Alanna Homes and
Alcove Ireland Four Ltd.

Barnhill Garden Village Strategic Housing Development at Barberstown, Barnhill and Passifyoucan, Clonsilla, Dublin 15

Environmental Impact Assessment Report

Appendices

Volume III

AECOM ALANNA HOMES Alcove Ireland Four Limited Clifton Scannell Emerson Associates Delphi Architects JOHN CRONIN & ASSOCIATES SLR

July 2022

McCutcheon Halley CHARTERED PLANNING CONSULTANTS

Alanna Homes and Alcove Ireland Four Ltd.

Barnhill Garden Village Strategic Housing Development at Barberstown, Barnhill and Passifyoucan, Clonsilla, Dublin 15

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AECOM ALANNA HOMES Alcove Ireland Four Limited Clifton Scannell Emerson Associates Delphi Architects JOHN CRONIN & ASSOCIATES SLR

July 2022

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July 2022

McCutcheon Halley CHARTERED PLANNING CONSULTANTS

Appendix 1.1 Public Consultation

McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

Consultee Addresses as per Prescribed Body List

19th April 2022

Re: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Sir, Madam,

We are acting on behalf of Alanna Homes and Alcove Ireland Ltd., in the preparation of an Environmental Impact Assessment Report for a proposed residential development of approximately 1,255 residential units at Barberstown, Barnhill and Passifyoucan (Townlands), Clonsilla, Dublin 15. It is proposed that a planning application will be lodged under the Strategic Housing Development provisions of the Planning & Development (Housing) and Residential Tenancies Act 2016.

If you have any comments in relation to the potential environmental impacts of the proposed development, I would be grateful if you would forward them to me by Tuesday 17th May 2022. The details of the site location, project description and proposed works are outlined below.

1. Site Location

The application site is located at Barberstown, Barnhill and Passifyoucan, Clonsilla, Dublin 15 and is situated approximately 3 km west of Blanchardstown and approximately 18 km by road to O'Connell Street, Dublin. The site is bounded to the north by the Dunboyne to Clonsilla Rail Line and Hansfield train station and to the east by the Royal Canal and Dublin-Maynooth Railway Line.

To the west of the application site is the R149 Clonee-Lucan Road and to the south is Barberstown Lane South. Barberstown Lane North runs through the northern section of the site, providing local access, and linking with the R149 to the west and the Barberstown Lane South to the east. Within the southern portion of the lands, a stream runs in a west to east direction.

The existing site comprises of a number of parcels of land that are demarcated by hedgerow and trees. The overall lands are characterised by relatively flat terrain and the majority of the application site is predominantly used for agricultural purposes. An industrial /farmyard building complex is situated to the south of Barberstown Lane North, Within the Barnhill LAP lands but falling outside the proposed application site, are 8 residential houses to the north of Barberstown Lane North and 1 residential house accesses from the R149.

Figure 1: Barnhill lands – Site Context

2. Project Description

The proposed development will be for a Strategic Housing Development (SHD) application, covering Development Areas 1, 2 and 3 of the Barnhill Local Area Plan (LAP), a site area of approximately 29.42 hectares. The proposed development is for the construction of approximately 1,255 residential units, a crèche, village centre, railway plaza providing access to Hansfield railway station; land set aside for a 16-classroom primary school, a public park of approximately 5.4 hectares and a series of pocket parks throughout the development.

The proposed development includes the demolition of an existing farmyard/shed complex and the provision of an internal road and cycle/pedestrian access network, incorporating the existing Barberstown Lane North.

The proposed development of approximately 1,255 residential units consists of an approximate mix of circa 14% 1 bedroom units; c. 49% 2 bedroom units; c. 36% 3 bedroom units; and c. 2% 4 bedroom units.

The density varies between character areas, in line with the objectives of the Barnhill LAP. Primary access to the site will be via two roundabouts from the proposed future Ongar-Barnhill Distributor Road. Ten-character areas are proposed within the development: Link Road West; Parkside, Link Road East; Railway Quarter; Station Plaza; Station Quarter South; Barnhill Village Centre (also referred to as Barnhill Market Square); Barnhill Cross; Barnhill Crescent; and Barnhill Stream.

A draft site layout is attached for your information. This layout is being finalised and may be subject to amendments prior to lodgement of the application. As noted, the EIAR impact assessment will be carried out on the final proposed design.

3. Environmental Impact Assessment Report

3.1 EIAR Structure and Content

The overall structure of the EIAR is as follows:

1 Introduction (to include Planning Context & Need for the Scheme)
2 Project Description (Including Construction Processes)
3 Alternatives Considered
4 Landscape & Visual Impacts
5 Material Assets – Traffic & Transport
6 Material Assets – Infrastructure & Utilities
7 Land & Soils
8 Water
9 Biodiversity
10 Noise & Vibration
11 Air Quality
12 Climate Change
13 Cultural Heritage
14 Population & Human Health
15 Risk of Major Accidents & Hazards
16 Significant Interaction of Impacts
17 Summary of Mitigation Measures

Each chapter is to include the following elements:

- **Introduction and Methodology**
- **Description of Existing Environment**
- **Impact Assessment:** Each discipline will consider impacts under the following headings:
    - Do-Nothing Scenario
    - Construction Phase
    - Operational Phase

  In assessing impacts regard will be had to direct impacts; indirect impacts and cumulative impacts. Where relevant, reference may also be made to 'synergistic impacts' or 'secondary impacts'.
- **Mitigation Measures; and Residual Impacts**

The project listed in Table 1 will be considered as for their cumulative impacts with the proposed development.

Table 1: Cumulative Projects

Project	Applicant	Planning Reference	Development	Comment
Hansfield SDZ	Mulberryglen Ltd.	FW15A/0161	206 units in zone 2	There have been several earlier permitted developments within Hansfield SDZ, which now form the
	Mulberryglen Ltd.	FW16A/0117	47 units in zone 2	
	Garlandbrook Ltd	FW16A/0123	219 units in zone 2 and zone 6	
	Hansfield Investment Ltd	FW15A/0032	128 units in Zone 4	

	Firth Development Unlimited Company	FW17A/0234	155 units in Zone 6	'existing environment'.
	Garlandbrook Ltd	FW18A0021	95 units in zone 6	
	Hansfield Investment Ltd	FW18A/0161	247 units in Zone	
	Hansfield Investment Ltd	FW18A/0197	200 units in Zone 7	
	Garlandbrook Ltd	FW18A/0110	618 units in zone 7	
	Firth Development UC	DAC/048/20	10 units in Zone 6	
	Firth Development UC	DAC/047/20	22 units in Zone 6	
	Firth Development UC	DAC/046/20	12 units in Zone 6	

4. Summary

In summary, it is proposed to lodge a planning application for a residential development of approximately 1,255 units at Barberstown, Barnhill and Passifyoucan (Townlands), Clonsilla, Dublin 15. The planning application will be accompanied by an Environmental Impact Assessment Report, which is being co-ordinated by McCutcheon Halley Planning Consultants. If you have any comments in relation to the potential environmental impacts of the proposed development, I would be grateful if you would forward them to me by Tuesday 17th May 2022.

If you prefer you may e-mail comments to me at: moshea@mhplanning.ie

Yours sincerely,

Michelle O'Shea
McCutcheon Halley

SITE LAYOUT PLAN

SCALE 1:1000 @ A0 / 1:2000 @ A1

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DAVEY + SMITH ARCHITECTS Unit 13,THE SEAPOINT BUILDING, 44-45 CLONTARF ROAD, CLONTARF, DUBLIN 3 I PH: 01 2447638 I EMAIL: info@davey-smith.com I WEB: www.davey-smith.com

From: info@birdwatchireland.ie
Sent: Tuesday 19 April 2022 12:31
To: Muireann Carroll
Subject: Automatic reply: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Thank you for your email. Please note that we receive a high volume of emails. We endeavour to respond as quickly as possible, but during busy periods please note that there may be a delay.

Many thanks for your patience,
The BirdWatch Ireland team

From: info <info@fisheriesireland.ie>
Sent: Tuesday 19 April 2022 12:45
To: Muireann Carroll
Subject: Automatic reply: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear sender,
Thank you for your contact.

This email address is monitored by the reception desk in Citywest and your email will be forwarded to the most appropriate staff member for follow-up.

You can expect an acknowledgement of your email within 5 working days (as per IFI's Customer Charter).

Kind regards

Customer Service
Inland Fisheries Ireland

From: IE Info IrishRail <info@irishrail.ie>
Sent: Tuesday 19 April 2022 11:22
To: Muireann Carroll
Subject: Automatic reply: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

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From: CustomerService <customerservice@kildarecoco.ie>
Sent: Tuesday 19 April 2022 11:52
To: Muireann Carroll
Subject: [Request Received] – Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report - KCC-112619 Acknowledgement from Kildare County Council Customer Services CRM:00001000153885

Thank you for contacting Kildare County Council.
Your email has been received and your case number is above.
You will receive a further email in due course with details of the Team and Department your case has been assigned to.
In any communication with us please always include your case number as this helps us to more easily identify your case.
Should you wish to follow up on, or add further information relating to your query, please reply to this email, without altering the subject line as the case number automatically recognises your case in our system.
Submissions:
It is important to note that submissions to Consultations cannot be accepted through the customer services email address or the Customer Portal.
Submissions may be made via the online portal at https://consult.kildarecoco.ie/en or in writing to the contact advertised in the consultation. Please make your submission by one medium only i.e. in hard copy or online.
Late submissions will not be accepted.

_____

Go raibh maith agat as ucht teagmháil a dhéanamh le Comhairle Contae Chill Dara.
Fuarthas do ríomhphost agus is é an uimhir thuas d'uimhir cháis.
Gheobhaidh tú ríomhphost in am agus i dtráth le sonraí na Foirne agus na Roinne a mbeidh faoi chúram do chás Iarrtar ort le do thoil d'uimhir cháis a chuir i ngach chomhfhreagras/ cumarsáid linn toisc go gcuidíonn sé seo linn do chás a aithint go héasca.
Más mian leat do saincheist a fhiosrú nó tuilleadh eolais maidir le do saincheist a chuir ar fáil, freagair ar an ríomhphost seo gan an líne ábhair a athrú toisc go n-aithríonn an uimhir cháis go huathoibríoch do chás in ár gcóras.

Aighneachtaí:
Tá sé tábhachtach go dtabharfar faoi ndeara nach féidir glacadh le comhchomhairlí tríd seoladh ríomhphost na seirbhísí custaiméara nó tríd an Tairsí Custaiméara.

Is féidir aighneachtaí a dhéanamh tríd na tairsí ar líne ar https://consult.kildarecoco.ie/ga nó i scríbhinn chuig an teagmhálaí a bhfógraíodh sa chomhcomhairle. Iarrtar le do thoil go ndéantar an aighneacht trí aon mheán amháin, is é sin le cruachóip nó ar líne.
Ní ghlacfar le haighneachtaí déanacha.

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://kildare.ie/CountyCouncil/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

From: Planning Enquiries <PEnquiries@meathcoco.ie>
Sent: Tuesday 19 April 2022 11:42
To: Muireann Carroll
Subject: Automatic reply: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Sir/ Madam

The Planning Department acknowledges receipt of your email and a response will issue in due course.

If your email refers to any of the following, please see our website, accessible through the links below, for information.

Development Management
A request for pre-planning
How to apply for planning permission
Viewing a planning application online
How to make a submission on a planning application
Exempted Developments
Development Contributions

Forward Planning
Meath County Development Plan 2021-2027
How to make a submission on a current public consultation

Planning Compliance
How to submit compliance requested as a condition of planning permission

Taking-in-Charge of a Roads/Estates

Planning Enforcement
Reporting an alleged unauthorised Development

Vacant Sites

Yours sincerely

Planning Department
Meath County Council
Tel: 046 9097500

From: Housing Manager DAU <Manager.DAU@housing.gov.ie>
Sent: Wednesday 20 April 2022 07:28
To: Muireann Carroll
Subject: DAU Ref: G Pre00082/2022 FW: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report
Attachments: PLA-01 Overall Site Layout.pdf; LTR_220419_EIAR NPWS Consultation_MC.pdf

Our Ref: G Pre00082/2022 (Please quote in all related correspondence)

A Chara

I acknowledge receipt of your recent consultation which was forwarded by Nature Conservation, National Monuments Service and the office of the Minister of Tourism, Culture, Arts, Gaeltacht, Sport and Media.

Please note that Development Applications Unit (DAU) is now part of the Department of Housing, Local Government and Heritage and co-ordinates consultations on behalf of the Mnister. Any future referrals of this nature should be sent directly to DAU via manager.dau@housing.gov.ie or to the below postal address as we will co-ordinate with Nature Conservation, National Monuments Service, Underwater Archaeology and Built Heritage and send you any observations/recommendations that they may have in relation to your referral.

In the event of observations for this consultation, you will receive a co-ordinated heritage-related response by email from Development Applications Unit (DAU).

While I note that you request observations/recommendations by 17th May please note that the normal target turnaround for pre-planning and other general consultations is six weeks from date of receipt. In relation to general consultations from public bodies under the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 to 2011, the Department endeavours to meet deadline dates, where requested.

If you have not heard from DAU and wish to receive an update, please email manager.dau@housing.gov.ie.

Kind Regards
Sinéad

—
Sin ad O Brien
uti i
—
Aonad na n arratas ar horbairt
Development Applications Unit
Oifigí an ialtais
Government Offices
B thar an Bhaile Nua, och arman, Contae och arman 35 AP
to n oa o Count o P

From: Housing natureconservation <natureconservation@housing.gov.ie>
Sent: Tuesday 19 April 2022 12:30
To: Housing Manager DAU <Manager.DAU@housing.gov.ie>
Subject: FW: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Hi,

Please see below and attached for your attention.

Regards,
Michael.

Michael O'Donnell
Designations Unit
——
Seirbhís Páirceanna Náisiúnta & Fiadhúlra
National Parks & Wildlife Service
An Roinn Tithíochta, Rialtas Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage
90 Sráid an Rí Thuaidh, Baile Átha Cliath 7, D07 N7CV.
90 King Street North, Dublin 7, D07 N7CV
——
www.gov.ie

From: Muireann Carroll <mcarroll@mhplanning.ie>
Sent: Tuesday 19 April 2022 12:07
To: Housing natureconservation <natureconservation@housing.gov.ie>
Subject: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Sir/Madam,

We are acting on behalf of Alanna Homes and Alcove Ireland Ltd., in the preparation of an Environmental Impact Assessment Report for a proposed residential development of approximately 1,255 residential units at Barberstown, Barnhill and Passifyoucan (Townlands), Clonsilla, Dublin 15. It is proposed that a planning application will be lodged under the Strategic Housing Development provisions of the Planning & Development (Housing) and Residential Tenancies Act 2016.

The details of the project are outlined in the attached letter and site layout plan. If you have any comments in relation to the potential environmental impacts of the proposed development, I would be grateful if you could forward them to moshea@mhplanning.ie by Tuesday 17th May 2022.

Kind regards,
Muireann Carroll

Muireann Carroll
Planning Consultant
McCutcheon Halley
CHARTERED PLANNING
CONSULTANTS

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6 Joyce House, Barrack Square
Ballincollig, Co. Cork
Tel. +353 (0)21 420 8710

Dublin
Kreston House, Arran Court,
Arran Quay, Dublin 7
Tel. +353 (0)1 804 4477

www.mhplanning.ie

From: Info Opw <info@opw.ie>
Sent: Tuesday 19 April 2022 12:42
To: Muireann Carroll
Subject: Automatic reply: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Thank you for your email to the Office of Public Works.
Your query has been forwarded to the relevant section within the OPW for direct reply.
If you do not receive a response within 20 working days, please email this address again for further assistance.

All Media queries should be emailed to pressoffice@opw.ie

This is an automated response. Please do not respond to this email.

Go raibh maith agat as an ríomhphost uait chuig Oifig na nOibreacha Poiblí.
Seoladh do cheist chuig an rannóg chuí taobh istigh den OPW a thabharfaidh freagra díreach duit.
Sa chás nach bhgaigheann tú freagra taobh istigh de 20 lá oibre, seol ríomhphost chuig an seoladh seo arís le do thoil, chun cúnamh breise a fháil.

Ba chóir ceisteanna meáin a sheoladh trí ríomhphost chuig pressoffice@opw.ie

Is freagra uathoibrithe é seo. Ná seol freagra ar an ríomhphost seo le do thoil.

Communications

Oifig na nOibreacha Poiblí
i o Pu li o s

Sráid Jonathan Swift, Baile Átha Troim, Co na Mí, C15 NX36
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From: Alison Harvey <aharvey@heritagecouncil.ie>
Sent: Wednesday 20 April 2022 10:13
To: Muireann Carroll
Subject: RE: [External] Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Hello Muireann
Thank you for your email.
Best
Alison MIPI

From: Muireann Carroll <mcarroll@mhplanning.ie>
Sent: Tuesday 19 April 2022 11:31
To: Alison Harvey <aharvey@heritagecouncil.ie>
Subject: [External] Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Alison,

We are acting on behalf of Alanna Homes and Alcove Ireland Ltd., in the preparation of an Environmental Impact Assessment Report for a proposed residential development of approximately 1,255 residential units at Barberstown, Barnhill and Passifyoucan (Townlands), Clonsilla, Dublin 15. It is proposed that a planning application will be lodged under the Strategic Housing Development provisions of the Planning & Development (Housing) and Residential Tenancies Act 2016.

The details of the project are outlined in the attached letter and site layout plan. If you have any comments in relation to the potential environmental impacts of the proposed development, I would be grateful if you could forward them to moshea@mhplanning.ie by Tuesday 17th May 2022.

Kind regards,
Muireann Carroll

Muireann Carroll
Planning Consultant
McCutcheon Halley
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6 Joyce House, Barrack Square
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Dublin
Kreston House, Arran Court,
Arran Quay, Dublin 7
Tel. +353 (0)1 804 4477

www.mhplanning.ie

Michelle O'Shea

From: Carney, Mary <Mary_Carney@education.gov.ie>
Sent: Thursday 28 April 2022 14:39
To: Muireann Carroll
Cc: Hanlon, Alan; Michelle O'Shea
Subject: RE: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Thanks Muireann !

Regards

Mary

From: Muireann Carroll [mailto:mcarroll@mhplanning.ie]
Sent: Thursday 28 April 2022 14:35
To: Carney, Mary <Mary_Carney@education.gov.ie>
Cc: Hanlon, Alan <Alan_Hanlon@education.gov.ie>; Michelle O'Shea <moshea@mhplanning.ie>
Subject: RE: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Mary,

Apologies for the delay in responding to your e-mail.

The indicative site for the location of the primary school is the building above the football pitch (to the west of the grouped car parking) in the central foreground of the attached site layout plan. This is line with the location indicated in the Barnhill Local Area Plan (attached for your reference).

The planning application does not include for a school building however the lands will be reserved for such use. Our client has liaised directly with the Department of Education previously on the matter and Alan Hanlon of the Forward Planning can confirm this engagement.

We will have a more detailed frozen design of the Site Layout Plan within the next week and can share this with you once it is available. While the location of the school will remain unchanged it will provide more details on the proposed road layouts and access.

If you have any further queries on the above please do not hesitate to contact me,

Kind regards,
Muireann

Muireann Carroll

Cork
6 Joyce House, Barrack Square
Ballincollig, Co. Cork

Dublin
Kreston House, Arran Court,
Arran Quay, Dublin 7

Planning Consultant
McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

Tel. +353 (0)21 420 8710 Tel. +353 (0)1 804 4477

www.mhplanning.ie

From: Carney, Mary <Mary_Carney@education.gov.ie>
Sent: Friday 22 April 2022 12:24
To: Muireann Carroll <mcarroll@mhplanning.ie>; Michelle O'Shea <moshea@mhplanning.ie>
Cc: Hanlon, Alan <Alan_Hanlon@education.gov.ie>
Subject: FW: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Muireann,

Thank you for attached.

Could you send us a copy of the overall site layout please with the proposed school site boundary outlined in the layout ? (The proposed school site boundary is not shown in the attached layout)

Thanks

Regards

Mary

Mary Carney
Assistant Principal Officer — Forward Planning

An Roinn Oideachais
Department of Education

M +353 (0)86 6024260 T +353 018650613

www.gov.ie

From: Muireann Carroll [mailto:mcarroll@mhplanning.ie]
Sent: Tuesday 19 April 2022 11:49
To: Info <Info@education.gov.ie>
Subject: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Sir/Madam,

We are acting on behalf of Alanna Homes and Alcove Ireland Ltd., in the preparation of an Environmental Impact Assessment Report for a proposed residential development of approximately 1,255 residential units at Barberstown, Barnhill and Passifyoucan (Townlands), Clonsilla, Dublin 15. It is proposed that a planning application will be lodged under the Strategic Housing Development provisions of the Planning & Development (Housing) and Residential Tenancies Act 2016.

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Kind regards,
Muireann Carroll

Muireann Carroll
Planning Consultant
McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

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Dublin
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www.mhplanning.ie

****
Polasaí ríomhphoist agus séanadh na Roinn Oideachais
Department of Education email policy and disclaimer
https://www.gov.ie/en/organisation-information/272439-seanadh-riomhphoist-email-disclaimer/
****
Seirbhís den scoth á cur ar fáil don Stát agus do mhuintir na hÉireann
Providing a world-class service to the State and to the people of Ireland
http://www.per.gov.ie/civil-service-renewal/

SITE LAYOUT PLAN

SCALE 1:1000 @ A0 / 1:2000 @ A1

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DAVEY + SMITH ARCHITECTS Unit 13,THE SEAPOINT BUILDING, 44-45 CLONTARF ROAD, CLONTARF, DUBLIN 3 I PH: 01 2447638 I EMAIL: info@davey-smith.com I WEB: www.davey-smith.com

Barnhil
Local Area Plan

Legend

- Barnhil LAP Outline (45.64 Ha)
- Phase 1
- Phase 2
- Phase 3
- Small Commerical Area
- Local Centre
- Open Space
- Open Space (Development Plan 2017)
- Passive Open Space (1 in 1000 Flood Plain)
- Road Apron
- Residential High Density - 84 per Hectare Circa
- Residential Medium Density - 35-50 per Hectare
- Residential Low Density - 24 per Hectare Circa
- School Site (1.14 ha)
- Indicative Housing
- Barnhil - Ongar Road
- Indicative Road Primary Route
- Indicative Road Secondary Route
- Indicative Cycle Route
- Barnhil Stream
- Cul-de-Sac
- 110kv Powerline
- Proposed School
- Potential Location for Landmark Building
- Transport Access Node
- Pedestrian & Cycle Access

Specific Objectives

1. Ensure that any future road requirement linking Barnhill and Kellystown allows for pedestrian/cycle access to the café/interpretive centre and associated open space lands as an integral part of the design.
2. A Café/Interpretative Centre may be located here subject to identification of a suitable location for Compensatory Storage associated with new road infrastructure
3. Facilitate any future road links that may be required between Barnhill and Kellystown

Extract from Fingal Development Plan 2017 - 2023

Location Map

Director of Services:	AnnMarie Farrelly
Senior Planner:	Hazel Craigie
Prepared By: SW	Drawn By: PM
Date: Oct 2018	Scale:1:2,000 @ A1

Michelle O'Shea

From: Housing Manager DAU <Manager.DAU@housing.gov.ie>
Sent: Friday 29 April 2022 13:47
To: Michelle O'Shea
Subject: DAU Ref: G Pre00087/2022 ReBarnhill Residential Development - Public Consultation on the preparation of an EIAR

Our Ref: G Pre00087/2022 (Please quote in all related correspondence)

A Chara

I acknowledge receipt of your recent consultation which was forwarded by the NPWS in Kings Street.

Please note that consultations of this nature should be sent directly to our Development Applications Unit (DAU) as we co-ordinate Departmental replies on behalf of the Minister.

In the event of observations, you will receive a co-ordinated heritage-related response by email from Development Applications Unit (DAU).

The normal target turnaround for pre-planning and other general consultations is six weeks from date of receipt. In relation to general consultations from public bodies under the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 to 2011, the Department endeavours to meet deadline dates, where requested.

If you have not heard from DAU and wish to receive an update, please email manager.dau@housing.gov.ie.

Kind Regards
Sinéad

—
Sinéad O' Brien
Executive Officer
—
Aonad na nIarratas ar Fhorbairt
Development Applications Unit
Oifigí an Rialtais
Government Offices
Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman Y35 AP90
Newtown Road, Wexford, County Wexford Y35 AP90
—

Michelle O'Shea

From: Marcus Phelan <Marcus_Phelan@hsa.ie>
Sent: Friday 29 April 2022 15:33
To: Michelle O'Shea
Subject: FW: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Muireann,

Technical advice may only be provided in response to a submission from An Bord Pleanála or the relevant local authority.

However, it would be expected that the advice given would be not against the development, based on the SHDs location outside the consultation distance of the relevant Seveso establishment.

Formal advice on the matter will be provided on receipt of a request through channels mentioned above.

Kind regards

Marcus Phelan
Inspector | Control of Major Accident Hazards (COMAH), Chemical Production and Storage | Health and Safety Authority

Tel: (01) 6147020
Mob: (087) 1702468

Email: marcus_phelan@hsa.ie
Web: www.hsa.ie

Health and Safety Authority
Metropolitan Building,
James Joyce Street
Dublin D01 K0Y8

_____
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From: Muireann Carroll <mcarroll@mhplanning.ie>
Sent: Tuesday 19 April 2022 15:01
To: Land Use Planning <LandUsePlanning@hsa.ie>
Subject: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Sir/Madam,

We are acting on behalf of Alanna Homes and Alcove Ireland Ltd., in the preparation of an Environmental Impact Assessment Report for a proposed residential development of approximately 1,255 residential units at Barberstown, Barnhill and Passifyoucan (Townlands), Clonsilla, Dublin 15. It is proposed that a planning application will be lodged under the Strategic Housing Development provisions of the Planning & Development (Housing) and Residential Tenancies Act 2016.

The details of the project are outlined in the attached letter and site layout plan. If you have any comments in relation to the potential environmental impacts of the proposed development, I would be grateful if you could forward them to moshea@mhplanning.ie by Tuesday 17th May 2022.

Kind regards,
Muireann Carroll

Muireann Carroll
Planning Consultant
McCutcheon Halley
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Dublin
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Tel. +353 (0)1 804 4477

www.mhplanning.ie

Michelle O'Shea

From: INFO <Information@tii.ie>
Sent: Friday 22 April 2022 11:09
To: Muireann Carroll; Michelle O'Shea
Subject: RE: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Follow Up Flag: Follow up
Flag Status: Completed

Dear Ms. Carroll,

I wish to acknowledge receipt of your email of 19 April 2022 regarding the above.

TII safeguards the strategic function of Luas and national roads to promote the safe and efficient operation of both the national roads and light rail networks.

In relation to the EIAR Scoping referral, TII wishes to advise that it is not in a position to engage directly with planning applicants in respect to proposed developments. TII will endeavour to consider and respond to planning applications referred to it given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by TII in making such submissions or comments will seek to uphold official policy and guidelines as outlined in the Spatial Planning and National Roads Guidelines for Planning Authorities (DoECLG, 2012). Regard should also be had to other relevant guidance available at www.tii.ie. It is expected that South Dublin County Council will similarly abide by the provisions of official policy in the first instance and An Bord Pleanála in the event of a Strategic Housing Development Application.

The issuing of this correspondence is therefore provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid planning application referred.

With respect to EIAR Scoping issues, the recommendations indicated below provide only general guidance for the preparation of EIAR, which may affect the national road network. The developer should have regard, *inter alia*, to the following:

1. As set down in the DoECLG Spatial Planning and National Roads Guidelines (2012) it is in the public interest that, in so far as is reasonably practicable, that the national road network continues to serve its intended strategic purpose. The EIAR should identify the methods/techniques proposed for any works traversing and/or in proximity to the national road network in order to demonstrate that the development can proceed complementary to safeguarding the capacity, safety and operational efficiency of that network.
2. Consultations should be had with the relevant Local Authority/National Roads Design Office with regard to locations of existing and future national road schemes.
3. The Environmental Assessment should have regard to previous Environmental Assessment Statements/Reports and conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area.
4. Where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment (TTA) be carried out in accordance with relevant guidelines, noting construction and operational traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower

category roads with national roads. TII's Traffic and Transport Assessment Guidelines (2014) should be referred to in relation to proposed development with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of the TII TTA Guidelines which addresses requirements for sub-threshold TTA.

