



5060

Sunlight Reception Analysis Report

SUNLIGHT RECEPTION IN AMENITY SPACES WITHIN THE PROPOSED DEVELOPMENT

Castlelake SHD

Castlelake,
Carrigtwohill,
Co. Cork

BAM

DKP-N38-5060-1P
2022-06-09

Document control

DKP project no: N38
 DKP document no: 5060
 Project file no: DKP-N38-5060

Circular	Issue >	1#	1P
Clients	BAM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Architects	Wilson Architecture	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Planning consultants	HW Planning	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Issue	1#	2022-06-01	Draft issue, for review
Issue	1P	2022-06-09	Final issue for planning

Document issue status ID

Sketch/draft
 P Planning
 C Concept
 D Design
 G General information
 T Tender
 W Works/construction
 Z As-build/constructed

Issue	Prepared	Checked	Approved
1#	201	208	208
1P	201	208	201

ING Gerard (Craig) van Deventer CEng., BE(mech)., HDip CIOB, MCIBSE

M : [00] 353 (0)87 260 8080
 E : gerard@dkpartnership.com

DKPartnership
 70 Main Street, Applewood , Swords, Co. Dublin, Ireland
 Reen Kenmare Co. Kerry

post@dkpartnership.com
 www.dkpartnership.com

T : [00] 353 (0) 1813 1930
 T : [00] 353 (0)64664 1686

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1 Introduction

1.1 Report purpose

This report gives information on the level of achieved sunlight reception in amenity spaces within the proposed new development.

1.2 Instruction

DKPartnership (DKP) have been commissioned by BAM, to carry out the analysis and report for the proposed development at Carrigtwohill, Co. Cork.

1.3 Development description

The development will consist of the construction of a strategic housing development of 716 no. units and a 2 no. storey creche. The proposed development comprises 224 no. houses, 284 no. duplex units and 208 no. apartments. The two storey houses comprise 48 no. detached, 126 no. semi-detached and 50 no. terraced Houses containing 60 no. two bed units, 139 no. three bed units and 25 no. four bed units. The part-one to part-three storey duplex units are contained in 122 no. buildings providing 82 no. one bed units, 142 no. two bed units and 60 no. three bed units. There are 7 no. apartments blocks ranging in height from part-1 to part- 5 no. storeys.

- Block 1 is 4 no. storeys and contains 34 no. units (7 no. one bed units, 19 no. two bed units and 8 no. three bed units).
- Block 2 is part-1 to part-5 no. storeys and contains 42 no. units (15 no. one bed units, 20 no. two bed units and 7 no. three bed units).
- Block 3 is 5 no. storeys and contains 17 no. units (8 no. one bed units and 9 no. two bed units).
- Block 4 is 4 no. storeys and contains 13 no. units (6 no. one bed units and 7 no. two bed units).
- Block 5 is 4 no. storeys and contains 13 no. units (6 no. one bed units and 7 no. two bed units).
- Block 6 is 4 no. storeys and contains 13 no. units (6 no. one bed units and 7 no. two bed units).
- Block 7 is 5 no. storeys over basement and contains 76 no. units (23 no. one bed units, 41 no. two bed units and 12 no. three bed units).
- All blocks contain ancillary internal and external resident amenity space.

The proposed development also provides for: hard and soft landscaping; boundary treatments; public realm works; car parking; bicycle stores and shelters; bin stores; lighting; plant rooms; and all ancillary site development works above and below ground.

1.4 Statutory requirement

There are no particular building regulations in relation day light/shadow effect standards other than recommendations outlined or referred to in the CIBSE lighting guide 10, BS EN17037/EN17037 and the BRE document "Site layout planning for daylight and sun light". The aforementioned documents do refer to a "right to a sky view" relating to existing buildings facing a new adjacent development in so far that it compares an existing sky view with the sky view when the new development is constructed. The difference, if any, must be within a certain acceptable threshold.

2 Executive summary

2.1 Analysis conducted

This report details the sunlight/shadow status of new amenity spaces within the proposed development and examines if the results are within the limits of the recommendations of the relevant guidelines and standards.

2.2 Guidelines and standards applied

For this report we applied the recommendations and guideline of the following;

- The Building Research Establishment (BRE) report, "Site layout planning for daylight and sunlight – a guide to good practice (referred to as the BRE Report).
- British European Standard BS EN17037/EN17037 Day lighting standards and contains guidance on the minimum recommended levels of interior day lighting.
- CIBSE guide 10 Day light and lighting for buildings.

2.3 Technical analysis

Calculations were conducted in accordance with the BRE guidelines to determine the extent of achieved sunlight in amenity spaces within the new proposed development. For new amenity spaces, in basic terms, the minimum criteria is that at least 50% of the total amenity spaces should receive at least two hours of sunlight on the 21st March. To determine the extend of sunlight received in an amenity space each space is assessed hour-by-hour for sunlight reception / shadow casting using a 3D model of the site and buildings.

2.4 Amenity spaces within the proposed development shadow / sunlight assessment conclusion

Based on the BRE guidelines at least 50% of the amenity space should receive at least two hours of sunlight on the 21st of March. For the sunlight reception assessment of the public open amenity spaces and communal amenity spaces we selected all of the by the architects proposed amenity spaces. For the sunlight reception assessment of the private amenity spaces (balconies) we selected a total of 32 no balconies covering each orientation on each block to give a good average cross section of received sunlight. For the sunlight reception assessment of the private amenity spaces (gardens) we selected a total of 46 no gardens covering all orientations again to give a good average cross section of received sunlight.

