23	08:41	09:11-09:17/6	07:43	08:08-08:19/11	06:35		06:20	19:36-20:17/41	05:23	21:05-21:13/8	05:03	21:09-21:23/14
	16:58		18:01	17:10-17:32/22	18:55		20:54		21:47	19:48-20:03/15	22:16	21:36-21:39/3
24	08:40	09:10-09:18/8	07:40	08:06-08:18/12	06:32		06:17	19:36-20:18/42	05:21	21:04-21:15/11	05:04	21:09-21:23/14
	17:00		18:03	17:10-17:33/23	18:57		20:56		21:49	19:51-20:01/10	22:16	21:36-21:39/3
25	08:38	09:08-09:18/10	07:38	08:05-08:16/11	06:30		06:15	19:35-20:18/43	05:20	21:04-21:16/12	05:04	21:10-21:24/14
	17:02		18:05	17:09-17:32/23	18:59		20:58		21:50		22:16	21:37-21:39/2
26	08:37	09:07-09:18/11	07:36	08:09-08:12/3	06:27		06:13	19:34-20:18/44	05:18	21:04-21:18/14	05:05	21:10-21:23/13
	17:04		18:07	17:09-17:32/23	19:01		21:00		21:52		22:16	21:37-21:39/2
27	08:35	09:05-09:18/13	07:33	07:59-08:01/2	06:25		06:11	19:33-20:18/45	05:17	21:03-21:19/16	05:05	21:10-21:24/14
	17:06	16:32-16:33/1	18:09	17:09-17:31/22	19:03		21:01		21:53		22:16	
28	08:34	09:03-09:18/15	07:31	07:56-08:00/4	06:22		06:09	19:33-20:18/45	05:16	21:03-21:20/17	05:06	21:10-21:24/14
	17:08	16:31-16:35/4	18:11	17:10-17:31/21	19:05		21:03		21:55		22:16	
29	08:32	09:01-09:17/16			07:20		06:06	19:33-20:19/46	05:15	21:03-21:20/17	05:06	21:10-21:25/15
	17:10	16:30-16:37/7			20:07		21:05		21:56		22:16	
30	08:31	08:59-09:16/17			07:17		06:04	19:32-20:19/47	05:14	21:03-21:21/18	05:07	21:10-21:25/15
	17:12	16:29-16:39/10			20:09		21:07		21:57		22:15	
31	08:29	08:59-09:17/18			07:15				05:13	21:03-21:21/18		
	17:14	16:28-16:41/13			20:10				21:59			
Potential sun hours	248		272		367		421		496		513	
Sum of minutes with flicker	155		591		101		1036		1001		480	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 11 - AT11

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:07 21:10-21:25/15 22:15	05:48 19:45-20:25/40 21:39	06:44 19:24-20:01/37 20:31	07:38 19:16	07:37 15:59-16:21/22 17:04	08:33 16:19
2	05:08 21:10-21:26/16 22:15	05:50 19:45-20:26/41 21:37	06:46 19:24-19:57/33 20:28	07:40 19:14	07:39 15:58-16:22/24 17:02	08:35 16:18
3	05:09 21:11-21:27/16 22:14	05:52 19:43-20:26/43 21:35	06:47 19:24-19:55/31 20:26	07:42 19:11	07:41 15:59-16:23/24 17:00	08:37 16:18
4	05:10 21:10-21:26/16 22:14	05:53 19:43-20:27/44 21:33	06:49 19:24-19:52/28 20:24	07:44 19:09	07:43 15:58-16:23/25 16:58	08:38 16:17
5	05:11 21:10-21:27/17 22:13	05:55 19:43-20:28/45 21:31	06:51 19:24-19:51/27 20:21	07:45 08:12-08:18/6 19:06	07:45 15:58-16:23/25 16:57	08:39 16:16
6	05:12 21:10-21:27/17 22:12	05:57 19:42-20:27/45 21:29	06:53 19:25-19:50/25 20:19	07:47 08:14-08:20/6 19:04	07:47 15:58-16:22/24 16:55	08:41 16:16
7	05:13 21:10-21:27/17 22:12	05:59 19:42-20:28/46 21:27	06:55 19:26-19:48/22 20:16	07:49 08:16-08:21/5 19:01	07:49 15:58-16:20/22 16:53	08:42 16:15
8	05:14 21:10-21:28/18 22:11	06:00 19:42-20:28/46 21:25	06:56 19:26-19:44/18 20:14	07:51 08:18-08:22/4 18:59	07:51 08:34-08:41/7 16:51 15:58-16:18/20	08:44 16:15
9	05:15 21:10-21:28/18 22:10	06:02 19:41-20:27/46 21:23	06:58 19:28-19:41/13 20:11	07:53 08:20-08:22/2 18:56	07:53 08:32-08:45/13 16:49 15:59-16:17/18	08:45 16:14
10	05:16 21:10-21:28/18 22:09	06:04 19:41-20:28/47 21:21	07:00 19:33-19:36/3 20:09	07:55 08:22-08:30/8 18:54 17:51-17:58/7	07:55 08:31-08:46/15 16:47 15:59-16:15/16	08:46 16:14
11	05:17 21:11-21:28/17 22:08	06:06 19:41-20:28/47 21:19	07:02 20:06	07:57 08:24-08:32/8 18:52 17:47-18:01/14	07:57 08:29-08:47/18 16:45 16:00-16:12/12	08:47 16:14
12	05:18 21:11-21:28/17 22:07	06:08 19:41-20:27/46 21:17	07:04 20:04	07:59 08:26-08:33/7 18:49 17:45-18:02/17	07:59 08:31-08:48/17 16:44 16:01-16:10/9	08:48 16:14
13	05:19 21:11-21:28/17 22:06	06:09 19:41-20:27/46 21:15	07:05 20:01	08:00 08:28-08:33/5 18:47 17:44-18:03/19	08:01 08:33-08:49/16 16:42 16:02-16:08/6	08:49 16:14
14	05:21 21:12-21:29/17 22:05	06:11 19:41-20:27/46 21:13	07:07 19:59	08:02 08:30-08:34/4 18:44 17:43-18:04/21	08:03 08:35-08:50/15 16:40 16:03-16:07/4	08:50 16:14
15	05:22 21:12-21:29/17 22:04	06:13 19:40-20:26/46 21:10	07:09 19:56	08:04 08:32-08:33/1 18:42 17:42-18:04/22	08:05 08:38-08:51/13 16:39 16:04-16:05/1	08:51 16:14
16	05:23 21:12-21:28/16 22:03	06:15 19:41-20:26/45 21:08	07:11 19:54	08:06 08:39-08:46/7 18:40 17:41-18:04/23	08:07 08:40-08:51/11 16:37	08:52 16:14
17	05:25 21:12-21:27/15 22:02	06:17 19:41-20:25/44 21:06	07:13 19:51	08:08 08:36-08:49/13 18:37 17:41-18:04/23	08:09 08:42-08:52/10 16:36	08:53 16:14
18	05:26 21:13-21:27/14 22:01	06:18 19:41-20:24/43 21:04	07:14 19:49	08:10 08:38-08:50/12 18:35 17:41-18:04/23	08:11 08:44-08:52/8 16:34	08:54 16:14
19	05:28 21:14-21:25/11 21:59 20:04-20:08/4	06:20 19:42-20:23/41 21:02	07:16 19:46	08:12 08:40-08:51/11 18:33 17:41-18:03/22	08:13 08:46-08:52/6 16:33	08:55 16:14
20	05:29 21:14-21:24/10 21:58 19:59-20:11/12	06:22 19:41-20:23/42 20:59	07:18 19:44	08:14 08:42-08:51/9 18:30 17:41-18:00/19	08:14 08:48-08:52/4 16:31	08:55 16:15
21	05:31 21:16-21:23/7 21:57 19:57-20:14/17	06:24 19:39-20:21/42 20:57	07:20 19:41	08:16 08:44-08:51/7 18:28 17:42-17:58/16	08:16 08:50-08:52/2 16:30	08:56 16:15
22	05:32 21:16-21:21/5 21:55 19:55-20:16/21	06:26 19:39-20:20/41 20:55	07:22 19:39	08:18 08:46-08:51/5 18:26 17:42-17:55/13	08:18 16:29	08:56 16:15
23	05:34 21:19-21:21/2 21:54 19:54-20:18/24	06:27 19:38-20:18/40 20:52	07:23 19:36	08:20 08:48-08:51/3 18:24 17:43-17:53/10	08:20 16:27	08:57 16:16
24	05:35 19:52-20:19/27 21:52	06:29 19:36-20:17/41 20:50	07:25 19:34	08:22 17:45-17:51/6 18:21	08:22 16:26	08:57 16:17
25	05:37 19:51-20:20/29 21:51	06:31 19:32-20:14/42 20:48	07:27 19:31	07:24 17:19	08:23 16:25	08:58 16:17
26	05:38 19:50-20:21/31 21:49	06:33 19:30-20:12/42 20:45	07:29 19:29	07:26 17:17	08:25 16:24	08:58 16:18
27	05:40 19:49-20:22/33 21:47	06:35 19:29-20:11/42 20:43	07:31 19:26	07:28 17:15	08:27 16:23	08:58 16:19
28	05:42 19:48-20:23/35 21:46	06:36 19:27-20:09/42 20:41	07:33 19:24	07:30 16:06-16:16/10 17:13	08:29 16:22	08:58 16:20
29	05:43 19:48-20:24/36 21:44	06:38 19:26-20:08/42 20:38	07:34 19:21	07:32 16:03-16:18/15 17:11	08:30 16:21	08:59 16:20
30	05:45 19:46-20:24/38 21:42	06:40 19:26-20:07/41 20:36	07:36 19:19	07:33 16:01-16:20/19 17:09	08:32 16:20	08:59 16:21
31	05:47 19:46-20:25/39 21:40	06:42 19:25-20:05/40 20:33		07:35 16:00-16:21/21 17:06		08:59 16:22
Potential sun hours	515	461	382	328	257	231
Sum of minutes with flicker	679	1344	237	443	407	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 12 - AT12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 09:33-09:52/19 16:24	08:27 17:16	07:29 17:06-17:34/28 18:13	07:12 20:12	06:02 20:09-20:38/29 21:09	05:12 20:31-20:49/18 22:00
2	08:58 09:33-09:53/20 16:25	08:25 17:18	07:26 17:06-17:33/27 18:15	07:10 20:14	06:00 20:09-20:40/31 21:11	05:11 20:32-20:48/16 22:01
3	08:58 09:33-09:53/20 16:26	08:24 17:20	07:24 17:08-17:32/24 18:17	07:08 19:37-19:46/9 20:16	05:58 20:09-20:42/33 21:13	05:10 20:32-20:47/15 22:02
4	08:58 09:32-09:53/21 16:27	08:22 17:22	07:22 17:08-17:30/22 18:19	07:05 19:35-19:48/13 20:18	05:56 20:09-20:43/34 21:14	05:09 20:34-20:47/13 22:04
5	08:57 09:32-09:54/22 16:29	08:20 17:24	07:19 17:10-17:29/19 18:21	07:03 19:34-19:50/16 20:20	05:54 20:10-20:45/35 21:16	05:08 20:35-20:46/11 22:05
6	08:57 09:31-09:54/23 16:30	08:18 17:26	07:17 17:12-17:26/14 18:23	07:00 19:33-19:51/18 20:22	05:52 20:11-20:47/36 21:18	05:07 20:36-20:45/9 22:06
7	08:57 09:30-09:54/24 16:31	08:16 17:28	07:14 07:39-07:41/2 18:25 17:16-17:22/6	06:58 19:33-19:51/18 20:24	05:50 20:10-20:48/38 21:20	05:07 20:38-20:44/6 22:07
8	08:56 09:30-09:55/25 16:33	08:14 17:30	07:12 07:37-07:41/4 18:27 17:56-17:59/3	06:55 19:32-19:51/19 20:26	05:48 20:10-20:49/39 21:22	05:06 22:08
9	08:55 09:29-09:54/25 16:34	08:12 17:32	07:10 07:34-07:41/7 18:29 17:52-18:01/9	06:53 19:32-19:51/19 20:27	05:46 20:10-20:50/40 21:24	05:05 22:09
10	08:55 09:28-09:54/26 16:36	08:10 17:34	07:07 07:32-07:41/9 18:30 17:50-18:03/13	06:50 19:32-19:50/18 20:29	05:44 20:11-20:51/40 21:25	05:05 22:09
11	08:54 09:27-09:54/27 16:37	08:08 17:36	07:05 07:29-07:39/10 18:32 17:48-18:05/17	06:48 19:33-19:49/16 20:31	05:42 20:11-20:52/41 21:27	05:04 22:10
12	08:53 09:28-09:54/26 16:39	08:06 08:33-08:34/1 17:38	07:02 07:27-07:39/12 18:34 17:47-18:07/20	06:46 19:35-19:49/14 20:33	05:40 20:11-20:52/41 21:29	05:04 21:23-21:30/7 22:11
13	08:52 09:29-09:54/25 16:40	08:04 08:31-08:35/4 17:40	07:00 07:24-07:37/13 18:36 17:46-18:09/23	06:43 19:37-19:46/9 20:35	05:39 20:11-20:52/41 21:31	05:04 21:22-21:31/9 22:12
14	08:52 09:30-09:54/24 16:42	08:02 08:29-08:36/7 17:43	06:57 07:25-07:35/10 17:45-18:10/25 18:38 07:22-07:24/2	06:41 19:40-19:43/3 20:37	05:37 20:12-20:53/41 21:32	05:03 21:20-21:32/12 22:12
15	08:51 09:31-09:54/23 16:44	08:00 08:27-08:36/9 17:45	06:55 07:19-07:23/4 18:40 17:45-18:10/25	06:38 20:39	05:35 20:13-20:53/40 21:34	05:03 21:20-21:33/13 22:13
16	08:50 09:32-09:52/20 16:46	07:58 08:24-08:35/11 17:47 17:16-17:17/1	06:52 07:17-07:22/5 18:42 17:44-18:10/26	06:36 20:41	05:33 20:14-20:53/39 21:36	05:03 21:20-21:34/14 22:14
17	08:49 09:33-09:52/19 16:47	07:56 08:22-08:35/13 17:49 17:13-17:19/6	06:50 07:14-07:21/7 18:44 17:44-18:10/26	06:34 20:43	05:32 20:15-20:53/38 21:38	05:03 21:19-21:34/15 22:14
18	08:47 09:35-09:51/16 16:49	07:54 08:20-08:35/15 17:51 17:12-17:22/10	06:47 07:12-07:20/8 18:46 17:44-18:09/25	06:31 20:44	05:30 20:17-20:53/36 21:39	05:03 21:19-21:35/16 22:15
19	08:46 09:37-09:49/12 16:51	07:52 08:17-08:34/17 17:53 17:10-17:23/13	06:45 07:09-07:17/8 18:48 17:44-18:08/24	06:29 20:46	05:28 20:18-20:53/35 21:41	05:03 21:19-21:35/16 22:15
20	08:45 09:41-09:46/5 16:53	07:49 08:15-08:34/19 17:55 17:09-17:26/17	06:42 07:06-07:10/4 18:50 17:44-18:07/23	06:27 20:48	05:27 20:21-20:53/32 21:42	05:03 21:19-21:35/16 22:15
21	08:44 16:55	07:47 08:13-08:33/20 17:57 17:08-17:28/20	06:40 07:04-07:09/5 18:52 17:46-18:06/20	06:24 20:50	05:25 20:25-20:53/28 21:44	05:03 21:20-21:36/16 22:16
22	08:43 16:56	07:45 08:13-08:31/18 17:59 17:07-17:30/23	06:37 07:01-07:07/6 18:53 17:47-18:04/17	06:22 20:52	05:24 20:24-20:52/28 21:46	05:03 21:20-21:36/16 22:16
23	08:41 16:58	07:43 08:15-08:29/14 18:01 17:06-17:32/26	06:35 06:59-07:05/6 18:55 17:49-18:02/13	06:20 20:17-20:24/7 20:54	05:23 20:25-20:52/27 21:47	05:03 21:20-21:36/16 22:16
24	08:40 17:00	07:40 08:18-08:26/8 18:03 17:06-17:35/29	06:32 17:52-17:57/5 18:57	06:17 20:15-20:26/11 20:56	05:21 20:26-20:52/26 21:49	05:04 21:20-21:36/16 22:16
25	08:38 17:02	07:38 17:05-17:35/30 18:05	06:30 18:59	06:15 20:13-20:28/15 20:58	05:20 20:26-20:52/26 21:50	05:04 21:21-21:37/16 22:16
26	08:37 17:04	07:36 17:06-17:35/29 18:07	06:27 19:01	06:13 20:11-20:28/17 21:00	05:18 20:27-20:52/25 21:52	05:05 21:22-21:36/14 22:16
27	08:35 17:06	07:33 17:05-17:34/29 18:09	06:25 19:03	06:11 20:10-20:29/19 21:01	05:17 20:28-20:51/23 21:53	05:05 21:23-21:36/13 22:16
28	08:34 17:08	07:31 17:06-17:34/28 18:11	06:22 19:05	06:09 20:09-20:31/22 21:03	05:16 20:28-20:51/23 21:55	05:06 21:23-21:35/12 22:16
29	08:32 17:10		07:20 20:07	06:06 20:09-20:33/24 21:05	05:15 20:29-20:51/22 21:56	05:06 21:25-21:35/10 22:16
30	08:31 17:12		07:17 20:09	06:04 20:09-20:34/25 21:07	05:14 20:29-20:50/21 21:57	05:07 21:26-21:34/8 22:15
31	08:29 17:14		07:15 20:10		05:13 20:30-20:50/20 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	422	417	576	312	1008	343