5. TII Standards should be consulted to determine the requirement for Road Safety Audit (RSA) and Road Safety Impact Assessment (RSIA).
6. Assessments and design and construction and maintenance standards and guidance are available at TII Publications that replaced the NRA Design Manual for Roads and Bridges (DMRB) and the NRA Manual of Contract Documents for Road Works (MCDRW).
7. Environmental Impact Assessment shall include provision for travel planning / mobility management planning in the interests of protecting national roads capacity in the interests of sustainable travel policy.
8. The developer, in conducting Environmental Impact Assessment, should have regard to TII Environment Guidelines that deal with assessment and mitigation measures for varied environmental factors and occurrences. In particular, evidenced assessment of the protection of the strategic function of the national road in relation to the following matters is required:
    i. TII's Environmental Assessment and Construction Guidelines, including the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (National Roads Authority, 2006),
    ii. The EIAR should consider the Environmental Noise Regulations 2006 (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see *Guidelines for the Treatment of Noise and Vibration in National Road Schemes* (1st Rev., National Roads Authority, 2004)).

Notwithstanding any of the above, the developer should be aware that this list is non-exhaustive, thus site and development specific issues should be addressed in accordance with best practice.

I hope that the above comments are of use in your EIAR preparation.

Yours sincerely,

Alban Mills
Senior Regulatory & Administration Executive
Ref No. TII22-118301

www.tii.ie info@tii.ie +353 (0)1 646 3600

From: Muireann Carroll <mcarroll@mhplanning.ie>
Sent: Tuesday 19 April 2022 11:05
To: Landuse Planning <LandUsePlanning@tii.ie>
Subject: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Sir/Madam,

We are acting on behalf of Alanna Homes and Alcove Ireland Ltd., in the preparation of an Environmental Impact Assessment Report for a proposed residential development of approximately 1,255 residential units at Barberstown, Barnhill and Passifyoucan (Townlands), Clonsilla, Dublin 15. It is proposed that a planning application will be lodged under the Strategic Housing Development provisions of the Planning & Development (Housing) and Residential Tenancies Act 2016.

The details of the project are outlined in the attached letter and site layout plan. If you have any comments in relation to the potential environmental impacts of the proposed development, I would be grateful if you could forward them to moshea@mhplanning.ie by Tuesday 17th May 2022.

Kind regards,
Muireann Carroll

Muireann Carroll
Planning Consultant
McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

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Dublin
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www.mhplanning.ie

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De réir pholasaí BIÉ An Ceart gan a bheith Ceangailte, má tá an ríomhphost seo á fháil agat lasmuigh de na gnáthuaireanta oibre, nílim ag súil le freagra ná le gníomh uait lasmuigh de do ghnáthuaireanta oibre féin mura bhfuil sé ráite go soiléir go bhfuil gá gníomhú go práinneach.

TII processes personal data provided to it in accordance with its Data Protection Notice available at https://www.tii.ie/about/about-tii/Data-Protection/

Próiseálann BIÉ sonraí pearsanta a sholáthraítear dó i gcomhréir lena Fhógra ar Chosaint Sonraí atá ar fáil ag https://www.tii.ie/about/about-tii/Data-Protection/?set-lang=ga

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Córas r-phoist BIE: Tá an ríomhphost seo agus aon chomhaid a tharchuirtear leis faoi rún agus beartaithe lena n-úsáid ag an duine aonair nó ag an eintiteas a bhfuil siad dírithe chuige/chuici amháin. Más rud é go bhfuair tú an ríomhphost seo trí bhotún, cuir sin in iúil do postmaster@tii.ie, le do thoil, agus scrios an ríomhphost bunaidh agus aon cheangaltáin.

In accordance with TII's Right to Disconnect policy, if you are receiving this email outside of normal working hours, I do not expect a response or action outside of your own working hours unless it is clearly noted as requiring urgent attention.

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Michelle O'Shea

From: GSI Planning <GSIPlanning@GSI.ie>
Sent: Tuesday 17 May 2022 09:25
To: Michelle O'Shea
Cc: Clare Glanville; GSI Planning
Subject: RE: EIS 22/146 - Preparation of an EIAR for Barnhill Residential Development, Dublin 15
Attachments: 22_146 Barnhill Residential Development.pdf; GSI datasets relevant to EIA & SEA_ 20210421.pdf

Dear Muireann,

With reference to your email received on the 19 April 2022, concerning the Barnhill Residential Development, please find attached response and dataset sheet from Geological Survey Ireland.

If you have any further queries or if we can be of further assistance, please do not hesitate to contact me Trish Smullen, or my colleague Clare Glanville at GSIPlanning@gsi.ie.

Yours sincerely,

Trish Smullen
Geological Survey Ireland

From: GSI Planning
Sent: 19 April 2022 16:28
To: Clare Glanville; Sophie O'Connor; Brian McConnell; Monica Lee; Taly Hunter Williams; Sean Cullen; Charise McKeon; Jim Hodgson; Eoin McGrath; Trish Smullen
Cc: GSI Planning
Subject: EIS 22/146 - Preparation of an EIAR for Barnhill Residential Development, Dublin 15

EIS 22/146

Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report. Request for observations by McCutcheon Halley by 17 May. Letter and site plan is enclosed.

Regards,

John

From: Muireann Carroll [mailto:mcarroll@mhplanning.ie]
Sent: 19 April 2022 12:22
To: GSI Planning
Subject: Barnhill Residential Development – Public Consultation on the preparation of an Environmental Impact Assessment Report

Dear Sir/Madam,

We are acting on behalf of Alanna Homes and Alcove Ireland Ltd., in the preparation of an Environmental Impact Assessment Report for a proposed residential development of approximately 1,255 residential units at Barberstown, Barnhill and Passifyoucan (Townlands), Clonsilla, Dublin 15. It is proposed that a planning application will be lodged under the Strategic Housing Development provisions of the Planning & Development (Housing) and Residential Tenancies Act 2016.

The details of the project are outlined in the attached letter and site layout plan. If you have any comments in relation to the potential environmental impacts of the proposed development, I would be grateful if you could forward them to moshea@mhplanning.ie by Tuesday 17th May 2022.

Kind regards,
Muireann Carroll

Muireann Carroll
Planning Consultant
McCutcheon Halley
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An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

McCutcheon Halley
Kreston House
Arran Court
Arran Quay, Dublin 7
D07 K271

17 May 2022

Re: Barnhill Residential Development – Public Consultation on the preparation of an EIAR

Your Ref: n/a
Our Ref: 22/146

Dear Sir/Madam,

Geological Survey Ireland is the national earth science agency and is a division of the Department of the Environment, Climate and Communications. We provide independent geological information and advice and gather various data for that purpose. Please see our website for data availability. We recommend using these various data sets, when conducting the EIAR, SEA, planning and scoping processes. Use of our data or maps should be attributed correctly to 'Geological Survey Ireland'.

With reference to your email received on the 19 April 2022, concerning the Barnhill Residential Development – Public Consultation on the preparation of an EIAR, Geological Survey Ireland would encourage use of and reference to our datasets. Please find attached a list of our publicly available datasets that may be useful to the environmental assessment and planning process. We recommend that you review this list and refer to any datasets you consider relevant to your assessment. The remainder of this letter and following sections provide more detail on some of these datasets.

Geoheritage

A national inventory of geoheritage sites known as County Geological Sites (CGSs) is managed by the Geoheritage Programme of Geological Survey Ireland. CGSs, as adopted under the National Heritage Plan, include sites that are of national importance which have been selected as the very best examples for NHA (Natural Heritage Areas) designation. NHA designation will be completed in partnership with the National Parks and Wildlife Service (NPWS). CGSs are now routinely included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. CGSs can be viewed online under the Geological Heritage tab on the online Map Viewer.

The County Geological Heritage Audit for Fingal was completed out in 2007. The full report details can be found here. **Our records show that there are no CGSs in the vicinity of the proposed residential development.**

Groundwater

Geological Survey Ireland's Groundwater and Geothermal Unit, provides advice, data and maps relating to groundwater distribution, quality and use, which is especially relevant for safe and secure drinking water supplies and healthy ecosystems.

Proposed developments need to consider any potential impact on specific groundwater abstractions and on groundwater resources in general. We recommend using the groundwater maps on our Map viewer which should include: wells; drinking water source protection areas; the national map suite - aquifer, groundwater vulnerability, groundwater recharge and subsoil permeability maps. For areas underlain by limestone, please refer to the karst specific data layers (karst features, tracer test database; turlough water levels (gwlevel.ie). Background information is also provided in the Groundwater Body Descriptions. Please read all disclaimers carefully when using Geological Survey Ireland data.

The Groundwater Data Viewer indicates a 'Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones' underlies the proposed development.

The Groundwater Vulnerability map indicates the area covered is variable. We would therefore recommend use of the Groundwater Viewer to identify areas of High to Extreme Vulnerability and 'Rock at or near surface' in your assessments, as any groundwater-surface water interactions that might occur would be greatest in these areas.

GWClimate is a groundwater monitoring and modelling project that aims to investigate the impact of climate change on groundwater in Ireland. This is a follow on from a previous project (GWFlood) and the data may be useful in relation to Flood Risk Assessment (FRA) and management plans. Maps and data are available on the Map viewer.

Geological Survey Ireland has completed Groundwater Protection Schemes (GWPSs) in partnership with Local Authorities, and there is now national coverage of GWPS mapping. A Groundwater Protection Scheme provides guidelines for the planning and licensing authorities in carrying out their functions, and a framework to assist in decision-making on the location, nature and control of developments and activities in order to protect groundwater. **The Groundwater Protection Response overview and link to the main reports is here: https://www.gsi.ie/en-ie/programmes-and-projects/groundwater/projects/protecting-drinking-water/what-is-drinking-water-protection/county-groundwater-protection-schemes/Pages/default.aspx**

Geological Mapping

Geological Survey Ireland maintains online datasets of bedrock and subsoils geological mapping that are reliable and accessible. We would encourage you to use these data which can be found here, in your future assessments.

Our 3D models can help stakeholders visualize, understand and characterise geology, for deposit and resource mapping, for flooding and for urban geology applications including basement impact assessment, Sustainable Drainage Systems (SuDS), and subsurface management. Our 3D models offer a key element of geotechnical risk management by identifying areas requiring further site investigation.

Further information on the bedrock and Quaternary 3D models of Dublin is available here.

Geotechnical Database Resources

Geological Survey Ireland continues to populate and develop our national geotechnical database and viewer with site investigation data submitted voluntarily by industry. The current database holding is over 7500 reports with 134,000 boreholes; 31,000 of which are digitised which can be accessed through downloads from our Geotechnical Map Viewer. We would encourage the use of this database as part of any baseline geological assessment of the proposed development as it can provide invaluable baseline data for the region or vicinity of proposed development areas. This information may be beneficial and cost saving for any site-specific investigations that may be designed as part of the project.

Geothermal Energy

Geothermal energy harnesses the heat beneath the surface of the Earth for heating applications and electricity generation, and has proven to be secure, environmentally sustainable and cost effective over long time periods. Geothermal applications can range in depth from a few metres below the surface to several kilometres. Ireland has widespread shallow geothermal resources for small and medium-scale heating applications, which can be explored online through Geological Survey Ireland's Geothermal Suitability maps for both domestic and commercial use. We recommend use of our Geothermal Suitability maps to determine the most suitable type of ground source heat collector for use with heat pump technologies. Ireland also has recognised potential for deep geothermal resources.

The Roadmap for a Policy and Regulatory Framework for Geothermal Energy was launched at the Geoscience 2020 Conference in November 2020. The Assessment of Geothermal Resources for District heating in Ireland and the Roadmap for a Policy and Regulatory framework for Geothermal Energy in Ireland documents have been developed to support the Government's commitments under the Climate Action Plan 2019 and the Programme for Government.

For further information please see our Geoenergy pages on our website or contact the Groundwater and Geothermal Unit of the Geological Survey Ireland directly.

Natural Resources (Minerals/Aggregates)

Geological Survey Ireland provides data, maps, interpretations and advice on matters related to minerals, their use and their development in our Minerals section of the website. The Active Quarries, Mineral Localities and the Aggregate Potential maps are available on our Map Viewer.

We would recommend use of the Aggregate Potential Mapping viewer to identify areas of High to Very High source aggregate potential within the area. In keeping with a sustainable approach we would recommend use of our data and mapping viewers to identify and ensure that natural resources used in the proposed residential development are sustainably sourced from properly recognised and licensed facilities, and that consideration of future resource sterilization is considered.

Geochemistry of soils, surface waters and sediments

Geological Survey Ireland provides baseline geochemistry data for Ireland as part of the Tellus programme. Baseline geochemistry data can be used to assess the chemical status of soil and water at a regional scale and to support the assessment of existing or potential impacts of human activity on environmental chemical quality. Tellus is a national-scale mapping programme which provides multi-element data for shallow soil, stream sediment and stream water in Ireland. At present, mapping consists of the border, western and midland regions. Data is available at https://www.gsi.ie/en-ie/data-and-maps/Pages/Geochemistry.aspx. This page also hosts urban geochemistry mapping (Dublin SURGE project), Geochemical Mapping of Agricultural and Grazing Land Soil of Europe (GEMAS) and lithogeochemistry (rock geochemistry) from southeast Ireland datasets. Geological Survey Ireland and partners are undertaking applied geochemistry projects to provide data for agriculture (Terra Soil), waste soil characterisation (Geochemically Appropriate Levels for Soil Recovery Facilities) and mineral exploration (Mineral Prospectivity Mapping).

Guidelines

The following guidelines may also be of assistance:

- Institute of Geologists of Ireland, 2013. Guidelines for the Preparation of the Soils, Geology and Hydrogeology Chapters of Geology in Environmental Impact Statements.

Other Comments

Should development go ahead, all other factors considered, Geological Survey Ireland would much appreciate a copy of reports detailing any site investigations carried out. The data would be added to Geological Survey Ireland's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector. Data can be sent to the Geological Mapping Unit, at mailto:GeologicalMappingInfo@gsi.ie, 01-678 2795.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me Clare Glanville, or my colleague Trish Smullen at GSIPlanning@gsi.ie.

Yours sincerely,

Clare Glanville
Senior Geologist
Geological Survey Ireland

Enc: Table - Geological Survey Ireland's Publicly Available Datasets Relevant to Planning, EIA and SEA processes.

Geological Survey Ireland's Publicly Available Datasets Relevant to Planning, EIA and SEA processes

following European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018

(S.I. No. 296 of 2018)

Geological Survey Ireland Programme	Dataset	Relevant EIA Topic	Coverage	Description / Notes / imitations	Link to Geological Survey Ireland map viewer
Geohazards	Landslide: National landslide database and landslide susceptibility map	Land & Soil/Climate/Landscape	National	Associated guidance documentation relating to the National Landslide Susceptibility Map is also available.	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b68cf1e4a9044a5981f950e9b9c5625c
Geohazards	Groundwater Flooding (Historic)	Water	Regional	Provide information of historic flooding, both surface water and groundwater. [A lack of flooding presented in any specific location of the map only indicates that a flood has not been detected. It does not indicate that a flood cannot occur in that location at present or in the future]	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc
Geohazards	Groundwater Flooding (Predictive)	Water	Regional	Provides information on the probability of future karst groundwater flooding (where available). [The maps do not, and are not intended to, constitute advice. Professional or specialist advice should be sought before taking, or refraining from, any action on the basis of the flood maps]	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc
Geohazards	Radon Map	Land & Soils/Air	National		http://www.epa.ie/radiation/radonmap/
Geoheritage	County Geological Sites as adopted by National Heritage Plan and listed in County Development Pla	Land & Soils/Landscape	Regional	All geological heritage sites identified by Geological Survey Ireland are categorised as CGS pending any further NHA designation by NPWS.	https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228
Geological Mapping	Bedrock geology:	Land & Soils	National	1:100,000 scale and associated memoirs.	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Bedrock geology:	Land & Soils	Regional	1:50,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Quaternary geology: Sediments	Land & Soils	National	1:50,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Quaternary geology: Geomorphology	Land & Soils	National	1:50,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Physiographic units:	Land & Soils	National	Broad-scale physical landscape units mapped at 1:100,000 scale in order to be represented as a cartographic digital map at 1:250,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=afa76a420fc54877843aca1bc075c62b
Geological Mapping	GeoUrban: Spatial geological data for the greater Dublin and Cork areas	Land & Soils	Regional	includes 3D models	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9768f4818b79416093b6b2212a850ce6&scale=0
Geological Mapping	Geotechnical database	Land & Soils	National	Digitised geotechnical and Site Investigation Reports and boreholes which can be accessed through online downloads	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=a2718be1873d47a585a3f0415b4a724c
Goldmine	Historical data sets including geological memoirs and 6" to 1 mile geological mapping records	land & Soils/Water	National	available online	https://secure.dccae.gov.ie/goldmine/index.html
Groundwater & Geothermal	Groundwater resources (aquifers)	Water	National	Data limited to 1:100,000 scale; sites should be investigated at local scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater recharge.	Water	National	Data limited to 1:40,000 scale; sites should be investigated at local scale; long term annual average recharge	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater vulnerability.	Water	National	Data limited to 1:40,000 scale; sites should be investigated at local scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Group scheme and public supply source protection areas.	Water	National	Not all PWS / GWS have SPZ / ZOC. Check with IW / coco / NFGWS for private supplies.	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater Protection Schemes	Water	National	Data is limited to scale of 1:40,000. Data does not include all of the source protections areas	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Catchment and WFD management units.	Water	National		https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	karst specific data layers	water	National	For areas underlain by limestone, includes karst features, tracer test database; turlough water levels (gwlevel.ie).	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Wells and Springs	Water	National	Not comprehensive, there may be unrecorded wells and springs	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater body Descriptions	Water	National	Not exhaustive; only those in designated SACs; could be other GWDTEs; for more information contact NPWS / EPA / site investigations	https://www.gsi.ie/en-ie/programmes-and-projects/groundwater-and-geothermal-unit/activities/understanding-ireland-groundwater/Pages/Groundwater-bodies.aspx
Groundwater & Geothermal	Geothermal Suitability maps	land & Soils/Water	National	Also, Roadmap for a Policy and Regulatory Framework for Geothermal Energy, November 2020	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9ee46bee08de41278b90a991d60c0b9e
Marine & Coastal Unit	INFOMAR - Ireland's national marine mapping programme; providing key baseline data for Ireland's	Water	National		https://secure.dccae.gov.ie/GSI/INFOMAR_VIEWER/
Marine & Coastal Unit	CHERISH - Coastal change project (Climate, Heritage and Environments of Reefs, Islands, and Headla	Water	Regional		http://www.cherishproject.eu/en/
Marine & Coastal Unit	Coastal Vulnerability Index (CVI).	water /Land & Soils	Regional	Currently the project is being carried out on the east coast and will be rolled out nationally	https://www.gsi.ie/en-ie/programmes-and-projects/marine-and-coastal-unit/projects/Pages/Coastal-Vulnerability-Index.aspx
Minerals	Aggregate potential	Land & Soils/Material Assets	National	Consideration of mineral resources and potential resources as a material asset which should be explicitly recognised within the environmental assessment process	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956
Minerals	Active quarries	Land & Soils	National		https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956
Minerals	Historic mines	Land & Soils/Cultural Heritage	National	Inventory and Risk Classification 2009. Environmental Protection Agency, Economic Minerals Division and Geological Survey Ireland (DECC).	https://gis.epa.ie/EPAMaps/default?easting=?&northing=?&lid=EPA:LEMA_Facilties_Extractive_Facilities https://www.epa.ie/enforcement/mines/
Tellus	Geochemical data: multi-element data for shallow soil, stream sediment and stream water	Land & Soils	Regional	A national mapping programme	https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754
Tellus	Airborne geophysical data including radiometrics, electromagnetics and magnetics	Land & Soils	Regional	A national mapping programme	https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754
Tellus	urban geochemistry mapping (Dublin SURGE project),	Land & Soils	Regional		https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754

Notes:

1. The maps and data listed above are available on the Geological Survey Ireland map viewer https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx

2. Please read all disclaimers carefully when using Geological Survey Ireland data

3. Geological Survey Ireland and Irish Concrete Federation published guidelines for the treatment of geological heritage in the extractive industry in 2008.

Michelle O'Shea

From: Tanya Yeoman <Tanya.Yeoman@nationaltransport.ie>
Sent: Tuesday 17 May 2022 11:16
To: Michelle O'Shea
Subject: NTA Comments Barnhill EIAR
Attachments: NTA Comments to EIAR Consultation_Barnhill.pdf

Muireann,

Please find attached NTA comments in relation to an EIAR for Barnhill development.

Kind regards,

Tanya Yeoman
Land Use & Transport Planner, Strategic Planning
National Transport Authority
Údaras Náisiúnta Iompair,
A: Dun Scéine, Iveagh Court, Harcourt Lane, Dublin 2, D02 WT20
E: tanya.yeoman@nationaltransport.ie
W: www.nationaltransport.ie

Please note that due to Covid-19 restrictions, I am currently working remotely.

distribution or any action taken or omitted to be taken in reliance on it is prohibited and may be unlawful. The NTA processes personal data provided to it in accordance with its privacy notice, available at https://www.nationaltransport.ie/privacy-statement/
'.

Údarás
Náisiúnta Iompair
National Transport Authority

Harcourt Lane, Dublin 2
Dún Scéine, Baile Átha Cliath 2
tel: 01 879 8300
fax: 01 879 8333
email: info@nationaltransport.ie
web: www.nationaltransport.ie

McCutcheon Halley,
Kreston House,
Arran Court, Arran Quay,
Dublin 7

17th May 2022

Re: EIAR Barberstown, Barnhill and Passifyoucan SHD

Dear Sir/Madam,

The National Transport Authority (the "NTA") has reviewed the EIAR notice and accompanying drawing and, based on the *Transport Strategy for the Greater Dublin Area 2016-35* (the "Transport Strategy"), which is a consideration material to the planning process in the Greater Dublin Area, make the following observations.

In relation to the preparation of the EIAR the NTA wishes to make the following comments which predominantly relate to Chapter 5 Material Assets – Traffic & Transport, but which also impact on Chapters 10 Noise & Vibration, 11 Air Quality and 14 Population & Human Health.

The proposed development is located directly to the south of Hansfield railway station and therefore will be served by public transport. The Maynooth line will be subject to future upgrades associated with the DART+ West project.

It is noted that the proposed development includes for the development of the Ongar-Barnhill Distributor Road. The nature and character of this proposed road will be critical for the future sustainable development of these lands. Both the Ongar-Barnhill Distributor Road and the east-west arm of the road linking to Barberstown Level Crossing should not be over-designed and should allow for the safe and efficient movement of pedestrians and cyclists in the area. For instance, the requirement to provide for three lanes of traffic at the western junction is not clear and has the potential to create an unsafe environment for pedestrians and cyclists and increase road capacity.

With regard to the internal road layout it appears that the layout is designed to facilitate the through movement of cars throughout the site and in particular to facilitate a circulatory drop-off facility to the proposed primary school. In accordance with the Transport Strategy, the NTA favour the development of new schools where it can be demonstrated that the majority of students and staff will travel to school by public transport, walking and cycling. In terms of drop-off, the NTA's Safe Routes

to School guidance states that set down areas are not encouraged in close proximity to schools unless there is no safe alternative area for set down within a short walk. The provision of drop-off zones is not required where an area has been planned in a sustainable way which enables students to reach the school by active modes. The NTA is encouraged to see that the proposed school is located relatively centrally within the site. The majority of potential future students will therefore be within roughly 500m of the proposed school. The creation of a circulatory drop-off set of roads within the proposed development greatly undermines the potential to provide a safe and pleasant walking and cycling environment for future residents.

In general it appears that the proposed road layout will facilitate a high degree of car use and undermine the potential to deliver a sustainable development where pedestrians and cyclists are put to the top of the road user hierarchy. There are many instances where there are multiple vehicular entrances to small residential groupings and where greater use of filtered permeability could be applied to lessen the impact of through-traffic and create safer street environments.

In order to lessen the environmental impact of the proposed development, the NTA recommends that the road network is aligned with the principles of the *Transport Strategy for the Greater Dublin* Area which promotes the creation of sustainable neighbourhoods where the road user hierarchy is implemented and which supports and facilities sustainable mode choices.

Yours sincerely,

_____

Mick MacAree
Head of Strategic Planning

Michelle O'Shea

From: Housing Manager DAU <Manager.DAU@housing.gov.ie>
Sent: Tuesday 17 May 2022 12:47
To: Michelle O'Shea
Subject: Our Ref: G Pre00082/2022 Re: EIAR for Barnhill Residential Development proposed SHD
Attachments: G Pre000822022.pdf

Follow Up Flag: Follow up
Flag Status: Completed

A Chara,

Attached please find the Archaeological observations/recommendations of the Department in relation to the aforementioned EIAR consultation in relation to the Barnhill Residenital Development propsoed SHD..

Can you please confirm receipt of same?

Kind Regards,
Sinéad

—
Sinéad O' Brien
Executive Officer
—
Aonad na nIarratas ar Fhorbairt
Development Applications Unit
Oifigí an Rialtais
Government Offices
Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman Y35 AP90
Newtown Road, Wexford, County Wexford Y35 AP90
—

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Our Ref: **G Pre00082/2022**
(Please quote in all related correspondence)

17 May 2022

Michelle O'Shea
McCutcheon Halley Chartered Planning Consultants
6 Joyce House
Barrack Square
Ballincollig
Co Cork
P31 YX97

Via email: moshea@mhplanning.ie

Re: Public consultation relating to the preparation of Environmental Impact Assessment Report (EIAR) for Barnhill Residential Development which is proposed to be applied for as a residential development SHD of approximately 1,255 units at Barberstown, Barnhill and Passifyoucan (Townlands), Clonsilla, Dublin 15.

A chara

I refer to correspondence received in connection with the above.

Outlined below are archaeological observations/recommendations of the Department.

Archaeology

The applicants should engage the services of a suitably qualified archaeologist to contribute to the archaeological component of the EIAR. Given the extent and nature of the lands involved the archaeological assessment should include the results of an archaeological geophysical survey and reference to any previous archaeological testing.

The above observations/recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations that the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority, in his role as statutory consultee under the Planning and Development Act, 2000, as amended.

You are requested to send any further communications to this Department's Development Applications Unit (DAU) at manager.dau@housing.gov.ie, or to the following address:

The Manager
Development Applications Unit (DAU)
Government Offices
Newtown Road
Wexford
Y35 AP90

Is mise, le meas

Sinéad O' Brien
Development Applications Unit
Administration

Michelle O'Shea

From: Dawn Quinn <admin@batconservationireland.org>
Sent: Monday 23 May 2022 16:17
To: Michelle O'Shea
Subject: Barnhill Residential Development

Dear Michelle,

Thank you for your e-mail.

Unfortunately, as Bat Conservation Ireland is a very small organisation with limited resources, we do not have the capacity to get involved in planning issues.

Please do ensure that all best practice guidelines are followed in relation to this development.

Yours sincerely

Dawn Quinn
Administrative Manager
Bat Conservation Ireland

Postal/Registered Address: Carmichael House, 4-7, North Brunswick Street, Dublin 7, D07 RHA8.
E-mail: admin@batconservationireland.org
Website: www.batconservationireland.org
Social Media: Bat Conservation Ireland - Home | Facebook | https://twitter.com/BatConservIre

Alanna Homes and Alcove Ireland Four Ltd.