From the calculation results of the public open & communal amenity spaces, the private amenity spaces (balconies) and private amenity spaces (gardens), tables 5.2, 5.3, 5.4, we note that all area's easily receive more then 2 hours of sunlight on 50% of the area and are all in excess of the BRE requirements for amenity space sunlight reception.

We therefore conclude that the sunlight reception in all the new amenity spaces is in excess of the guidelines of the BRE Report - Site Layout and Planning for Daylight and Sunlight - and therefore deem these to be compliant.

2.5 Mitigation measures / actions

No mitigation measures anticipated.

3 Geographical overview

3.1 Project overview

Image 3.1 the (google) site map below indicates the location of the sites approximately outlined.

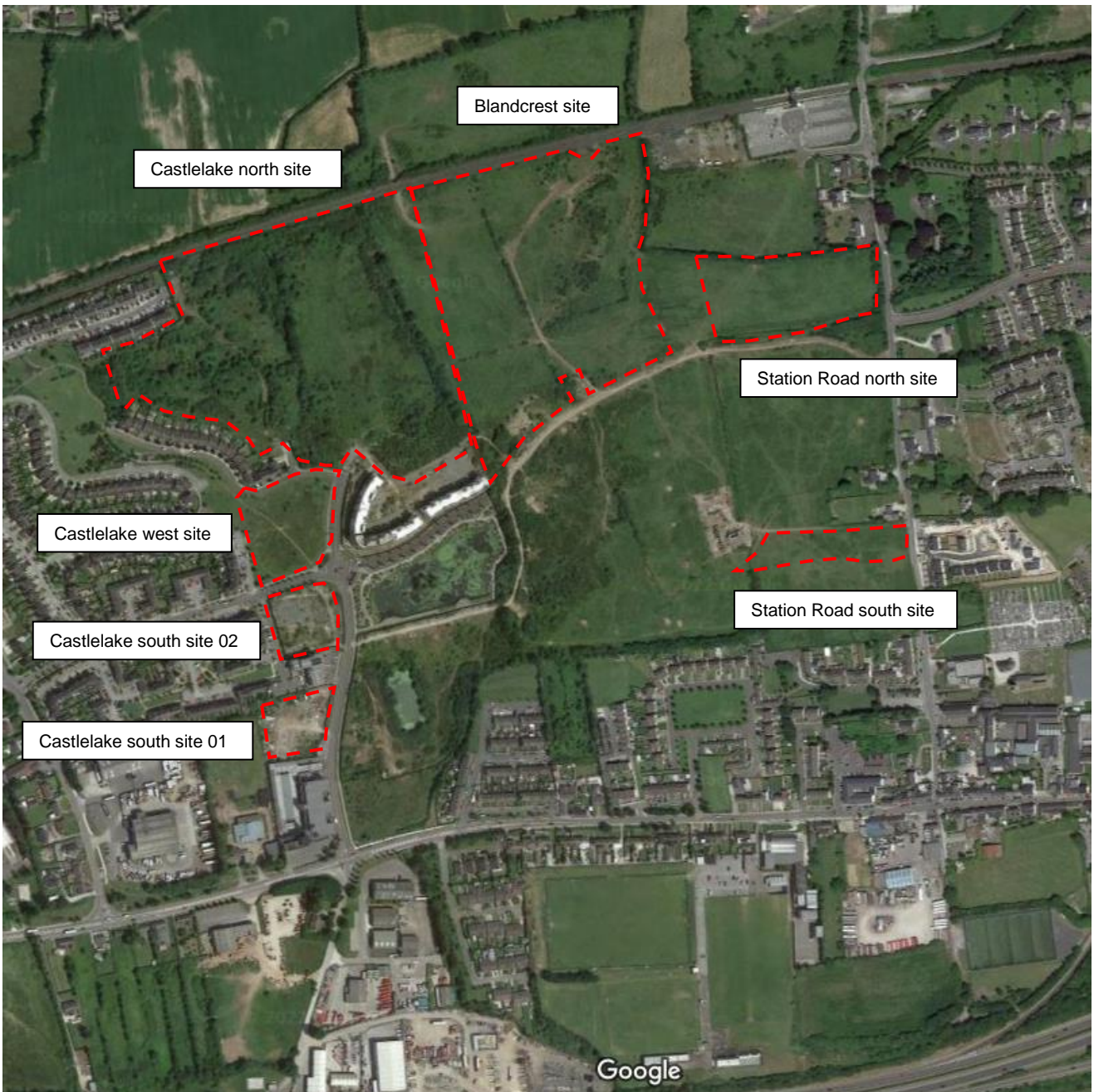


Image 3.1 Approximate proposed development site boundary

4 Approach and methodology

4.1 General approach

This report covers the level of achieved sunlight reception in amenity space of the new proposed development.

4.2 The nature and effects of day light and sun light

When assessing the effects of proposed building projects on the potential to cause issues relating to light, it is important to recognise the distinction between daylight and sunlight. Daylight is the combination of all direct and indirect sunlight during the daytime, whereas sunlight (for the purposes of this report) comprises only the direct elements of sunlight. For example, on a cloudy or overcast day diffused daylight still shines through windows, even when sunlight is absent. Any development within a built-up area has the potential to alter the amount of daylight and direct sun received by nearby residential properties.

Care should be taken when designing new buildings in built-up areas, especially when the proposed development is relatively tall or situated to the south of existing buildings, because in the northern hemisphere the majority of the sunlight comes from the south. In Ireland (and other northern hemisphere countries) south-facing facades will in general, receive the most sunlight, while the north facing facades will receive sunlight on only a handful of occasions, specifically early mornings, and late evenings during the summer months. It is therefore important to ensure that buildings to the south of any development do not cause over shadowing to existing dwellings and therefore reduce their capacity to receive sunlight.

