GLL PRS Holdco Limited

"Deer Park, Howth"
Large-scale Residential Development (LRD)
for lands adjoining Howth Demesne
Deer Park, Howth
Co. Dublin

VOLUME II

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

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Volume II - Table of Contents

CHAPTER 1
INTRODUCTION

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

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Table of Contents

Table of Figures

Table of Tables

1 Introduction

This Environmental Impact Assessment Report (EIAR) was prepared by McCutcheon Halley Planning Consultants together with a team of specialist consultants on behalf of GLL PRS Holdco Limited (the "Applicant") to accompany a Large-scale Residential Development (LRD) application for permission for 135 apartment units on a proposed development site of approx. 1.5 hectares, that adjoins Howth Castle Demesne, Deer Park, Howth, Co. Dublin. Article 1(a) of EIA Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU (the "**EIA Directive**" provides the following definition:

> *"Environment impact assessment" means a process consisting of:*
>
> *(i) The preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);*
>
> *(ii) The carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;*
>
> *(iii) The examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;*
>
> *(iv) The reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and*
>
> *(v) The integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a."*

This EIAR identifies, describes and assesses the likely significant effects of the project as a whole, in accordance with the Directive 2011/92/EU, as amended by Directive 2014/52/EU, based on the guidance presented in the *Guidelines on the Information to be contained in Environmental Impact Assessment Reports* (EPA, 2022).

The Department of Housing, Planning and Local Government has issued an EIA Portal confirmation for the proposed project and the reference number is contained in the cover letter which accompanies the planning application under separate cover.

This chapter describes the existing baseline condition of the proposed development site and its environs. It briefly introduces the project, the detailed description is set out in Chapter 2. The descriptive terminology by individual contributors to accurately explain the full range of effects is set out in section 1.12. The consultation process which was undertaken ahead of lodging the application is outlined. The range of projects and plans deemed relevant for the purpose of the cumulative assessments provided for individual disciplines is provided in **Appendix 1-1**. It should be noted that the list is up to date as of 16th May 2024, one week before the application was lodged to Fingal County Council.

1.1 Author Information and Competency

This chapter was prepared by Rachel Condon of McCutcheon Halley Chartered Planning Consultants. Rachel graduated from University College Cork with a BA Hons in Geography and Irish, obtained in 2010 and a master's degree in Planning and Sustainable Development, obtained in 2013. Rachel is currently an Associate Director in the Practice and is experienced in the field of planning and development consultancy which includes providing consultancy services in respect of major projects. Rachel has directed the preparation of EIAR's for a range of development types including residential, mixed use, and industrial developments.

Rachel has practised as a planning consultant for over 10 years and has directed the preparation of Environmental Impact Assessment Report (EIARs) for a range of development types including residential, commercial and industrial. Directly relevant experience to this proposed development is that Rachel has been involved in the direction and preparation of EIARs to accompany residential led applications that received permission for development including:

- Connolly Quarter Reg. Ref: 3054/22 - The construction of 187 build to rent apartments and 4 office blocks with heights ranging from 5 to 16 storeys. The proposed development included works to a Protected Structure (RPS Ref. No. 130).
- Bailey Gibson (PL29S.307221) - Demolition of all structures, construction of 416 residential units (incl. 4 houses, 412 apartments) and associated site works.
- Southwest Gate (Reg. Ref. 3228/20) – Demolition of 4 no. existing buildings and surface car parking, and construction of a mixed use scheme across 13 no. blocks comprising 1,123 no. residential units with supporting amenities, retail units, office accommodation, a primary healthcare centre, gym, cultural centre, childcare facility, hotel and a series of public open spaces.

1.2 The Applicant

GLL PRS Holdco Limited, is part of Glenveagh Homes, a leading Irish home builder founded in 2017, whose vision is to build high-quality homes that support sustainable communities Their focus on people, homes and communities has created successful developments nationally by understanding that well planned, well designed and well-built homes is the essence of thriving communities.

Glenveagh are focused on three core markets - suburban housing, urban apartments and partnerships with local authorities and state agencies. Since the Initial Public Offering (IPO), the company have opened 23 sites, delivering more than 3,200 units (1,350 no. units in 2022), and project the delivery of over 2,700 units in 2024. In the financial year of 2023, the Group received granted permissions for approximately 4,600 units over twenty applications.

1.3 Reference to Guidelines Relevant to Discipline

This chapter has been prepared in accordance with the following guidelines:

- Guidelines on the Information to be Contained in Environmental Impact Reports (EIAR) (Environmental Protection Agency (EPA), May 2022).

- Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report (EU, 2017).
- Environmental Impact Assessment of Projects: Guidance on Scoping (EU, 2017).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018).

Each chapter of this EIAR contains a complete list of Guidelines and Policy relevant to specific disciplines.

1.4 Brief Project Description

A detailed description of the proposed development is provided in **Chapter 2** of this EIAR.

Planning permission is sought for a large-scale residential development on a proposed development site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two blocks ranging in height from 3-5 storeys. All units include private open space, predominantly as balconies and ground floor level terraces. The proposed development includes communal and public open space at ground level.

63 car parking spaces including 4 accessible spaces and 13 electric vehicle (EV) charging spaces, and 6 motorcycle spaces are proposed at surface level. A total of 410 bicycle parking spaces are proposed including the provision of secure bicycle stores.

To facilitate vehicular and pedestrian access, demolition of three sections of the existing northern boundary wall, which fronts Howth Road is proposed.

Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

See **Figure 1.1** below for the proposed development site layout.

Figure 1-1 Proposed Development Site Layout (Source: John Fleming Architects (JFA))

1.5 Proposed Development Site & Context

The proposed development site comprises a 1.53ha site, located adjoining Howth Demesne, Deer Park, Howth, Co. Dublin.

The proposed development site is located to the south of Howth Road (R105), west of Howth DART Station and to the east of Sutton Cross.

Howth is largely characterised by low to medium density residential dwellings with large expanses of amenity areas (Howth Head, golf clubs, walking trails and beaches). Howth town centre overlooks the seafront with a busy and active pier area to the north of the Main Street. The exceptional character of Howth is recognised through the Howth Special Amenity Area Order (SAAO) that encompasses 547 hectares of land, see **Figure 1.2** following. It includes Ireland's Eye (28 hectare island) and the heathland, woods, cliffs, shingle beaches and wooded residential areas of the south-eastern half of the Howth peninsula (519 hectares).

The Order aims to preserve and enhance the character and special features of Howth. It designates a 21-kilometre network of rights-of-way as public footpaths and 35 sites and areas of special natural,

historical, architectural, archaeological, and geological interest. Neither the trails or sites are located within the proposed development site, however, they do offer significant amenity value for the existing and futures residents of Howth.

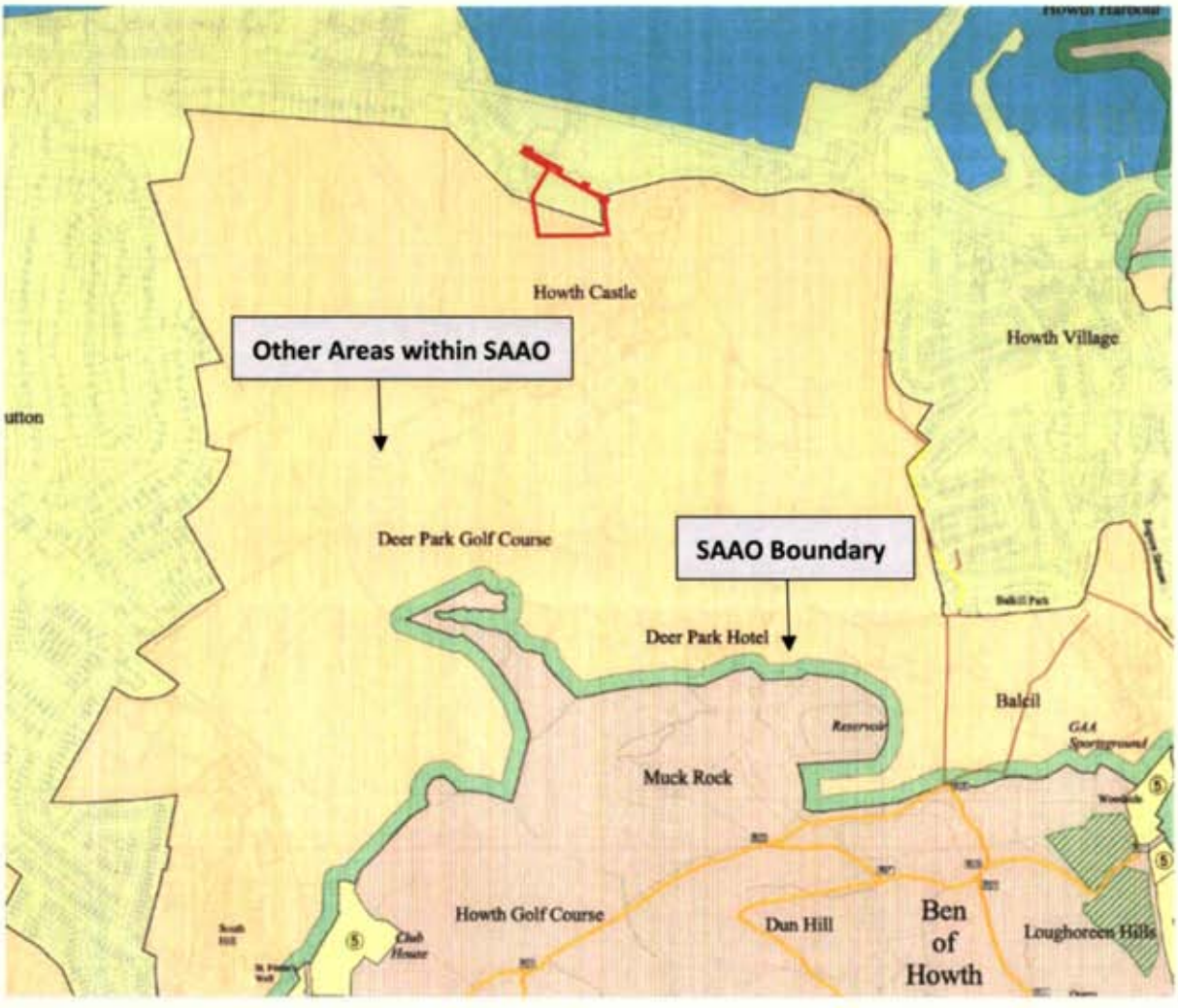


Figure 1-2 Howth SAAO

Figure 1.2 above is extracted from the Howth SAAO Map A. A small portion of the residential zoned land of the proposed development site is located within the SAAO 'Other Areas' zone (buffer). The southern part of the proposed development site, zoned HA, comes within an area defined as 'other areas' within the SAAO which acts as a buffer zone for the actual SAAO. Within the high amenity zoned land, no development is proposed in this part of the proposed development site, and this area will be used only as open space. The development has been sensitively designed specifically having regard to the Order, and will continue to preserve and enhance the character and special features of Howth. A small portion (102sq.m) of the site falls within the boundary of the adjoining Architectural Conservation Area (ACA). The area is located in the north eastern corner of the site and will facilitate works to provide a wider concrete footpath and the provision of a new stepped pedestrian access through the existing boundary wall, see **Figure 1-3** below. It is noted that the existing boundary wall located along the northern boundary of the site is not listed as a protected structure within the Fingal County Development Plan 2023-2029 (FCDP).

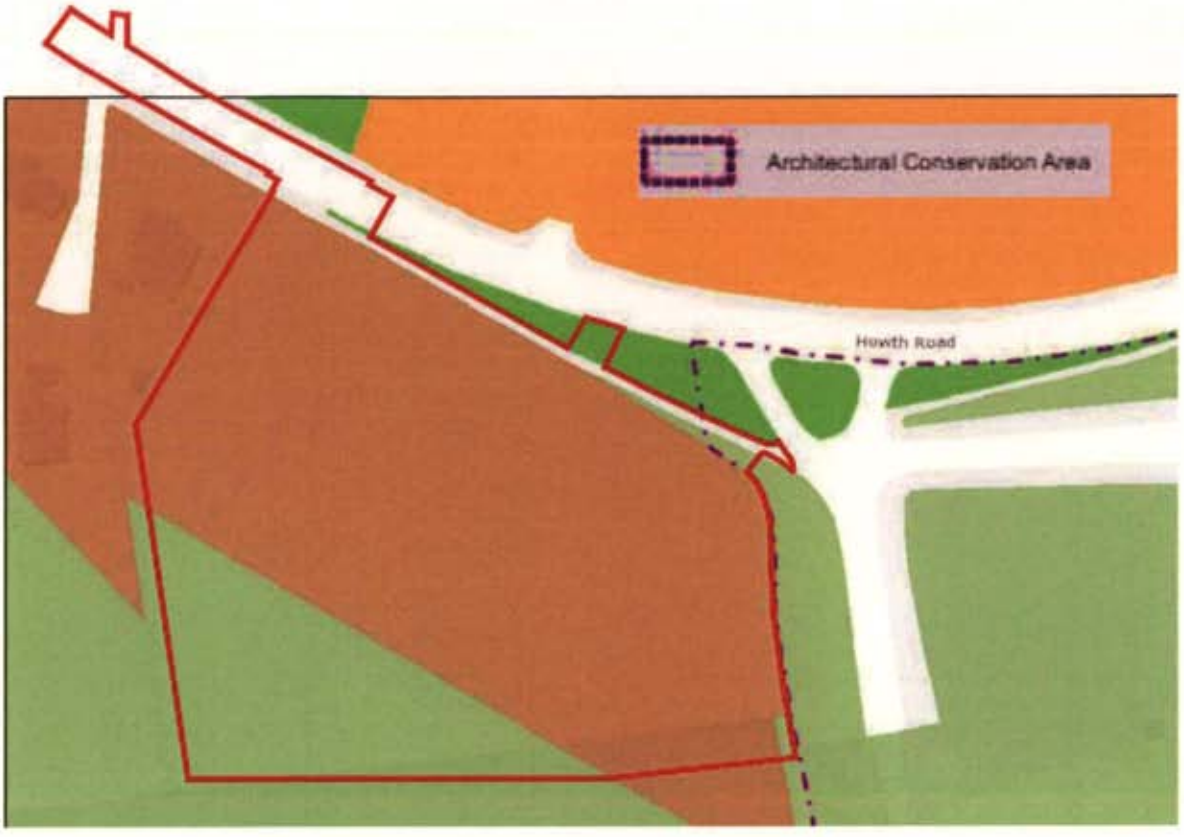


Figure 1-3 Part of the north eastern corner of the Site located within the ACA

1.5.1 Site Description

The proposed development site is an undeveloped 1.53ha greenfield site, of which 1.10 ha is zoned for residential development, see **Figure 1.4** overleaf. The proposed residential element is confined to the area that is zoned for residential use (1.1 ha residential zoned land). There is no existing access to the proposed development site from the public road, the R105, Howth Road, that runs to the immediate north as this boundary is defined by a stone wall.

To the east, the proposed development site is bounded by the existing entrance to Howth Castle demesne. To the west, it is bounded by boundary walls and immediately beyond that are low rise and low density suburban houses. The lands to the immediate south beyond the existing tree belt are occupied by Deer Park Golf Club (also located within the SAAO buffer area) and further south is the National Transport Museum and Howth Castle.

To the north of Howth Road is the former Techrete site which is currently under construction and will deliver 512 residential units with maximum building heights of 8 storeys. Upon completion, that scheme will include 2 shops, a creche, a café and a restaurant (ABP Ref. Reg: 306102).

Figure 1-4 Site Context Map (Source: JFA)

The proposed development site is enclosed along its northern and eastern boundary by the historic Howth estate demesne walls and mature trees, see **Figure 1.5** below. This is the only feature of built heritage existing within the proposed development site. The northern boundary wall is included on the National Inventory of Architectural Heritage (NIAH), Reg. Ref. 11358027. It is not identified as a protected structure in Fingal County Councils Record of Protected Structures.

Figure 1-5 Boundary Wall located along Howth Road (Source: 3D Design Bureau)

A combination of mature hedgerow and wall forms the western site boundary, beyond it are low-rise residential dwellings that form ribbon-type development along Howth Road in a westerly direction, toward Sutton Cross. To the south of the proposed development site, an extensive tree belt (approx. 25-30 years old) with an east-west alignment delineates the boundary with Deer Park Golf Course, see **Figure 1.1**.

1.5.2 Wider Context

The proposed development site is an approx. 1.2km walk from Howth town centre and an approx. 2km walk from Sutton Cross. A cycle lane runs along Howth Road, connecting the proposed development both to Howth Village and Sutton, and onwards to Dublin.

In addition to the array of services for daily needs available in Howth Village, the proposed development is proximate to amenities such as the Hill of Howth loop walks, the Martello Tower Museum, and Balscadden Bay Beach. The application site is also located close to local childcare facilities, primary schools, secondary schools and sporting facilities, such as Howth primary school, Montessori's, Deer Park Golf Club, Baltray Park Tennis Club and Howth Yacht Club, see **Figure 1.6** overleaf. Further details in this regard can be located within the Childcare Demand Report (CDA), School Demand Assessment (SDA) and Social Infrastructure Assessment (SIA) which accompany this application under separate cover.

The proposed development site is located less than 500m from Howth Train Station (5-minute walk time); this station is served by DART services to Dublin City Centre and as far south as Greystones, with service to the city centre operating every 12 to 15 minutes during the morning peak. The Dublin Bus services in the area provide direct linkage to the city centre, most notably the new H3 bus route (BusConnects) along Howth Road towards the city centre. This is located c. 100 meters (c. 2-minute walk from the Site.

With regards to currently proposed transportation projects, the DART+ Coastal North project, if permitted[1], proposes a significant enhancement to the capacity of Howth's railway services which will double the capacity of passengers per 3-hour peak and increase services from 9-18 per 3-hour peak to Howth.

The proposed development site is approx. 120m northwest of Howth Castle (RPS ID0556) and approx. 100m west of St Mary's Church (RPS ID 0594), both identified as protected structures in the Record of Protected Structures contained in the FCDP 2023-2029. The historic demesne woodland surrounds and offers screening to these buildings and their setting. Howth Castle and part of its wider demesne land is within an ACA; and a small portion of the north eastern corner of the subject site is located within the ACA boundary.

[1] Iarnród Éireann is in the process of finalising the design and statutory documents, with the intention of submitting the Railway Order in the summer of 2024.

Figure 1-6 Local Transportation and Social Infrastructure (Source: JFA)

1.6 Environmental Impact Assessment

The Environmental Impact Assessment (EIA) of Projects is a key instrument of European Union environmental policy to ensure a high level of protection of the environment and human health. The EIA Directive requires that public and private projects that are likely to have significant effects on the environment be made subject to an assessment by the competent authority, in this case Fingal County Council, prior to development consent being given.

As outlined in the Introduction, the definition of EIA provides for a clear distinction between the process of environmental impact assessment to be carried out by the competent authority and the preparation by the developer of an Environmental Impact Assessment Report (EIAR).

EIAR is defined in the Planning and Development Act 2000, (as amended) as '*a report of the effects, if any, which proposed development, if carried out, would have on the environment and shall include the information specified in Annex IV of the Environmental Impact Assessment Directive*'.

Projects requiring EIA are set out in Annex I and II of the EIA Directive. These Annexes are broadly transposed by way of the Planning and Development Regulations 2001, as amended, in Schedule 5, Parts 1 and 2.

EIA is a process and involves the following key steps:

i. Screening - decide if the project is EIA development;
ii. Scoping - decide on scope of the information to be included in the Environmental Impact Assessment Report (EIAR);

iii. Prepare the Environmental Impact Assessment Report to accompany the application;
iv. Competent Authority carries out consultation;
v. Competent Authority examines the EIAR and any other relevant information including information received from consultations;
vi. Competent Authority comes to a reasoned conclusion on the potential significant effects of the project on the environment; and
vii. Competent Authority integrates the reasoned conclusion into a decision to Grant consent for a development together with a description of measures to avoid, prevent, reduce or offset significant adverse effects and where necessary monitoring measures.

1.6.1 Screening for Environmental Impact Assessment

The first stage of Screening is to decide if a proposed development falls within a class set out in Annex I or II of the Directive or the Planning and Development Regulations 2001, as amended, in Schedule 5, Parts 1 and 2.

Part 1 developments meeting or exceeding the thresholds set out therein require mandatory EIA and, as such, there is no screening determination required. For Part 2 developments, in cases where thresholds are met or exceeded, or where no threshold is set, there is mandatory EIA; again, there is no screening determination required.

For all sub-threshold developments listed in Schedule 5 Part 2, a screening determination is required to be undertaken by the competent authority unless, on preliminary examination it can be concluded that there is no real likelihood of significant effects on the environment.

The proposed development does not fall within development classes set out in Part 1 of Schedule 5.

The proposed development falls within the category of an 'Infrastructure Project' listed in Schedule 5, Part 2 (10) (b) of the PDRs, which provides that a mandatory EIA must be carried out for projects including inter alia:

> *'10b) (i) Construction of more than 500 dwellings'*

The proposed development is for 135 residential units and is significantly below the 500 dwellings threshold. Accordingly, it does not meet or exceed the threshold of 500 dwellings and EIA is therefore not mandatory.

> *'10b) (iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere. (In this paragraph, "business district" means a district within a city or town in which the predominant land use is retail or commercial use.)'*

The proposed development site is surrounded by residential development, a golf course and demesne lands and does not satisfy the definition of business district. The applicable area threshold is therefore 10 hectares, and the proposed development site is 1.53 hectares. Accordingly, an EIA is not mandatory.

1.6.2 Sub-threshold Screening for EIA

In cases where a project is listed in Part 2 but is sub-threshold i.e. it does not meet stated criteria such as in this case the number of houses and area of the proposed development site, it is necessary for the competent authority, in this instance Fingal County Council, to undertake a case-by-case examination to determine whether the proposed development is likely to have significant effects on the environment and therefore requires EIA. Where the assessment concludes that this is the case, the application for development must be accompanied by an EIAR.

The criteria for determining whether development listed in Part 2 of Schedule 5 should be subject to an EIA are set out in Schedule 7 of the PDRs; and the information to be provided by the Applicant to the Competent Authority for the purposes of screening sub-threshold development for EIA is set out in Schedule 7A. The requirements and information required are set out below.

1. *A description of the proposed development, including in particular—*
    a) *a description of the physical characteristics of the whole proposed development and, where relevant, of demolition works.*

The proposed development site is greenfield comprising a site 1.53 hectares. The net developable area is 1.10 ha and 3,113 sq.m is zoned High Amenity.

The development will consist of the construction of:

I. two blocks ranging in height from 3-5 storeys providing 135 residential units comprising:
    a) 63 one-bedroom units, and
    b) 72 two-bedroom units;
II. a public open space area of 1,676 sq.m and. communal open space with an area of 890 sq.m;
III. 63 surface car parking spaces, including 4 accessible parking spaces & 13 EV charging spaces, and 6 motorcycle spaces;
IV. the provision of 410 bicycle parking spaces, including 342 secure bicycle spaces and 68 visitor spaces;
V. demolition of 3 sections of the existing demesne northern boundary wall, which fronts Howth Road to facilitate vehicular access in the northwestern corner and two separate pedestrian and cyclist access points along the centre and eastern side of the northern boundary wall;
VI. Works to protect and conserve the remaining extant northern and eastern demesne boundary wall;
VII. undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipe around the site;
VIII. Works to facilitate bicycle infrastructure upgrades and drainage connections along Howth Road; and
IX. ESB kiosks, rooftop solar photovoltaics, waste storage and plant rooms, drainage, bicycle storage areas, boundary treatment, public lighting, and all ancillary site and development works to enable the proposed development.

    b) *a description of the location of the proposed development, with particular regard to the environmental sensitivity of geographical areas likely to be affected.*

The proposed development site is in an area of high environmental sensitivity in terms of *inter alia* landscape, biodiversity, and cultural heritage. The proposed development site is enclosed by an existing boundary wall along its northern and eastern boundary. It is proposed to make 3 openings in the wall to facilitate access and enhance permeability through the site.

Howth Castle Architectural Conservation Area (ACA) adjoins the site to the east and forms part of a small portion (102sq.m) of the north eastern corner of the site. The proposed development site is in proximity to the main entrance gates to Howth Castle and the 19th Century St. Mary's Church, both Protected Structures.

The exceptional character of Howth is recognised through the making of the Howth SAAO. The Order aims to preserve and enhance the character and special features of Howth. Only a small portion of the land zoned for residential development is within the SAAO 'Other Area' boundary. The land zoned High Amenity to the south is defined as 'other areas' within the SAAO. This is identified in the Fingal County Development Plan, 2023-2029, as a 'buffer zone'.

From the upper elevations of the SAAO area, panoramic views are generally afforded, with compositions including the upland landscape and golf courses, the Howth urban area, the wider city, the coastline to the north and south of Howth Head and the seascape.

Howth falls into the Coastal Character Type in the Development Plan which is characterised as having an exceptional landscape value: *"This value is arrived at due to the combination of visual, ecological, recreational and historical attributes. The area has magnificent views out to sea, to the islands and to the Mourne and Wicklow mountains and contains numerous beaches and harbours. The area's importance is highlighted by the High Amenity zoning covering substantial parts of the area..."*

There are several protected views in the site vicinity, indicated on Sheet No. 10 of the Fingal Development Plan Map. These include:

- The view into the Howth Castle entrance from Howth Road, and the reverse view, from the castle (and Deer Park golf club) access road out through the gate towards the north;
- A view from the fairway to the west of the Deer Park clubhouse, north towards the castle and a view from the Deer Park golf club and hotel car park towards the golf course;
- Views from Muck Rock;
- Views from the ends of the piers of Howth Harbour.

Baldoyle Bay is located approx. 150m to the north of the proposed development site. It is a European Site (Special Area of Conservation [SAC, site code IE0000199] and a proposed Natural Heritage Area (pNHA, site code 000199). There is a direct connection between the proposed development site and Baldoyle Bay via the storm water network. Wintering bird species associated with European sites are known to be present in Howth.

2. *A description of the aspects of the environment likely to be significantly affected by the proposed development.*

The aspects of the environment likely to be significantly affected by the proposed development are:

i. cultural heritage,

ii. the landscape and visual environment,
iii. biodiversity, and,
iv. the local road network.

The boundary wall to the north and east of the proposed development site, while not protected, is of heritage value. It is proposed to make three openings and to preserve and enhance the northern wall to facilitate access to the proposed development site. Therefore, it is concluded at the screening stage, in the absence of detailed design, that cultural heritage, is likely to be significantly affected by the proposed development.

The introduction of buildings of urban scale will likely change the local landscape and views within the immediate environs. The assessment of potential landscape/townscape effects involves (a) classifying the sensitivity of the receptors (the main elements, features, characteristics and character areas that could be affected), (b) classifying the potential magnitude of change to each of the receptors, (c) combining these factors to arrive at an assessment of significance of the effects on each receptor, and (d) making a judgement as to the quality of the effects, i.e. classifying them as positive, neutral or negative. In the absence of a detailed study at this screening stage, a precautionary approach is applied having regard to the overarching objective of the EIA Directive. It is thus concluded that there is likely to be significant effects on the landscape and visual character, as a result of the proposed development.

Impacts arising from the proposed development may affect key ecological features. These key ecological features may occur within the subject lands or within the considered zone of influence (ZoI) of the proposed development. Typically, the ZoI of general construction activities (i.e. habitat loss, habitat fragmentation, risk of spreading/introducing non-native invasive species and disturbance due to increased noise, vibration, human presence and lighting) is not likely to extend more than several hundred metres from the proposed development site. At this screening stage key ecological receptors (KERs) for the proposed development are identified as:

- Watercourses and the downstream aquatic environment.
- European Designated sites located in the downstream receiving environment.
- Fauna species which commute within the proposed development site and/or immediate vicinity.

At this screening stage, there is a known presence of wintering birds in the wider Howth area. Accordingly, it is concluded that a precautionary approach be adopted at this early stage of the process, and it is assumed in the absence of full studies that the conservation objectives of nearby Designated European Sites are likely to be significantly affected by the proposed development.

In light of potential concerns that might be expressed about congestion issues at Sutton Cross, it was considered that a precautionary approach should be taken at the screening stage. Accordingly, a precautionary approach is adopted, and it is determined that in the absence of a project specific traffic and transport assessment, a likely significant effect may arise.

3. A description of any likely significant effects, to the extent of the information available on such effects, of the proposed development on the environment resulting from—

a) the expected residues and emissions and the production of waste, where relevant,

It is proposed to deliver a residential development and emissions associated with this type of development are waste water effluent, storm water runoff and energy related emissions from energy consumption and emissions associated with the use of private vehicles.

Foul Water Emissions

There is a known municipal foul sewer adjacent to the site and it is intended to connect into this. At the time of undertaking this screening assessment, Uisce Éireann (UÉ) have confirmed the feasibility of this connection with the Applicant.

The wastewater generated will discharge to the Deer Park Wastewater Pumping Station (WwPS) and eventually Ringsend Wastewater Treatment Plant (WwTP), where it is treated and ultimately discharges into Dublin Bay. The WwTP is required to operate under an EPA licence (D0034-01) to meet environmental legislative requirements.