Barnhill Garden Village Strategic Housing Development at Barberstown, Barnhill and Passifyoucan, Clonsilla, Dublin 15

CHAPTER 4 Landscape and Visual Impact

Appendix 4.1	Photomontages and CGI Booklet
Appendix 4.2	Criteria and Definitions Used in Assessing Landscape and Visual Effects
Appendix 4.3	Assessment of Potential Landscape Effects
Appendix 4.4	Assessment of Potential Visual Effects

Volume III

Environmental Impact Assessment Report

AECOM ALANNA HOMES Alcove Ireland Four Limited Clifton Scannell Emerson Associates Delphi Architects JOHN CRONIN & ASSOCIATES SLR

July 2022

McCutcheon Halley CHARTERED PLANNING CONSULTANTS

Appendix 4.1 Photomontages and CGI Booklet

(Refer to Standalone Document for Hardcopy)

Alanna Homes and
Alcove Ireland Four Ltd.

Barnhill Garden Village Strategic Housing Development at Barberstown, Barnhill and Passifyoucan, Clonsilla, Dublin 15

Appendix 4.1 Photomontages and CGI Booklet

Volume III

Environmental Impact Assessment Report

AECOM · ALANNA HOMES · Alcove Ireland Four Limited · Clifton Scannell Emerson Associates · Delphi Architects · John Cronin & Associates · SLR

July 2022

McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

3D DESIGN BUREAU

Creative & Technical 3D Solutions
Design | Planning | Marketing

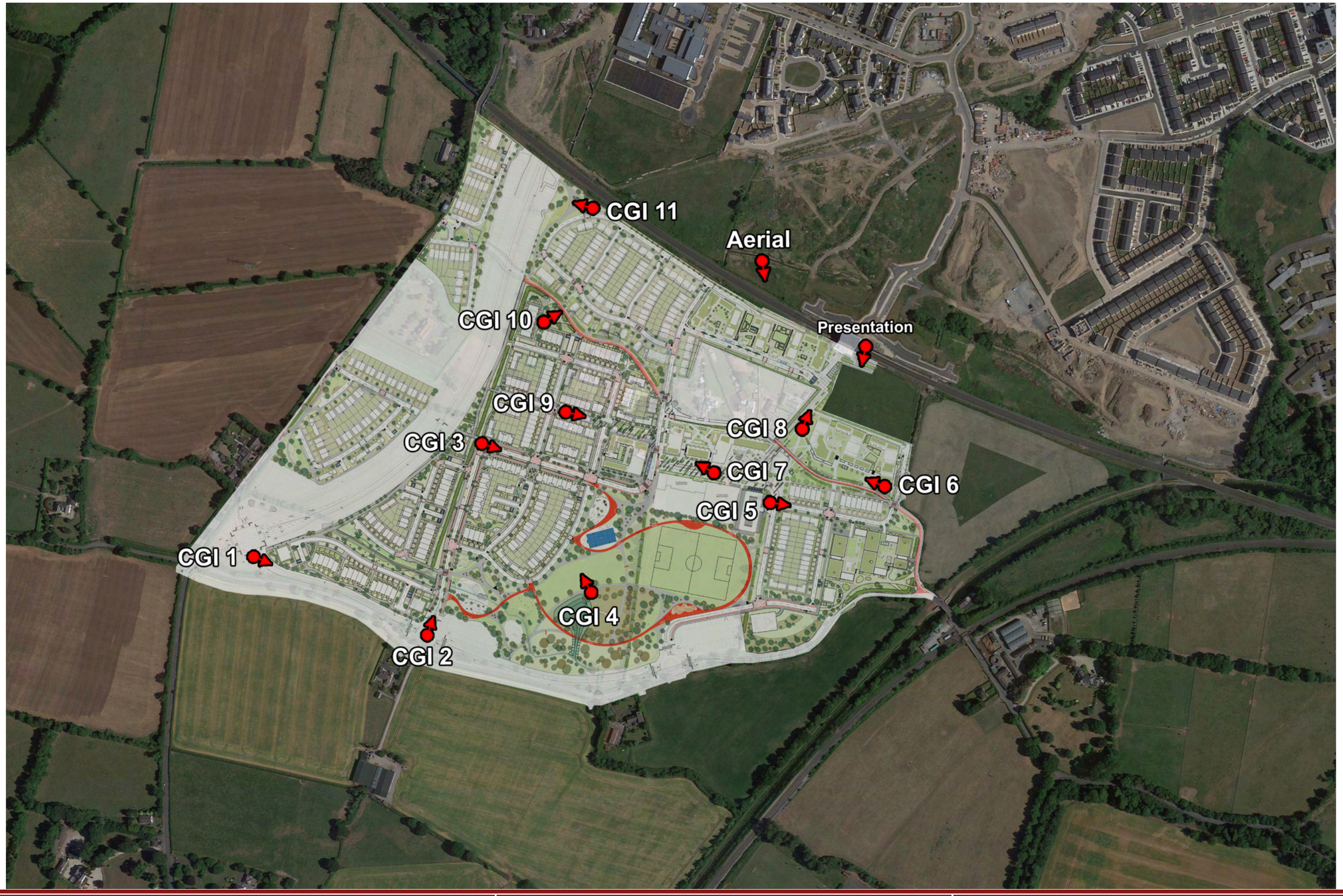
Barnhill Garden Village SHD

Photomontages and CGI

Applicant: Alanna Homes and Alcove Ireland Four Ltd

July 2022

+353 (0) 1 2880186
info@3ddesignbureau.com
www.3ddesignbureau.com



Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI Location Map
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Presentation
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Aerial
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI 1
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI 2
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI 3
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI 4
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI 5
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI 6
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	**Applicant Name: Alanna Homes and Alcove Ireland Four Ltd**	**Image Title: CGI 7**
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI 8
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI 9
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI 10
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: CGI 11
	Presentation Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Methodology for Verified View Montages

1. Overview.
This summarised methodology has been prepared by 3D Design Bureau Ltd (3DDB) to explain the production of Verified View Montages (VVM). The preparation and presentation of reliable verifiable visual information is a key component to the writing of Landscape Visual Impact Assessment reports. It should be noted that VVMs are technical images and should be produced and used in a technically appropriate manner. Please see full details of this methodology below.

2. What Is A Verified View Montage (Vvm)?
Verified View Montages work by using the correct geospatial insertion of accurate 3D models in the existing landscape (photo) allowing for a photorealistic view of the planned model in its intended location.

3. Methodology

3.1 Project Planning
Following appointment a full list of suggested views are drawn up for review prior to visiting site between 3DDB, the client and the planning consultant. Note: If a LVIA report is being written by a 3rd Party planning consultant, the medium to long range views will be guided by them. After obtaining a full list, it is analysed and a plan for the taking of baseline photographs is put in place. Note: 3D modelling of the proposed scheme can, and usually is, commenced prior to the photographic site visit.

3.2 High resolution Baseline Photography
Every baseline photograph is captured in raw settings using a high-resolution digital SLR camera. This allows for the maximum possible information to be retained in the digital file. It also avoids the file from being altered by any internal camera processing definitions, allowing us to retain the maximum control and fidelity on the end results.
The focal lengths used depend on the surrounding context and proximity to the desired area. We use high quality lenses with focal lengths that allow us to capture enough surrounding context without compromising quality and fidelity, by avoiding excessive barrelling, distortion or aberrations. All shots are taken horizontally with the use of a 50mm lens (where possible). Note: Although the 50mm focal length represents the perceived scale of the human eye, it does NOT represent the human field of view and therefore should not necessarily be used to show the proposed development in its context.
On site and back in the studio, each photo location is correctly recorded and marked as follows
On-Site:

- The tripod location on site is paint marked and photographed in relation to existing elements.
- The location of each photo is manually marked on a printed map while on site.
- The camera height is recorded.

Upon completion of the baseline photo site visit all photographs go through post processing back in the studio. The full set of photos along with a viewpoint location map are issued to the client for review and to choose the best shots that will demonstrate the visual impact that the proposed scheme may/may not have**.**

3.3 Baseline Photo Surveying
When all baseline photos for the VVMs are chosen, each one is marked up in studio. The fixed reference points within each photo are coloured coded and all ‘marked up’ baseline photos are issued to our qualified topographical surveyor for surveying purposes.
The survey team records the camera/tripod position using GPS & Total Station to an accuracy of +-1cm Northing & Easting and to an accuracy of 2cm Elevation. The ‘marked up’ fixed reference points identified in each photo are then surveyed to establish exact orientation of the view and to verify the photomontage process.

Methodology for Verified View Montages

3.4 3D Modelling & Visualisation.

Modelling

An accurate digital 3D model of the 'proposed' development is produced in Revit. This is carried out from a combination of the 3rd Party architectural, engineering and landscape drawings. All proposed model information is contained in the one file and it is ALWAYS positioned relative to the existing survey information.

The 'marked up' fixed reference points which have been surveyed, are also modelled along with any other relevant survey information from the supplied topo survey drawing/s. As stated above, the proposed model and survey model information are geospatially positioned relative to one another. This is imperative to ensure the accurate positioning / camera matching of the proposed digital 3D model within each chosen photo.

Visualisation

Once the digital 3D Revit model is complete, our 3D visualisation team take over the project for the visualisation process. This involves the matching of textures, lighting conditions and asset population. This ensures that the 3D model is visually as close as possible to the intended future 'As Built' development.

Software used for the visualisation process is called 3D Studio Max. This is accepted as the industry standard for architectural visualisation work and production of VVMs.

3.5 Camera Matching / Rendering / Post Production

Following the completion the 3D visualisation process (but in some instances prior to this) the following methodology is applied in order for views to be verifiable.

Camera Matching

All of the information recorded at the time of the baseline photographic site visit, that is, camera co-ordinates, angle of view, and direction of view, is programmed into the virtual camera within our 3D software package of choice - 3D studio Max. Insertion of digital cameras within the software with matching attributes of the physical camera is carried out. This careful method ensures that the size, position and height, of the proposed development in each VVM is correct to an accuracy of 0.33% i.e. +/- 1mm on an A3 print.

Rendering

Following the camera matching and visualisation process the view is 'rendered' at high resolution and is superimposed onto its matching baseline photograph using Adobe Photoshop software. The mathematical accuracy is then double checked and verified by ensuring that existing 'marked up' fixed reference point features which were also rendered line up exactly in the photo.

Post Production

Next, the VVM specialist establishes, which existing features, such as buildings, landscape and trees, are in the foreground of the proposed development and those that are in the background, i.e. which features will mask the development and which ones will appear behind the development. When it is found that the development is not visible due to foreground features, its extremities will be indicated with a red outline.

4. RESULTS

The resulting VVM having gone through this extensive procedure is an accurate and verifiable representation of the proposed development as viewed from the selected camera positions. This shows as closely as possible any future impact the proposed development may have on the surrounding environment and existing buildings, presenting a truly valuable tool for planning purposes.

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Viewpoint Location Map
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 8,40 m	Date & Time: 21/09/2020, 09:10:42

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Baseline VVM 1
	Planning Imagery by	3D DESIGN BUREAU

Tel: 01 288 0186
www.3ddesignbureau.com
info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 8,40 m	Date & Time: 21/09/2020, 09:10:42

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Proposed VVM 1
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 10,00 m	Date & Time: 21/09/2020, 09:14:22

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Baseline VVM 2
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 10,00 m	Date & Time: 21/09/2020, 09:14:22

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Proposed VVM 2
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 23,00 m	Date & Time: 21/09/2020, 09:30:10

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Baseline VVM 3
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 23,00 m	Date & Time: 21/09/2020, 09:30:10

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Proposed VVM 3
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 5,20 m	Date & Time: 21/09/2020, 09:42:52

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Baseline VVM 4
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 5,20 m	Date & Time: 21/09/2020, 09:42:52

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Proposed VVM 4
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 15,00 m	Date & Time: 03/09/2020, 16:05:12

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Baseline VVM 5
	Planning Imagery by	3D DESIGN BUREAU

Tel: 01 288 0186
www.3ddesignbureau.com
info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 15,00 m	Date & Time: 03/09/2020, 16:05:12

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Proposed VVM 5
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 10,00 m	Date & Time: 21/09/2020, 10:01:22

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Baseline VVM 6
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 10,00 m	Date & Time: 21/09/2020, 10:01:22

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Proposed VVM 6
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 62,30 m	Date & Time: 03/09/2020, 16:25:30

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Baseline VVM 7
	Planning Imagery by	3D DESIGN BUREAU

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Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 16 mm	Approx Dist: 62,30 m	Date & Time: 03/09/2020, 16:25:30

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Proposed VVM 7
	Planning Imagery by	3D DESIGN BUREAU Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 24 mm	Approx Dist: 400,00 m	Date & Time: 03/09/2020, 15:52:14

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Baseline VVM 8
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Camera Type: Canon EOS 5D Mark IV	Lens Type: EF16-35mm f/4L IS USM	Focal Length: 24 mm	Approx Dist: 400,00 m	Date & Time: 03/09/2020, 15:52:14

Project Title: Barnhill Garden Village SHD	Applicant Name: Alanna Homes and Alcove Ireland Four Ltd	Image Title: Proposed VVM 8
	Planning Imagery by 3D DESIGN BUREAU	Tel: 01 288 0186 www.3ddesignbureau.com info@3ddesignbureau.com

Appendix 4.2 Criteria and Definitions Used in Assessing Landscape and Visual Effects

Appendix 4.2 – Criteria and Definitions Used in Assessing Landscape and Visual Effects

Introduction

Landscape and Visual Impact Assessment (LVIA) is a tool used to identify the effects of development on *"landscape as an environmental resource in its own right and on people's views and visual amenity"* (GLVIA3[1], paragraph 1.1). GLVIA3 (paragraph 2.22) states that these two elements, although inter-related, should be assessed separately. GLVIA3 is the main source of guidance on LVIA.

Landscape is a definable set of characteristics resulting from the interaction of natural, physical and human factors: it is a resource in its own right. Its assessment is distinct from visual assessment, which deals specifically with effects on the views and visual amenity of different groups of people at particular locations. Clear separation of these two topics is recommended in GLVIA3.

As GLVIA3 (paragraph 2.23) states, professional judgement is an important part of the LVIA process: whilst there may be some scope for objective measurement of landscape and visual changes, much of the assessment must rely on qualitative judgements. It is critical that these judgements are based upon a clear and transparent method so that the reasoning can be followed and examined by others.

Impacts can be defined as the action being taken, whereas effects are the changes resulting from that action. This method of assessment assesses landscape and visual effects.

Landscape and visual effects can be positive, negative or neutral in nature. Positive effects are those which enhance and/or reinforce the characteristics which are valued. Negative effects are those which remove and/or undermine the characteristics which are valued. Neutral effects are changes which are consistent with the characteristics of the landscape or view.

In LVIAs which form part of an EIAR, it is necessary to identify significant and non-significant effects. In non-EIAR LVIAs, also known as appraisals, the same principles and process as LVIA may be applied but, in so doing, it is not required to establish whether the effects arising are or are not significant given that the exercise is not being undertaken for EIA purposes (see GLVIA3 statement of clarification 1/13 10-06-13, Landscape Institute).

Landscape Effects

Landscape, as defined in the European Landscape Convention, is "*an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors"*, (Council of Europe, 2000). Landscape does not apply only to special or designated places, nor is it limited to countryside.

GLVIA3 (paragraph 5.34) recommends that the effect of the development on landscape receptors is assessed. Landscape receptors are the components of the landscape that are likely to be affected by the Proposed Development and can include individual elements (such as hedges or buildings), aesthetic and perceptual aspects (for example sense of naturalness, tranquillity or openness), or, at a larger scale, the character of a defined character area or landscape type. Designated landscapes (such as National Parks) are also landscape receptors.

This assessment is being undertaken because the Proposed Development has the potential to remove or add elements to the landscape, to alter aesthetic or perceptual aspects, and to add, remove or alter characteristics and thus potentially change overall character.

Judging landscape effects requires a methodical assessment of the sensitivity of the landscape receptors to the proposed development and the magnitude of effect which would be experienced by each receptor. The criteria and definitions used in making these judgements are set out below.

Landscape Sensitivity

Sensitivity of landscape receptors is assessed by combining an assessment of the susceptibility of landscape receptors to the type of change which is proposed with the value attached to the landscape (GLVIA3, paragraph 5.39).

[1] Landscape Institute and Institute of Environmental Management and Assessment 'Guidelines for Landscape and Visual Impact Assessment' (Third Edition, April 2013)

Value Attached to Landscape Receptors

Landscape receptors may be valued at community, local, national or international level. Existing landscape designations provide the starting point for this assessment, as set out in **Table A4.2.1** below.

The table sets out the interpretation of landscape designations in terms of the value attached to different landscape receptors. As GLVIA3 (paragraph 5.24) notes, at the local scale of an LVIA study area it may be found that the landscape value of a specific area may be different to that suggested by the formal designation.

Table A4.2.1: Interpretation of Landscape Designations

Designation	Description	Value
World Heritage Sites	Unique sites, features or areas identified as being of international importance according to UNESCO criteria. Consideration should be given to their settings especially where these contribute to the attributes of outstanding universal value for which such an area of landscape is valued.	International
National Parks	Areas of landscape identified as being of national importance for their natural beauty (and in the case of National Parks the opportunities they offer for outdoor recreation). Consideration should be given to their settings especially where these contribute to the special qualities for which the landscape is valued.	National
Local Landscape Designations included in local planning documents; or other landscapes of identified value	Highly Sensitive Landscape identified as having importance at the local authority level.	Local Authority
Undesignated landscapes of community value	Landscapes which do not have any formal designation but which may possess some/several indicators of value.	Local Authority/ Community
Landscapes of low value	Landscapes in poor condition or fundamentally altered by presence of intrusive man-made structures. Landscapes which possess few or no indicators of value.	Low

Where landscapes are not designated and where no other local authority guidance on value is available, an assessment is made by reference to criteria in the **Table A4.2.2** below. This is based on Table 1 of Landscape Institute Technical Guidance Note 2/21. These factors are not fixed and should be reviewed on a case-by-case basis. When assessing landscape value of a site it is important to consider not only the site itself but also its context.

Landscapes may be judged to be of local authority or community value on the basis of one or more of these factors. There may also be occasional circumstances where an undesignated landscape may be judged to be of national value, for example where it has a clear connection with a nationally designated landscape or is otherwise considered to be of equivalent value to a national designation. Similarly, on occasions there may be areas within designated landscapes that do not meet the designation criteria or demonstrate the key characteristics/special qualities in a way that is consistent with the rest of the designated area.

An overall assessment is made for each landscape receptor, based on an overview of the above criteria, to determine its value - whether for example it is comparable to a local authority landscape designation or similar, or whether it is of value to local people and communities. For example, an intact landscape in good condition, where scenic quality, tranquillity, and/or conservation interests make a particular contribution to the landscape, or where there are important cultural or historical associations, might be of equivalent value to a local landscape designation. Conversely, a degraded landscape in poor condition, with no particular scenic qualities or natural or cultural heritage interest is likely to be considered of limited landscape value.

Table A4.2.2: Factors Considered in Assessing the Value of Non-Designated Landscapes

Factor	Definition (with Examples for Clarification)
Natural Heritage	Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest. Presence of wildlife and habitats that contribute to the sense of place. Landscape which contains valued natural capital assets that contribute to ecosystem services.
Cultural Heritage	Landscape with clear evidence of archaeological, historical or cultural interest. Landscape which contributes to the significance of heritage assets. Landscape which offers a dimension of time depth.
Landscape Condition	Landscape which is in a good physical state both with regard to individual elements and overall landscape structure. Absence of detracting/incongruous features.
Associations	Landscape which is connected with notable people, events and the arts.
Distinctiveness	Landscape that has a strong sense of identity or place. Presence of distinctive features that are characteristic of a place, or presence of rare/unusual features that confer a strong sense of place. Includes landscape that makes an important contribution to the character or identity of a settlement.
Recreational	Landscape offering recreational opportunities where experience of landscape is important. Includes open access areas, common land and rights of way where appreciation of the landscape is an important element of the experience. Landscape that forms part of a view that that is important to the enjoyment of a recreational activity.
Perceptual (Scenic)	Landscape that appeals to the senses, primarily the visual sense. Distinctive features, or distinctive combinations of features. Strong aesthetic qualities. Visual diversity or contrasts. Memorable/distinctive views or landmarks, or landscape that contributes to these.
Perceptual (Wildness and Tranquillity)	Landscape with a strong perceptual value notably remoteness, wildness, tranquillity and/or dark skies.
Functional	Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape. Natural hydrological systems, important parts of the green infrastructure network, pollinator rich habitats. Landscapes that have strong physical or functional links with an adjacent national landscape designation or are important to the appreciation of the designated landscape and its special qualities.

Susceptibility of Landscape Receptor to Change

As set out in GLVIA3, susceptibility refers to the ability of the landscape receptor to *"accommodate the proposed development without undue adverse consequences for the baseline situation and/or the achievement of landscape planning policies and strategies"*. Judgement of susceptibility is particular to the specific characteristics of the Proposed Development and the ability of a particular landscape or feature to accommodate the type of change proposed and makes reference to the criteria set out in **Table A4.2.3** below. Aspects of the character of the landscape that may be affected by a particular type of development include landform, skylines, land cover, enclosure, human influences including settlement pattern and aesthetic and perceptual aspects such as the scale of the landscape, its form, line, texture, pattern and grain, complexity, and its sense of movement, remoteness, wildness or tranquillity.

For example, an urban landscape which contains a number of industrial buildings may have a low susceptibility to buildings of a similar scale and character. Conversely a rural landscape containing only remote farmsteads is likely to have a high susceptibility to large-scale built development.

Table A4.2.3: Landscape Receptor Susceptibility to Change

Susceptibility	Criteria
High	The landscape receptor is highly susceptible to the proposed development because the key characteristics of the landscape have no or very limited ability to accommodate it without transformational adverse effects, taking account of the existing character and quality of the landscape.
Medium	The landscape receptor is moderately susceptible to the proposed development because the relevant characteristics of the landscape have some ability to accommodate it without transformational adverse effects, taking account of the existing character and quality of the landscape.
Low	The landscape receptor has low susceptibility to the proposed development because the relevant characteristics of the landscape are generally able to accommodate it without transformational adverse effects, taking account of the existing character and quality of the landscape.

Defining Sensitivity

As has been noted above, the sensitivity of landscape receptors is defined in terms of the relationship between value and susceptibility to change as indicated in **Figure A4.2.1** below. This summarises the general nature of the relationship but it is not formulaic and only indicates general categories of sensitivity. Professional judgement is applied on a case-by-case basis in determining sensitivity of individual receptors with the diagram only serving as a guide.

Table A4.2.4 below summarises the nature of the relationship but it is not formulaic and only indicates general categories of sensitivity. Judgements are made about each landscape receptor, with the table serving as a guide.

Where, taking into account the component judgements about the value and susceptibility of the landscape receptor, sensitivity is judged to lie between levels, an intermediate assessment of high/medium or medium/low is adopted. In a few limited cases a category of less than low (very low) may be used where the landscape is of low value and susceptibility is particularly low.

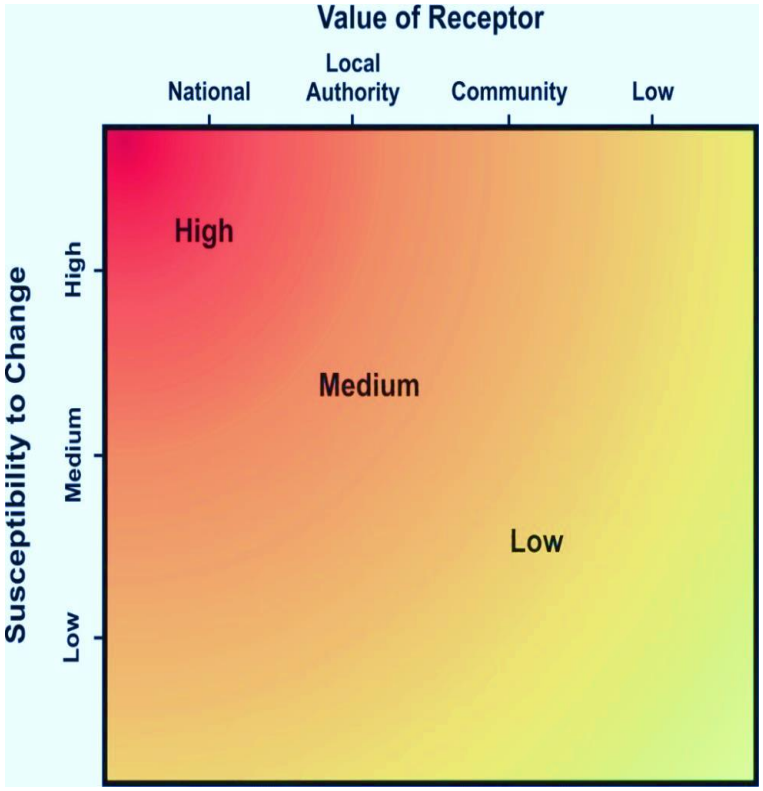

Figure A4.2.1: Levels of Sensitivity defined by Value and Susceptibility of Landscape Receptors

Table A4.2.4: Levels of Sensitivity defined by Value and Susceptibility of Landscape Receptors

Sensitivity	Criteria
High	The landscape receptor is of international or national value and is considered to have high susceptibility to the effects of the proposed development OR The landscape receptor is of national value and is considered to have medium susceptibility to the effects of the proposed development
Medium	The landscape receptor is of international or national value and is considered to have low susceptibility to the effects of the proposed development OR The landscape receptor is of local authority value and is considered to have high susceptibility to the effects of the proposed development OR The landscape receptor is of local authority value and is considered to have medium susceptibility to the effects of the proposed development. OR

	The landscape receptor is of community value and is considered to have high susceptibility to the effects of the proposed development
Low	The landscape receptor is of local authority value and is considered to have low susceptibility to the effects of the proposed development OR The landscape receptor is of community value and is considered to have medium susceptibility to the effects of the proposed development OR The landscape receptor is of community value and is considered to have low susceptibility to the effects of the proposed development

Magnitude of Landscape Change

The magnitude of landscape change is established by assessing the size or scale of change, the geographical extent of the area influenced and the duration and potential reversibility of the change.

Size and Scale of Change

The size and/or scale of change in the landscape takes into consideration the following factors:

- the extent/proportion of landscape elements lost or added; and/or;
- the degree to which aesthetic/perceptual aspects are altered; and
- whether this is likely to change the key characteristics of the landscape.

The criteria used to assess the size and scale of landscape change are based upon the amount of change that will occur as a result of the Proposed Development, as described in **Table A4.2.5** below

Table A4.2.5: Magnitude of Landscape Change: Size/Scale of Change

Sensitivity	Criteria
Large level of landscape change	There would be a large level of change in landscape character, and especially to the key characteristics if, for example, the proposed development: ▪ becomes a dominant feature in the landscape, changing the balance of landscape characteristics; and/or ▪ would dominate important visual connections with other landscape types, where this is a key characteristic of the area.
Medium level of landscape change	There would be a medium level of change in landscape character, and especially to the key characteristics if, for example: ▪ the proposed development would be more prominent but would not change the overall balance or composition of the landscape; and/or ▪ key views to other landscape types may be interrupted intermittently by the proposed development, but these views would not be dominated by them
Small level of landscape change	There would be a small level of change in landscape character, and especially to the key characteristics if, for example: ▪ there would be no introduction of new elements into the landscape and the proposed development would not significantly change the composition/balance of the landscape.
Negligible/no level of landscape change	There would be a negligible or no level of change in landscape character, and especially to the key characteristics if, for example, the proposed development would be a small element and/or would be a considerable distance from the receptor.

Geographical Extent of Change

The geographical extent of landscape change is assessed by determining the area over which the changes will influence the landscape, as set out in **Table A4.2.6**. For example, this could be at the site level, in the immediate setting of the site, or over some or all of the landscape character types or areas affected.

Table A4.2.6: Magnitude of Landscape Change: Geographical Extent

Category	Description
Large extent of landscape change	Affects a wider area further from the site itself.
Medium extent of landscape change	Landscape change extends beyond the site boundaries.
Small extent of landscape change	The change will affect a small geographical area. A localised change, often focused on the site itself.
Negligible extent of landscape change	Change affects only a very small geographical area.

Duration and Reversibility of Change

The duration of the landscape change is categorised in **Table A4.2.7** below, which considers whether the change will be permanent and irreversible or temporary and reversible. The levels of duration are based on the EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (May 2022).