4.3 Assessment criteria

National Policy/building regulations.

The government does not have an adopted policy on daylight, sunlight, and the effects of overshadowing, and does not have targets, criteria or relevant planning guidance in the way it has for other environmental impacts such as noise, landscape or air quality. However, there are a number of guidance documents which are relevant when considering daylight, sunlight and overshadowing in dwellings:

- The Building Research Establishment (BRE) report, "Site layout planning for daylight and sunlight – a guide to good practice (referred to as the BRE Report). Although not Government guidance, this report is commonly referenced as the main guide in Ireland/UK in determining the minimum standards of daylight and sunlight and for determining the impact of a development.
- British European Standard BS EN17037/EN17037 Day Lighting for buildings. BS EN17037/EN17037 contains guidance on the minimum recommended levels of interior day lighting and introduces some of the calculation procedures used in the BRE Report.
- CIBSE guide 10 Day light and lighting for buildings. CIBSE lighting guide 10 like BS EN17037/EN17037 contains guidance on the minimum recommended levels of interior day lighting and introduces recommended day light levels for general buildings.

4.4 The BRE Report – "Site Layout and Planning for Daylight and Sunlight – A Guide to Good Practice"

The BRE report contains guidance on how to design developments, whilst minimising the impacts on existing buildings from overshadowing and reduced levels of daylight and sunlight. The advice provided within the guide is not mandatory and should not be seen as an instrument of planning policy, its aim is to help rather than constrain the designer. Although it gives numerical guidance values, these should be interpreted with flexibility since natural lighting is one of many factors in site layout design. The guidance should be applied appropriately to developments to assist in gaining the best development possible without adverse impacts.

As well as advice, the report contains a methodology to assess levels of daylight, sunlight and over shadowing and contains criteria to determine the potential impacts of a new development on surrounding buildings. The table below summarises the criteria used to assess the overshadowing/sunlight reception in amenity spaces.

4.5 Criterion for sunlight / shadow analysis

Acceptable criterion for sunlight reception / shadow forming are as follows:

Analysis	Criteria on March 21 st	Acceptable sunlight reception parameters
Sunlight reception	Minimum sunlight reception in amenity spaces	At least 50% of the total area to receive at least 2 hours sunshine

Table 4.1

4.6 Sunlight reception / Overshadowing effects measured

The minimum sunlight requirement in this report measured in sunlight time 2 hours (120 minutes) multiplied by 50% area m^2 or the minimum requirement = $120 \text{ (min)} * 0.5a \text{ (m}^2\text{)} = [\] \text{ min}\cdot\text{m}^2$.

The overshadowing/sun light assessment is executed in using a 3D model of the project with the results illustrated in tabular format showing the hourly status of the shadow/sunlight fraction in the relevant amenity spaces. The impacts of vegetation: It is important to note that according to the BRE Report, calculations do not normally take into account vegetation. The exception is when evergreen vegetation exists that forms a continuous barrier and would be permanent throughout the seasons.

5 Receptor selection and Calculation results - Amenity spaces within the proposed development

5.1 Selected public open and communal amenity spaces.

Image 5.1 below indicates the public open and communal amenity spaces that have been selected and analysed on the basis of hour-by-hour sunlight reception in each separate space taking in account the relevant orientation.