The Ringsend WwTP received planning permission for upgrade works in 2012. In June 2018, Irish Water submitted a planning application for strategic infrastructure development to An Bord Pleanála seeking permission to further progress the upgrade of the Ringsend Wastewater Treatment Plant (WWTP) and in April 2019, Irish Water was granted planning permission by An Bord Pleanála to further progress the upgrade of the Ringsend WwTP.

The 2019 planning permission facilitated upgrading works to meet nitrogen and phosphorus standards set out in the licence. The design includes aerobic granular sludge which will result in treatment of sewage to a higher quality than current thereby ensuring effluent discharge to Dublin Bay will comply with the Water Framework Directive, Urban Wastewater Treatment Directive and Bathing Water Directive. It is understood that the upgrade to use of aerobic granular sludge and other phased upgrades will achieve a population equivalent of 2.4 million. As outlined in the EIAR, with the 2018 planning submission, modelling has shown that the upgrades which are currently underway will result in improved water quality within Dublin Bay. The 2018 EIAR predicts that the improvement in effluent quality achieved by the upgrade will compensate for the increase in flow through the plant.

Uisce Éireann is working to provide infrastructure to achieve compliance with the Urban Wastewater Treatment Directive for a population equivalent of 2.1 million in the second half of 2023. When the proposed works are complete in 2025, the Ringsend WwTP will be able to treat wastewater for up to 2.4 million population equivalent, while meeting the required standards. Given the timeframe for the delivery of the upgrade works, it is anticipated that the upgraded WwTP will be complete ahead of the operational stage of the proposed development (18 month construction programme).

The project is being progressed in stages to ensure that the plant continues to treat the wastewater (1.98 million population equivalent) to the current treatment levels throughout the delivery of the upgrade. The project comprises 3 key elements and underpinning these is a substantial programme of ancillary works:

1. Provision of additional secondary treatment capacity with nutrient reduction (400,000 population equivalent);
2. Upgrade of the 24 existing secondary treatment tanks to provide additional capacity and nutrient reduction, which is essential to protect the nutrient-sensitive Dublin Bay area; and
3. Provision of a new phosphorous recovery process.

In February 2018, the work commenced on the first element, the construction of a new 400,000 population equivalent extension. These works were complete, and the capacity upgrade facility began accepting flows for treatment in November 2021.

Surface Water Emissions

The design of the surface water drainage network must take cognisance of the objectives and guidance contained in the Greater Dublin Strategic Drainage Study (GDSDS). The objective of this study is to ensure an environmentally sustainable drainage (foul and stormwater) strategy for the Region consistent with the EU Water Framework Directive. A 30% climate change factor will be included for the design of the surface water network.

At the time of screening the project for EIA, it is known that there is an existing surface water sewer to the north of the proposed development site that discharges north towards the Baldoyle Bay c. 160m to the proposed development site. The Applicant commissioned a Ground Penetrating Radar (GPR) and Topographical Survey to confirm the location and invert level of the existing 300mm dia. surface water sewer located northwest of the proposed development site to facilitate a new gravity connection from the proposed development site). There is therefore a direct hydrological connection between the proposed development site and Baldoyle Bay SAC/SPA/pNHA via the surface water drainage network and the potential for a likely significant effect to arise during the construction phase.

This is as a result of:

i. runoff during the construction phase may contain increased silt levels or become polluted from construction activities. Runoff containing large amounts of silt can cause damage to surface water systems and receiving watercourses.
ii. During the construction phase there is potential for an increase in run-off due to the introduction of impermeable surfaces and the compaction of soils. This will reduce the infiltration capacity and increase the rate and volume of direct surface run-off. The potential impact of this is a possible increase in surface water run-off and sediment loading which could potentially impact local drainage.

Potential for impacts during the operational phase are deemed to be low due to the nature of the proposed development. The development will be fully serviced with separate foul and stormwater sewers as required by the GDSDS which will have adequate capacity for the facility and discharge limits as required by Úisce Eireann licencing requirements.

Emissions from Energy Usage

The proposed development will generate a need for energy, electricity and heating. The proposed development site will be designed to ensure compliance with the planning policy context for energy

reduction, renewable energy contribution and carbon emissions in accordance with both the FCDP and the Technical Guidance Document (TGD) Part L 2022 of the Building Regulations.

Nearly Zero Energy Buildings (NZEB) means a building that has a very high energy performance, and in which "*the nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby*".

Three design aspects demonstrate compliance with Part L/NZEB:

i. The limitation of primary energy use and CO2 emissions
ii. Building fabric - to limit heat loss
iii. The use of renewable energy sources

At the time of screening the proposed development, it is understood that the proposed development will comply with the requirements of Part L 2022 of the Building Regulations. Accordingly, it is concluded that a positive likely significant effect will occur.

Emissions from Vehicles

The provision of housing at this location served by a railway (DART) and bus routes would facilitate travel by alternative modes of travel other than the private car. Car parking will also be required to serve the proposed development.

The 2018 Design Standards for New Apartments (updated 2023) promote reducing car parking. Further the guidelines promote active travel modes through the provision of safe and secure cycle parking facilities. It is understood that it is intended to comply with these requirements and while increased vehicular movements may affect air quality locally, this will be balanced with a targeted focus on increasing active modes of transport and promoting more sustainable transport mode usage so there is no likely significant effect.

Waste

A review of historic mapping indicates that the proposed development site has always been greenfield. The Site Investigations undertaken confirmed the site is free of contamination. It is not anticipated that the excavation of soils to facilitate the construction of the proposed development would give rise to waste generation as they are intended to be sent elsewhere with an Article 27 by product notification confirming they are not wastes.

Sustainability is a key objective for the Applicant and the waste hierarchy principles of reduce, reuse, recycle will be implemented in the development phase. It is therefore anticipated that waste will be minimised during construction and likely significant effects will not arise.

During the operational stage, 3-bin systems to encourage waste segregation at source of organics. This will assist with meeting the EUs municipal waste recycling target and achieve a circular economy.

3. *A description of any likely significant effects, to the extent of the information available on such effects, of the proposed development on the environment resulting from—*
    b) the use of natural resources, in particular soil, land, water and biodiversity.

Land Use

The development of the site for residential development will result in a land use change. This is considered positive having regard to the site's location within a built-up area, the availability of infrastructural services (drainage and water supply) with confirmed capacity to service the proposed development. The change in land use is compliant with the site's zoning and this designation would in itself have been confirmed as environmentally acceptable during the making of the FCDP that was itself subject to a Strategic Environmental Assessment (SEA) and appropriate assessment (AA).

Soil

Development of the site will necessitate the stripping of topsoil and excavation of subsoils. Owing to the historical use of the site and the site investigations carried out, the material is classified as uncontaminated, and the Applicant intends classifying it as a byproduct through an Article 27 notification to the Environmental Protection Agency (EPA).

The notification of a potential by-product would provide the Applicant with an opportunity to demonstrate, with an appropriate level of rigour, that:

- the material can have a further use and not be regarded as a waste;
- the material can be used as a 'secondary' resource in place of, and fulfilling the same role as a non-waste derived or virgin 'primary' resource; and
- the material can be used without causing overall adverse impacts to the environment or human health.

There is nothing to suggest at this stage that the notification would be rejected. The fundamental objective of classifying the stripped and excavated material as a byproduct would be to avoid unnecessary waste and allow for the use of the material as a resource. This in turn would minimise the requirement for the extraction of additional natural resources thereby promoting the circular economy objectives.

Water

The proposed development will require a connection to the water supply. At the time of screening the project it is known that (i) there is an existing 160mm MOPVC pipe watermain on Howth Road and (ii) Uisce Éireann have confirmed the feasibility of making a connection without infrastructure upgrades through the pre-connection enquiry system. Accordingly, the supply of water to the proposed development is not anticipated to generate a likely significant effect.

Biodiversity

The proposed development site is predominantly greenfield. It is surrounded by habitat that would likely support a rich array of biodiversity. It is necessary to undertake detailed habitat, flora and fauna studies to understand the significance of the effect on biodiversity arising from the proposed development.

4. *The compilation of the information at paragraphs 1 to 3 shall take into account, where relevant, the criteria set out in Schedule 7.*

Schedule 7 of the PDRs sets out the criteria for determining whether development listed in Part 2 of Schedule 5 should be subject to an EIA.

It requires consideration of:

The characteristics of the proposed development, in particular;

a) the size and design of the whole of the proposed development

This is set out in the preceding section.

b) cumulation with other existing development and/or development the subject of a consent for proposed development for the purposes of section 172(1A)(b) of the Act and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment

To inform this screening assessment, a review of existing and consented development has been undertaken. The most notable consented development that cumulatively may result in a significant effect is the permitted mixed use SHD, 'Claremont' (Ref. PL06F.306102) on the former Techrete site to the north of Howth Road (partially located directly across from the proposed development site). The permitted development will include the demolition of existing structures to make way for the development of 512 apartments, 2 shops, a creche, a restaurant and a café.

The construction phase of the proposed development may overlap with the development of Claremont. However, at this point, construction works are underway on the adjacent Claremont site in excess of 12 months at the time of writing (May 2024). If an overlap is anticipated , it is not estimated that this will be for a significant amount of time when the assessment period of the proposed application and pre-commencement compliance for the proposed development is taken into consideration. There is a potential for a cumulative impact on the use of the junction at Sutton Cross if both developments proceed at the same time. However, the impact from construction traffic would be temporary and the implementation of a Construction Traffic Management Plan would alleviate likely significant impacts and the impact at the operational phase would be alleviated by the implementation of a MMP.

c) the nature of any associated demolition works

As outlined previously, demolition works are minor in nature and are limited to openings in the northern demesne boundary wall to facilitate access to the site.

d) the use of natural resources, in particular land, soil, water and biodiversity

This aspect is dealt with above and with the exception of biodiversity, based on the available information at the screening stage it is possible to exclude significant effects on natural resources.

e) the production of waste

It has been concluded that where waste does arise it will be minimised and dealt with in accordance with the waste hierarchy.

f) pollution and nuisances

There is a risk of pollution of the local water environment during the construction phase but the application of standard proven construction practices for the protection of water will mitigate likely significant effects. Noise, vibration and dust nuisance during the construction phase are likely to occur and these will be mitigated using best industry practices. The duration of effects would be short-term.

g) the risk of major accidents, and/or disasters which are relevant to the project concerned, including those caused by climate change, in accordance with scientific knowledge

Having regard to the nature of the proposed development, consideration must be given to the risk of a natural disaster, specifically, flood risk. To inform this screening assessment, a search of the Office of Public Works (OPW) national flood information portal was undertaken and did not identify any historical flood events at or proximate to the site. Similarly, predictive flood mapping (https://www.floodinfo.ie/map/floodmaps/) was examined and it did not identify the proposed development site as being at risk of fluvial or coastal flood risk. Accordingly, the proposed development site is classified as Flood Zone C with a low probability of flooding and in line with the OPWs Planning System and Flood Risk Management Guidelines (2009) development in this zone is appropriate from a flood risk perspective. In line with best practice, climate change factors will be applied to the drainage design.

h) the risks to human health (for example, due to water contamination or air pollution)

This is dealt with earlier in the screening and it is concluded that with best practice construction measures in place, the risk to human health is low. Owing to the nature of the proposed development and integrated design measures (energy efficiency, reduced car parking and promotion of active and sustainable transport modes) the risk to human health during the operational stage is imperceptible.

Location of proposed development, the environmental sensitivity of geographical areas likely to be affected by the proposed development, with particular regard to -

a) the existing and approved land use

The proposed development site is greenfield. The proposed residential development is wholly contained within that area zoned residential. An area to the south is zoned High Amenity and works in this area are confined landscaping and the provision of exercise areas.

b) the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground

Howth SAAO encompasses 547 hectares. It includes Ireland's Eye (28 hectares) and the heathland, woods, cliffs, shingle beaches and wooded residential areas of the south-eastern half of the Howth peninsula (519 hectares). This designation provides a high level of protection for land and by extension soil on the peninsula.

The core settlement strategy for Howth in the FCDP indicates a figure of 500 potential residential units. In alignment with the National Planning Framework (NPF) and the Regional Spatial and Economic Strategy (RSES), the FCDP identifies 20 hectares of residential zoned land in Howth, this is minor in the context of the overall land availability and demonstrates that the natural resources of land, soil and biodiversity benefit from a very high degree of protection. Residential development is

suitable on these lands, even having regard to the taking account of the SAAO given the retained zoning by Fingal County Development Plan 2023-2029.

The confirmation of feasibility received from UÉ confirms that there is sufficient water supply and wastewater treatment capacity, subject to upgrades, to service the proposed development.

The Irish Sea Dublin (HA 09) coastal waterbody hosts the Baldoyle Bay and according to the EPA information, has a 'Good' WFD status and is 'Not at risk'[2] of not achieving good status.

Water quality data is collected for nearby Claremont Beach bathing area and is reported by the EPA on www.beaches.ie. The EPA bathing status is not based on single events, rather it is based on a review of data over 4 years (based on data collected during the bathing season only). Bathing classes are determined as Excellent (highest cleanest class), Good (Generally good water quality), Sufficient (The water quality meets the minimum standard) and Poor (The water quality has not met the minimum standard). A review of this data for the last four years, shows that the Claremont Beach is classified as achieving 'Sufficient' Water Quality in 2023. Claremont Beach had a Sufficient Water Quality rating in 2022 and 2021 and achieved a Sufficient Water Quality rating in 2020.

The proposed development is located over the 'Dublin' (EU Code IE_EA_G_008) WFD groundwater body (GWB). The most recent WFD groundwater status (2013-2018) is 'Good' for this GWBs (A more recent status update is not currently available on the https://gis.epa.ie/EPAMaps/ website).

> *c) the absorption capacity of the natural environment, paying particular attention to the following areas: (i) wetlands, riparian areas, river mouths; (ii) coastal zones and the marine environment; (iii) mountain and forest areas; (iv)nature reserves and parks; (v) areas classified or protected under legislation, including Natura 2000 areas designated pursuant to the Habitats Directive and the Birds Directive and; (vi)areas in which there has already been a failure to meet the environmental quality standards laid down in legislation of the European Union and relevant to the project, or in which it is considered that there is such a failure; (vii)densely populated areas; (viii) landscapes and sites of historical, cultural or archaeological significance.*

As identified earlier, the proposed development site is in an environmentally sensitive location with respect to cultural heritage, landscape, biodiversity and European Designated sites. A precautionary approach is required in this instance to assess the ability of the site to absorb the proposed development without residual significant environmental impacts. This screening assessment was undertaken at the early stages of the design development and applying the precautionary principle, a worst-case outcome was applied, and it was recommended that EIA would be necessary.

> *Types and characteristics of potential impacts*
>
> *The likely significant effects on the environment of proposed development in relation to criteria set out under paragraphs 1 and 2, with regard to the impact of the project on the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment report' in section 171A of the Act, taking into account—*

[2] Source: https://gis.epa.ie/EPAMaps/Water

(a) the magnitude and spatial extent of the impact (for example, geographical area and size of the population likely to be affected),
(b) the nature of the impact,
(c) the transboundary nature of the impact,
(d) the intensity and complexity of the impact,
(e) the probability of the impact,
(f) the expected onset, duration, frequency and reversibility of the impact,
(g) the cumulation of the impact with the impact of other existing and/or development the subject of a consent for proposed development for the purposes of section 172(1A)(b) of the Act and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment, and
(h) the possibility of effectively reducing the impact

Based on the foregoing and the fact that the design of the proposed development is at an early stage when undertaking this screening assessment, it is concluded that the main likely potential effects of the proposed development on the environment are as follows:

i. Temporary potential effects locally on human health, air quality and noise and vibration from the construction phase.
ii. Temporary effects on the local road network, specifically Sutton Cross from the construction phase and in particular if the proposed development overlaps with the construction phase of the adjacent Claremont development.
iii. Potential permanent effects on traffic and transport during the operational phase of the development.
iv. Potential temporary to permanent effects on key ecological features including European Designated Sites, downstream aquatic environment and species which commute/forage within the proposed development site and/or immediate vicinity.
v. Potential permanent effect on the townscape and the wider Howth area when viewed from elevated locations and in combination with the approved Claremont development.
vi. Potential permanent effect on cultural heritage in particular built heritage i.e. the existing demesne boundary wall and local Protected Structures.

To conclude with certainty that the proposed development, having regard to the nature, size and location would not result in likely significant effects on the environment, it is our professional opinion that this sub-threshold project requires EIA to fully address the likely significant environmental effects identified in this screening stage.

1.7 Content of an Environmental Impact Assessment Report

This EIAR addresses the provides the following information:

a) A description of the project comprising information on the site, design, size and any other relevant features of the project;
b) A description of the likely significant effects of the project on the environment;

c) A description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
d) A description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics and an indication of the main reasons for the options chosen, taking into account the effects of the project on the environment;
e) A non-technical summary; and,
f) Any additional information specified in Annex IV of the Directive/Schedule 6 to the 2001 Regulations, as amended, relevant to the specific characteristics of the project and to the environmental features likely to be affected.

As is required by Annex IV of the EIA Directive, this EIAR addresses matters including proposed demolition works, risks to human health, major accidents / disasters, biodiversity, climate change and cumulative effects with other existing and / or approved projects.

1.8 Competency

It is a requirement that the EIAR must be prepared by competent experts. For the preparation of this EIAR, GLL PRS Holdco Limited engaged McCutcheon Halley Chartered Planning Consultants to direct and coordinate the preparation of the EIAR and a team of qualified specialists were engaged to prepare individual chapters, the consultant firms and lead authors are listed in **Table 1.1** overleaf.

Details of competency, qualifications and experience of the lead author of each discipline is outlined in the individual chapters.

1.9 Format and Structure of the EIAR

This EIAR is prepared according to the 'Grouped' format structure as described in the *'Guidelines on the information to be contained in Environmental Impact Assessment Reports'* (EPA, 2022). This means that each environmental factor, it is considered as a separate section. The advantages of using this format are that it is easy to investigate a single topic and it facilitates easy cross-reference to specialist studies.

Table 1.1 Chapters of EIAR and Contributors

Chapter	Aspect	Significance	Lead Consultant
1	Introduction	McCutcheon Halley Planning Consultants	Rachel Condon
2	Development Description	McCutcheon Halley Planning Consultants	Rachel Condon
3	Alternatives	McCutcheon Halley Planning Consultants	Rachel Condon
4	Population & Human Health	McCutcheon Halley Planning Consultants	Rachel Condon
5	Landscape & Visual Impact	ÁIT Urbanism	Margaret Egan
6	Material Assets: Traffic & Transport	DOBA	Eoin Munn, Jurek Gozdek, Narendra Jillelamudi
7	Material Assets: Built Services	DOBA	Paul Doyle & Donnachadh O'Brien

Chapter	Aspect	Significance	Lead Consultant
8	Material Assets: Waste	Byrne Environmental	Ian Byrne
9	Land & Soils	DOBA	Donnachadh O'Brien & Paul Doyle
10	Water & Hydrology	DOBA	Paul Doyle & Donnachadh O'Brien
11	Biodiversity	Enviroguide	Liam Gaffney
12	Noise & Vibration	AWN Consulting Limited	Abe Scheele
13	Air Quality	AWN Consulting Limited	Aisling Cashell & Ciara Nolan
14	Climate	AWN Consulting Limited	Aisling Cashell
15	Cultural Heritage - Archaeological	John Purcell Archaeological Consultancy	John Purcell
16	Cultural Heritage - Built Heritage	Flynn Architects	Sinéad Flynn
17	Interactions of the Foregoing	McCutcheon Halley Planning Consultants	Rachel Condon
18	Summary of Mitigation Measures	McCutcheon Halley Planning Consultants	Rachel Condon

The EIAR is sub divided into **3 No. volumes** as follows:

- **Volume I** Non-Technical Summary;
- **Volume II** Environmental Impact Assessment Report; and
- **Volume III** Appendices to Environmental Impact Assessment Report.

Volume II is presented as 18 chapters, as outlined in Table 1.1.

1.10 Scoping

The purpose of scoping is to identify the information to be contained in an EIAR and the methodology to be used in gathering and assessing that information.

The scope of this EIAR is informed by the requirements of the EIA Directive and its transposition into national legislation in the Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended).

The scope was also informed by information provided by the Design Team and specialists engaged to prepare the EIAR.

Guidance was provided by Fingal County Council during the Section 247 pre-planning meeting, LRD Meeting and LRD Opinion. Matters discussed related to conservation, scale and massing, visual impact, tree retention, public open space, traffic and surface parking layout, daylight and sunlight and surface water strategy. A detailed narrative of the pre-planning meetings and LRD Opinion is contained in the **Planning Statement** that accompanies this application under separate cover.

1.11 Cumulative Effects

Annex IV of the EIA Directive is to be read in conjunction with article 5(1) of the EIA Directive and sets out the information to be included in an EIAR. Annex IV was transposed into national law via article 97 of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (the "2018 Regulations") which substituted a new Schedule 6 into the Planning and Development Regulations 2000, as amended.

The EIA Directive requires that the EIAR describes the cumulation of effects with other existing and/or approved projects.

Cumulative effects may arise from:

"- The interaction between the various impacts within a single project;

- The interaction between all the differing existing and / or approved projects in the same areas as the proposed project." [3]

In August 2018, the Department of Housing, Planning and Local Government issued Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. The Guidelines summarise "cumulative effects" in the following way at page 40;

> *"Effects are not to be considered in isolation but cumulatively i.e., when they are added to other effects. A single effect on its own may not be significant in terms of impact on the environment but, when considered together with other effects, may have a significant impact on the environment. Also, a single effect which may, on its own, have a significant effect, may have a reduced and insignificant impact when combined with other effects.*

Paragraph 2(e)(i)(V) of Schedule 6 (paragraph 5(e) of Annex IV) provides as follows;

> *"the cumulation of effects with other* ***existing or approved developments, or both,*** *taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources." (emphasis added).*

Within the immediate environs (c. 200m) of the proposed development site, there are three relevant projects:

1. Claremont: The proposed development site is bounded by Howth Road (R105) to the north and beyond that a brownfield site, former 'Techrete' site, that received approval (Reg. Ref: 306102) for a high-density mixed-use development including 512 apartments, 2 shops, a crèche, a café and a restaurant across 4 buildings up to 8 storeys in height. This development is currently under construction and the construction programme or this development is stated as c. 36 months in the application documents.

[3] Department of Housing, Planning and Local Government, "Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment" (August 2018), page 40.

2. Deer Park Hotel: To the southeast of the proposed development site, planning permission Reg. Ref: F22A/0372 was issued for the replacement of the existing "Deer Park Hotel" building (and all associated structures) with a new 142-bed hotel, including: a bar, restaurant, gym/spa facility, swimming pool, retail, meeting rooms, bar and function area, external dining areas, photovoltaic panels, ESB substation, 170-space car park, and a new vehicular access. This was granted permission by Fingal County Council in July 2023. Subsequently, first and third party appeals were lodged to An Bord Pleanála in August 2023 and a decision is pending.
3. Howth Castle: Further southeast of the proposed development site, planning permission Reg. Ref: F22A/0046 proposed the refurbishment/redevelopment/change of use for part of the existing Howth Castle buildings, Stable Block and attendant lands including the demolition of some farm buildings, the refurbishment and construction of new buildings, and a change of use of part of the lower and upper ground floors of the castle and adjoining stable block and stable yard from primarily residential use to hospitality and tourist retail use. The site includes Protected Structures (Ref: 0556 and 0557). This was permitted by Fingal County Council in February 2023. A first party appeal (Reg. Ref: ABP 316113) was submitted to An Bord Pleanála in March 2023 and is yet to be determined.

Accordingly, each chapter of this EIAR assesses the cumulative effect of this proposal in combination with the above-mentioned developments, as relevant.

Individually, each specialist consultant has reviewed under construction, permitted and or under consideration development in their defined zones of influence and, based on expertise, they have identified projects relevant to their discipline that may interact to produce a cumulative effect. A full list of 'cumulative projects' in is provided as Appendix 1-1, of Volume III.

Wastewater from the proposed development will be treated at Ringsend Wastewater Treatment Plant prior to its discharge to Dublin Bay. The cumulative effect of the additional loading on the treatment plant is assessed in the Material Assets: Built Services chapter, Water Framework Directive Assessment, the Biodiversity Chapter and in the Appropriate Assessment Screening Report and Natura Impact Statement that accompanies this application under separate cover.

Cumulative effects are not limited to projects, and it is necessary to also consider relevant Plans. According to the Environment Protection Agency (2020), in Ireland, key cumulative effects – where environmental receptors are at, or near, their thresholds or their capacity to assimilate more change – include climate change, water quality, flood risk, air quality, biodiversity and landscape.

- **Fingal County Development Plan 2023-2029 (FCDP)** – gives spatial expression to the county's economic, social, housing and cultural development. The FCDP has a key role in protecting the environment, heritage and amenities of the county and in mitigating against the impacts of climate change. It includes policies and objectives for all of the aspects included in this EIAR. Accordingly, each chapter of the EIAR provides a narrative on the cumulative effect of the proposed development together with the Development Plan policies and objectives.

- **The Climate Action Plan, 2024 (CAP24)** – climate change is the ultimate cumulative effect, nationally and internationally. The Climate Action Plan 2024 (CAP24) is the third annual update to Ireland's Climate Action Plan. The Plan was approved by Government on 20

December 2023, subject to Strategic Environmental Assessment and Appropriate Assessment. Thresholds for greenhouse gas emissions are being exceeded. The Plan acknowledges that rapid and significant reductions in greenhouse gas (GHG) emissions are required if we are to meet the 2015 Paris Agreement Goals. The European Green Deal commits to delivering net-zero GHG emissions at EU level by 2050; with Ireland committed to achieving a 51% reduction in emissions from 2021 to 2030, and to achieving net-zero emissions no later than 2050. The cumulative effects of this Plan together with the proposed project are considered in the following chapters: Population & Human Health, Material Assets; Traffic & Transport and Air Quality & Climate.

- **The Greater Dublin Strategic Drainage Study (GDSDS)** – healthy waters are a valuable natural resource. They support a rich and diverse range of ecosystems, habitats and species. They are also important for recreational activities and tourism. The GDSDS was prepared to develop an environmentally sustainable drainage strategy for the Region consistent with the EU Water Framework Directive. The strategy outlines the requirements for foul and stormwater drainage capable of meeting the demands and longer-term development potential of the Region. The study is relevant to this subject proposal and it is considered in the cumulative effects sections of the Material Assets – Built Services chapter and the Water & Hydrology chapter.

- **Flood Risk Management Plan for the Liffey & Dublin Bay River Basin** – Increases in population can pose development pressures resulting in changes in land use. The purpose of the plan is to set out the strategy, including a set of measures, for the cost effective and sustainable, long-term management of flood risk in the Liffey-Dublin Bay River Basin. The cumulative effects of this Plan together with the proposed project is considered in the Water and Hydrology chapter.

- **National Biodiversity Plan** – The Plan sets out actions through which a range of government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity'. It has been developed in line with the EU and International Biodiversity strategies and policies. The cumulative effects of this Plan together with the proposed project is considered in the Biodiversity chapter.

- **Transport Strategy for the Greater Dublin Area 2016-2035** – Land use and the manner in which it is developed is the primary influencing factor for travel demand. The cumulative effect of this strategy together with the proposed project is considered in the Material Assets – Transport & Traffic chapter.

- **Standards in the EU Air Quality Directive and 'daughter' directives (1-4)** – lay down limits for air quality standards and specific pollutants. The cumulative effects of the Directives together with the proposed project are considered in the Population & Human Health Chapter and the Air Quality & Climate Chapter.

- **Water Framework Directive & The Draft River Basin Management Plan 2022-2027 –** The EU Water Framework Directive (2000/60/EC) (WFD) requires all Member States to protect and improve water quality in all waters so that we can achieve good ecological status by 2015 or, at the latest, by 2027. It was given legal effect in Ireland by *inter alia* the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003) (as amended), European Communities Environmental Objectives (Surface Waters) Regulations 2009 (as amended) . It applies to rivers, lakes, groundwater, and transitional coastal waters.

  The River Basin Management Plan sets out the actions that Ireland will take to improve water quality and achieve 'good' ecological status in water bodies by 2027, as per the WFD. The cumulative effect of the Directive and Plan together with the proposed project is considered in the Material Assets – Built Services chapter and the Water & Hydrology chapter.

  The transposing legislation that should be referred to is as follows:

- European Communities (Water Policy) Regulations 2003, as amended
- European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended
- European Communities Environmental Objectives (Ground Waters) Regulations 2010, as amended.

1.12 Impact Assessment Methodology

Each chapter of this EIAR assesses the direct, indirect, cumulative, and residual effects of the proposed development for both the construction and operational stage of the proposed development.

The identified quality, significance, and duration of effects for each aspect is largely based on the terminology set out in the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022) reproduced in **Table 1.2** following.

Table 1.2 Impact Rating Terminology

Quality of Effect	
Positive	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of and ecosystem, or by removing nuisances or improving amenities.
Neutral	No effects of effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Negative/Adverse Effects	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Significance of Effect	
Imperceptible	An effect capable of measurement but without significant consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
Slight Effect	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effect	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effect	An effect which, by its character, magnitude, duration, or intensity alters a sensitive aspect of the environment.
Very Significant Effect	An effect which, by its character, magnitude, duration, or intensity significantly alters most of a sensitive aspect of the environment.
Profound Effect	An effect which obliterates sensitive characteristics.
Duration of Effects	
Momentary	Seconds to minutes
Brief	Less than 1 day
Temporary	Less than 1 year
Short-term	1-7 years
Medium-term	7-15 years
Long-term	15-60 years
Permanent	Over 60 years
Extent and Context of Effects	
Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?).
Probability of Effects	
Likely	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

Type of Effects	
Indirect	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
Cumulative	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
Do Nothing	The environment as it would be in the future should the subject project not be carried out.
Worst Case	The effects arising from a project in the case where mitigation measures substantially fail.
Indeterminable	When the full consequences of a change in the environment cannot be described.
Irreversible	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
Residual	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
Synergistic	Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of SOx and NOx to produce smog).