Table A4.2.7: Magnitude of Landscape Change: Duration and Reversibility

Category	Description
Permanent/ irreversible	Change that will last for over 60 years and is deemed permanent or irreversible.
Long-term reversible	Change that will last between 15 and 60 years and is potentially, or theoretically reversible.
Medium-term reversible	Change that will last between 7 and 15 years and is wholly or partially reversible.
Short-term reversible	Change that will last from 0 to 7 years and is reversible - includes construction effects.

Deciding on Overall Magnitude of Landscape Change

The relationships between the three factors that contribute to assessment of the magnitude of landscape effects are illustrated graphically, as a guide, in **Figure A4.2.2** below. Various combinations are possible and the overall magnitude of each effect is judged on merit rather than by formulaic application of the relationships in the diagram.

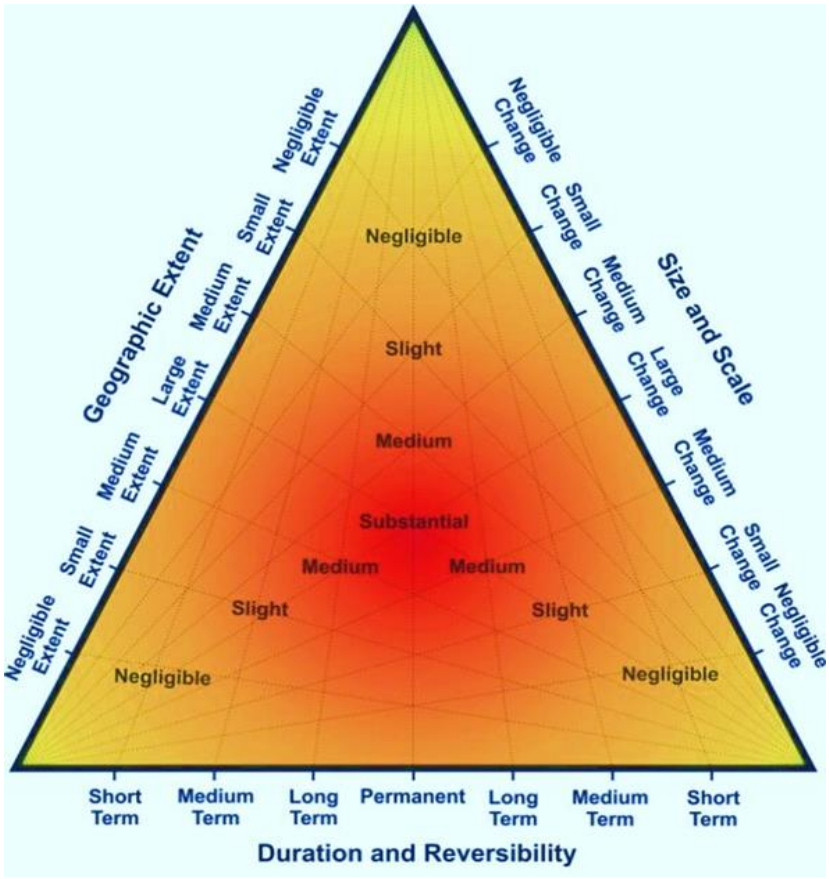

Figure A4.2.2: Determining the Magnitude of Landscape Change

Assessment of Landscape Effects and Significance

The assessment of overall landscape effects is defined in terms of the relationship between the sensitivity of the landscape receptors and the magnitude of the change. The diagram below (**Figure A4.2.3**) summarises the nature of the relationship but it is not formulaic. Judgements are made about each landscape effect using this diagram as a guide.

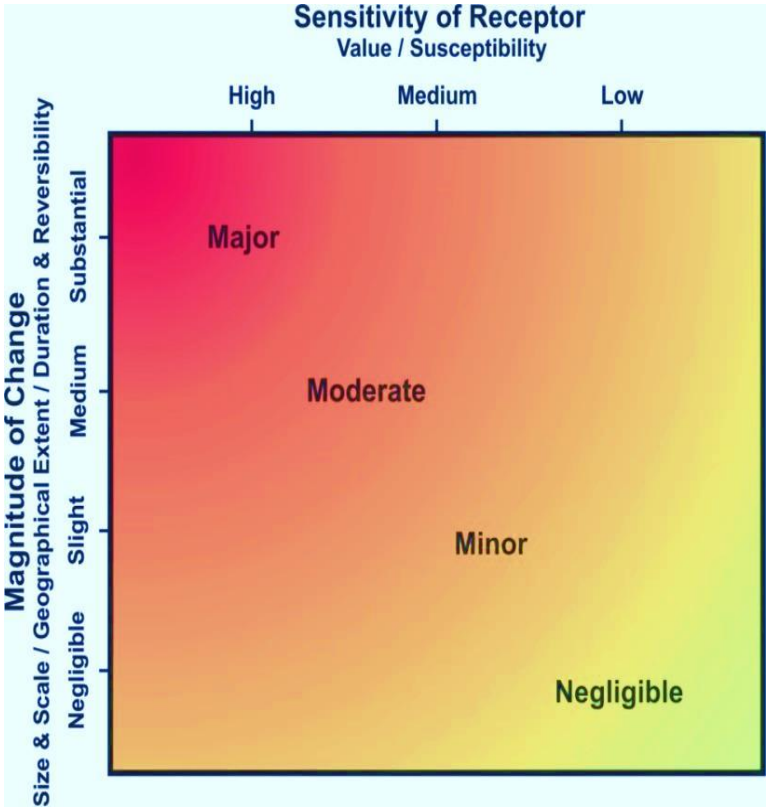

Figure A4.2.3: Assessment of Landscape Effects

Visual Effects

Visual effects are the effects of change and development on the views available to people and their visual amenity. Visual receptors are the people whose views may be affected by the Proposed Development. They generally include users of public walking trails or other recreational facilities or attractions; travellers who may pass through the study area because they are visiting, living or working there; residents living in the study area, either as individuals or, more often, as a community; and people at their place of work:

- Communities within settlements (i.e. towns, villages and hamlets);
- Residents of individual properties and clusters of properties;
- People using nationally or regionally promoted footpaths and cycle routes;
- Visitors at publicly accessible sites including, for example, gardens and designed landscapes, historic sites, and other visitor attractions or outdoor recreational facilities where the landscape or seascape is an important part of the experience;
- Users of outdoor sport and recreation facilities including boat users and anglers;
- Visitors staying at caravan parks or camp sites;
- Road users on recognised scenic or promoted tourist routes;
- Users of other roads;
- Rail passengers;
- People at their place of work.

Judging visual effects requires a methodical assessment of the sensitivity of the visual receptors to the Proposed Development and the magnitude of effect which would be experienced by each receptor.

Viewpoints are chosen for a variety of reasons but most commonly because they represent views experienced by relevant groups of people although they may also include specific promoted or otherwise important viewpoints.

Visual Sensitivity

Sensitivity of visual receptors is assessed by combining an assessment of the susceptibility of visual receptors to the type of change which is proposed with the value attached to the views (GLVIA3, paragraph 6.30).

Value Attached to Views

Different levels of value are attached to the views experienced by particular groups of people at particular viewpoints. Assessment of value takes account of a number of factors, including:

- Recognition of the view through some form of planning designation or by its association with particular heritage assets;
- The popularity of the viewpoint, in part denoted by its appearance in guidebooks, literature or art, or on tourist maps, by information from stakeholders and by the evidence of use including facilities provided for its enjoyment (seating, signage, parking places, etc.); and
- Other evidence of the value attached to views by people including consultation with local planning authorities and professional assessment of the quality of views.

The assessment of the value of views is summarised in **Table A4.2.8** below. These criteria are provided for guidance only.

Table A4.2.8: Factors Considered in assessing the Value Attached to Views

Value	Criteria
High	Views from nationally (and in some cases internationally) known viewpoints, which: ▪ have some form of planning designation; or ▪ are associated with internationally or nationally designated landscapes or important heritage assets; or ▪ are promoted in sources such as maps and tourist literature; or ▪ are linked with important and popular visitor attractions where the view forms a recognised part of the visitor experience; or ▪ have important cultural associations. Also, may include views judged by assessors to be of high value.
Medium	Views from viewpoints of some importance at regional or local levels, which: ▪ have some form of local planning designation associated with locally designated landscapes or areas of equivalent landscape quality; or

	▪ are promoted in local sources; or ▪ are linked with locally important and popular visitor attractions where the view forms a recognised part of the visitor experience; or ▪ have important local cultural associations. Also, may include views judged by the assessors to be of medium value.
Low	Views from viewpoints which, although they may have value to local people: ▪ have no formal planning status; or ▪ are not associated with designated or otherwise high-quality landscapes; or ▪ are not linked with popular visitor attractions; or ▪ have no known cultural associations. Also, may include views judged by the assessors to be of low value.

Susceptibility of Visual Receptors to Change

The susceptibility of different types of people to changes in views is mainly a function of:

- The occupation or activity of the viewer at a given viewpoint; and
- The extent to which the viewer's attention or interest be focussed on a particular view and the visual amenity experienced at a given view.

The susceptibility of different groups of viewers is assessed with reference to the guidance in **Table A4.2.9** below. However, as noted in GLVIA3 "*this division is not black and white and, in reality, there will be a gradation in susceptibility to change*". Therefore, the susceptibility of each group of people affected is considered for each project and assessments are included in the relevant text in the report.

Table A4.2.9: Visual Receptor Susceptibility to Change

Susceptibility	Criteria
High	Residents; People engaged in outdoor recreation where their attention is likely to be focused on the landscape and on particular views; Visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience; Communities where views contribute to the landscape setting enjoyed by the residents.
Medium	Travellers on scenic routes where the attention of drivers and passengers is likely to be focused on the landscape and on particular views; People engaged in outdoor sport or recreation, which may involve appreciation of views e.g. users of golf courses.
Low	People engaged in outdoor sport or recreation, which does not involve appreciation of views; People at their place of work whose attention is focused on their work; Travellers, where the view is incidental to the journey.

Defining Sensitivity

The sensitivity of visual receptors is defined in terms of the relationship between the value of views and the susceptibility of the different receptors to the proposed change. Figure A4.2.4 below summarises the nature of the relationship; it is not formulaic and only indicates general categories of sensitivity. Judgements are made on merit about each visual receptor, with the table below only serving as a guide. Table **A4.2.10** sets down the main categories that may occur but again it is not comprehensive and other combinations may occur.

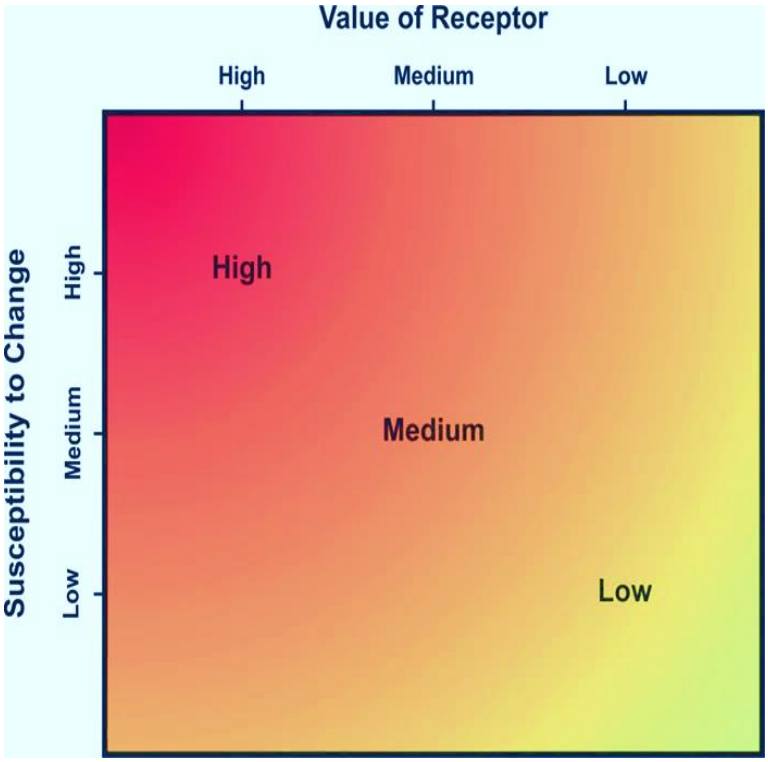

Figure A4.2.4: Levels of Sensitivity Defined by Value and Susceptibility of Visual Receptor Groups

Table A4.2.10: Levels of Sensitivity defined by Value and Susceptibility of Visual Receptors

Susceptibility	Criteria
High	The visual receptor group is highly susceptible to changes in views and visual amenity and relevant views are of high value OR The visual receptor group has a medium level of susceptibility to changes in views and visual amenity and relevant views are of high value.
Medium	The visual receptor group is highly susceptible to changes in views and visual amenity and relevant views are of value at the medium level OR The visual receptor group is highly susceptible to changes in views and visual amenity and relevant views are of value at the low level OR The visual receptor group has a medium level of susceptibility to changes in views and visual amenity and relevant views are of value at the medium level OR The visual receptor group has a low level of susceptibility to changes in views and visual amenity and relevant views are of value at the high level.
Low	The visual receptor group has a medium level of susceptibility to changes in views and visual amenity and relevant views are of value at the low level OR The visual receptor group has a low level of susceptibility to changes in views and visual amenity and relevant views are of value at the medium level OR The visual receptor group has a low level of susceptibility to changes in views and visual amenity and relevant views are of value at the low level.

Magnitude of Visual Change

The magnitude of visual change is established by assessing the size or scale of change, the geographical extent of the area influenced and the duration and potential reversibility of the change. Representative viewpoints are used as 'sample' points to assess the typical change experienced by different groups of visual receptors at different distances and directions from the Proposed Development.

Size and Scale of Change

The criteria used to assess the size and scale of visual change at each viewpoint are as follows:

- the scale of the change in the view with respect to the loss or addition of features in the view, changes in its composition, including the proportion of the view occupied by the Proposed Development and distance of view;
- the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of factors such as form, scale and mass, line, height, colour and texture; and
- the nature of the view of the Proposed Development, for example whether views will be full, partial or glimpses or sequential views while passing through the landscape.

The above criteria are summarised in **Table A4.2.11** below.

Table A4.2.11: Magnitude of Visual Change: Size/Scale of Change

Susceptibility	Criteria
Large visual change	The proposed development will cause a complete or large change in the view, resulting from the loss of important features in or the addition of significant new ones, to the extent that this will substantially alter the composition of the view and the visual amenity it offers.
Medium visual change	The proposed development will cause a clearly noticeable change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will alter to a moderate degree the composition of the view and the visual amenity it offers. Views may be partial/intermittent.
Small visual change	The proposed development will cause a perceptible change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will partially alter the composition of the view and the visual amenity it offers. Views may be partial only.
Negligible visual change	The proposed development will cause a barely perceptible change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will barely alter the composition of the view and the visual amenity it offers. Views may be glimpsed only.
No change	The proposed development will cause no change to the view.

Geographical Extent of Change

The geographical extent of the visual change identified at representative viewpoints is assessed by reference to a combination of the Zone of Theoretical Visibility (ZTV), where this has been prepared, and field work, and consideration of the criteria in **Table A4.2.12** below. The geographical extent of the visual change is judged for each group of visual receptors: for example, people using a particular route or public amenity, drawing on the viewpoint assessments, plus information about the distribution of that particular group of people in the Study Area.

The following factors are considered for each representative viewpoint:

- the angle of view in relation to the main activity of the receptor;
- the distance of the viewpoint from the Proposed Development; and
- the extent of the area over which changes would be visible.

Thus, levels of change identified at representative viewpoints may be extensive or limited in terms of the geographical area they are apparent from: for example, a view of the Proposed Development from elevated publicly accessible land may be widely visible from much or all of the accessible area or may be confined to a small proportion of the area. Similarly, a view from a public footpath may be visible from a single isolated viewpoint, or over a prolonged stretch of the route. Community views may be experienced from a small number of dwellings or affect numerous residential properties.

Table A4.2.12: Magnitude of Visual Change: Geographical Extent of Change

Category	Description
Large extent of visual change	The proposed development is seen by the group of receptors in many locations across the Study Area or from the majority of a linear route and/or by large numbers of viewers; or the effect on the specific view(s) is extensive.
Medium extent of visual change	The proposed development is seen by the group of receptors from a medium number of locations across the Study Area or from a medium part of a linear route and/or by a medium number of viewers; or the effect on the specific view is moderately extensive.
Small extent of visual change	The proposed development is seen by the group of receptors at a small number of locations across the Study Area or from only limited sections of a linear route and/or by a small number of viewers; or the effect on a specific view is small.
Negligible extent of visual change	The proposed development is either not visible in the Study Area or is seen by the receptor group at only one or two locations or from a very limited section of a linear route and/or by only a very small number of receptors; or the effect on the specific view is barely discernible.

Duration and Reversibility of Change

The duration of the visual change at viewpoints is categorised in **Table A4.2.13** below, which considers whether views will be permanent and irreversible or temporary and reversible. The levels of duration are based on the EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (May 2022).

Table A4.2.13: Magnitude of Visual Change: Duration and Reversibility

Category	Description
Permanent/ irreversible	Change that will last for over 60 years and is deemed permanent or irreversible.
Long-term reversible	Change that will last between 15 and 60 years and is potentially, or theoretically reversible.
Medium-term reversible	Change that will last between 7 and 15 years and is wholly or partially reversible.
Temporary/ Short-term reversible	Change that will last from 0 to 7 years and is reversible - includes construction effects.

Deciding on Overall Magnitude of Visual Change

The relationships between the three factors that contribute to assessment of the magnitude of visual effects are illustrated graphically, as a guide, in **Figure A4.2.5** below. Various combinations are possible, and the overall magnitude of each effect is judged on merit rather than by formulaic application of the relationships in the diagram.

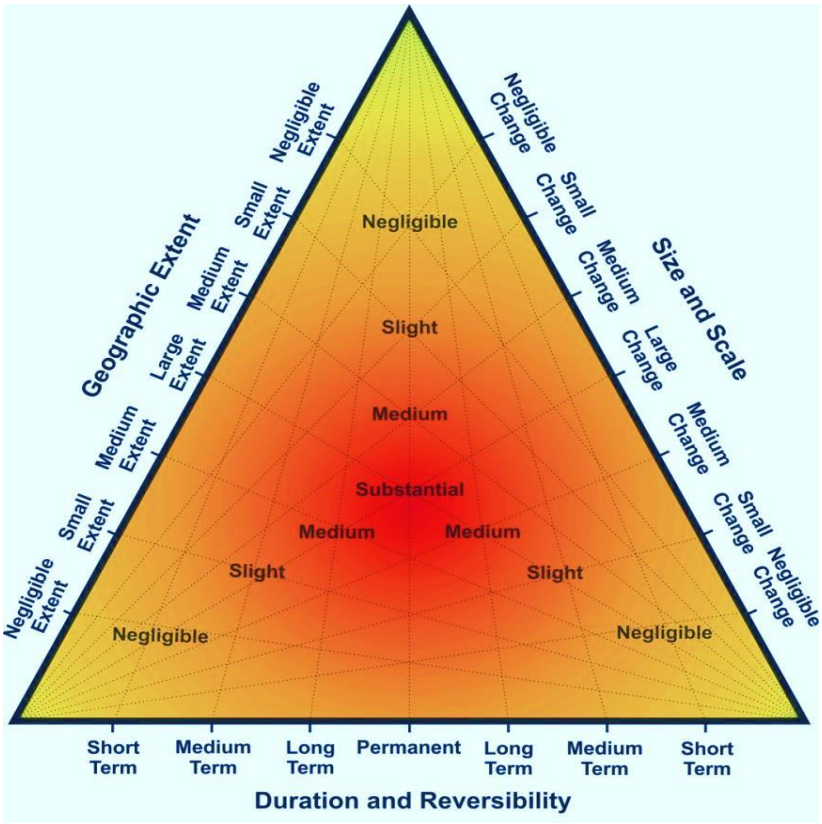

Figure A4.2.5: Determining the Magnitude of Visual Change

Assessment of Visual Effects and Significance

The assessment of visual effects is defined in terms of the relationship between the sensitivity of the visual receptors (value and susceptibility) and the magnitude of the change. The diagram below (**Figure A4.2.6**) summarises the nature of the relationship but it is not formulaic and only indicates broad levels of effect. Judgements are made about each visual effect using this diagram as a guide.

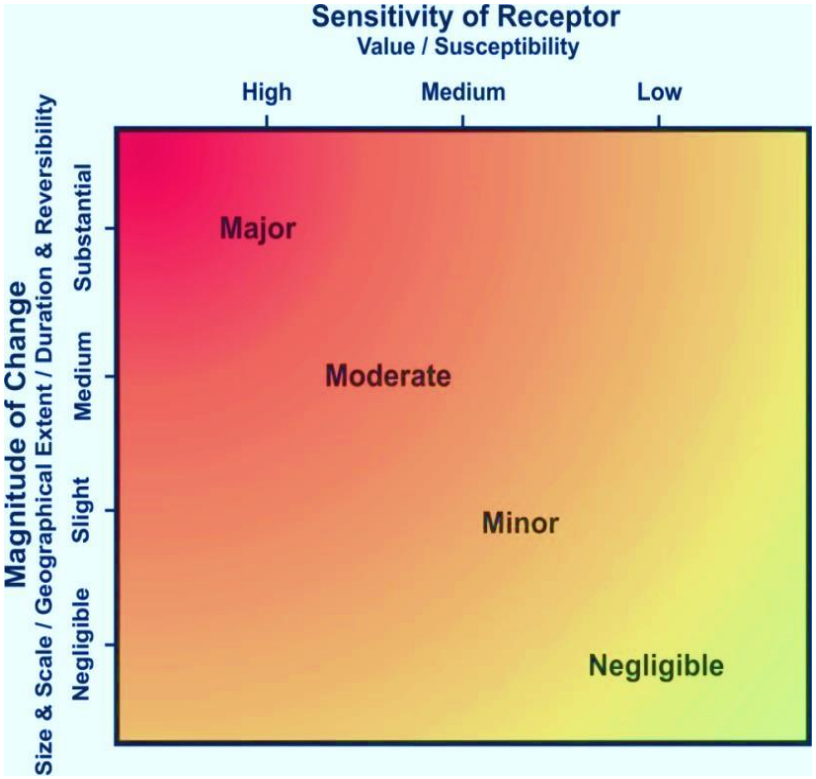

Figure A4.2.6: Assessment of Visual Effects

Appendix 4.3 Assessment of Potential Landscape Effects

Appendix 4.3 – Assessment of Potential Landscape Effects

The following tables set out the sensitivity of the landscape receptors to the Proposed Development, and the magnitude of landscape effects that those receptors would experience, as a result of the Proposed Development. A commentary on the significance of landscape effects is also included in this section.

Table A4.3.1: EVALUATION OF THE VALUE OF THE SITE AND ITS IMMEDIATE CONTEXT IN ACCORDANCE WITH TABLE 1 OF *'ASSESSING LANDSCAPE VALUE – A TECHNICAL GUIDANCE NOTE'*

Factor	Value Assessment	Notes
Natural Heritage	Community	The Development Site is not covered by an ecological designation, but the boundary hedgerows with trees present are well-established and in good condition.
Cultural Heritage	Community	The Site contains no designated heritage assets. Barnhill Bridge (Reg. No. 11,352,001) over the Dunboyne-Clonsilla Railway line immediately north-west of the Site and Packenham Bridge (Reg. No. 11,352,002) over the Royal Canal immediately to the east are the closest such features. Both are listed on the National Inventory of Architectural Heritage.
Landscape Condition	Community	Existing boundary hedgerows with trees are well-established and generally in a good condition. There is no hedgerow along the northern boundary of the Site, bordering onto the railway line and the Hansfield SDZ, parts of which are still under construction, giving the northern end of the Site a slightly degraded appearance.
Associations	Community	No known associations of the Site in literature, art or other media.
Distinctiveness	Community	Owing to the flat topography and agricultural land use which is typical throughout the study area, there are no distinctive landscape features within the Site. There are intermittent long distance views in a southern direction towards the Dublin Mountains available, depending on the proximity to and height of nearby hedgerows.
Recreational	Community	Apart from Barberstown Lane North and South potentially being used by local residents for walks, no formal recreational access to or across Site is available. The Royal Canal Way long-distance walking route passes the Site immediately to the east. Views from the Royal Canal Way into the wider landscape are however restricted by the low elevation of the canal and mature hedgerow on both sides.
Perceptual (Scenic)	Community	The Site is generally visually enclosed by boundary vegetation but is in good condition and is green field and rural. There is a strong influence from the urban settlement edge along the northern section of the Site. Distant scenic views towards the Dublin Mountains are available from some locations within the Site.
Perceptual (Wildness and Tranquillity)	Community	The site has no strong perceptual value, such as remoteness or wildness. The southern section of the Site (i.e. in the vicinity of Barberstown Lane South) is generally still and tranquil. There is, however, strong influence of noise and movement from the busy R149 to the west and the urban settlement to the north diminishing further south.
Functional	Community	Established hedgerows and stream within the Site provide habitat linkage, as well as drainage function.

Table A4.3.2: Assessment of Sensitivity of Landscape Receptors

Landscape Receptors	Value	Susceptibility	Sensitivity	Notes
Individual Elements and Features				
Agricultural Fields	Community	High	Medium	The agricultural fields are of limited natural or cultural heritage value and are not covered by any protective designation. Also considering the residential zoning of the land, the value of the agricultural fields is considered to be at community level. The level of susceptibility is high, since most of the fields would be lost, resulting in an overall medium sensitivity.
Mature hedgerows / trees	Community	Medium	Medium/Low	The hedgerows/tree are well-established and of good condition, but of no elevated value. Some sections of hedgerows/trees would be lost, however the retention of large sections of the existing hedgerows/trees within green corridors and the public open spaces reduces the level of susceptibility to medium, resulting in an overall medium/low sensitivity.
Aesthetic and Perceptual Aspects				
Visually enclosed by surrounding vegetation; some distant views	Community	Medium	Medium/Low	The limited distant views and visual enclosure do not make a particular contribution to the landscape affording elevated value. The visual enclosure by boundary hedgerows would be replaced by enclosure from development and tree planting throughout the Site, reducing the susceptibility of this aesthetic aspect somewhat, resulting in an overall medium/low sensitivity.
Tranquil / Still along southern boundary diminishing along western and northern boundary	Community	High to south Low to north and west	Medium Low	As there are no other aesthetic aspects, such as remoteness or wildness adding to the tranquil / still aspect and there is no formal recreational access to the Site, this receptor is considered to be of community value. The tranquil / still aspect is however highly susceptible to noise and movement from the construction works and the completed development. This susceptibility diminishes along the northern and western boundary, which are already influenced by noise and movement. This results in medium sensitivity to the south reducing to low further north and west.
Overall Character				
Agricultural Lowland Character	Community	Medium	Medium/Low	The Development Site and area of agricultural lowland character to the west do not contain any formal landscape designations and are of community value when assessed against 'Table 1 criteria'. The Site is not located within an area considered to have a 'low capacity to absorb development'. Also considering the existing influence from the urban development along the settlement edge to the north, the susceptibility of the Site to development is reduced. This results in an overall medium/low sensitivity.
Highly Sensitive Landscape area, to the south and east of the Development Site	Local Authority	High/Medium	Medium	The area to the south and east is covered by a highly sensitive landscape designation, giving it a local authority value. The highly sensitive designation is given to areas considered as having a 'low capacity to absorb development' in the Fingal Landscape Character Assessment. However, considering that the area to the south of the Site has a similar agricultural character to the Site and that the more susceptible Royal Canal corridor is visually separated from the Site by intervening vegetation, the susceptibility of this receptor to the Proposed Development is judged to be reduced slightly. This results in an overall medium sensitivity.
Hansfield SDZ	Community	Low	Low	This receptor does not contain a formal landscape designation. Considering its own urban character and the physical separation from the agricultural landscape to the south by the railway line, the susceptibility of this receptor is considered low, resulting in an overall low sensitivity.