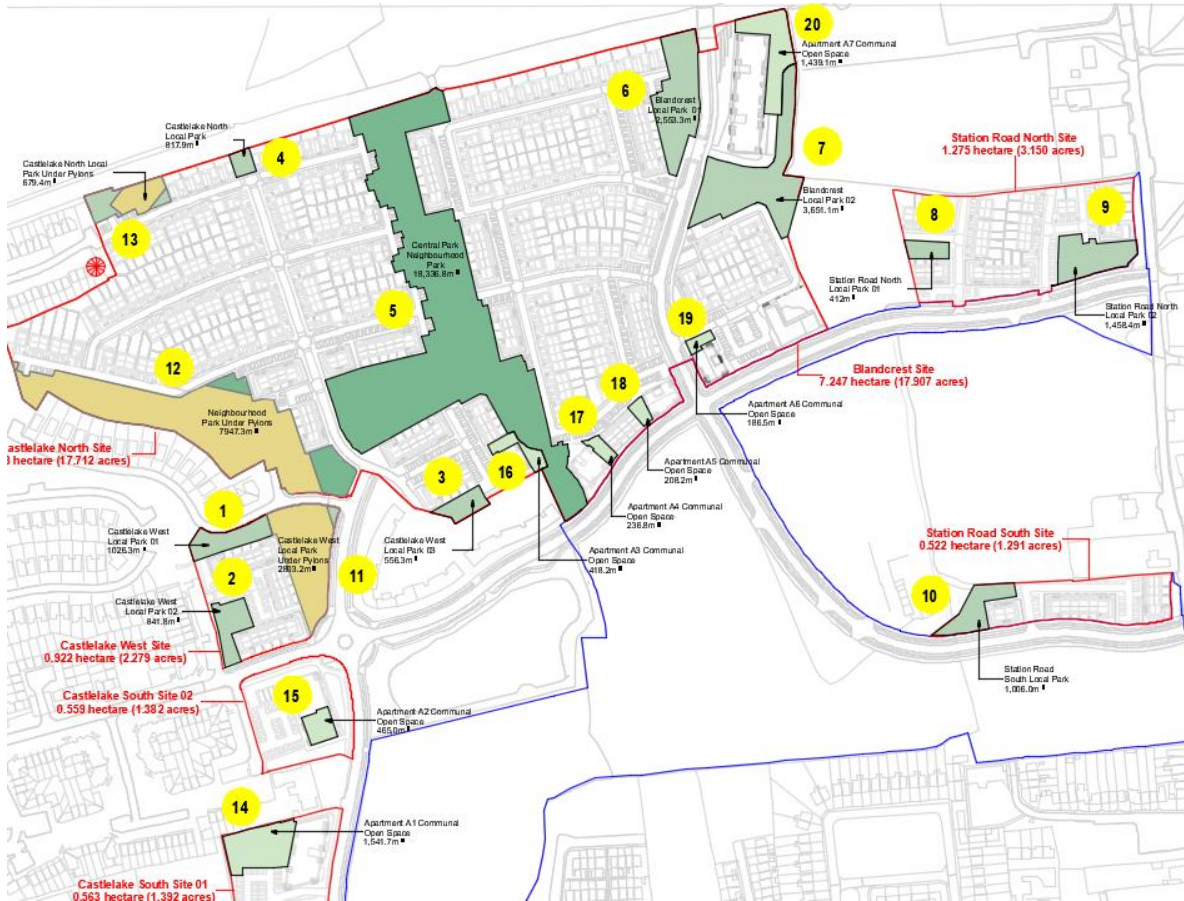


Image 5.1: Locations for Public Open Space and Communal Open Spaces : 1 to 20



Receptor no	Description	Approx. Area (m2)
Public Open Space		
1	Castlelake West Local Park 01	1,026.3
2	Castlelake West Local Park 02	841.8
3	Castlelake West Local Park 03	556.3
4	Castlelake North Local Park	817.9
5	Central Park Neighbourhood Park	18,336.8
6	Blandcrest Local Park 01	2,553.3
7	Blandcrest Local Park 02	3,651.1
8	Station Road North Local Park 01	412.0
9	Station Road North Local Park 02	1,458.4
10	Station Road South Local Park 02	1,006.0
	Total	30,659.9
11	Castlelake West Local Park under pylons	2,803.2
12	Neighbourhood Park under pylons	7,947.3
13	Castlelake North Local Park under pylons	679.4
	Total	11,429.9



Apartment Communal Open Space		
14	Apartment block A1	1,541.7
15	Apartment block A2	465.0
16	Apartment block A3	418.2
17	Apartment block A4	236.8
18	Apartment block A5	208.2
19	Apartment block A6	186.5
20	Apartment block A7	1,439.1
Total		4,495.5

5.2 Selected Private amenity spaces (balconies)

Images 5.2 below indicates the amenity spaces (balconies) that have been selected and analysed on the basis of hour-by-hour sunlight reception in each space taking in account all orientations of the proposed blocks.