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 12 - AT12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November		December	
1	05:07	21:28-21:32/4	05:48	20:21-21:02/41	06:44	19:32-19:48/16	07:38	08:05-08:17/12	07:37		08:33	09:09-09:36/27
	22:15		21:39		20:31		19:16	18:26-18:48/22	17:04		16:19	
2	05:08		05:50	20:21-21:02/41	06:46	19:31-19:49/18	07:40	08:07-08:18/11	07:39		08:35	09:11-09:38/27
	22:15		21:37		20:28		19:14	18:26-18:44/18	17:02		16:18	
3	05:09		05:52	20:20-21:00/40	06:47	19:30-19:49/19	07:42	08:09-08:19/10	07:41		08:37	09:12-09:38/26
	22:14		21:35		20:26		19:11	18:27-18:42/15	17:00		16:18	
4	05:10		05:53	20:20-21:00/40	06:49	19:29-19:48/19	07:44	08:10-08:18/8	07:43		08:38	09:14-09:39/25
	22:14		21:33		20:24		19:09	18:28-18:39/11	16:58		16:17	
5	05:11	20:44-20:49/5	05:55	20:21-20:59/38	06:51	19:29-19:47/18	07:45	08:12-08:18/6	07:45		08:39	09:15-09:39/24
	22:13		21:31		20:21		19:06	18:31-18:37/6	16:56		16:16	
6	05:12	20:43-20:51/8	05:57	20:20-20:57/37	06:53	19:29-19:47/18	07:47	08:14-08:17/3	07:47		08:41	09:17-09:40/23
	22:12		21:29		20:19		19:04		16:55		16:16	
7	05:13	20:42-20:52/10	05:59	20:20-20:56/36	06:55	19:29-19:45/16	07:49	08:16-08:17/1	07:49		08:42	09:18-09:40/22
	22:12		21:27		20:16		19:01	17:49-18:00/11	16:53		16:15	
8	05:14	20:41-20:53/12	06:00	20:19-20:54/35	06:56	19:29-19:42/13	07:51	17:46-18:03/17	07:51		08:44	09:20-09:41/21
	22:11		21:25		20:14		18:59		16:51		16:15	
9	05:15	20:40-20:54/14	06:02	20:19-20:52/33	06:58	19:31-19:40/9	07:53	17:44-18:04/20	07:53		08:45	09:21-09:41/20
	22:10		21:23		20:11		18:56		16:49		16:14	
10	05:16	20:39-20:55/16	06:04	20:18-20:50/32	07:00	19:34-19:37/3	07:55	17:42-18:06/24	07:55		08:46	09:22-09:42/20
	22:09		21:21		20:09		18:54		16:47		16:14	
11	05:17	20:39-20:56/17	06:06	20:17-20:48/31	07:02		07:57	17:41-18:06/25	07:57		08:47	09:24-09:43/19
	22:08		21:19		20:06		18:52		16:45		16:14	
12	05:18	20:38-20:57/19	06:08	20:17-20:43/26	07:04		07:59	17:40-18:07/27	07:59		08:48	09:25-09:43/18
	22:07		21:17		20:04		18:49		16:44		16:14	
13	05:19	20:37-20:57/20	06:09	20:17-20:42/25	07:05		08:00	17:39-18:07/28	08:01		08:49	09:26-09:44/18
	22:06		21:15		20:01		18:47		16:42		16:14	
14	05:21	20:38-20:59/21	06:11	20:18-20:41/23	07:07		08:02	17:39-18:08/29	08:03		08:50	09:27-09:44/17
	22:05		21:13		19:59		18:44		16:40		16:14	
15	05:22	20:37-20:59/22	06:13	20:17-20:38/21	07:09		08:04	17:38-18:08/30	08:05		08:51	09:28-09:45/17
	22:04		21:10		19:56		18:42		16:39		16:14	
16	05:23	20:36-21:00/24	06:15	20:18-20:36/18	07:11		08:06	17:38-18:07/29	08:07		08:52	09:29-09:45/16
	22:03		21:08		19:54		18:40		16:37		16:14	
17	05:25	20:36-21:00/24	06:17	20:19-20:35/16	07:13		08:08	17:38-18:07/29	08:09		08:53	09:30-09:46/16
	22:02		21:06		19:51		18:37		16:36		16:14	
18	05:26	20:36-21:01/25	06:18	20:19-20:33/14	07:14		08:10	08:48-08:59/11	08:11		08:54	09:30-09:46/16
	22:01		21:04		19:49		18:35	17:38-18:05/27	16:34		16:14	
19	05:28	20:35-21:01/26	06:20	20:21-20:32/11	07:16		08:12	08:46-09:01/15	08:13		08:55	09:31-09:46/15
	21:59		21:02		19:46		18:33	17:38-18:03/25	16:33		16:14	
20	05:29	20:35-21:02/27	06:22	20:24-20:29/5	07:18	07:45-07:51/6	08:14	08:44-09:03/19	08:14		08:55	09:32-09:47/15
	21:58		20:59		19:44	18:36-18:48/12	18:30	17:38-18:00/22	16:31		16:15	
21	05:31	20:35-21:03/28	06:24		07:20	07:46-07:52/6	08:16	08:44-09:04/20	08:16		08:56	09:32-09:47/15
	21:57		20:57		19:41	18:33-18:49/16	18:28	17:39-17:58/19	16:30		16:15	
22	05:32	20:35-21:03/28	06:26		07:22	07:48-07:53/5	08:18	08:46-09:04/18	08:18	09:17-09:22/5	08:56	09:33-09:48/15
	21:55		20:55		19:39	18:31-18:50/19	18:26	17:39-17:55/16	16:29		16:15	
23	05:34	20:35-21:04/29	06:27		07:23	07:50-07:54/4	08:20	08:48-09:05/17	08:20	09:14-09:26/12	08:57	09:33-09:48/15
	21:54		20:52		19:36	18:29-18:51/22	18:24	17:40-17:53/13	16:27		16:16	
24	05:35	20:30-21:03/33	06:29		07:25	07:52-08:00/8	08:22	08:50-09:05/15	08:22	09:12-09:28/16	08:57	09:34-09:49/15
	21:52		20:50		19:34	18:28-18:52/24	18:21	17:42-17:51/9	16:26		16:17	
25	05:37	20:27-21:03/36	06:31		07:27	07:54-08:02/8	07:24	07:52-08:05/13	08:23	09:11-09:30/19	08:58	09:34-09:49/15
	21:51		20:48		19:31	18:28-18:52/24	17:19	16:43-16:48/5	16:25		16:17	
26	05:38	20:26-21:04/38	06:33		07:29	07:56-08:03/7	07:26	07:55-08:06/11	08:25	09:11-09:31/20	08:58	09:34-09:50/16
	21:49		20:45		19:29	18:26-18:51/25	17:17		16:24		16:18	
27	05:40	20:25-21:03/38	06:35		07:31	07:57-08:03/6	07:28	07:57-08:05/8	08:27	09:10-09:33/23	08:58	09:34-09:50/16
	21:47		20:43		19:26	18:26-18:51/25	17:15		16:23		16:19	
28	05:42	20:24-21:04/40	06:36		07:33	07:59-08:03/4	07:30	07:59-08:05/6	08:29	09:10-09:34/24	08:58	09:34-09:50/16
	21:46		20:41		19:24	18:25-18:51/26	17:13		16:22		16:20	
29	05:43	20:23-21:03/40	06:38	19:40-19:44/4	07:34	08:06-08:13/7 18:26-18:51/25	07:32	08:01-08:04/3	08:30	09:09-09:34/25	08:59	09:34-09:51/17
	21:44		20:38		19:21	08:01-08:03/2	17:11		16:21		16:20	
30	05:45	20:22-21:03/41	06:40	19:37-19:47/10	07:36	08:04-08:16/12	07:33	08:03-08:04/1	08:32	09:09-09:35/26	08:59	09:34-09:51/17
	21:42		20:36		19:19	18:26-18:50/24	17:09		16:20		16:21	
31	05:47	20:22-21:03/41	06:42	19:35-19:48/13			07:35				08:59	09:34-09:52/18
	21:40		20:33				17:06				16:22	
Potential sun hours	515		461		383		328		257		231	
Sum of minutes with flicker		686		590		466		685		170		577

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Licensed user:
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Finisklin Business Park
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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 13 - AT13

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 16:24	08:27 08:56-09:16/20 17:16	07:29 18:13	07:12 07:37-07:41/4 20:12 19:19-19:45/26	06:02 21:09	05:12 20:55-21:25/30 22:00
2	08:58 16:25	08:26 08:54-09:17/23 17:18	07:26 18:15	07:10 07:34-07:40/6 20:14 19:19-19:47/28	06:00 21:11	05:11 20:56-21:26/30 22:01
3	08:58 16:26	08:24 08:52-09:17/25 17:20	07:24 18:17	07:08 07:32-07:41/9 20:16 19:18-19:46/28	05:58 21:13	05:10 20:56-21:27/31 22:02
4	08:58 16:27	08:22 08:50-09:18/28 17:22	07:22 18:19	07:05 07:29-07:40/11 20:18 19:19-19:46/27	05:56 21:14	05:09 20:58-21:05/7 22:04 21:06-21:28/22
5	08:57 16:29	08:20 08:48-09:18/30 17:24	07:19 18:21	07:03 07:27-07:40/13 20:20 19:19-19:46/27	05:54 21:16	05:08 20:59-21:04/5 22:05 21:05-21:29/24
6	08:57 16:30	08:18 08:46-09:19/33 17:26	07:17 18:23	07:00 07:24-07:39/15 20:22 19:19-19:44/25	05:52 21:18	05:07 21:05-21:30/25 22:06
7	08:57 16:31	08:16 08:44-09:19/35 17:28	07:14 18:25	06:58 07:22-07:39/17 20:24 19:20-19:44/24	05:50 21:20	05:07 21:06-21:31/25 22:07
8	08:56 16:33	08:14 08:42-09:19/37 17:30	07:12 18:27	06:55 07:19-07:37/18 19:20-19:42/22 20:26 19:51-19:58/7	05:48 21:22	05:06 21:05-21:31/26 22:08
9	08:55 16:34	08:12 08:40-09:20/40 17:32	07:10 18:29	06:53 07:17-07:36/19 19:21-19:41/20 20:27 19:49-20:00/11	05:46 21:24	05:05 21:06-21:33/27 22:09
10	08:55 16:36	08:10 08:37-09:19/42 17:34	07:07 18:30	06:50 07:15-07:34/19 19:23-19:39/16 20:29 19:48-20:02/14	05:44 21:25	05:05 21:05-21:33/28 22:10
11	08:54 16:37	08:08 08:35-09:19/44 17:36	07:05 18:32	06:48 07:12-07:31/19 19:25-19:36/11 20:31 19:46-20:03/17	05:42 21:27	05:04 21:06-21:34/28 22:10
12	08:53 16:39	08:06 08:33-09:19/46 17:38	07:02 18:34	06:46 07:10-07:23/13 20:33 19:45-20:05/20	05:40 21:29	05:04 21:06-21:35/29 22:11
13	08:52 16:40	08:04 08:31-09:19/48 17:40	07:00 07:24-07:25/1 18:36	06:43 07:08-07:21/13 20:35 19:44-20:06/22	05:39 21:31	05:04 21:07-21:36/29 22:12
14	08:52 16:42	08:02 08:29-09:19/50 17:43	06:57 07:22-07:27/5 18:38	06:41 07:05-07:17/12 20:37 19:43-20:06/23	05:37 20:57-21:00/3 21:32	05:03 21:06-21:36/30 22:13
15	08:51 16:44	08:00 08:29-09:19/50 17:45	06:55 07:19-07:27/8 18:40	06:38 07:03-07:13/10 20:39 19:43-20:06/23	05:35 20:54-21:01/7 21:34	05:03 21:06-21:36/30 22:13
16	08:50 16:46	07:58 08:28-09:18/50 17:47	06:52 07:17-07:29/12 18:42	06:36 07:01-07:11/10 20:41 19:43-20:05/22	05:33 20:54-21:03/9 21:36	05:03 21:07-21:37/30 22:14
17	08:49 16:47	07:56 08:29-09:17/48 17:49	06:50 07:14-07:28/14 18:44	06:34 07:03-07:07/4 20:43 19:43-20:05/22	05:32 20:52-21:04/12 21:38	05:03 21:07-21:37/30 22:14
18	08:47 16:49	07:54 08:30-09:17/47 17:51	06:47 07:11-07:28/17 18:46	06:31 19:44-20:05/21 20:44	05:30 20:52-21:06/14 21:39	05:03 21:07-21:38/31 22:15
19	08:46 16:51	07:52 08:30-09:15/45 17:53	06:45 07:09-07:29/20 18:48	06:29 19:44-20:04/20 20:46	05:28 20:51-21:07/16 21:41	05:03 21:07-21:38/31 22:15
20	08:45 16:53	07:49 08:31-09:15/44 17:55	06:42 07:06-07:28/22 18:50	06:27 19:44-20:02/18 20:48	05:27 20:51-21:08/17 21:43	05:03 21:07-21:38/31 22:15
21	08:44 16:55	07:47 08:33-09:14/41 17:57	06:40 07:04-07:28/24 18:52	06:24 19:46-20:00/14 20:50	05:25 20:51-21:08/17 21:44	05:03 21:08-21:39/31 22:16
22	08:43 16:56	07:45 08:33-09:12/39 17:59	06:37 07:01-07:27/26 18:53	06:22 19:48-19:58/10 20:52	05:24 20:51-21:08/17 21:46	05:03 21:08-21:39/31 22:16
23	08:41 16:58	07:43 08:35-09:10/35 18:01	06:35 06:59-07:27/28 18:55	06:20 20:54	05:22 20:51-21:08/17 21:47 21:12-21:13/1	05:03 21:08-21:39/31 22:16
24	08:40 17:00	07:40 08:37-09:09/32 18:03	06:32 06:56-07:26/30 18:57	06:17 20:56	05:21 20:51-21:09/18 21:49 21:10-21:15/5	05:04 21:08-21:39/31 22:16
25	08:38 09:08-09:09/1 17:02	07:38 08:38-09:06/28 18:05	06:30 06:56-07:25/29 18:59	06:15 20:58	05:20 20:52-21:16/24 21:50	05:04 21:09-21:39/30 22:16
26	08:37 09:07-09:11/4 17:04	07:36 08:41-09:03/22 18:07	06:27 06:56-07:23/27 19:01 18:29-18:34/5	06:13 21:00	05:18 20:52-21:18/26 21:52	05:05 21:09-21:39/30 22:16
27	08:35 09:05-09:11/6 17:06	07:33 08:45-09:00/15 18:09	06:25 06:58-07:22/24 19:03 18:26-18:36/10	06:11 21:01	05:17 20:52-21:19/27 21:53	05:05 21:10-21:39/29 22:16
28	08:34 09:03-09:12/9 17:08	07:31 18:11	06:22 06:58-07:20/22 19:05 18:24-18:37/13	06:09 21:03	05:16 20:52-21:20/28 21:55	05:06 21:09-21:39/30 22:16
29	08:32 09:01-09:13/12 17:10		07:20 08:00-08:18/18 20:07 19:23-19:40/17	06:06 21:05	05:15 20:53-21:22/29 21:56	05:06 21:10-21:39/29 22:16
30	08:31 08:59-09:14/15 17:12		07:17 08:02-08:14/12 20:09 19:21-19:41/20	06:04 21:07	05:14 20:54-21:23/29 21:57	05:07 21:09-21:38/29 22:15
31	08:29 08:58-09:15/17 17:14		07:15 19:21-19:43/22 20:10		05:13 20:54-21:24/30 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	64	997	426	730	346	880