Table A4.3.3: Assessment of Magnitude of Landscape Change (Construction Phase)

Landscape Receptors	Size and Scale	Geographical Extent	Duration/ Reversibility	Magnitude	Notes
Individual Elements and Features					
Agricultural Fields	Large	Small	Medium-term and theoretically reversible	Medium	The Proposed Development would introduce new built form into large sections of the agricultural fields. There would be ecological enhancements within those sections of fields retained within open spaces. Only fields within the Site would be affected. The fields would be affected on a phased basis over a period of 8 years.
Mature hedgerows / trees	Medium	Small	Medium-term and theoretically reversible	Medium/Slight	A moderate amount of hedgerows/trees within the Site would be removed on a phased basis. The loss would be compensated over time by ample mitigation tree/shrub planting, throughout the Site as detailed in the Landscape Design Report.
Aesthetic and Perceptual Aspects					
Visually enclosed by surrounding vegetation; some distant views	Medium	Small	Medium-term and theoretically reversible	Medium/Slight	The level of visual enclosure provided by existing well-established hedgerows would be retained in the areas of open space, where the existing hedgerows would be retained and reinforced by additional tree planting along the streets and within public open spaces. Distant views in a southern direction would still be available from some locations.
Tranquil / Still along southern boundary diminishing along western and northern boundary	Large to south Small to north and west	Small	Medium-term and theoretically reversible	Medium to south Slight to north and west	The introduction of the construction works and subsequent new residential development within the southern section of the Site would create a large scale of change to this landscape element which would reduce to the north and west, where the Site is already influenced by movement and noise.
Overall Character					
Agricultural Lowland Character	Medium	Small	Medium-term and theoretically reversible	Medium/Slight	While the development would become locally dominant, it would not erode the overall rural nature of the landscape, due to the existing influence from the urban development to the north and lack of intervisibility with much of the surrounding agricultural landscape.
Highly Sensitive Landscape area, to the south and east of the Development Site	Medium	Small	Medium-term and theoretically reversible	Medium/Slight	The existing urban development at Hansfield is already visible from the 'highly sensitive landscape' to the south. The Proposed Development would be more prominent but would not change the overall balance of this landscape. The geographical extent is restricted to the agricultural fields to the south and does not extend to the Royal Canal corridor.
Hansfield SDZ	Small	Small	Medium-term and theoretically reversible	Slight	The Proposed Development would be experienced as an extension to the Hansfield SDZ, introducing no new landscape elements. The change would affect the southern end of the Hansfield area only.

Table A4.3.4: Assessment of Landscape Effects and Significance (Construction Phase)

Landscape Receptors	Sensitivity	Magnitude	Landscape Effects (Significant effects in bold)	Nature of Effect (Positive, Neutral or Negative)
Individual Elements and Features				
Agricultural Fields	Medium	Medium	Moderate	Negative
Mature hedgerows / trees	Medium/Low	Medium/Slight	Moderate/Minor	Negative
Aesthetic and Perceptual Aspects				
Visually enclosed by surrounding vegetation; some distant views	Medium/Low	Medium/Slight	Moderate/Minor	Negative
Tranquil / Still along southern boundary diminishing along western and northern boundary	Medium Low	Medium to south Slight to north and west	Moderate Minor	Negative Neutral
Overall Character				
Agricultural Lowland Character	Medium/Low	Medium/Slight	Moderate/Minor	Negative
Highly Sensitive Landscape area, to the south and east of the Development Site	Medium	Medium/Slight	Moderate	Negative
Hansfield SDZ	Low	Slight	Minor	Neutral

Table A4.3.5: Assessment of Magnitude of Landscape Change (Operational Phase)

Landscape Receptors	Size and Scale	Geographical Extent	Duration/ Reversibility	Magnitude	Notes
Individual Elements and Features					
Agricultural Fields	Negligible / no change	Small	Permanent	No change	The new built form in large sections of the agricultural fields would remain permanent. The ecological enhancements throughout the Site, e.g. wildflower meadows would be established at this point, compensating the loss of the improved grassland areas somewhat. Only fields within the Site be affected.
Mature hedgerows / trees	Small	Small	Permanent	Medium/Slight	The ample proposed tree/shrub planting would be introduced throughout the Site at Year 0 and over time by Year 15 start to mature.
Aesthetic and Perceptual Aspects					
Visually enclosed by surrounding vegetation; some distant views	Small	Small	Permanent	Medium/Slight	The level of visual enclosure provided by existing well-established hedgerows would continue be retained in the areas of open space, where the existing hedgerows would be retained and reinforced by additional tree planting. By Year 15 this sense of enclosure through maturing vegetation would increase
Tranquil / Still along southern boundary diminishing along western and northern boundary	Medium to south Small to north and west	Small	Permanent	Medium to south Medium/Slight to north and west	The introduction of new residential development, people and cars within the southern section of the Site would create a large scale of change to this landscape receptor. However, there would be a slight buffer from the large open space along the southern boundary and the completion of the construction works will result in a change of noise levels, to those typical for residential development, both reducing the scale of change. The scale is further reduced to the north and west, where the Site is already influenced by movement and noise. By Year 15 there would be no further change.
Overall Character					
Agricultural Lowland Character	Medium	Small	Permanent	Medium	While the development would continue to be locally dominant, it would not erode the overall rural nature of the landscape, due to the influence from the urban development to the north and lack of intervisibility with much of the surrounding agricultural landscape. Also, as the new vegetation along the Site boundaries matures, it would improve the integration of the development into the surrounding agricultural landscape.

Landscape Receptors	Size and Scale	Geographical Extent	Duration/ Reversibility	Magnitude	Notes
Highly Sensitive Landscape area, to the south and east of the Development Site	Medium	Small	Permanent	Medium	The Proposed Development would be prominent but would not change the overall balance of this landscape, due to the existing influence from the Hansfield SDZ. The geographical extent is restricted to the agricultural fields to the south and does not extend to the Royal Canal corridor. Also, as the new vegetation along the Site boundaries matures, it would improve the integration of the development into the surrounding landscape, when viewed from the highly sensitive landscape to the south.
Hansfield SDZ	Small	Small	Permanent	Medium/Slight	The Proposed Development would be experienced as an extension to the Hansfield SDZ, introducing no new landscape elements. The change would affect the southern end of the Hansfield area only.

Table A4.3.6: Assessment of Landscape Effects and Significance (Operational Phase)

Landscape Receptors	Sensitivity	Magnitude	Landscape Effects (Significant effects in bold)	Nature of Effect (Positive, Neutral or Negative)
Individual Elements and Features				
Agricultural Fields	Medium	No change	Negligible	Negative
Mature hedgerows / trees	Medium/Low	Medium/Slight	Moderate/Minor	Positive over time as planting matures
Aesthetic and Perceptual Aspects				
Visually enclosed by surrounding vegetation; some distant views	Medium/Low	Medium/Slight	Moderate/Minor	Negative
Tranquil / Still along southern boundary diminishing along western and northern boundary	Medium Low	Medium to south Medium/Slight to north and west	Moderate Minor	Negative Neutral
Overall Character				
Agricultural Lowland Character	Medium/Low	Medium	Moderate	Negative
Highly Sensitive Landscape area, to the south and east of the Development Site	Medium	Medium	Moderate	Negative
Hansfield SDZ	Low	Medium/Slight	Minor	Neutral

Appendix 4.4 Assessment of Potential Visual Effects

Appendix 4.4 – Assessment of Potential Visual Effects

The following tables set out the sensitivity of the visual receptors to the Proposed Development, and the magnitude of visual effects that those receptors would experience, as a result of the Proposed Development. A commentary on the significance of visual effects is also included in this section.

Table A4.4.1: Analysis of Sensitivity of Visual Receptors

Visual Receptors	Value	Susceptibility	Sensitivity	Notes
Residents				
Barberstown Lane North (**Viewpoint 1 & 2**)	Low	High	Medium	No designated or locally promoted views. Residents highly susceptible to change. Also taking account of the residential zoning of the Site, the overall sensitivity is assessed as medium.
Barberstown Lane South (**Viewpoint 4**)	Low	High	Medium	Located on the edge of the area designated as Highly Sensitive Landscape, however looking away from it. No designated or locally promoted views. Residents highly susceptible to change. Also taking account of the residential zoning of the Site, the overall sensitivity is assessed as medium.
R149 along western boundary (**Viewpoint 5 & 6**)	Low	High	Medium	No designated or locally promoted views. Residents highly susceptible to change. Also taking account of the residential zoning of the Site, the overall sensitivity is assessed as medium.
R149 within 1.3km south-west (**Viewpoint 8**)	Medium	High	High/Medium	Looking across the area designated as Highly Sensitive Landscape, therefore affording medium value. Residents highly susceptible to change. The overall sensitivity is assessed as high/medium.
Hansfield (**Viewpoint 7**)	Low	High	Medium	No designated or locally promoted views. Residents highly susceptible to change. Also taking account of the residential zoning of the Site, the overall sensitivity is assessed as medium.
Road Users				
Barberstown Lane North (**Viewpoint 1-3**)	Low Medium at eastern end	Low	Low Medium/Low	Pakenham Bridge at eastern end of this section of road is located within the area designated as Highly Sensitive Landscape and therefore affords medium value. No designated or locally promoted views or scenic routes along the remainder of the route. Attention of drivers and passengers unlikely to be focused on landscape.
Barberstown Lane South (**Viewpoint 4**)	Low	Low	Low	Located on the edge of the area designated as Highly Sensitive Landscape, however looking away from it. No other designated or locally promoted views or scenic routes. Attention of drivers and passengers unlikely to be focused on landscape.
R149 along western boundary (**Viewpoint 5 & 6**)	Low	Low	Low	No designated or locally promoted views or scenic routes. Attention of drivers and passengers unlikely to be focused on landscape.
R149 within 1.3km south-west (**Viewpoint 8**)	Medium	Low	Medium/Low	Looking across the area designated as Highly Sensitive Landscape, therefore affording medium value. Attention of drivers and passengers unlikely to be focused on landscape.
Recreational Users				
Royal Canal Way (**Viewpoint 3**)	Medium	High	High/Medium	Canal located within the area designated as Highly Sensitive Landscape and therefore affords medium value. Walkers/cyclists highly susceptible to change.
Rail Users				
Dunboyne-Clonsilla Railway (**Viewpoint 7**)	Low	Low	Low	Views from railway not designated or locally promoted views. Rail users are typically commuters, who's attention is unlikely to be focused on the landscape.

Table A4.4.2: Analysis of Magnitude of Visual Change (Construction Phase)

Visual Receptors	Size and Scale	Geographical Extent	Duration/ Reversibility	Magnitude	Notes
Residents					
Barberstown Lane North (**Viewpoint & Verified View Montage, VVM 1 & 2**)	Large	Medium	Medium-term and theoretically reversible	Substantial - Medium	The seven residential properties along Barberstown Lane North would be surrounded by construction works for the majority of the construction period (i.e. 8 years). Construction machinery, including cranes would be visible in views from the properties. The proposed structures, including up to 12-storey tall apartment buildings would emerging in these views, substantially altering them. The visual receptors are limited to the residents of the seven properties, however the changes would be in close proximity and the angle of view large.
Barberstown Lane South (**Viewpoint & VVM 4**)	Medium	Small	Short-term and theoretically reversible	Slight	Approximately the western two thirds of the hedgerows along the northern side of this road will be removed, when the new access road into the Site is constructed, therefore opening up views towards the new road and the Site. Avenue type planting along most of the new road and pockets of woodland / scrub planting in the vicinity of the two roundabouts are proposed, as part of the road works. These will be implemented by and provide some screening during the construction phase, in addition to the existing vegetation cover within boundaries of the two properties. The construction works (e.g. cranes and emerging buildings) within 'The Stream' Character Area would become visible above the intervening vegetation towards the end of the construction phase, more so for the more western of the two properties. The eastern of the two properties will have less visibility of the construction works, due to the buffer provided by the neighbourhood park, the installation of which, including planting works, will be visible. The number of visual receptors is very limited, to the residents of the two properties.
R149 along western boundary (**Viewpoint & VVM 5 & 6**)	Large/ Medium	Small	Short-term and theoretically reversible	Medium/ Slight	Existing roadside and boundary vegetation screens view into the Site. Some sections of hedgerow along the southern end of this section of the road will be removed to facilitate the realignment of the R149. This will open up views of the new road and towards the Site. The construction works within the 'Link Road West', the 'Parkside' and/or 'The Stream' Character Areas (e.g. cranes and emerging buildings) would become visible above any intervening vegetation and / or beside the road, towards the end of the construction phase. Even with the sections of hedgerow removed, none of the properties would have a direct/close view of the new houses, as all have a buffer to the nearest proposed properties, either in distance or dense vegetation. This reduces the scale of change slightly. The visual receptors are limited to the residents of the seven properties.
R149 within 1.3km south-west (**Viewpoint & VVM 8**)	Medium	Small	Medium-term and theoretically reversible	Medium/ Slight	Views from properties towards the Site along this section of the R149 are mostly screened by vegetation. In any views through gaps in the vegetation, the construction works (e.g. cranes and emerging tall buildings) within the Site would become visible in the background, along the skyline and in front of the already visible buildings within the Hansfield SDZ, moderately altering these views. The visual receptors are limited to the residents of approximately ten properties.

Visual Receptors	Size and Scale	Geographical Extent	Duration/ Reversibility	Magnitude	Notes
Hansfield (**Viewpoint & VVM 7**)	Large/ Medium	Medium	Medium-term and theoretically reversible	Medium	In views from locations to the north of the Site, the constructions works (e.g. cranes) and emerging buildings would become visible beyond the railway line, for the duration of the extraction phase. While the views of agricultural fields would be completely altered to that of residential development, the changes would be seen in the context of the urban development at Hansfield and other manmade elements, such as the railway station/tracks, the existing electricity pylons and the new distributor road, which reduces the scale of change slightly. There would be a medium number of receptors, i.e. all houses and apartments with views towards the railway line (note: some of these are yet to be constructed).
Road Users					
Barberstown Lane North (**Viewpoint & VVM 1-3**)	Large	Small	Medium-term and theoretically reversible	Medium	The users of this road, and including the road over Pakenham Bridge, would experience substantial changes to the views along the road, as construction works and emerging buildings become visible along most of the road for the duration of the construction phase. While the roadside hedgerows and trees would be retained in some locations, the elevations of nearby buildings would become visible above, in particular the taller apartment blocks towards the eastern end of the road. The number of people using this road is limited and would be even more so when the Ongar to Barnhill Distributor Road is constructed and the western access severed.
Barberstown Lane South (**Viewpoint & VVM 3 & 4**)	Large	Small	Short-term and theoretically reversible	Medium/ Slight	Approximately the western two thirds of the existing Barberstown Lane South will have been realigned further north along the new access road into the Site, by the time the construction phase commences, with the existing road decommissioned bar local access to the existing properties along the road. The eastern third of the road will be retained as is, including the hedgerows on both sides of the road. Avenue type planting is proposed as part of the road works along most of the new road, however views from the road into the western part of the Site will be open, as there will be no boundary hedgerows.. The construction works within the 'Station Quarter South' and 'The Stream' Character Areas would become visible above the roadside hedgerows at the eastern and beside the road at the western end of the road, respectively, resulting in sequential effects along this road, towards the end of the construction phase. Some of the buildings would be close to the road and those at the eastern end would be up to 9-storeys tall (refer to Viewpoint 3, which is located near the eastern end of Barberstown Lane South). The number of people using this road is limited, with the addition of construction traffic, during the construction stage.
R149 along western boundary (**Viewpoint & VVM 5 & 6**)	Large	Small	Short-term and theoretically reversible	Medium/ Slight	Existing roadside and boundary vegetation screens view into the Site. Some sections of hedgerow would be removed to facilitate the realignment of the R149 and to facilitate access into the new residential areas. This will open up views of the new road and towards the Site. . While partially screened by the remaining hedgerows, the construction works within the 'Link Road West', the 'Parkside' and 'The Stream' Character Areas (e.g. cranes and emerging buildings) would become visible as new tall elements beside the road, towards the end of the construction phase. There would be a limited number of visual receptors, as this section of the R149 would be used less frequently, as the Ongar to Barnhill Distributor Road will be operational at this point.

Visual Receptors	Size and Scale	Geographical Extent	Duration/ Reversibility	Magnitude	Notes
R149 within 1.3km south-west (**Viewpoint & VVM 8**)	Medium	Medium	Medium-term and theoretically reversible	Medium	In intermittent views along this section of road, the construction works (e.g. cranes and emerging tall buildings) within the Site would become visible in the background, along the skyline and in front of the already visible buildings within the Hansfield SDZ, moderately altering these views. There would be a medium number of visual receptors, as the R149 is a frequently used road.
Recreational Users					
Royal Canal Way (**Viewpoint & VVM 3**)	Small	Small	Medium-term and theoretically reversible	Slight	Users of the Royal Canal Way and the canal itself would have a limited view of the Proposed Development, due to the lower elevation of the canal and the screening provided by the hedgerows along it, as well as the buffer of one intervening agricultural field to be retained. The upper elevations of some of the taller apartment buildings in the eastern section of the Site are likely to become visible above the hedgerows, similar to buildings within the Hansfield SDZ already visible, partially altering the views. The number of people using the towpath is limited.
Rail Users					
Dunboyne-Clonsilla Railway (**Viewpoint & VVM 7**)	Large/ Medium	Medium	Medium-term and theoretically reversible	Medium	In views from the railway, the constructions works (e.g. cranes) and emerging buildings would become visible for the duration of the extraction phase, partially screen by fencing and vegetation along the railway. While the views of agricultural fields would be completely altered to that of residential development, the changes would be seen in the context of the urban development at Hansfield, which reduces the scale of change slightly. There would be a medium number of receptors, as there is a limited number of trains passing the Site (currently on average 1 train per hour in each direction).

Table A4.4.3: Assessment of Visual Effects and Significance (Construction Phase)

Visual Receptors	Sensitivity	Magnitude	Visual Effects (Significant effects in bold)	Nature of Effect (Positive, Neutral or Negative)
Residents				
Barberstown Lane North (**Viewpoint 1 & 2**)	Medium	Substantial/Medium	**Major/Moderate (locally significant)**	Negative
Barberstown Lane South (**Viewpoint 4**)	Medium	Slight	Minor	Negative
R149 along western boundary (**Viewpoint 5 & 6**)	Medium	Medium/Slight	Moderate/Minor	Negative
R149 within 1.3km south-west (**Viewpoint 8**)	High/Medium	Medium/Slight	Moderate	Negative
Hansfield (**Viewpoint 7**)	Medium	Medium	Moderate	Negative
Road Users				
Barberstown Lane North (**Viewpoint 1-3**)	Low Medium at eastern end	Medium	Minor Moderate at eastern end	Negative
Barberstown Lane South (**Viewpoint 4**)	Low	Medium/Slight	Minor	Negative
R149 along western boundary (**Viewpoint 5 & 6**)	Low	Medium/Slight	Minor	Negative
R149 within 1.3km south-west (**Viewpoint 8**)	Medium/Low	Medium	Moderate/Minor	Negative
Recreational Users				
Royal Canal Way (**Viewpoint 3**)	High/Medium	Slight	Moderate/Minor	Negative
Rail Users				
Dunboyne-Clonsilla Railway (**Viewpoint 7**)	Low	Medium	Minor	Negative

Table A4.4.4: Analysis of Magnitude of Visual Change (Operational Phase)

Visual Receptors	Size and Scale	Geographical Extent	Duration/ Reversibility	Magnitude	Notes
Residents					
Barberstown Lane North (**Viewpoint & Verified View Montage, VVM 1 & 2**)	Large	Medium	Permanent	Substantial/ Medium	Once the development and the landscape masterplan are fully implemented, the seven residential properties along Barberstown Lane North would be surrounded by the apartment buildings associated with the 'Railway Quarter', 'Station Plaza' and 'Village Centre' Character Areas. These would substantially alter the views from the properties. However, a number of design features would ensure that the visual amenity would not be substantially affected. These include ▪ The reduced height of the buildings immediately to the south of the properties (max. 3-storeys), so that these do not become overbearing and retaining the illusion of possible views in a southern direction. ▪ Additional buffers between the property boundaries and the apartment buildings to the north and east. These buffers are occupied by roads, parking areas, pedestrian walkways and public open spaces, which would be of a high quality finish, giving the new neighbourhood a distinct sense of place. ▪ Retention of all boundary vegetation and parts of the hedgerow along Barberstown Lane North, as well as substantial additional tree planting along the boundaries and within adjoining open spaces, softening the views of the buildings. ▪ Removal of traffic from Barberstown Lane North, except for local access. Visual effects would reduce over time, as the boundary vegetation matures. The visual receptors are limited to the residents of the seven properties, however the changes would be in close proximity and the angle of view large.
Barberstown Lane South (**Viewpoint & VVM 4**)	Medium	Small	Permanent	Medium	The upper elevations of the 3-4-storey buildings at the southern end of the 'The Stream' Character Area would be permanently visible above the intervening vegetation in views from the more western of the two properties along this road, moderately changing its views. The changes to the views from the more eastern property would be limited, as this is located opposite the proposed neighbourhood park, with substantial tree planting implemented by and beginning to mature during the operational phase. While the visibility of the Proposed Development would be limited, the visual amenity in views from the two properties may be affected by increased traffic along the realigned section of Barberstown Lane South, due to the residential traffic accessing the Proposed Development. The number of visual receptors is very limited, to the residents of the two properties.
R149 along western boundary (**Viewpoint & VVM 5 & 6**)	Large/ Medium	Small	Permanent	Medium	The 2-storey houses within the 'Link Road West' and the 'Parkside', as well as the 3-4 storey buildings in 'The Stream' Character Areas would be permanently visible above the retained sections of the hedgerow along the R149 and proposed new tree planting along the boundaries of the Proposed Development, as well as the hedgerows surrounding the property on the eastern side of the road. Due to the existing and proposed vegetation buffers and slight distance to the nearest properties there would be no direct or close-distance views of the new houses, which reduces the scale of change slightly. The visual receptors are limited to the residents of the seven properties.

Visual Receptors	Size and Scale	Geographical Extent	Duration/ Reversibility	Magnitude	Notes
R149 within 1.3km south-west (**Viewpoint & VVM 8**)	Medium	Small	Permanent	Medium	In views through gaps in the vegetation surrounding the properties along this section of road, the taller buildings within the Site would be permanently visible in the background, along the skyline. The proposed buildings replace the tall buildings within the Hansfield SDZ currently visible, but at a slightly closer distance and slightly taller, moderately altering the views. The visual receptors are limited to the residents of approximately ten properties.
Hansfield (**Viewpoint & VVM 7**)	Large/ Medium, reducing to Medium over time	Medium	Permanent	Substantial/ Medium, reducing to Medium overtime	The houses within the 'Link Road West/East' and the apartment buildings in the 'Railway Quarter' Character Area would be permanently visible in views from those houses and apartments with views towards the railway line at the southern end of the Hansfield SDZ. Partial screening would be provided by new fencing and tree planting along the railway line. The views of the agricultural land to the south would have been permanently removed. However, the scenic quality of the existing views is already diminished by the urban influence from the Hansfield SDZ and unsightly elements, such as the fencing along the railway line and the existing electricity pylons, as well as the new bridge and ramped road associated with the Ongar to Barnhill Distributor Road, which would be in place at that point. This, as well as the substantial boundary planting, which will over time mature, reduces the scale of change.
Road Users					
Barberstown Lane North (**Viewpoint & VVM 3**)	Large/ Medium	Small	Permanent	Medium	Vehicular use would be removed from Barberstown Lane North, except for local access by the residents. There would therefore be no visual effects on vehicular users along this road (refer to assessment of residential receptors above). In views from Pakenham Bridge, the tall apartment buildings, associated with the 'Station Quarter South' Character Area would be visible above the retained sections of the hedgerows and trees along the eastern site boundary. Parts of the public open space at the eastern pedestrian access point into the Site and associated planting would also be visible. The apartment blocks would be tall new elements in these views. However, the proposed high-quality finishes, partial screening from existing/proposed planting, as well as the apartment buildings within the Hansfield SDZ visible from the same viewpoint, reduce the scale of change to the views slightly. The number of people using this road is limited and is likely to remain that way with the Ongar to Barnhill Distributor Road providing easy access into the areas to the north and east.

Visual Receptors	Size and Scale	Geographical Extent	Duration/ Reversibility	Magnitude	Notes
Barberstown Lane South (**Viewpoint & VVM 3 & 4**)	Large	Small	Permanent	Substantial/ Medium	The 3-4 story apartment building and houses at the southern end of the 'The Stream' Character Area would be permanently visible beside the road at the western end of the realigned Barberstown Lane South. Proposed tree planting between the road and the buildings would provide some screening, more so over time, as it matures. At the eastern end of the road the up to 9-storey apartment buildings within the Station South Character Area would be visible above the roadside hedgerow with a proposed open space area with additional tree planting to the front (refer to Viewpoint 3, which is located near the eastern end of Barberstown Lane South). In combination this would result in sequential views along this road, although most of the visual receptors would not travel along the entire length of the road, i.e. the residents of the Barnhill Garden Village would turn into the site at one of the two roundabouts. The affected linear section of road is therefore limited. The users of this road would comprise the residents of the Proposed Development, in addition to the limited amount of current users. While tall new elements, the proposed high-quality finishes of the buildings and partial screening from existing/proposed planting, reduce the overall magnitude of change to the views slightly.
R149 along western boundary (**Viewpoint & VVM 5 & 6**)	Large/ Medium	Small	Permanent	Medium	The mostly 2-storey houses within the 'Link Road West' and the 'Parkside', as well as the 3-4 storey buildings in 'The Stream' Character Areas would be permanently visible as tall new elements beside the road, although partially screened by existing hedgerows and proposed new planting. There would be a limited number of visual receptors, as this section of the R149 would be used less frequently, as the Ongar to Barnhill Distributor Road would be operational at this point.
R149 within 1.3km south-west (**Viewpoint & VVM 8**)	Medium	Medium	Permanent	Medium	In intermittent views along this section of road, the taller buildings within the Site would be permanently visible in the background, along the skyline. The proposed buildings replace the tall buildings within the Hansfield SDZ currently visible, but at a slightly closer distance and slightly taller, moderately altering the views. There would be a medium number of visual receptors, as the R149 is a frequently used road.
Recreational Users					
Royal Canal Way (**Viewpoint & VVM 3**)	Small	Small	Permanent	Medium/ Slight	The upper elevations of some of the tall apartment buildings, associated with the 'Station Quarter South' Character Area would be permanently visible above the hedgerows along the canal, similar to buildings within the Hansfield SDZ already visible, partially altering the views. The number of people using the towpath / canal is limited.
Rail Users					
Dunboyne-Clonsilla Railway (**Viewpoint & VVM 7**)	Large/ Medium	Medium	Permanent	Substantial/ Medium	The houses within the 'Link Road West/East' and the apartment buildings in the 'Railway Quarter' Character Area would be permanently visible above the proposed fence and screen planting along the boundary with the railway. While the views of agricultural fields would be completely altered to that of residential development, the changes would be seen in the context of the urban development at Hansfield, which reduces the scale of change slightly. There would be a medium number of receptors, as there is a limited number of trains passing the Site (currently on average 1 train per hour in each direction).

Table A4.4.5: Assessment of Visual Effects and Significance (Operational Phase)

Visual Receptors	Sensitivity	Magnitude	Visual Effects (Significant effects in bold)	Nature of Effect (Positive, Neutral or Negative)
Residents				
Barberstown Lane North (**Viewpoint & Verified View Montage, VVM 1 & 2**)	Medium	Substantial/Medium	**Major/Moderate (locally significant)**	Negative
Barberstown Lane South (**Viewpoint & VVM 4**)	Medium	Medium	Moderate	Negative
R149 along western boundary (**Viewpoint & VVM 5 & 6**)	Medium	Medium	Moderate	Negative
R149 within 1.3km south-west (**Viewpoint & VVM 8**)	High/Medium	Medium	Moderate	Negative
Hansfield (**Viewpoint & VVM 7**)	Medium	Substantial/Medium, reducing to Medium over time	**Major/Moderate (locally significant),** Reducing to Moderate over time	Negative
Road Users				
Barberstown Lane North (**Viewpoint & VVM 3**)	Low Medium at eastern end	Medium	Minor Moderate at eastern end	Negative
Barberstown Lane South (**Viewpoint & VVM 3 & 4**)	Low	Substantial/Medium	Moderate/Minor	Negative
R149 along western boundary (**Viewpoint & VVM 5 & 6**)	Low	Medium	Minor	Negative
R149 within 1.3km south-west (**Viewpoint & VVM 8**)	Medium/Low	Medium	Moderate/Minor	Negative
Recreational Users				
Royal Canal Way (**Viewpoint & VVM 3**)	High/Medium	Medium/Slight	Moderate	Negative
Rail Users				
Dunboyne-Clonsilla Railway (**Viewpoint & VVM 7**)	Low	Substantial/Medium	Moderate/Minor	Negative

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CHAPTER 9 Biodiversity

Appendix 9.1 NBDC and NPWS records

Appendix 9.2 Plant survey results

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Environmental Impact Assessment Report

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July 2022

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Appendix 9.1 NBDC and NPWS records

Appendix 9.1 – NBDC and NPWS records

Table 9A.1 Protected/notable fauna from NBDC/NPWS databases within desk study search area.