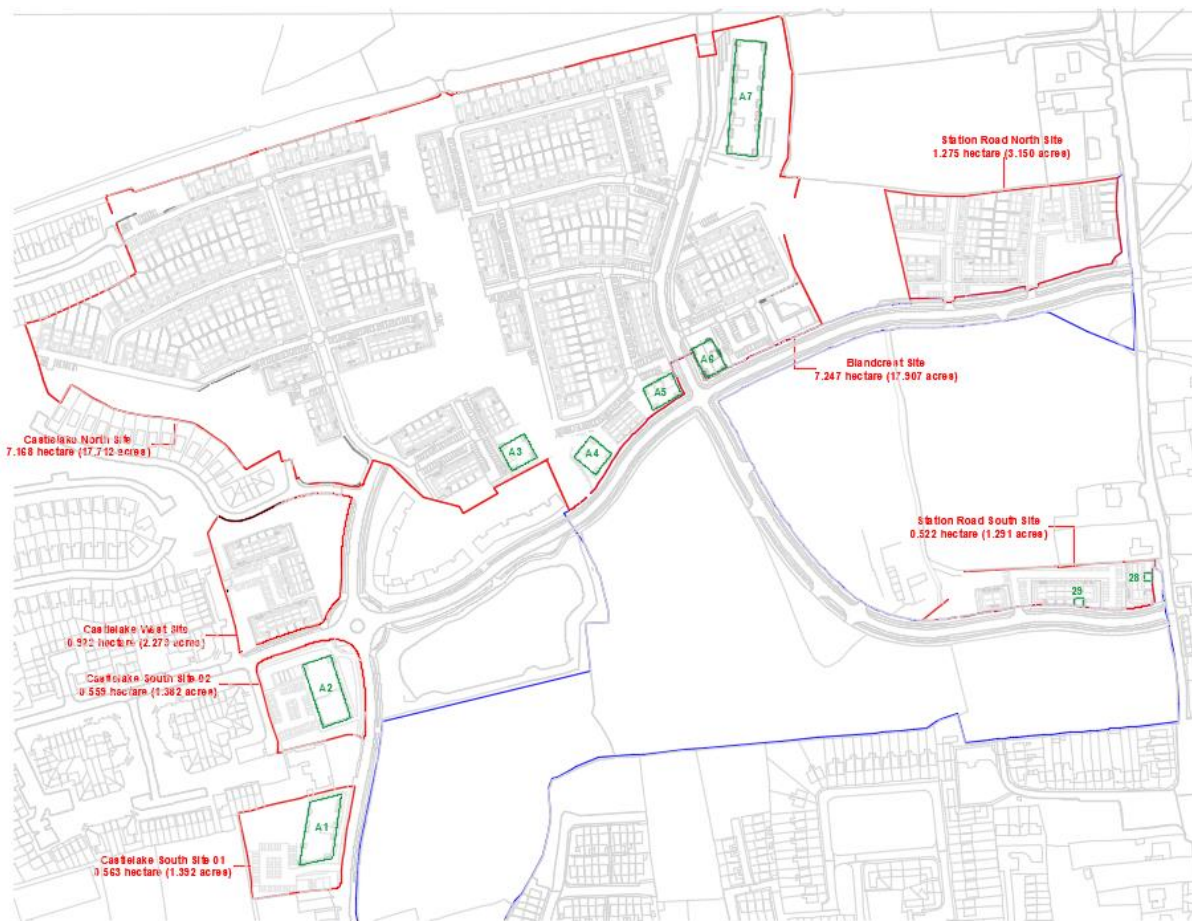
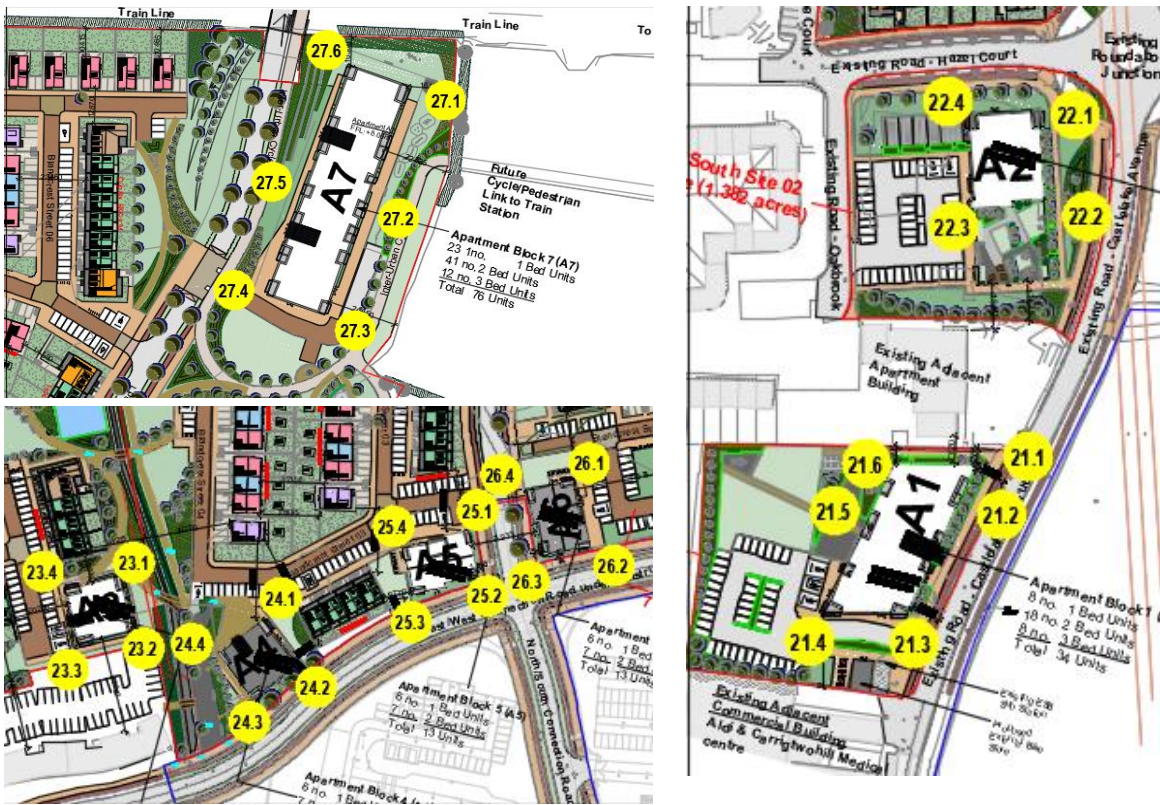


Image 5.2: Locations of selected Private amenity spaces (balconies) in Apartment blocks 01 to 07 : 21 to 27

Receptor no	Description	Approx. Area (m2)
Private Amenity spaces (Balconies)		
21	(receptor 21.1–21.6) Apartment A1	9.8 - 18.1
22	(receptor 22.1–22.4) Apartment A2	8.0 – 14.0
23	(receptor 23.1–23.4) Apartment A3	9.7 – 13.3
24	(receptor 24.1–24.4) Apartment A4	9.7 – 13.3
25	(receptor 25.1–25.4) Apartment A5	9.7 – 10.5
26	(receptor 26.1–26.4) Apartment A6	10.5 – 11.2
27	(receptor 27.1–27.6) Apartment A7	8.3 – 17.2



5.3 Selected Private amenity spaces (gardens)

Images 5.3 below indicates the amenity spaces (balconies) that have been selected and analysed on the basis of hour-by-hour sunlight reception in each space taking in account all orientations of the proposed blocks. development.