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 13 - AT13

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:07 21:10-21:38/28 22:15	05:48 21:39	06:44 07:11-07:30/19 19:23-19:35/12 20:31 19:45-20:02/17	07:38 19:16	07:37 08:07-08:49/42 17:04	08:33 16:19
2	05:08 21:11-21:38/27 22:15	05:50 21:37	06:46 07:13-07:32/19 19:21-19:37/16 20:29 19:46-20:00/14	07:40 19:14	07:39 08:09-08:48/39 17:02	08:35 16:18
3	05:09 21:11-21:38/27 22:14	05:52 21:35	06:47 07:15-07:34/19 19:19-19:39/20 20:26 19:47-19:58/11	07:42 19:11	07:41 08:12-08:49/37 17:00	08:37 16:18
4	05:10 21:10-21:37/27 22:14	05:53 21:33	06:49 07:17-07:35/18 19:17-19:39/22 20:24 19:48-19:55/7	07:44 19:09	07:43 08:14-08:49/35 16:58	08:38 16:17
5	05:11 21:11-21:37/26 22:13	05:55 21:31	06:51 07:18-07:35/17 20:21 19:16-19:40/24	07:45 19:06	07:45 08:16-08:48/32 16:56	08:39 16:16
6	05:12 21:11-21:36/25 22:12	05:57 21:29	06:53 07:20-07:35/15 20:19 19:15-19:40/25	07:47 19:04	07:47 08:18-08:48/30 16:55	08:41 16:16
7	05:13 21:07-21:09/2 22:12 21:12-21:36/24	05:59 21:27	06:55 07:22-07:35/13 20:16 19:14-19:41/27	07:49 19:01	07:49 08:20-08:48/28 16:53	08:42 16:15
8	05:14 21:05-21:11/6 22:11 21:12-21:35/23	06:00 21:25	06:56 07:24-07:35/11 20:14 19:13-19:40/27	07:51 18:59	07:51 08:22-08:47/25 16:51	08:44 16:15
9	05:15 21:04-21:34/30 22:10	06:02 21:23	06:58 07:25-07:34/9 20:11 19:13-19:40/27	07:53 18:56	07:53 08:25-08:47/22 16:49	08:45 16:14
10	05:16 21:03-21:34/31 22:09	06:04 21:21	07:00 07:27-07:34/7 20:09 19:13-19:40/27	07:55 18:54	07:55 08:27-08:47/20 16:47	08:46 16:14
11	05:17 21:03-21:33/30 22:08	06:06 21:19	07:02 07:29-07:33/4 20:06 19:13-19:38/25	07:57 18:52	07:57 08:29-08:46/17 16:45	08:47 16:14
12	05:18 21:02-21:32/30 22:07	06:08 21:17	07:04 07:31-07:32/1 20:04 19:12-19:35/23	07:59 18:49	07:59 08:31-08:46/15 16:44	08:48 16:14
13	05:19 21:02-21:31/29 22:06	06:09 21:15	07:05 07:54-08:05/11 20:01 19:12-19:33/21	08:01 18:47	08:01 08:33-08:45/12 16:42	08:49 16:14
14	05:21 21:02-21:31/29 22:05	06:11 21:13	07:07 07:51-08:08/17 19:59 19:13-19:31/18	08:02 09:21-09:28/7 18:44	08:03 08:35-08:44/9 16:40	08:50 16:14
15	05:22 21:02-21:30/28 22:04	06:13 21:10	07:09 07:49-08:10/21 19:56 19:14-19:28/14	08:04 09:15-09:33/18 18:42	08:05 08:37-08:43/6 16:39	08:51 16:14
16	05:23 21:01-21:28/27 22:03	06:15 21:08	07:11 07:47-08:12/25 19:54 19:15-19:25/10	08:06 09:12-09:37/25 18:40	08:07 08:40-08:43/3 16:37	08:52 16:14
17	05:25 21:01-21:27/26 22:02	06:17 21:06	07:13 07:45-08:12/27 19:51 19:17-19:23/6	08:08 09:09-09:39/30 18:37	08:09 08:42-08:43/1 16:36	08:53 16:14
18	05:26 21:01-21:27/26 22:01	06:18 21:04	07:14 07:44-08:13/29 19:49	08:10 09:07-09:41/34 18:35	08:11 16:34	08:54 16:14
19	05:28 21:01-21:18/17 21:59 21:19-21:25/6	06:20 21:02	07:16 07:43-08:13/30 19:46	08:12 09:05-09:42/37 18:33	08:13 16:33	08:55 16:14
20	05:29 21:01-21:18/17 21:58 21:20-21:24/4	06:22 19:57-20:01/4 20:59	07:18 07:45-08:14/29 19:44	08:14 09:04-09:43/39 18:30	08:14 16:31	08:55 16:15
21	05:31 21:01-21:19/18 21:57	06:24 19:52-20:03/11 20:57	07:20 07:46-08:13/27 19:41	08:16 09:03-09:44/41 18:28	08:16 16:30	08:56 16:15
22	05:32 21:01-21:18/17 21:55	06:26 19:50-20:05/15 20:55	07:22 07:48-08:13/25 19:39	08:18 09:01-09:45/44 18:26	08:18 16:29	08:56 16:15
23	05:34 21:02-21:19/17 21:54	06:27 19:49-20:07/18 20:52	07:23 07:50-08:13/23 19:36	08:20 09:00-09:46/46 18:24	08:20 16:27	08:57 16:16
24	05:35 21:02-21:18/16 21:52	06:29 19:48-20:08/20 20:50	07:25 07:52-08:12/20 19:34	08:22 08:59-09:46/47 18:21	08:22 16:26	08:57 16:17
25	05:37 21:02-21:17/15 21:51	06:31 19:46-20:07/21 20:48	07:27 07:54-08:12/18 19:31	07:24 07:58-08:47/49 17:19	08:23 16:25	08:58 16:17
26	05:38 21:03-21:16/13 21:49	06:33 07:05-07:11/6 20:45 19:46-20:08/22	07:29 07:55-08:10/15 19:29	07:26 07:58-08:47/49 17:17	08:25 16:24	08:58 16:18
27	05:40 21:03-21:14/11 21:47	06:35 07:03-07:13/10 20:43 19:45-20:08/23	07:31 07:57-08:10/13 19:26	07:28 07:58-08:48/50 17:15	08:27 16:23	08:58 16:19
28	05:42 21:05-21:13/8 21:46	06:36 07:05-07:15/10 20:41 19:44-20:07/23	07:33 07:59-08:09/10 19:24	07:30 07:59-08:49/50 17:13	08:29 16:22	08:58 16:20
29	05:43 21:06-21:11/5 21:44	06:38 07:06-07:18/12 20:38 19:44-20:07/23	07:34 08:01-08:07/6 19:21	07:32 08:01-08:49/48 17:11	08:30 16:21	08:59 16:20
30	05:45 21:42	06:40 07:08-07:21/13 20:36 19:45-20:07/22	07:36 08:03-08:06/3 19:19	07:34 08:03-08:49/46 17:09	08:32 16:20	08:59 16:21
31	05:47 21:41	06:42 07:10-07:23/13 20:33 19:45-20:05/20		07:35 08:05-08:49/44 17:06		08:59 16:22
Potential sun hours	515	461	383	327	257	230
Sum of minutes with flicker	665	286	894	704	373	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 14 - AT14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January		February	March	April	May		June	
1	08:59	15:27-15:45/18	08:27	07:29	07:12	06:02	20:32-20:38/6	05:12	05:43-06:01/18
	16:24		17:16	18:13	20:12	21:09		22:00	
2	08:58	15:27-15:46/19	08:26	07:26	07:10	06:00	20:30-20:40/10	05:11	05:42-06:00/18
	16:25		17:18	18:15	20:14	21:11		22:01	
3	08:58	15:28-15:48/20	08:24	07:24	07:08	05:58	20:29-20:42/13	05:10	05:41-06:00/19
	16:26		17:20	18:17	20:16	21:13		22:02	
4	08:58	15:28-15:49/21	08:22	07:22	07:05	05:56	20:27-20:43/16	05:09	05:41-06:00/19
	16:27		17:22	18:19	20:18	21:14		22:04	
5	08:57	15:29-15:51/22	08:20	07:19	07:03	05:54	20:27-20:45/18	05:08	05:40-05:59/19
	16:29		17:24	18:21	20:20	21:16		22:05	
6	08:57	15:28-15:52/24	08:18	07:17	07:00	05:52	20:27-20:46/19	05:07	05:39-05:59/20
	16:30		17:26	18:23	20:22	21:18		22:06	
7	08:57	15:28-15:53/25	08:16	07:14	06:58	05:50	20:26-20:49/23	05:07	05:39-05:59/20
	16:31		17:28	18:25	20:24	21:20		22:07	
8	08:56	15:29-15:56/27	08:14	07:12	06:55	05:48	20:26-20:50/24	05:06	05:38-05:58/20
	16:33		17:30	18:27	20:26	21:22		22:08	
9	08:55	15:30-15:57/27	08:12	07:10	06:53	05:46	20:26-20:52/26	05:05	05:38-05:57/19
	16:34		17:32	18:29	20:28	21:24		22:09	
10	08:55	15:30-15:59/29	08:10	07:07	06:50	05:44	20:26-20:53/27	05:05	05:38-05:57/19
	16:36		17:34	18:30	20:29	21:25		22:10	
11	08:54	15:30-16:00/30	08:08	07:05	06:48	05:42	20:27-20:54/27	05:04	05:37-05:57/20
	16:37		17:36	18:32	20:31	21:27		22:10	
12	08:53	15:30-16:02/32	08:06	07:02	06:46	05:40	20:27-20:54/27	05:04	05:37-05:58/21
	16:39		17:38	18:34	20:33	21:29		22:11	
13	08:52	15:31-16:04/33	08:04	07:00	06:43	05:39	20:27-20:54/27	05:04	05:37-05:58/21
	16:40		17:41	18:36	20:35	21:31		22:12	
14	08:52	15:31-16:06/35	08:02	06:57	06:41	05:37	20:28-20:55/27	05:03	05:37-05:59/22
	16:42		17:43	18:38	20:37	21:32		22:13	
15	08:51	15:32-16:07/35	08:00	06:55	06:38	05:35	20:29-20:54/25	05:03	05:36-05:58/22
	16:44		17:45	18:40	20:39	21:34		22:13	
16	08:50	15:32-16:07/35	07:58	06:52	06:36	05:33	20:31-20:55/24	05:03	05:36-05:59/23
	16:46		17:47	18:42	20:41	21:36		22:14	
17	08:49	15:32-16:08/36	07:56	06:50	06:34	05:32	20:32-20:54/22	05:03	05:36-05:59/23
	16:47		17:49	18:44	20:43	21:38		22:14	
18	08:47	15:33-16:09/36	07:54	06:47	06:31	05:30	20:39-20:54/15	05:03	05:36-05:59/23
	16:49		17:51	18:46	20:45	21:39		22:15	
19	08:46	15:33-16:09/36	07:52	06:45	06:29	05:28	05:58-06:00/2	05:03	05:36-05:59/23
	16:51		17:53	18:48	20:46	21:41	20:39-20:53/14	22:15	
20	08:45	15:34-16:09/35	07:49	06:42	06:27	05:27	05:56-06:00/4	05:03	05:37-06:00/23
	16:53		17:55	18:50	20:48	21:43	20:40-20:53/13	22:15	
21	08:44	15:34-16:09/35	07:47	06:40	06:24	05:25	05:55-06:01/6	05:03	05:37-06:00/23
	16:55		17:57	18:52	20:50	21:44	20:41-20:52/11	22:16	
22	08:43	15:35-16:10/35	07:45	06:37	06:22	05:24	05:54-06:01/7	05:03	05:37-06:00/23
	16:56		17:59	18:53	20:52	21:46	20:42-20:50/8	22:16	
23	08:41	15:35-16:09/34	07:43	06:35	06:20	05:22	05:52-06:01/9	05:03	05:37-06:00/23
	16:58		18:01	18:55	20:54	21:47	20:44-20:49/5	22:16	
24	08:40	15:37-16:10/33	07:40	06:32	06:17	05:21	05:51-06:01/10	05:04	05:38-06:01/23
	17:00		18:03	18:57	20:56	21:49		22:16	
25	08:38	15:37-16:09/32	07:38	06:30	06:15	05:20	05:50-06:02/12	05:04	05:38-06:01/23
	17:02		18:05	18:59	20:58	21:50		22:16	
26	08:37	15:39-16:10/31	07:36	06:27	06:13	05:18	05:49-06:02/13	05:05	05:38-06:01/23
	17:04		18:07	19:01	21:00	21:52		22:16	
27	08:35	15:40-16:09/29	07:33	06:25	06:11	05:17	05:48-06:02/14	05:05	05:39-06:01/22
	17:06		18:09	19:03	21:01	21:53		22:16	
28	08:34	15:42-16:08/26	07:31	06:22	06:09	05:16	05:47-06:02/15	05:06	05:39-06:01/22
	17:08		18:11	19:05	21:03	21:55		22:16	
29	08:32	15:45-16:07/22		07:20	06:06	05:15	05:46-06:02/16	05:06	05:40-06:02/22
	17:10			20:07	21:05	21:56		22:16	
30	08:31	15:52-16:05/13		07:17	06:04	05:14	05:45-06:01/16	05:07	05:41-06:02/21
	17:12			20:09	21:07	21:57		22:15	
31	08:29	15:55-16:04/9		07:15		05:13	05:44-06:01/17		
	17:14			20:11		21:59			
Potential sun hours	248		272	367	421	496		513	
Sum of minutes with flicker		874		0	0	0	568		637

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 14 - AT14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September	October	November		December	
1	05:07	05:41-06:01/20	05:48	20:37-21:05/28	06:44	07:38	07:38		08:34	15:12-15:42/30
	22:15		21:39		20:31	19:16	17:04		16:19	
2	05:08	05:42-06:02/20	05:50	20:37-21:05/28	06:46	07:40	07:39		08:35	15:13-15:42/29
	22:15		21:37		20:29	19:14	17:02		16:18	
3	05:09	05:43-06:02/19	05:52	20:36-21:03/27	06:47	07:42	07:41		08:37	15:13-15:40/27
	22:14		21:35		20:26	19:11	17:00		16:18	
4	05:10	05:44-06:03/19	05:53	20:36-21:02/26	06:49	07:44	07:43		08:38	15:14-15:40/26
	22:14		21:33		20:24	19:09	16:58		16:17	
5	05:11	05:44-06:04/20	05:55	20:37-21:00/23	06:51	07:46	07:45		08:40	15:14-15:38/24
	22:13		21:31		20:21	19:06	16:56		16:16	
6	05:12	05:45-06:05/20	05:57	20:36-20:58/22	06:53	07:47	07:47		08:41	15:15-15:38/23
	22:12		21:29		20:19	19:04	16:55		16:16	
7	05:13	05:46-06:05/19	05:59	20:37-20:55/18	06:55	07:49	07:49		08:42	15:15-15:37/22
	22:12		21:27		20:16	19:01	16:53		16:15	
8	05:14	05:47-06:06/19	06:00	20:37-20:55/18	06:56	07:51	07:51		08:44	15:16-15:37/21
	22:11		21:25		20:14	18:59	16:51		16:15	
9	05:15	05:48-06:07/19	06:02	20:37-20:52/15	06:58	07:53	07:53		08:45	15:16-15:36/20
	22:10		21:23		20:11	18:56	16:49		16:14	
10	05:16	05:49-06:08/19	06:04	20:38-20:51/13	07:00	07:55	07:55		08:46	15:16-15:35/19
	22:09		21:21		20:09	18:54	16:47		16:14	
11	05:17	05:50-06:08/18	06:06	20:39-20:48/9	07:02	07:57	07:57	15:26-15:35/9	08:47	15:18-15:36/18
	22:08		21:19		20:06	18:52	16:45		16:14	
12	05:18	05:51-06:08/17	06:08	20:41-20:46/5	07:04	07:59	07:59	15:24-15:37/13	08:48	15:18-15:35/17
	22:08		21:17		20:04	18:49	16:44		16:14	
13	05:19	05:53-06:10/17	06:09		07:05	08:01	08:01	15:16-15:39/23	08:49	15:19-15:35/16
	22:06		21:15		20:01	18:47	16:42		16:14	
14	05:21	05:54-06:10/16	06:11		07:07	08:02	08:03	15:14-15:40/26	08:50	15:19-15:35/16
	22:05		21:13		19:59	18:44	16:40		16:13	
15	05:22	05:55-06:10/15	06:13		07:09	08:04	08:05	15:12-15:41/29	08:51	15:20-15:35/15
	22:04		21:10		19:56	18:42	16:39		16:14	
16	05:23	05:56-06:10/14	06:15		07:11	08:06	08:07	15:12-15:43/31	08:52	15:21-15:35/14
	22:03		21:08		19:54	18:40	16:37		16:14	
17	05:25	05:58-06:11/13	06:17		07:13	08:08	08:09	15:11-15:43/32	08:53	15:22-15:35/13
	22:02		21:06		19:51	18:37	16:36		16:14	
18	05:26	05:59-06:11/12	06:18		07:14	08:10	08:11	15:11-15:44/33	08:54	15:21-15:35/14
	22:01		21:04		19:49	18:35	16:34		16:14	
19	05:28	06:00-06:11/11	06:20		07:16	08:12	08:13	15:10-15:44/34	08:55	15:22-15:35/13
	21:59		21:02		19:46	18:33	16:33		16:14	
20	05:29	06:02-06:12/10	06:22		07:18	08:14	08:14	15:10-15:45/35	08:55	15:23-15:36/13
	21:58		20:59		19:44	18:30	16:31		16:15	
21	05:30	06:03-06:11/8	06:24		07:20	08:16	08:16	15:10-15:45/35	08:56	15:23-15:36/13
	21:57	20:53-21:00/7	20:57		19:41	18:28	16:30		16:15	
22	05:32	06:04-06:11/7	06:26		07:22	08:18	08:18	15:10-15:45/35	08:57	15:24-15:37/13
	21:55	20:52-21:01/9	20:55		19:39	18:26	16:29		16:15	
23	05:34	06:06-06:11/5	06:27		07:23	08:20	08:20	15:10-15:46/36	08:57	15:24-15:37/13
	21:54	20:51-21:03/12	20:52		19:36	18:24	16:27		16:16	
24	05:35	06:07-06:10/3	06:29		07:25	08:22	08:22	15:10-15:46/36	08:57	15:25-15:38/13
	21:52	20:50-21:03/13	20:50		19:34	18:21	16:26		16:17	
25	05:37	06:09-06:10/1	06:31		07:27	07:24	08:24	15:10-15:46/36	08:58	15:25-15:38/13
	21:51	20:49-21:04/15	20:48		19:31	17:19	16:25		16:17	
26	05:38	20:44-21:05/21	06:33		07:29	07:26	08:25	15:11-15:46/35	08:58	15:25-15:39/14
	21:49		20:45		19:29	17:17	16:24		16:18	
27	05:40	20:41-21:04/23	06:35		07:31	07:28	08:27	15:11-15:47/36	08:58	15:26-15:40/14
	21:47		20:43		19:26	17:15	16:23		16:19	
28	05:42	20:40-21:05/25	06:36		07:33	07:30	08:29	15:11-15:46/35	08:58	15:26-15:40/14
	21:46		20:41		19:24	17:13	16:22		16:20	
29	05:43	20:39-21:05/26	06:38		07:34	07:32	08:30	15:11-15:44/33	08:59	15:26-15:41/15
	21:44		20:38		19:21	17:11	16:21		16:20	
30	05:45	20:38-21:05/27	06:40		07:36	07:34	08:32	15:11-15:43/32	08:59	15:27-15:43/16
	21:42		20:36		19:19	17:09	16:20		16:21	
31	05:47	20:38-21:06/28	06:42			07:36			08:59	15:27-15:44/17
	21:41		20:33			17:06			16:22	
Potential sun hours	515		461		383	327	257		230	
Sum of minutes with flicker		567		232	0	0		614		545