1.13 Consultation

A dedicated website for this proposed development is established and all application documents, including this EIAR, are available at www.deerparkhowthlrd.ie.

Additionally, prior to lodging this application, the required information has been issued to the Department of Housing, Planning and Local Government's EIA Portal. The purpose of this tool is to inform the public, in a timely manner, of applications that are accompanied by an EIAR.

Pre-planning consultation and LRD meetings were held with Fingal County Council in September and December 2023 in advance of lodging this application. An LRD Opinion was received in January 2024. Guidance received has been integrated into the proposed design and, in turn, is assessed in this EIAR.

Where relevant specialists engaged with prescribed bodies individually, the details of advice received is provided in the individual chapters of this EIAR.

CHAPTER 2
DEVELOPMENT DESCRIPTION

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

2 Development Description

2.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) sets out the proposed development and provides details in relation to the demolition, construction and operational phases of the proposed development. The chapter was prepared based on information provided by the Design Team, and it should be read in conjunction with the submitted drawings together with supporting reports.

The proposed development seeks to deliver a high quality, high density (123 units per hectare) residential development, that makes sustainable use of a strategically located zoned development site, being:

A. within walking distance of a town centre, Howth, that is within Dublin City & Suburbs;
B. served by Dublin Bus and DART services, with the DART station located less than 500m from the proposed development site; and
C. has access to high quality open space amenities locally and a wealth of social infrastructure.

The local cultural and natural heritage assets are both sensitivities and opportunities for development lands in their vicinity and the proposed development is cognisant of these assets. The proposed layout and design was developed to respond appropriately to the proposed development site's historic and natural context.

The housing typology proposed, 135 build to sell apartments, responds to an identified need (see Planning Statement & Statement of Consistency with Fingal Development Plan 2023-2029) for diversification in the form of housing type in Howth.

The feedback provided by Fingal County Council (FCC) during the pre-planning meetings and in their formal Large-scale Residential Development (LRD) opinion has been considered and the design has evolved in response to those discussions. The changes implemented are set out in the Response to the LRD Opinion, included under separate cover.

2.1.1 Expertise and Qualifications

This chapter was prepared by Rachel Condon of McCutcheon Halley Chartered Planning Consultants. Rachel graduated from University College Cork with a BA Hons in Geography and Irish, obtained in 2010 and a master's degree in Planning and Sustainable Development, obtained in 2013. Rachel is currently an Associate Director in the Practice and is experienced in the field of planning and development consultancy which includes providing consultancy services in respect of major projects. Rachel has directed the preparation of EIAR's for a range of development types including residential, mixed use, and industrial developments.

Rachel has practised as a planning consultant for over 10 years and has directed the preparation of Environmental Impact Assessment Report (EIARs) for a range of development types including residential, commercial and industrial. Directly relevant experience to this proposed development is that Rachel has been involved in the direction of EIARs to accompany residential led applications that received permission for development including:

- Connolly Quarter Reg. Ref: 3054/22 - The construction of 187 build to rent apartments and 4 office blocks with heights ranging from 5 to 16 storeys. The proposed development included works to a Protected Structure (RPS Ref. No. 130).
- Bailey Gibson (PL29S.307221) - Demolition of all structures, construction of 416 residential units (incl. 4 houses, 412 apartments) and associated site works.
- Southwest Gate (Reg. Ref. 3228/20) – Demolition of 4 no. existing buildings and surface car parking, and construction of a mixed use scheme across 13 no. blocks comprising 1,123 no. residential units with supporting amenities, retail units, office accommodation, a primary healthcare centre, gym, cultural centre, childcare facility, hotel and a series of public open spaces.

2.2 Proposed Development Site

The proposed development site is located in Deer Park, Howth, to the south of the Howth Road (R105), and to north-west of Howth Castle. The proposed development site (1.53 ha) encompasses undeveloped greenfield land of which 1.10ha is zoned for residential development. The proposed development is confined to the residential (RA) zoning. The balance of the application area (3,107 sq.m) is zoned high amenity (HA) which comprises densely covered trees with an east-west alignment and grassland. The lands zoned HA are part of the buffer area[1] for the Howth Special Amenity Area Order (SAAO). A small portion of the residential zoned land is also located within the SAAO buffer area, as depicted in **Figure 2.2** below. The designation of an SAAO recognises the area's natural beauty, its special recreational value and the need for nature conservation within the area. The proposed development site is enclosed along its northern and eastern boundary by the historic Howth estate demesne walls and mature trees. This is the only feature of built heritage existing within the proposed development site. It is located outside of the Howth Castle Architectural Conservation Area (ACA), and it is not specifically included in any existing inventories. The Howth Castle Entrance Gates are included on the National Inventory of Architectural Heritage (NIAH), Reg. Ref. 11358027, which provides the following description: *Entrance gateway, c.1835, comprising four Hindu Gothic style limestone ashlar piers with friezes and moulded cappings, flanked by pedestrian gateways. Cast-iron gates and railings. Secondary gateway to rear with cast-iron bollards. WALLS: Limestone ashlar to pedestrian gateways; undulating profiles to piers; moulded capping (broken in parts). OPENINGS: Pointed-arch to pedestrian gateways; cast-iron gates and double gates.*

[1] No definition of 'buffer area' is provided in the FCDP.

The demesne wall is not listed in the Record of Protected Structures, as per Appendix 5 of the Fingal Council Development Plan 2023-2029 (FCDP).

There is no existing pedestrian or vehicular access to the proposed development site from Howth Road. A combination of mature hedgerow and wall forms the western site boundary and beyond it are low rise residential dwellings that form ribbon type development in a westerly direction toward Sutton Cross. The extensive tree belt (approx. 25-30 years old) with an east-west alignment delineates the boundary with the golf course to the south.

design

Figure 2.1 Subject Site and surrounds (Source: John Fleming Architect (JFA))

Howth Castle and part of its wider demesne land is within an Architectural Conservation Area (ACA), as depicted in **Figure 2.2** overleaf. The boundary of the ACA is limited to a core area surrounding Howth Castle together with the entrance as depicted below. The proposed development site is partially located in the ACA in the north-eastern corner (102sq.m).

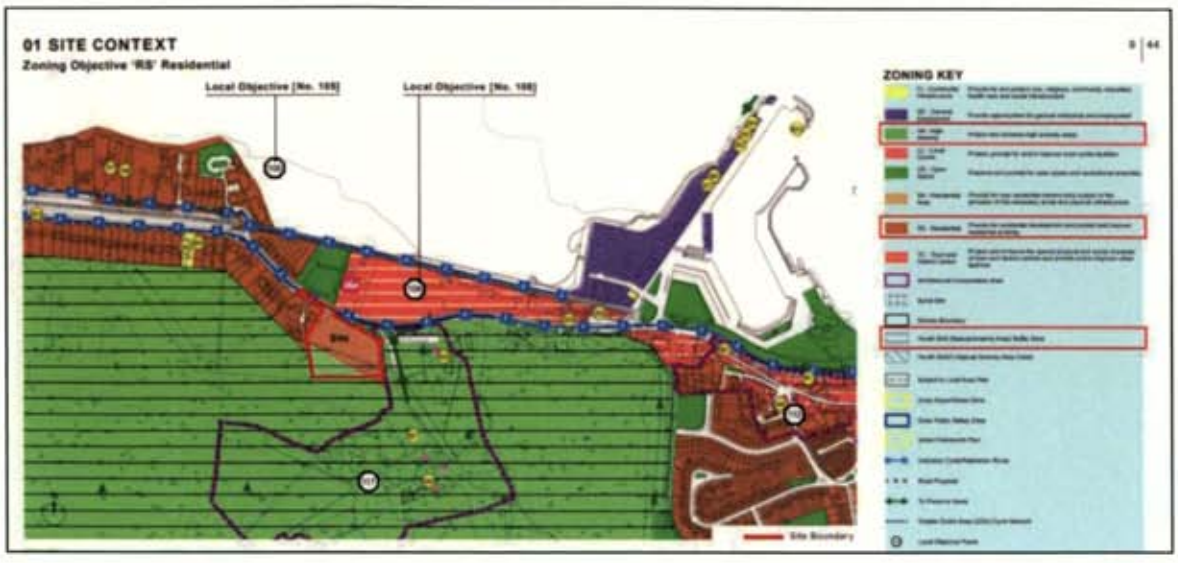


Figure 2.2 Zoning Map

The proposed development site is approx. 120m northwest of Howth Castle (RPS ID0556) and approx. 100m west of St Mary's Church (RPS ID 0594), both of which are identified as protected structures in the Record of Protected Structures contained in the Fingal County Development Plan 2023-2029 (FCDP). The historic demesne woodland surrounds and offers screening to these buildings and their setting.

Howth DART station is less than 500m (5-minute walk time) from the site offering frequent DART services to Dublin City Centre and as far south as Greystones. The DART operates a service to the city centre every 12 to 15 minutes during the morning peak time. The Dublin Bus services in the area provide direct linkage to the city centre, most notably the H3 route (the H spine, which forms part of the new BusConnects network) and the 6 along Howth Road towards the city centre. The nearest stops are located c. 200m (2 minutes' walk) away from the proposed development site. Both services link Howth with Dublin City Centre and run at 30-minute and 60-minute headways, respectively.

Howth Village and Sutton Cross are easily accessible on foot, by bike or by public transport. A cycle lane traverses the front of the proposed development site on Howth Road and extends towards the city centre.

In terms of future public transport, the DART+ Coastal North Project proposes to enhance the service capacity to Howth. If permitted, this will double the current capacity per 3 hour peak and increase services from 20 to 36 services per 3 hour peak. As outlined in the traffic chapter, public transport capacity surveys were undertaken and the existing capacity of the bus and DART services are sufficient to cater for the development therefore notwithstanding the above, the development is not reliant on future capacity. Further detail in relation to the existing public transport capacity analysis is also set out in the accompanying Traffic and Transport Assessment and Mobility Management Plan.

Howth offers amenities including the Hill of Howth loop walks, Claremont Beach, the Martello Tower Museum, Balscadden Bay Beach and the town centre which provides an array of services for daily needs. The proposed development site is also located close to local childcare facilities, primary and

secondary schools and sporting facilities such as Scoil Mhuire primary school, Santa Sabina Dominican College, Deer Park Golf club, Baltray Park Tennis Club, Howth yacht club and Suttonians Rugby Club. Further details in relation to the capacity of the existing and proposed childcare facilities and schools is provided for in the Childcare Demand Assessment and the School Demand Assessment, under separate cover.

An Arboricultural Impact Assessment was undertaken by John Morris Arboricultural Consultancy and is submitted with this planning application under separate cover.

The proposed development site is dominated by grassland with a wide hedgerow/tree line running east-west through the southern boundary. The proposed development site does not contain any habitats listed on Annex I of the EU Habitats Directive. Further detail in regard to the extent of surveys undertaken is provided within Chapter 5 Biodiversity.

Dedicated bat activity surveys were undertaken on the 2nd of October 2019, the 20th of July 2023 and the 19th of May 2024 is submitted under separate cover. A single Soprano pipistrelle (Pipistrellus pygmaeus) was noted emerging from the eastern tree line (trees on opposite side of eastern boundary wall of subject site) in 2019, 2023 and 2024. Foraging of an individual Soprano pipistrelle (Pipistrellus pygmaeus) was noted during all surveys undertaken. A single Leisler's Bat (Nyctalus leisleri) was noted foraging along the southwestern and southeastern boundary of the subject site in 2024. The bat surveys identify minor foraging activity and no trees that represent potential bat roosts are proposed to be removed.

In terms of breeding birds, a total of 12 species were recorded on site across the survey periods which were undertaken on the 6th, 21st & 31st of July 2023. Breeding activity was confirmed for two green-listed species: blue tit and magpie. A blue tit pair showed persisted breeding behaviour within the hedgerow along the western boundary between the central tree line and housing to the northwest on the 6th of July 2023. An active magpie nesting site was observed during the same survey within a sycamore tree emerging from the same hedgerow approximately 20m north of the observed blue tit breeding location towards the existing residential housing to the west of the proposed development site.

Wintering bird surveys (12) were undertaken between October 2023 and March 2024. No wintering target species were recorded feeding or roosting within the proposed development site.

On the 21st of November 2023, a flock of twenty-one curlew arrived from the north over the adjacent field, circled overhead, and landed briefly on the golf course immediately south of the site before flying south.

On the 20th of December 2023, an individual grey heron (*Ardea cinerea*) was recorded at a small pool at the site created by machinery tracks. This bird departed upon detecting the surveyor, flying due north gaining height to 20 metres. An hour later, two grey herons landed on the site, departing shortly after to the northwest. These birds were in flight over the site for 20 seconds, gaining height to between 15-20 metres. Grey heron are not a designated SCI species listed for the SPAs relevant to this

assessment, however, it can be considered to fall under the broader 'Wetlands and waterbirds' SCI included for many of these SPAs.

No further records of waterbird usage of the site itself for foraging, roosting etc., were recorded for the remainder of the winter surveys.

In terms of electricity supply, ESB maintains underground and overhead powerlines within and around the proposed development site. ESB's infrastructure of relevance to the proposed development includes the following:

- Existing 10-20kV overhead powerlines traverse the site in an east to west direction.
- Existing 10-20kV over-head powerlines traverse the southern portion of the site in north-south direction.
- Existing Medium Voltage (MV) cables located in the north-eastern corner of the site and along the northern boundary adjacent to the R105 Howth Road.
- Existing Low Voltage (LV) overhead powerlines located along the western and northern boundary of the Site.

2.3 Proposed Development

Planning permission is sought for a Large-scale Residential Development on a proposed development site adjoining Howth Demesne, Deer Park, Howth, Co. Dublin, with a total site area of 1.53ha.

The development will consist of:

I. two blocks ranging in height from 3-5 storeys providing 135 residential units comprising:
   a) 63 one-bedroom units
   b) 72 two-bedroom units;
II. a public open space area of 1,676 sq.m and communal open space with an area of 890 sq.m;
III. 63 surface car parking spaces, including 4 accessible parking spaces and 13 electric vehicle (EV) charging spaces, and 6 motorcycle spaces;
IV. 410 bicycle parking spaces, including 342 secure resident bicycle spaces and 68 visitor spaces;
V. Partial demolition of three sections of the existing demesne northern boundary wall, which fronts Howth Road to facilitate vehicular access in the northwestern corner (8m) and two separate pedestrian/cyclist access points (1.5m and 3m respectively) along the centre and eastern side of the northern boundary wall;
VI. Works to protect and conserve the remaining extant northern and eastern demesne boundary wall;
VII. undergrounding and relocation of existing ESB overhead lines and diversion of the existing distribution gas pipe around the perimeter of the site;
VIII. Works to facilitate bicycle infrastructure upgrades and drainage connections along Howth Road; and

IX. ESB kiosks, rooftop solar photovoltaics, waste storage and plant rooms, drainage, single storey bicycle storage buildings, boundary treatment, public lighting, and all ancillary site and development works to enable the proposed development.

2.3.1 Design Approach

The proposed layout seeks to:

- Respond to the sensitivities in the receiving environment ensuring protection of the historical setting of Howth Castle Demesne is preserved whilst facilitating high quality housing.
- Create a permeable interconnected series of paths through, and to, the Site maximising its proximate location to Howth village centre and Howth dart station.
- Retain the existing demesne wall whilst creating a strong built frontage along Howth Road reflective of the land use zoning.

The proposed layout as depicted in **Figure 2.3** following balances the need to provide increased density on a zoned site while being conscious of the existing adjoining residential developments, the emerging high-density development at the Former Techrete site (Claremont SHD) on the opposite side of Howth Road, and surrounding built heritage, particularly Howth Castle and its entrance and Gates and St. Mary's Church to the east.

As depicted in **Figure 2.3**, two offset buildings are proposed ranging in height from 3-5 storeys, working with the topography of the site. Each block is broken down into two volumes and each portion of the four volumes is provided with a lift a stair core, providing four in total. The staggered approach to the layout of the buildings footprint further increases the capacity for scenic views and daylight while enhancing dual aspect.

Figure 2.3 Proposed Site Layout (Source: JFA)

The front volumes provide recessed balconies along the northern boundary and on the northeastern and northwestern corners so that the buildings present simple, clean forms to the Howth Road corridor and to the adjoining Howth Castle entrance. Private amenity space is predominately balconies with ground floor units incorporating private terraces. The rear volumes provide for projecting balconies, taking advantage of the visibility of the surrounding landscape and seascape from the apartments.

Block C and D are set back (19m-24m) from the north-eastern and eastern boundary, behind the existing mature tree belt that lines the Howth Castle entrance, that will be further reinforced via the inclusion of additional trees within the proposed development site. The rear volume of Block D, located closest to the eastern boundary and Howth Castle gates, steps down to 3 storeys to ensure that the appearance of the built form, particularly when travelling in a westerly direction along Howth Road from Howth centre, does not dominate the Howth Demesne entrance, as depicted in **Figure 2.4** overleaf.

Figure 2.4 View of the Castle Gates and the proposed development (Source: 3D Design Bureau)

The proposed buildings will sit within significant areas of open space that serve a variety of functions including passive open green spaces, kick about spaces, quiet spaces, and exercise areas.

To the east of the buildings, a new public open space is proposed and the proposed openings to the existing demesne boundary wall will enable public access and provide for permeability throughout the site.

Communal open space is located between the two blocks. The central communal courtyard garden includes a retractable roof pergola allowing for social gatherings to occur year-round, thereby increasing the functionality of this space. The open spaces are linked using a shared surface approach to facilitate pedestrian/cyclist movement and permeability.

An existing tree belt is located along the southern boundary of the site and the proposed building footprint has been designed to ensure minimal impact to the tree belt occurs. A small quantum of tree area is proposed removal to facilitate the development, and this will be offset by additional planting resulting in an increase in the number of trees throughout the site including supplemental planting along the eastern boundary, acting as a natural extension to the historic demesne woodlands.

One vehicular access point is proposed from Howth Road at the western side of the northern boundary. To achieve an access that meets required standards it is necessary to make an opening (8m) in the demesne wall. Two further openings (3m (accessible) & 1.5m (stepped)) are proposed in the wall to facilitate active travel pedestrian/cyclist and accessible movements. The openings are proposed in the centre and eastern parts of the northern boundary wall. Gate details are proposed for the pedestrian and cyclist access points. A simple contemporary treatment of the openings using

metal panelling to tie into the materiality of the proposed buildings distinguishes between the proposed intervention and the historic wall. The remainder of the existing demesne wall which traverses the northern and eastern boundary will remain in-situ and works will be undertaken to ensure its conservation.

Figure 2.5 Demesne Wall Interventions (Source: JFA)

63 car parking spaces are provided at grade and is located to the west and northwest of the site, close to the vehicular entrance. Cycle storage is located around the site adjacent to the entrance points for ease of access and to provide passive surveillance.6 motorcycle parking spaces and 410 bicycle parking spaces are also proposed at surface level.

An overarching aim of this proposal is to utilise boundary trees as key features, in creating a harmonious relationship between the existing natural infrastructure and the new built environment.

There is an existing tree belt located along the southern boundary of the proposed development site which influenced the proposed layout. The objective was to maximise the retention of this tree belt, whilst facilitating a suitable development. Blocks B and D have been designed to minimise incursion to the existing tree belt. An additional 269 trees are proposed for the site which provides a total surface area of 3,362sq.m.

To provide working space to the outside of Block D, a 5m setback is proposed, which requires the removal of trees from the existing tree line. This setback will allow sufficient space for construction activities to progress. The position of Block D is cognisant of the root protection areas of the retained trees and includes these within the design of the proposed reinforced grass path. Furthermore, this creates space for future canopy growth as trees mature. To retain the full line would provide a working space of 3.6m (max) which may not be feasible for construction. Notwithstanding this, a new row of

Scots Pine is proposed to be planted post-construction which will be located approx. 6m from the façade.

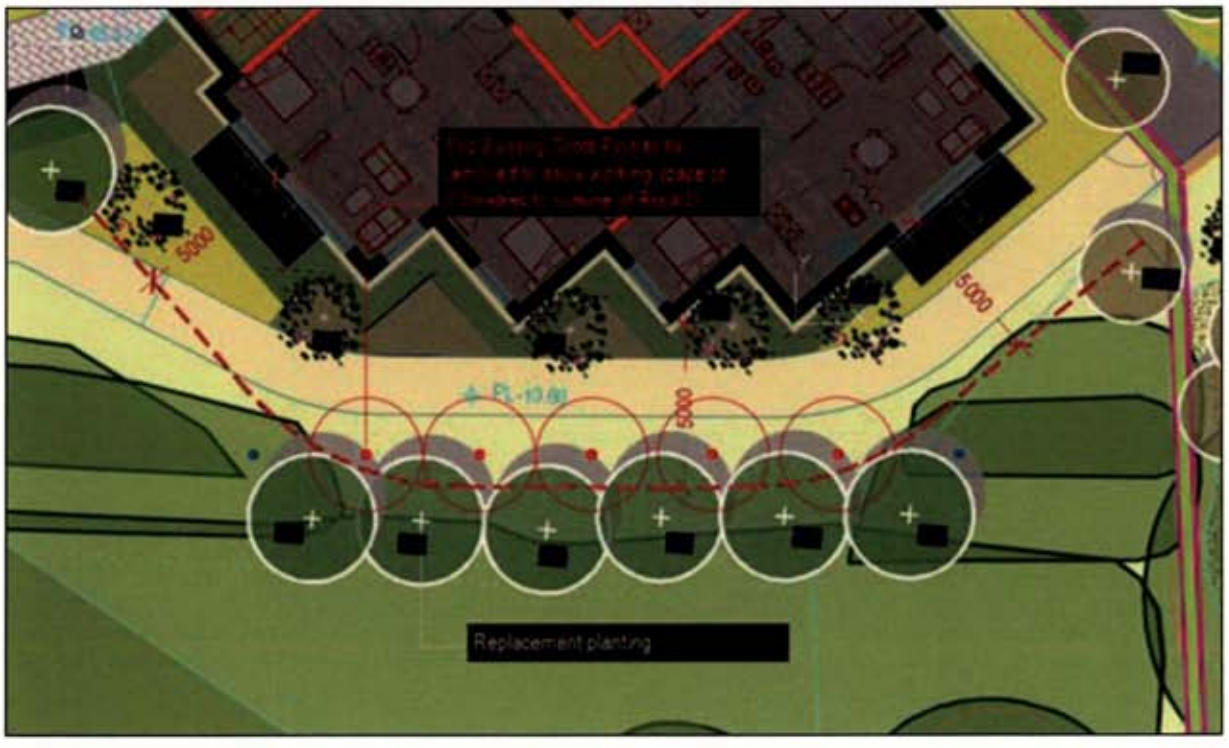


Figure 2.6 Block D construction & tree removal

The project arborist considered the total combined canopy cover which may be removed to cater for the development of Block D would be approx. 135.5 sq.m. 5 additional trees located around the proposed development site (outside of the tree belt) are also proposed to be removed however this will be offset by an additional 269 trees to ensure a net gain in the number of trees is facilitated. In terms of the new tree canopy, based on 5 years post planting, the estimated area for the new tree cover is 3,362sq.m which represents a significant increase in tree cover. To mitigate the impact of the proposed development on breeding birds, the hedgerow/tree line along the eastern, southern, and western site boundary, as well as a number of standalone trees throughout are to be retained.

Figure 2.7 overleaf outlines the tree impact and protection plan.

Figure 2.7 Tree Impact & Protection Plan (Source: John Morris Arboricultural Consultancy)

The key development statistics is set out in the following Table:

Table 2.1 Development Overview

Development Statistics	
Site Area	1.53ha
Net Developable Area	1.10 ha (zoned RS portion)
Total GFA	11,247.6 sq.m
No. of Units	135
Unit Mix	63 no. 1 bedroom units (47%) – 2 person 72 no. 2 bedroom units (53%) – 4 person
Plot Ratio	1.02
Site Coverage	26%
Tenant Amenities & Facilities	Internal Bike and Bin Storage

Development Statistics	
	External retractable covered pergola area External Bike Storage buildings Play areas
Density	123 units per hectare (uph)
Building Height	3-5 storeys
Car Parking	63 spaces
Bicycle Parking	410 spaces (incl. visitor spaces)
Dual Aspect Units	55%
Public Open Space	1,676 sq.m
Communal Amenity Space	890 sq.m
Quantum of tree removal	-10 trees to be removed from the site (approx. area of 300sq.m)
Proposed trees	268 – Overall surface area of proposed trees = 3,362sq.m

Figure 2.8 View from western end of Howth Road on approach to proposed development site (Source: 3D Design Bureau)

2.3.2 Open Space

A combination of hard and soft landscaping is proposed in the communal open space area. Socialising spaces, including an outdoor pergola with seating and a retractable canopy, which will provide a meaningful residential amenity area is also proposed within this space. It is envisaged that this space will be useable all year round and will create a safe space for residents of all ages to interact whilst providing a level of passive surveillance within the communal open space area.

A large play area (175sq.m) for toddlers and children under 6, a large play area (130sq.m & 60sq.m) for children under 12 including sensory needs. The open space play area proposed in the High Amenity zoning, adjacent to Block B, provides calisthenics fitness equipment and timber stepping logs orientated towards older primary school children and teenagers. In general, the paved components of the proposed landscape sequence will be characterised by durable materials and bespoke detailing sprinkled throughout such as wooden benches situated in planted enclaves.

A generous quantity of communal open space (890 sq.m) is proposed which is in excess of the required quantum stipulated by the Design Standards for New Apartments (2023) by 71sq.m.

The public open space (POS) (1,676 sq.m) is proposed to the northeast of the proposed development site and comprises a series of spaces such as a kick about space, seating areas, lawns and accessible space with a quiet corner cabin. Circulation in this space is arranged as a loop for walkers and for children to enjoy playful experiences. A grove of existing trees to the south will be reinforced with new tree planting to form an attractive open woodland grove with a carpet of spring flowering bulbs. The quantum of POS, as per Table 14.12 of the FCDP meets the quantitative requirement of providing 15% (1,650sq.m) of the developable area as POS. The overall standard of providing 2.5 hectares per 1,000 population will be met in the form of a contribution in lieu as outlined within Objective DMSO53. The proposed POS is sheltered to the north and east by the historic demesne wall. The space is designed as a gated public garden to allow free movement throughout the space from dawn to dusk. Access to the public open space will be provided off Howth Road and this area is proposed to be taken in charge.

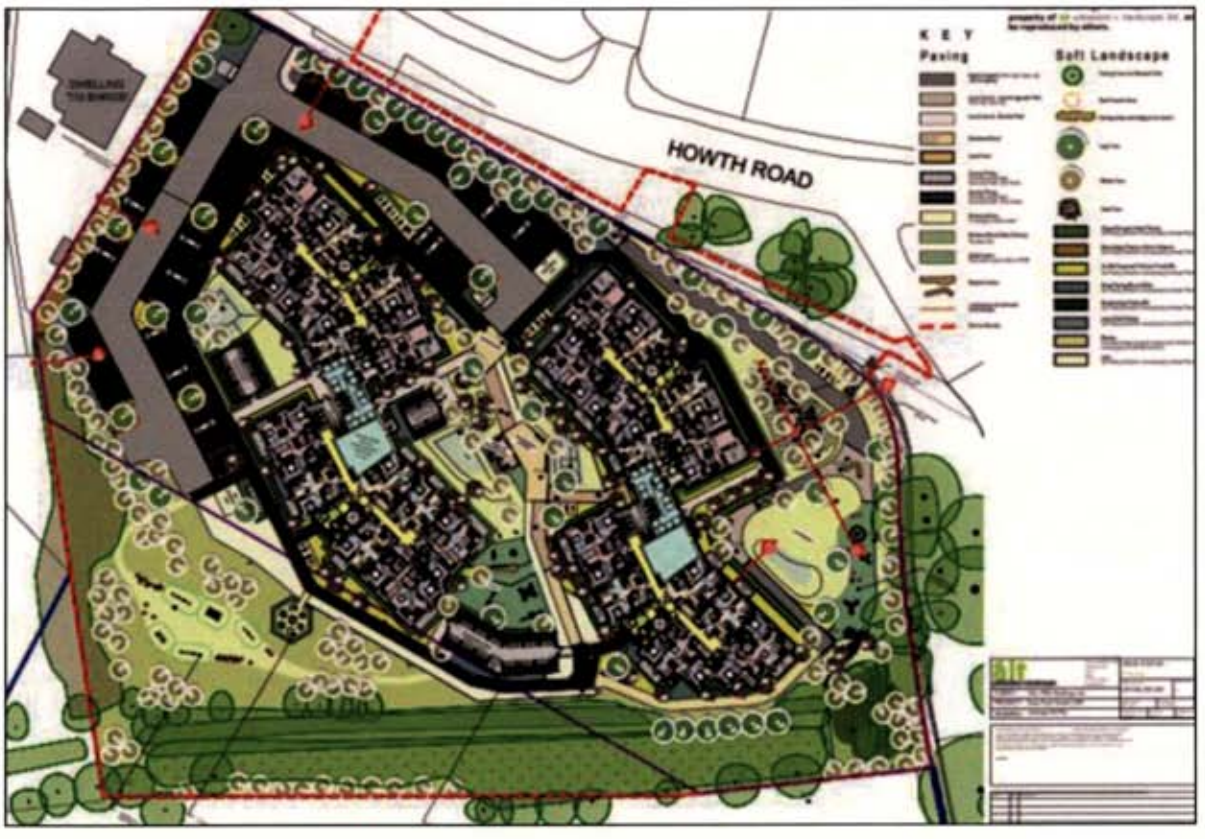


Figure 2.9 Landscape Plan (Source: Áit Urbanism + Landscape Ltd.)