Group	Common name	Scientific name	Legislative & BoCCI status *	Red list informa-tion **	Number of records
Amphibian	Common frog	*Rana temporaria*	✓b	-	1
	Smooth newt	*Lissotriton vulgaris*	✓b	-	2
Inverte-brates	Dingy skipper	*Erynnis tages*		✓NT	3
	Marsh fritillary	*Euphydryas aurinia*	✓a	✓VU	5
	Small blue	*Cupido minimus*		✓EN	2
	Small heath	*Coenonympha pamphilus*		✓NT	3
	Wall brown	*Lasiommata megera*		✓EN	7
	Large red-tailed bumble bee	*Bombus (Melanobombus) lapidarius*		✓NT	1
	Lake orb mussel	*Musculium lacustre*		✓VU	1
Mammals	Brown long-eared bat	*Plecotus auritus*	✓a,b		2
	Common pipistrelle	*Pipistrellus pipistrellus*	✓a,b		5
	Daubenton's bat	*Myotis daubentonii*	✓a,b		3
	Eurasian badger	*Meles meles*	✓b		4
	Eurasian pygmy shrew	*Sorex minutus*	✓b		1
	Irish stoat	*Mustela erminea subsp. hibernica*	✓b		1
	Leisler's bat	*Nyctalus leisleri*	✓a,b	✓NT	3
	Otter	*Lutra lutra*	✓a,b		1
	Soprano pipistrelle	*Pipistrellus pygmaeus*	✓a,b		5
	West European hedgehog	*Erinaceus europaeus*	✓b		2
	Whiskered bat	*Myotis mystacinus*	✓a,b		1
Plants	Green figwort	*Scrophularia umbrosa*		✓NT	1
	Hairy St. John's-wort	*Hypericum hirsutum*	✓g	✓VU	1
	Upright brome	*Bromopsis erecta*		✓NT	1
Birds	Barn owl	*Tyto alba*	✓b	✓d	4
	Barn swallow	*Hirundo rustica*	✓b	✓e	6
	Black-headed gull	*Larus ridibundus*	✓b	✓d	4
	Common coot	*Fulica atra*	✓b	✓e	6
	Common grasshopper warbler	*Locustella naevia*	✓b		2
	Common kestrel	*Falco tinnunculus*	✓b	✓e	5
	Common kingfisher	*Alcedo atthis*	✓b,c	✓e	6
	Common linnet	*Carduelis cannabina*	✓b	✓e	6
	Common pheasant	*Phasianus colchicus*	✓b		9
	Common pochard	*Aythya ferina*	✓b	✓d	2
	Common redshank	*Tringa totanus*	✓b	✓d	1
	Common snipe	*Gallinago gallinago*	✓b	✓e	4
	Common starling	*Sturnus vulgaris*	✓b	✓e	9

	Common swift	*Apus apus*	✓b	✓e	5
	Common wood pigeon	*Columba palumbus*	✓b		10
	Corn crake	*Crex crex*	✓b,c	✓d	2
	Eurasian curlew	*Numenius arquata*	✓b	✓d	2
	Eurasian oystercatcher	*Haematopus ostralegus*	✓b	✓e	1
	Eurasian teal	*Anas crecca*	✓b	✓e	3
	Eurasian tree sparrow	*Passer montanus*	✓b	✓e	8
	Eurasian wigeon	*Anas penelope*	✓b	✓d	2
	Eurasian woodcock	*Scolopax rusticola*	✓b	✓d	1
	European golden plover	*Pluvialis apricaria*	✓b,c	✓d	2
	European greenfinch	*Carduelis chloris*		✓e	8
	European robin	*Erithacus rubecula*		✓e	10
	Gadwall	*Anas strepera*	✓b	✓e	2
	Goldcrest	*Regulus regulus*		✓e	7
	Goosander	*Mergus merganser*	✓b	✓e	2
	Great black-backed gull	*Larus marinus*	✓b	✓e	2
	Great cormorant	*Phalacrocorax carbo*	✓b	✓e	4
	Great crested grebe	*Podiceps cristatus*	✓b	✓e	1
	Great spotted woodpecker	*Dendrocopos major*		✓e	1
	Grey partridge	*Perdix perdix*	✓b	✓d	2
	Grey wagtail	*Motacilla cinerea*		✓d	5
	Herring gull	*Larus argentatus*	✓b	✓d	3
	House martin	*Delichon urbicum*	✓b	✓e	5
	House sparrow	*Passer domesticus*	✓b	✓e	7
	Lesser black-backed gull	*Larus fuscus*	✓b	✓e	2
	Little egret	*Egretta garzetta*	✓b,c		1
	Little grebe	*Tachybaptus ruficollis*	✓b	✓e	6
	Mallard	*Anas platyrhynchos*	✓b		10
	Meadow pipit	*Anthus pratensis*		✓d	4
	Merlin	*Falco columbarius*	✓b,c	✓e	1
	Mew gull	*Larus canus*	✓b	✓e	2
	Mistle thrush	*Turdus viscivorus*		✓e	9
	Mute swan	*Cygnus olor*	✓b	✓e	8
	Northern lapwing	*Vanellus vanellus*	✓b	✓d	2
	Northern pintail	*Anas acuta*	✓b	✓d	1
	Peregrine falcon	*Falco peregrinus*	✓b,c		1
	Red grouse	*Lagopus lagopus*	✓b	✓d	1
	Rock pigeon	*Columba livia*	✓b		6
	Sand martin	*Riparia riparia*	✓b	✓e	4

	Skylark	*Alauda arvensis*	✓b	✓e	6
	Spotted flycatcher	*Muscicapa striata*	✓b	✓e	4
	Stock pigeon	*Columba oenas*	✓b	✓e	3
	Stonechat	*Saxicola torquata*		✓e	3
	Tufted duck	*Aythya fuligula*	✓b	✓d	5
	Whooper swan	*Cygnus cygnus*	✓b,c	✓e	1
	Yellowhammer	*Emberiza citrinella*	✓b	✓d	7

* Key to Legislative and BoCCI status: a=Habitats Directive, b=Wildlife Acts, c=Annex I of Birds Directive, d=BoCCI Red List, e=BoCCI amber list, f=Irish Fisheries Acts, g=Flora Protection Order (FPO).

** Key to Red list information: CR=Critically Endangered, EN=Endangered, VU=Vulnerable, NT=Near Threatened, DD=Data deficient (IUCN categories; species described as 'Least concern' are not considered to be under threat and are not included).

a-f = listed in red list publications (a=Marnell *et al*., 2019; b=Fitzpatrick *et al*., 2006; c=Regan *et al*., 2010; d=Colhoun and Cummins, 2013; e=Byrne *et al.* 2009; f=King *et al*., 2011).

Appendix 9.2 Plant survey results

Appendix 9.2 – Plant survey results

Bluebell was recorded once along Barberstown Road North as a dead seed-head, but could not be determined as native bluebell (*Hyacinthoides non-scripta*) or non-native bluebell/hybrid.

Table 9B.1: Plant species recorded during field survey in Study Area

Common name	Scientific name
Annual meadow-grass	*Poa annua*
Ash	*Fraxinus excelsior*
Atlantic ivy	*Hedera hibernica*
Beech	*Fagus sylvatica*
Bittersweet	*Solanum dulcamara*
Black medick	*Medicago lupulina*
Blackthorn	*Prunus spinosa*
Bluebell	*Hyacinthoides sp.*
Bramble	*Rubus fruticosus agg.*
Broad-leaved dock	*Rumex obtusifolius*
Bush vetch	*Vicia sepium*
Butterfly-bush	*Buddleja davidii*
Cherry	*Prunus sp.*
Cleavers	*Galium aparine*
Cock's-foot	*Dactylis glomerata*
Common bent	*Agrostis capillaris*
Common bird's-foot-trefoil	*Lotus corniculatus*
Common chickweed	*Stellaria media*
Common field-speedwell	*Veronica persica*
Common nettle	*Urtica dioica*
Common ragwort	*Jacobaea vulgaris*
Common water-starwort	*Callitriche stagnalis*
Cow parsley	*Anthriscus sylvestris*
Creeping bent	*Agrostis stolonifera*
Creeping buttercup	*Ranunculus repens*
Creeping cinquefoil	*Potentilla reptans*
Creeping thistle	*Cirsium arvense*
Cut-leaved crane's-bill	*Geranium dissectum*
Dandelion	*Taraxacum officinale agg.*
Dog-rose	*Rosa canina*
Duckweed	*Lemna spp.*
Elder	*Sambucus nigra*
English elm	*Ulmus procera*
False oat-grass	*Arrhenatherum elatius*
Field forget-me-not	*Myosotis arvensis*
Field horsetail	*Equisetum arvense*
Garden privet	*Ligustrum ovalifolium*
Hard rush	*Juncus inflexus*

Hart's-tongue	*Asplenium scolopendrium*
Hawthorn	*Crataegus monogyna*
Hedge bindweed	*Calystegia sepium*
Herb-robert	*Geranium robertianum*
Himalayan honeysuckle	*Leycesteria formosa*
Hogweed	*Heracleum sphondylium*
Holly	*Ilex aquifolium*
Horse-chestnut	*Aesculus hippocastanum*
Lady's bedstraw	*Galium verum*
Lesser burdock	*Arctium minus*
Leyland cypress	*Cupressus × leylandii*
Meadow foxtail	*Alopecurus pratensis*
Meadow vetchling	*Lathyrus pratensis*
Meadowsweet	*Filipendula ulmaria*
Pedunculate oak	*Quercus robur*
Perennial ryegrass	*Lolium perenne*
Pineappleweed	*Matricaria discoidea*
Red clover	*Trifolium pratense*
Restharrow	*Ononis repens*
Ribwort plantain	*Plantago lanceolata*
Rose	*Rosa sp.*
Rosebay willowherb	*Chamaenerion angustifolium*
Rough meadow-grass	*Poa trivialis*
Rowan	*Sorbus aucuparia*
Silverweed	*Potentilla anserina*
Snowberry	*Symphoricarpos albus subsp. laevigatus*
Spear thistle	*Cirsium vulgare*
Sweet vernal-grass	*Anthoxanthum odoratum*
Sycamore	*Acer pseudoplatanus*
Tufted vetch	*Vicia cracca*
Watercress	*Rorippa nasturtium-aquaticum*
White clover	*Trifolium repens*
Wild privet	*Ligustrum vulgare*
Wood avens	*Geum urbanum*
Yarrow	*Achillea millefolium*
Yorkshire-fog	*Holcus lanatus*

Table 9B.2: Additional plant species recorded during survey outside Study Area within 200 m

Common name	Scientific name
Bread wheat	*Triticum aestivum*
Broad-leaved pondweed	*Potamogeton natans*
Celery-leaved buttercup	*Ranunculus sceleratus*
Cherry laurel	*Prunus laurocerasus*
Common couch	*Elymus repens*
Common knapweed	*Centaurea nigra*
Common valerian	*Valeriana officinalis*
Cowslip	*Primula veris*
Daisy	*Bellis perennis*
Gorse	*Ulex europaeus*
Hawkweed	*Hieracium agg.*
Hemp-agrimony	*Eupatorium cannabinum*
Japanese knotweed	*Reynoutria japonica*
Kidney vetch	*Anthyllis vulneraria*
Lesser spearwort	*Ranunculus flammula*
Oxeye daisy	*Leucanthemum vulgare*
Rye	*Secale cereale*
Scots pine	*Pinus sylvestris*
Waterweed	*Elodea spp.*
Wild marjoram	*Origanum vulgare*
Wild onion	*Allium vineale*
Winter heliotrope	*Petasites pyrenaicus*
Yellow iris	*Iris pseudacorus*
Yellow water-lily	*Nuphar lutea*

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CHAPTER 10 Noise and Vibration

Appendix 10.1 Construction Mitigation

Appendix 10.2 Level 0A_Daytime Glazing Specification
Level 1A_Daytime Glazing Specification
Level 2A_Daytime Glazing Specification
Level 3A_Daytime Glazing Specification
Level 4A_Daytime Glazing Specification
Level 5A_Daytime Glazing Specification
Level 6A_Daytime Glazing Specification
Level 7A_Daytime Glazing Specification
Level 8A_Daytime Glazing Specification
Level 9A_Daytime Glazing Specification
Level 10A_Daytime Glazing Specification
Level 11A_Daytime Glazing Specification

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Appendix 10.1 Construction Mitigation

Appendix 10.1 Construction Mitigation

General Measures

Several safeguards exist to minimise the effects of construction and demolition noise and include:

- the various EC Directives that limit noise emissions of a variety of construction plant;
- guidance set out in BS5228-1:2009+A1:2014, that covers noise control on construction and open sites; and
- the powers that exist for local authorities under The Environment Protection Agency Act 1992.
- It is recommended that the precise mitigation measures to control noise from the works are agreed with the local authority prior to the works starting. Generic measures below are given to illustrate the range of techniques available.
- The adoption of Best Practicable Means, as defined in The Environment Protection Agency Act 1992, is usually the most effective means of controlling noise from sites. Within the constraints of efficient site operations and the requirements of the relevant Standards, the following is advisable:
- limit the use of particularly noise plant, i.e. do not use particularly noisy plant early in the morning;
- limit the number of plant items in use at any one time;
- plant maintenance operations should be undertaken as far away from noise-sensitive receptors as possible;
- phasing the works to maximise the benefit from perimeter structures;
- any compressors brought on to site should be silenced or sound reduced models fitted with acoustic enclosures;
- reduce the speed of vehicle movements;
- all pneumatic tools should be fitted with silencers or mufflers;
- ensure that operations are designed to be undertaken with any directional noise emissions pointing away from noise-sensitive receptors where practicable;
- when replacing older plant, ensure that the quietest plant available is considered wherever possible; any deliveries/spoil removal vehicles should be programmed to arrive and depart during daytime hours only.
- drop heights must be minimised when loading vehicles with rubble.
- care should be taken when loading vehicles to minimise disturbance to local residents. Vehicles should be prohibited from waiting within the site with their engines running;
- all plant items should be properly maintained and operated according to the manufacturers' recommendations in such a manner as to avoid causing excessive noise. All plant should be sited so that the noise impact at nearby noise-sensitive properties is minimised;
- local hoarding, screens or barriers should be erected as necessary to shield particularly noisy activities; and
- any problems concerning noise from construction works can sometimes be avoided by taking a considerate and neighbourly approach to relations with local residents. Works should not be undertaken outside of the hours agreed with the local authority.

Experience from other sites has shown that by implementing these measures, typical noise levels from construction works can be reduced by 5dB(A) or more.

Further best practice means are set-out below to further reduce the possibility of adverse noise impacts from construction activities.

Training

The contractor's site induction programme and site rules must include good working practice instructions for site staff/managers and contractors to help minimise noise and vibration whilst working on the site.

- Good working practice guidance/instructions should include, but not be limited to, the following points:
- Avoid un-necessary revving of engines;
- plant used intermittently should be shut-down between operational periods;
- avoid reversing wherever possible;
- drive carefully and within the site speed limit at all times; and
- report any defective equipment/plant as soon as possible so that corrective maintenance can be taken.

Maintenance

A weekly inspection of all plant shall be made to ensure that:

- Any plant found to be requiring interim maintenance should be identified by the operator and repairs undertaken by a qualified engineer as soon as possible.
- Regular and effective maintenance of plant can play an important part in keeping noise levels under control.
- Always ensure that doors fitted to acoustic enclosures around fixed plant remain closed, the fitting of self-closing mechanisms is advisable.

Public Relations

Endeavour to be good neighbours, i.e.:

- get to know the neighbours, be concerned about them and try to understand their problems, encourage them to know the site personnel, listen as well as talk,
- hold a liaison meeting and provide information as freely as possible; and
- create a good impression by running a tidy and efficient site.
- Ensure lines of communication, e.g.:
- nominate a point of contact for issues relating to the site,
- support a liaison committee,
- give advance notice and explanation of activities that might cause complaint,
- keep systematic records of complaints and the remedial actions taken, and
- follow up complaints with correspondence and action.

Ensure that site staff are environmentally aware and are trained to cope with issues.

Do not rely on the letter of the law where there are obvious problems but culpability cannot be easily proved; be prepared to be flexible.

Try to co-operate and avoid being adversarial.

Action Plan

The following details the actions which should be undertaken following a complaint being received, namely:

- A complaints response system shall be maintained by the contractor for the site enabling any complaints regarding noise to be reported and appropriate action taken.
- An investigation shall be instigated as soon as possible following receipt of the complaint to identify the cause of the complaint.
- Such an investigation may involve the identification and cessation of the activity or activities considered to be the cause of the complaint and/or the investigation of mitigation measures to reduce the noise emission levels from the activity or activities, for example the replacement of noisy plant with quieter alternatives and/or the use of temporary screening.
- Any deviation from agreed working practices shall be identified immediately and conformance to the working practice reinstated.

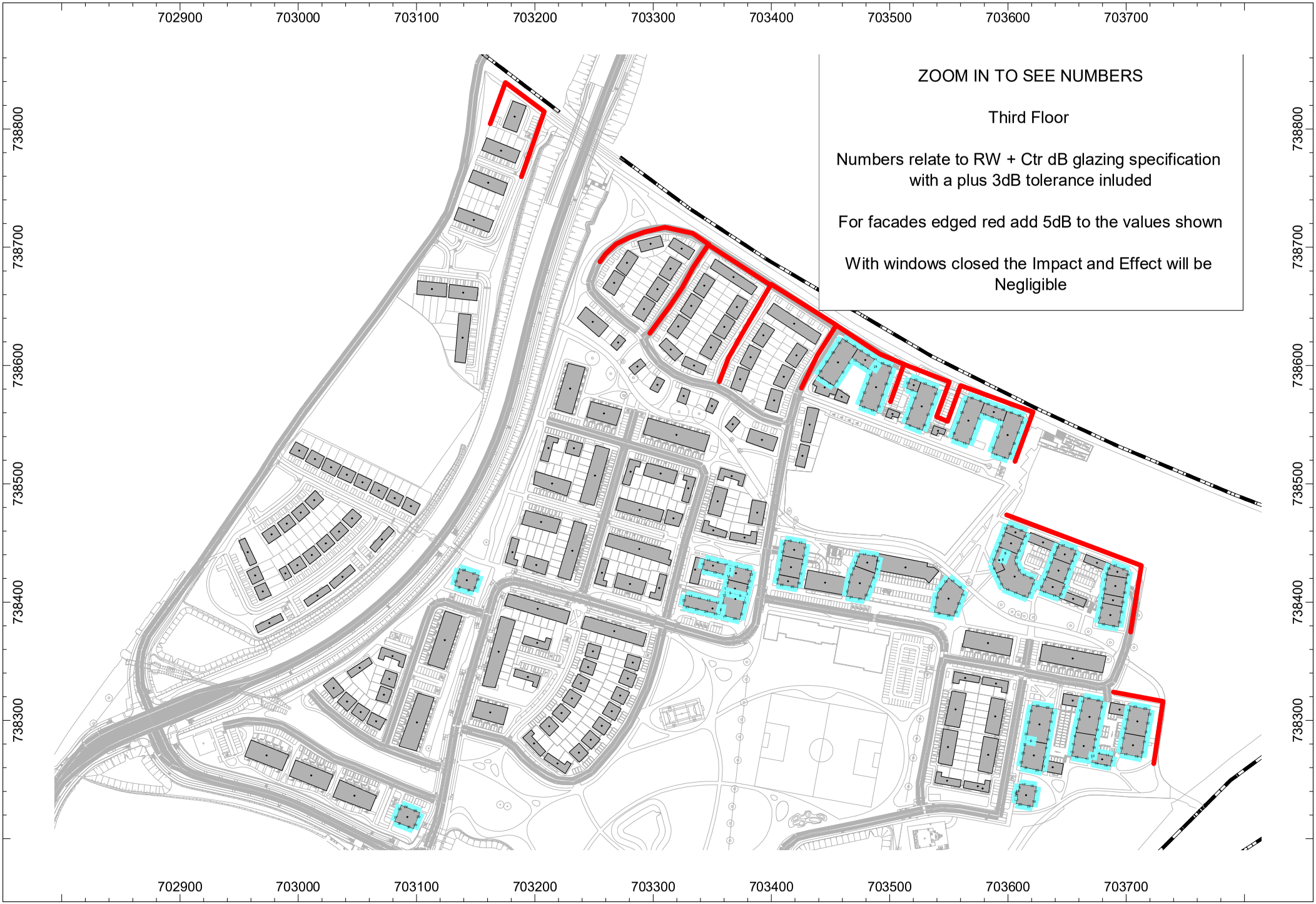
Appendix 10.2

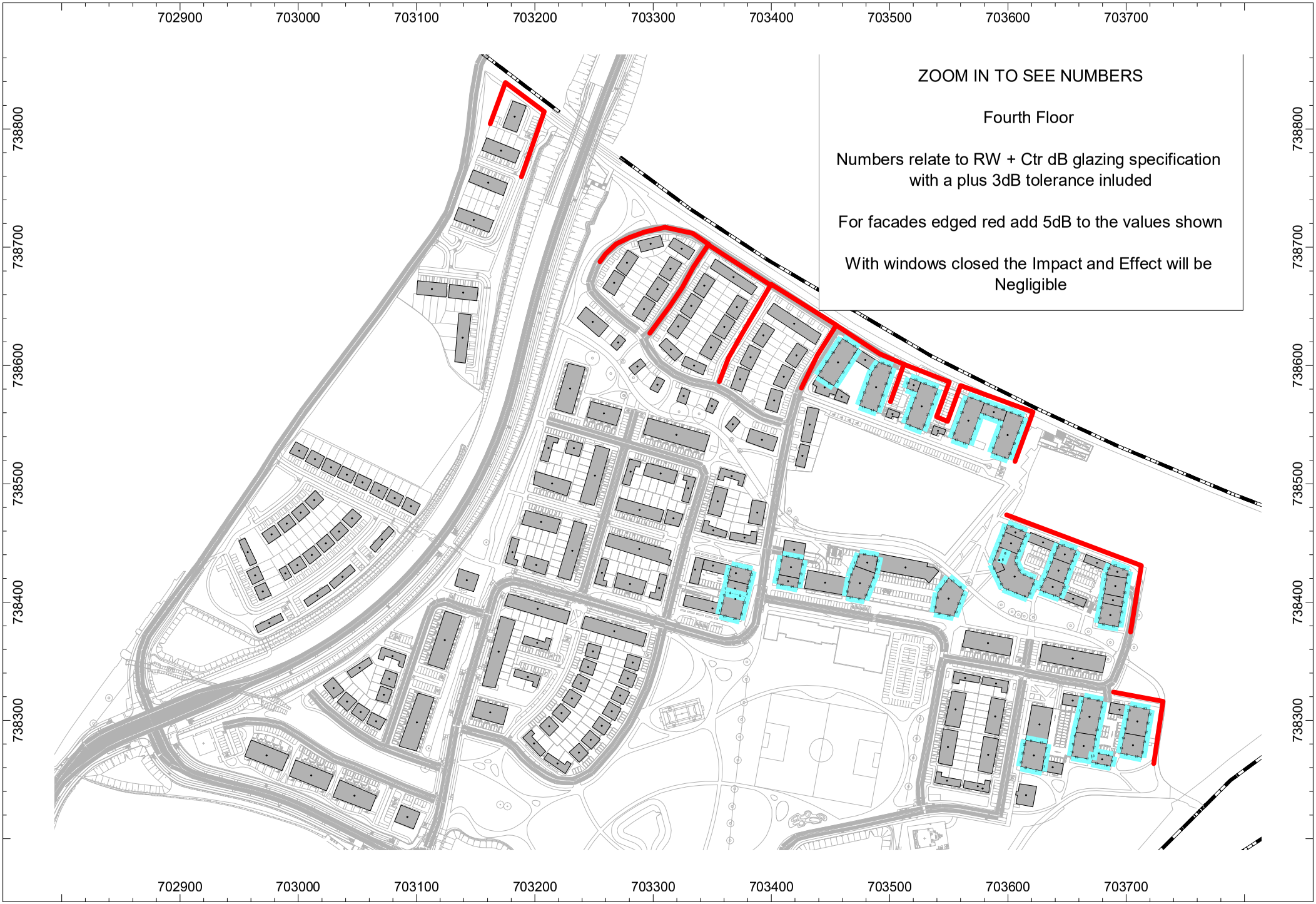
- Level 0A_Daytime Glazing Specification
- Level 1A_Daytime Glazing Specification
- Level 2A_Daytime Glazing Specification
- Level 3A_Daytime Glazing Specification
- Level 4A_Daytime Glazing Specification
- Level 5A_Daytime Glazing Specification
- Level 6A_Daytime Glazing Specification
- Level 7A_Daytime Glazing Specification
- Level 8A_Daytime Glazing Specification
- Level 9A_Daytime Glazing Specification
- Level 10A_Daytime Glazing Specification
- Level 11A_Daytime Glazing Specification


ZOOM IN TO SEE NUMBERS
Ground Floor
Numbers relate to RW + Ctr dB glazing specification with a plus 3dB tolerance inluded
For facades edged red add 5dB to the values shown
With windows closed the Impact and Effect will be Negligible
702900
703000
703100
703200
703300
703400
703500
703600
703700
738800
738700
738600
738500
738400
738300


ZOOM IN TO SEE NUMBERS
First Floor
Numbers relate to RW + Ctr dB glazing specification with a plus 3dB tolerance inluded
For facades edged red add 5dB to the values shown
With windows closed the Impact and Effect will be Negligible
702900
703000
703100
703200
703300
703400
703500
703600
703700
738800
738700
738600
738500
738400
738300


ZOOM IN TO SEE NUMBERS
Second Floor
Numbers relate to RW + Ctr dB glazing specification with a plus 3dB tolerance inluded
For facades edged red add 5dB to the values shown
With windows closed the Impact and Effect will be Negligible
702900
703000
703100
703200
703300
703400
703500
703600
703700
738800
738700
738600
738500
738400
738300