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 15 - AT15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:59	08:27	07:29	07:12 07:36-08:05/29	06:02 06:28-07:03/35 07:19-07:47/28	05:12
	16:24	17:16	18:13	20:12	21:09 20:14-20:38/24	22:00
2	08:58	08:26	07:26	07:10 07:34-08:06/32	06:00 06:26-07:02/36 07:21-07:45/24	05:11
	16:25	17:18	18:15	20:14	21:11 20:13-20:39/26	22:01
3	08:58	08:24	07:24	07:08 07:32-08:08/36	05:58 06:24-07:01/37 07:24-07:41/17	05:10
	16:26	17:20	18:17	20:16	21:13 20:12-20:39/27	22:02
4	08:58	08:22	07:22	07:05 07:29-08:07/38	05:56 06:23-07:00/37 07:30-07:35/5	05:09
	16:27	17:22	18:19	20:18	21:14 20:12-20:43/31	22:04
5	08:57	08:20	07:19	07:03 07:27-08:08/41	05:54 06:21-07:00/39	05:08
	16:29	17:24	18:21	20:20	21:16 20:12-20:45/33	22:05
6	08:57	08:18	07:17	07:00 07:24-08:08/44	05:52 06:19-06:58/39	05:07
	16:30	17:26	18:23	20:22	21:18 20:13-20:47/34	22:06
7	08:57	08:16	07:14	06:58 07:22-08:09/47	05:50 06:17-06:39/22 20:12-20:49/37	05:07
	16:31	17:28	18:25	20:24	21:20 06:42-06:56/14	22:07
8	08:56	08:14	07:12	06:55 07:19-08:08/49	05:48 06:31-06:35/4 06:44-06:53/9	05:06
	16:33	17:30	18:27	20:26	21:22 06:19-06:27/8 20:12-20:50/38	22:08
9	08:55	08:12	07:10	06:53 07:17-08:08/51	05:46 20:13-20:51/38	05:05
	16:34	17:32	18:29	20:27	21:24	22:09
10	08:55	08:10	07:07	06:50 07:15-08:09/54	05:44 20:13-20:51/38	05:05
	16:36	17:34	18:30	20:29	21:25	22:10
11	08:54	08:08	07:05	06:48 07:12-08:08/56	05:42 20:14-20:52/38	05:04
	16:37	17:36	18:32	20:31	21:27	22:10
12	08:53	08:06	07:02	06:46 07:10-08:08/58	05:40 20:14-20:51/37	05:04
	16:39	17:38	18:34	20:33	21:29	22:11
13	08:52	08:04	07:00	06:43 07:09-08:08/59	05:39 20:15-20:51/36	05:04
	16:40	17:40	18:36	20:35	21:31	22:12
14	08:52	08:02	06:57	06:41 07:08-08:07/59	05:37 20:16-20:52/36	05:03
	16:42	17:43	18:38	20:37	21:32	22:13
15	08:51	08:00	06:55	06:38 07:08-08:07/59	05:35 20:17-20:51/34	05:03
	16:44	17:45	18:40	20:39	21:34	22:13
16	08:50	07:58	06:52	06:36 07:09-08:07/58	05:33 20:19-20:51/32	05:03
	16:46	17:47	18:42	20:41	21:36	22:14
17	08:49	07:56	06:50	06:34 06:58-07:02/4	05:32 20:30-20:51/21	05:03
	16:47	17:49	18:44	20:43 07:08-08:05/57	21:38 20:21-20:29/8	22:14
18	08:47	07:54	06:47	06:31 06:56-07:04/8	05:30 20:31-20:51/20	05:03
	16:49	17:51	18:46	20:44 07:08-08:05/57	21:39	22:15
19	08:46	07:52	06:45	06:29 06:54-07:05/11	05:28 20:31-20:50/19	05:03
	16:51	17:53	18:48	20:46 07:09-08:04/55	21:41	22:15
20	08:45	07:49	06:42	06:27 06:52-07:06/14	05:27 20:32-20:49/17	05:03
	16:53	17:55	18:50	20:48 07:09-08:04/55	21:43	22:15
21	08:44	07:47	06:40	06:24 06:49-07:05/16	05:25 20:33-20:49/16	05:03
	16:55	17:57	18:52	20:50 07:09-08:02/53	21:44	22:16
22	08:43	07:45	06:37	06:22 06:47-07:06/19	05:24 20:33-20:48/15	05:03
	16:56	17:59	18:53	20:52 07:10-08:01/51	21:46	22:16
23	08:41	07:43	06:35	06:20 06:45-07:06/21	05:22 20:35-20:47/12	05:03
	16:58	18:01	18:55	20:54 07:10-08:01/51	21:47	22:16
24	08:40	07:40	06:32	06:17 06:43-07:07/24	05:21 20:36-20:46/10	05:04
	17:00	18:03	18:57	20:56 07:11-08:00/49	21:49	22:16
25	08:38	07:38	06:30	06:15 06:41-07:07/26 07:12-07:58/46	05:20 20:39-20:44/5	05:04
	17:02	18:05	18:59	20:58 20:24-20:29/5	21:50	22:16
26	08:37	07:36	06:27 06:51-06:56/5	06:13 06:39-07:07/28 07:13-07:57/44	05:18	05:05
	17:04	18:07	19:01	21:00 20:20-20:29/9	21:52	22:16
27	08:35	07:33	06:25 06:49-06:59/10	06:11 06:36-07:05/29 07:13-07:55/42	05:17	05:05
	17:06	18:09	19:03	21:01 20:18-20:31/13	21:53	22:16
28	08:34	07:31	06:22 06:46-07:01/15	06:09 06:34-07:05/31 07:14-07:53/39	05:16	05:06
	17:08	18:11	19:05	21:03 20:16-20:33/17	21:55	22:16
29	08:32		07:20 07:44-08:03/19	06:06 06:32-07:05/33 07:16-07:51/35	05:15	05:06
	17:10		20:07	21:05 20:15-20:35/20	21:56	22:16
30	08:31		07:17 07:41-08:03/22	06:04 06:30-07:04/34 07:17-07:50/33	05:14	05:07
	17:12		20:09	21:07 20:14-20:37/23	21:57	22:15
31	08:29		07:15 07:39-08:05/26		05:13	
	17:14		20:11		21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	0	0	97	1822	1036	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 15 - AT15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:07	05:48 20:24-21:02/38	06:44 07:11-08:07/56	07:38	07:37	08:33
	22:15	21:39	20:31	19:16	17:04	16:19
2	05:08	05:50 20:24-21:02/38	06:46 07:13-08:07/54	07:40	07:39	08:35
	22:15	21:37	20:29	19:14	17:02	16:18
3	05:09	05:52 20:23-21:01/38	06:47 07:15-08:06/51	07:42	07:41	08:37
	22:14	21:35	20:26	19:11	17:00	16:18
4	05:10	05:53 06:30-06:35/5	06:49 07:17-08:06/49	07:44	07:43	08:38
	22:14	21:33 20:23-21:01/38	20:24	19:09	16:58	16:17
5	05:11	05:55 06:40-06:47/7 06:53-07:04/11	06:51 07:18-08:05/47	07:45	07:45	08:39
	22:13	21:31 06:28-06:39/11 20:23-21:00/37	20:21	19:06	16:56	16:16
6	05:12	05:57 06:27-06:49/22 20:22-20:58/36	06:53 07:20-08:04/44	07:47	07:47	08:41
	22:12	21:29 06:50-07:06/16	20:19	19:04	16:55	16:16
7	05:13	05:59 06:29-07:08/39	06:55 07:22-08:03/41	07:49	07:49	08:42
	22:12	21:27 20:22-20:56/34	20:16	19:01	16:53	16:15
8	05:14	06:00 06:31-07:10/39	06:56 07:24-08:03/39	07:51	07:51	08:44
	22:11	21:25 20:22-20:54/32	20:14	18:59	16:51	16:15
9	05:15	06:02 06:32-07:10/38 07:37-07:47/10	06:58 07:25-08:01/36	07:53	07:53	08:45
	22:10	21:23 20:22-20:52/30	20:11	18:56	16:49	16:14
10	05:16	06:04 06:34-07:11/37 07:33-07:52/19	07:00 07:27-08:00/33	07:55	07:55	08:46
	22:09	21:21 20:22-20:48/26	20:09	18:54	16:47	16:14
11	05:17	06:06 06:36-07:12/36 07:30-07:55/25	07:02 07:29-07:59/30	07:57	07:57	08:47
	22:08	21:19 20:21-20:47/26	20:06	18:52	16:45	16:14
12	05:18	06:08 06:37-07:12/35 07:27-07:56/29	07:04 07:30-07:56/26	07:59	07:59	08:48
	22:07	21:17 20:22-20:46/24	20:04	18:49	16:44	16:14
13	05:19	06:09 06:39-07:13/34 07:25-07:59/34	07:05 07:32-07:55/23	08:01	08:01	08:49
	22:06	21:15 20:23-20:45/22	20:01	18:47	16:42	16:14
14	05:21	06:11 06:41-07:13/32 07:24-08:00/36	07:07 07:34-07:53/19	08:02	08:03	08:50
	22:05	21:13 20:24-20:43/19	19:59	18:44	16:40	16:13
15	05:22	06:13 06:42-07:13/31 07:21-08:01/40	07:09 07:36-07:51/15	08:04	08:05	08:51
	22:04	21:10 20:24-20:40/16	19:56	18:42	16:39	16:13
16	05:23	06:15 06:44-07:13/29 07:20-08:03/43	07:11 07:38-07:49/11	08:06	08:07	08:52
	22:03	21:08 20:26-20:38/12	19:54	18:40	16:37	16:14
17	05:25	06:17 06:46-07:13/27 07:19-08:04/45	07:13 07:39-07:46/7	08:08	08:09	08:53
	22:02	21:06 20:28-20:37/9	19:51	18:37	16:36	16:14
18	05:26	06:18 06:47-07:12/25 07:17-08:04/47	07:14 07:41-07:42/1	08:10	08:11	08:54
	22:01	21:04 20:30-20:34/4	19:49	18:35	16:34	16:14
19	05:28 20:47-20:54/7	06:20 06:49-07:12/23	07:16	08:12	08:13	08:55
	21:59	21:02 07:17-08:05/48	19:46	18:33	16:33	16:14
20	05:29 20:45-20:56/11	06:22 06:51-07:12/21	07:18	08:14	08:14	08:55
	21:58	20:59 07:16-08:06/50	19:44	18:30	16:31	16:15
21	05:30 20:45-20:58/13	06:24 06:53-07:12/19	07:20	08:16	08:16	08:56
	21:57	20:57 07:14-08:06/52	19:41	18:28	16:30	16:15
22	05:32 20:43-20:58/15	06:26 06:54-07:10/16	07:22	08:18	08:18	08:56
	21:55	20:55 07:14-08:07/53	19:39	18:26	16:29	16:15
23	05:34 20:43-21:00/17	06:27 06:56-07:09/13	07:23	08:20	08:20	08:57
	21:54	20:52 07:13-08:08/55	19:36	18:24	16:27	16:16
24	05:35 20:42-21:00/18	06:29 06:58-07:08/10	07:25	08:22	08:22	08:57
	21:52	20:50 07:12-08:08/56	19:34	18:21	16:26	16:17
25	05:37 20:41-21:00/19	06:31 06:59-07:06/7	07:27	07:24	08:23	08:58
	21:51	20:48 07:11-08:08/57	19:31	17:19	16:25	16:17
26	05:38 20:41-21:01/20	06:33 07:01-07:05/4	07:29	07:26	08:25	08:58
	21:49 20:34-20:38/4	20:45 07:11-08:08/57	19:29	17:17	16:24	16:18
27	05:40 20:30-21:01/31	06:35 07:10-08:09/59	07:31	07:28	08:27	08:58
	21:47	20:43	19:26	17:15	16:23	16:19
28	05:42 20:29-21:02/33	06:36 07:09-08:08/59	07:33	07:30	08:29	08:58
	21:46	20:41	19:24	17:13	16:22	16:20
29	05:43 20:27-21:01/34	06:38 07:09-08:08/59	07:34	07:32	08:30	08:59
	21:44	20:38	19:21	17:11	16:21	16:20
30	05:45 20:26-21:02/36	06:40 07:09-08:08/59	07:36	07:34	08:32	08:59
	21:42	20:36	19:19	17:09	16:20	16:21
31	05:47 20:26-21:02/36	06:42 07:10-08:08/58		07:35		08:59
	21:41	20:33		17:06		16:22
Potential sun hours	515	461	383	327	257	230
Sum of minutes with flicker	294	2116	582	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 16 - AT16

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58	08:27	07:29 17:28-17:45/17	07:12 07:36-07:56/20	06:02	05:12 20:37-21:23/46
	16:24	17:16	18:13	20:12	21:09	22:00
2	08:58	08:25	07:26 17:29-17:47/18	07:10 07:34-07:56/22	06:00	05:11 20:37-21:23/46
	16:25	17:18	18:15	20:14	21:11	22:01
3	08:58	08:24	07:24 17:31-17:49/18	07:08 07:32-07:56/24	05:58	05:10 20:37-21:24/47
	16:26	17:20	18:17	20:16	21:13	22:02
4	08:58	08:22	07:22 17:33-17:51/18	07:05 07:29-07:54/25	05:56	05:09 20:37-21:25/48
	16:27	17:22	18:19	20:18	21:14	22:04
5	08:57	08:20	07:19 17:35-17:52/17	07:03 07:27-07:54/27	05:54	05:08 20:37-21:25/48
	16:29	17:24	18:21	20:20	21:16	22:05
6	08:57	08:18	07:17 17:37-17:51/14	07:00 07:25-07:52/27	05:52	05:07 20:37-21:25/48
	16:30	17:26	18:23	20:22	21:18	22:06
7	08:57	08:16	07:14 17:38-17:50/12	06:58 07:26-07:51/25	05:50	05:07 20:37-21:26/49
	16:31	17:28	18:25	20:24	21:20	22:07
8	08:56	08:14	07:12 17:40-17:47/7	06:55 07:27-07:48/21	05:48	05:06 20:37-21:26/49
	16:33	17:30	18:27	20:26	21:22	22:08
9	08:55	08:12	07:09	06:53 07:29-07:46/17	05:46	05:05 20:38-21:26/48
	16:34	17:32	18:28	20:27	21:24	22:09
10	08:55	08:10	07:07	06:50 07:15-07:17/2	05:44	05:05 20:37-21:26/49
	16:36	17:34	18:30	20:29 07:32-07:43/11	21:25	22:10
11	08:54	08:08	07:05	06:48 07:12-07:17/5	05:42	05:04 20:38-21:27/49
	16:37	17:36	18:32	20:31	21:27	22:10
12	08:53	08:06	07:02	06:46 07:10-07:17/7	05:40	05:04 20:38-21:27/49
	16:39	17:38	18:34	20:33	21:29	22:11
13	08:52	08:04	07:00	06:43 07:08-07:17/9	05:39 20:53-20:56/3	05:04 20:39-21:28/49
	16:40	17:40	18:36	20:35	21:31	22:12
14	08:52	08:02	06:57	06:41 07:05-07:16/11	05:37 20:49-21:00/11	05:03 20:38-21:27/49
	16:42	17:43	18:38	20:37	21:32	22:13
15	08:51	08:00	06:55	06:38 07:03-07:16/13	05:35 20:46-21:01/15	05:03 20:39-21:28/49
	16:44	17:45	18:40	20:39	21:34	22:13
16	08:50	07:58	06:52	06:36 07:01-07:15/14	05:33 20:45-21:03/18	05:03 20:39-21:28/49
	16:45	17:47	18:42	20:41	21:36	22:14
17	08:49	07:56	06:50	06:34 06:58-07:14/16	05:32 20:43-21:04/21	05:03 20:39-21:28/49
	16:47	17:49	18:44	20:43	21:38	22:14
18	08:47	07:54	06:47	06:31 06:56-07:12/16	05:30 20:42-21:06/24	05:03 20:39-21:29/50
	16:49	17:51	18:46	20:44	21:39	22:15
19	08:46	07:52	06:45	06:29 06:54-07:11/17	05:28 20:41-21:07/26	05:03 20:39-21:29/50
	16:51	17:53	18:48	20:46	21:41	22:15
20	08:45	07:49 17:25-17:26/1	06:42	06:27 06:52-06:57/5	05:27 20:40-21:09/29	05:03 20:40-21:29/49
	16:53	17:55	18:50	20:48 07:00-07:08/8	21:42	22:15
21	08:44	07:47 17:25-17:28/3	06:40	06:24 06:49-06:56/7	05:25 20:40-21:11/31	05:03 20:41-21:30/49
	16:54	17:57	18:52	20:50	21:44	22:16
22	08:43	07:45 17:23-17:30/7	06:37	06:22 06:47-06:55/8	05:24 20:39-21:12/33	05:03 20:41-21:30/49
	16:56	17:59	18:53	20:52	21:46	22:16
23	08:41	07:43 17:23-17:32/9	06:35	06:20 06:45-06:54/9	05:22 20:38-21:13/35	05:03 20:40-21:30/50
	16:58	18:01	18:55	20:54	21:47	22:16
24	08:40	07:40 17:23-17:35/12	06:32	06:17 06:44-06:52/8	05:21 20:38-21:15/37	05:04 20:40-21:30/50
	17:00	18:03	18:57	20:56	21:49	22:16
25	08:38	07:38 17:22-17:36/14	06:30 06:54-06:56/2	06:15	05:20 20:38-21:16/38	05:04 20:41-21:30/49
	17:02	18:05	18:59	20:58	21:50	22:16
26	08:37	07:36 17:23-17:39/16	06:27 06:51-06:56/5	06:13	05:18 20:38-21:18/40	05:04 20:41-21:30/49
	17:04	18:07	19:01	21:00	21:52	22:16
27	08:35	07:33 17:23-17:40/17	06:25 06:49-06:57/8	06:11	05:17 20:38-21:19/41	05:05 20:42-21:31/49
	17:06	18:09	19:03	21:01	21:53	22:16
28	08:34	07:31 17:25-17:43/18	06:22 06:46-06:57/11	06:09	05:16 20:36-21:20/44	05:05 20:41-21:31/50
	17:08	18:11	19:05	21:03	21:55	22:16
29	08:32		07:20 07:44-07:58/14	06:06	05:15 20:37-21:20/43	05:06 20:42-21:31/49
	17:10		20:07	21:05	21:56	22:16
30	08:31		07:17 07:41-07:57/16	06:04	05:14 20:37-21:22/45	05:07 20:42-21:31/49
	17:12		20:09	21:07	21:57	22:15
31	08:29		07:15 07:39-07:57/18		05:13 20:37-21:23/46	
	17:14		20:10		21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	0	97	195	374	580	1463