2.3.3 Height

The development is comprised of two buildings providing four blocks with four lift and stair cores of staggered form arranged side-by-side, aligned north-south, roughly perpendicular to Howth Road. Each building is divided into a front and rear volume, with the two volumes offset so that the floorplan is staggered, providing the apartments in the rear volumes with views north towards the sea. The buildings are labelled A-D with A and B situated along the western portion of the site and C and D located in the eastern portion of the site.

The heights range from 3-5 storeys with the lower height (3 storeys) provided for Block D closest to the eastern boundary of the adjoining ACA. A small portion of the site is located within the ACA (102sq.m) in the northeastern corner however this is limited to works to provide a wider concrete footpath and the provision of a new stepped pedestrian access along Howth Road. The front volumes range from 4-5 storeys in height with setbacks ranging from 4.4m-7.1m provided for the upmost level as they front Howth Road, as depicted in **Figure 2.10** below.

Figure 2.10 Upper level setbacks along Howth Road

The layout would create a strong built frontage to the road, on the road's approach to the town centre, while retaining a visual connection between the buildings to the woodlands and upland to the south. The north-south aligned spaces between the buildings allow for sunlight penetration to the scheme. This is confirmed in the Daylight and Sunlight Assessment undertaken by BPC Engineers which demonstrates that all units meet or exceed the BRE recommendations for internal daylight provision. In terms of each of the proposed open spaces, the proposed development receives more than 2 hours of sunlight on March 21 and as a result exceeds the requirements. As demonstrated in **Figure 2.11** following, both open spaces receive in excess of 50%, achieving 84% (A1) and 99% (A2).

The results show that the proposed development site will have a negligible impact on surrounding buildings with respect to:

- access to skylight,
- access to sunlight, and
- sunlight to gardens/open spaces.

The property at 91 Howth Road has PV arrays (solar panels) on the roof. The impact of the proposed development on the annual solar radiation received by these PV arrays was assessed. The analysis showed that there is only a 1% reduction in the mean annual solar radiation for the south facing array and only a 5% reduction for the east facing array, which is well below the maximum recommended reduction of 15% (0.85 times former value) provided in the BRE guide.

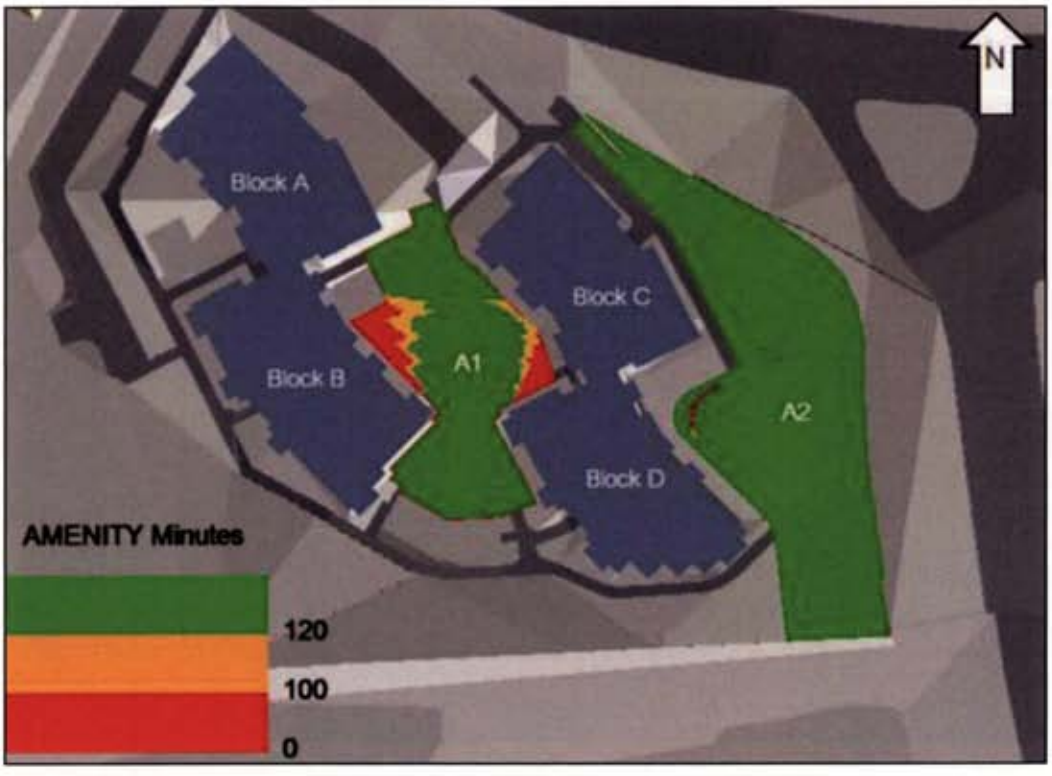


Figure 2.11 Sunlight to Proposed Amenity Spaces

The development is separated from existing low density residential development to the west by the proposed at grade car parking and sufficient separation distances ranging from 26m – 44m to ensure that no impacts in terms of visual, amenity or privacy will occur as a result. The Daylight & Sunlight Assessment demonstrates that Blocks A and C, located closest to the existing dwellings to the west, will not affect their amenity in terms of sunlight to gardens and daylight within dwellings. The light received to the existing PV panels on the immediate adjoining dwelling to the west will also remain compliant with the BRE standards. As such, the proposed development will not negatively affect existing residential properties.

Principally, the surrounding developments which are currently under construction to the north and north-east of the proposed development site provides a maximum height of eight (8) storeys however, the proposed development is considered reflective of the approach to increasing density and heights indicated under the National Planning Framework (NFP) and within the Urban Development and Building Height Guidelines published in December 2020. These Guidelines mandate the applicant to deliver higher density development and to achieve this, a modest height ranging from 3-5 storeys is proposed having regard to the location of the proposed development site, its historic context, existing low rise to west and emerging high rise to the north.

Figure 2.12 Photomontage of the subject site and Claremont SHD developments looking west along Howth Road towards Sutton

2.3.4 Materiality

A feature of the proposed buildings is the large window openings, intended to take maximum advantage of the visual amenities of the site environs and also of benefit for maximising daylighting of the proposed units.

The façade design is informed by this objective to provide large window openings, with the elevations all variations of simple grid patterns of glazing framed by grey/buff brick. Metal cladding is provided for the lift core vertical elevations to create visual interest between the blockwork. The balconies are made up of metal post and rail, resulting in a lightweight appearance. As a result of the large windows framed by light and dark colour blocks, recessed balconies and the variations in material, the facades would be highly articulated, and the perception of massing/scale would be reduced. Swift bricks (32) are also proposed on the south and west elevations of Blocks B and D as an enhancement measure for this endangered bird species, that migrate to Ireland from South Africa each summer and traditionally nest in crevices or the eaves of buildings. The below swift box material will be used for discretion. See the Architectural Design Statement and architectural drawings prepared by JFA Architects for further detail in this regard.

Figure 2.13 Swift Brick Boxes

The front volumes provide recessed balconies along the northern boundary and on the northeastern and northwestern corners so that the buildings present simple, clean forms to the Howth Road corridor and to the adjoining Howth Castle entrance. The rear volumes include projecting balconies, taking advantage of the views of the surrounding landscape and seascape from the apartments.

Figure 2.14 View from the public open space (Source: JFA)

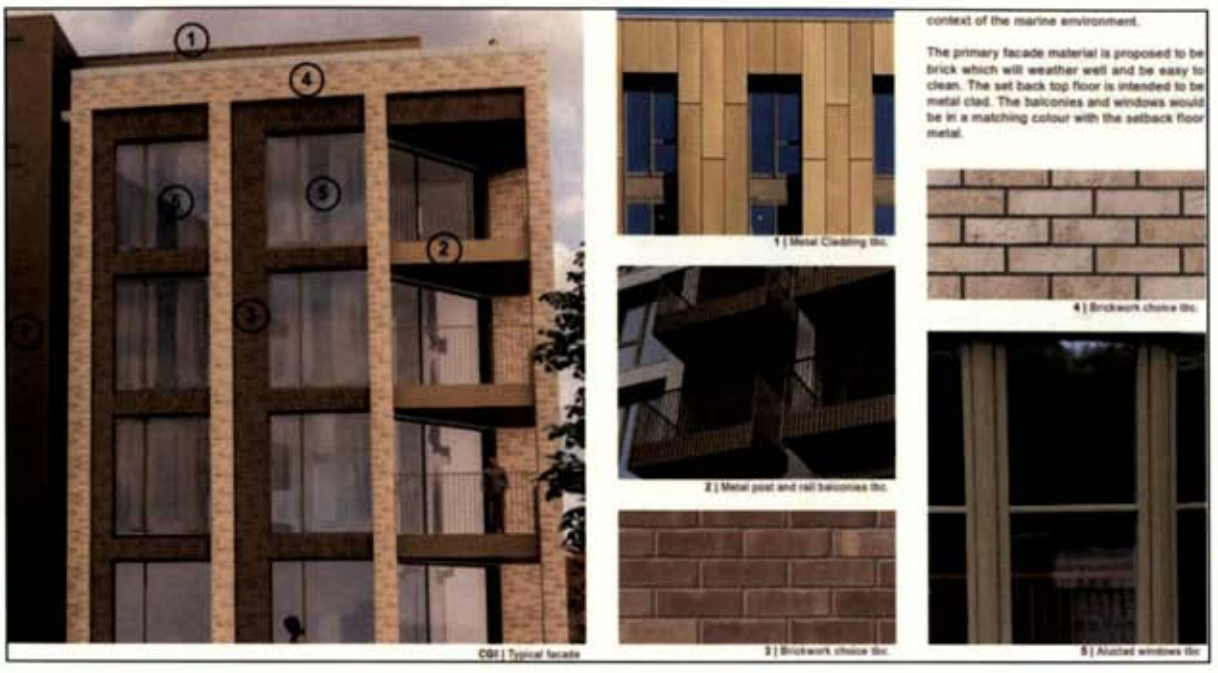


Figure 2.15 Material Finishes Examples (Source: JFA)

2.3.5 Access

It is proposed to access the development via the construction of a priority-controlled junction on the R105 Howth Road with 49m sightlines achieved in both directions, this will result in a slight change to the bicycle lane currently present on R105 Howth Road. This is also illustrated on Engineering Drawings prepared by DOBA Engineers which accompany this application under separate cover.

Fingal County Council has prioritised the promotion of active travel as part of the counties ongoing commitment to Climate Action. The Development Plan emphasises the importance of making active travel an attractive option such that the provision of high-quality and permeable pedestrian and cycle networks is required to achieve uptake.

In addition to the car, motorcycle and bicycle parking proposed, the Site is highly accessible by sustainable modes of transport, while also being located adjacent to planned dedicated active travel links. The available public transport connections include the DART, whose terminus in Howth is located less than 500 metres (5 minutes' walk) from the proposed development site. The station is served by DART services from Bray/ Greystones to Howth at daytime headways of 10-20 minutes, with a c. 30-minute travel time to the City Centre. A substantial frequency increase following implementation of the DART+ Coastal North scheme is proposed, which is currently undergoing the second round of non-statutory public consultation, with a Railway Order application to An Bord Pleanála to be submitted in the summer of this year (2024).

The proposed development site is also served by urban bus services, namely the H3 and the 6, with the nearest stops located c. 200 metres (2 minutes' walk) away from the Site. Both services link Howth with Dublin City Centre and run at 30-minute and 60-minute headways, respectively.

2.3.6 Confirmation of Feasibility

A Confirmation of Feasibility (COF) (Appendix 10.4) and Statement of Design Acceptance (Appendix 10.5) has been received from Uisce Éireann (UÉ) and is included with this EIAR.

2.3.7 Wastewater

(UÉ) GIS mapping indicates the presence of an existing 400mm diameter concrete wastewater sewer located to the north-east of the Site which flows northwards. A Ground Penetrating Radar (GPR) and Topographical Survey were undertaken to confirm the location and invert level of the existing 400mm diameter wastewater sewer to facilitate a new gravity connection from the proposed development.

The proposed wastewater network will collect effluent from the proposed new development via a main wastewater drainage network and will discharge to the municipal sewer by gravity to the existing 400mm diameter wastewater sewer to the north-east of the proposed development site. The estimated peak wastewater loading generated by the proposed development's Dry Weather Flow is estimated at 0.72 l/s while the Design Wastewater Flow of 6DWFis 4.33 l/s. The wastewater generated will discharge to the Deer Park Wastewater Pumping Station (WwPS) and eventually Ringsend Wastewater Treatment Plant (WwTP), where it is treated and ultimately discharges into Dublin Bay. The WwTP is required to operate under an EPA licence (D0034-01) to meet environmental legislative requirements.

The wastewater drainage layout is provided as part of the Engineering drawing package prepared by DOBA Consulting Engineers and has been designed in accordance with the principles and methods set out in Irish Water's Code of Practice for Wastewater Infrastructure IW-CDS-5030-03, IS EN 752 Drain & Sewer Systems outside Buildings, IS EN 12056 Gravity Drainage Systems inside Buildings and the Building Regulations Technical Guidance Document Part H Drainage & Wastewater.

2.3.8 Surface Water

The Applicant commissioned a Ground Penetrating Radar (GPR) and Topographical Survey to confirm findings with regard to the location and invert level of an existing 300mm diameter surface water sewer to facilitate a new gravity connection from the proposed development to the north-west of the proposed development site.

The design of the surface water infrastructure for the proposed development complies with the policies and guidelines outlined in the Greater Dublin Strategic Drainage Study (GDSDS), the CIRIA Sustainable Drainage Systems (SuDS) Manual and the Fingal Co. Co. SuDS Guidance. A 30% climate change factor is included for the design of the surface water network.

2.3.9 Sustainable Urban Drainage Systems (SuDS)

The design and management of surface water for the proposed development will comply with the policies and guidelines outlined in the Greater Dublin Strategic Drainage Study (GDSDS), the CIRIA SuDS Manual and the Fingal County Council SuDS Guidance. As indicated by the project engineers, DOBA Consulting Engineers, *'A 30% climate change factor will be included for the design of the surface water network in accordance with the typical requirements, in addition to an Urban Creep factor of 10% being applied to all roof areas'.*

The SuDS features on site will be designed to store volumes up to a 1 in 100 year rainfall event + 30% climate change, plus a 10% Urban Creep factor (applied to roof areas only) and 500mm freeboard provided to the finished floor levels of the properties. Engineering design calculation has been carried out to demonstrate that no pluvial out-of-manhole flooding shall occur on the site for events up to and including a 1:100 Year + 30% Climate Change.

- The following SuDS features are proposed to be used within the development:
- Bioretention areas shall be utilised throughout the proposed development.
- Bioswales - the road design shall utilise cross falls allowing run-off to flow over dropped kerbs into linear bioswales to be located parallel to roadways throughout the proposed development.
- Raingardens shall be adopted within the proposed development with surface water discharge from roofs conveyed to the same.
- Green-Blue roofs shall be provided.
- Tree Pits shall be provided in combination with Bioretention swales and bioretention areas.
- Previous ground investigations returned unfavourable rates of infiltration on site and hence filtration system SuDS shall be incorporated such as filter drains and lines permeable paving.
- Lined underground attenuation tank to control the discharge of surface water to the west of the site.
- A bypass interceptor shall be provided prior to discharge.

For more information in this regard, please refer to the **Infrastructure Design Report (IDR)** prepared by DOBA Consulting Engineers which accompanies this application.

Figure 2.16 Proposed SuDS Strategy (Source: DOBA Consulting Engineers)

2.3.10 Water Supply

There is existing water supply infrastructure located to the north of the proposed development in the form of an existing 9" cast iron watermain and an existing 160mm diameter molecular-oriented PVC (MoPVC) watermain. The estimated peak hour water demand generated by the proposed development is 4.10 l/s.

A new 150mm diameter looped watermain with 100mm diameter spurs with associated Bulk Flow Meters as required to serve each individual block of apartments shall be installed within the proposed development site. The watermain layout and connections, valves, hydrants, and meters shall be designed in accordance with Irish Water's Code of Practice for Water Infrastructure IW-CDS-5020-03/ Standard Details and the Department of the Environment's Building Regulations "Technical Guidance Document Part B Fire Safety". The new site watermain network will adequately serve the firefighting requirements with Fire Hydrants provided on the loop main in accordance with Part B of the Building Regulations. The estimated peak hour water demand generated by the proposed development is 3.96 l/s.

2.3.11 Parking

The quantum of carparking proposed is below the maximum standards (0.5 per 1-2 bed) prescribed in the Fingal County Development Plan. The basis for the reduction is set out in the **Traffic and Transport Assessment** that accompanies this application under separate cover. Reducing carparking has a positive impact on greenhouse gas emissions and reduces congestion particularly for a site that is located in close proximity to public transport (Howth Dart station <500m & numerous bus routes).

The scheme proposes 63 car parking spaces for residents, at surface level. Of the 63 car parking spaces, 4 spaces are allocated for accessible parking. 6 motorcycle spaces will also be provided. A total of 20% of the car parking spaces will be fitted with electric charging points (13) with the remainder provided with electrical ducting i.e. future-proofed for EV charging, in accordance with Section 14.1710 of the FCDP.

6 motorcycle spaces are also proposed to service the proposed development site. 410 bicycle parking spaces will be provided including 342 secure resident bicycle spaces and 68 visitor spaces.

2.3.12 Services

2.3.12.1 Electrical Supply

A new underground cable shall connect into the existing network and route through the proposed development to serve 2 ESB kiosks located close to the vehicular entrance along the western boundary and in front of proposed Block A.

There are existing overhead lines traversing the proposed development site supplying an existing ESB service within the area which will be diverted around the site, underground, in accordance with ESB Standards. Discussions have taken place with ESB regarding the undergrounding of the existing overhead ESB line and the most likely alignment is illustrated in the planning application documentation.

The Applicant proposes to divert existing utilities illustrated on DOBA Engineering drawing C-0800 – Proposed Site Services.

Figure 2.17 Proposed Services Diversions (Source: DOBA Engineers)

2.3.12.2 Gas

The Applicant proposes to divert existing utilities illustrated on DOBA Engineering drawing C-0800 – Proposed Site Services. The proposed development site is traversed by a combination of 10kV and 20kV overhead power lines and a 90 PE-80 4 bar distribution gas pipe. As outlined above in **Figure 2.17**, this drawing delineates the relocation of the gas networks Ireland (GNI) distribution gas pipe which will also be diverted around the site.

2.3.12.3 Telecommunications

The supply of telecommunications infrastructure to the proposed development site will be provided by way of a connection to a telecoms control room from the existing EIR telecommunication networks and new proposed Virgin Media Network on Howth Road, see DOBA Engineering drawings for further details.

2.3.12.4 Waste Management

An Operational Waste Management Plan (OWMP) prepared by Byrne Environmental accompanies this application and should be referred to in conjunction with this section. As detailed on the floor plans, waste storage rooms are provided in each of the two blocks to service all apartments. A bin marshalling area is proposed in front of Block A for collection on the relevant collection day. During the operational stage, 3-bin systems to encourage waste segregation at source will be provided. This will assist with meeting the EUs municipal waste recycling target and achieve a circular economy.

The OWMP has been prepared with regard to British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice which provides guidance on methods of storage, collection, segregation for recycling and recovery for residential building.

A scheme wide waste storage and management strategy has been developed for the control, management and monitoring of waste associated with the proposed residential development. The objective of the OWMP is to maximise the quantity of waste recycled by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information to the residents of the development. Within the scheme, communal waste storage areas are proposed at ground floor level.

Residents will be provided with waste recycling and waste disposal information by the site's Facility Management Company who will be responsible for providing clean, safe and mobility impaired accessible communal waste storage areas. It is expected that a single Waste Collection contractor shall be engaged to remove all mixed domestic waste and recyclable wastes from the waste storage areas and from individual houses on a weekly basis.

2.3.13 Building Energy Strategy/Energy Statement

An Energy Statement prepared by IN2 accompanies this application under separate cover. The design intent is to achieve at least an A2 Building Energy Rating.

The Energy Statement confirms that the proposed apartments will comply with Part L of the Building Regulations (as amended) (NZEB). The strategies proposed are:

- U-values for floor and roof will exceed the building regulation backstops;
- Using a specified Glazing U-Value target;
- Better performance air permeability than the backstop, adding to building air tightness;
- High performance thermal bridging;
- Mechanical Extract Ventilation with Heat Recovery via heat pump; and
- Exhaust Air Source Heat Pump to provide Space Heating (via radiators) and Domestic Hot Water.

2.3.14 Site Lighting

A Site Lighting Report prepared by IN2 accompanies this planning application under separate cover. The report contains the design layout and accompanying calculations for the proposed site lighting scheme for the proposed development. The external lighting has been prepared in accordance with *Bats and Lighting – Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010)* & *Bats and Lighting in the UK – Bats and the Built Environment Series (Institute of Lighting Professionals, September 2018)* and the project bat ecologist has reviewed and agreed the strategy. Please refer to the Bat Report provided at Appendix 11.6 (Volume III of this EIAR).

2.4 Construction Phase

This application is accompanied by a **Construction Environmental Management Plan** (CEMP) including a Construction Traffic Management Plan (CTMP) prepared by DOBA Consulting Engineers. This report should be read in conjunction with this chapter for a comprehensive description of the construction phase.

All of the mitigation measures proposed within the EIAR, and other supporting documents are deemed adopted for the purposes of the CEMP.

The appointed contractor will be provided with the CEMP and the EIAR and will be required to comply with the provisions contained in it.

2.4.1 Programme

The development will be constructed as one project, but with basic sub-phases such as bulk dig and super-structure erection. Based on other developments of a similar scale and complexity, the construction works will take approximately 18 months to complete.

The proposed staffing levels during the construction phase are anticipated to be as follows:

- Average of 50 people.

An outline of the sequence of construction works over 18 months, is provided in the CEMP prepared by DOBA Consulting Engineers which accompanies this application under separate cover.

2.4.2 Phasing

The two blocks together with all ancillary development works will be constructed over a singular programme. It is not intended to release the development in phases. Once the development is fully complete it will then be released.

2.4.3 Site Compound

The Contractor's construction compound will be located within the car park of the proposed development site and shall primarily consist of:

- Site Offices & associated welfare facilities;
- Materials drop-off and storage areas; and
- Set down areas for HGVs.

Materials will be stored in a safe manner and will be managed on a 'just-in-time' basis. All fuel storage areas will be bunded in the compound and will be clearly marked. Fuel will be transported from the offsite compound to the plant and equipment in mobile units based on need. A dedicated fuel filling point will be set up on site with all plant brought to this point for filling. Temporary toilets and wash facilities will be provided for construction workers which may require periodic waste pumping and waste offsite haulage and shall be carried out by an authorised sanitary waste contractor. The site compound will be located away from adjoining noise sensitive receptors.

The first stage of the development will be to secure the entire boundary and establish the site compound and welfare facilities, followed by site clearance. The proposed vehicular entrance into the development off the R105 Howth Road shall be utilised for construction access. The temporary parking of staff or delivery vehicles will not be permitted on adjacent roads and in this regard, it is proposed that construction parking spaces shall take place on the site. A dedicated area will be utilised to accommodate deliveries and welfare facilitates as necessary. A small, dedicated compound will be constructed as part of the early works to accommodate construction vehicles and loading, unloading and storage, as necessary. The appointed contractor will be required to implement an efficient logistics programme for ordering and delivery of materials and in so far as is possible, the storage time of materials on site will be kept to a minimum.

The Contractor will encourage use of public transport where possible and will actively discourage parking on the surrounding residential roads, by construction operatives involved in the project. Parking for construction staff will be wholly contained within the proposed development site.

2.4.4 Access and Parking

All HGV's during the construction phase will travel to and from Sutton Cross using Howth Road(R105). This route was chosen as it is the shortest and minimises the effect the development has during the construction phase on Howth Village. Upon reaching Sutton Cross, traffic will take the most direct route to the nearest major roads infrastructure, i.e. the M50/M1.

The proposed development site is not currently served by an existing access. The demesne wall encloses the site along the northern boundary with Howth Road.

The proposed construction access will be the proposed access on northwestern boundary i.e. the primary access (vehicular/cyclist/pedestrian) proposed to serve the development during the operational stage. Sightlines will be 49 metres in both directions within a 60 km/h speed zone.

2.4.5 Construction Hours

For the duration of the proposed infrastructure works the maximum working hours shall be 07:00 to 18:00 Monday to Friday (excluding bank holidays) and 08:00 to 13:00 Saturdays, subject to the restrictions imposed by the local authority.

No site activity will be allowed on Sundays and Public Holidays unless in exceptional circumstances where prior approval has been received from FCC.

2.4.6 Construction Personnel & Parking

A Construction Traffic Management Plan (CTMP) has been prepared by DOBA Engineers and its contents will be adopted by the appointed contractor.

The CTMP will ensure that:

- Local accessibility levels are maintained and controlled in an appropriate manner.
- Both the public and construction workers safety is maintained at all times and that whatever possible interruption to the use of local facilities is minimised and undertaken within a controlled hazard free / minimised environment.
- All CTMP initiatives, management measures and communication procedures are identified and agreed prior to the commencement of works.

Construction traffic will consist of the following categories:

- Private vehicles owned and driven by site construction staff and by full time supervisory staff.
- Excavation plant and dumper trucks involved in site development works and material delivery vehicles for the following: granular fill materials, concrete pipes, manholes, reinforcement steel, asphalt, ready mix concrete and mortar, concrete blocks, miscellaneous building materials, etc.
- It is anticipated that the generation of HGV's during the construction period will be evenly spread throughout the day and as such will not impact significantly during the peak traffic periods.

All construction related parking will be provided on site to prevent overflow onto the local network. Dedicated allocated visitor parking spaces will be provided within the site. A permeable hardstand area will be provided for staff car parking. Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate. Concrete wash down and wash out of concrete trucks will take place off site or in an appropriate facility. Discharge from any vehicle wheel wash areas is to be directed to the onsite settlement tank for discharge to the Uisce Eireann Wastewater network. Oil and fuel stored on site for construction should be stored in designated areas. These areas shall be bunded and should be located away from surface water drainage and features. In respect of disposal of any wastewater from the site, discharge from any vehicle wheel wash areas is to be directed to designated on-site settlement ponds; and any debris or sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility. In terms of activities associated with concrete deliveries/pours, all 'wash out' of concrete trucks will take place off site and any excess concrete is not to be disposed of on site.

2.4.7 Construction Traffic & Site Deliveries

Over the course of the construction programme the total number of large vehicle movements is estimated as follows (large vehicles are assumed to include spoil lorries, concrete trucks, large rigid delivery vehicles and HGV's):

- No. of private vehicles per day from staff and site visitors - 20
- No. of light good vehicles per day from subcontract staff - 15
- No. of heavy goods vehicles per day including skip trucks (typical day) – 10-15 two-way trips
- No. of heavy goods vehicles per day (peak days) – 20-25 two-way trips

The temporary parking of staff or delivery vehicles will not be permitted on adjacent roads and in this regard, it is proposed that construction parking shall take place on the site. A dedicated area will be utilised to accommodate deliveries and welfare facilitates as necessary. A small, dedicated compound will be constructed as part of the early works to accommodate construction vehicles and loading, unloading and storage as necessary off the R105 Howth Road. When necessary, as part of the works, subject to agreement with the Local Authority, the footpath on R105 Howth Road may need to be closed temporarily to facilitate deliveries to the development. At these times a bespoke Traffic Management Plan will be implemented to facilitate alternative pedestrian crossing points and signage of the local footpath diversion route. The duration of any footpath closure will be kept to a minimum.

Access to the proposed development site will be controlled at all times for the duration of the works and a person in a high-visibility jacket will be designated to assist construction vehicles to enter/exit the site at busy times to avoid conflict between pedestrian movements, local traffic on the R105 Howth Road, and construction activities.

The proposed development site has existing boundaries that prevent access and egress; however, hoarding/temporary fencing will be erected to delineate all site works from public areas located adjacent to the development. At no time during the project will plant or materials be placed outside the hoarding line. Given the greenfield nature of the site and that no contamination was found in the soil, the soil will be transported to other sites, for reuse, as necessary. Generally, traffic movements will move westward through Sutton Cross as development sites in Howth are limited and extant permissions are either well advanced or due to complete ahead of the development of the proposed development site.

2.4.8 Vehicle Movement During Construction

Excavated material (10,000m3) will be removed off-site for reuse given it is free of contamination. Transportation of the material will be by licensed hauliers. It is anticipated that there will not be any significant concentration of large vehicle movements as no significant concrete pour works or similar are envisaged. The Contractor will adhere to best practice mobility management measures for the site staff to encourage access to the proposed development site by means other than the private car. This will be considered by the Contractor prior to works commencing on site.