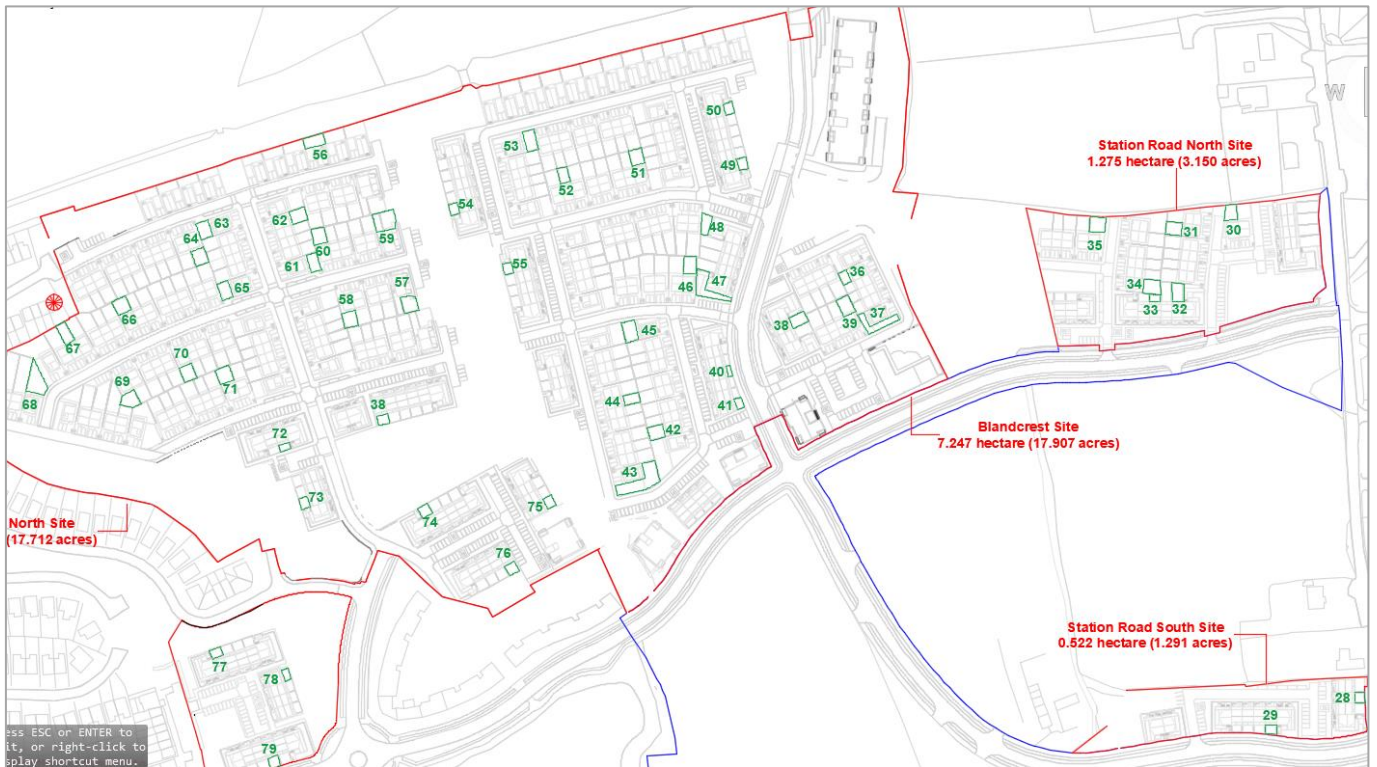


Image 5.3: Locations of selected Private Amenity Spaces (gardens) : 28 to 79.

Private Amenity spaces (Gardens)		
28-79	Private houses	Average: 76.5



5.4 Assessment approach

The tables below provide the full calculation results of the selected rooms including the overall calculated vertical sky component together with the 'to-be-achieved' BRE minimum daylight factor standards. Note: The ADF calculation results have been given the following colour code guide depending on its level of resulting compliance.

Compliance guide

☑	0% Over /equal to
☑	5% Within
!!	10% Within
x	10% In excess of

5.5 Public open and communal amenity space sunlight reception calculation results

Each of the selected public open and communal amenity spaces have been assessed for sunlight reception using the hour-by-hour sun light reception status with the full calculation details of each selected space listed in appendix A. For ease of use for this report we have summarised the results in table 5.2 below.

Area ID	name/description	area m2	Sun time Hr*m ²	Sun Hr 100%	Sun Hr 50%	COMMENTS
1	Castlelake West Local Park 01	1026.3	365158	5.93	7.00	In excess of minimum guidelines
2	Castlelake West Local Park 02	841.8	349515	6.92	9.00	In excess of minimum guidelines
3	Castlelake West Local Park 03	556.3	203606	6.10	6.00	In excess of minimum guidelines
4	Castlelake North Local Park	817.9	374435	7.63	7.00	In excess of minimum guidelines
5	Central Park Neighbourhood Park	18336.8	7701456	7.00	9.00	In excess of minimum guidelines
6	Blandcrest Local Park 01	2553.3	1115281	7.28	8.00	In excess of minimum guidelines
7	Blandcrest Local Park 02	3651.1	1827010	8.34	9.00	In excess of minimum guidelines
8	Station Road North Local Park 01	412.0	173287	7.01	8.00	In excess of minimum guidelines
9	Station Road North Local Park 02	1458.4	835663	9.55	10.00	In excess of minimum guidelines
10	Station Road South Local Park 02	1006.0	408034	6.76	8.00	In excess of minimum guidelines
11	Castlelake West Local Park under pylons	2803.2	975514	5.80	7.00	In excess of minimum guidelines
12	Neighbourhood Park under pylons	7947.3	3447539	7.23	9.00	In excess of minimum guidelines
13	Castlelake North Local Park under pylons	679.4	373806	9.17	10.00	In excess of minimum guidelines
14	Amenity space Apartment A1	1541.7	676190	7.31	8.00	In excess of minimum guidelines
15	Amenity space Apartment A2	465.0	293229	10.51	11.00	In excess of minimum guidelines
16	Amenity space Apartment A3	418.0	70726	2.82	3.00	In excess of minimum guidelines
17	Amenity space Apartment A4	236.0	68818	4.86	4.00	In excess of minimum guidelines
18	Amenity space Apartment A5	208.0	86736	6.95	7.00	In excess of minimum guidelines
19	Amenity space Apartment A6	186.0	56135	5.03	4.00	In excess of minimum guidelines
20	Amenity space Apartment A7	1439.0	521494	6.04	7.00	In excess of minimum guidelines

Table 5.2: Summarised sunlight/Shadow of public open/communal amenity spaces.

The column "Sun Hr 100%" represents the sunlight reception on 100% of the area, the column "Sun Hr 50%" represents to full hour sunlight reception on 50% of the area and is used to compare against the BRE requirements. The BRE stipulates that 50% of each of the relevant area should receive at least 2 hours of sunlight. From the table above we note that all area's easily receive more then 2 hours of sunlight on 50% of the area.