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 16 - AT16

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July		August		September		October		November	December
1	05:07	20:42-21:31/49	05:48		06:44	07:11-07:16/5	07:38		07:37	08:33
	22:15		21:39		20:31		19:16		17:04	16:19
2	05:08	20:43-21:31/48	05:50		06:45	07:13-07:15/2	07:40		07:39	08:35
	22:15		21:37		20:28	07:30-07:42/12	19:14		17:02	16:18
3	05:09	20:43-21:32/49	05:52		06:47	07:27-07:44/17	07:42		07:41	08:37
	22:14		21:35		20:26		19:11		17:00	16:18
4	05:10	20:42-21:31/49	05:53		06:49	07:25-07:46/21	07:44		07:43	08:38
	22:14		21:33		20:24		19:09		16:58	16:17
5	05:11	20:43-21:31/48	05:55		06:51	07:22-07:47/25	07:45	18:18-18:22/4	07:45	08:39
	22:13		21:31		20:21		19:06		16:56	16:16
6	05:12	20:43-21:31/48	05:57		06:53	07:21-07:48/27	07:47	18:15-18:25/10	07:47	08:41
	22:12		21:29		20:19		19:04		16:55	16:16
7	05:13	20:43-21:31/48	05:59		06:55	07:22-07:49/27	07:49	18:13-18:26/13	07:49	08:42
	22:12		21:27		20:16		19:01		16:53	16:15
8	05:14	20:44-21:31/47	06:00		06:56	07:24-07:49/25	07:51	18:11-18:27/16	07:51	08:44
	22:11		21:25		20:14		18:59		16:51	16:15
9	05:15	20:44-21:31/47	06:02		06:58	07:25-07:49/24	07:53	18:09-18:27/18	07:53	08:45
	22:10		21:23		20:11		18:56		16:49	16:14
10	05:16	20:44-21:31/47	06:04		07:00	07:27-07:49/22	07:55	18:06-18:25/19	07:55	08:46
	22:09		21:21		20:09		18:54		16:47	16:14
11	05:17	20:44-21:31/47	06:06		07:02	07:29-07:49/20	07:57	18:04-18:22/18	07:57	08:47
	22:08		21:19		20:06		18:52		16:45	16:14
12	05:18	20:44-21:30/46	06:08		07:04	07:30-07:48/18	07:59	18:03-18:20/17	07:59	08:48
	22:07		21:17		20:04		18:49		16:44	16:14
13	05:19	20:45-21:30/45	06:09		07:05	07:32-07:48/16	08:00	18:00-18:17/17	08:01	08:49
	22:06		21:15		20:01		18:47		16:42	16:14
14	05:21	20:46-21:30/44	06:11		07:07	07:34-07:48/14	08:02	17:57-18:15/18	08:03	08:50
	22:05		21:13		19:59		18:44		16:40	16:13
15	05:22	20:46-21:29/43	06:13		07:09	07:36-07:47/11	08:04	17:56-18:13/17	08:05	08:51
	22:04		21:10		19:56		18:42		16:39	16:13
16	05:23	20:46-21:28/42	06:15		07:11	07:38-07:47/9	08:06	17:55-18:10/15	08:07	08:52
	22:03		21:08		19:54		18:40		16:37	16:14
17	05:25	20:46-21:27/41	06:17		07:13	07:39-07:45/6	08:08	17:54-18:08/14	08:09	08:53
	22:02		21:06		19:51		18:37		16:36	16:14
18	05:26	20:47-21:27/40	06:18		07:14	07:41-07:44/3	08:10	17:54-18:05/11	08:11	08:54
	22:01		21:04		19:49		18:35		16:34	16:14
19	05:28	20:48-21:25/37	06:20	06:50-06:58/8	07:16		08:12	17:54-18:03/9	08:13	08:55
	21:59		21:02		19:46		18:33		16:33	16:14
20	05:29	20:48-21:23/35	06:22	06:51-07:00/9	07:18		08:14	17:54-18:00/6	08:14	08:55
	21:58		20:59		19:44		18:30		16:31	16:15
21	05:30	20:49-21:23/34	06:24	06:53-07:01/8	07:20		08:16	17:55-17:58/3	08:16	08:56
	21:57		20:57		19:41		18:28		16:30	16:15
22	05:32	20:49-21:21/32	06:26	06:54-07:01/7	07:22		08:18		08:18	08:56
	21:55		20:55		19:39		18:26		16:29	16:15
23	05:34	20:51-21:21/30	06:27	06:56-07:01/5	07:23		08:20		08:20	08:57
	21:54		20:52	07:03-07:13/10	19:36		18:24		16:27	16:16
24	05:35	20:51-21:19/28	06:29	06:58-07:15/17	07:25		08:22		08:22	08:57
	21:52		20:50		19:34		18:21		16:26	16:16
25	05:37	20:51-21:17/26	06:31	06:59-07:15/16	07:27		07:24		08:23	08:58
	21:51		20:48		19:31		17:19		16:25	16:17
26	05:38	20:53-21:16/23	06:33	07:01-07:16/15	07:29		07:26		08:25	08:58
	21:49		20:45		19:29		17:17		16:24	16:18
27	05:40	20:54-21:14/20	06:35	07:03-07:17/14	07:31		07:28		08:27	08:58
	21:47		20:43		19:26		17:15		16:23	16:19
28	05:42	20:56-21:13/17	06:36	07:05-07:18/13	07:33		07:30		08:29	08:58
	21:46		20:41		19:24		17:13		16:22	16:19
29	05:43	20:57-21:11/14	06:38	07:06-07:17/11	07:34		07:32		08:30	08:59
	21:44		20:38		19:21		17:11		16:21	16:20
30	05:45	21:01-21:10/9	06:40	07:08-07:17/9	07:36		07:33		08:32	08:59
	21:42		20:36		19:19		17:09		16:20	16:21
31	05:47		06:42	07:10-07:17/7			07:35			08:59
	21:40		20:33				17:06			16:22
Potential sun hours	515		461		383		327		257	230
Sum of minutes with flicker	1133		149		304		225		0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 17 - AT17

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 15:16-15:45/29 16:24	08:27 08:56-09:18/22 17:16 15:33-16:37/64	07:29 16:44-17:40/56 18:13	07:12 18:27-19:35/68 20:12	06:02 19:28-20:25/57 21:09	05:12 20:17-21:13/56 22:00
2	08:58 15:16-15:46/30 16:25	08:25 08:54-09:17/23 17:18 15:35-16:38/63	07:26 16:43-17:41/58 18:15	07:10 18:28-19:37/69 20:14	06:00 19:28-20:27/59 21:11	05:11 20:19-21:14/55 22:01
3	08:58 15:17-15:48/31 16:26	08:24 08:52-09:17/25 17:20 15:36-16:38/62	07:24 16:44-17:43/59 18:17	07:07 18:28-19:38/70 20:16	05:58 19:28-20:29/61 21:13	05:10 20:19-21:14/55 22:02
4	08:58 15:17-15:49/32 16:27	08:22 08:50-09:17/27 17:22 15:37-16:39/62	07:22 16:45-17:44/59 18:19	07:05 18:30-19:39/69 20:18	05:56 19:29-20:30/61 21:14	05:09 20:19-21:15/56 22:04
5	08:57 15:17-15:51/34 16:28	08:20 16:46-16:50/4 15:38-16:39/61 17:24 08:48-09:16/28	07:19 16:46-17:46/60 18:21	07:03 18:31-19:40/69 20:20	05:54 19:29-20:31/62 21:16	05:08 20:21-21:16/55 22:05
6	08:57 15:17-15:52/35 16:30	08:18 16:42-16:54/12 15:40-16:39/59 17:26 08:46-09:15/29	07:17 16:47-17:48/61 18:23	07:00 18:32-19:40/68 20:22	05:52 19:31-20:33/62 21:18	05:07 20:21-21:17/56 22:06
7	08:57 15:17-15:53/36 16:31	08:16 16:41-16:56/15 15:42-16:40/58 17:28 08:44-09:14/30	07:14 16:49-17:51/62 18:25	06:58 18:35-19:41/66 20:24	05:50 19:32-20:34/62 21:20	05:07 20:22-21:18/56 22:07
8	08:56 15:17-15:55/38 16:33	08:14 16:02-16:58/56 15:45-16:00/15 17:30 08:42-09:12/30	07:12 16:51-17:53/62 18:26	06:55 18:37-19:40/63 20:26	05:48 19:33-20:36/63 21:22	05:06 20:22-21:18/56 22:08
9	08:55 15:18-15:57/39 16:34	08:12 16:01-16:59/58 15:49-15:54/5 17:32 08:40-09:09/29	07:09 17:05-17:56/51 18:28 16:55-17:04/9	06:53 18:41-19:41/60 20:27	05:46 19:34-20:38/64 21:24	05:05 20:23-21:19/56 22:09
10	08:55 15:18-15:59/41 16:36	08:10 16:02-17:01/59 17:34 08:37-09:04/27	07:07 17:06-17:57/51 18:30	06:50 18:42-19:40/58 20:29	05:44 19:36-20:40/64 21:25	05:05 20:23-21:19/56 22:09
11	08:54 15:19-16:00/41 16:37	08:08 16:02-17:03/61 17:36 08:35-09:03/28	07:05 17:06-17:59/53 18:32	06:48 18:44-19:40/56 20:31	05:42 19:55-20:42/47 21:27 19:38-19:53/15	05:04 20:23-21:20/57 22:10
12	08:53 15:19-16:01/42 16:39	08:06 16:03-17:04/61 17:38 08:33-09:02/29	07:02 17:05-17:59/54 18:34	06:45 19:44-19:50/6 20:33 18:47-19:40/53	05:40 19:55-20:43/48 21:29 19:42-19:49/7	05:04 20:24-21:22/58 22:11
13	08:52 15:19-16:02/43 16:40	08:04 16:04-17:06/62 17:40 08:32-09:01/29	07:00 17:06-18:02/56 18:36	06:43 18:49-19:53/64 20:35	05:38 19:55-20:45/50 21:31	05:04 20:24-21:22/58 22:12
14	08:51 15:20-16:02/42 16:42	08:02 16:05-17:09/64 17:42 08:33-08:59/26	06:57 17:05-18:04/59 18:38	06:41 18:58-19:57/59 20:37	05:37 19:56-20:48/52 21:32	05:03 20:24-21:24/60 22:12
15	08:51 15:19-16:02/43 16:44	08:00 16:05-17:11/66 17:44 08:34-08:56/22	06:55 17:06-18:06/60 18:40	06:38 18:58-19:59/61 20:39	05:35 19:56-20:49/53 21:34	05:03 20:25-21:25/60 22:13
16	08:50 15:20-16:03/43 16:45	07:58 16:36-17:13/37 16:06-16:35/29 17:47 08:35-08:52/17	06:52 17:06-18:07/61 18:42	06:36 18:58-20:00/62 20:41	05:33 19:57-20:50/53 21:36	05:03 20:25-21:26/61 22:14
17	08:48 15:20-16:04/44 16:47	07:56 16:36-17:15/39 16:08-16:34/26 17:49 08:37-08:50/13	06:50 17:07-18:09/62 18:44	06:34 18:58-20:02/64 20:43	05:32 19:57-20:51/54 21:37	05:03 20:25-21:27/62 22:14
18	08:47 15:21-16:05/44 16:49	07:54 16:37-17:16/39 16:10-16:33/23 17:51 08:42-08:46/4	06:47 17:07-18:09/62 18:46	06:31 18:59-20:03/64 20:44	05:30 19:59-20:52/53 21:39	05:03 20:26-21:27/61 22:15
19	08:46 15:21-16:05/44 16:51	07:51 16:37-17:17/40 17:53 16:11-16:30/19	06:45 17:08-18:12/64 18:48	06:29 19:00-20:04/64 20:46	05:28 19:59-20:53/54 21:41	05:03 20:26-21:27/61 22:15
20	08:45 15:22-16:06/44 16:53	07:49 16:38-17:19/41 17:55 16:15-16:27/12	06:42 17:09-18:14/65 18:50	06:27 19:00-20:04/64 20:48	05:27 20:00-20:54/54 21:42	05:03 20:26-21:28/62 22:15
21	08:44 15:22-16:06/44 16:54	07:47 16:40-17:21/41 17:57	06:40 17:11-18:16/65 18:51	06:24 19:01-20:05/64 20:50	05:25 20:02-20:56/54 21:44	05:03 20:26-21:28/62 22:16
22	08:42 15:23-16:07/44 16:56 16:13-16:21/8	07:45 16:40-17:21/41 17:59	06:37 17:12-18:17/65 18:53	06:22 19:02-20:05/63 20:52	05:24 20:02-20:56/54 21:46	05:03 20:27-21:29/62 22:16
23	08:41 09:11-09:13/2 16:10-16:23/13 16:58 15:23-16:07/44	07:43 16:42-17:22/40 18:01	06:35 17:15-18:18/63 18:55	06:20 19:04-20:06/62 20:54	05:22 20:04-20:56/52 21:47	05:03 20:27-21:28/61 22:16
24	08:40 09:10-09:14/4 16:09-16:26/17 17:00 15:25-16:08/43	07:40 16:43-17:23/40 18:03	06:32 17:18-18:19/61 18:57	06:17 19:06-20:06/60 20:56	05:21 20:06-21:04/58 21:49	05:04 20:27-21:28/61 22:16
25	08:38 09:08-09:15/7 17:02 15:25-16:28/63	07:38 16:42-17:23/41 18:05	06:30 17:19-18:20/61 18:59	06:15 19:27-20:05/38 20:58 19:07-19:25/18	05:20 20:07-21:05/58 21:50	05:04 20:28-21:29/61 22:16
26	08:37 09:07-09:16/9 17:04 15:25-16:30/65	07:36 16:43-17:24/41 18:07	06:27 17:19-18:20/61 19:01	06:13 19:27-20:05/38 20:59 19:10-19:22/12	05:18 20:09-21:07/58 21:52	05:04 20:27-21:28/61 22:16
27	08:35 09:05-09:16/11 17:06 15:27-16:32/65	07:33 16:42-17:33/51 18:09	06:25 17:20-18:20/60 19:03	06:11 19:27-20:18/51 21:01	05:17 20:09-21:07/58 21:53	05:05 20:28-21:28/60 22:16
28	08:34 09:03-09:17/14 17:08 15:27-16:33/66	07:31 16:43-17:37/54 18:11	06:22 17:21-18:20/59 19:05	06:09 19:27-20:20/53 21:03	05:16 20:10-21:08/58 21:55	05:05 20:27-21:28/61 22:16
29	08:32 09:01-09:17/16 17:10 15:28-16:34/66		07:20 18:22-19:20/58 20:07 19:22-19:25/3	06:06 19:27-20:22/55 21:05	05:15 20:12-21:09/57 21:56	05:06 20:28-21:27/59 22:16
30	08:31 08:59-09:17/18 17:12 15:29-16:35/66		07:17 18:23-19:31/68 20:09	06:04 19:27-20:24/57 21:07	05:14 20:13-21:09/56 21:57	05:07 20:27-21:25/58 22:15
31	08:29 08:58-09:18/20 17:14 15:31-16:36/65		07:15 18:26-19:34/68 20:10		05:13 20:15-21:11/56 21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	1545	2059	1876	1848	1774	1763