ZOOM IN TO SEE NUMBERS
Third Floor
Numbers relate to RW + Ctr dB glazing specification with a plus 3dB tolerance inluded
For facades edged red add 5dB to the values shown
With windows closed the Impact and Effect will be Negligible
702900
703000
703100
703200
703300
703400
703500
703600
703700
738800
738700
738600
738500
738400
738300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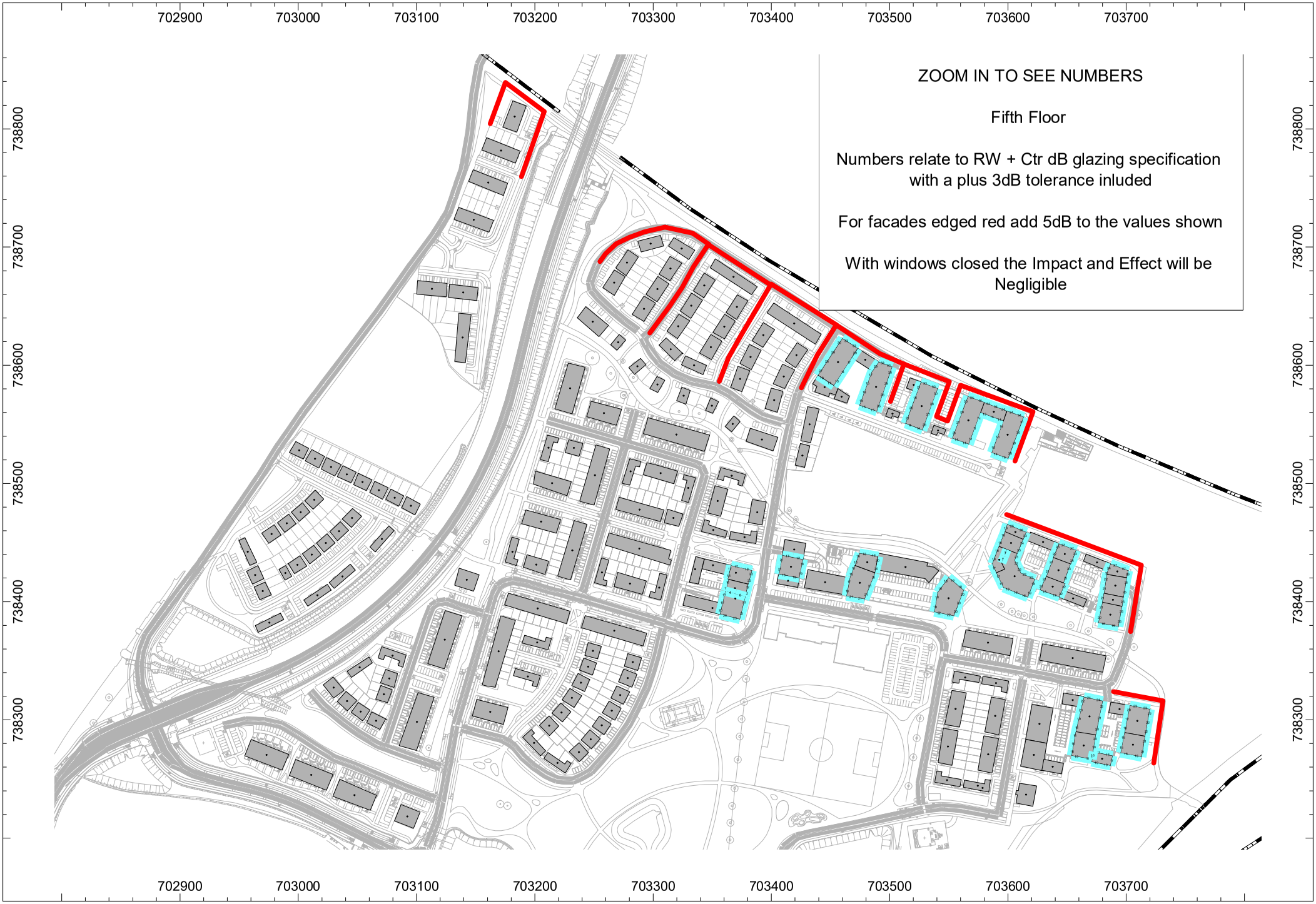
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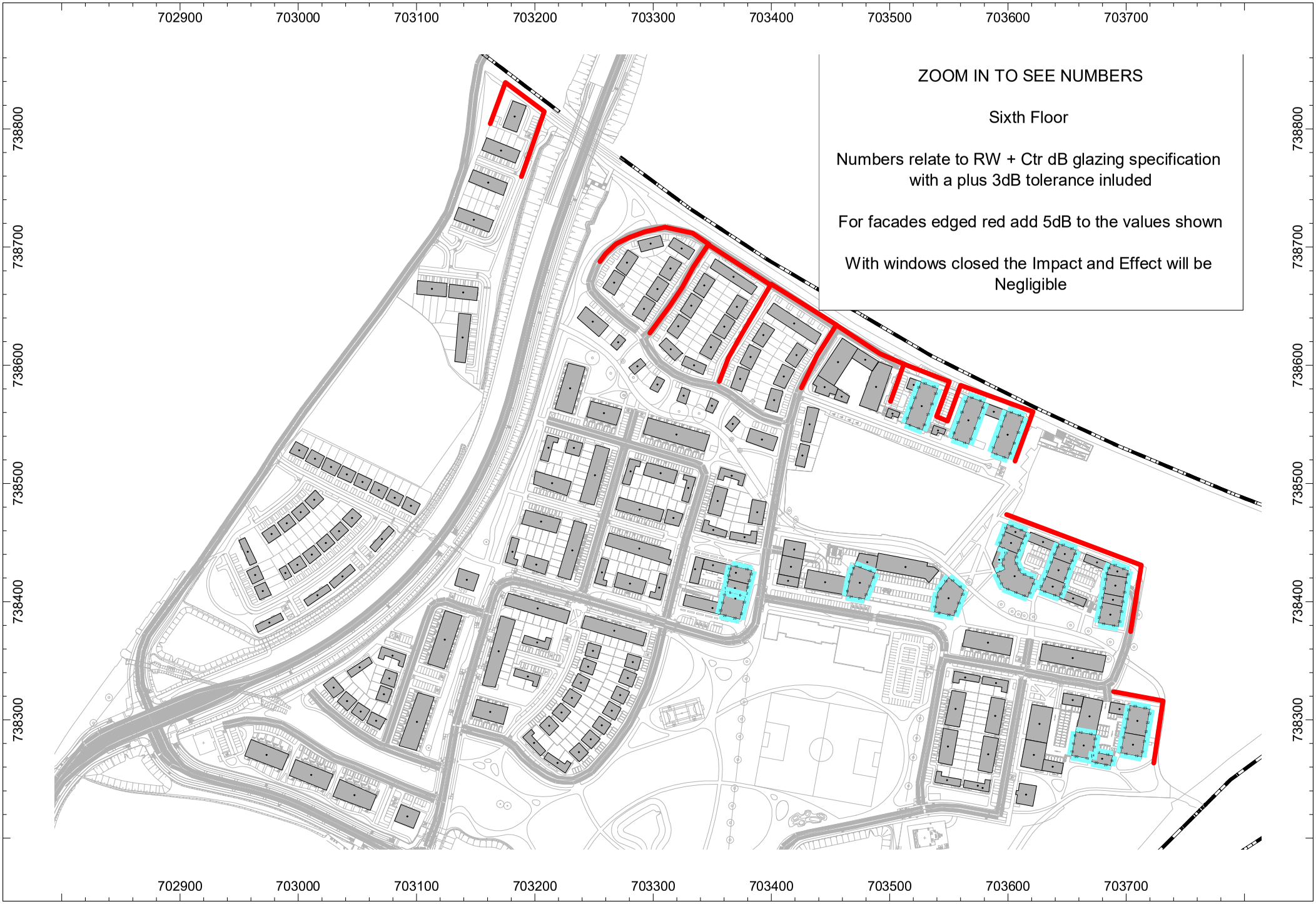
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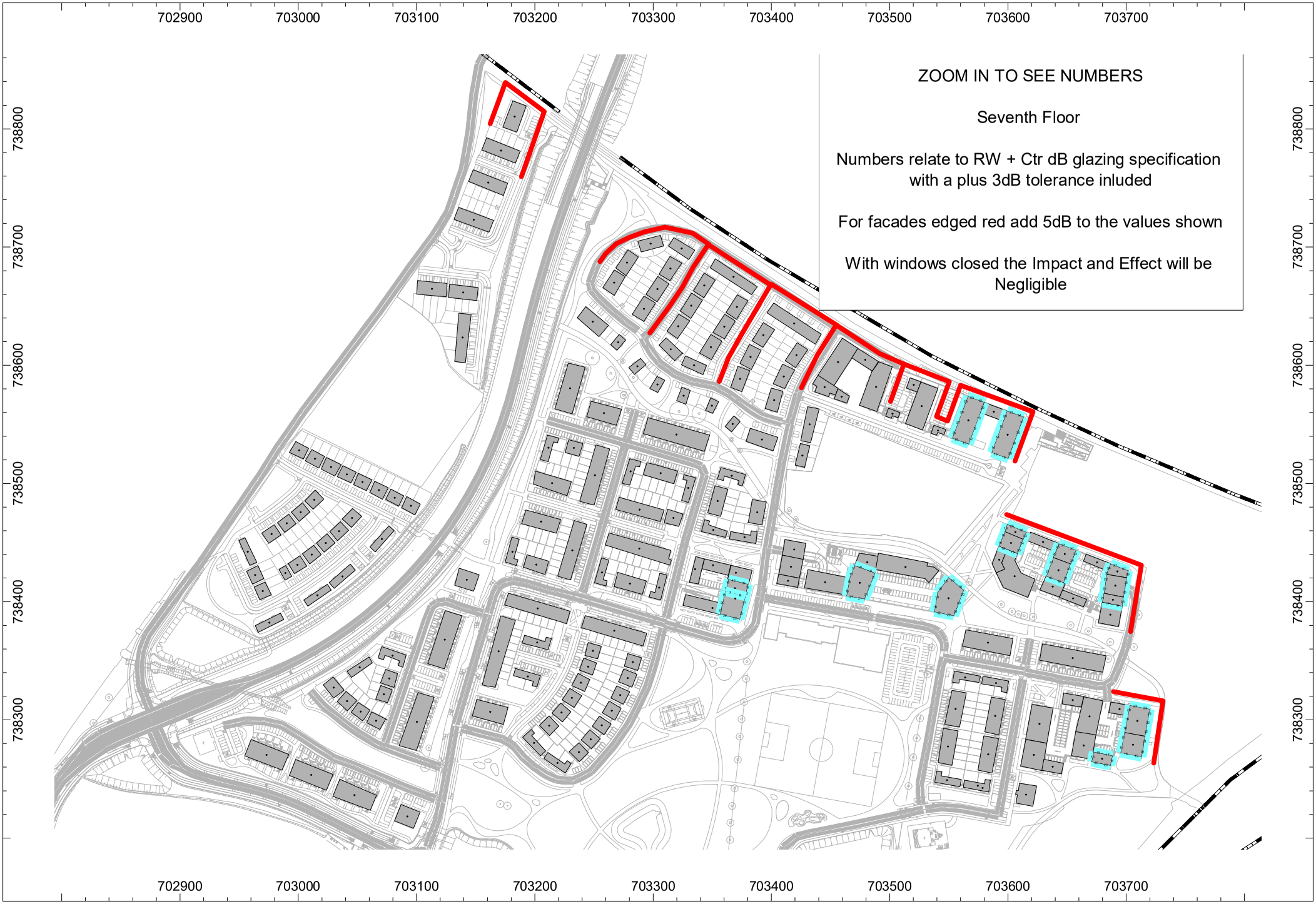
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Seventh Floor
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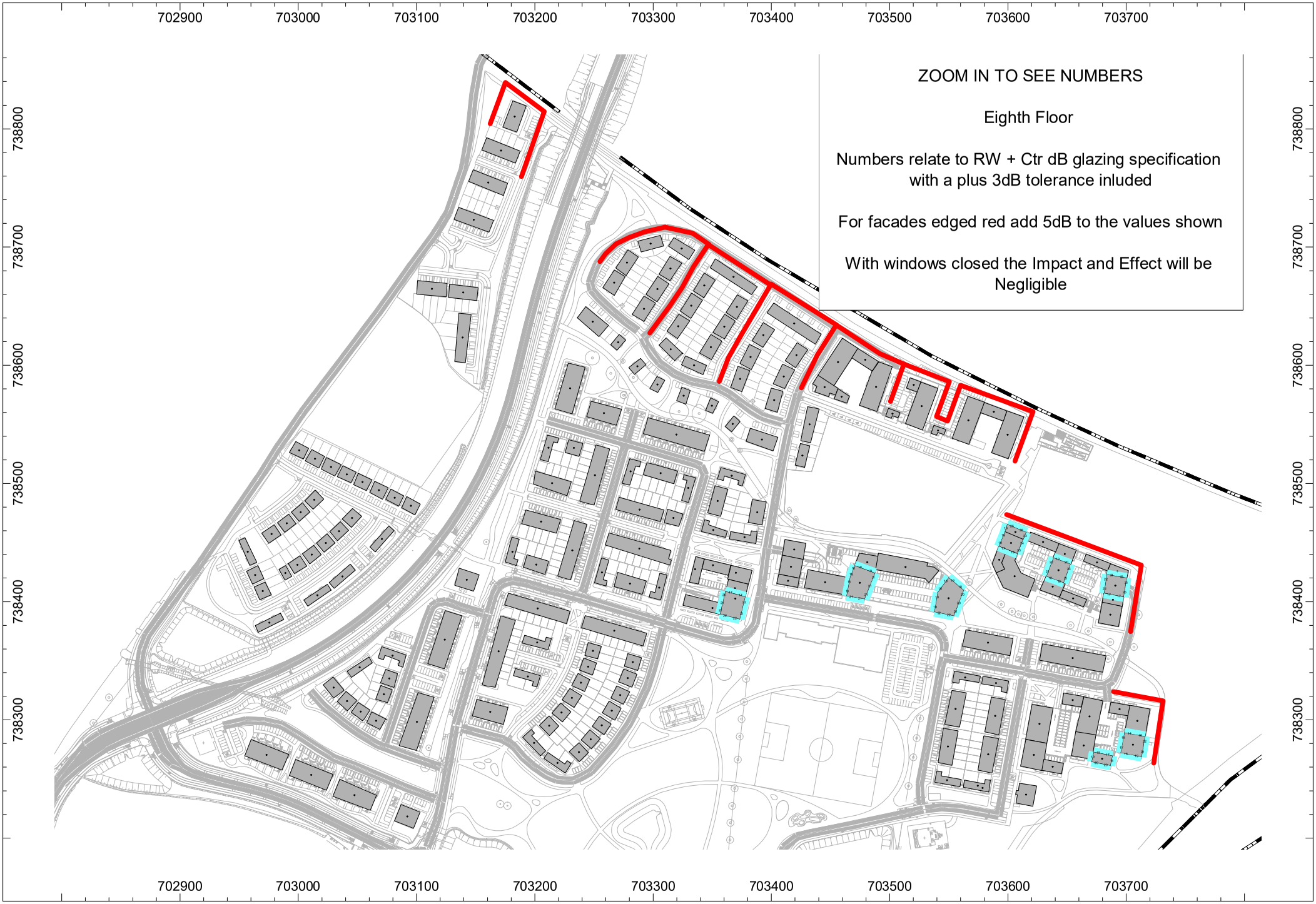
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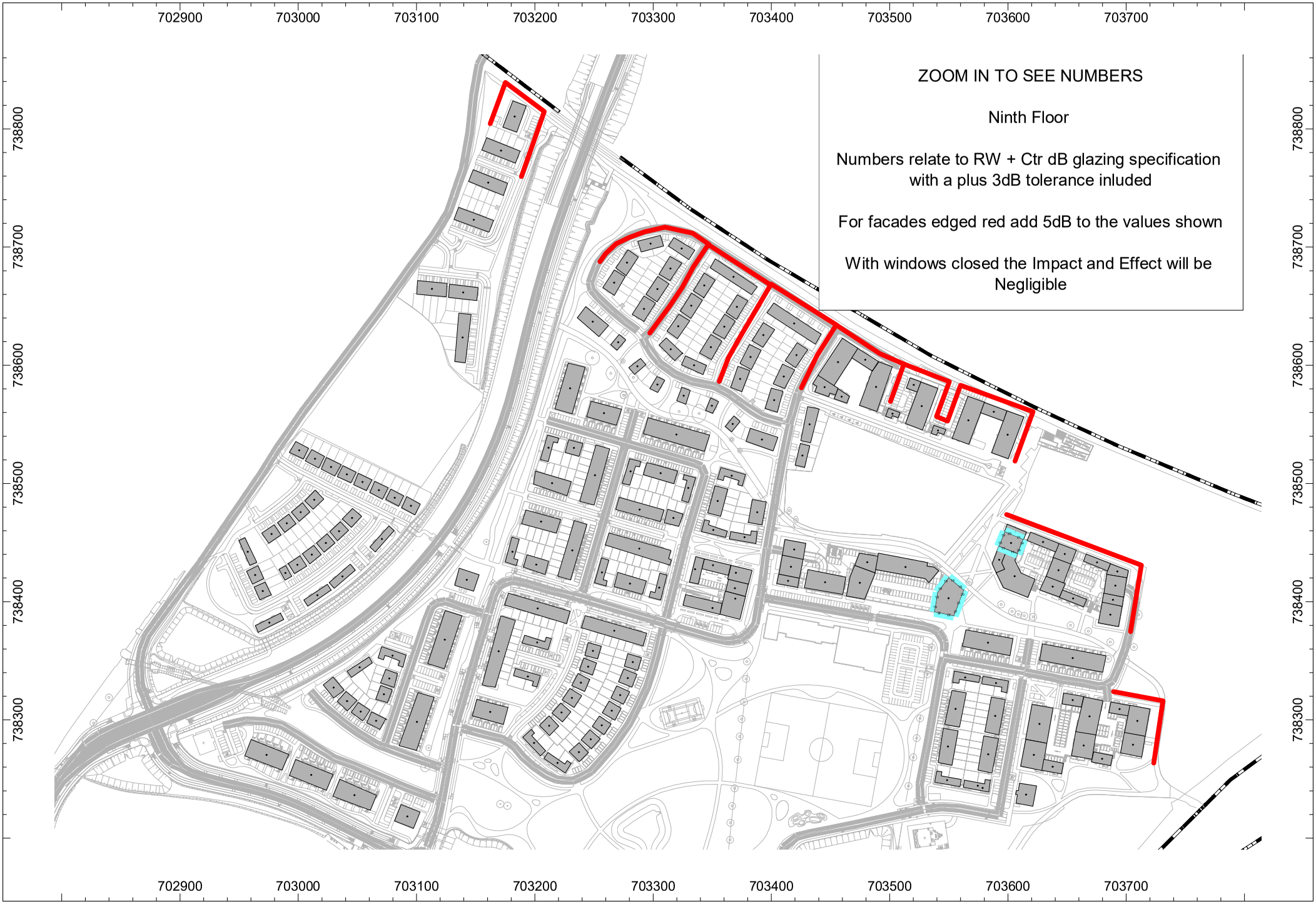
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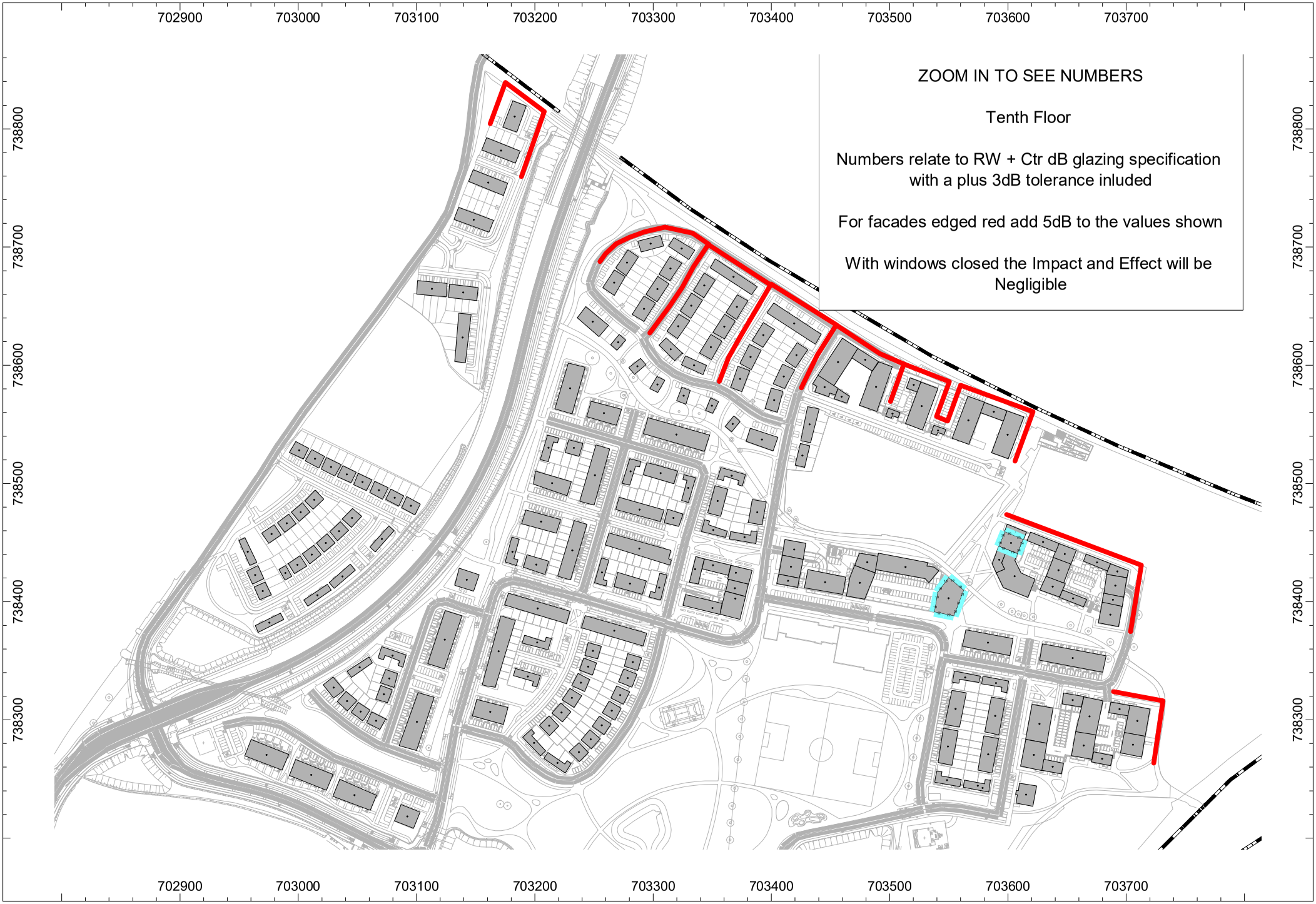
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Tenth Floor
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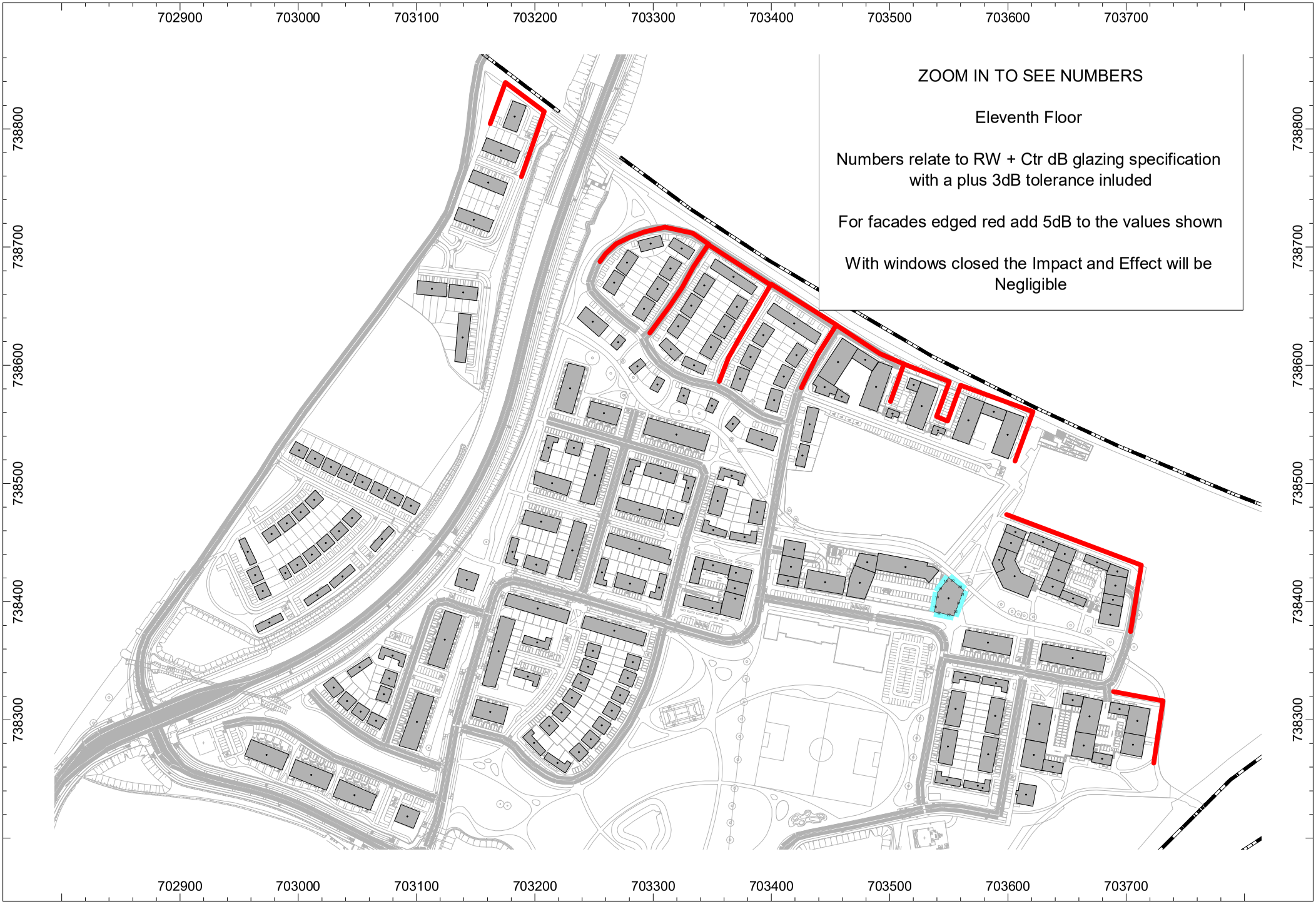
ZOOM IN TO SEE NUMBERS
Eleventh Floor
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CHAPTER 12 Climate Change

Appendix 12.1 Greenhouse Gas (GHG) Assessment

Volume III

Environmental Impact Assessment Report

AECOM ALANNA HOMES Alcove Ireland Four Limited Clifton Scannell Emerson Associates Delphi Architects JOHN CRONIN & ASSOCIATES SLR

July 2022

McCutcheon Halley CHARTERED PLANNING CONSULTANTS

Appendix 12.1 Greenhouse Gas (GHG) Assessment

Appendix 12.1 GHG Assessment

12.1 Introduction

This Appendix 12.1 of the EIAR will assess the potential greenhouse gas (GHG) impacts associated with the proposed Barnhill Strategic Housing Development (SHD).

Details on the proposed development are provided in EIAR Chapter 2, Project Description. However, in summary, the proposed development will consist of 1,243 residential units, with some commercial and service provision.

12.2 Methodology

12.2.1 GHG Calculation Methodology

Currently there are no published thresholds for assessing the significance of a proposed development impact on climate for EIAR. As per IEMA (2022) guidance, all GHGs are classed as significant as all emissions contribute to climate change. Each project is evaluated according to its individual characteristics.

A lifecycle approach to calculating the GHGs has been used. This approach considers specific timescales and emissions from different lifecycle stages of a proposed development: product stage (construction materials), construction process stage, operational stage and decommissioning.

Where specific activity data has been available, expected GHGs arising from the construction and operational activities, and embodied carbon in materials of the Proposed Development, have been quantified using a calculation-based methodology as per the following equation below as stated below:

Activity data x GHG emissions factor = GHG emissions value

Emission factors and calculation methods have been sourced from publicly available sources, such as BEIS 2021, SEAI 2021, and the Bath University ICE (2011 and 2019).

The potential impacts of the Proposed Development on the climate through GHGs during construction are calculated in line with the GHG Protocol (WRI & WBCSD, 2004) and the GHG 'hot spots' (i.e., sources and activities likely to generate the largest amount of GHGs) are identified, as listed in Table 3.1. This has enabled priority areas for mitigation to be identified. This approach is consistent with the principles set out in IEMA guidance.

In line with the GHG Protocol (WRI & WBCSD, 2004), when defining potential impacts, the seven Kyoto Protocol GHGs have been considered, specifically:

- carbon dioxide (CO_2).
- methane (CH_4).
- nitrous oxide (N_2O).
- sulphur hexafluoride (SF_6).
- hydrofluorocarbons (HFCs).
- perfluorocarbons (PFCs); and
- nitrogen trifluoride (NF_3).