2.4.9 Construction Waste

A project specific **Resource & Waste Management Plan** (RWMP) has been prepared by Byrne Environmental and will be adhered to and will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the construction phase of the proposed development.

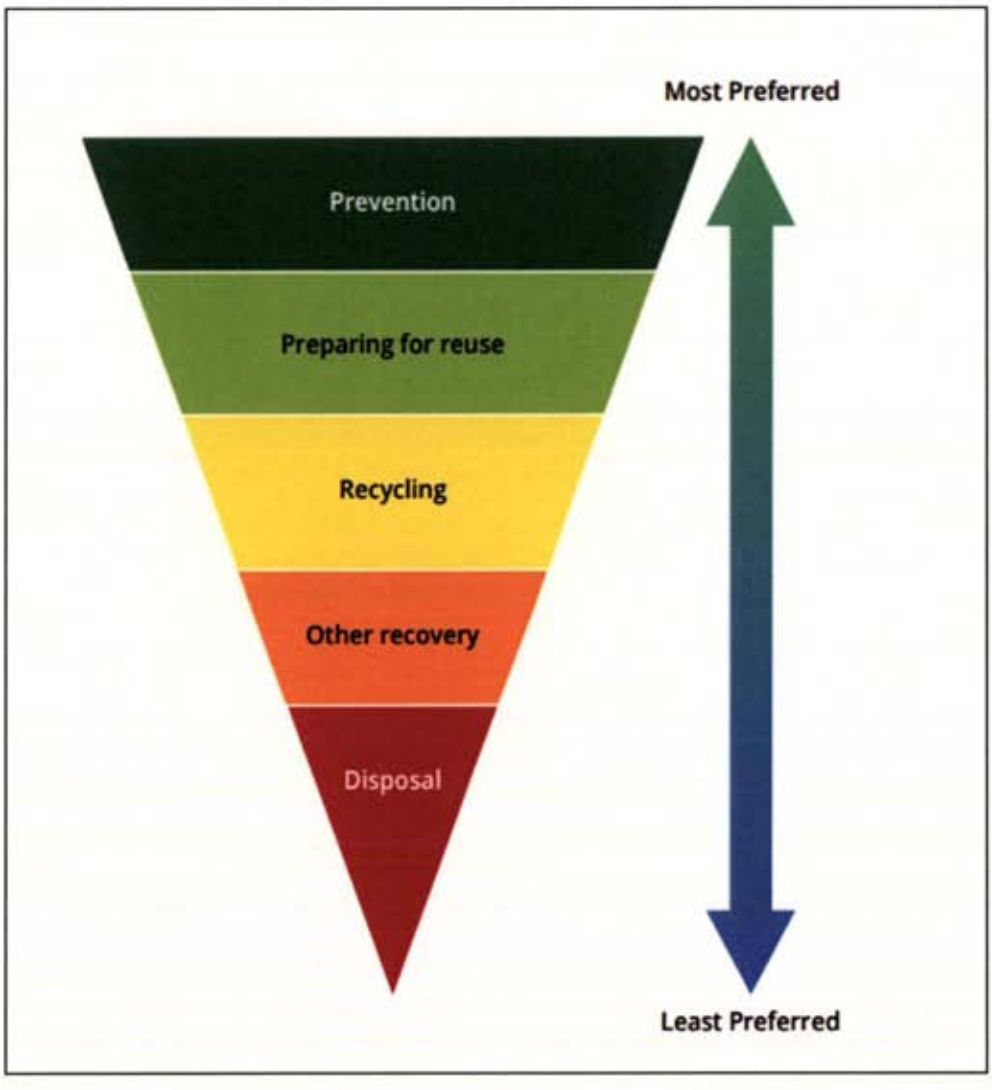


Figure 2.18 Waste Hierarchy

The design of infrastructure required promotes the re-use of fill-material generated on site within the site, thus ensuring construction traffic from incoming trucks containing soil fill required is minimised and furthering the circular economy.

The predicted construction waste breakdown is provided in **Table 2.2** below:

Table 2.2 Predicted Construction Waste (Source: Byrne Environmental)

LoW Code	Description	Volume Generated (tonnes)	Prevention (tonnes) Non Waste	Reused (tonnes) Non-Waste	Recycled (tonnes) Waste	Recovered (tonnes) Waste	Disposed (tonnes) Waste
17 01 01	Concrete Brick Tiles and Ceramics	533	0	288	218	0	27
17 01 02							
17 01 03							
17 02 01	Wood Glass Plastic	52	0	0	41	10	1
17 02 02							
17 02 03							
17 03 02	Bituminous Material	130	0	56	74	0	0
17 04 07	Mixed Metals	195	0	0	195	0	0
17 05 04	Soil and Stone	16,000	0	16,000	0	0	16,000
17 09 04	Mixed C&D Waste	390	0	510	608	296	230
20 01 08	Biodegradable Canteen Waste	10	0	0	0	0	10
20 03 018	Mixed Municipal Waste	10	0	0	0	0	10
20 01 01	Paper & Cardboard	1	0	0	1	0	0

The RWMP will be implemented throughout the construction phase of the development to ensure that:

- All site activities are effectively managed to minimise the generation of waste and to maximise the opportunities for on-site reuse and recycling of waste materials.
- All waste materials are segregated into different waste fractions and stored on-site in a managed and dedicated waste storage area.
- All waste materials generated by site activities are removed from site by appropriately permitted waste haulage contractors and that all wastes are disposed of at approved waste licensed / permitted facilities in compliance with the Waste Management Act 1996 (as amended) and all applicable regulations relevant to waste management.
- Recycled aggregates are used where possible to minimise the use of virgin materials.
- Materials which have a % of recycled material contained within them e.g. asphalt may include recycled glass or recycled asphalt.
- Where material surpluses arise, they shall be stored to prevent damage and re-used on other projects or returned to the supplier.

2.4.10 Earthworks

The proposed development will involve internal road network construction, drainage and utility installation, surface water attenuation, and construction of building foundations within the proposed development site. To facilitate this, the following earthworks are required:

- Stripping of Topsoil
- Excavation of Subsoil

The dig will not interact with the groundwater level and will be located well above this level. Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with proposed staging for the development.

The project Engineer DOBA Consulting Engineers have estimated that excavation of approximately 10,000m3 of the existing topsoil layer is required across the site to facilitate the proposed development. Where possible, topsoil can be reused for landscaped areas and forming bunds. Approximately 1,695m3 of topsoil is required to be reused on site for landscaping and the remaining 8,305m3 of topsoil will be reused given the soil is free of contamination. having regard to the scale of development taking place in Dublin, it is reasonably expected that there will be projects seeking to avail of this by-product.

At any given time, the extent of topsoil strip, and consequent exposure of subsoil, will be limited to the immediate vicinity of active work areas. Temporary topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains. Topsoil stockpiles will also be located so as not to necessitate double handling.

Soils at the site have been classified following WAC testing by Ground Investigations Ireland and the completion of a Waste Classification Assessment. The Waste Classification Report is included as an Appendix to the RWMP.

The scope of the work undertaken to facilitate the waste classification exercise included the following:

- Excavation of twelve (12 No.) trial pits;
- Collection of subsoil samples for chemical analysis;
- Environmental laboratory testing;
- Waste classification; and
- By-product suitability assessment.

The assessment concluded that on-site soils may be classified as non-hazardous and are defined as a Category A Criteria. Soils to be exported from the site have been classified as non-hazardous in the Ground Investigations Ireland Waste Classification Report (January 2020) in accordance with the EPA (2018) Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous by utilising the results of laboratory analysis and the Haz Waste Online Classification Tool.

2.4.10.1 By-product Suitability (Article 27 Declarations)

Based on the analysis of the samples collected from the on-site excavations the material sampled is free of contamination. The material sampled was comprised of natural subsoils which were free of anthropogenic materials. Following an appraisal of the chemical analysis and the absence of anthropogenic materials the subsoils sampled are suitable for removal from site as a by-product which will not lead to overall adverse environmental or human health impacts.

Based on the WAC analysis, it is intended to declare the excavated soils a by-product to the EPA in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (as amended) and the EPA publication "Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations 2011" – Version 3 June 2019.

The notification of a potential by-product gives industry an opportunity to demonstrate, with an appropriate level of rigour, that:

- the material can have a further use and no longer be defined as waste;
- the material can be used as a 'secondary' resource in place of, and fulfilling the same role as a non-waste derived or virgin 'primary' resource; and
- the material can be used without causing overall adverse impacts to the environment or human health.

The by-product test is made up of four conditions, which represent the requirements of Article 27. All four of the following 'conditions' must be met for an economic operator to decide that a production residue is a by-product:

1. further use of the material is certain;
2. the material can be used directly without any further processing other than normal industrial practice;
3. the material is produced as an integral part of a production process; and
4. further use is lawful in that the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

Based on the type of material to be excavated i.e. virgin soils, the fact that it is being excavated to facilitate the proposed development and the results of the WAC analysis, conditions 2-4 above are met.

Regarding Condition 1, at this stage, it is too early to identify a specific site where the material would be used. This is because, it is necessary first to secure planning permission to have certainty regarding the availability of the by-product and only then can a further use be identified.

However, having regard to the scale of development taking place in Dublin, it is reasonably expected that there will be projects seeking to avail of this by-product. The selected location will be identified in the notification to the EPA.

2.5 Health and Safety

2.5.1 Construction Phase

Project supervisors for the construction phase will be appointed in accordance with the Health, Safety and Welfare at Work (Construction Regulations) 2021 (as amended) and a Preliminary Health and Safety Plan will be formulated during the detailed design stage which will address health and safety issues from the design stages, through to the completion of the construction phases. This Health and Safety Plan will be developed further for the construction stage of the project.

2.6 Monitoring

A CEMP is included with this application. The CEMP will be updated to address any changes required by planning conditions and will be agreed with the planning authority prior to the commencement of development.

The CEMP demonstrates the applicant's commitment to implement the proposed development so as to avoid or minimise the potential environmental effects resulting from construction activities.

Aspects addressed within the CEMP include but are not limited to; noise and vibration; dust and air quality; traffic and vehicle management; pollution incident control; and protection of vegetation and fauna.

The appointed contractor will be required to implement this CEMP throughout the course of the construction phase. All personnel will be required to understand and implement the requirements of the plan.

2.6.1 Construction Noise and Dust

A Construction Noise & Vibration Management Plan will be put in place for the construction phase, a third-party consultant will be engaged to prepare this report and monitor activity and noise levels generated. The Noise Management Plan will address the following areas:

- Noise Sensitive Locations
- Assessment of noise and vibration effects
- Best Practice Guidelines for the control of construction noise
- The introduction of new noise sources onto the development lands
- Noise control audits

A Construction Phase Dust Management Plan will be put in place for the construction process, a third-party consultant will be engaged to prepare this report and monitor activity and noise levels generated. The Dust Management Plan will address the following areas:

- Site management
- Dust control – site roads
- Dust control – land clearing / earth moving
- Dust control – storage piles
- Dust control – public roads
- Dust management summary

2.6.2 Integrated Pest Management

The Main Contractor will take all necessary steps to ensure that pests -rodents, birds, insects and plants are controlled at all times.

Control measures will be undertaken prior to commencement of any works on the site. Poison where used, will comply with any relevant Health and Safety requirements and which eliminate any danger to children, household pets and other wildlife. Old and discussed service pipes and voids will be removed or filled to avoid the potential pest to infest the site.

2.6.3 Environmental

The monitoring proposed in Chapters 4 to 16 of this EIAR will be carried out during the demolition and construction phases. This monitoring is integrated to ensure that there will be no likely significant impact during development of the site.

A bespoke site Construction Environmental Management Plan (CEMP) will be prepared by the appointed contractor prior to work commencing on site. The main purpose of a CEMP is to provide a mechanism for implementation of the various mitigation and monitoring measures which are described in the EIAR. The CEMP demonstrates the applicant's commitment to implementing the proposed development in such a way as to avoid or minimise the potential environmental effects resulting from construction activities. All personnel will be required to understand and implement the requirements of the plan.

Aspects that will be addressed within the CEMP will include but are not limited to, waste and materials management; noise and vibration; dust and air quality; traffic and vehicle management; pollution incident control; and protection of vegetation and fauna. A summary of the mitigation measures to be incorporated into the CEMP is provided in Chapter 18 of the EIAR.

2.7 Commissioning

The testing and commissioning of services (drainage, watermain, gas, electricity) will be completed in accordance with relevant codes of practice as set out in **Chapter 7** of the EIAR.

2.8 Property Management

A property management company would be appointed to manage the scheme and common areas to ensure that the scheme is well managed, and the development is maintained to an extremely high level. They will be responsible for inter alia cleaning, landscaping, refuse management, insurance, maintenance of mechanical/electrical lifts/ life safety systems, security etc.

2.9 Decommissioning

The design life of the scheme is greater than 60 years. Thus, for the EIA process, the development is considered permanent, and a decommissioning phase is not considered in this report.

2.10 Conclusion

This chapter sets out the development parameters for the proposed development including an overview of the Architectural, Landscape and Engineering strategy. An overview of the phasing for construction has also been provided, and further information can be found in this EIAR and all other supporting information that accompanies this planning application.

CHAPTER 3
ALTERNATIVES

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

3 Alternatives

3.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) was prepared to consider alternatives as required by Annex IV (2) of the Environmental Impact Assessment (EIA) Directive 201/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by EIA Directive 2014/52/EU (the "**EIA Directive**") and in Schedule 6 of the Planning and Development Regulations 2001, as amended, (PDRs) which states;

> *"A description of the **reasonable** alternatives studied by the person or persons who prepared the EIAR, which are **relevant to the proposed development and its specific characteristics**, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment".* (emp. added)

The PDRs identify that reasonable alternatives may include project design proposals, location, size and scale, which are relevant to the proposed development and its specific characteristics. The PDRs require that an indication of the main reasons for selecting the preferred option, including a comparison of the environmental effects be presented in the EIAR.

The Environmental Protection Agency Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2022 states:

> *"The objective is for the developer to present a representative range of the practicable alternatives considered. The alternatives should be described with 'an indication of the main reasons for selecting the chosen option'. It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option. A detailed assessment (or 'mini-EIA') of each alternative is not required."*

The Guidelines also state that the range of alternatives considered may include the 'do-nothing' alternative.

Notwithstanding the above, pursuant to Section 3.4.1 of the 2022 EPA Guidelines, the consideration of alternatives also needs to be cognisant of the fact that:

> *"in **some instances some of the alternatives described below will not be applicable** – e.g. there may be no relevant 'alternative location'..."* (emp. added)

The Guidelines are also instructive in stating:

> *"Analysis of high-level or sectoral strategic alternatives cannot reasonably be expected within a project level EIAR... It should be borne in mind that the amended Directive refers to 'reasonable alternatives... which are relevant to the proposed project and its specific characteristics'".*

This chapter of the EIAR provides an outline of the main alternatives examined for the proposed development and sets out the main reasons for choosing the development as proposed.

The assessment of alternatives is considered under the following headings:

i. 'Do-nothing' Alternative
ii. Alternative Locations
iii. Alternative Use
iv. Alternative Project Design

3.2 Expertise and Qualifications

This chapter was prepared by Rachel Condon of McCutcheon Halley Chartered Planning Consultants. Rachel graduated from University College Cork with a BA Hons in Geography and Irish, obtained in 2010 and a master's degree in Planning and Sustainable Development, obtained in 2013. Rachel is currently an Associate Director in the Practice and is experienced in the field of planning and development consultancy which includes providing consultancy services in respect of major projects. Rachel has directed the preparation of EIAR's for a range of development types including residential, mixed use, and industrial developments.

Rachel has practised as a planning consultant for over 10 years and has directed the preparation of Environmental Impact Assessment Report (EIARs) for a range of development types including residential, commercial and industrial. Directly relevant experience to this proposed development is that Rachel has been involved in the direction of EIARs to accompany residential led applications that received permission for development including:

Connolly Quarter Reg. Ref: 3054/22 - The construction of 4 office blocks (B1, B2, B3 and B4) with heights ranging from 12 to 16 storeys with a cumulative gross floor area of approx. 50,000 sq.m. The proposed development relates to work to a Protected Structure (RPS Ref. No. 130).

3.3 Consideration of Alternatives

3.3.1 'Do-Nothing'

The 'do-nothing' alternative is a general description of the evolution of the key environmental factors of the site and environs if the proposed project did not proceed. Each chapter of this EIAR includes a description of the 'Do Nothing' alternative and should be referenced in conjunction with this Chapter.

The proposed development site would remain in its current condition, impermeable, predominately greenfield and it would not fulfil its residential zoning objective. Accordingly, there would be an adverse effect on population, as this approach would fail to address the shortage of homes in Dublin City and Suburbs. This is critical in the context of the low volume of land available for development in Howth owing to the high amount of land subject to environmental designations. Maximising the efficiency of zoned land particularly when nationally, there is a housing crisis and as a result, the delivery of housing on zoned land in a timely manner is of critical importance.

The demesne wall would remain wholly intact.

The same wall that encloses the site along its northern and eastern boundaries is in a state of decline due to (a) age and lack of maintenance, and (b) ivy growth. It is anticipated that without intervention, it

would likely go into further decline and a significant heritage resource would be undermined. The effect on built heritage would be adverse and very significant.

The proposed development site will facilitate 269 new trees which will provide a total surface area of 3,362sq.m which will present a significant positive whilst enabling the delivery of residential development in accordance with the land use zoning. Given the number of trees proposed, in the absence of the proposed development site, the effect would be adverse.

There would be no increase in traffic under the do-nothing scenario.

The proposed development site would fail to achieve the National Planning Framework, National Strategic Outcomes for compact growth and sustainable mobility, both of which have positive climate and human health benefits.

Should the proposed development site remain in its current condition, the area identified as high amenity i.e. buffer zone to the SAAO would remain unaffected and the quality of the effect would be neutral. However, it is important to note, that the proposed residential development is confined to the lands zoned residential and this high amenity land would be used as additional open/amenity space for the development, in accordance with the Fingal County Development Plan 2023-2029 (FCDP). The effect, if the area was left unused and inaccessible, would be adverse.

Retaining the lands in their current condition could have an effect on the Howth Castle Architectural Conservation Area (ACA) that abuts and forms part of a minor portion of the proposed development site's eastern boundary. If the Demesne wall which fronts the proposed development site went into demise, it could undermine the protected structures, namely the entrance gates to Howth Castle. It could also have a negative impact on the ACA's special character. However, the change introduced by the proposed development is demonstrated in this EIAR to be not significant, and adverse effects are not anticipated post-application of mitigation measures. The wider demesne benefits from extensive mature tree cover that screen protected structures from the impact of the proposed development. Further, the carrying capacity of the site to accommodate development is confirmed by the zoning designation.

In conclusion, the key environmental matters to consider under a 'Do-nothing' scenario having regard to the nature and location of the proposed development site and its zoning designation are, (i) population, (ii) cultural heritage, (iii) biodiversity, (iv) landscape character and townscape (v) traffic and transport.

When compared with the proposed development, the key difference between the Do-Nothing and the proposed development is the delivery of new homes, and its consequential negative effect for population when compared with the alternative, the delivery of 135 new homes.

The Do-nothing would see the demesne boundary wall fabric retained as a singular boundary structure. When compared with the proposed development that would see three sensitively designed openings in the wall to facilitate vehicular, pedestrian, and cyclists' movements and the rehabilitation of the wall to secure its survival into the future, on balance the proposed development is a more positive outcome for cultural heritage. Indirectly, the rehabilitation of the wall will also positively impact the protected gates leading to Howth Castle and the ACA.

The Do-nothing would see the existing trees and biodiversity value of the site remain intact and over time it's likely that there would be natural colonisation, providing further habitat value. The proposed development includes significant new tree coverage designed to provide continuity with existing hedgerows and which will act to bolster wildlife corridors locally. Development of the site will result in the loss of greenfield area; however, the biodiversity value is attached to the tree lines. On balance, the effect of the proposed development is deemed neutral when compared with the Do-nothing alternative.

Under the Do-Nothing alternative, there will be no built environment within the proposed development site. However, this is likely to be short term having regard to the fact that the site is zoned for development. The proposed development will change the character of the landscape but the effect of this can be managed by well-considered, high quality design, that respects the setting and responds to the changing character that will shortly occur on the former Techrete site, which is also located on the approach to Howth from Sutton. Comparing the effects is challenging as the scenarios are vastly different. However, it can be said that the Landscape and Visual Assessment included in this EIAR concludes that the effect of the development is consistent with existing and emerging baseline trends locally.

Under the Do-Nothing alternative, there would be no increase in traffic. The proposed development includes a very modest level of car parking, 63 spaces. It promotes the concept of active travel and modal shift. On balance when comparing the two scenarios, the proposed development is deemed a slight positive.

To conclude, the Do-nothing alternative is an inappropriate and unsustainable approach that would result in the inefficient use of a strategically located and easily serviced landbank of zoned residential lands located in proximity to existing and planned high-frequency transport. With the mitigation measures proposed in this EIAR and having regard to the findings that no significant effects on the environment are expected with such measures in place, the comparative environmental effects are not considered sufficient to rule out the proposed development.

3.3.2 Alternative Locations

The suitability of the proposed development site for residential development is confirmed by the 'RS' – Residential zoning designation in the extant Fingal County Development Plan 2023-2029 (FCDP), which was subject to Strategic Environment Assessment (SEA).

The Strategic Environmental Assessment (SEA) Environmental Report published as part of the Fingal Development Plan 2023-2029 acknowledges that:

> *'Residential Development is directed to lands already zoned for residential use in the current plan – no appreciable new residential zoning is proposed.*

In terms of availability, the above confirms that limited residentially zoned land is available particularly given no appreciable new residential land was zoned as part of the FCDP.

The Core Strategy of the FCDP provides a residential capacity for Howth across 20 hectares with the potential to deliver 500 units. Of this land, our planning search identified that approx. 14 ha is committed and unavailable.

The remaining zoned residential capacity from the Fingal Development Plan 2017-2023 for Howth was 14 ha with a residential yield of 209. The total residential capacity provided under the Fingal Development Plan 2017-2023, (updated as of September 2019) was 14 hectares with a potential to deliver 426 units. In the period 2011 to 2017, the land supply for Howth was 16 hectares. Based on the above figures from the period 2011-2023, it is clear that the conversion of zoned land to residential dwellings has been slow-moving.

For the majority of the headland, the land is deemed to be in an area of outstanding natural beauty and thus it is unsuitable for delivery of large scale residential development.

Howth is in Dublin City and Suburbs, the site is close to public transport, social infrastructure and amenities and under the ownership of the Applicant, therefore in this context, there is no reasonable alternative location.

3.3.3 Alternative Uses

At a settlement level, Howth is identified as a Consolidation Area within the Metropolitan Area given its location in proximity to Dublin City and key transport links. The planning policy approach is to gain maximum benefit from existing transport, social, and community infrastructure through the continued consolidation of the city and its suburbs. Future development should happen in a planned and efficient manner utilising opportunities to achieve increased densities where appropriate. In this way the National Planning Framework objective of compact growth can be achieved.

Compact development of Howth reduces the distances people need to travel, leading to fewer vehicle miles travelled and consequently lower emissions of air pollutants such as carbon dioxide (CO2), nitrogen oxides (NOx), and particulate matter (PM).

Compact development of Howth encourages the use of public transportation, cycling, and walking. This decreases overall energy consumption associated with transportation, including lower emissions from vehicles and reduced reliance on fossil fuels.

By concentrating development, urban consolidation helps protect green spaces within and around cities. Parks, forests, and other natural areas provide important ecosystem services, including carbon sequestration, temperature regulation, and habitat for wildlife.

In summary, urban consolidation and compact growth offer multiple environmental benefits by promoting more efficient land use, reducing energy consumption and emissions, improving air and water quality, preserving open space, promoting sustainable infrastructure, and enhancing resilience to climate change. These strategies are essential for creating healthier, more sustainable, and resilient cities in the face of ongoing urbanisation and environmental challenges.

The alternative to compact growth would be urban sprawl with consequent environmental impacts such as increased private vehicle traffic which would contribute to air pollution through emissions of pollutants which impact the climate and health. Sprawl reduces the permeability of the land, leading to increased stormwater runoff and flooding. This overwhelms drainage systems, causes erosion, and carries pollutants into water bodies, further degrading water quality.

The FCDP establishes the overall guiding principles for development of the proposed development site which has two zoning designations, 'RS' Residential and High Amenity 'HA'.

The bulk of the application area is 'RS' and the zoning objective is to:

Provide for residential development and protect and improve residential amenity.

This objective is supported by a vision to:

Ensure that any new development in existing areas would have a minimal impact on and enhance existing residential amenity.

The permissible in principle use classes for 'RS' zoned lands is as follows:

Permitted in Principle		
Bed and Breakfast	Childcare Facilities	Community Facility
Education	Guest House	Office Ancillary to Permitted Use
Open Space	Residential	Residential Care Home/ Retirement Home
Retirement Village	Sheltered Accommodation	Traveller Community Accommodation
Utility Installations		

Figure 3.1 Residential – Permitted In Principle Uses (Source: FCDP)

In principle, an application for any one or a combination of the uses listed above could be progressed on the site subject to compliance with other policies and objectives in the FCDP. Having regard to the site's residential zoning designation the reasonable alternative scenario for development of the proposed development site is:

i. A residential led mixed use scheme incorporating some permitted in principle uses; or,
ii. A residential development.

3.3.3.1 Mixed Use Scheme

Consideration was given to developing a residential-led mixed use scheme on the proposed development site. This approach would integrate a quantum of amenities to support daily living needs such as a community facility or childcare etc.

A Social Infrastructure Audit (included under separate cover) was undertaken at the early stage of the project to ascertain the amenities and services available locally. It concluded that Howth is well served by high quality public transport together with services and amenities. However, the wealth of amenities available means that vast areas of the peninsula are sterilised from development, in order to protect the environment. While there is an abundance of open space in Howth, a deficit in open space to support active play areas was identified.

The Childcare Demand Report (included under separate cover) established that there is adequate capacity available locally and a childcare facility is currently under construction on the former Techrete site (Claremont) located opposite the site on Howth Road.

Although community facility, childcare facility and education uses are permitted in principle the site is zoned Residential and therefore it is appropriate to develop a residential scheme particularly given the facilities which are currently under construction on the neighbouring site. The Claremont scheme which is currently under construction on the former Techrete site opposite the proposed development site will deliver 2 shops, a creche a café and a restaurant which will complement and enhance the existing mix of uses in the town centre. It would be unsustainable to provide another creche adjacent to this site given the permitted creche is currently under construction and together with existing creches in the vicinity provide sufficient capacity for both the existing and proposed development.

3.3.3.2 Residential Scheme

The population of the Howth Electoral Division (ED) in 2022 was 8,399 up from 8,294 in 2016. The intercensal population increase was approx. 1%. This increase is negligible when compared with the population increase of Fingal between 2022 and 2026, which was 8.5%.

As outlined in Section 3.1.2, the total residential capacity provided under FCDP for Howth, is 20 hectares with a potential to deliver 500 units. In the period 2017 to 2023, the land supply for Howth was 14 hectares. In the period 2011 to 2017, the land supply for Howth was 16 hectares. This demonstrates that the conversion of zoned land to residential dwellings has in recent years been slow-moving. As outlined in Chapter 4 Population and Human Health, there is a high quantum of older age inhabitants in Howth. As a result, the scheme would be attractive to retirees and will allow people to continue living in their community, in a more accessible location whilst also freeing up larger housing stock for the market.

Having regard to the above, a reasonable alternative is a residential scheme. Given this is the preferred option, **Table 3.1** below outlines the anticipated environmental effects of progressing a residential scheme on the proposed development site.

Table 3.1 Anticipated Environmental Effects of a Residential Scheme

Chapter	Quality & Significance	Comments
Population & Human Health	Positive and Very Significant	Delivery of a significant quantum of homes at an accessible location proximate to amenities
Biodiversity	Positive & Significant	The residential development would necessitate the inclusion of open space and having regard to policies in the Development Plan biodiversity enhancement measures would be included. The proposal will retain most of the tree belt located to the south and also result in an increase of trees by approx. 250 across the site.
	Neutral & Slight	Stripping of the existing meadow area will be required to facilitate the development.