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 17 - AT17

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:07 20:28-21:25/57 22:15	05:48 20:05-20:53/48 21:39 19:50-20:01/11	06:44 18:43-19:39/56 20:31	07:38 17:45-18:39/54 19:16	07:37 15:31-16:30/59 17:04 08:07-08:33/26	08:33 15:01-15:42/41 16:19
2	05:08 20:28-21:24/56 22:15	05:50 20:06-20:52/46 21:37 19:48-20:04/16	06:45 18:41-19:39/58 20:28	07:40 17:44-18:37/53 19:14	07:39 15:31-16:28/57 15:17-15:25/8 17:02 08:09-08:39/30	08:35 15:01-15:42/41 16:18
3	05:09 20:28-21:24/56 22:14	05:52 19:45-20:50/65 21:35	06:47 18:39-19:39/60 20:26	07:42 17:44-18:35/51 19:11	07:41 15:31-16:26/55 15:14-15:30/16 17:00 08:12-08:42/30	08:37 15:01-15:40/39 16:17
4	05:10 20:27-21:23/56 22:14	05:53 19:44-20:48/64 21:33	06:49 18:34-19:37/63 20:24	07:44 17:44-18:34/50 19:09	07:43 16:10-16:25/15 15:12-16:09/57 16:58 08:14-08:44/30	08:38 15:02-15:40/38 16:17
5	05:11 20:27-21:23/56 22:13	05:55 19:43-20:45/62 21:31	06:51 18:31-19:37/66 20:21	07:45 17:29-18:31/62 19:06	07:45 16:12-16:23/11 15:10-16:09/59 16:56 08:16-08:45/29	08:39 15:02-15:38/36 16:16
6	05:12 20:27-21:23/56 22:12	05:57 19:41-20:43/62 21:29	06:53 18:28-19:36/68 20:19	07:47 17:26-18:28/62 19:04	07:47 08:18-08:46/28 16:54 15:08-16:09/61	08:41 15:03-15:38/35 16:16
7	05:13 20:27-21:23/56 22:12	05:59 19:40-20:42/62 21:27	06:54 18:26-19:35/69 20:16	07:49 17:24-18:26/62 19:01	07:49 08:20-08:46/26 16:53 15:07-16:08/61	08:42 15:03-15:37/34 16:15
8	05:14 20:27-21:23/56 22:11	06:00 19:39-20:40/61 21:25	06:56 18:24-19:33/69 20:14	07:51 17:22-18:23/61 18:59	07:51 08:22-08:47/25 16:51 15:06-16:08/62	08:44 15:05-15:37/32 16:15
9	05:15 20:27-21:22/55 22:10	06:02 19:38-20:39/61 21:23	06:58 18:22-19:32/70 20:11	07:53 17:20-18:20/60 18:56	07:53 08:25-08:48/23 16:49 15:06-16:09/63	08:45 15:05-15:36/31 16:14
10	05:16 20:27-21:22/55 22:09	06:04 19:38-20:38/60 21:21	07:00 18:21-19:30/69 20:09	07:55 17:19-18:18/59 18:54	07:55 08:27-08:48/21 16:47 15:04-16:08/64	08:46 15:05-15:35/30 16:14
11	05:17 20:26-21:21/55 22:08	06:06 19:36-20:35/59 21:19	07:02 18:20-19:29/69 20:06	07:57 17:18-18:17/59 18:52	07:57 08:29-08:49/20 16:45 15:02-16:07/65	08:47 15:07-15:36/29 16:14
12	05:18 20:24-21:20/56 22:07	06:07 19:36-20:33/57 21:17	07:03 18:17-19:25/68 20:04	07:59 17:17-18:15/58 18:49	07:59 08:31-08:49/18 16:44 15:01-16:07/66	08:48 15:07-15:35/28 16:14
13	05:19 20:22-21:18/56 22:06	06:09 19:36-20:32/56 21:15	07:05 18:15-19:22/67 20:01	08:00 17:16-18:12/56 18:47	08:01 08:33-08:49/16 16:42 15:00-16:06/66	08:49 15:08-15:35/27 16:13
14	05:21 20:22-21:19/57 22:05	06:11 19:35-20:29/54 21:13	07:07 18:13-19:17/64 19:59	08:02 17:16-18:09/53 18:44	08:03 08:35-08:48/13 16:40 14:59-16:05/66	08:50 15:08-15:35/27 16:13
15	05:22 20:20-21:18/58 22:04	06:13 19:35-20:27/52 21:10	07:09 18:11-19:10/59 19:56	08:04 17:15-17:56/41 18:42 17:59-18:03/4	08:05 08:37-08:48/11 16:39 14:59-16:04/65	08:51 15:09-15:35/26 16:13
16	05:23 20:19-21:17/58 22:03	06:15 19:35-20:13/38 21:08 20:14-20:25/11	07:11 18:09-19:09/60 19:54	08:06 17:15-17:56/41 18:40	08:07 08:40-08:49/9 16:37 14:59-16:04/65	08:52 15:10-15:35/25 16:13
17	05:25 20:18-21:16/58 22:02	06:16 19:35-20:13/38 21:06 19:17-19:30/13	07:12 18:08-19:08/60 19:51	08:08 17:14-17:55/41 18:37	08:09 08:42-08:49/7 16:36 14:59-16:02/63	08:53 15:10-15:35/25 16:14
18	05:26 20:18-21:16/58 22:01	06:18 19:34-20:12/38 21:04 19:13-19:32/19	07:14 18:07-19:07/60 19:49	08:10 17:14-17:54/40 18:35	08:11 08:44-08:48/4 15:43-16:00/17 16:34 14:58-15:42/44	08:54 15:10-15:35/25 16:14
19	05:27 20:16-21:14/58 21:59	06:20 19:11-20:12/61 21:01	07:16 18:06-19:06/60 19:46	08:12 17:13-17:53/40 18:33	08:13 08:46-08:48/2 15:45-15:58/13 16:33 14:58-15:42/44	08:55 15:11-15:35/24 16:14
20	05:29 20:14-21:12/58 21:58	06:22 19:09-20:11/62 20:59	07:18 18:02-19:04/62 19:44	08:14 17:11-17:52/41 18:30	08:14 14:58-15:42/44 16:31 15:48-15:56/8	08:55 15:12-15:36/24 16:14
21	05:30 20:14-21:07/53 21:57	06:24 19:07-20:10/63 20:57	07:20 17:59-19:03/64 19:41	08:16 17:10-17:51/41 18:28	08:16 14:58-15:42/44 16:30	08:56 15:12-15:36/24 16:15
22	05:32 20:12-21:06/54 21:55	06:25 19:05-20:09/64 20:55	07:22 17:56-19:01/65 19:39	08:18 17:08-17:49/41 18:26 16:44-16:58/14	08:18 14:58-15:42/44 16:29	08:56 15:13-15:37/24 16:15
23	05:33 20:10-21:05/55 21:54	06:27 19:04-20:09/65 20:52	07:23 17:54-18:59/65 19:36	08:20 17:07-17:47/40 18:24 16:41-17:01/20	08:20 14:58-15:42/44 16:27	08:57 15:13-15:37/24 16:16
24	05:35 20:10-21:04/54 21:52	06:29 19:02-20:07/65 20:50	07:25 17:52-18:57/65 19:34	08:22 17:06-17:46/40 16:39-17:02/23 18:21 09:09-09:17/8	08:22 14:58-15:42/44 16:26	08:57 15:13-15:37/24 16:16
25	05:37 20:09-21:03/54 21:51	06:31 19:02-20:06/64 20:48	07:27 17:51-18:53/62 19:31	08:24 16:06-16:44/38 15:37-16:04/27 17:19 08:06-08:20/14	08:23 14:58-15:42/44 16:25	08:58 15:14-15:38/24 16:17
26	05:38 20:09-21:02/53 21:49	06:33 19:01-20:05/64 20:45	07:29 17:49-18:51/62 19:29	08:26 15:35-16:42/67 17:17 08:04-08:22/18	08:25 14:59-15:42/43 16:24	08:58 15:14-15:39/25 16:18
27	05:40 20:07-21:01/54 21:47	06:35 19:00-20:03/63 20:43	07:31 17:48-18:50/62 19:26	08:28 15:34-16:40/66 17:15 08:04-08:27/23	08:27 14:59-15:43/44 16:23	08:58 15:14-15:40/26 16:19
28	05:41 20:07-21:00/53 21:46	06:36 18:59-20:00/61 20:41	07:32 17:47-18:48/61 19:24	08:29 15:34-16:38/64 17:13 08:03-08:29/26	08:29 14:59-15:42/43 16:22	08:58 15:15-15:40/25 16:19
29	05:43 20:06-20:59/53 21:44	06:38 18:59-19:57/58 20:38	07:34 17:46-18:46/60 19:21	08:31 15:33-16:35/62 17:11 08:02-08:31/29	08:30 14:59-15:42/43 16:21	08:59 15:15-15:41/26 16:20
30	05:45 20:06-20:57/51 21:42	06:40 18:50-19:54/64 20:36	07:36 17:46-18:43/57 19:19	08:33 15:32-16:33/61 17:08 08:03-08:32/29	08:32 15:00-15:42/42 16:20	08:59 15:16-15:43/27 16:21
31	05:46 20:05-20:55/50 21:40	06:42 19:44-19:48/4 20:33 18:47-19:40/53		08:35 15:32-16:32/60 17:06 08:05-08:33/28		08:59 15:16-15:44/28 16:22
Potential sun hours	515	461	383	327	257	230
Sum of minutes with flicker	1715	1864	1900	1887	2077	894

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 18 - AT18

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	January	February	March	April	May	June
1	08:58 09:33-09:34/1	08:27 15:37-16:35/58	07:29 16:23-17:20/57	07:12 18:20-19:25/65	06:02 19:15-20:19/64	05:12 19:54-20:59/65
	16:24 14:31-15:20/49	17:16	18:13	20:12	21:09	22:00
2	08:58 09:33-09:35/2	08:25 15:38-16:36/58	07:26 16:24-17:20/56	07:10 18:25-19:27/62	06:00 19:16-20:20/64	05:11 19:55-20:59/64
	16:25 14:32-15:21/49	17:18	18:15	20:14	21:11	22:01
3	08:58 09:33-09:36/3	08:24 15:39-16:38/59	07:24 16:26-17:20/54	07:07 18:36-19:29/53	05:58 19:18-20:21/63	05:10 19:55-20:59/64
	16:26 14:34-15:21/47	17:20	18:17	20:16	21:13	22:02
4	08:58 09:32-09:36/4 15:40-15:44/4	08:22 15:41-16:39/58	07:21 16:27-17:20/53	07:05 18:40-19:31/51	05:56 19:21-20:22/61	05:09 19:56-20:59/63
	16:27 14:34-15:21/47	17:22	18:19	20:18	21:14	22:03
5	08:57 09:32-09:38/6 15:38-15:47/9	08:20 15:42-16:40/58	07:19 16:30-17:20/50	07:03 18:42-19:32/50	05:54 19:23-20:23/60	05:08 19:58-21:00/62
	16:29 14:36-15:22/46	17:24	18:21	20:20	21:16	22:05 21:03-21:06/3
6	08:57 09:31-09:38/7 15:37-15:49/12	08:18 15:44-16:41/57	07:17 16:34-17:19/45	07:00 18:44-19:33/49	05:52 19:25-20:25/60	05:07 19:58-20:59/61
	16:30 14:37-14:50/13 14:51-15:22/31	17:26	18:23	20:22	21:18	22:06 21:00-21:09/9
7	08:56 15:36-15:51/15 14:39-14:49/10	08:16 15:48-16:42/54	07:14 16:38-17:19/41	06:58 18:52-19:34/42	05:50 19:26-20:27/61	05:07 20:00-21:11/71
	16:31 09:30-09:38/8 14:51-15:22/31	17:28	18:25	20:24	21:20	22:07
8	08:56 15:35-15:54/19 14:41-14:47/6	08:14 15:52-16:47/55	07:12 17:34-17:37/3	06:55 18:51-19:34/43	05:48 19:27-20:30/63	05:06 20:01-21:11/70
	16:33 09:30-09:39/9 14:52-15:22/30	17:30	18:26 16:38-17:18/40	20:26	21:22	22:08
9	08:55 15:35-15:57/22 14:53-15:23/30	08:12 15:51-16:49/58	07:09 17:28-17:43/15	06:53 18:51-19:39/48	05:46 19:28-20:33/65	05:05 20:02-21:13/71
	16:34 09:29-09:40/11	17:32	18:28 16:39-17:17/38	20:27	21:24	22:09
10	08:55 15:35-15:58/23 14:54-15:23/29	08:10 15:52-16:51/59	07:07 17:24-17:46/22	06:50 18:50-19:41/51	05:44 19:30-20:34/64	05:05 20:03-21:13/70
	16:36 09:28-09:40/12	17:34	18:30 16:39-17:16/37	20:29	21:25	22:09
11	08:54 15:34-16:00/26 14:54-15:23/29	08:08 15:53-16:53/60	07:05 17:22-17:48/26	06:48 18:51-19:43/52	05:42 19:33-20:36/63	05:04 20:06-21:14/68
	16:37 09:27-09:40/13	17:36	18:32 16:40-17:15/35	20:31	21:27	22:10
12	08:53 15:34-16:01/27 14:55-15:23/28	08:06 15:54-16:55/61	07:02 17:20-17:49/29	06:45 18:52-19:45/53	05:40 19:37-20:37/60	05:04 20:09-21:15/66
	16:39 09:26-09:41/15	17:38	18:34 16:41-17:13/32	20:33	21:29	22:11
13	08:52 15:34-16:02/28 14:56-15:23/27	08:04 15:55-16:56/61	07:00 17:19-17:51/32	06:43 18:52-19:45/53	05:39 19:37-20:39/62	05:04 20:09-21:15/66
	16:40 09:25-09:41/16	17:40	18:36 16:43-17:12/29	20:35	21:31	22:12
14	08:51 15:34-16:03/29 14:57-15:23/26	08:02 15:57-16:57/60	06:57 17:17-17:52/35	06:41 18:53-19:46/53	05:37 19:38-20:41/63	05:03 20:10-21:16/66
	16:42 09:24-09:41/17	17:42	18:38 16:44-17:10/26	20:37	21:32	22:12
15	08:51 15:33-16:04/31 14:57-15:22/25	08:00 15:57-16:57/60	06:55 17:16-17:55/39	06:38 18:54-19:47/53	05:35 19:39-20:43/64	05:03 20:11-21:16/65
	16:44 09:23-09:41/18	17:44	18:40 16:46-17:08/22	20:39	21:34	22:13
16	08:50 15:33-16:05/32 14:58-15:22/24	07:58 16:00-16:58/58	06:52 17:15-17:56/41	06:36 18:54-19:50/56	05:33 19:40-20:44/64	05:03 20:11-21:17/66
	16:45 09:21-09:41/20	17:47	18:42 16:49-17:04/15	20:41	21:36	22:14
17	08:48 15:33-16:08/35 15:00-15:22/22	07:56 16:02-16:59/57	06:50 17:14-17:58/44	06:34 18:56-19:52/56	05:32 19:40-20:45/65	05:03 20:11-21:17/66
	16:47 09:20-09:41/21	17:49	18:44	20:43	21:37	22:14
18	08:47 15:33-16:10/37 15:01-15:22/21	07:54 16:03-17:05/62	06:47 17:13-17:58/45	06:31 18:59-19:56/57	05:30 19:42-20:48/66	05:03 20:12-21:18/66
	16:49 09:19-09:41/22	17:51	18:46	20:44	21:39	22:15
19	08:46 15:32-16:11/39 15:02-15:20/18	07:51 16:03-17:09/66	06:45 17:13-18:02/49	06:29 19:01-19:59/58	05:28 19:42-20:49/67	05:03 20:12-21:18/66
	16:51 09:17-09:40/23	17:53	18:48	20:46	21:41	22:15
20	08:45 15:33-16:13/40 15:05-15:19/14	07:49 16:05-17:12/67	06:42 17:12-18:04/52	06:27 19:02-20:00/58	05:27 19:44-20:51/67	05:03 20:12-21:18/66
	16:53 09:16-09:40/24	17:55	18:50	20:48	21:42	22:15
21	08:44 15:32-16:14/42 15:07-15:17/10	07:47 16:06-17:14/68	06:40 17:12-18:06/54	06:24 19:03-20:01/58	05:25 19:46-20:52/66	05:03 20:12-21:18/66
	16:54 09:14-09:39/25	17:57	18:51	20:50	21:44	22:16
22	08:42 15:33-16:16/43	07:45 16:06-17:15/69	06:37 17:12-18:07/55	06:22 19:05-20:02/57	05:24 19:47-20:53/66	05:03 20:13-21:19/66
	16:56 09:13-09:38/25	17:59	18:53	20:52	21:46	22:16
23	08:41 15:33-16:17/44	07:43 16:07-17:16/69	06:35 17:12-18:08/56	06:20 19:08-20:03/55	05:22 19:48-20:54/66	05:03 20:13-21:19/66
	16:58 09:11-09:34/23	18:01	18:55	20:54	21:47	22:16
24	08:40 15:33-16:19/46	07:40 16:09-17:18/69	06:32 17:12-18:08/56	06:17 19:10-20:04/54	05:21 19:48-20:55/67	05:04 20:13-21:19/66
	17:00 09:10-09:33/23	18:03	18:57	20:56	21:49	22:16
25	08:38 15:33-16:20/47	07:38 16:10-17:18/68	06:30 17:13-18:13/60	06:15 19:10-20:05/55	05:20 19:49-20:56/67	05:04 20:14-21:19/65
	17:02 09:08-09:32/24	18:05	18:59	20:58	21:50	22:16
26	08:37 15:33-16:21/48	07:36 16:13-17:19/66	06:27 17:12-18:14/62	06:13 19:10-20:06/56	05:18 19:50-20:56/66	05:04 20:13-21:19/66
	17:04 09:07-09:32/25	18:07	19:01	20:59	21:52	22:16
27	08:35 15:34-16:25/51	07:33 16:15-17:19/64	06:25 17:14-18:16/62	06:11 19:11-20:11/60	05:17 19:50-20:56/66	05:05 20:14-21:20/66
	17:06 09:06-09:30/24	18:09	19:03	21:01	21:53	22:16
28	08:34 15:34-16:27/53	07:31 16:22-17:20/58	06:22 17:14-18:17/63	06:09 19:12-20:15/63	05:16 19:50-20:57/67	05:05 20:13-21:19/66
	17:08 09:07-09:28/21	18:11	19:05	21:03	21:55	22:16
29	08:32 15:35-16:29/54		07:20 18:15-19:20/65	06:06 19:12-20:17/65	05:15 19:51-20:57/66	05:06 20:14-21:19/65
	17:10 09:08-09:23/15		20:07	21:05	21:56	22:15
30	08:31 15:35-16:31/56		07:17 18:16-19:22/66	06:04 19:13-20:18/65	05:14 19:52-20:57/65	05:07 20:13-21:19/66
	17:12 09:09-09:22/13		20:09	21:07	21:57	22:15
31	08:29 15:36-16:33/57		07:15 18:18-19:24/66		05:13 19:53-20:59/66	
	17:14 09:12-09:21/9		20:10		21:59	
Potential sun hours	248	272	367	421	496	513
Sum of minutes with flicker	2110	1717	1727	1651	1994	1992

