Appendix 4.2 G
Correspondence with KCC Roads Department

THIS PAGE IS INTENTIONALLY BLANK

Richard Kiernan

From: Donnachadh O'Brien <d.obrien@doba.ie> on behalf of Donnachadh O'Brien
Sent: Thursday 4 May 2023 17:21
To: George Willoughby
Cc: Richard Kiernan; Stephen Deegan; Colm Lynch; David Reel
Subject: Re: Herbata Data Centre, Halverstown.- Bicycle Parking

George,

We are proposing a total of 52. It's 8 spaces per data centre building and there are 6 No. data centre buildings and 4 spaces at the Site Administration building which is a total of 52 bicycle spaces across the site.

Sent from my iPhone

> On 4 May 2023, at 18:15, George Willoughby <gwilloughby@kildarecoco.ie> wrote:
>
> Donnachadh,
>
> Could you please confirm that you are proposing to provide a total of **12 bicycle parking spaces** and not 52 bicycle parking spaces on the site.
>
> Regards,
>
> George
>
> George Willoughby
> BA/BAI CEng MIEI
> Chartered Engineer
> Senior Executive Engineer
> Kildare County Council
> Roads, Transportation & Public Safety Department

From: Donnachadh O'Brien <d.obrien@doba.ie>
Sent: Wednesday, April 26, 2023 9:06 AM
To: George Willoughby <gwilloughby@kildarecoco.ie>
Cc: Richard Kiernan <richard.kiernan@doba.ie>; Stephen Deegan <SDeegan@kildarecoco.ie>; Colm Lynch <Clynch@kildarecoco.ie>; David Reel <Dreel@kildarecoco.ie>
Subject: RE: Herbata Data Centre, Halverstown.- Bicycle Parking

Thanks George,

I have had a conversation with Aisling Tormey, and we noted that we would be making a strong case for the reduction in the 91m setback, as per the report we submitted to you. Ultimately, this appears to be a matter for KCC Planning department and we would hope that they would take their lead from KCC Roads comments below in relation to accepting the proposed setback.

I would also like to get your thoughts on **Bicycle parking** on the site.

The nature of the site and the likely trip generation form workers using bicycles is unlikely to require full provision the bicycle parking required under current development plan standards. There are 6 data centre buildings on the site and a campus admin building.

Data centres have extremely low staff number proportional to the floor area of the building and Table 1 below is an extract from Systra's scoping note issued previously which shows the total staff number per building, ignoring shift working patterns. There is a total of 28 staff and conservatively we have estimated 25 trips per day form visitors/customers, who are unlikely to be cycling to the facility

If we apply the Development Plan standards only to the office gross floor area of each Data Centre this would equate to a requirement for 49 spaces, with only 28 staff serving each building, which makes no sense.

We are therefore proposing to provide a total of 52 bicycle parking spaces on the site.

1. 8 No. per Data centre building - this provides cycle parking for 30% of the total number permanent staff on site.
2. 4 No for Admin building

Would be grateful if you could advise if you are in agreement with the above provision given the very specific nature of this development

<image003.png>

<image004.png>

Kind Regards

Donnachadh O'Brien
Director & Chartered Engineer
087-2231452
d.obrien@doba.ie

<image001.png>

Please think of the Environment before printing this E-Mail.

From: George Willoughby <gwilloughby@kildarecoco.ie>
Sent: 21 April 2023 12:23
To: Donnachadh O'Brien <d.obrien@doba.ie>
Cc: Marie Whelan <mwhelan@kildarenrdo.com>; Stephen Deegan <SDeegan@kildarecoco.ie>; Aisling Tormey <ATormey@kildarenrdo.com>; Aidan Farrell NRDO <afarrell@kildarenrdo.com>; Colm Lynch <Clynch@kildarecoco.ie>; David Reel <Dreel@kildarecoco.ie>; Yasir Khan <YKhan@kildarecoco.ie>
Subject: RE: Herbata Data Centre, Halverstown.

Donnachadh,

Please note the comments from Aisling Tormey of the Kildare NRO below and the attached comments from Aidan Farrell of the Kildare NRO.

I recommend that you proceed with your planning application which will enable the Kildare NRO and the TII to make a submission on the design details submitted.

Regards,

George

George Willoughby
BA/BAI CEng MIEI
Chartered Engineer
Senior Executive Engineer
Kildare County Council
Roads, Transportation & Public Safety Department

From: Aisling Tormey <ATormey@kildarenrdo.com>
Sent: Friday, April 21, 2023 11:34 AM
To: George Willoughby <gwilloughby@kildarecoco.ie>; Aidan Farrell NRDO <AFarrell@kildarenrdo.com>
Cc: Marie Whelan <MWhelan@kildarenrdo.com>; Stephen Deegan <SDeegan@kildarecoco.ie>
Subject: RE: Herbata Data Centre, Halverstown.

George,
We note the proposal is still in contravention of the 91m set back as set out in the KCC CDP. A planning application has not yet been submitted. Accordingly, we are not in a position to agree to a reduction in setback distances at this stage. We also note TII have not yet been consulted.

Kind regards
Aisling Tormey BA BAI CEng MIEI
Chartered Engineer
Senior Executive Engineer

Kildare County Council National Roads Office | Block B, Maudlins, Naas, County Kildare W91 T864

Office Ph: *+353 (0) 45 988 900* **|** ***Mob:*** *+353 (0) 87 1503285* **|** ***Fax:*** *+353 (0) 45 875 845*
email**:** ***atormey@kildarenrdo.com***

From: George Willoughby <gwilloughby@kildarecoco.ie>
Sent: Monday, April 17, 2023 12:02 PM
To: Aisling Tormey <ATormey@kildarenrdo.com>; Aidan Farrell <AFarrell@kildarenrdo.com>
Cc: Marie Whelan <MWhelan@kildarenrdo.com>; Stephen Deegan <SDeegan@kildarecoco.ie>; Colm Lynch <Clynch@kildarecoco.ie>; David Reel <Dreel@kildarecoco.ie>; Yasir Khan <YKhan@kildarecoco.ie>; Donnachadh O'Brien <d.obrien@doba.ie>
Subject: FW: Herbata Data Centre, Halverstown.

Aisling, Aidan,

I wish to confirm that the KCC Roads Planning Section has examined the additional information submitted by Donnachadh O'Brien Consulting Engineers and Our Section has **no objection** to the proposed VRU Improvement Works on the Caragh Bridge R409 to service the development and the proposed set back proposals from the M7 Motorway.

I would appreciate confirmation that the Kildare NRO are also in agreement with this by this Wednesday 19th April (COB) if possible.

Regards,

George

George Willoughby
BA/BAI CEng MIEI
Chartered Engineer
Senior Executive Engineer
Kildare County Council
Roads, Transportation & Public Safety Department

From: Donnachadh O'Brien <d.obrien@doba.ie>
Sent: Monday, April 17, 2023 10:08 AM
To: George Willoughby <gwilloughby@kildarecoco.ie>
Cc: Stephen Deegan <SDeegan@kildarecoco.ie>; Richard Kiernan <richard.kiernan@doba.ie>
Subject: Herbata Data Centre, Halverstown.

Hi George,

We spoke last week about further pre-planning engagement with TII and KCC Roads department in relation to the works along the R409 Caragh Road, as suggested by both Kildare NDRO office as the last formal pre planning. We would welcome if you could suggest a time and day for a meeting as soon as possible to co-ordinate the R409 works and those impacting the provision of path and cycleway on the site-side of the R409, including across the M7 bridge.

I have attached a report from the planning consultants , RPS, in respect to the 91m setback. We have pointed out precedence and other examples north and south of the site where other commercial developments have been granted and constructed with less than 91m. I think this document will be useful to review prior to the meeting as we would like to agree this issue with KCC prior to lodgement. The key conclusions of the report are in red below.

The subject proposals follow a considered design process and include a generous setback from the motorway and a high quality landscaping arrangement.
There is local planning policy pertaining to a 91m setback from the motorway in the Naas LAP. It is not considered that the rigid application of the 91m setback is appropriated in this instance because:
• There are numerous examples of buildings within 91m of the motorway in the immediate vicinity of the subject site;
• There has been no requirement to set back development 91m from the motorway in the general vicinity of the subject site in a large number of planning decisions made by KCC and ABP in recent years;
• A setback of at least 57.5m and 40m landscaping is proposed in the subject development, this addresses visual and noise impacts and is considered to allow for any potential future upgrade that may be required; and
• The requirement for a 91m setback from motorway is not applied consistently in LAPs within Kildare and other counties and there does not appear to be any overarching planning or technical requirement for such a setback.

It is considered that the proposed development accords with sustainable development objectives and adopts an exemplary approach to data centre development within the State.

Kind Regards

Donnachadh O'Brien
Director & Chartered Engineer
087-2231452
d.obrien@doba.ie

<image001.png>

Please think of the Environment before printing this E-Mail.

Tá an ríomhphost seo príobháideach agus ní ceadmhach úsáid an ríomhphoist seo d'éinne ach don té ar seoladh chuige é. D'fhéadfadh go mbeadh eolas ann atá faoi phribhléid agus rúnda de réir an dlí. Munar duit an ríomhphost seo, déan teagmháil leis an seoltóir chomh luath agus is féidir. D'fhéadfadh nach iad tuairimí Chomhairle Contae Chill Dara na tuairimí atá curtha in iúl sa ríomhphost seo. Déanann Comhairle Contae Chill Dara iarracht ríomhphoist a chosaint ó víris. Mar sin féin, moltar duit gach ríomhphost a scanadh, mar ní ghlacann an Chomhairle aon dliteanas i leith damáiste do do chórais. Le haghaidh eolas ar do chearta príbháideachta agus ar conas a bhainistímid sonraí pearsanta, logáil isteach ar https://scanner.topsec.com/?d=2891&r=show&u=https%3A%2F%2Fkildarecoco.ie%2FYourCouncil%2FGovernanceandCompliance%2FDataProtection%2F&t=9049ce10de41f63072c1541f7ee63eddeafe46c1 Chun do chuid sonraí pearsanta a nuashonrú cuir ríomhphost chugainn ag customercare@kildarecoco.ie Caithfidh tú deis a thógáil don Chomhairle cé thú féin a chinntiú trí cruthúnas céannachta agus/nó seoladh a sholáthar, sula ndéanaimid aon athruithe.
****

This message is intended only for the use of the person(s) to whom it is addressed. It may contain information which is privileged and confidential within the meaning of applicable law. If you are not the intended recipient, please contact the sender as soon as possible. The views expressed in this communication may not necessarily be the views held by Kildare County Council. Kildare County Council endeavours to protect e-mails and their attachments from viruses. However, you are advised to scan all messages, as the council does not accept any liability for contamination or damage to your systems, however caused. For information on your privacy rights and how we manage personal data, log on to https://scanner.topsec.com/?d=2891&r=show&u=https%3A%2F%2Fkildarecoco.ie%2FYourCouncil%2FGovernanceandCompliance%2FDataProtection%2F&t=9049ce10de41f63072c1541f7ee63eddeafe46c1 To update your personal information, email us at customercare@kildarecoco.ie You must enable the Council to verify your identity by providing proof of identity and/or address, before we make any changes.
****

Our Website kildarecountycouncil.ie 'Follow' us on Twitter - 'Like' us on Facebook