Chapter	Quality & Significance	Comments
Climate	Positive and Very Significant	Introducing homes at this location would support a modal shift owing to the site's excellent accessibility to the town centre and public transport.
Air Quality	Positive and Very Significant	Reduction in car usage brought by adhering to maximum car parking rates and by proximity to public transport would have a positive effect on local air quality.
Water	Neutral & Not Significant	Uisce Eireann has confirmed that the waster connection is feasible without upgrades. The wastewater connection is feasible subject to upgrades.
Land & Soils	Neutral & Not Significant	A residential development would require a change in land use. This change is deemed acceptable in principle having regard to the site's zoning designation 'RS' and the SEA prepared that assessed the environmental effects of the FCDP. To facilitate a residential development, removal of soils would be required. Having regard to the extensive areas protected in the peninsula, the loss of soils and subsoils is not deemed significant.
Traffic & Transport	Positive and Very Significant	Capacity issues at Sutton Cross are existing and is beyond the scope of any individual application. Residential development at this location would promote a modal shift and the general impact on traffic would be positive.
Cultural Heritage: Built Heritage	Positive and Significant	The development site is enclosed along its northern boundary by the Howth Castle demesne wall. To facilitate access to the proposed development site, this requires access at this location. When carried out in a sensitive manner, this would afford the opportunity to rehabilitate the wall which is in decline.
Cultural Heritage: Archaeology	Indeterminable	The baseline archaeological environment does not appear to be significant. Archaeological testing was carried out and ten test trenches were excavated across the site where no archaeological features were identified. However, owing to the cultural heritage present in the immediate environs previously unidentified sub surface archaeology may be encountered at the construction phase.
Landscape & Visual	Positive and Moderate	The carrying capacity of the proposed development site to accommodate development is confirmed at a strategic level by its continued zoning designation. The Building Height Guidelines require development proposals to increase density at appropriate locations subject to meeting performance based criteria, including visual impact. Residential development of the site would introduce a change to the existing landscape and the degree of visual impact would be dependent on the quality of design. This is safeguarded through development management policies. Development of the site, at a scale that complements the currently under construction

Chapter	Quality & Significance	Comments
		Claremont Site (Former Techrete site), will result in a unified and progressive landscape and built form.

3.3.3.3 Preferred Use of Residential Zoned Land

The suitability of the proposed development site for residential development is confirmed by the zoning designation in the extant Fingal Development Plan 2023-2029, which was subject to Strategic Environment Assessment (SEA).

The primary difference between the 2 scenarios is that a residential scheme would deliver a greater quantity of much-needed homes. When this is compared with a mixed-use development, with a lower residential yield and the historically low conversion of zoned lands in Howth to residential development, the effect on population would be adverse.

Accordingly, it is concluded that use of the site for residential development is the optimum use of the proposed development site having regard to the outcome for population i.e. delivery of housing.

3.3.4 Alternative Design – Previous SHD

It is acknowledged that there was a previous SHD application (ABP Reg. Ref: 310413) proposed on the site which was permitted by An Bord Pleanála (ABP) and later quashed under Judicial Review. Notwithstanding the fact that the proposal has been quashed, the scheme was deemed appropriate by ABP albeit much reduced from that originally proposed.

The below provides a summary of the enhanced outcomes of the subject proposal in comparison to the SHD proposal:

- Enhanced proposal for cultural heritage in relation to the greater setbacks proposed to the entrance to Howth Castle
- A larger quantum of public open space is proposed (1,676sq.m versus 1,161sq.m)
- The tree belt to the south is retained as opposed to the substantial removal proposed as part of the previous SHD
- A greater quantum of trees are proposed as part of the subject application
- The SHD site coverage proposed 37% versus the proposal which provides 26%
- 90 car parking spaces were proposed versus 63 proposed which will reduce traffic generation
- Enhanced permeability will result as 3 points of access are proposed as opposed to the previous 2 points of access.

3.3.5 Alternative Designs - Layout

The development is comprised of two buildings with four lift and stair cores of staggered form arranged side-by-side, aligned north-south. Each building is divided into a front and rear volume, with the two volumes offset so that the floorplan is staggered. The buildings are labelled A-D with A and B situated along the western portion of the site and C and D located in the eastern portion of the site.

A layout was prepared which, whilst retained the tree belt located to the south for the most part, was not deemed to be satisfactory, see **Figure 3.2** overleaf.

Figure 3.2 Concept Block Layout – Block D (Source: JFA)

Commentary was received seeking that the woodland belt be retained in its entirety due to its function as a valuable screening and a biodiversity corridor. The block layouts have been shifted from the initial design stages to ensure that limited impacts to the tree belt located to the south of the proposed development site occurs. The following layout is proposed which amended the footprint to ensure minimal impact to the tree belt.

The position of Block D is cognisant of the root protection areas of the retained trees and includes these within the design of the proposed reinforced grass path. Furthermore, this creates space for future canopy growth as trees mature. To provide 5m of working space to the outside of Block D, this requires the removal of trees from the existing tree belt. To retain the full line would provide a working space of 3.6m (max) which may not be feasible for construction. Notwithstanding this, a new row of Scots Pine is proposed to be planted post construction which will be located approx. 6m from the façade, see **Figure 3.3** overleaf.

Figure 3.3 Alternative Block Layout (Source: JFA)

3.3.6 Alternative Design - Height & Scale

3.3.6.1 Blocks A & C

A key environmental consideration with respect to considering the height and scale for Blocks A & C relates to its location to the west of the proposed development site adjacent to existing low rise development and likely effects on existing residential amenities.

During the design development, 2 alternative approaches were considered:

1. A 5 storey building;
2. A 4-5 storey building with the front volume setback

The initial 5 storey development proposed across the site is depicted in **Figure 3.4** overleaf.

Figure 3.4 Initial 5 storey massing (Source: JFA)

This development resulted in a higher yield of 143 units across the site, did not have an adverse impact in terms of daylight and sunlight received to the neighbouring windows and gardens and internally to the proposed development site.

In terms of the visual impact, development of the site under either alternative would have a moderate effect i.e. locally there will be a noticeable visual change.

As part of discussions with the planning authority, comments were received with regards the height of the front volume blocks and it was recommended that the design should be reflective of the transitional nature of the site, between low rise to the west and the sensitive entrance to Howth Castle to the east and the emerging town centre to the north-east.

As a result, setbacks ranging from 4.3m-7m have been applied to the front volumes of Blocks A & C to soften the appearance of the development on approach from Howth Road, as depicted in **Figure 3.5** overleaf.

Figure 3.5 Upper Level Setbacks along Howth Road (Source: JFA)

Having regard to the positive visual and urban design effect that would emerge through creating a balanced urban edge (i.e. north and south of Howth Road), providing a stepped approach in the building height across Blocks A and C was deemed appropriate and reasonable and this design has been adopted.

3.3.6.2 Block D

Following the initial concept design, a uniform 5 storey development across the two staggered buildings was developed. Commentary was received in relation to the proposal outlining that the uniform 5 storey height does not sensitively respond to the historic setting i.e. the entrance avenue Howth Castle.

The heights have been reduced and now range from 3-5 storeys with the lower height (3 storeys) provided for Block D closest to the eastern boundary, Howth Castle gates, and the ACA. The front volumes range from 4-5 storeys in height with setbacks ranging from 4.4m-7.1m provided for the upmost level as they front Howth Road, as depicted in **Figure 3.5** above.

As depicted in the contiguous elevation below, the height tapers down from Howth Road towards the rear of the site. The below highlights the scale of the rear volume of Block D which proposes 3 storeys closest to Howth Castle Gates. Setbacks ranging from 19m-24m are proposed to the western boundary wall and this alternative design together with the reduced heights avoids any sense of excessive enclosure, or crowding of the historic setting (the boundary wall, the gate or the woodland). To further mitigate any likely significant effect, tree planting inside the eastern boundary was introduced to contribute further to the softening of the development's presence, despite its urban character and scale.

Figure 3.6 Contiguous Elevation (Source: JFA)

3.3.7 Alternative Design - Recessed Balconies

As depicted in **Figure 3.4** the initial balconies proposed for Blocks A and D along Howth Road were provided with projecting balconies. This resulted in excellent daylight and sunlight being received to the apartments and private open space areas and created visual interest along the front elevations whilst maximising views of the sea to the north.

To create a more clean elevation along Howth Rod, given the prominent views afforded to the site on approach from Howth Road, recessed balconies were considered. However, there was concern raised regarding how the design would affect the daylight received to the apartments and private open spaces areas. The built form was tweaked to ensure that, where possible, dual aspect apartments were provided and window sizes were increased to ensure maximum amenity to the apartments was received. A daylight and sunlight assessment was carried out on the proposed scheme which excluded projecting balconies along the front elevations of Blocks A and C along Howth Road and the study confirmed the following:

- All rooms tested in the proposed development meet the minimum recommendations for internal daylight provision as set out in the BRE Guide and BS EN 17037 (National Annex).
- Greater than 50% of each open amenity space in the proposed development can receive more than 2 hours of sunlight on March 21st.

Therefore, the proposed open spaces exceed the BRE's recommendation for sunlight to open spaces and should appear adequately sunlit throughout the year.

Given only minor tweaks were required to incorporate recessed balconies along Howth Road, recessed balconies have been included, as depicted in **Figure 3.7** overleaf.

Figure 3.7 View of the proposed development site from Howth Road (Source: 3D Design Bureau)

3.3.8 Alternative Design - Swift Bricks

A key environmental consideration with respect to considering the materials of some of the proposed elevations was the inclusion of swift brick boxes. The brick materials of the elevations of Blocks B and D have been updated to include swift bricks along elevations which will result in a biodiversity net gain. Swift bricks are a good option as they provide safe, permanent, low-cost nesting sites for Swifts for the lifetime of the building.

With regard to a biodiversity enhancement opportunity, the provision of Swift bricks was recommended in the design of the blocks as an enhancement measure for this endangered bird species, that migrate to Ireland from South Africa each summer and traditionally nest in crevices or the eaves of buildings.

They are a very discrete feature (appear as tiny holes in the bricks) and can be added to any elevation given they don't tend to overheat. As a result, discreet swift boxes have been added to of the south and western elevations of Blocks B and D, as depicted in **Figure 3.8** overleaf.

Figure 3.8 Swift Brick Boxes (Source: JFA)

Having regard to the positive effect that would emerge through creating safe, permanent, low-cost nesting sites for Swifts for the lifetime of the building, this would have an imperceptible effect on the proposed elevations whilst enhancing biodiversity across the proposed development site.

3.3.9 Alternative Access Route

The proposed development site is enclosed on its northern boundary with Howth Road by the existing demesne wall. The alternatives available to facilitate access to the site are:

1. Use the existing entrance to Howth Castle and Deer Park Golf Course
2. Create a new entrance

The existing entrance to the demesne is off the Howth Road. It is considered that intensifying the use of this entrance may have a significant adverse effect, particularly on the Castle gates (Protected Structure) that are set back from the public road in the avenue. This route would also result in the proposed route traversing the SAAO buffer area to gain access.

The alternative, to create a new entrance along the northern boundary would have a moderate effect on the demesne wall. There is precedence for interventions in the northern boundary wall to facilitate access as evidenced by the access to Tig Bhride, dwelling located immediately west of the proposed development site. The wall is not listed as a protected structure, therefore direct impacts on protected built heritage are not considered to arise. The wall was visually assessed by the project conservation architect and it was concluded that its integrity is undermined due to lack of maintenance and ivy growth. The works proposed to the wall offer an opportunity to restore the remainder of the wall and safeguard it into the future. This is a direct significant and positive effect for cultural heritage.

Having regard to the identified adverse effect of using the existing demesne entrance for the proposed development and the very significant positive effect that could be achieved for the wider wall as part of the work to create an entrance on the northern boundary, creating a new entrance is the preferred alternative.

3.4 Difficulties Encountered

There were no difficulties encountered in the preparation of this assessment for the proposed development.

CHAPTER 4
POPULATION & HUMAN HEALTH

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

4 Population & Human Health

4.1 Introduction

According to the European Commission's Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report (2017), human health is; *"a comprehensive factor that would be highly project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population."*

The Environmental Protection Agency (EPA) Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022) advise that *"in an EIAR, the assessment of impacts on population and human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in this EIAR, e.g. under the environmental factors of air, water, soil etc."*

This chapter addresses the likely significant environmental impacts of the proposed development on population and human health. It is noted that other chapters of the EIAR also deal with likely significant environmental effects on population and human health arising from traffic and transportation, air quality and climate, noise and vibration, landscape and visual, material assets: utilities and the risk of major accidents and/or disasters and those chapters should be referenced in conjunction with this chapter of the EIAR.

4.1.1 Expertise and Qualifications

This chapter was prepared by Rachel Condon of McCutcheon Halley Chartered Planning Consultants. Rachel graduated from University College Cork with a BA Hons in Geography and Irish, obtained in 2010 and a master's degree in Planning and Sustainable Development, obtained in 2013. Rachel is currently an Associate Director in the Practice and is experienced in the field of planning and development consultancy which includes providing consultancy services in respect of major projects. Rachel has directed the preparation of EIAR's for a range of development types including residential, mixed use, and industrial developments.

Rachel has practised as a planning consultant for over 10 years and has directed the preparation of Environmental Impact Assessment Report (EIARs) for a range of development types including residential, commercial and industrial. Directly relevant experience to this proposed development is that Rachel has been involved in the direction of EIARs to accompany residential led applications that received permission for development including:

Connolly Quarter Reg. Ref: 3054/22 - The construction of 4 office blocks (B1, B2, B3 and B4) with heights ranging from 12 to 16 storeys with a cumulative gross floor area of approx. 50,000 sq.m. The proposed development relates to work to a Protected Structure (RPS Ref. No. 130).

4.2 Project Description

A detailed description of the proposed development is provided in Chapter 2 of this Environmental Impact Assessment Report (EIAR).

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 electric vehicle (EV) charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Demolition of 3 sections of the existing demesne northern boundary wall, which fronts Howth Road is proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

The design rationale is to create and deliver a high quality, sustainable, strategic housing development which respects its setting and maximises the site's natural attributes while achieving maximum efficiency of existing infrastructure. The Proposed Site Layout Plan prepared by John Fleming Architects (JFA) is provided within the architectural suite of drawings.

4.3 Methodology

Publications and other data sources consulted include:

- National Planning Framework, Ireland 2040 – Our Plan (Government of Ireland, 2018)
- Eastern and Midlands Regional Spatial and Economic Strategy 2019-2031;
- Fingal Council Development Plan 2023-2029;
- Central Statistics Office (CSO) website www.cso.ie;
- Department of Education (DE) website https://www.gov.ie/en/organisation/department-of-education/
- GeoDirectory-GeoFindIT App
- Dublin Housing Observatory Mapping Viewer https://airomaps.geohive.ie/dho/
- Pobal website https://maps.pobal.ie/
- Health and Safety Authority website https://hsa.ie

Additionally, reports prepared by McCutcheon Halley Planning Consultants included with this application under separate cover were consulted, as follows:

- Social Infrastructure Audit
- Childcare Demand Report
- School Demand Assessment Report
- Planning Statement

This chapter has been prepared having regard to the following guidelines:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)

The impact assessment section of this chapter follows the terminology (where applicable) used in the EPA Guidelines as set out in **Chapter 1** of this EIAR.

4.4 Baseline Environment

4.4.1 Application Area

The proposed development site lies within the Fingal County Council administrative area. The proposed development site is located within the Electoral District (ED) of Howth which comprises the entire Howth Peninsula area. The ED is an area measure for which census data is published and provides a detailed analysis of population and demographic statistics and trends. The application area is 1.53 ha. and proposes to deliver 135 residential units. The proposed development site is located on lands adjoining Howth Demesne, Deer Park, Howth, to the south of Howth Road (R105).

Figure 4.1 Application Area and Surrounding Context

The proposed development site is well screened by mature trees that line the avenue leading to the wider Demesne. A demesne wall associated with the Howth Castle Demesne encloses the site on its northern and eastern boundary. Protected Structures in proximity to the site are the Howth Castle gates and St. Mary's church to the east of the gates. A small portion (102sq.m) of the northeastern corner of the proposed development site falls into the Howth Castle Architectural Conservation Area (ACA); however, this portion relates only to works to provide a wider concrete footpath and the provision of a new stepped pedestrian access. The proposed development site is bounded by the Deer Park golf course to the south and Howth Road (R105) to the north. To the east, the proposed development site is bounded by the entrance and internal access road that provides access to Howth Castle, the golf course and St. Mary's Church, and to the west by existing low-rise detached houses.

4.4.2 Land Use Zoning

The majority of the proposed development site (1.1ha) is zoned RS 'Residential' in accordance with the Fingal County Development Plan 2023-2029 (FCDP), see **Figure 4.2** overleaf. The objective of RS – Residential is: *"Provide for residential development and protect and improve residential amenity."* The vision of RS zoning is to *"Ensure that any new development in existing areas would have a minimal impact on and enhance existing residential amenity."* The zoning objectives for RS 'Residential' list the following land uses as permitted in principle: Residential, Community Facility, Open Space and Office Ancillary to Permitted Use.

The southwestern portion of the proposed development site falls into HA 'High Amenity' land use zoning (see **Figure 4.2**), with the zoning objective *"Protect and enhance high amenity areas."* The vision of HA zoning is to *"Protect these highly sensitive and scenic locations from inappropriate development and reinforce their character, distinctiveness and sense of place. In recognition of the amenity potential of these areas, opportunities to increase public access will be explored."* Under the HA zoning, development of Open Space, Restaurant/Café (ancillary to tourism uses or conversion of protected or vernacular structures where appropriate), Office Ancillary to Permitted Use, Health Practitioner and Residential (subject to compliance with the Rural Settlement Strategy) are permitted.

The area of the southern portion of the proposed development site within the HA zoning is also identified as a 'buffer zone'[1] of the Howth Special Amenity Area Order (SAAO). Howth is afforded a high degree of protection because of SAAO and European Site designations, while Sutton is also located in proximity to these designations. This designation recognises the area's natural beauty, its special recreational value and the need for nature conservation within the area.

A small portion (102sq.m) of the proposed development site falls into the Howth Castle ACA' as illustrated in **Figure 4.2** below. Recognising that much of the demesne lands have been altered to accommodate the golf course and hotel complex, the boundary of the ACA was limited to a core area surrounding Howth Castle and the entrance and the majority of the proposed development site does not form part of this designated area, with the exception of 102sq.m in the north eastern corner of the site.

[1] A definition for the 'buffer zone' of the SAAO is not provided in the FCDP.

Below are the relevant policies and specific objectives for Howth in the FCDP, in terms of settlement:

Policy CSP22 – Howth, Sutton and Baldoyle

Consolidate the development and protect the unique identity of Howth, Sutton and Baldoyle. This includes protection against overdevelopment.

Policy CSP23 – Howth SAAO

Protect the Howth Special Amenity Area Orders (SAAO), including the Buffer zone, from residential and industrial development intended to meet urban generated demand.

Objective CSO21 – Promotion of Higher Densities

Promote higher densities (50+ units per hectare) at appropriate locations in urban built up areas subject to meeting qualitative standards at appropriate locations with particular reference to urban centres and/or in proximity to high-capacity public transport nodes while demonstrating compliance with all relevant Section 28 Ministerial Guidelines.

Objective CSO25 – Optimising Existing Local Heritage Resources and Public Amenities

Require that new development in the urban settlements of the Dublin City and Suburbs area optimises existing local heritage resources and public amenities, while protecting the character and biodiversity of the villages.

Objective CSO26 – High Quality, Sustainable and Inclusive Development

Promote development which incorporates a high quality, sustainable and inclusive approach to proposals in the Dublin City and Suburbs Area, which are supported by sustainable means of travel and which create locally distinctive neighbourhoods and positively contribute to the existing built and natural heritage.

Objective CSO27 – Promote and Enhance existing ACAs

Continue to promote and enhance the existing ACAs within our urban villages and protect their historic characters.

Figure 4.2 Land Use Zoning and Specific Objectives (Source: FCDP, edited by MHP)

Howth is identified as being within Dublin City and Suburbs in the Development Plan with respect to the Regional Spatial and Economic Strategy (RSES) 2019-2031 for the Midlands and Eastern Region, see **Figure 4.3** below.

Figure 4.3 Dublin City & Suburbs & MASP boundary

4.4.3 Surrounding Land Uses

The Site is primarily surrounded by an Open Space/Golf Course in the east and southern direction, with low density residential dwellings located to the west. The proposed development site is located across from a permitted mixed-use development (ABP Reg. Ref: 306102) which is currently under construction and includes 512 residential units, basement car parking, 2 shops, creche, café and restaurant and associated open spaces.

Figure 4.4 Surrounding Land uses (Source: OpenStreetMap, edited by MHP)

The proposed development site is approx. 115m north of Howth Castle (RPS ID: 0556) and approx. 100m west of St Mary's Church (RPS ID: 0594), both are identified as Record of Protected Structures (RPS) and Sites and Monument Record (SMR) according to the FCDP, see **Figure 4.5** overleaf. The primary entrance to Howth Castle and the Golf Club is located to the east of the proposed development site through gates set back from the public road.

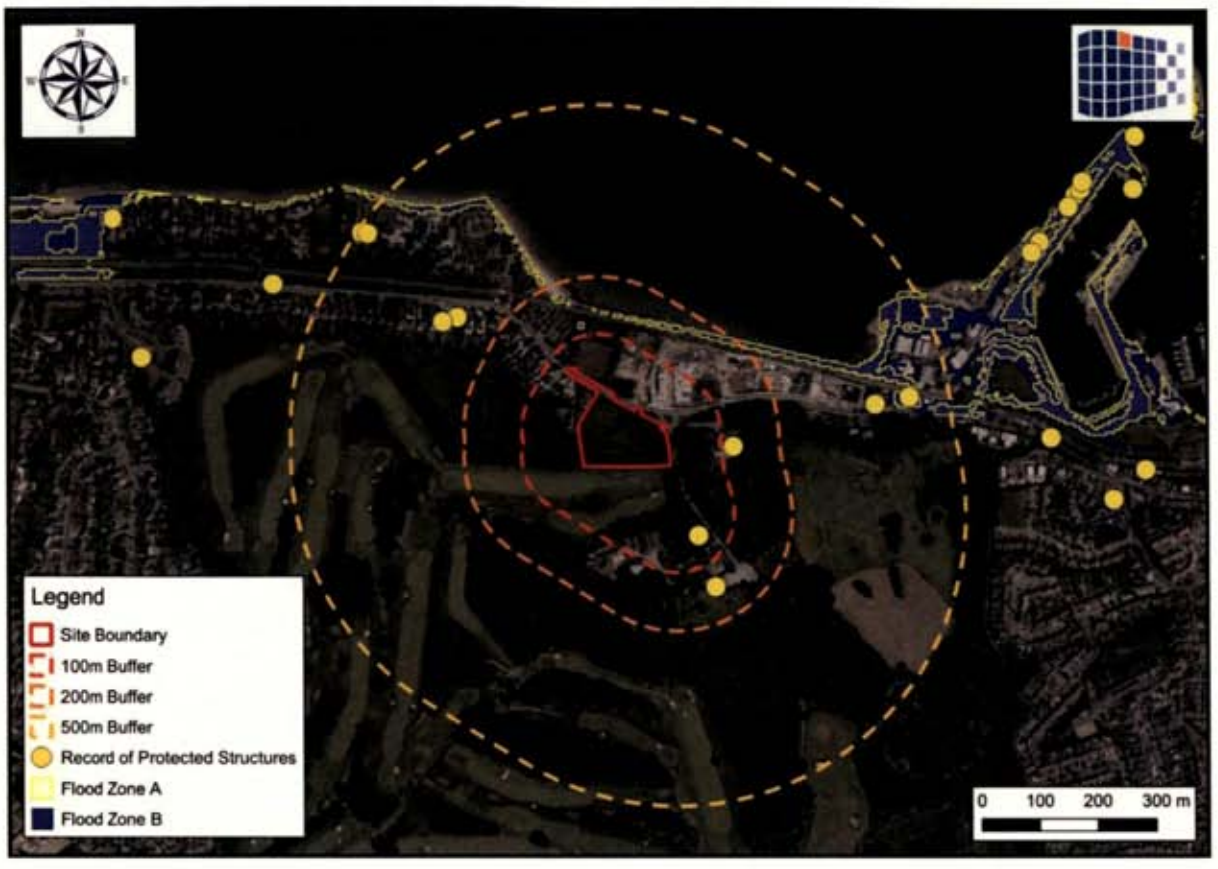


Figure 4.5 Surrounding Land use with Protected Structures and Flood Zone (site outlined in red). (Source: BingMap, edited by MHP)

4.4.4 Public Transport and Accessibility

Howth DART station is less than 500m (5-minute walk time) from the proposed development site offering frequent DART services to Dublin City Centre and as far south as Greystones. The DART operates a service to the city centre every 20 minutes. The Dublin Bus services in the area provide direct linkage to the city centre via Bus Connects along Howth Road towards the city centre. Most notably the H3, a Spine Route with a frequency of service every 30 mins, and radial route 6 with services offered every 60 mins. It should be noted that the DART Expansion National Development Plan 2018-2027 includes buying additional fleets and measures such as re-signalling, junction and station changes to provide expanded services. These routes and schedules are shown in **Figure 4.6** and **Table 4.1** overleaf:

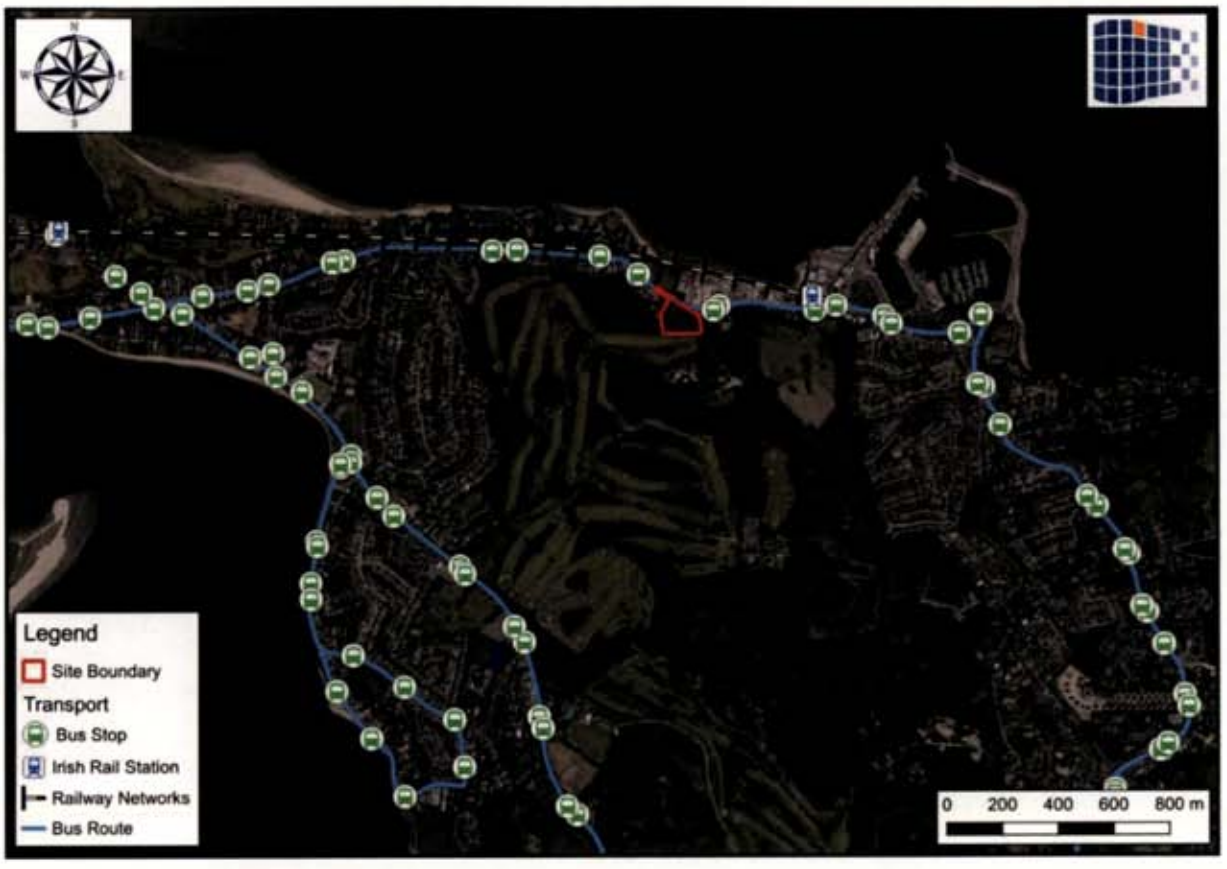


Figure 4.6 Public Transport Map (Source: BingMap, edited by MHP)

Table 4.1 Public Transport Options

No.	Route	Type	Destinations	Peak Hours	Services Schedule	Distance
1	Dart	Train	Gorey/Bray – Dublin – Howth/Newry	Every 20 mins	Every 20 mins	Howth Station c.530m, < 7 mins walk
2	H3	Bus	Howth Summit – Lower Abbey Street	Every 30 mins	Every 30 mins	2 no. bus stops, c.100m, < 2 mins walk
3	6	Bus	Howth – Lower Abbey Street	Every 60 mins	Every 60 mins	A bus stop c.600m, < 7 mins walk

The proposed development site also benefits from a high level of accessibility to the national, regional and road networks, as shown in **Figure 4.7** following:

Figure 4.7 Roads & Footpath Networks (Source: BingMap, edited by MHP)

The proposed development site is within convenient walking and cycling distance from the Howth town centre. As outlined in **Figure 4.8** overleaf, it illustrates the walking distance up to 30 minutes from the proposed development site. This shows that within a 15-minute walk, residents could reach Howth town centre and some coastal areas.