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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SHADOW - Calendar per WTG

Calculation: Tirawley Shadow Flicker Worst Case WTG: 18 - AT18

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BELMULLET]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.36	2.16	2.65	4.82	5.79	4.41	4.42	4.07	3.73	2.48	1.71	0.89

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
263	305	173	263	215	192	359	1,103	1,091	912	892	828	483	620	606	455	8,760

	July	August	September	October	November	December
1	05:07 20:11-21:19/68 22:15	05:48 19:46-20:47/61 21:39	06:44 18:50-19:42/52 20:31	07:38 17:59-18:29/30 19:16 17:21-17:53/32	07:37 15:22-16:21/59 17:04	08:33 15:16-15:42/26 14:36-15:05/29 16:19 09:09-09:22/13
2	05:08 20:09-21:19/70 22:14	05:50 19:42-20:46/64 21:37	06:45 18:49-19:40/51 20:28	07:40 17:59-18:27/28 19:14 17:19-17:52/33	07:39 15:21-16:18/57 17:02	08:35 15:17-15:40/23 14:36-15:05/29 16:18 09:11-09:23/12
3	05:09 20:08-21:18/70 22:14	05:52 19:39-20:44/65 21:35	06:47 18:49-19:37/48 20:26	07:42 18:01-18:25/24 19:11 17:17-17:53/36	07:41 15:20-16:15/55 17:00	08:36 15:18-15:40/22 14:36-15:06/30 16:17 09:12-09:23/11
4	05:10 20:06-21:17/71 22:14	05:53 19:38-20:42/64 21:33	06:49 18:48-19:31/43 20:24	07:44 18:03-18:22/19 19:09 17:16-17:54/38	07:43 15:17-16:12/55 16:58	08:38 15:20-15:39/19 14:26-14:32/6 16:17 09:14-09:23/9 14:37-15:07/30
5	05:11 20:06-21:17/71 22:13	05:55 19:37-20:39/62 21:31	06:51 18:48-19:30/42 20:21	07:45 18:07-18:18/11 19:06 17:15-17:54/39	07:45 15:14-16:11/57 16:56	08:39 15:21-15:37/16 14:24-14:34/10 16:16 09:15-09:23/8 14:36-15:07/31
6	05:12 20:05-21:16/71 22:12	05:57 19:35-20:36/61 21:29	06:53 18:40-19:29/49 20:19	07:47 17:15-17:55/40 19:04	07:47 15:12-16:10/58 16:54	08:41 09:17-09:24/7 15:23-15:35/12 16:16 14:23-14:36/13 14:37-15:08/31
7	05:13 20:04-21:06/62 22:12 21:08-21:14/6	05:59 19:34-20:34/60 21:27	06:54 18:38-19:28/50 20:16	07:49 17:14-17:55/41 19:01	07:49 15:10-16:09/59 16:53	08:42 09:18-09:24/6 15:24-15:34/10 16:15 14:22-15:08/46
8	05:14 20:04-21:06/62 22:11	06:00 19:32-20:32/60 21:25	06:56 18:35-19:25/50 20:14	07:51 17:07-17:55/48 18:59	07:51 15:09-16:07/58 16:51	08:43 09:20-09:25/5 15:27-15:33/6 16:15 14:22-15:09/47
9	05:15 20:03-21:06/63 22:10	06:02 19:29-20:31/62 21:23	06:58 18:32-19:23/51 20:11	07:53 17:04-17:55/51 18:56	07:53 15:08-16:06/58 16:49	08:45 09:21-09:24/3 16:14 14:22-15:09/47
10	05:16 20:03-21:06/63 22:09	06:04 19:27-20:30/63 21:21	07:00 18:19-19:21/62 20:09	07:55 17:01-17:55/54 18:54	07:55 15:08-16:06/58 16:47	08:46 09:22-09:24/2 16:14 14:21-15:10/49
11	05:17 20:02-21:06/64 22:08	06:06 19:24-20:28/64 21:19	07:02 18:14-19:19/65 20:06	07:57 16:59-17:54/55 18:52	07:57 15:07-16:04/57 16:45 08:43-08:52/9	08:47 09:24-09:25/1 16:14 14:22-15:11/49
12	05:18 20:01-21:06/65 22:07	06:07 19:23-20:27/64 21:17	07:03 18:10-19:15/65 20:04	07:59 16:57-17:54/57 18:49	07:59 15:07-16:03/56 16:44 08:41-08:54/13	08:48 09:25-09:26/1 16:14 14:22-15:11/49
13	05:19 20:01-21:06/65 22:06	06:09 19:22-20:26/64 21:15	07:05 18:08-19:13/65 20:01	08:00 16:56-17:53/57 18:47	08:01 15:07-16:01/54 16:42 08:40-08:55/15	08:49 14:22-15:12/50 16:13
14	05:21 20:01-21:07/66 22:05	06:11 19:20-20:24/64 21:13	07:07 18:06-19:11/65 19:59	08:02 16:51-17:53/62 18:44	08:03 15:06-15:59/53 16:40 08:39-09:00/21	08:50 14:22-15:12/50 16:13
15	05:22 20:00-21:06/66 22:04	06:13 19:19-20:21/62 21:10	07:09 18:04-19:08/64 19:56	08:04 16:47-17:52/65 18:42	08:05 15:06-15:57/51 16:39 08:38-09:02/24	08:51 14:22-15:12/50 16:13
16	05:23 19:59-21:06/67 22:03	06:15 19:18-20:15/57 21:08	07:11 18:02-19:05/63 19:54	08:06 16:44-17:51/67 18:40	08:07 15:06-15:54/48 16:37 08:40-09:05/25	08:52 14:23-15:13/50 16:13
17	05:25 19:59-21:05/66 22:02	06:16 19:18-20:14/56 21:06	07:12 18:01-19:03/62 19:51	08:08 16:42-17:50/68 18:37	08:09 15:07-15:54/47 16:36 08:42-09:06/24	08:53 14:23-15:14/51 16:14
18	05:26 19:59-21:06/67 22:01	06:18 19:16-20:11/55 21:04	07:14 18:00-19:01/61 19:49	08:10 16:40-17:49/69 18:35	08:11 15:07-15:53/46 16:34 08:44-09:07/23	08:54 14:23-15:13/50 16:14
19	05:27 19:58-21:05/67 21:59	06:20 19:16-20:09/53 21:01	07:16 17:59-18:56/57 19:46	08:12 16:38-17:47/69 18:33	08:13 15:08-15:52/44 16:33 08:46-09:09/23	08:55 14:23-15:14/51 16:14
20	05:29 19:58-21:04/66 21:58	06:22 19:13-20:08/55 20:59	07:18 17:58-18:54/56 19:44	08:14 16:37-17:46/69 18:30	08:14 15:08-15:51/43 16:31 08:48-09:13/25	08:55 14:24-15:15/51 16:14
21	05:30 19:58-21:04/66 21:57	06:24 19:10-20:07/57 20:57	07:20 17:57-18:53/56 19:41	08:16 16:36-17:44/68 18:28	08:16 15:08-15:50/42 14:43-14:53/10 16:30 08:50-09:15/25	08:56 14:24-15:15/51 16:15
22	05:32 19:57-21:03/66 21:55	06:26 19:08-20:06/58 20:55	07:22 17:57-18:51/54 19:39	08:18 16:35-17:41/66 18:26	08:18 15:09-15:49/40 14:41-14:55/14 16:29 08:52-09:16/24	08:56 14:25-15:16/51 16:15
23	05:33 19:55-21:01/66 21:54	06:27 19:06-20:04/58 20:52	07:23 17:57-18:49/52 19:36	08:20 16:33-17:38/65 18:24	08:20 15:10-15:48/38 14:39-14:57/18 16:27 08:54-09:17/23	08:57 14:25-15:16/51 16:16
24	05:35 19:54-21:01/67 21:52	06:29 19:03-20:01/58 20:50	07:25 17:57-18:47/50 19:34	08:22 16:32-17:29/57 18:21	08:22 15:10-15:47/37 14:38-14:59/21 16:26 08:56-09:18/22	08:57 14:25-15:16/51 16:16
25	05:37 19:52-20:59/67 21:51	06:31 19:01-19:58/57 20:48	07:27 17:56-18:41/45 19:31	07:24 15:31-16:28/57 17:19	08:23 15:11-15:46/35 14:38-15:00/22 16:25 08:58-09:19/21	08:58 14:26-15:17/51 16:17
26	05:38 19:52-20:57/65 21:49	06:33 18:59-19:54/55 20:45	07:29 17:56-18:40/44 19:29	07:26 15:29-16:28/59 17:17	08:25 15:12-15:44/32 14:37-15:01/24 16:24 09:00-09:20/20	08:58 14:27-15:17/50 16:18
27	05:40 19:50-20:55/65 21:47	06:35 18:57-19:52/55 20:43	07:31 17:56-18:39/43 19:26 17:32-17:44/12	07:28 15:26-16:27/61 17:15	08:27 15:13-15:44/31 14:37-15:02/25 16:23 09:02-09:21/19	08:58 14:27-15:18/51 16:19
28	05:41 19:50-20:54/64 21:46	06:36 18:55-19:48/53 20:41	07:32 17:57-18:37/40 19:24 17:28-17:47/19	07:29 15:26-16:27/61 17:13	08:29 15:13-15:42/29 14:36-15:02/26 16:22 09:04-09:21/17	08:58 14:28-15:18/50 16:19
29	05:43 19:49-20:52/63 21:44	06:38 18:53-19:47/54 20:38	07:34 17:57-18:34/37 19:21 17:25-17:50/25	07:31 15:24-16:25/61 17:11	08:30 15:14-15:42/28 14:36-15:03/27 16:21 09:05-09:21/16	08:58 14:29-15:19/50 16:20
30	05:45 19:48-20:51/63 21:42	06:40 18:52-19:46/54 20:36	07:36 17:58-18:31/33 19:19 17:23-17:51/28	07:33 15:23-16:24/61 17:08	08:32 15:15-15:42/27 14:36-15:04/28 16:20 09:07-09:22/15	08:59 14:29-15:19/50 16:21
31	05:46 19:48-20:49/61 21:40	06:42 18:51-19:44/53 20:33		07:35 15:22-16:23/61 17:06		08:59 14:30-15:20/50 16:22
Potential sun hours	515	461	383	327	257	230
Sum of minutes with flicker	2049	1828	1659	1839	2031	1667

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

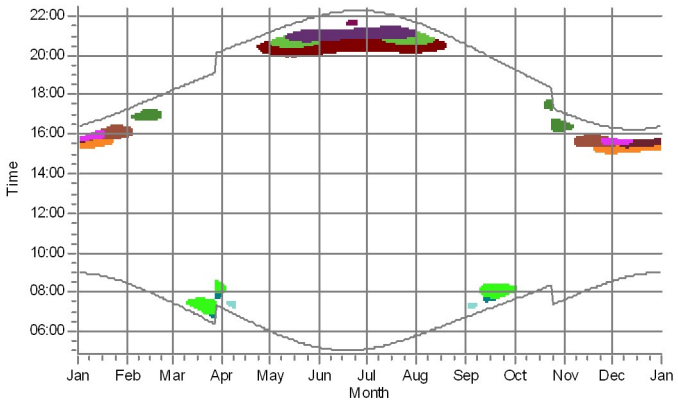
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Kathlyn Feeney / kfeeney@jodireland.com

Calculated:
15/09/2025 16:35/4.0.552

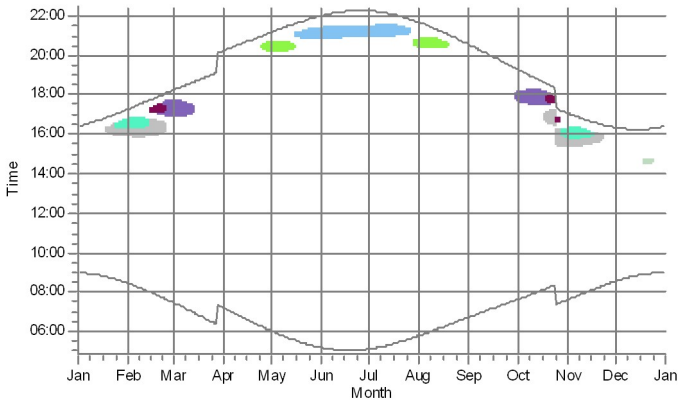
SHADOW - Calendar per WTG, graphical

Calculation: Tirawley Shadow Flicker Worst Case

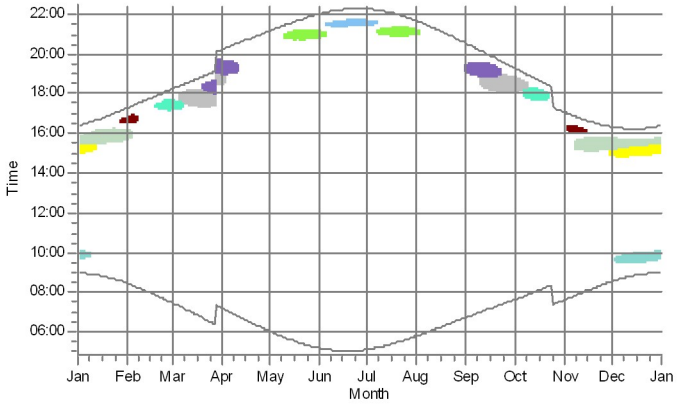
1: AT01



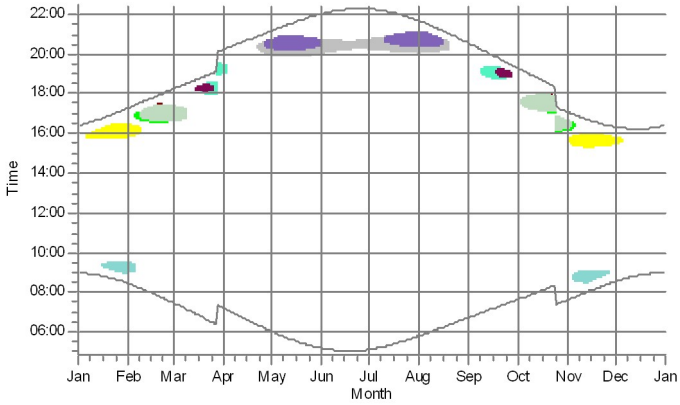
2: AT02



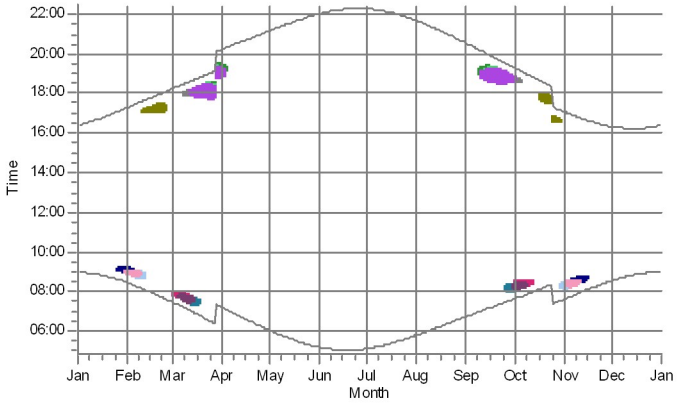
3: AT03



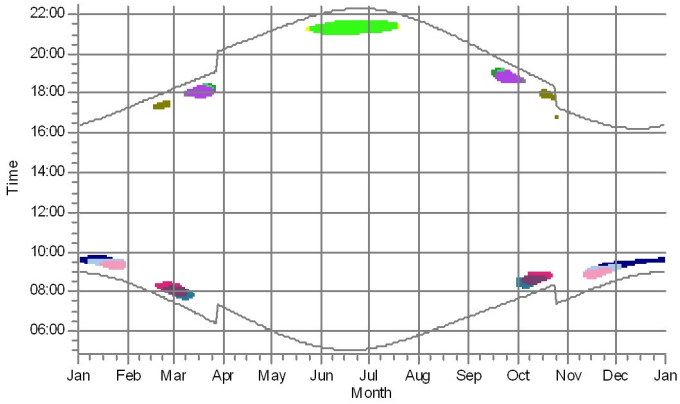
4: AT04



5: AT05



6: AT06



Shadow receptors

B: H2	G: H7	L: H12	R: H18	AF: H32	AQ: H43	BG: H59	CX: H103	DM: H122
C: H3	H: H8	N: H14	W: H23	AH: H34	AU: H47	CM: H92	DC: H110	DN: H123
D: H4	I: H9	O: H15	AA: H27	AM: H39	AV: H48	CP: H95	DE: H112	
F: H6	J: H10	Q: H17	AB: H28	AN: H40	BD: H56	CW: H102	DL: H121	