Tá an ríomhphost seo príobháideach agus ní ceadmhach úsáid an ríomhphoist seo d'éinne ach don té ar seoladh chuige é. D'fhéadfadh go mbeadh eolas ann atá faoi phribhléid agus rúnda de réir an dlí. Munar

duit an ríomhphost seo, déan teagmháil leis an seoltóir chomh luath agus is féidir. D'fhéadfadh nach iad tuairimí Chomhairle Contae Chill Dara na tuairimí atá curtha in iúl sa ríomhphost seo. Déanann Comhairle Contae Chill Dara iarracht ríomhphoist a chosaint ó víris. Mar sin féin, moltar duit gach ríomhphost a scanadh, mar ní ghlacann an Chomhairle aon dliteanas i leith damáiste do do chórais. Le haghaidh eolas ar do chearta príbháideachta agus ar conas a bhainistímid sonraí pearsanta, logáil isteach ar https://kildarecoco.ie/YourCouncil/GovernanceandCompliance/DataProtection/ Chun do chuid sonraí pearsanta a nuashonrú cuir ríomhphost chugainn ag customercare@kildarecoco.ie Caithfidh tú deis a thógáil don Chomhairle cé thú féin a chinntiú trí cruthúnas céannachta agus/nó seoladh a sholáthar, sula ndéanaimid aon athruithe.
****

This message is intended only for the use of the person(s) to whom it is addressed. It may contain information which is privileged and confidential within the meaning of applicable law. If you are not the intended recipient, please contact the sender as soon as possible. The views expressed in this communication may not necessarily be the views held by Kildare County Council. Kildare County Council endeavours to protect e-mails and their attachments from viruses. However, you are advised to scan all messages, as the council does not accept any liability for contamination or damage to your systems, however caused. For information on your privacy rights and how we manage personal data, log on to https://kildarecoco.ie/YourCouncil/GovernanceandCompliance/DataProtection/ To update your personal information, email us at customercare@kildarecoco.ie You must enable the Council to verify your identity by providing proof of identity and/or address, before we make any changes.
****

Our Website kildarecountycouncil.ie 'Follow' us on Twitter - 'Like' us on Facebook

Tá an ríomhphost seo príobháideach agus ní ceadmhach úsáid an ríomhphoist seo d'éinne ach don té ar seoladh chuige é. D'fhéadfadh go mbeadh eolas ann atá faoi phribhléid agus rúnda de réir an dlí. Munar duit an ríomhphost seo, déan teagmháil leis an seoltóir chomh luath agus is féidir. D'fhéadfadh nach iad tuairimí Chomhairle Contae Chill Dara na tuairimí atá curtha in iúl sa ríomhphost seo. Déanann Comhairle Contae Chill Dara iarracht ríomhphoist a chosaint ó víris. Mar sin féin, moltar duit gach ríomhphost a scanadh, mar ní ghlacann an Chomhairle aon dliteanas i leith damáiste do do chórais. Le haghaidh eolas ar do chearta príbháideachta agus ar conas a bhainistímid sonraí pearsanta, logáil isteach ar https://kildarecoco.ie/YourCouncil/GovernanceandCompliance/DataProtection/ Chun do chuid sonraí pearsanta a nuashonrú cuir ríomhphost chugainn ag customercare@kildarecoco.ie Caithfidh tú deis a thógáil don Chomhairle cé thú féin a chinntiú trí cruthúnas céannachta agus/nó seoladh a sholáthar, sula ndéanaimid aon athruithe.
****

This message is intended only for the use of the person(s) to whom it is addressed. It may contain information which is privileged and confidential within the meaning of applicable law. If you are not the intended recipient, please contact the sender as soon as possible. The views expressed in this communication may not necessarily be the views held by Kildare County Council. Kildare County Council endeavours to protect e-mails and their attachments from viruses. However, you are advised to scan all messages, as the council does not accept any liability for contamination or damage to your systems, however caused. For information on your privacy rights and how we manage personal data, log on to

https://kildarecoco.ie/YourCouncil/GovernanceandCompliance/DataProtection/ To update your personal information, email us at customercare@kildarecoco.ie You must enable the Council to verify your identity by providing proof of identity and/or address, before we make any changes.
****

Our Website kildarecountycouncil.ie 'Follow' us on Twitter - 'Like' us on Facebook
<22217-RKD-ZZ-ZZ-DR-A-1010.pdf>

Appendix 4.2 H
Foul Drainage Network Calculations

THIS PAGE IS INTENTIONALLY BLANK

Donnachadh O'Brien & Associates		Page 1
Unit W9 E&F Ladytown BP Newhall Naas Co Kildare	Herbata Data Centre Naas, Co. Kildare Foul Water Catchment 1	
Date 01/07/2023 File FOUL WATER.MDX	Designed by MJC Checked by RK	
XP Solutions	Network 2020.1.3	

FOUL SEWERAGE DESIGN

Design Criteria for Foul Catchment 1

Pipe Sizes STANDARD Manhole Sizes STANDARD

Industrial Flow (l/s/ha)	0.00	Add Flow / Climate Change (%)	0
Industrial Peak Flow Factor	0.00	Minimum Backdrop Height (m)	0.200
Flow Per Person (l/per/day)	100.00	Maximum Backdrop Height (m)	1.500
Persons per House	1.00	Min Design Depth for Optimisation (m)	1.200
Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	1.00
Domestic Peak Flow Factor	6.00	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Foul Catchment 1

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	68.330	0.505	135.4	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.001	75.690	0.505	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.002	76.961	0.513	150.0	0.000	14	0.0	1.500	o	150	Pipe/Conduit	
1.003	20.425	0.136	150.2	0.000	14	0.0	1.500	o	150	Pipe/Conduit	
2.000	68.620	0.507	135.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
2.001	67.693	0.451	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
2.002	10.280	0.069	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.004	36.175	0.241	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.005	97.870	0.652	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	82.500	0.000	0.0	0	0.0	0	0.00	0.75	13.3	0.0
1.001	81.995	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
1.002	81.491	0.000	0.0	14	0.0	10	0.20	0.71	12.6	0.1
1.003	80.978	0.000	0.0	28	0.0	13	0.25	0.71	12.6	0.2
2.000	82.500	0.000	0.0	0	0.0	0	0.00	0.75	13.3	0.0
2.001	81.993	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
2.002	81.542	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
1.004	80.842	0.000	0.0	28	0.0	13	0.25	0.71	12.6	0.2
1.005	80.009	0.000	0.0	28	0.0	13	0.25	0.71	12.6	0.2

Network Design Table for Foul Catchment 1

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
3.000	50.000	0.333	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
3.001	35.211	0.235	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
4.000	50.566	0.315	160.4	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
3.002	19.799	0.132	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
3.003	6.990	0.047	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
3.004	19.744	0.132	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
3.005	58.464	0.390	149.9	0.000	55	0.0	1.500	o	150	Pipe/Conduit	
3.006	36.253	0.242	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.006	30.463	0.203	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
5.000	66.859	0.446	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
5.001	72.761	0.485	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
5.002	11.901	0.079	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
5.003	54.536	0.364	149.8	0.000	14	0.0	1.500	o	150	Pipe/Conduit	
5.004	36.167	0.241	150.1	0.000	14	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
3.000	82.510	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
3.001	82.176	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
4.000	82.793	0.000	0.0	0	0.0	0	0.00	0.69	12.2	0.0
3.002	81.942	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
3.003	81.810	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
3.004	81.763	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
3.005	81.631	0.000	0.0	55	0.0	18	0.31	0.71	12.6	0.4
3.006	81.242	0.000	0.0	55	0.0	18	0.31	0.71	12.6	0.4
1.006	79.356	0.000	0.0	83	0.0	22	0.36	0.71	12.6	0.6
5.000	81.000	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
5.001	80.554	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
5.002	80.069	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
5.003	79.990	0.000	0.0	14	0.0	10	0.20	0.71	12.6	0.1
5.004	79.626	0.000	0.0	28	0.0	13	0.25	0.71	12.6	0.2

Network Design Table for Foul Catchment 1

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
6.000	67.867	0.452	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
6.001	76.277	0.509	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
5.005	34.780	0.232	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.007	38.057	0.254	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
7.000	67.803	0.452	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
7.001	72.717	0.485	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
7.002	8.371	0.056	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
7.003	21.944	0.146	150.3	0.000	14	0.0	1.500	o	150	Pipe/Conduit	
7.004	65.617	0.437	150.2	0.000	14	0.0	1.500	o	150	Pipe/Conduit	
8.000	66.921	0.446	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
8.001	70.674	0.471	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
8.002	11.179	0.075	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
7.005	33.179	0.221	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.008	40.768	0.272	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
6.000	81.000	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
6.001	80.548	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
5.005	79.385	0.000	0.0	28	0.0	13	0.25	0.71	12.6	0.2
1.007	79.153	0.000	0.0	111	0.0	25	0.39	0.71	12.6	0.8
7.000	78.750	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
7.001	78.298	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
7.002	77.813	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
7.003	77.757	0.000	0.0	14	0.0	10	0.20	0.71	12.6	0.1
7.004	77.611	0.000	0.0	28	0.0	13	0.25	0.71	12.6	0.2
8.000	78.750	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
8.001	78.304	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
8.002	77.833	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
7.005	77.174	0.000	0.0	28	0.0	13	0.25	0.71	12.6	0.2
1.008	76.952	0.000	0.0	139	0.0	28	0.42	0.71	12.6	1.0

Network Design Table for Foul Catchment 1

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.009	8.207	0.055	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.009	76.681	0.000	0.0	139	0.0	28	0.42	0.71	12.6	1.0

Donnachadh O'Brien & Associates		Page 1
Unit W9 E&F Ladytown BP Newhall Naas Co Kildare	Herbata Data Centre Naas, Co. Kildare Foul Water Catchment 2	
Date 01/07/2023 File FOUL WATER.MDX	Designed by MJC Checked by RK	
XP Solutions	Network 2020.1.3	

FOUL SEWERAGE DESIGN

Design Criteria for Foul Catchment 2

Pipe Sizes STANDARD Manhole Sizes STANDARD

Industrial Flow (l/s/ha)	0.00	Add Flow / Climate Change (%)	0
Industrial Peak Flow Factor	0.00	Minimum Backdrop Height (m)	0.200
Flow Per Person (l/per/day)	222.00	Maximum Backdrop Height (m)	1.500
Persons per House	3.00	Min Design Depth for Optimisation (m)	1.200
Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	1.00
Domestic Peak Flow Factor	6.00	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Foul Catchment 2

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	64.949	0.433	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.001	33.332	0.222	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.002	37.330	0.249	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
2.000	91.232	0.608	150.1	0.000	28	0.0	1.500	o	150	Pipe/Conduit	
1.003	89.898	0.599	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.004	92.119	0.614	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.005	15.031	0.100	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
3.000	74.376	0.496	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	82.800	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
1.001	82.367	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
1.002	82.145	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
2.000	83.000	0.000	0.0	28	0.0	33	0.46	0.71	12.6	1.3
1.003	81.529	0.000	0.0	28	0.0	33	0.46	0.71	12.6	1.3
1.004	80.929	0.000	0.0	28	0.0	33	0.46	0.71	12.6	1.3
1.005	80.315	0.000	0.0	28	0.0	33	0.46	0.71	12.6	1.3
3.000	82.950	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0

Network Design Table for Foul Catchment 2

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
3.001	72.760	0.485	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
3.002	12.352	0.082	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
3.003	103.024	0.687	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.006	48.052	0.320	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
4.000	66.133	0.441	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
4.001	73.316	0.489	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
4.002	7.474	0.050	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
4.003	87.402	0.583	149.9	0.000	14	0.0	1.500	o	150	Pipe/Conduit	
4.004	8.979	0.060	149.7	0.000	14	0.0	1.500	o	150	Pipe/Conduit	
5.000	71.377	0.476	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
5.001	77.968	0.520	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
4.005	40.099	0.267	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.007	104.874	0.699	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
6.000	67.605	0.451	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
3.001	82.454	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
3.002	81.969	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
3.003	81.887	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
1.006	80.215	0.000	0.0	28	0.0	33	0.46	0.71	12.6	1.3
4.000	80.750	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
4.001	80.309	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
4.002	79.820	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
4.003	79.770	0.000	0.0	14	0.0	23	0.37	0.71	12.6	0.6
4.004	79.188	0.000	0.0	28	0.0	33	0.46	0.72	12.6	1.3
5.000	80.750	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
5.001	80.274	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
4.005	79.128	0.000	0.0	28	0.0	33	0.46	0.71	12.6	1.3
1.007	78.860	0.000	0.0	56	0.0	46	0.56	0.71	12.6	2.6
6.000	80.750	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0

Network Design Table for Foul Catchment 2

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
6.001	71.776	0.479	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
6.002	8.782	0.059	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
6.003	87.415	0.583	149.9	0.000	14	0.0	1.500	o	150	Pipe/Conduit	
6.004	9.539	0.064	149.0	0.000	14	0.0	1.500	o	150	Pipe/Conduit	
7.000	72.953	0.486	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
7.001	77.338	0.516	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
6.005	34.434	0.230	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.008	11.270	0.075	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
6.001	80.299	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
6.002	79.821	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
6.003	79.762	0.000	0.0	14	0.0	23	0.37	0.71	12.6	0.6
6.004	79.179	0.000	0.0	28	0.0	33	0.46	0.72	12.7	1.3
7.000	80.750	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
7.001	80.264	0.000	0.0	0	0.0	0	0.00	0.71	12.6	0.0
6.005	79.116	0.000	0.0	28	0.0	33	0.46	0.71	12.6	1.3
1.008	78.161	0.000	0.0	84	0.0	57	0.63	0.71	12.6	3.9

Appendix 4.2 I
Sabre Electrical Lighting Design for R409

THIS PAGE IS INTENTIONALLY BLANK

DATE: 12 April 2023

DESIGNER: Graham Sheehan

PROJECT No: SES 04723

PROJECT NAME: R409 Realignment DOBA Consulting Eng.