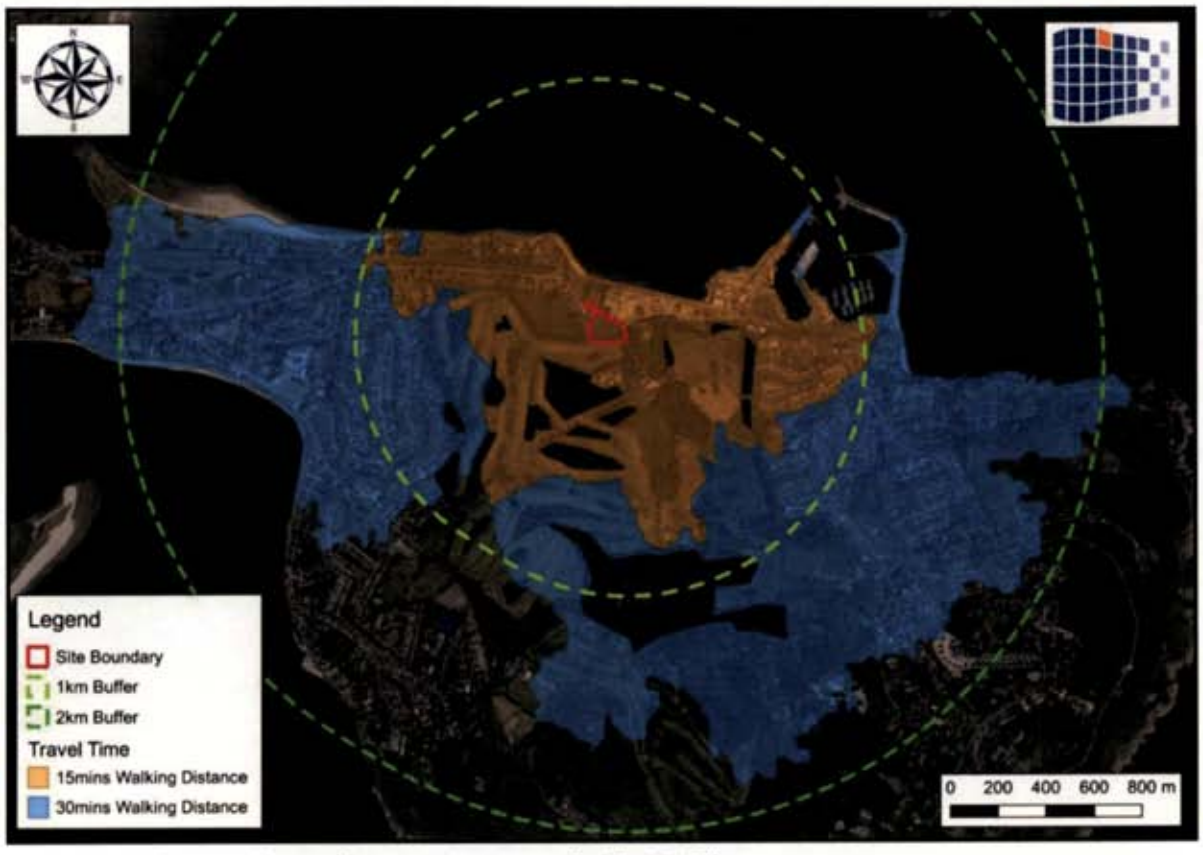


Figure 4.8 Walking Catchment (Source: BingMap, edited by MHP)

4.4.5 Sensitive Receptors

For the purpose of this chapter, the primary sensitive receptors are:

I. Existing residential dwellings in the vicinity of the proposed development site, in particular, existing low-rise suburban residential dwellings located to the west;
II. Users of the public road network, specifically Howth Road, the user of Baltray Park, attendance of St. Mary's Church and Deerpark Montessori School, the golf club and the wider demesne lands;
III. Future occupants of the former Techrete lands (Claremont SHD) for which permission has been granted (Reg. Ref. 306102) for a mixed-use development
IV. Howth Castle located to the south-east of the site.

4.4.6 Air Quality

The proposed development site is situated within Air Zone A and the Air Quality Index in the Dublin City Region is graded as 3 – Good, see **Figure 4.9** overleaf.

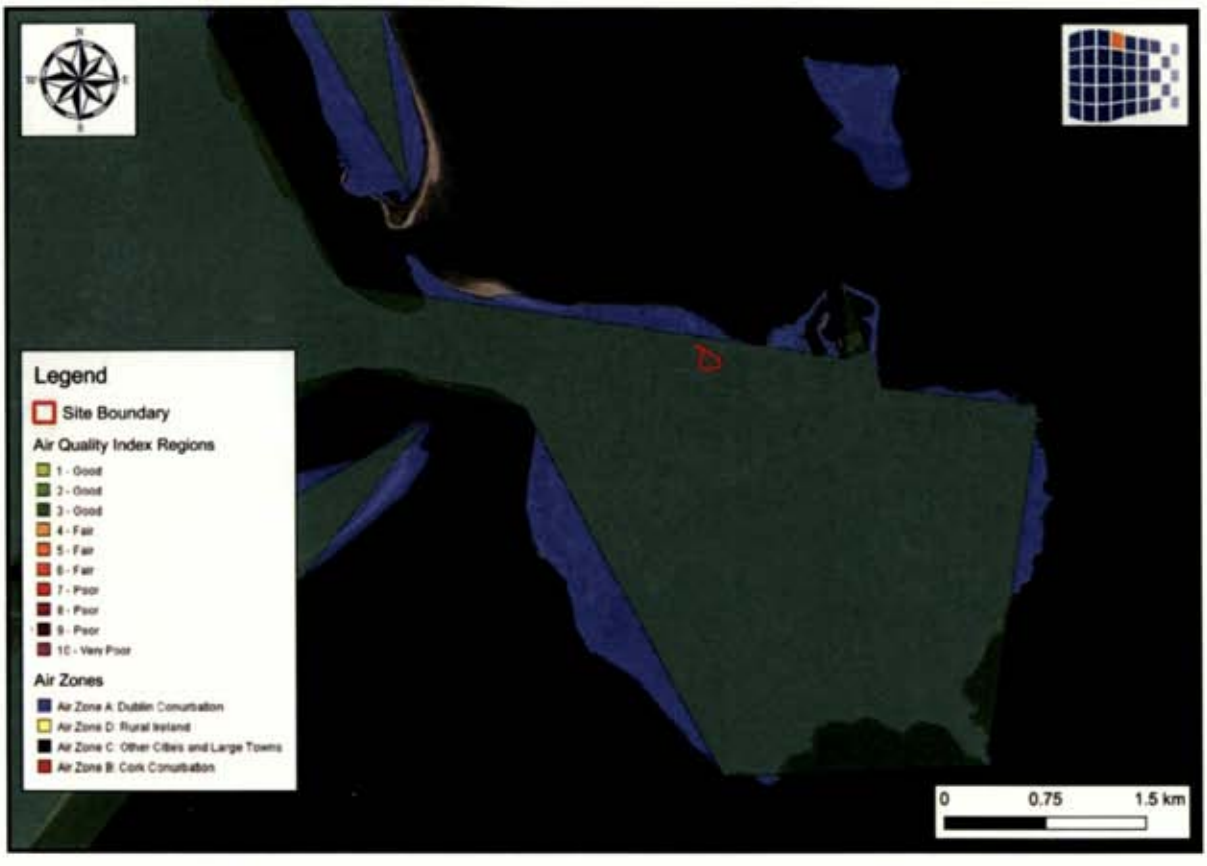


Figure 4.9 Air Zone & Air Quality Index Map (Source: https://gis.epa.ie/EPAMaps/, edited by MHP)

4.4.7 Population & Demographic Profile

This section reviews the demographic characteristics, population, and age structure of the Howth area. For this assessment, the extent of the study area of the Electoral Division (ED) of Howth has been analysed, see **Figure 4.10** following. There are no guidelines that stipulate the zone of influence (ZoI) of the study area. Professional judgement is used and the rationale for the selection of this radius is based on the need to understand the capacity of the existing housing and employment profile in the local area and the existing social infrastructure available within a c.15 minute walk time, which represents a reasonable distance for people to access services.

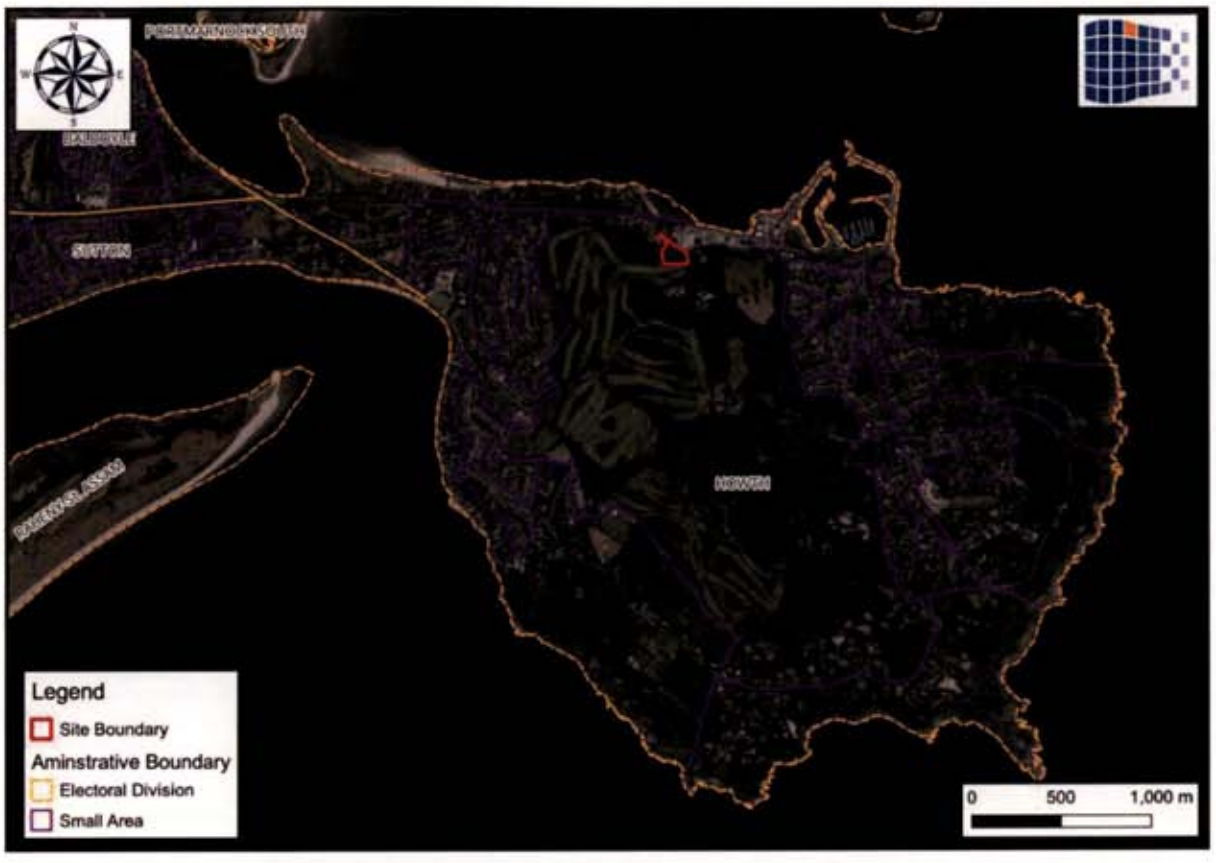


Figure 4.10 Electoral Divisions in the Study Area (Source: CSO, edited by MHP)

The CSO data shows that the study area's population was 8,399 in 2022. This represents an increase of 105 (approx. 1%) from the 2016 Census. This increase is below the Fingal County (LA) and Dublin City (LA) growth rates of 11.65% and 6.88%, respectively, for the same period.

Population growth within Howth has varied over time and decreased by 812 persons (approximately 10%) between 1996 and 2006. A decrease in population was experienced over the period since 1996, while Fingal was experiencing a significant increase in population, see **Table 4.2** below.

This review demonstrates that Howth ED is capable of accommodating a significant increase in population.

Table 4.2 Howth & Wider Area Population, Census 2022 (CSO)

Census	2016	2022	6-year increase
Ireland	4,761,865	5,149,139	8.1%
Dublin City	554,554	592,713	6.9%
Fingal	296,020	330,506	11.6%
Howth ED.	296,020	330,506	11.6%

Table 4.3 Study Area and County Population, Census 2022 (CSO)

Census	1996	2002	2006	2011	2016	2022
Fingal	167,683	196,413	239,992	273,991	296,020	330,506
Percentage % change	-	17.1%	22.2%	14.2%	8.0%	11.6%
Howth ED. Population	9,008	8,706	8,196	8,256	8,294	8,399
Percentage % change	-	-3.4%	-5.9%	0.7%	0.5%	1.3%

Regarding the recent Census, the population trend within Dublin City & Suburbs existing urban footprint where Howth is located is vital for considering future development.

In relation to the age profile of the area, the Census 2022 data shows that Howth ED has a rapidly ageing profile. The average age of those residing in Howth ED was 45.3 in 2022, which represents an increase from an average of 44.2 in 2016.

The Census 2022 shows that the pre-school, primary and post-primary school age category (0-19 years old) accounted for c. 23% of the population in the study area, see **Table 4.4** below.

Table 4.4 Breakdown of the Population by Age Cohort (Source: CSO)

Age Cohorts	Dublin City		Fingal		Howth ED	
	Population	Percentage	Population	Percentage	Population	Percentage
0-4 years	28,946	4.9%	21,017	6.4%	325	3.9%
5-9 years	29,356	5.0%	25,315	7.7%	459	5.5%
10-14 years	30,301	5.1%	27,716	8.4%	620	7.4%
15-19 years	30,269	5.1%	22,876	6.9%	543	6.5%
20-24 years	45,907	7.7%	19,097	5.8%	419	5.0%
25-29 years	59,058	10.0%	18,243	5.5%	320	3.8%
30-34 years	59,233	10.0%	21,928	6.6%	327	3.9%
35-39 years	51,695	8.7%	27,210	8.2%	362	4.3%
40-44 years	46,155	7.8%	30,393	9.2%	496	5.9%
45-49 years	37,908	6.4%	27,043	8.2%	599	7.1%
50-54 years	35,115	5.9%	21,617	6.5%	635	7.6%
55-59 years	31,577	5.3%	17,172	5.2%	623	7.4%
60-64 years	27,825	4.7%	14,335	4.3%	498	5.9%
65-69 years	22,883	3.9%	11,868	3.6%	486	5.8%
70-74 years	19,283	3.3%	9,960	3.0%	489	5.8%
75-79 years	15,167	2.6%	7,417	2.2%	515	6.1%
80-84 years	10,953	1.8%	4,127	1.2%	366	4.4%
85+ years	11,082	1.9%	3,172	1.0%	317	3.8%
Total	592,713	100.0%	330,506	100.0%	8,399	100%

4.4.8 Deprivation Index

The Pobal Deprivation Index is Ireland's most widely used social gradient metric, which scores areas in terms of affluence or disadvantage. The index uses information from Ireland's census, such as employment, age profile and educational attainment, to calculate this score. **Figure 4.11** below shows the level of affluence and deprivation at the ED level, according to the Pobal Haase Relative Deprivation Index. Scores range from -35 (Extremely Disadvantaged) to +35 (Extremely Affluent). The overall score for Dublin County following the 2022 Census was 2.69 ('Marginally above average'), Howth ED was 6.99 ('Marginally above average', and Howth Small Area was 9.88 ('Marginally above average').

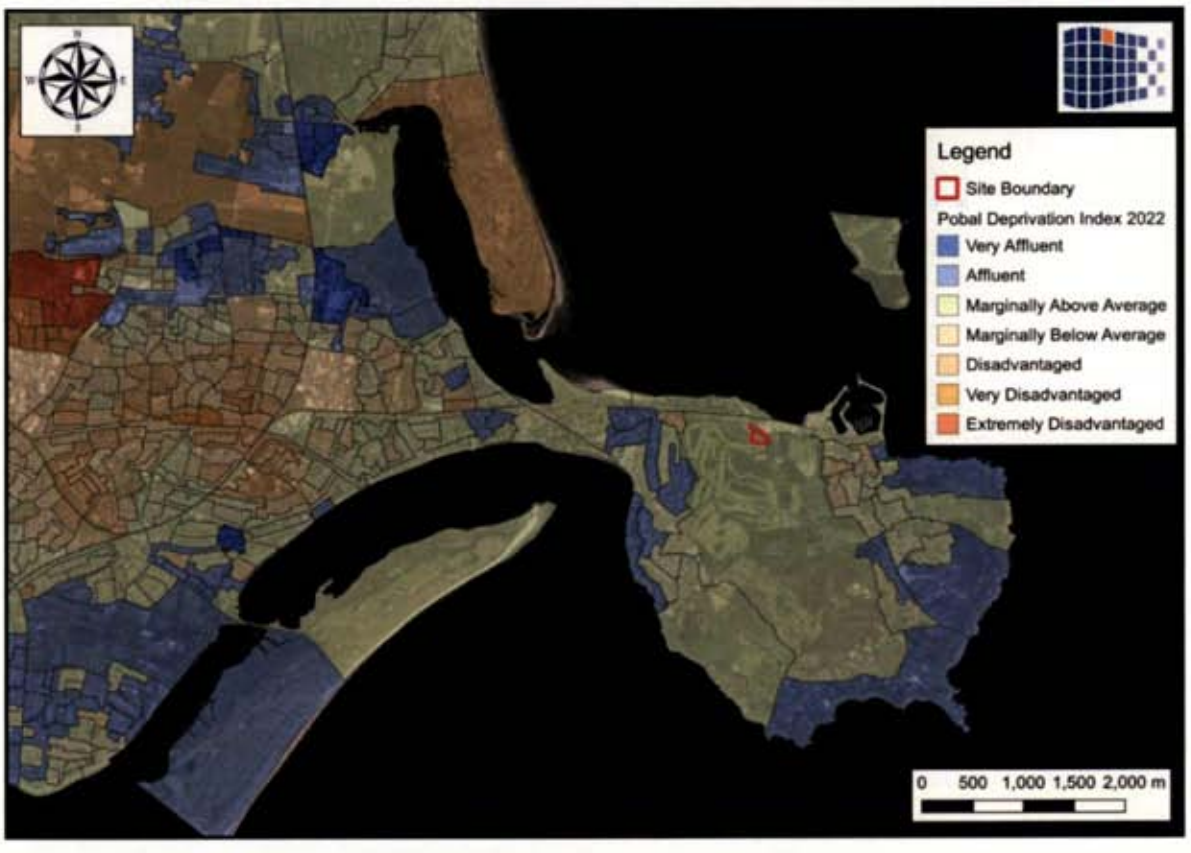


Figure 4.11 Howth Small Area – Deprivation (Source: Pobal HP Deprivation Indices 2022, edited by MHP)

4.4.9 Households

The total population and total households for Howth ED and Fingal administrative area for 2022 are provided in **Table 4.5** overleaf. There are 3,126 households in the study area in 2022. Census 2022 identified that 1-2 person households (1,775 persons) made up a substantial number of households, 57% of the total of the households in the study area. The average number of children per family by Local Electoral Area of Howth-Malahide for 1-2 bedrooms is 1.26 (below the national average of 1.34 and Fingal county of 1.42). Further, the number of families with no children increased by 11% nationally and Howth ED has identified 925 families without children.

Table 4.5 1-2 Person Households (Source: CSO)

Study Area	Total Population	1-2 Person Households	Total Households	% 1-2 Person Household
Howth ED.	8,399	1,775	3,126	57%
Howth-Malahide LEA.	69,960	8,036	24,235	51%
Fingal	330,506	46,064	107,846	43%
State	5,149,139	959,456	1,841,152	52%

4.4.10 Housing Delivery

The National Planning Framework – Project Ireland 2040 (NPF) was prepared and published by the Department of Housing and Local Government on behalf of the Government. The National Planning Framework, most commonly known as the NPF was established in tandem with Project Ireland 2040 in order to establish a policy and planning framework for the development of Ireland socially, economically and culturally.

One of the ultimate objectives of the NPF is to guide the future development of Ireland, considering a projected 1 million increase in the Country's population, the need to create 660,000 additional jobs to achieve full employment and a need for approx. 500,000 more homes by 2040.

The NPF requires delivery of a baseline of 25,000 homes annually to 2020, followed by a likely level of an average of 33,000 homes annually up to 2027. Within this output, 112,000 households are expected to have their housing needs met by social housing over the next decade. To achieve the objective of compact growth, 40% of future housing delivery is to be delivered within and close to the existing footprint of built-up areas.

Notwithstanding the above, it is acknowledged that the Census 2022 population data has indicated that there is more significant growth than the projections of the NPF anticipated and the first revision of the NPF is currently being undertaken (draft to be released for public consultation in June 2024) to reflect the actual growth and upcoming needs.

The Housing for All[2] - a New Housing Plan for Ireland (2021) is the government's housing plan to deliver an average of 33,000 new homes annually by 2030. According to the CSO, New Dwelling Completions Reports[3], 5,841 new dwellings have been completed over Quarter 1 (Q1) 2024, a fall of 12.1% in the same three months of 2023. Overall, 32,695 new dwellings were constructed in 2023 which is just below the annual target of 33,000. In addition, there were 29,851 new dwelling completions in 2022, which is approx. 9.54% below the Housing for All's annual target.

There are 3,607 residential units in the study area, which includes occupied and unoccupied dwellings. This represents a minor increase (+80) comparing to Census 2016 housing stock data (see **Table 4.6**) overleaf.

[2]Housing for All - a New Housing Plan for Ireland (Department of Housing, Local Government and Heritage,2021)

[3] Accessible via https://www.cso.ie/en/statistics/buildingandconstruction/newdwellingcompletions/

Table 4.6 Population and Housing in Howth ED. (Source: CSO 2022)

Howth ED	2016	2022	6-year change
Total Population	8,294	8,399	+1.3%
Housing Stock	3,527	3,607	+2.3%

Within this the stated private households amount to 3,125. Of this figure, 87% of the stock are listed as houses/bungalows and 13% are apartments/flats. An examination of the household types identified that apart from dwellings/bungalows, flats and apartments are the most common type of accommodation among those areas in which renting from a private landlord dominates.

4.4.11 Owner Occupancy

Across the study area, 84% of the housing stock is owner occupied and 13% is rented either through private landlord or from a public body, as shown in **Table 4.7** below. The percentage of rented occupancy in the small area (SAP2022 ID: 267095005) within which the proposal development site is located is 12%.

Table 4.7 Private Households by Type of Occupancy (Howth ED) (Source: CSO)

Type of occupancy	Household	%	Persons	%
Owner Occupied with Mortgage	880	28%	3,211	39%
Owner Occupied without Mortgage	1,738	56%	3,874	46%
Rented from Private Landlord	346	11%	874	10%
Rented from Local Authority	49	2%	116	1%
Rented from Voluntary Body	3	0%	4	0%
Occupied free of rent	55	2%	114	1%
Not Stated	54	2%	147	2%
Total	**3,125**	**100%**	**8,340**	**100%**

The percentage of owner-occupied (84%) increased outside the core of Howth town centre. In contrast, areas around the centre of Howth retained the highest percentage of privately rented accommodation.

4.4.12 Employment

The standard measure of Monthly Unemployment was 4.4% in April 2024. The seasonally adjusted unemployment rate for April 2024 was 4.4%, up from 4.1% in March 2024 and 4.1% in April 2023.

At present, the CSO produces a supplementary measure of unemployment in parallel with the routine Monthly Unemployment Estimate. The methodology for the Monthly Unemployment Estimates involves forecasting the number of unemployed persons using the trend in the recipient Live Register series. The Department of Social Protection provides Working Age Income support to people arriving in Ireland from Ukraine under the Temporary Protection Directive. The Live Register series includes recipients of these supports who have met the relevant criteria. This has impacted the numbers of

unemployed, primarily females, in these monthly estimates. The CSO statistical release on monthly figures issued in April 2024 in respect of March 2023 stated the following:

"The seasonally adjusted number of people unemployed was 124,200 in April 2024, compared with 115,400 in March 2024. There was an increase of 9,900 in the seasonally adjusted number of people unemployed in April 2024 when compared with a year earlier. The seasonally adjusted number of unemployed males rose to 60,400 in April 2024, compared with 57,800 in March 2024. The seasonally adjusted number of unemployed females increased by 6,200 over the month to April 2024 from 57,600 to 63,800."

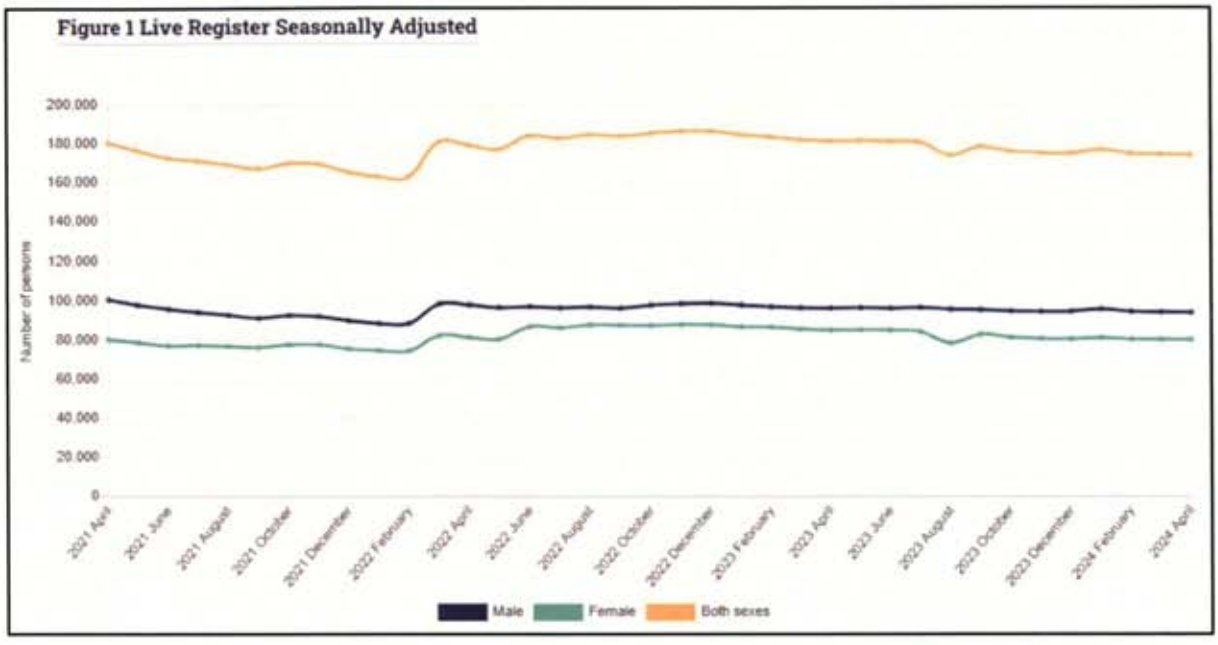


Figure 4.12 Live Register Seasonally Adjusted Figures. (Source: CSO)

The latest CSO'S Live Register statistical release[4] (April 2024) shows that 20,264 persons were benefitting from the EU's Temporary Protection Directive included in the Live Register figures of February 2024, a decrease of 973 persons from the previous month. Overall, the total number of persons on the Live Register decreased by 300, or 0.2%, over the month from March 2024 to April 2024, see **Figure 4.12** above. The CSO's monthly unemployment and live register data sets are not available at the Local Authority level, but nationally, this inhibits accurate analysis of the unemployment rate in the study area.

The industries that people are engaged in work within the Howth ED are illustrated in **Table 4.8** overleaf. Commerce & Trading (35.4%) is the largest sector, followed by Professional Services (23.2%) and Other (14.2%) with Transport & Communications (12.7%), Manufacturing Industries (6.2%), and Public Administration (4%).

[4] https://www.cso.ie/en/releasesandpublications/ep/p-lr/liveregisterfebruary2024/

Table 4.8 Persons at work by industry within Howth ED - Census 2022

Industry	Total (People)	Total (%)
Agriculture, forestry and fishing	25	0.7%
Building and construction	120	3.5%
Manufacturing industries	211	6.2%
Commerce and trade	1209	35.4%
Transport and communications	434	12.7%
Public administration	138	4.0%
Professional services	792	23.2%
Other	486	14.2%
Total	**3415**	**100%**

4.4.13 Social Infrastructure

Social infrastructure includes a wide range of services and facilities, including education, health, community, cultural, play, faith, recreation and sports facilities that contribute to the quality of life. This application is accompanied by a **Social Infrastructure Audit**, **Childcare Demand Assessment** and **School Demand Assessment**, which should all be read in conjunction with this chapter. Essentially these reports confirm that sufficient facilities in this regard are available in the area which can adequately provide for the anticipated population provided as part of this development.

4.4.13.1 Education and Childcare

Nine childcare facilities were identified within 2.5km of the proposed development site, of which five were located within 15-min walking (or less) and two are c. 500 metres distance from the proposed development site, see **Figure 4.13** overleaf. There are at least 514 places provided by existing and permitted facilities, meaning the future demand arising from the proposed development can be comfortably accommodated.

The Childcare Demand Report, which accompanies this application under separate cover, establishes that combined there is an estimated demand for 307 childcare spaces in the Howth ED (existing 244 no.) + Claremont, Techrete (42 no.) & Santa Sabina (6 no.). There are at least 523 no. places provided by the existing and permitted facilities within the Howth ED (434 no. existing spaces, 57 no. spaces permitted in the Claremont development, and 32 no. spaces permitted in the Santa Sabina development). This means that the future demand arising from the proposed development (15 childcare spaces) can be comfortably accommodated, as outlined in **Table 4.9** overleaf. There is no requirement for the provision of a childcare facility as part of this development proposal having regard to the existing geographical distribution and capacity of childcare facilities existing and permitted in the catchment, particularly given the childcare facility currently under construction at the opposite side of Howth Road at Claremont.