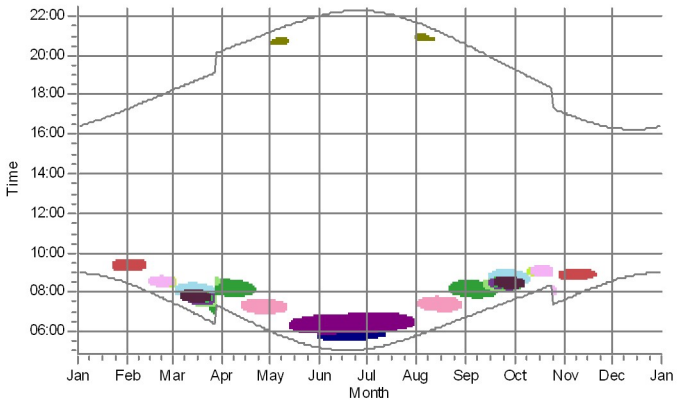
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Calculated:
15/09/2025 16:35/4.0.552

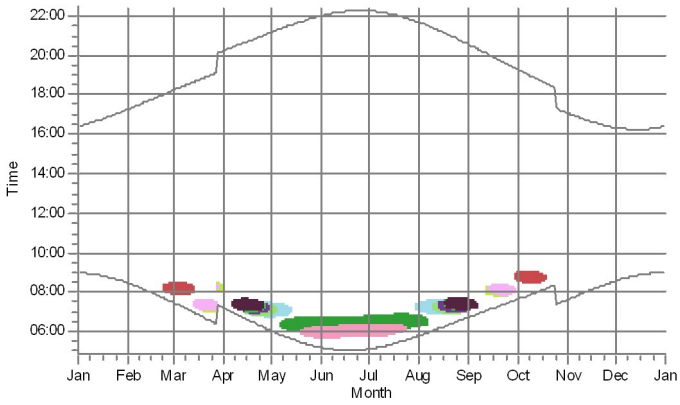
SHADOW - Calendar per WTG, graphical

Calculation: Tirawley Shadow Flicker Worst Case

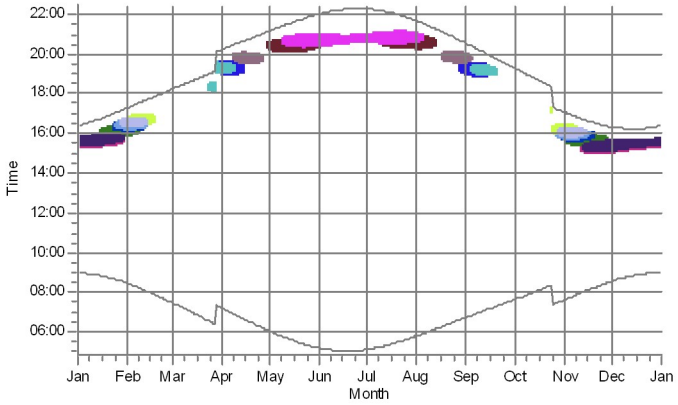
7: AT07



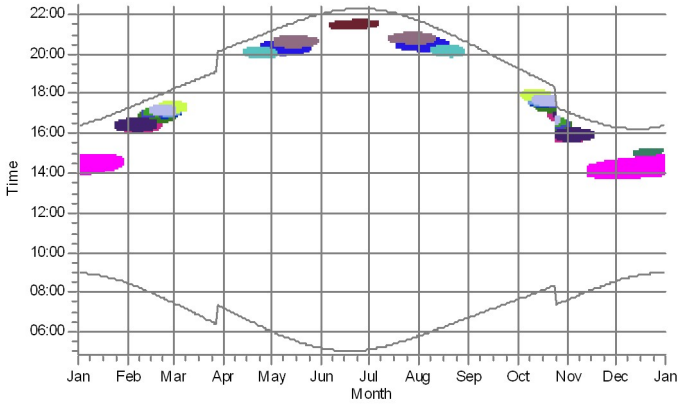
8: AT08



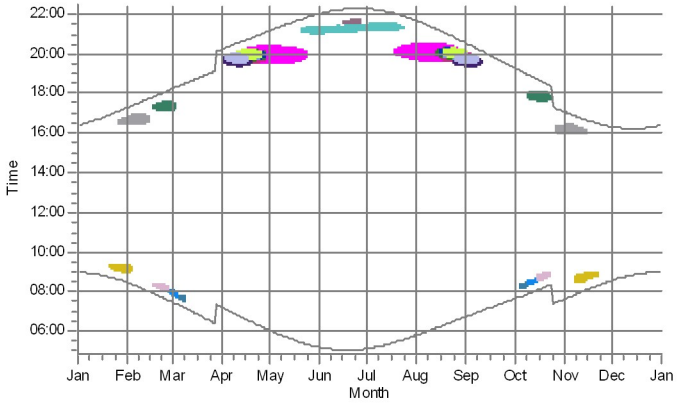
9: AT09



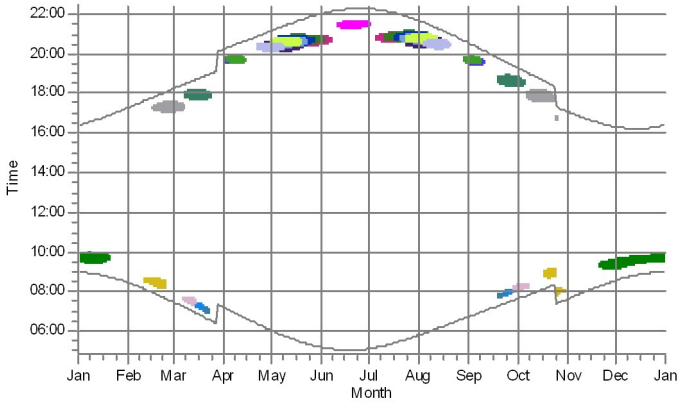
10: AT10



11: AT11



12: AT12



Shadow receptors

A: H1	K: H11	AD: H30	AK: H37	BJ: H62	BX: H76	CF: H84	CQ: H96	DG: H114
E: H5	P: H16	AF: H32	AU: H47	BM: H65	BY: H77	CG: H85	CV: H101	DJ: H117
G: H7	T: H20	AG: H33	BE: H57	BP: H68	CB: H80	CJ: H89	DA: H106	DK: H119
J: H10	AC: H29	AJ: H36	BG: H59	BR: H70	CC: H81	CL: H91	DB: H109	

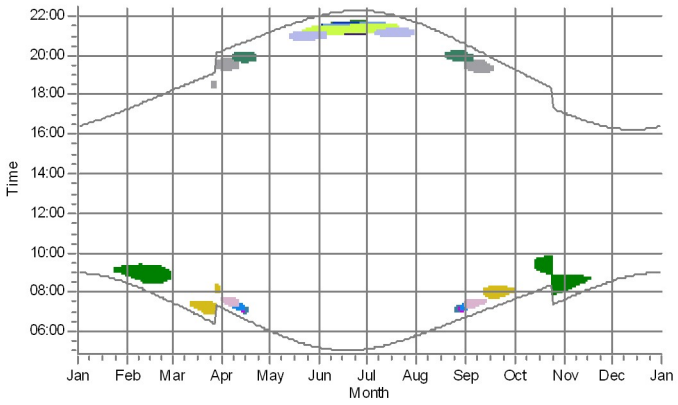
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Calculated:
15/09/2025 16:35/4.0.552

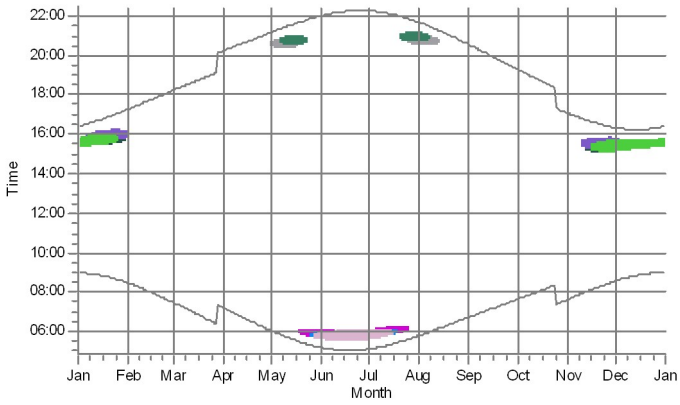
SHADOW - Calendar per WTG, graphical

Calculation: Tirawley Shadow Flicker Worst Case

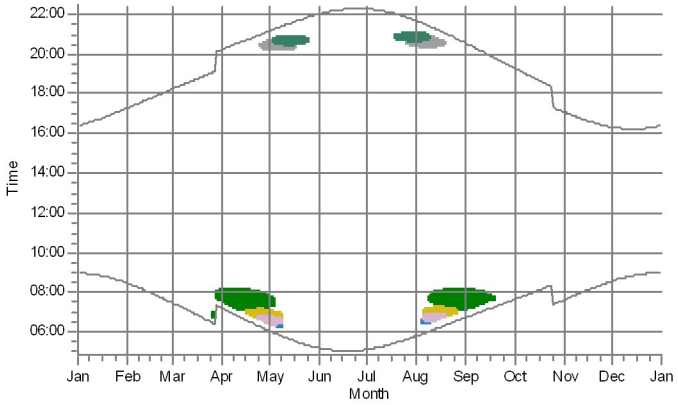
13: AT13



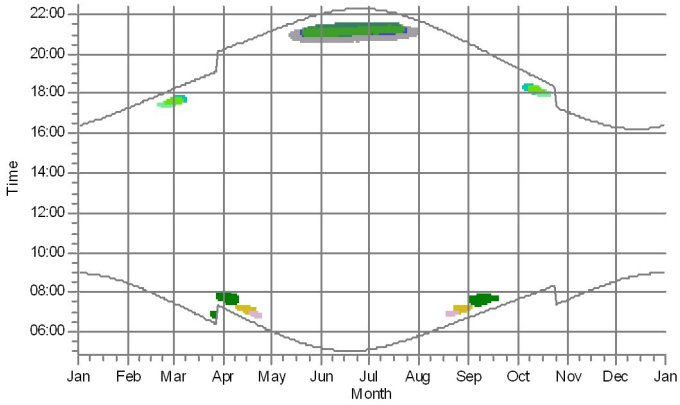
14: AT14



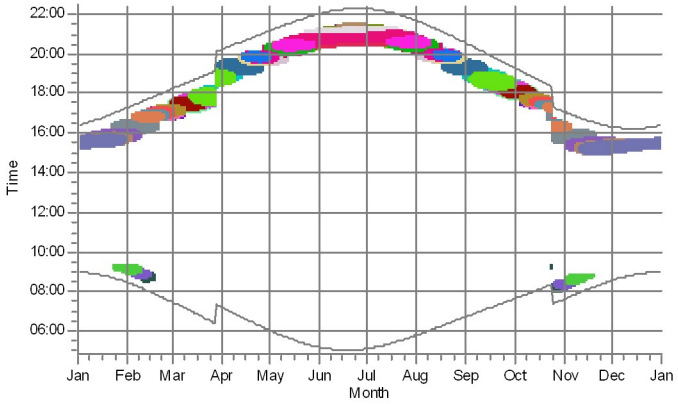
15: AT15



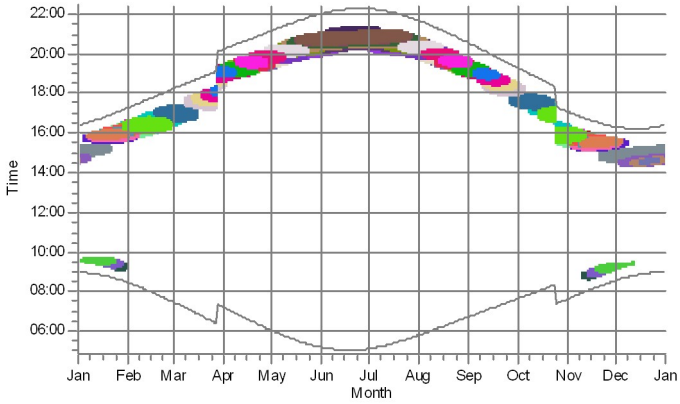
16: AT16



17: AT17



18: AT18



Shadow receptors

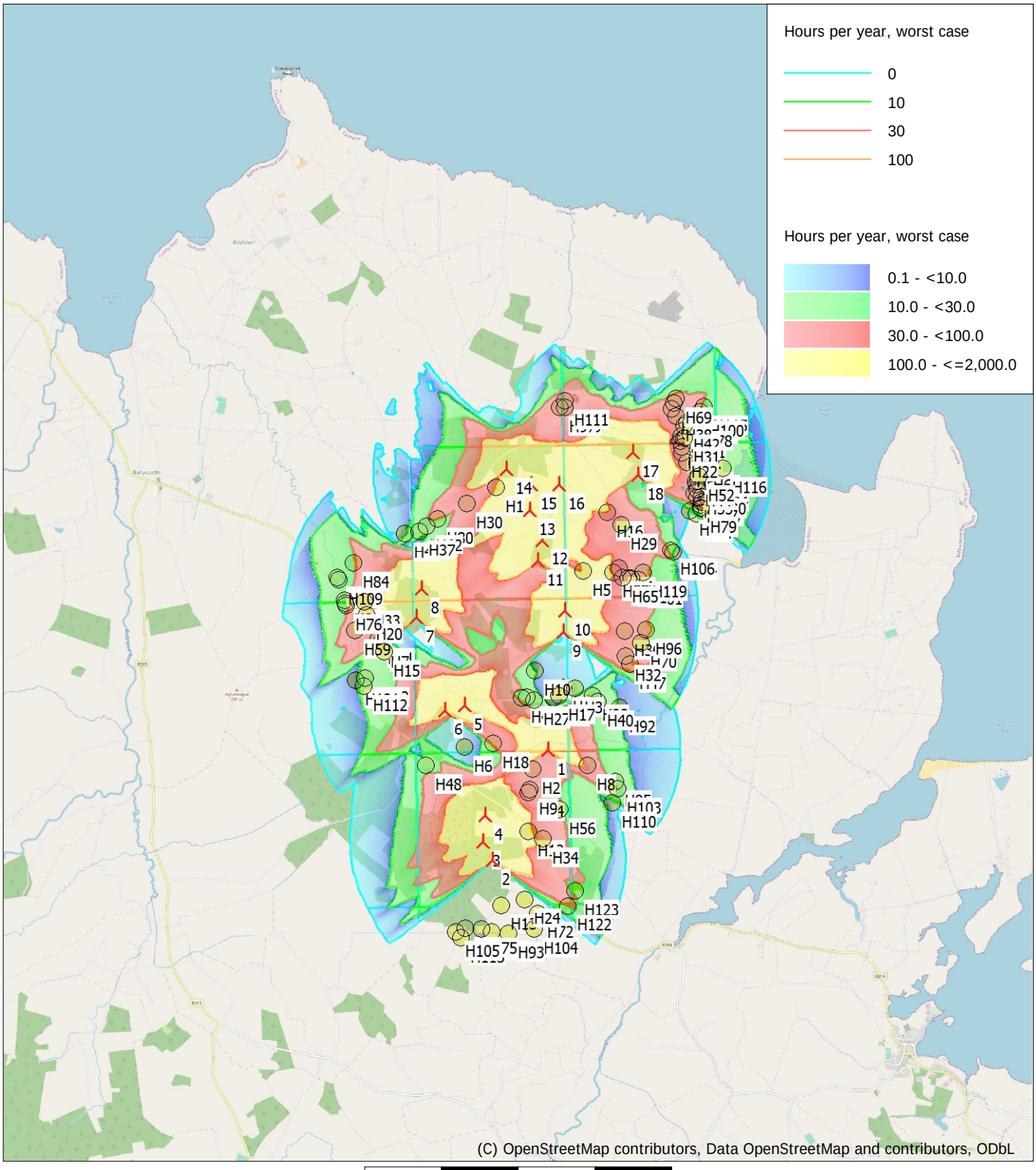
A: H1	Z: H26	AL: H38	AW: H49	BC: H55	BL: H64	BS: H71	CB: H80	CR: H97	DD: H111
P: H16	AC: H29	AO: H41	AX: H50	BE: H57	BM: H65	BU: H73	CD: H82	CS: H98	DG: H114
S: H19	AD: H30	AP: H42	AY: H51	BF: H58	BN: H66	BV: H74	CH: H87	CT: H99	DH: H115
U: H21	AE: H31	AR: H44	AZ: H52	BH: H60	BO: H67	BY: H77	CK: H90	CU: H100	DI: H116
V: H22	AI: H35	AS: H45	BA: H53	BJ: H62	BP: H68	BZ: H78	CL: H91	CV: H101	DK: H119
Y: H25	AK: H37	AT: H46	BB: H54	BK: H63	BQ: H69	CA: H79	CO: H94	DA: H106	DO: H284

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Calculated:
15/09/2025 16:35/4.0.552

SHADOW - Map

Calculation: Tirawley Shadow Flicker Worst Case



Map: EMD OpenStreetMap , Print scale 1:75,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 515,390 North: 836,260

New WTG Shadow receptor

Flicker map level: Elevation Grid Data Object: 6289 Tirawley WF_EMDGrid_2.wpg (3)

Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m