Designed in accordance with ISEN13201-2:2015 Class M4 and C2 for the junction

Outdoor Lighting Report

PREPARED BY:

Sabre Electrical Services Ltd.
Unit 11 Bellevue Ind. Est.
Finglas
Dublin 11.
Email: graham@sabrelighting.ie
Ph: 01 8110875

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1	686064.00	719993.00	374.00	69.00	1.50	1.50
2	Grid 2	686422.00	719887.00	376.00	69.00	1.50	1.50
3	Grid 3	686782.00	719780.00	300.00	84.00	1.50	1.50
4	Grid 4	686223.00	719947.00	51.00	45.00	1.50	1.50
5	Grid 5	686354.00	719934.00	93.00	24.00	1.50	1.50

Luminaires

Luminaire A Data

Supplier	C U Phosco
Type	P863-128-R4-730-W3-775-97W
Lamp(s)	730SS
Lamp Flux (klm)	13.49
File Name	P863-128-R4-730-W3-775-97W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	386.2, 27.2, 0.4
No. in Project	23

Luminaire B Data

Supplier	C U Phosco
Type	P852-24-S1-WW-W6-0350-26W
Lamp(s)	730SS WW
Lamp Flux (klm)	3.24
File Name	P852-24-S1-WW-W6-0350-26W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	502.8, 86.6, 0.0
No. in Project	4

Luminaire C Data

Supplier	C U Phosco
Type	P863-128-F7-730-W3-525-68W
Lamp(s)	730SS
Lamp Flux (klm)	9.44
File Name	P863-128-F7-730-W3-525-68W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	420.3, 34.5, 0.0
No. in Project	2

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	686853.62	719795.49	10.00	77.00	5.00	0.00	0.50			
2	A	686809.81	719805.09	10.00	77.00	5.00	0.00	0.50			
3	A	686895.01	719785.98	10.00	77.00	5.00	0.00	0.50			
4	A	686936.25	719776.44	10.00	77.00	5.00	0.00	0.50			
5	A	686977.79	719765.61	10.00	75.00	5.00	0.00	0.50			
6	A	687018.51	719754.11	10.00	77.00	5.00	0.00	0.50			

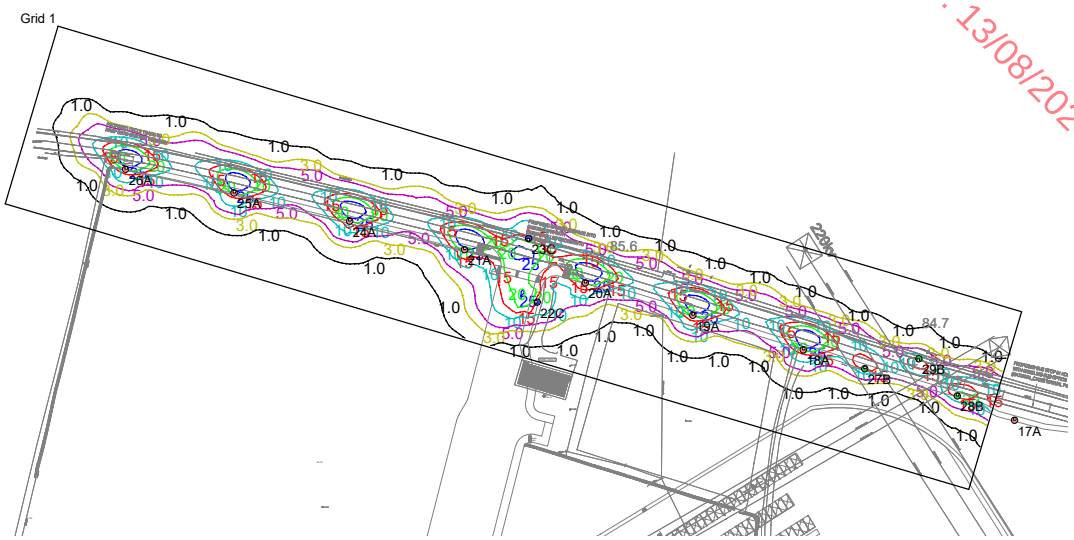
8514647207

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
7	A	687057.68	719746.93	10.00	77.00	5.00	0.00	0.50			
8	B	687036.28	719770.64	8.00	187.00	5.00	0.00	0.50			
9	A	686768.58	719814.05	10.00	77.00	5.00	0.00	0.50			
10	A	686726.34	719822.33	10.00	77.00	5.00	0.00	0.50			
11	A	686684.96	719834.61	10.00	71.00	5.00	0.00	0.50			
12	A	686645.29	719851.34	10.00	66.00	5.00	0.00	0.50			
13	A	686605.46	719868.09	10.00	68.00	5.00	0.00	0.50			
14	A	686564.73	719882.02	10.00	70.00	5.00	0.00	0.50			
15	A	686523.31	719893.68	10.00	72.00	5.00	0.00	0.50			
16	A	686481.52	719904.10	10.00	74.00	5.00	0.00	0.50			
17	A	686439.60	719912.49	10.00	72.00	5.00	0.00	0.50			
18	A	686361.01	719938.72	10.00	72.00	5.00	0.00	0.50			
19	A	686319.86	719951.60	10.00	72.00	5.00	0.00	0.50			
20	A	686279.81	719963.62	10.00	72.00	5.00	0.00	0.50			
21	A	686234.88	719976.04	10.00	72.00	5.00	0.00	0.50			
22	C	686262.02	719956.49	10.00	166.00	5.00	0.00	0.50			
23	C	686258.80	719980.24	10.00	256.00	5.00	0.00	0.50			
24	A	686192.12	719986.65	10.00	74.00	5.00	0.00	0.50			
25	A	686149.12	719997.16	10.00	72.00	5.00	0.00	0.50			
26	A	686108.81	720005.88	10.00	72.00	5.00	0.00	0.50			
27	B	686383.84	719931.76	5.00	72.00	5.00	0.00	0.50			
28	B	686418.27	719921.59	5.00	73.00	5.00	0.00	0.50			
29	B	686403.94	719935.38	5.00	251.00	5.00	0.00	0.50			

Horizontal Illuminance (lux)

Grid 1



Results

Eav	14.87
Emin	4.55
Emax	29.60
Emin/Emax	0.15
Emin/Eav	0.31

Horizontal Illuminance (lux)

Grid 1

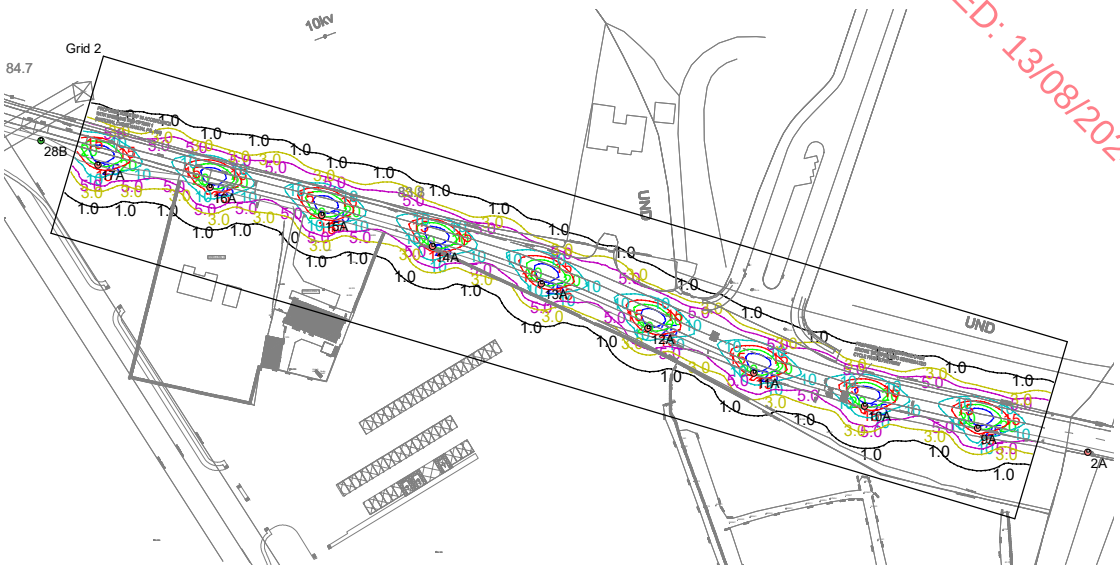
Results

Eav	14.87
Emin	4.55
Emax	29.60
Emin/Emax	0.15
Emin/Eav	0.31

8514647207

Horizontal Illuminance (lux)

Grid 2



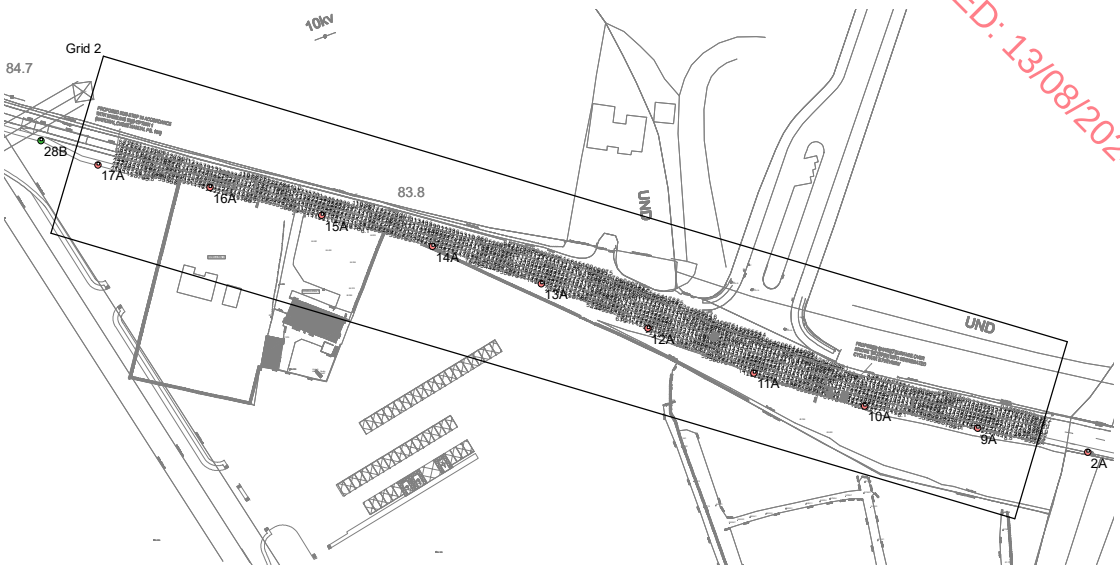
Results

Eav	13.16
Emin	3.38
Emax	29.48
Emin/Emax	0.11
Emin/Eav	0.26

8514647207

Horizontal Illuminance (lux)