5.6 Private amenity spaces (balconies) sunlight reception calculation results

On each block we selected private amenity space (balconies) facing all orientations to ensure all sunlight angles have been covered. Each of the selected private amenity spaces (balconies) have been assessed for sunlight reception using the hour-by-hour sun light reception status with the full calculation details of each selected space listed in appendix C. For ease of use for this report we have summarised the results in table 5.3 below..

Area ID	name/description	area m2	Sun time Hr*m ²	Sun Hr 100%	Sun Hr 50%	COMMENTS
211	Private amenity space (balcony) NE	14.6	5457	6.23	7.00	In excess of minimum guidelines
212	Private amenity space (balcony) E	10.7	4032	6.28	7.00	In excess of minimum guidelines
213	Private amenity space (balcony) SE	12.7	4801	6.30	7.00	In excess of minimum guidelines
214	Private amenity space (balcony) SW	18.1	6711	6.18	7.00	In excess of minimum guidelines
215	Private amenity space (balcony) W	11.3	3505	5.17	6.00	In excess of minimum guidelines
216	Private amenity space (balcony) W	12.0	3722	5.17	6.00	In excess of minimum guidelines
221	Private amenity space (balcony) NE	14.0	5233	6.23	7.00	In excess of minimum guidelines
222	Private amenity space (balcony) SE	11.1	4196	6.30	7.00	In excess of minimum guidelines
223	Private amenity space (balcony) SW	14.0	5191	6.18	7.00	In excess of minimum guidelines
224	Private amenity space (balcony) NW	11.1	2904	4.36	5.00	In excess of minimum guidelines
231	Private amenity space (balcony) NE	11.2	3730	5.55	6.00	In excess of minimum guidelines
232	Private amenity space (balcony) SE	9.7	3626	6.23	7.00	In excess of minimum guidelines
233	Private amenity space (balcony) SW	11.4	4227	6.18	7.00	In excess of minimum guidelines
234	Private amenity space (balcony) NW	13.3	3479	4.36	5.00	In excess of minimum guidelines
241	Private amenity space (balcony) NE	11.2	4187	6.23	7.00	In excess of minimum guidelines
242	Private amenity space (balcony) SE	9.7	3667	6.30	7.00	In excess of minimum guidelines
243	Private amenity space (balcony) SW	9.7	3550	6.10	6.00	In excess of minimum guidelines
244	Private amenity space (balcony) NW	13.3	2466	3.09	3.00	In excess of minimum guidelines
251	Private amenity space (balcony) NE	9.6	3226	5.60	6.00	In excess of minimum guidelines
252	Private amenity space (balcony) SE	11.2	4234	6.30	7.00	In excess of minimum guidelines
253	Private amenity space (balcony) SW	10.5	3893	6.18	7.00	In excess of minimum guidelines
254	Private amenity space (balcony) NW	9.7	2538	4.36	5.00	In excess of minimum guidelines
261	Private amenity space (balcony) NE	9.7	3626	6.23	7.00	In excess of minimum guidelines
262	Private amenity space (balcony) SE	9.6	3629	6.30	7.00	In excess of minimum guidelines
263	Private amenity space (balcony) SW	11.2	3730	5.55	5.00	In excess of minimum guidelines
264	Private amenity space (balcony) NW	11.5	1794	2.60	3.00	In excess of minimum guidelines
271	Private amenity space (balcony) NE	17.2	6429	6.23	7.00	In excess of minimum guidelines
272	Private amenity space (balcony) E	8.3	3127	6.28	7.00	In excess of minimum guidelines
273	Private amenity space (balcony) SE	11.3	4271	6.30	7.00	In excess of minimum guidelines
274	Private amenity space (balcony) SW	14.0	5191	6.18	7.00	In excess of minimum guidelines
275	Private amenity space (balcony) W	11.6	3598	5.17	6.00	In excess of minimum guidelines
276	Private amenity space (balcony) NW	11.3	2956	4.36	5.00	In excess of minimum guidelines

Table 5.3: Summarised sunlight/Shadow of private amenity spaces (balconies).

The column "Sun Hr 100%" represents the sunlight reception on 100% of the area, the column "Sun Hr 50%" represents to full hour sunlight reception on 50% of the area and is used to compare against the BRE requirements. The BRE stipulates that 50% of each of the relevant area should receive at least 2 hours of sunlight. From the table above we note that all area's easily receive more then 2 hours of sunlight on 50% of the area.

5.7 Private amenity spaces (gardens) sunlight reception calculation results

In each area we selected private amenity space (gardens) facing all orientations to ensure all sunlight angles have been covered. Each of the selected private amenity spaces (gardens) have been assessed for sunlight reception using the hour-by-hour sun light reception status with the full calculation details of each selected space listed in appendix B. For ease of use for this report we have summarised the results in table 5.4 below..