These gases are broadly referred to in this report under an encompassing definition of 'GHGs', with the unit of tCO_2e (tonnes CO_2 equivalent) or $MtCO_2e$ (mega tonnes of CO_2 equivalent).

Where data has not been available, a qualitative approach to addressing GHG impacts has been followed, in line with the IEMA guidance (2022). As details of the activities required for

decommissioning are not available at this stage of the Proposed Development, the GHGs associated with this phase of the Proposed Development are qualitatively assessed.

Table 0-1 summarises the GHG activity sources that are potentially relevant to the baseline (Do Nothing) scenario. These sources are considered for their presence and materiality in the baseline environment assessment.

Table 0-2 summarises the GHG activity sources that are potentially relevant to the project (Do Something) scenario of this Proposed Development. These sources are considered for their presence and materiality in the project scenario assessment.

Table 0-1: Potential Sources of GHGs relevant to the Baseline

STAGE	ACTIVITY	PRIMARY EMISSIONS SOURCES
Baseline	Existing land use	Carbon stocks and emissions from above- and below-ground biomass

Table 0-2: Potential Sources of GHGs Relevant to the Proposed Development

STAGE	ACTIVITY	PRIMARY EMISSIONS SOURCES
Product Manufacture, Site Enabling and Construction	Pre-construction activity within Site	Fuel consumption from construction plant and vehicles, generators, and construction worker commuting.
	Site clearance works	Loss of carbon stocks.
	Raw material extraction and manufacturing	Embodied GHGs in the materials used for construction of the Proposed Development as a result of the excavation, processing and transportation.
	Transport to Site	Fuel used for transportation of construction materials to Site.
	Construction activity within the Site	Energy (electricity, fuel, etc.) consumption from plant, vehicles, and generators.
	Transport of construction workers	Fuel consumption for transportation of construction workers to/ from Site.
Operation	Operation of the Proposed Development	Operational energy use in buildings (e.g., natural gas and purchased electricity).
Decommissioning	Activities within the Site	Fuel consumption from the use of plant and vehicles.
	Waste transport	Transporting decommissioning waste to licenced facilities.

STAGE	ACTIVITY	PRIMARY EMISSIONS SOURCES
	Waste treatment and disposal	Treatment and disposal of solid and liquid waste.
	Transport of workers	Fuel consumption for transportation of construction workers.

12.2.2 GHG Significance Criteria

There are no specific criteria for determining the significance of GHG emissions for EIAR. The IEMA guidance on GHG in EIAR states that "any GHG emissions or reductions from a project might be considered to be significant". The guidance also states it is down to the professional judgment of the practitioner to determine how best to contextualise and assess the significance of a project's GHG impact and assign the level of significance. The guidance identified two major considerations when assessing the significance of a project's GHG emissions: alignment to a trajectory towards net zero by 2050, and mitigation of GHG emissions.

Alignment to 2050 net zero trajectory

The guidance states that the crux of assessing significance is "not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050". The trajectory of GHG emissions associated with the Proposed Development has therefore been factored into the assessment criteria.

GHG mitigation

The IEMA guidance also emphasises the importance of implementing GHG mitigation measures to help minimise GHG emissions, regardless of the magnitude of emissions, and states that the level of mitigation should be used to assess the significance of GHG emissions. This has therefore also been factored into the assessment criteria for the GHG assessment.

Significance criteria

Based on the above two considerations, and in line with criteria outlined in the IEMA guidance, the following significance matrix will be used to assess the significance of GHG emissions arising as a result of the Proposed Development.

Table 0-3: GHG assessment significance matrix

		GHG mitigation		
		None	Some	Well beyond policy requirements
2050 net zero trajectory	No meaningful contribution to Ireland's trajectory towards net zero	Major adverse	Major adverse	Moderate adverse
	Short of the net zero trajectory	Major adverse	Moderate adverse	Moderate adverse
	In line with the net zero trajectory, with minimal residual emissions	Minor adverse	Minor adverse	Negligible

It is suggested in the IEMA guidance that sectoral, local, or national carbon budgets can be used, as available and appropriate, to contextualise a project's GHG impact and determine the level of significance. The approach adopted for the purposes of this assessment is outlined below.

The Ireland's national carbon budgets produced by the Climate Change Advisory Council (2021) have therefore been used to determine contextualise the magnitude of GHG emissions from the Proposed Development, demonstrating the level of impact of the additional GHG emissions due to the Proposed Development on Ireland's ability to meet its reduction targets.

12.3 Limitations and Assumptions

12.3.1 Limitations

Current scope of the GHG assessment includes demolition of existing buildings, and construction of residential units, creche and commercial unit. It does not include the infrastructure works required as part of the development; namely 2 no. access roads, SuDS infrastructure, pumping station, Railway station access plaza; or site landscaping.

12.3.2 Assumptions

12.3.2.1 Construction

GHG calculations are based on the following conditions using a mixture of existing Project information, industry benchmarks and professional judgement. The following assumptions, inclusions and exclusions, made on a precautionary basis, have been used in this calculation.

- Embodied carbon within construction materials was estimated based on RICS benchmarks.[1]
- Fuel usage onsite (electricity and diesel) has been based on the value of the project in accordance with UK Industry Performance Report 2018 energy use per £100k project value.[2]
- It is not known where the materials will be sourced from, therefore construction materials have been assumed to be available within 50 km of the Site. Number of HGV trips for material delivery and waste removal are stated within the Construction Environmental Management Plan (CEMP).
- It has been assumed that a total of 85 construction staff travel to site on a daily basis (6 days a week during the 6.5-year construction period), from within a distance of 50km, by car.

12.3.2.2 Operation

GHG calculations are based on the following conditions using a mixture of existing Project information, industry benchmarks and professional judgement. The following assumptions, inclusions and exclusions, made on a precautionary basis, have been used in this calculation.

Residential units:

- An operational life of 60 years
- An annual usage of 5,034 kWh of regulated electricity and 15,922 kWh natural gas usage per household, based upon the National Statistics data for energy consumption in Ireland[3].
- Residential water usage of 150 litres per day per person, for an estimated population of 3687 people (water supply and treatment).
- An estimated total of 3687 residents each producing an estimated 372 kg of household waste annually that requires waste disposal or treatment, based on Ireland waste statistics[4]. As a worst-case scenario it has been assumed that all waste goes to landfill.

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[1] RICS, 2012. Methodology to calculate embodied carbon of materials https://www.igbc.ie/wp-content/uploads/2015/02/RICS-Methodology_embodied_carbon_materials_final-1st-edition.pdf

[2] Glengigan, 2018. UK Industry Performance Report: https://www.glenigan.com/wp-content/uploads/2018/11/UK_Industry_Performance_Report_2018_4456.pdf

[3] SEAI, 2022. Ireland Energy Statistics https://www.seai.ie/data-and-insights/seai-statistics/key-statistics/residential/

[4] EPA, 2022 Household Waste Statistics for Ireland: https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/household/

Creche and commercial unit:

- An operational life of 60 years
- An annual estimate of electricity and natural gas consumption based on floor area and CIBSE benchmarks[5]
- Estimated annual water usage of 100,000 litres a year each
- Estimate annual waste generation of 100 tonnes a year each. As a worst-case scenario it has been assumed that all waste goes to landfill.

12.4 Potential Impact of the Proposed Project

12.4.1 Do Nothing Scenario

At present, the environment within the study area is farmland, the land is used as grassland to graze animals.

12.4.2 Construction Phase

The total GHGs from constructing the Proposed Development are estimated to be 63,691 tCO_2e (Table 0-4).

Note: *This does not include the infrastructure works required as part of the development, namely 2 no. access roads, SuDS infrastructure, pumping station, Railway station access plaza.*

Table 0-4: Construction GHG emissions (OCGT)

LIFECYCLE STAGE	PROJECT ACTIVITY/ EMISSIONS SOURCE	EMISSIONS (TCO_2E)	% OF CONSTRUCTION PHASE EMISSIONS
Product Stage	Embodied carbon of materials and products	60,605	95%
Construction Stage	Energy use	934	1%
	HGV movements	1,030	2%
	Worker commute	1,122	2%
TOTAL		**63,691**	**100%**
Annual		**9,925.86**	**-**

All emissions could be considered significant (IEMA, 2022). To contextualise the level of significance, emissions are compared to the Irish carbon budgets. Emissions from the construction of the Proposed Development contribute considerably less than 1% of any carbon budget Table 0-5. Within Table 0-5, annual emissions have been presented based on the number of units built within each year.

The magnitude of impact during construction is therefore considered low. As per **Error! Reference source not found.**, the magnitude of the significance of effects is considered as 'minor adverse'.

[5] https://www.cibse.org/Knowledge/Benchmarking

Table 0-5: Construction GHG emissions (OCGT)

CARBON BUDGET	TOTAL BUDGET (MTCO2E)	TOTAL PROJECT EMISSIONS WITHIN PERIOD ($MTCO_2E$)	% OF CONTRIBUTION OF CONSTRUCTION EMISSIONS
2021-2025	295	8,271.55	0.003%
2026-2030	200	49,629.29	0.025%
2031-2035	151	5,790.08	0.004%

12.4.3 Operational Phase

Once the development is complete, the net annual GHGs (including all GHG avoidance deductions) from operating the Proposed Development are expected to be approximately 6,984 tCO_2e (Table 0-6).

Note: Calculations assume a worst-case scenario with regards to energy use (i.e., do not account for the expected decarbonisation of electricity over future years).

Table 0-6: Operational GHGs

LIFECYCLE STAGE	PROJECT ACTIVITY/ EMISSIONS SOURCE	EMISSIONS (TCO_2E) ANNUAL	EMISSIONS (TCO_2E) 60 YEAR TOTAL	% OF OPERATIONAL EMISSIONS
Operational	Fuel usage onsite: natural gas	4,182	250,941	97%
	Fuel usage onsite: electricity	2,117	126,993	3%
	Waste	607	36,412	<1%
	Water	78	4,689	<1%
TOTAL		**6,984**	**419,036**	**100%**

All emissions could be considered significant (IEMA, 2022). Emissions from the construction of the Proposed Development contribute considerably less than 1% of any carbon budget currently published (Table 0-7). Within Table 0-7, project emissions have been presented based on the number of units built within each year.

Using the criteria set out in Table 0-3 the Proposed Development can be defined as low magnitude of impact and representing a 'minor adverse' effect.

Mitigation measures of the Proposed Development are presented within EIAR Chapter 12. If Ireland is to meet its net zero target, the focus of is needed to address the decarbonisation of electricity supply, and alternatives to natural gas for heating.

Table 0-7: Operational GHG emissions

CARBON BUDGET	TOTAL BUDGET (MTCO2E)	PROJECT EMISSIONS WITHIN PERIOD ($MTCO_2E$)	% OF CONTRIBUTION OF OPERATIONAL EMISSIONS
2026-2030	200	16,620.37	0.0083%
2031-2035	151	34,919.68	0.0231%

12.5 References

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- EPA, 2022 Household Waste Statistics for Ireland. [Online] Available at: https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/household/
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CHAPTER 13 Cultural Heritage

Appendix 13.1 Results of Archaeological Testing

Appendix 13.2 Built Heritage Survey Photographs

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Environmental Impact Assessment Report

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July 2022

McCutcheon Halley CHARTERED PLANNING CONSULTANTS

Appendix 13.1 Results of Archaeological Testing

Appendix 13.1: Results of Archaeological Testing

The following is a summary of a programme of archaeological testing that was undertaken at the subject lands in 2019 by John Purcell Archaeological Consultancy; the investigations were undertaken under ***Excavation Licence 19E0329.***

Introduction

A series of test trenches (see **Figure 1** below) were excavated by a mechanical excavator over a number of weeks in June and July 2019. Conditions were generally dry and overcast. The trenches were placed to assess the largest area of the site and to ascertain the extent of the archaeological deposits below the ground surface.

Figure 1*: Location of the archaeological test trenches*

Test Trench 1-3

These were excavated at the northwest of the site north of Barberstown Lane North. It was excavated through pasture using a mechanical excavator fitted with a grading bucket. The trenches was orientated north to south and measured between 90m and 100m in length and 1.8m in width. The topsoil was removed, this measured 0.3m in depth the natural boulder clay was exposed below this.

Test Trench 4-6
These were excavated at the north of the site, north of Barberstown Lane North. It was excavated through pasture using a mechanical excavator fitted with a grading bucket. The trenches were approximately 500m in length and 2m in width, they traversed three fields with mature hedgerow delineating the individual fields. The trenches were orientated from west to east. The topsoil was removed, this measured 0.3m in depth the natural, a boulder clay was exposed below this. A number of features were revealed in test trenches 5 and 6. They consisted of three pits . They all contained burning, the pits were sub circular in plan with steep slopes. They were similar in dimensions and shape. They were approximately 0.3m in depth with a steep break of slope.

Trenches 7-8
These were excavated at the south of Barberstown Lane North and traversed three fields. The trenches were excavated east to west. This section of the site has evidence of agriculture improvement works in the form of drainage channels across the fields. The topsoil was a medium to dark soil it was 0.3m – 0.4m in depth this over an orange boulder clay. These trenches were 2m in width and approximately 450m in length.

Trench 9
This is a T shaped trench excavated at the south-eastern corner of the land bank. The trench measured approximately 120m in length and 2m in width. It was excavated through pasture. The topsoil was a medium humic soil 0.3m in depth it overlay an orange boulder clay.

Trenches 10-11
These were excavated at the centre of the site traversing two fields currently in use as pasture. The trenches were excavated east to west and measured approximately 250m in length and 2m in width. These were excavated through pasture. The topsoil was a medium humic soil 0.3m in depth it overlay an orange boulder clay.

Trenches 12-17
These were excavated at the centre south of the site in one large open field. The trenches were excavated north to south and measured just over 100m in length and were 2m in width. These were excavated through pasture. The topsoil was a medium humic soil 0.3m in depth it overlay an orange boulder clay.

Trenches 18-20
These were excavated at the south of the site and traversed two fields. The trenches were excavated north to south and measured approximately 110m in length and were 2m in width. These were excavated through pasture. The topsoil was a medium humic soil 0.3m in depth it overlay an orange boulder clay. Along the western end of these trenches fragmented bedrock was visible.

Trenches 21-23
These were excavated at the southwest of the site within a field used for pasture. The trenches were excavated through pasture and measured approximately 100m in length and were 2m in width. These were excavated through pasture. The topsoil was a medium humic soil 0.3m in depth it overlay an orange boulder clay.

Table 1: Location of archaeological features recorded in test trenches

Test trench	***Feature***	***Dimensions***
Test trench 5	C2, Pit	0.6m x 1m x 0.3m
Test trench 5	C3, Pit	0.5 x 0.8m x 0.3m
Test trench 6	C4, Pit	0.8 x 0.9m x 0.25m
Test trench 9	F5, Drainage channel	0.6m in width visible for 3m
Test trench 10	F6, Drainage channel	0.5m in width visible for 5m
Test trench 11	F7, Drainage channel	0.5m in width visible for 2m

Conclusion

The study area consists of a landbank within the townlands of Barnhill and Barberstown in the west of Co. Dublin. It is now proposed to develop the site for residential purposes. This pre development assessment including extensive testing across the site. This uncovered three small pits at the north. It has been recommended that these be preserved by record and that the area surrounding them be archaeologically monitored. This should be undertaken under licence to the DAHG.

In order to reduce the impact of the development on the archaeological landscape and to preserve the archaeological monuments recorded within the study area a series of mitigation strategies have been recommended:

- In advance of development the features recorded in test trench 5 and 6 should be exposed and recorded by record. This will be undertaken under licence to the D.A.H.G.
- It is recommended that the north of the site in the area surrounding the recorded features be archaeologically monitored. This will allow any additional features to be recorded.
- Any additional archaeological features should be recorded by record.
- All works should be undertaken under licence to the National Monuments Service.

The above recommendations are subject to the approval of local authority and the National Monuments Service.

Selection of photographs from the archaeological testing programme

Plate 1: *Looking northwest over test trench 5*

Plate 2: *Looking southeast over test trench 6*

Plate 3: *Test trench 4, looking northwest*

Plate 4: *Test trench 5, looking northwest during excavation*

Plate 5:*C2, Test trench 5*

Plate 6:*C3 after exposure*

Plate 7:*C3 after sectioning*

Plate 8:*C4, after sectioning*

Plate 9:*Test trench 8, looking east after excavation*

Plate 10: *Test trench 7, looking east after excavation*

Plate 11: *Modern pottery exposed in test trench 9*

Plate 12: *Looking northwest over test trenches 12-14*

Plate 13: *Looking east over modern farmyard at the centre of the site*

Plate 14: *Looking north over test trench 18 during excavation*

Plate 15: *Looking north over test trench 19*

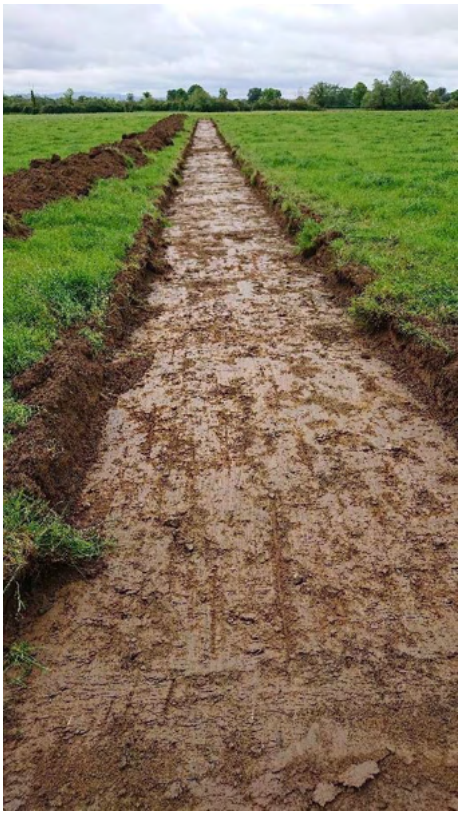

Plate 16*: Test trench 21, looking south*

Appendix 13.2 Built Heritage Survey Photographs

Appendix 13.2: Built Heritage Survey Photographs

Plate 13.2.1: *View to north-west along local road with row of historic farm buildings (pre 1836) facing north-east.*

Plate 13.2.2: *Square masonry gate piers with pyramidal granite caps, replacement wrought-iron gate and curved masonry wing wall on west (right) side (; concrete blocks abut east (right) pier). Gateway leads to vernacular, formerly residential farmyard which predates mid-later nineteenth-century Barnhill House*

Plate 13.2.3: *Random rubble masonry boundary wall (raised with concrete blocks) which formed rear wall of now-demolished building attached to west gable of ruined, but upstanding former dwelling (slate roof to left side of photograph).*

Plate 13.2.4: *View from west along northern boundary of farmyard. Steel-sheeted gate right of centre of photograph has modern concrete block-built piers.*

Plate 13.2.5: *Mature hedgerow forming north side of local road opposite historic farmyard. Masonry remnants of short roadway visible on historic maps still extant behind modern gatepost here.*

Plate 13.2.6: *Front south-west elevation of ruined former dwelling, the windowless rear wall of which forms roadside boundary. Porch is twentieth-century addition and window openings are all enlarged insertions with concrete sills.*

Plate 13.2.7: *Ruined former dwelling with open structure to east gable end and entrance gateway onto local road.*

Plate 13.2.8: *Unremarkable interior of ruined former dwelling*

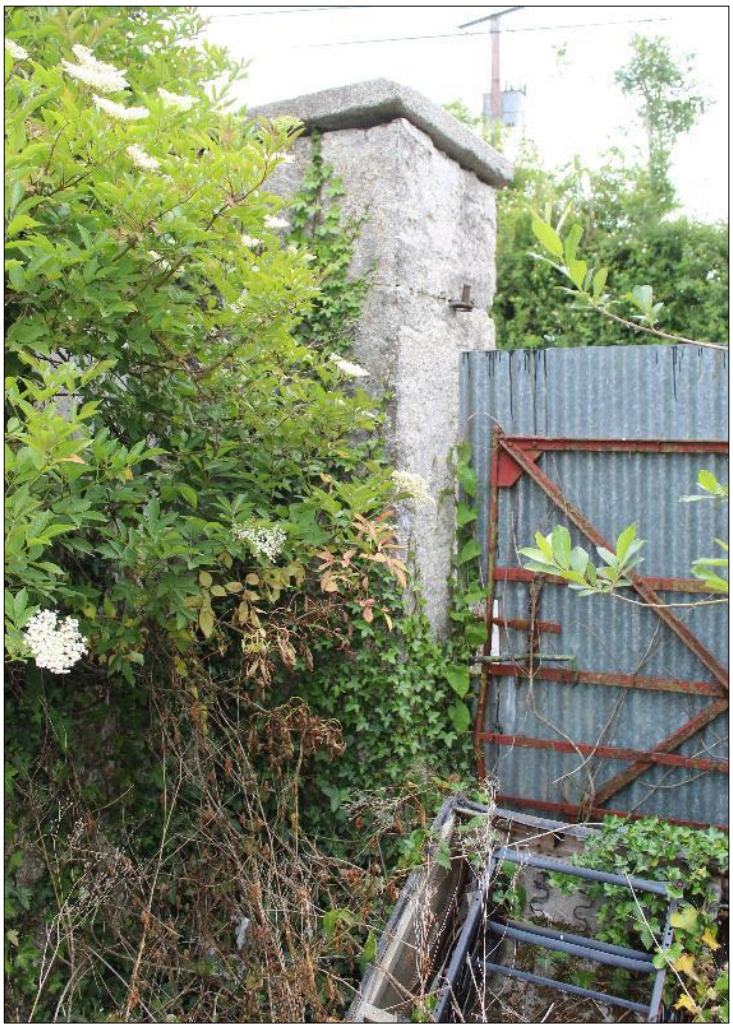

Plate 13.2.9: *Detail of square west pier of gateway from interior.*

Plate 13.2.10: *Altered north-east elevation of historic farm building. Profile of former pitched roof of this building visible on south-east gable of adjoining taller building which is directly opposite façade of former dwelling.*

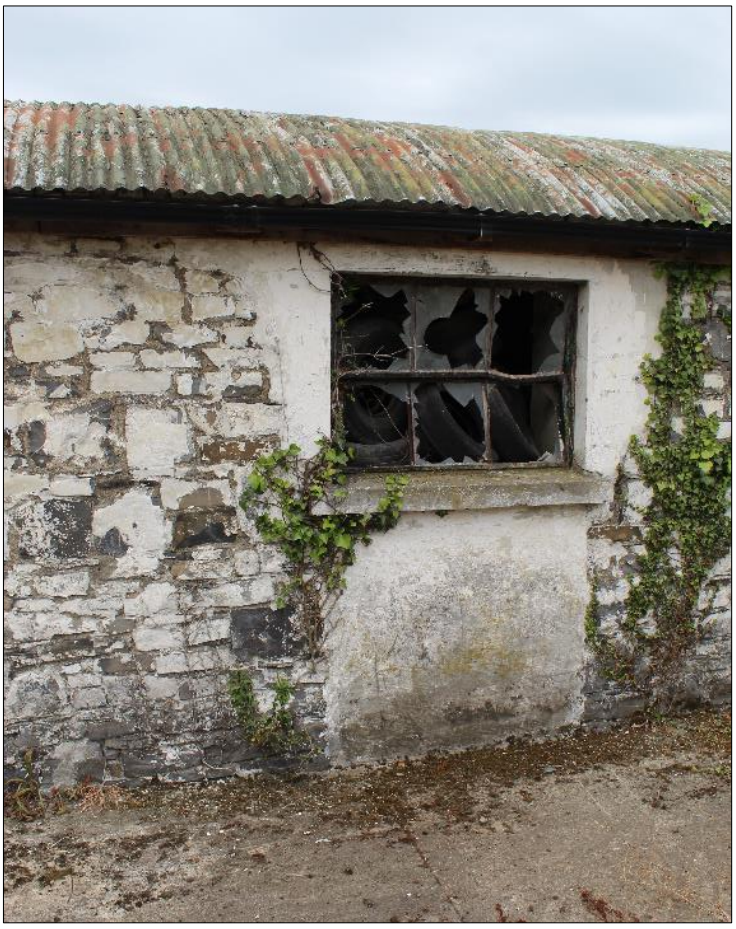

Plate 13.2.11: *Detail of altered window opening with concrete sill and infill in rubble calp limestone masonry wall of lower farm building.*

Plate 13.2.12: *Altered north-east elevation of taller farm building directly opposite façade of former dwelling.*

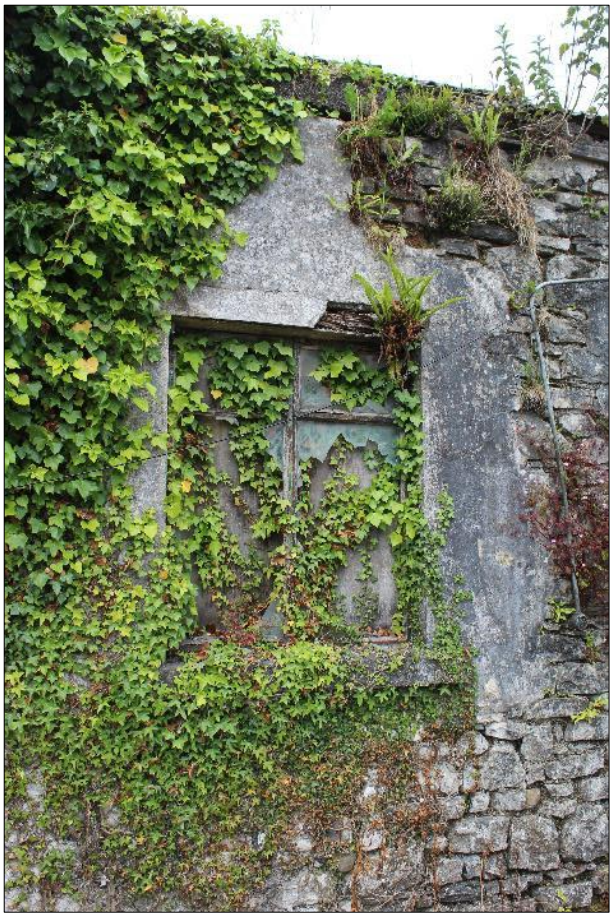

Plate 13.2.13: *Inserted steel-framed window and concrete surrounding infill in rubble masonry wall of taller farm building opposite former dwelling*

Plate 13.2.14: *Unremarkable interior of taller farm building with apparently late twentieth-century finish.*

Plate 13.2.15: *View towards west end of former farmyard with roadside boundary formed by cement-rendered interior of rear wall of former farm building demolished in later twentieth-century (to right side of photograph)*

Plate 13.2.16: *Partially-rendered east wall of short range of former outbuildings opposite rear of Barnhill house with remnants of square gate pier that led to rear yard of main, mid to late-nineteenth-century dwelling (not visible on 1836 OS map).*

Plate 13.2.17: *Interior of rear northern wall of former outbuilding behind house at Barnhill*

Plate 13.2.18: *View to north across site of former house at Barnhill (site of house approximately where yellow skips are placed in photograph). No upstanding remains of former house or features of immediate attendant grounds exist.*

Plate 13.2.19: *View south along west side of historic planted hedgerow (south-east of farmyard) proposed to be retained within development*

Plate 13.2.20: *View to north-east along west side of historic planted hedgerow (south-east of farmyard) proposed to be retained within development*

Plate 13.2.21: *East side of hedgerow to be retained showing form of earthen bank on east side of mature hedge and excavated drainage ditch on west side.*

Plate 13.2.22: *View north along similar west ditch and east earthen bank with mature hedgerow aligned north-south and proposed to be retained in development.*

Plate 13.2.23: *View to north-east across semi-triangular western field of proposed development site looking towards Packenham Canal Bridge beyond modern planted boundary hedge and timber fence to centre of photograph.*

Plate 13.2.24: *Interior view of former recessed entrance to field from local road forming south-eastern boundary to site*

Plate 13.2.25: *View to south-west along local road with exterior of former recessed field entrance to centre of photograph. No historic fabric of any note remains extant at this entrance.*

Plate 13.2.26: *View to north-west along hedgerows to southern bank of small tributary of Liffey that flows from west to east through proposed development site close to culvert beneath local road to south of site.*