Grid 2



Results

Eav	13.16
Emin	3.38
Emax	29.48
Emin/Emax	0.11
Emin/Eav	0.26

8514647207

Horizontal Illuminance (lux)

Grid 3

Results

Eav	13.59
Emin	3.18
Emax	30.30
Emin/Emax	0.11
Emin/Eav	0.23

8514647207

Horizontal Illuminance (lux)

Grid 3

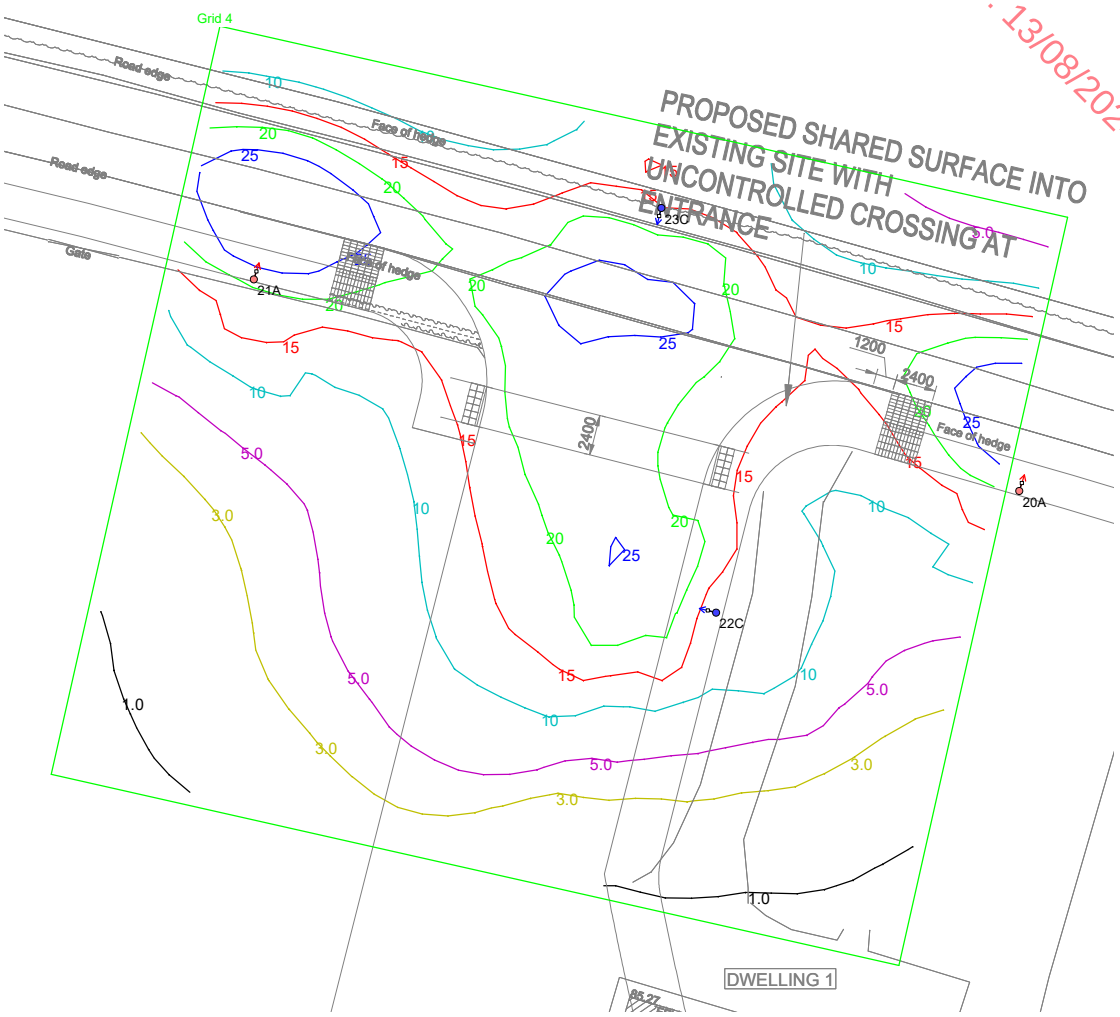
Results

Eav	13.59
Emin	3.18
Emax	30.30
Emin/Emax	0.11
Emin/Eav	0.23

8514647207

Horizontal Illuminance (lux)

Grid 4



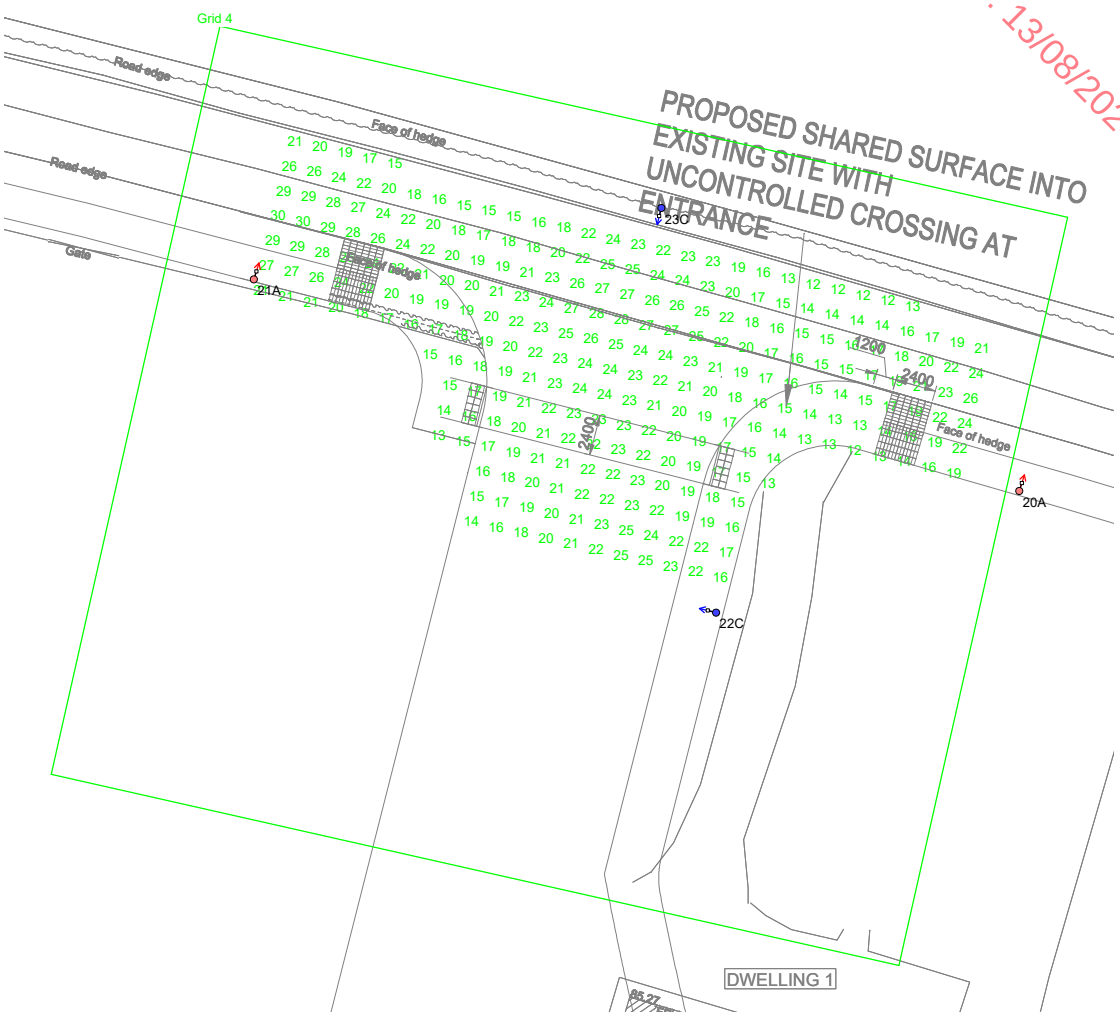
Results

Eav	20.13
Emin	11.65
Emax	30.23
Emin/Emax	0.39
Emin/Eav	0.58

8514647207

Horizontal Illuminance (lux)

Grid 4



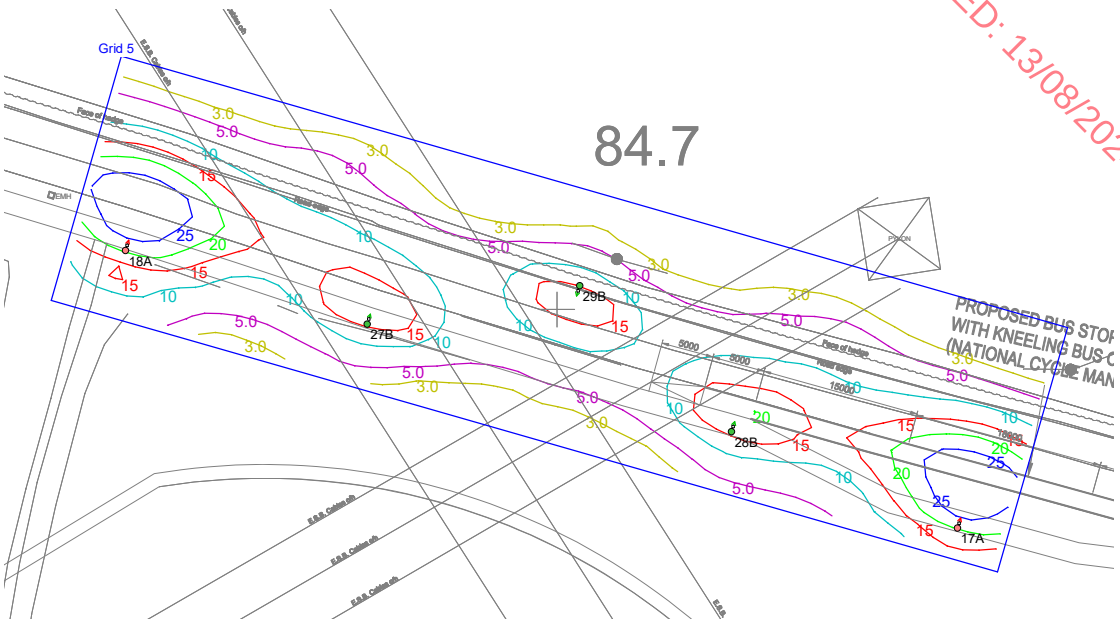
Results

Eav	20.13
Emin	11.65
Emax	30.23
Emin/Emax	0.39
Emin/Eav	0.58

8514647207

Horizontal Illuminance (lux)