Area ID	name/description	area m2	Sun time Hr*m ²	Sun Hr 100%	Sun Hr 50%	COMMENTS
28	Private amenity space (garden) E	41.0	15449	6.28	7.00	In excess of minimum guidelines
29	Private amenity space (garden) S	39.0	18416	7.87	9.00	In excess of minimum guidelines
30	Private amenity space (garden) N	68.0	14362	3.52	3.00	In excess of minimum guidelines
31	Private amenity space (garden) W	76.0	23575	5.17	6.00	In excess of minimum guidelines
32	Private amenity space (garden) W	82.0	25436	5.17	6.00	In excess of minimum guidelines
33	Private amenity space (garden) N	28.0	5914	3.52	3.00	In excess of minimum guidelines
34	Private amenity space (garden) E	91.0	34289	6.28	7.00	In excess of minimum guidelines
35	Private amenity space (garden) N	87.0	18374	3.52	3.00	In excess of minimum guidelines
36	Private amenity space (garden) NE	43.0	16073	6.23	7.00	In excess of minimum guidelines
37	Private amenity space (garden) S	114.0	53831	7.87	9.00	In excess of minimum guidelines
38	Private amenity space (garden) NE	71.0	26540	6.23	7.00	In excess of minimum guidelines
39	Private amenity space (garden) SW	90.0	33372	6.18	7.00	In excess of minimum guidelines
40	Private amenity space (garden) E	17.0	6406	6.28	7.00	In excess of minimum guidelines
41	Private amenity space (garden) E	29.0	10927	6.28	7.00	In excess of minimum guidelines
42	Private amenity space (garden) W	76.0	23575	5.17	6.00	In excess of minimum guidelines
43	Private amenity space (garden) S	230.0	108606	7.87	9.00	In excess of minimum guidelines
44	Private amenity space (garden) E	58.0	21854	6.28	7.00	In excess of minimum guidelines
45	Private amenity space (garden) N	99.0	20909	3.52	3.00	In excess of minimum guidelines
46	Private amenity space (garden) N	82.0	17318	3.52	3.00	In excess of minimum guidelines
47	Private amenity space (garden) S	155.0	73191	7.87	9.00	In excess of minimum guidelines
48	Private amenity space (garden) W	69.0	21404	5.17	6.00	In excess of minimum guidelines
49	Private amenity space (garden) E	42.0	15826	6.28	7.00	In excess of minimum guidelines
50	Private amenity space (garden) E	40.0	15072	6.28	7.00	In excess of minimum guidelines
51	Private amenity space (garden) N	77.0	16262	3.52	3.00	In excess of minimum guidelines
52	Private amenity space (garden) N	59.0	12461	3.52	3.00	In excess of minimum guidelines
53	Private amenity space (garden) N	89.0	18797	3.52	3.00	In excess of minimum guidelines
54	Private amenity space (garden) W	38.0	11788	5.17	6.00	In excess of minimum guidelines
55	Private amenity space (garden) W	38.0	11788	5.17	6.00	In excess of minimum guidelines
56	Private amenity space (garden) N	86.0	18163	3.52	3.00	In excess of minimum guidelines
57	Private amenity space (garden) S	88.0	41554	7.87	9.00	In excess of minimum guidelines
58	Private amenity space (garden) S	80.0	37776	7.87	9.00	In excess of minimum guidelines
59	Private amenity space (garden) N	140.0	29568	3.52	3.00	In excess of minimum guidelines
60	Private amenity space (garden) N	81.0	17107	3.52	3.00	In excess of minimum guidelines
61	Private amenity space (garden) S	71.0	33526	7.87	9.00	In excess of minimum guidelines
62	Private amenity space (garden) E	79.0	29767	6.28	7.00	In excess of minimum guidelines
63	Private amenity space (garden) N	77.0	16262	3.52	3.00	In excess of minimum guidelines
64	Private amenity space (garden) S	79.0	37304	7.87	9.00	In excess of minimum guidelines
65	Private amenity space (garden) S	73.0	34471	7.87	9.00	In excess of minimum guidelines
66	Private amenity space (garden) N	84.0	17741	3.52	3.00	In excess of minimum guidelines
67	Private amenity space (garden) N	82.0	17318	3.52	3.00	In excess of minimum guidelines
68	Private amenity space (garden) NE	150.0	56070	6.23	7.00	In excess of minimum guidelines
69	Private amenity space (garden) S	87.0	41081	7.87	9.00	In excess of minimum guidelines
70	Private amenity space (garden) S	75.0	35415	7.87	9.00	In excess of minimum guidelines
71	Private amenity space (garden) N	84.0	17741	3.52	3.00	In excess of minimum guidelines
72	Private amenity space (garden) S	30.0	14166	7.87	9.00	In excess of minimum guidelines
73	Private amenity space (garden) W	37.0	11477	5.17	6.00	In excess of minimum guidelines

Table 5.4: Summarised sunlight/Shadow of private amenity spaces (gardens).

In the table above the column "Sun Hr 100%" represents the sunlight reception on 100% of the area, the column "Sun Hr 50%" represents to full hour sunlight reception on 50% of the area and is used to compare against the BRE requirements. The BRE stipulates that 50% of each of the relevant area should receive at least 2 hours of sunlight. From the table above we note that all area's easily receive more then 2 hours of sunlight on 50% of the area.

5.8 Amenity spaces within the proposed development sunlight / shadow results conclusion

Based on the BRE guidelines at least 50% of the amenity space should receive at least two hours of sunlight on the 21st of March. For the sunlight reception assessment of the public open amenity spaces and communal amenity spaces we selected all of the by the architects proposed amenity spaces. For the sunlight reception assessment of the private amenity space (balconies) we selected a total of 32 no balconies covering each orientation on each block to give a good average account of the received sunlight.. For the sunlight reception assessment of the private amenity space (gardens) we selected a total of 46 no gardens covering all orientations again to give a good average account of the received sunlight. From the calculation results of the public open & communal amenity spaces, the private amenity spaces (balconies) and private amenity spaces (gardens), tables 5.2, 5.3, 5.4, we note that all area's easily receive more then 2 hours of sunlight on 50% of the area and are in excess of the BRE requirement for amenity spaces.

We therefore conclude that the sunlight reception in all the new amenity spaces is in excess of the guidelines of the BRE Report - Site Layout and Planning for Daylight and Sunlight - and therefore deem these to be compliant.