Grid 5

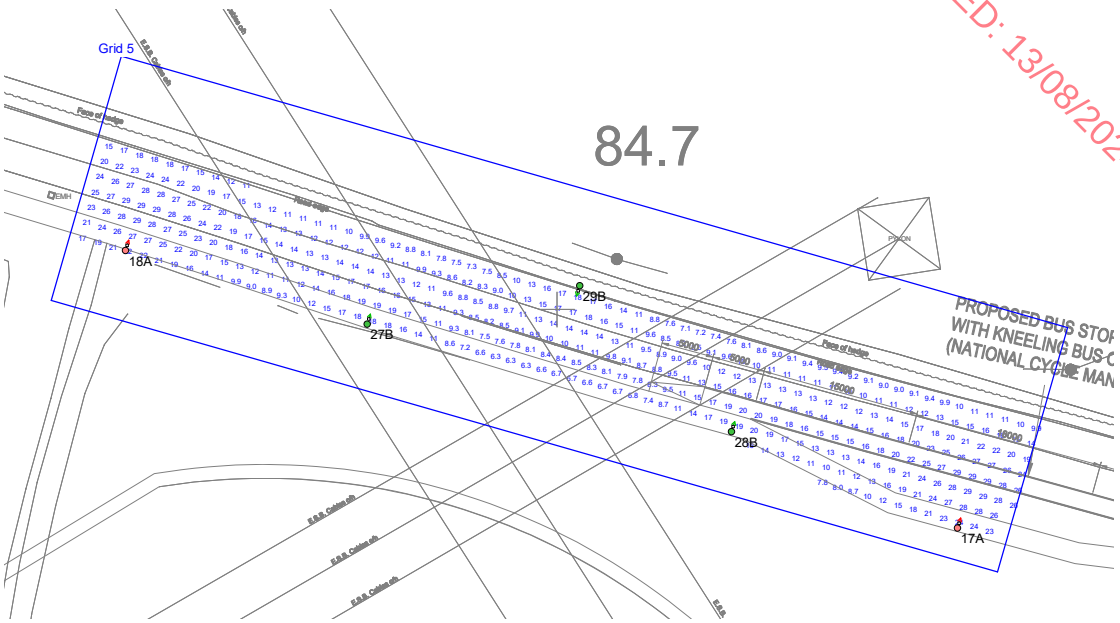


Results

Eav	15.03
Emin	6.29
Emax	29.39
Emin/Emax	0.21
Emin/Eav	0.42

Horizontal Illuminance (lux)

Grid 5



Results

Eav	15.03
Emin	6.29
Emax	29.39
Emin/Emax	0.21
Emin/Eav	0.42

Volt drop calculation for the most onerous circuit

ESB SUPPLY	SOURCE PILLAR	CIRCUIT	DESIGN CURRENT (Amps per Phase)	CABLE SIZE (sq.mm.)	CABLE LENGTH (m)	FUSE (Amps)	VOLT DROP (Volts)
S1	MP1	MAIN				16	
S1	MP1	1.1	1.69	2x6sq	200	10	1.81

Notes:
All LED lanterns must have Constant Light Output (CLO).
Automatically dimmed to 75% each night from 12 midnight to 6am.
(U14 Profile)
All lanterns to have 7pin NEMA sockets fitted.

Electronic Photocells switched at 35/18lux
All columns, luminaires, cable and pillars, shall comply with Local Authority General Specification for Public Lighting.

No trees to be located within falling distance of P/L columns.
Minimum set-back of columns is 800mm from face of kerb.

Public lighting cable chamber as per Local Authority P/L Dept. specification.

PROPOSED CYCLE TRACK TO RAMP ONTO EXISTING ROADWAY

PROPOSED BUS STOP IN ACCORDANCE WITH KNEELING BUS OPTION 1 (NATIONAL CYCLE MANUAL PG. 164)

PROPOSED SHARED SURFACE OVER BRIDGE IN ACCORDANCE WITH TI TRANSITION ZONE DETAIL (CC-SCD-05106)

EXISTING SEGREGATED CYCLE PATH & PATHWAY TO TAPER INTO PROPOSED SHARED SURFACE OVER BRIDGE

PROPOSED SHARED SURFACE OVER BRIDGE AS SHOWN AND SEGREGATED CYCLE PATH & PATHWAY

110kv

220kv

10kv

85.6

84.7

83.8

80.3

84.1

82.3

UND

CF

T

RECEIVED: 13/08/2024

NORTH

Special notes:
P4 is an 8m column
P18,19 & 20 are 5m R&L type columns.

TYPE A COLUMN DETAILS
HEIGHT : 10m
BRACKET LENGTH : Post-top
INCLINATION : 5 Degrees
COLUMN QUANTITY : 23

LANTERN DETAILS
WATTAGE (CLO) : 97w LED
MAKE & MODEL : C.U.Phosco P863-128-R4-730-W3-775

TYPE B COLUMN DETAILS
HEIGHT : 1no 8m & 3no 5m ABACUS Raise & lower type
BRACKET LENGTH : Post-top
INCLINATION : 5 Degrees
COLUMN QUANTITY : 4

LANTERN DETAILS
WATTAGE (CLO) : 26w LED
MAKE & MODEL : C.U.Phosco P852-24-S1-WW-W6-0350

TYPE C COLUMN DETAILS
HEIGHT : 10m
BRACKET LENGTH : Post-top
INCLINATION : 5 Degrees
COLUMN QUANTITY : 2

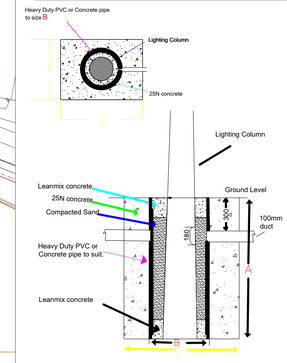
LANTERN DETAILS
WATTAGE (CLO) : 68w LED
MAKE & MODEL : C.U.Phosco P863-128-F7-730-W3-525

2X6sq NYCY cable laid in ducting to I.S.10101:2020.
Single wall ducting, colour red to be used manufactured from high density polyethylene (H.D.P.E.).
107mm external diameter, having a wall thickness of 5mm.
This ducting to have the words "Street Lighting" stamped on, letter size 9mm at 1m intervals. The lettering to face uppermost in the trench. All works to Local Authority specification.
This is a circuit layout and not indicative of where ducts are to be laid.

Public Lighting Pillar (located at least 2m from ESB pillar)

Typical Base detail, to be checked by site engineers.

COLUMN MOUNTING HEIGHT		12m	10m	8m	6m
COLUMN ROOT DEPTH	A	1.9m	1.7m	1.5m	1.0m
CABLE ENTRY DEPTH		0.3m	0.3m	0.3m	0.3m
ROOTING CONCRETE DEPTH					
COLUMN DOOR HEIGHT		1.5m	1.5m	1.5m	1.5m
COLUMN SLEEVE SIZE(mm) internal	B	450	400	400	300
EXCAVATION (width x length)	C	1000	800	600	400



NOTES

NO ACCOUNT IS TAKEN FOR THE BLOCKING EFFECT CAUSED BY BUILDINGS, TREES ETC. THE CALCULATION SHOWN BY THIS DRAWING ASSUMES THAT THE WHOLE AREA BEING CONSIDERED IS IN THE SAME PLANE, I.E. THERE ARE NO CHANGES IN GRADIENT OR ELEVATION.

This drawing layout is based on calculated lighting levels, produced by Sabre Electrical Services Ltd., using Lighting Reality software. Any alterations to the layout or luminaire type used for the lighting design calculations, will require a revised lighting design to be carried-out. A redesign may require approval from the Local Authority Public Lighting Dept. prior to any alterations/modifications being implemented on site.

Sabre
ELECTRICAL SERVICES LTD.
Specialist Contractors
PUBLIC LIGHTING - FLOOD LIGHTING - SPORTS LIGHTING

UNIT 11,
BELLVUE INDUSTRIAL ESTATE,
FINGLAS,
DUBLIN 11.
E - MAIL: graham@sabrelighting.ie PH: 01-811 0875

REV	DESCRIPTION	INITS	CHK'D	DATE
-	?	GS	CHK	----------
-	?	GS	CHK	----------
-	?	GS	CHK	----------
-	?	GS	CHK	----------
-	?	GS	CHK	----------
-	?	GS	CHK	----------
-	?	GS	CHK	----------

CLIENT/CUSTOMER
Donnaghachadh O'Brian Eng.

PROJECT
R409 Millenium Park

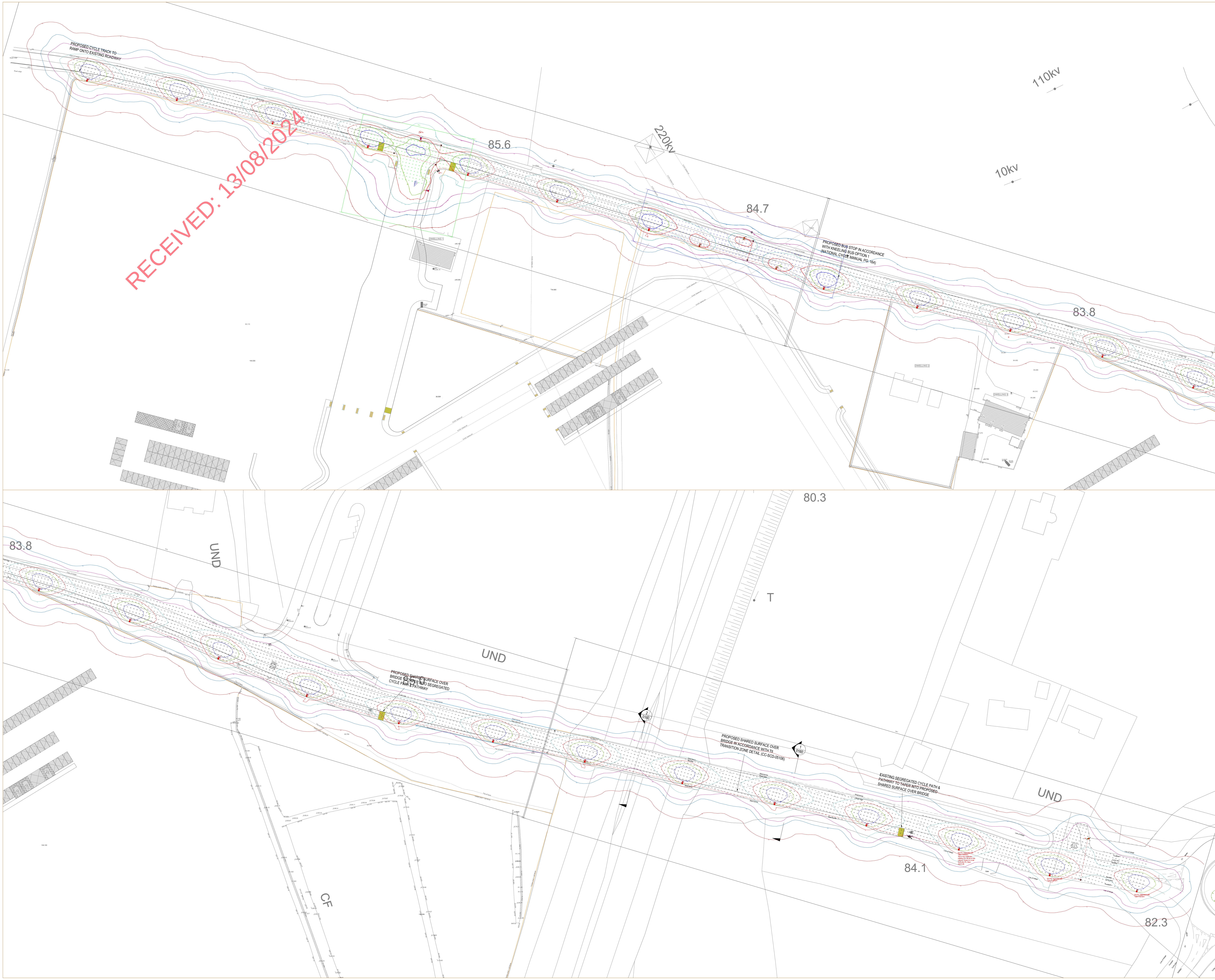
TITLE
Public Lighting Layout

DRAWN	SCALE	DATE
G.S	1:750@A1	13-04-23

DRAWING NUMBER	ISSUE
SES 04723	1

BASE DRAWING NUMBER: edit
DRAWING ORIGIN: edit

DO NOT SCALE FROM THIS DRAWING



TYPE A COLUMN DETAILS

HEIGHT : 10m
BRACKET LENGTH : Post-top
INCLINATION : 5 Degrees
COLUMN QUANTITY : 23

LANTERN DETAILS

AVERAGE WATTAGE (CLO) : 97w LED
MAKE & MODEL : C.U.Phosco P863-128-R4-730-W3-775

TYPE B COLUMN DETAILS

HEIGHT : 1no 8m & 3no 5m ABACUS Raise & lower type
BRACKET LENGTH : Post-top
INCLINATION : 5 Degrees
COLUMN QUANTITY : 4

LANTERN DETAILS

AVERAGE WATTAGE (CLO) : 26w LED
MAKE & MODEL : C.U.Phosco P852-24-S1-WW-W6-0350

TYPE C COLUMN DETAILS

HEIGHT : 10m
BRACKET LENGTH : Post-top
INCLINATION : 5 Degrees
COLUMN QUANTITY : 2

LANTERN DETAILS

AVERAGE WATTAGE (CLO) : 68w LED
MAKE & MODEL : C.U.Phosco P863-128-F7-730-W3-525

Notes:
All LED lanterns must have Constant Light Output (CLO).
Automatically dimmed to 75% each night from 12 midnight to 6am.
All lanterns to have 7pin NEMA sockets fitted.

Electronic Photocells switched at 35/18lux
All columns, luminaires, cable and pillars, shall comply with Local Authority General Specification for Public Lighting.
No trees to be located within falling distance of P/L columns.
Minimum set-back of columns is 800mm from face of kerb.

1.0 lux
3.0 lux
5.0 lux
10.0 lux
15.0 lux

NOTES

NO ACCOUNT IS TAKEN FOR THE BLOCKING EFFECT CAUSED BY BUILDINGS, TREES ETC. THE CALCULATION SHOWN BY THIS DRAWING ASSUMES THAT THE WHOLE AREA BEING CONSIDERED IS IN THE SAME PLANE, I.E. THERE ARE NO CHANGES IN GRADIENT OR ELEVATION.

This drawing layout is based on calculated lighting levels, produced by Sabre Electrical Services Ltd., using Lighting Reality software. Any alterations to the layout or luminaire type used for the lighting design calculations, will require a revised lighting design to be carried-out. A redesign may require approval from the Local Authority Public Lighting Dept. prior to any alterations/modifications being implemented on site.

Sabre
ELECTRICAL SERVICES LTD.
Specialist Contractors
PUBLIC LIGHTING - FLOOD LIGHTING - SPORTS LIGHTING

UNIT 11,
BELLVUE INDUSTRIAL ESTATE,
FINGLAS,
DUBLIN 11.
E - MAIL: graham@sabrelighting.ie PH: 01-811 0875

REV	DESCRIPTION	INITS	CHK'D	DATE
-	?	GS	CHK	---------
-	?	GS	CHK	---------
-	?	GS	CHK	---------
-	?	GS	CHK	---------
-	?	GS	CHK	---------
-	?	GS	CHK	---------
-	?	GS	CHK	---------

CLIENT/CUSTOMER
Donnaghachadh O'Brian Eng.

PROJECT
R409 Millenium Park

TITLE
Public Lighting ISOLUX

DRAWN	SCALE	DATE
G.S	1:750@A1	13-04-23

DRAWING NUMBER	ISSUE
SES 04723	1

BASE DRAWING NUMBER edit
DRAWING ORIGIN edit

DO NOT SCALE FROM THIS DRAWING

Appendix 4.2 J
Road Safety Audit

THIS PAGE IS INTENTIONALLY BLANK

BRUTON CONSULTING ENGINEERS

Title: **Stage 1 ROAD SAFETY AUDIT**

For;

Proposed Data Centre R409, Naas, Co. Kildare

Client: **Donnachadh O'Brien & Associates Consulting Engineers**

Date: **July 2023**

Report reference: **1918R01**

VERSION: **FINAL (12-7-2023)**

Prepared By:

Bruton Consulting Engineers Ltd

Glaspistol
Clogherhead
Drogheda
Co. Louth.

Tel: 041 9881456
Mob: 086 8067075
E: admin@brutonceng.ie
W: www.brutonceng.ie

CONTENTS SHEET

Contents

1.0 Introduction

This report was prepared in response to a request from Mr. Richard Kiernan, of Donnachadh O'Brien & Associates Consulting Engineers, for a Stage 1 Road Safety Audit for the public road aspects of the proposed Data Centre off the R409 in Naas Co. Kildare.

The Road Safety Audit Team comprised of;

Team Leader: **Norman Bruton**, BE CEng FIEI, Cert Comp RSA.

TII Auditor Approval no. NB 168446

Team Member: **Owen O'Reilly**, B.SC. Eng Dip Struct. Eng NCEA Civil Dip Civil. Eng CEng MIEI

TII Auditor Approval no. OO1291756

The Road Safety Audit involved the examination of drawings and other material provided by Donnachadh O'Brien & Associates Consulting Engineers and a site visit by the Audit Team, together, on the 5th of July 2023.

The weather at the time of the site visit was dry and the road surface was also dry.

This Stage 1 Road Safety Audit has been carried out in accordance with the requirements of TII Publication Number GE-STY-01024, dated December 2017.

The scheme has been examined and this report compiled in respect of the consideration of those matters that have an adverse effect on road safety. It has not been examined or verified for compliance with any other standards or criteria.

The problems identified in this report are considered to require action in order to improve the safety of the scheme for road users.

If any of the recommendations within this safety audit report are not accepted, a written response is required, stating reasons for non-acceptance. Comments made within the report under the heading of Observation are intended to be for information only. Written responses to Observations are not required.

The information supplied to the Audit Team is listed in **Appendix A.**

The feedback form is contained in **Appendix B.**

A plan drawing showing the problem locations is contained in **Appendix C**.

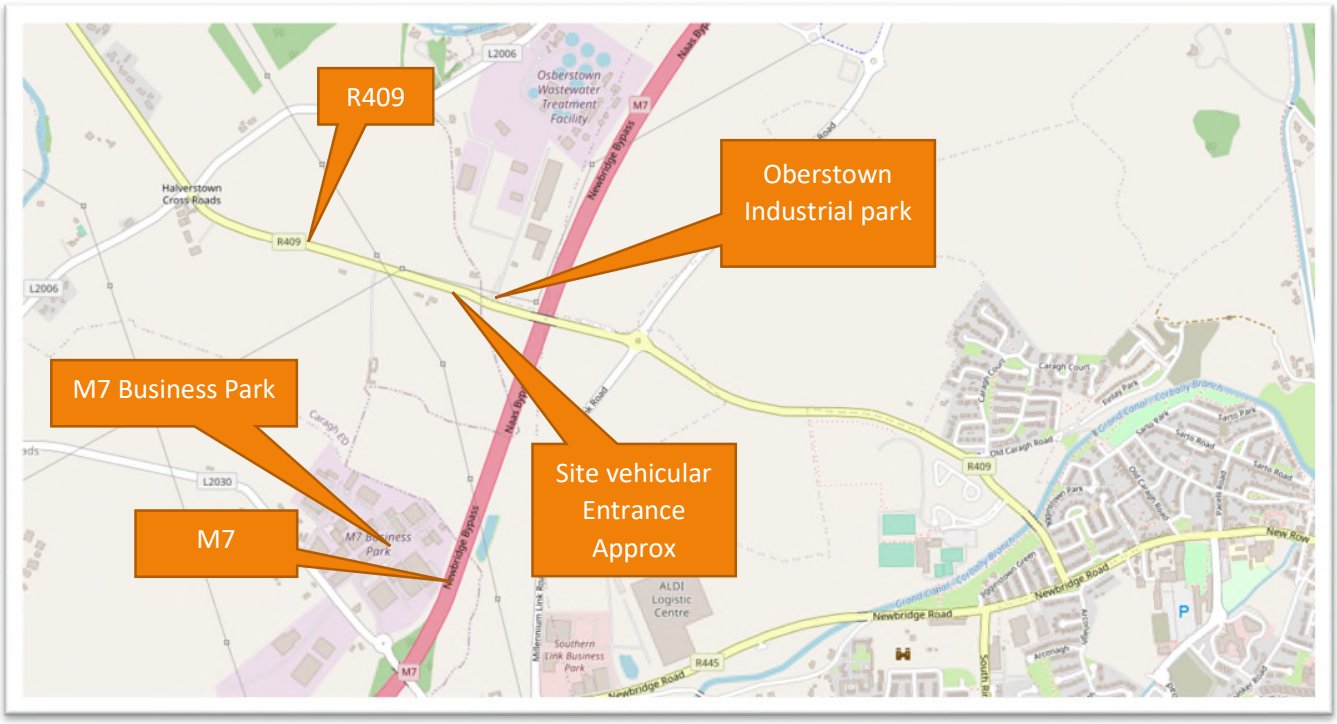
2.0 Background

It is proposed to construct a new data center off the R409 in Naas. The site is located north of the M7 overbridge and the M7 Business Park (L2030) and on the opposite side of the R409 to the Oberstown Industrial Park.

The R409 is a single carriageway road. On the eastern side of the M7 overbridge there is a footpath and cycle track on the northbound side. These terminate before the structure. There is a footpath only on the southbound side which also terminates before ethe structure.

It is proposed to provide a new priority junction off the R409 for vehicular traffic. It is also proposed to improve the facilities for vulnerable road users by providing a shared use pedestrian/cycle surface across the M7 overbridge and segregated use surfaces west of the structure to the site boundary. A shared use facility will be brought into the proposed development. A bus stop (layby) will be provided just west of the Oberstown Industrial Park access.

The site location map is shown below.



Site location map courtesy of openstreetmap.org

No data was available from the Road Safety Authority's website on collisions due to an ongoing review of the policy on making such information available.

3.0 Items Raised in This Road Safety Audit.

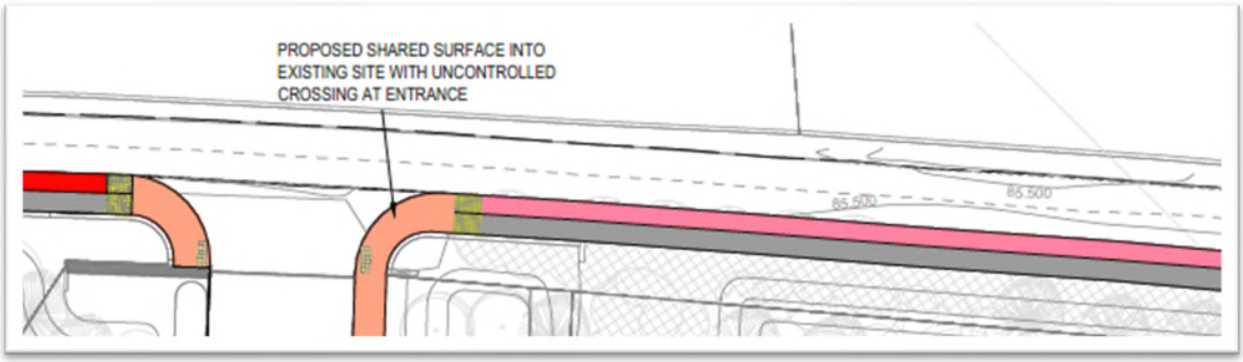
3.1 Problem

LOCATION

Drawing 2232-DOB-ZZ-ZZ-Dr-C-1600, R409

PROBLEM

It is proposed to provide a cycle track to the proposed development and beyond in the northbound direction. It is not however proposed to provide cycling facilities for those returning from the development to Naas in the southbound direction. A lack of segregated facilities in the southbound direction will lead to less protection for cyclists from general traffic.



RECOMMENDATION

It is recommended that southbound facilities be provided.

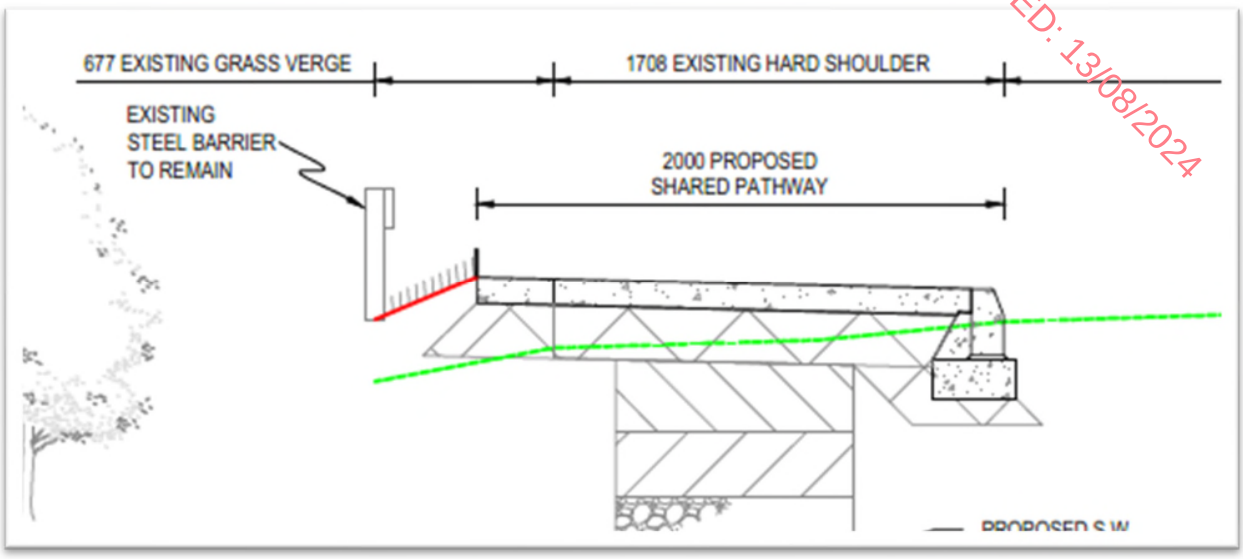
3.2 Problem

LOCATION

Drawing 2232-DOB-ZZ-ZZ-Dr-C-1600, R409, Existing Safety Barriers.

PROBLEM

There are approach and departure safety barriers at the structure protecting errant vehicles from the high embankments and motorway below. With the provision of a kerbed edge and paved surface above the existing level the barriers may no longer contain errant vehicles if they are too low. It is also observed during the site visit that the safety barriers may not be EN1317 compliant.



RECOMMENDATION

It is recommended that the safety barrier be upgraded as necessary to ensure that errant vehicles will be contained.

3.3 Problem

LOCATION

Drawing 2232-DOB-ZZ-ZZ-Dr-C-1600, R409, Existing Parapet railings.

PROBLEM

The existing parapet railing were observed to be relatively high. It is unclear if they will be high enough to contain cyclists should they wobble against them during high winds or if passed by a HGV, leading to loss of control.

RECOMMENDATION

It is recommended that suitable height parapet railing adjacent to cyclists be provided on the M7 overbridge.

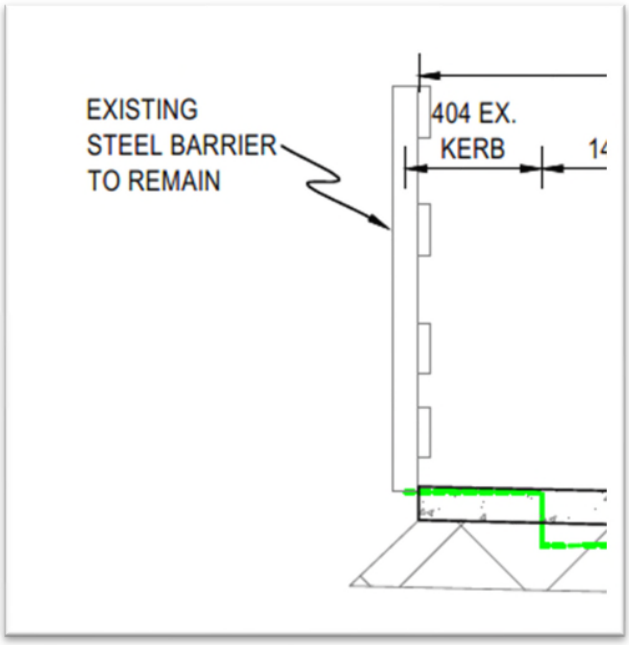
3.4 Problem

LOCATION

Drawing 2232-DOB-ZZ-ZZ-Dr-C-1600, R409, Existing Parapet upstand.

PROBLEM

It is unclear if the existing parapet on the M7 overbridge will function as intended if struck by a HGV if there is no concrete upstand. A lack of containment could lead to vehicles descending onto the motorway below.



RECOMMENDATION

It is recommended that the adequacy of the parapet without a upstand be checked to ensure that it will contain errant vehicles as intended.

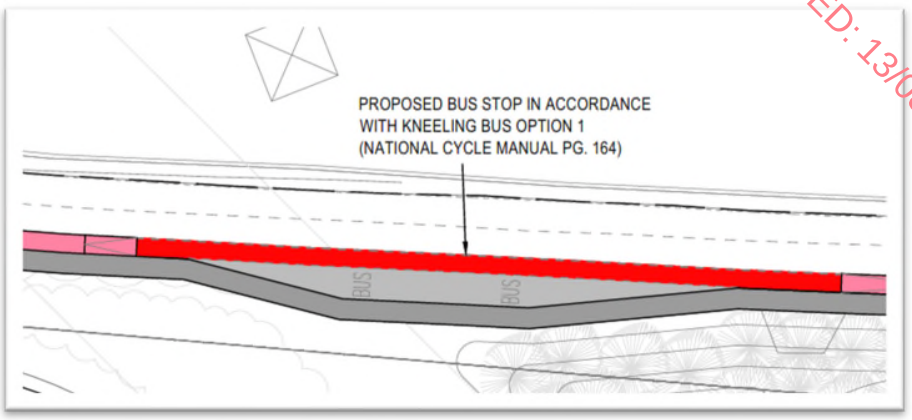
3.5 Problem

LOCATION

Drawing 2232-DOB-ZZ-ZZ-Dr-C-1600, R409, Bus Layby.

PROBLEM

It is proposed to provide a bus layby that will presumably serve both the proposed development and the Oberstown Industrial Park. No provision has been made for crossing bus users or those getting the return bus to Naas. A lack of crossing facilities could lead to pedestrians stepping out from in front of or behind parked buses leading to collisions with through traffic.



RECOMMENDATION

It is recommended that a bus stop be provided on the opposite side of the R409 and that a crossing facility also be provided.

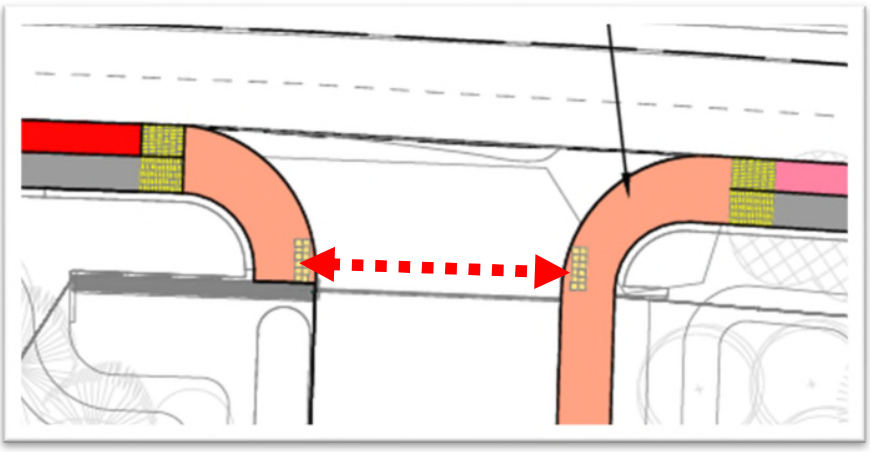
3.6 Problem

LOCATION

Drawing 2232-DOB-ZZ-ZZ-Dr-C-1600, R409, New access junction.

PROBLEM

The crossing point at the proposed access junction for cyclists and pedestrians is set back from the through route, is narrow for both users and may be close to the gate which could obscure an exiting driver's visibility to those crossing vulnerable road users. This could lead to collisions between cyclists and pedestrians as they share space, collisions with exiting vehicles or lack of use of the cycle track as cyclists see the crossing as being too far off the desire line and opt to remain on the carriageway instead.



RECOMMENDATION

It is recommended that a wider crossing be provided closer to the desire line.

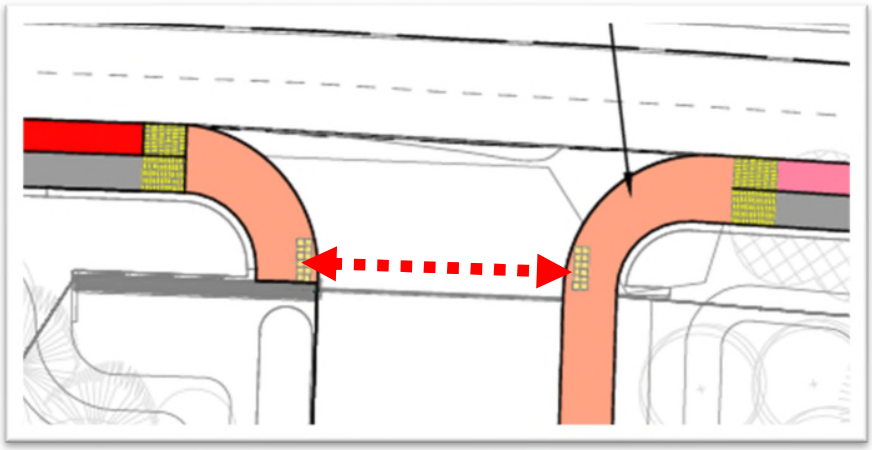
3.7 Problem

LOCATION

Drawing 2232-DOB-ZZ-ZZ-Dr-C-1600, R409, New access junction.

PROBLEM

The main access junction has a wide cross sectional width due to the splitter island and need to cater for HGVs. This will lead to high turning speeds for smaller vehicles and thereby increase the risk of collisions with crossing pedestrians and cyclists.



RECOMMENDATION

It is recommended that a raised table be provided to cater for crossing pedestrians and cyclists.

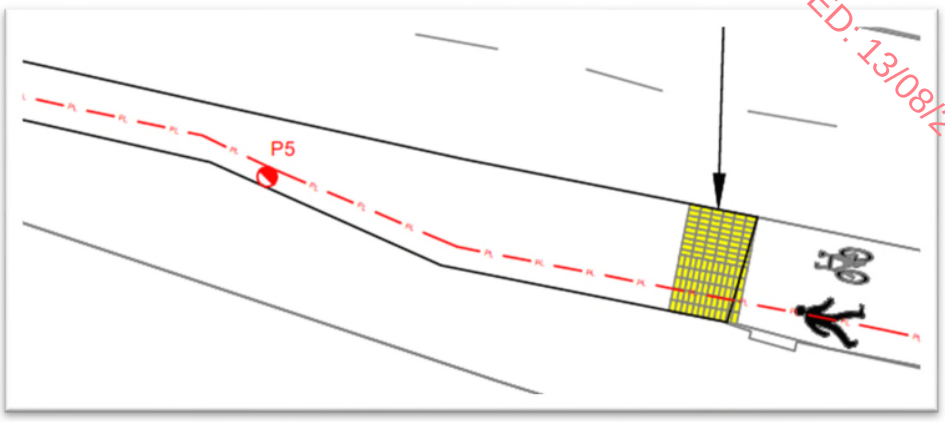
3.8 Problem

LOCATION

Drawing SES 04723 Issue 1, Public Lighting.

PROBLEM

It is proposed to provide the public lighting columns within the new and existing footpaths. The columns could be hazards for pedestrians if they are looking down and are distracted and the columns also reduce the effective width of the footpath.



RECOMMENDATION

It is recommended that the columns be set back off the footpaths into the verge behind.

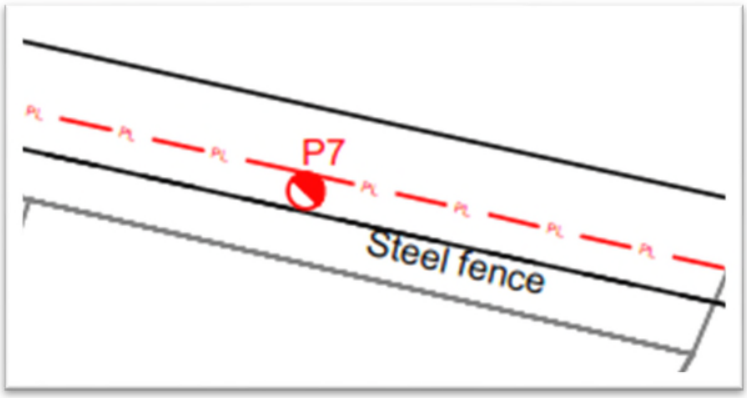
3.9 Problem

LOCATION

Drawing SES 04723 Issue 1, Public Lighting.

PROBLEM

It is proposed to provide the public lighting columns in front of the safety barrier on the R409. Vehicles that collide with the barrier may be directed into the columns rather than be redirected into the carriageway resulting in more severe collisions.



RECOMMENDATION

It is recommended that the columns be provided to the rear of the safety barriers and at least the Working Width behind the barrier.

4.0 Audit Statement

We certify that we have examined the information provided and the site. The examination has been carried out with the sole purpose of identifying any features of the design which could be removed or modified in order to improve the safety of the scheme.

The problems identified have been noted in this report together with associated safety improvement suggestions which we would recommend should be studied for implementation. The audit has been carried out by the persons named below who have not been involved in any design work on this scheme as a member of the Design Team.

Norman Bruton **Signed:** _____

(Audit Team Leader) **Dated: 12-7-2023**_____

Owen O'Reilly **Signed:** _____

(Audit Team Member) **Dated: __12-7-2023**_____

Appendix A

List of Material Supplied for this Road Safety Audit;

Drawing references

- Drawing 2232-DOB-ZZ-ZZ-Dr-C-1600
- Drawing 22217-RKD-ZZ-ZZ-DR-A-1010 P05
- Drawing SES 04723 Issue 1, Public Lighting, Layout
- Drawing SES 04723 Issue 1, Public Lighting, ISOLUX

Appendix B

Feedback Form

AUDIT FORM – FEEDBACK ON ROAD SAFETY AUDIT REPORT

BRUTON CONSULTING ENGINEERS

AUDIT FORM – FEEDBACK ON ROAD SAFETY AUDIT REPORT

Scheme: Naas Data Centre, R409
Stage Audit: Stage 1
Date Audit (site visit) Completed: 05/07/2023

Paragraph No. in Road Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative measures accepted by Auditors (Yes/No)
3.1	YES	No	DOBA have discussed and agreed the extent of the required works to the R409 with K.C.C. Roads Dept. The works will be limited to the development side of the R409. These works will not prevent K.C.C. from carrying out additional upgrade works to the pedestrian and cycle infrastructure along the R409 in the future.	Yes
3.2	YES	YES	The road barrier will be raised up to be in accordance with the requirements of TII	
3.3	YES	YES	The parapet railing will be raised, if necessary, in consultation with TII	
3.4	YES	YES	The parapet railing will be assessed to ensure its function is not degraded by the proposed works in consultation with TII.	
3.5	YES	NO	DOBA have discussed and agreed the provision and location of the bus stop with Kildare Co. Council. This work would also impact on 3rd party land owners and is outside of the scope of the proposed project.	Yes
3.6	YES	YES	The crossing will be relocated closer to the R409 along the desire line for pedestrians and cyclists.	
3.7	NO	NO	A raised table will adversely impact on HGVs and other vehicles entering and exiting the site. It will require vehicles to slow to very low speeds in order to mount the table.	Yes

			This will cause potential queuing issues and static vehicles making left-in turns on the R409. It will also result in slow start-off speeds for HGVs and other vehicles existing the site onto the R409. There will be very low use of the footpath and cycle track to the west of the site access as the pathway is discontinued at the western extent of the site and therefore road crossings by vulnerable road users will be limited.	
3.8	YES	YES		
3.9	YES	YES		

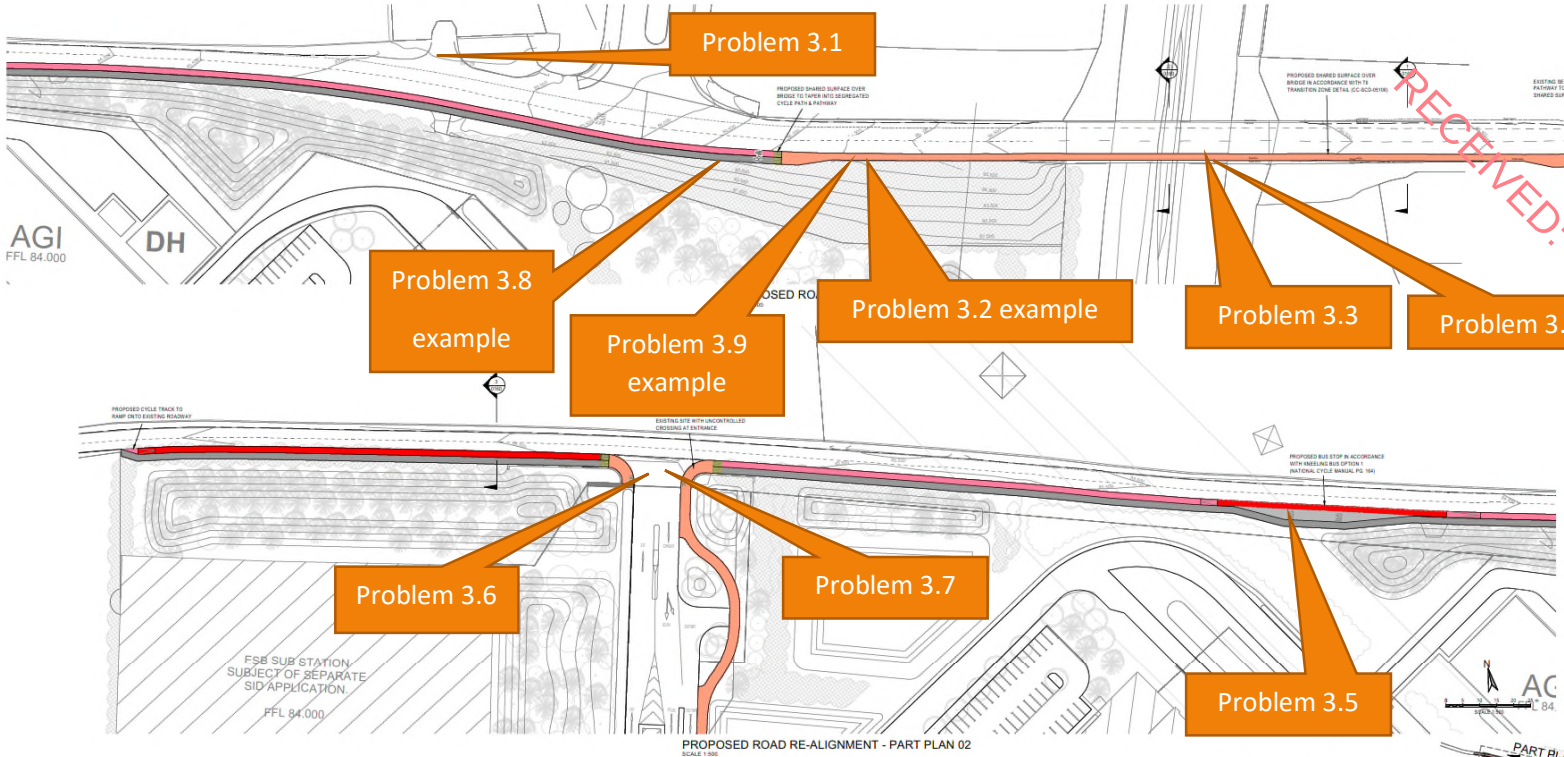
Signed..... Date 12/07/2023
Design Team Leader

Signed..... Date: 12-7-2023
Audit Team Leader

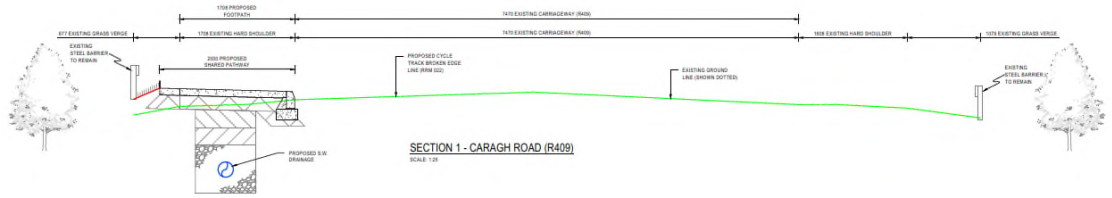
Signed..... Date: 12/07/2023
Employer

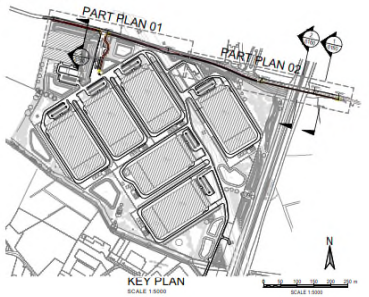
Appendix C

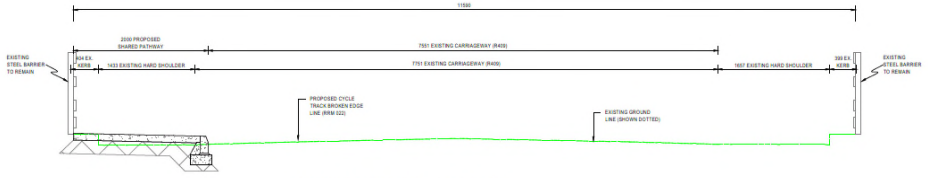
Problem Location Plan.

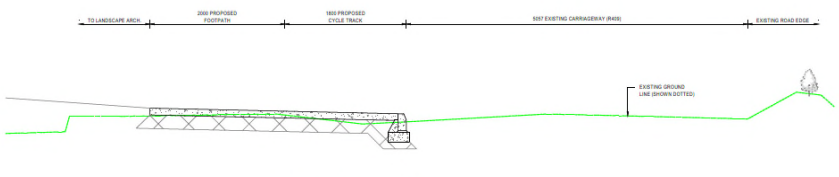


PROPOSED ROAD RE-ALIGNMENT - PART PLAN 02
SCALE 1:500









A0

FOR REVIEW

HERBATA DATA CENTRE CAMPUS

JIGGINSTOWN, NAAS, CO. KILDARE

PROPOSED R409 ROAD RE-ALIGNMENT

2232-D08-ZZ-ZZ-DR-C-1600

DONNACHADH O'BRIEN & ASSOCIATES CONSULTING ENGINEERS