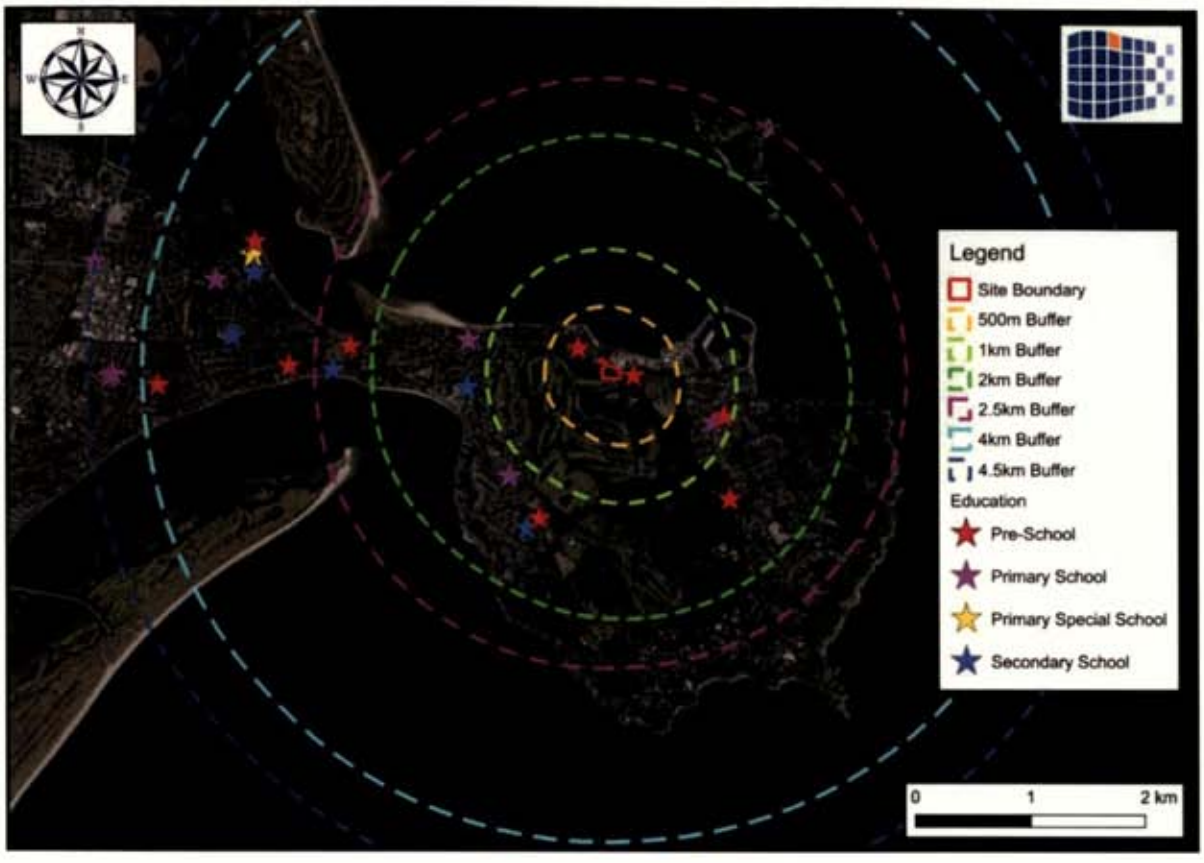


Figure 4.13 Existing Childcare Facilities & Schools in the Study Area (Source: Googlemaps, edited by MHP)

Table 4.9 Childcare Facilities in the Study Area

No.	Facility	Sub-Category	Service Type (Childcare)	Age Group (Childcare)	Capacity	Distance from Subject Lands (meters)
1	Deerpark Montessori School	Pre-School	Sessional	2-6 years	22	115
2	The Cottage Montessori School	Pre-School	Sessional	2-6 years	22	202
3	Fairyhill Playschool	Pre-School	Sessional	2-6 years	20	960
4	Bracken Hill Nursery School	Pre-School	Sessional	2-6 years	55	1,420
5	Rainbow Montessori Sutton	Pre-School	Sessional	2-6 years	22	2,170
6	Bumblebee Montessori & Childcare Sutton	Pre-School	Full-Time	0-6 years	85	1,340
7	Little People Crèche and Montessori	Pre-School	Full-Time	0-6 years	40	2,720
8	Mo's Montessori	Pre-School	Sessional + Part time	2-6 years	63	3,170
9	Charlies Childcare LTD	Pre-School	Full-Time	2-6 years	105	3,850
Total					**434**	

In relation to primary and post-primary school facilities, there are eight primary and five post primary schools within the 4.5km catchment, equivalent to 15-minute cycling time and 30-minute drive time, see **Figures 4-13** and **4-14**. **Table 4.10** below includes the full list of primary and post-primary schools located within 4.5km of the proposed development site.

Table 4.10 Primary and Post-Primary Schools in the Study Area

No.	Facility	Category	Sub-Category	Enrolled Pupils 2023/2024	Distance from Proposed Development Site (m)
1	Scoil Mhuire NS	Education	Primary School	394	c. 890 m
2	Burrows NS	Education	Primary School	204	c. 1.2 km
3	St Fintan's NS	Education	Primary School	444	c. 1.2 km
4	St Laurence's NS	Education	Primary School	433	c. 3.4 km
5	Scoil Naomh Mhuire Agus Iosef (Bayside SNS)	Education	Primary School	411	c. 4.3 km
6	Mhuire Iosef Junior School (Bayside Junior)	Education	Primary School	364	c. 4.2 km
7	Stapolin Educate Together NS	Education	Primary School	240	c. 4.5 km
8	St Michaels House Special School	Education	Primary Special School	57	c. 3.2 km
9	Santa Sabina Dominican College	Education	Secondary School	727	c. 1.2 km
10	St. Fintan's High School	Education	Secondary School	711	c. 2.3 km
11	Sutton Park School	Education	Secondary School	476	c. 1.5 km
12	Pobalscoil Neasáin	Education	Secondary School	787	c. 3.2 km
13	St Marys Catholic School For Girls	Education	Secondary School	213	c. 3.1 km

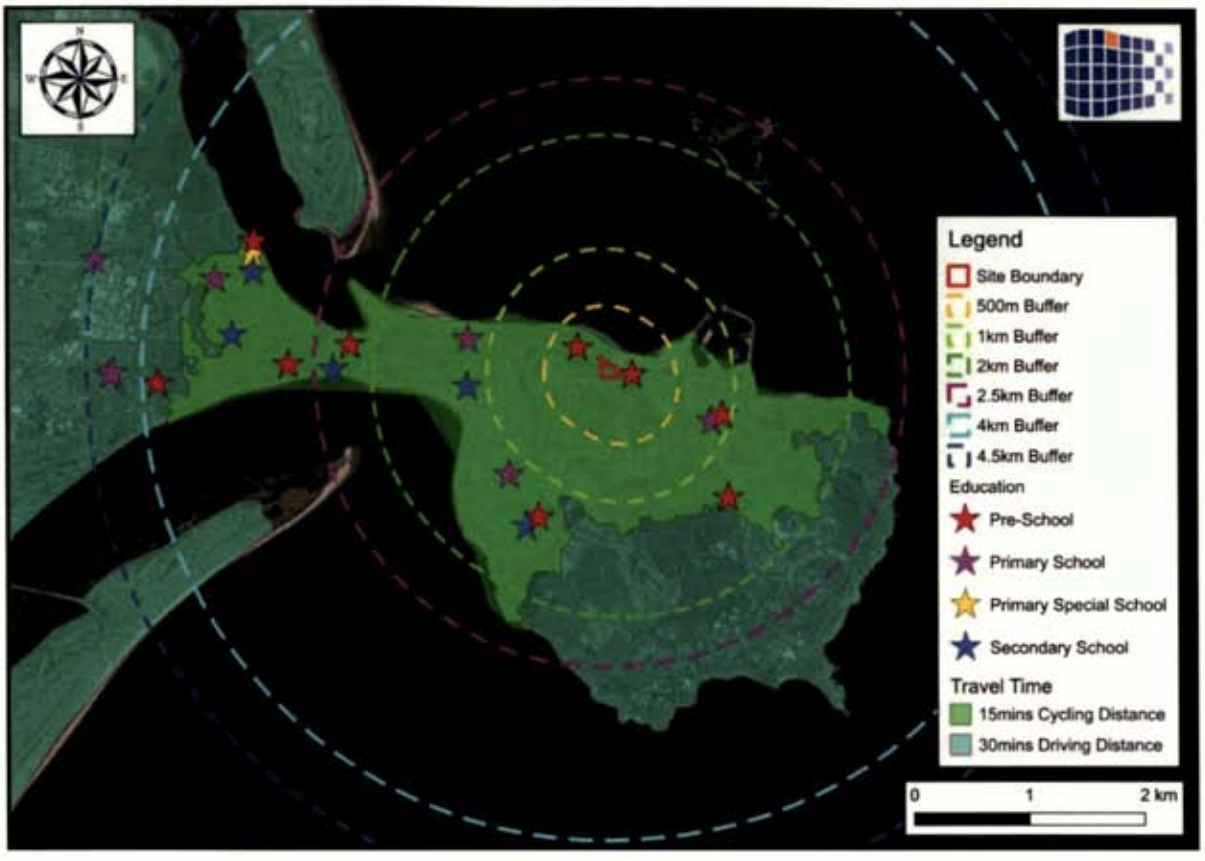


Figure 4.14 School Catchment with Driving and Cycling Time in the study area

The **School Demand Assessment** that accompanies the proposed development demonstrates that, based on the current enrolment figures (2023-2024) versus previous year enrolment figures, a decline in enrolment has occurred. As a result, there is capacity within the catchment to cater for the school aged population generated by the proposed development which will be further supplemented by delivery of the planned new primary school (Belmayne Educate Together Secondary School (ETSS) permanent building) to be delivered in September 2024 and a post-primary school (Gaelscoil Ghráinne Mhaol) in Donaghmeade/Howth which was announced to be delivered in 2021 but is currently deferred.

4.4.13.2 Health Services and Wellbeing

There is a wide range of Health and Wellbeing facilities located in the Howth ED area, including GPs, dental surgeries, physiotherapy, pharmacies and beauty clinic see **Figure 4.15** below. **Table 4.11** following outlines the type of healthcare and wellbeing facilities identified in the study area.

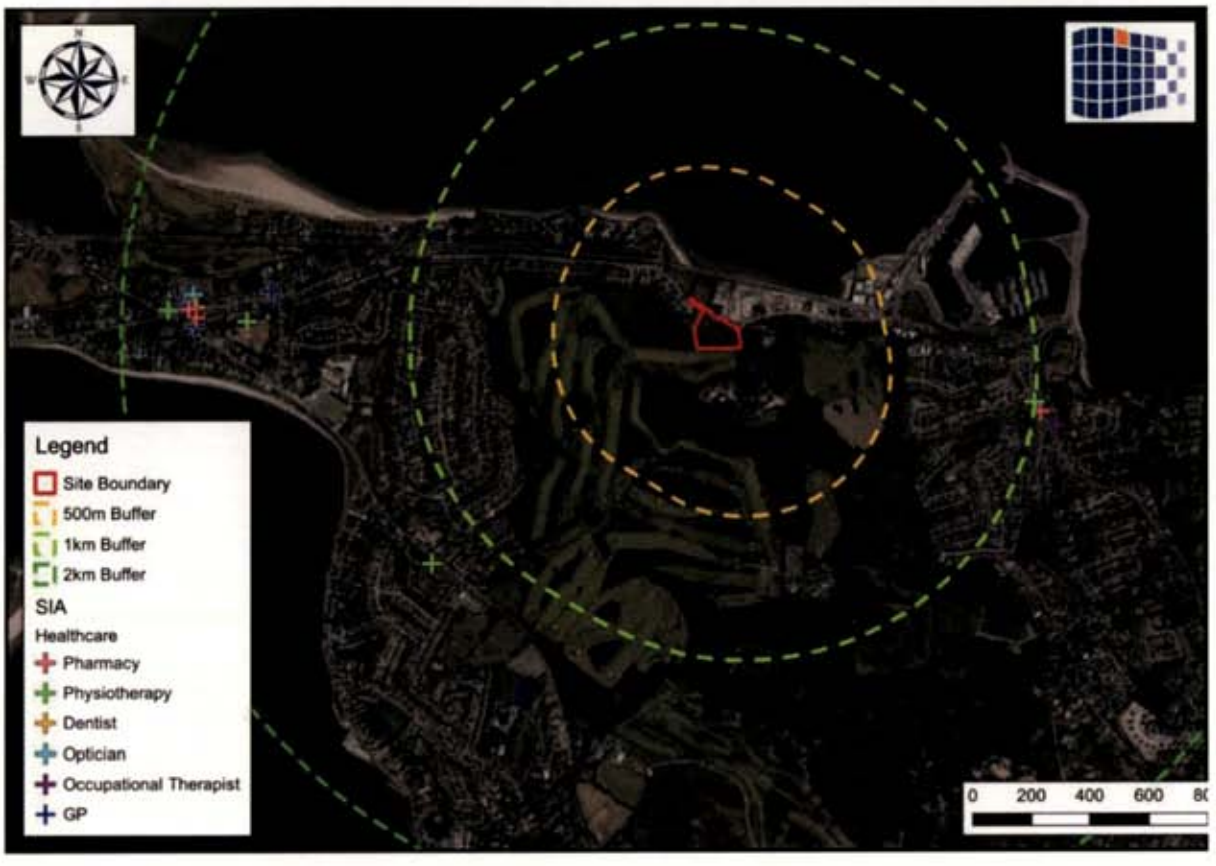


Figure 4.15 Health and Wellbeing Facilities in the study area

Table 4.11 Health and Wellbeing Facilities in Study Area

No.	Facility	Service	Distance from subject Lands (m)
1	Redmond Dental Clinic	Dentist	1,735
2	Sutton Cross Family Practice	GP	1,760
3	Sutton Surgery	GP	1,740
4	Sutton Clinic	GP	1,475
5	Suzanne Hanway	Occupational Therapist	1,080
6	Donal MacNally Opticians	Optician	1,740
7	McDermott's Pharmacy	Pharmacy	1,760
8	Sutton Cross Pharmacy	Pharmacy	1,735
9	McCartans Pharmacy Sutton	Pharmacy	1,020
10	Sutton Cross Physiotherapy	Physiotherapy	1,830
11	NW Athletic Therapy	Physiotherapy	1,560
12	Howth Physiotherapy Clinic	Physiotherapy	1,190
13	Karen O'Brien Physiotherapy	Physiotherapy	1,080
14	Sports Med Ireland	Physiotherapy	995

4.4.13.3 Community and Sport Facilities

A large number of social and community facilities are located within the Howth ED catering for all age groups and interest. These are shown in **Table 4.12** below and in **Figure 4.16** overleaf.

Table 4.12 Community Facilities in Study Area

No.	Facility	Key Activity	Category	Distance from Subject Lands (m)	SIA 2023 Inspection
1	St. Fintan's Cemetery	Cemetery	Cemetery	1,260	03/10/2023
2	St. Mary's Abbey Graveyard	Graveyard	Cemetery	970	03/10/2023
3	St. Mary's Church	Anglican Church	Church	110	03/10/2023
4	Howth Presbyterian Church	Presbyterian Church	Church	245	03/10/2023
5	St. Mary's Abbey	Monastery	Church	940	05/10/2023
6	Howth Parish Catholic Church	Parish Catholic Church	Church	1,060	03/10/2023
7	Sutton Methodist Church	Methodist Church	Church	1,450	03/10/2023
8	St. Fintan's Parish Catholic Church	Parish Catholic Church	Church	1,385	03/10/2023
9	St. Columbanus Hall	Community Hall	Community Centre	1,020	03/10/2023
10	The Old Courthouse	Community Hall	Community Centre	660	05/10/2023
11	Howth Sea Scouts	Youth Scout	Community Groups	495	04/10/2023
12	Mafikeng Scout Group	Youth Scout	Community Groups	-	04/10/2023
13	Howth Irish Girl Guides	Youth Scout	Community Groups	-	04/10/2023
14	Howth/Sutton Lions Club	General	Community Groups	-	04/10/2023
15	Howth/Sutton Community Council	General	Community Groups	660	04/10/2023
16	Howth Tidy Towns	General	Community Groups	-	04/10/2023
17	Howth Sutton Horticultural Society	General	Community Groups	-	04/10/2023
18	Howth Photographic Club	General	Community Groups	-	04/10/2023
19	Howth Singing Circle	General	Community Groups	-	04/10/2023
20	Howth Pathways	General	Community Groups	-	04/10/2023
21	Howth Garda Station	Community Service	Public Services	755	05/10/2023
22	Irish Coast Guard - Howth Unit	Community Service	Public Services	600	03/10/2023
23	Howth Lifeboat Station	Community Service	Public Services	820	03/10/2023
24	Howth Public Library	Library	Public Services	1,060	03/10/2023
25	Howth Tourist Information Centre	Tourist Service	Public Services	655	03/10/2023

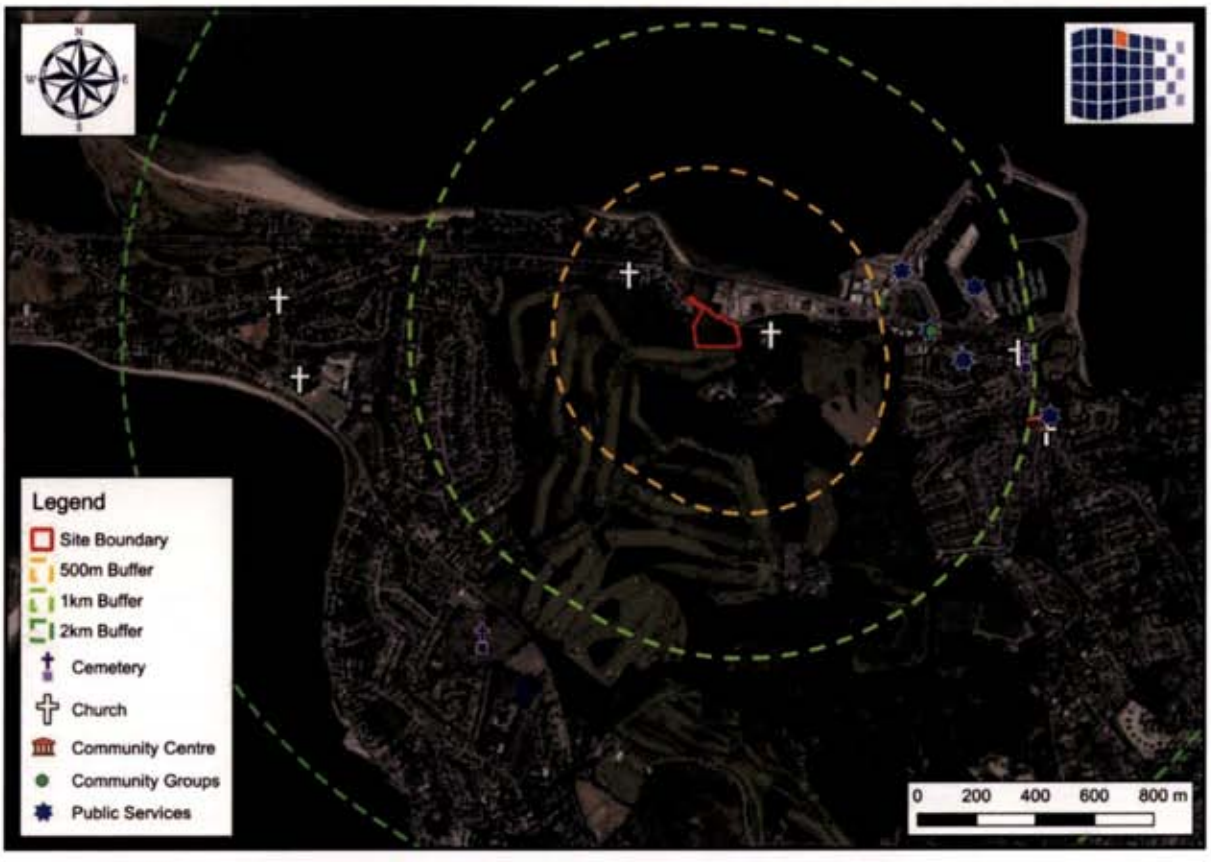


Figure 4.16 Community Facilities in Study Area

In terms of sports and recreation facilities, **Figure 4.17** illustrates the wide range of sport facilities as well as other smaller sporting clubs and venues in close proximity of the proposed development site. The recreational facilities and amenities are provided in **Table 4.13** below.

Table 4.13 Sports and Recreational Facilities in Study Area

No.	Facility	Key Activity	Category	Distance from Subject Lands (m)
1	The Metropolitan School of Dance	Ballet School	Dance School	300
2	VKNG Gyms	Gym	Fitness Club	400
3	Kiwifit	Gym	Fitness Club	1,420
4	The Gym Howth	Gym	Fitness Club	1,180
5	Howth Music School	Music School	Music School	1,080
6	Claremont Beach	Beach	Outdoor Recreation	385
7	Burrow Beach	Beach	Outdoor Recreation	1,290
8	Balscadden Bay Beach	Beach	Outdoor Recreation	1,160
9	A Tiny Hidden Beach	Beach	Outdoor Recreation	2,910
10	Sutton Strand	Linear Park/Beach	Outdoor Recreation	1,240
11	Baltray Tennis Courts	Tennis Court	Sports Club	660
12	Deerpark Golf Park	Golf Club	Sports Club	1,770

No.	Facility	Key Activity	Category	Distance from Subject Lands (m)
13	Howth Celtic Football Club	Football Club	Sports Club	1,005
14	Beann Eadair GAA Club	GAA Club	Sports Club	1,420
15	Sutton Lawn Tennis Club	Tennis Court	Sports Club	970
16	Sutton Golf Club	Gold Club	Sports Club	40
17	Howth Golf Club	Golf Club	Sports Club	710
18	Suttonians Hockey Club	Hockey Club	Sports Club	1,040
19	Howth Sea Angling Club	Angling Club	Water Activities	1,240
20	Discover SUP	Stand-Up Paddle	Water Activities	1,590
21	Howth Yacht Club	Yacht Club	Water Activities	2,230
22	Shearwater Sea Kayaking	Kayaking Club	Water Activities	1,390
23	Howth Sailing and Boating Club	Sailing & Boat Club	Water Activities	1,350
24	Sutton Dinghy Club	Dinghy Club	Water Activities	565
25	Howth Fishing Spot	Fishing Club	Water Activities	860

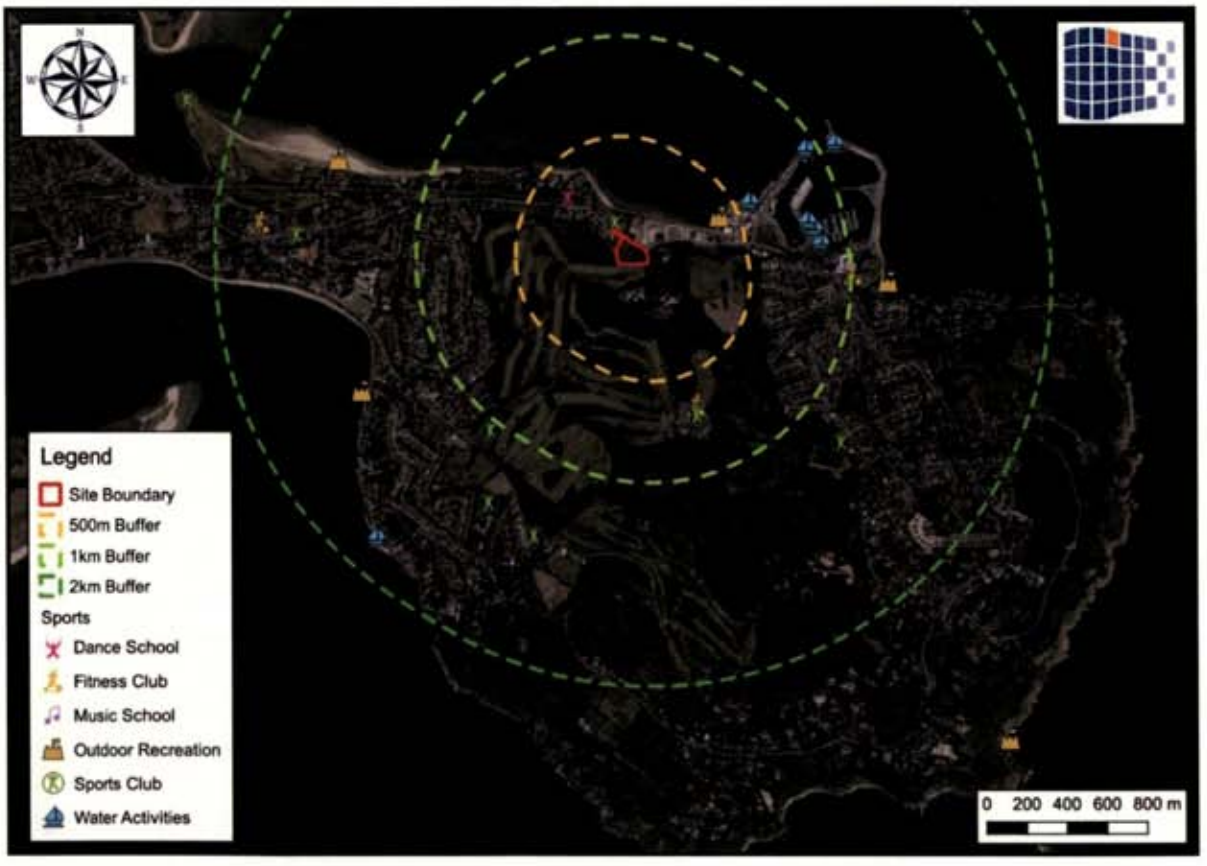


Figure 4.17 Sports and Recreational Facilities in Study Area

In conclusion, this **Social Infrastructure Audit** concluded that the proposed development site is well-serviced by existing provision of services and facilities, well distributed geographically within c. 15 min

distance, and within close proximity to a transport hub and, therefore capable to accommodate existing and future demand derived from the proposed development.

4.5 Do Nothing Scenario

4.5.1 Actual Do Nothing

If the proposed development is not realised, it is anticipated that the proposed development site will remain in its current condition in the short to medium term and become overgrown by grass and scrub. The wall may fall into a state of disrepair as it would also become overgrown with ivy.

In the absence of this proposal and having regard to the location of the proposed development site within the existing built-up area of Dublin City, it is likely that another residential proposal would be progressed. This is in accordance with national strategic outcomes - NSO 1 – (NPF) to deliver a greater proportion of residential development within the existing footprint of built-up areas and to make better use of under-utilised land serviced by existing facilities and public transport.

The effect of the construction of another residential scheme at this location would likely be similar to the effects of the proposed development as outlined in this chapter. The key variable during the operational phase would relate to the form of any future development proposal. Should a lower scale scheme be progressed, then the likely visual impact may theoretically be reduced; however, in the absence of scheme specifics, it is not possible to rate the effect with any degree of confidence.

In the absence of development of the site, the impact is determined to be negative, with significant effects on the delivery of much needed homes within the existing footprint of Dublin and City suburbs. Without developments such as this proposal, on residentially zoned land close to public transport, the existing unsustainable pattern of urban sprawl that extends the physical footprint of urban areas and continued affordability issues are likely to continue.

In terms of Population and Human Health, a 'do nothing' scenario, which is to say not developing these lands, would represent a lost opportunity to develop lands for residential use in close proximity to the centre of the Howth town centre. Thus, the proposed development site would remain underutilised, and it would not contribute to increasing the provision of housing in this area.

4.6 Difficulties Encountered

There were no difficulties encountered preparing this chapter.

4.7 Consultation

Two meetings were carried out with the Planning Authority ahead of formal lodgement of this LRD planning application. A Section 247 consultation and LRD meeting was held with representatives of Fingal County Council in advance of making this planning application. An LRD Opinion was issued in response to the LRD meeting which took place in December 2023. Further detail in this regard is provided within the Planning Statement that accompanies this application under separate cover. The

proposed development has been designed having full regard to the specific requirements, and the application is accompanied by the additional reports as highlighted.

4.8 Impact Assessment

This section describes the environmental effects that are likely to arise during the construction and operation of the proposed development. Section 4.9 sets out the mitigation measures required to alleviate identified effects. Section 4.10 presents the residual impact, which is an assessment of impacts post mitigation.

Potential impacts are considered under the following headings in line with the Guidelines set out in section 4.4 of this chapter:

- Population
- Employment and Economic Activity
- Health
- Residential Amenity
- Local Amenity Impacts

Specific effects with respect to matters such as air quality, noise, traffic, visual impact etc., are dealt with in the respective assessments in separate chapters of this EIAR.

4.8.1 Construction Phase

The potential impacts of the proposal during the construction phase of the development are outlined below.

4.8.1.1 Population

It is estimated that during peak construction, there will be an average of 50 people employed on site. It is not anticipated that this will generate a temporary increase in population locally as employees will travel to the proposed development site from their existing place of residence. The likely impact on the population is thus **neutral and not significant**.

4.8.1.2 Employment & Economics

A vital characteristic of the proposed development in terms of its potential economic impact relates to its capital value, of which a significant portion will be for the purchase of Irish sourced goods and services. The construction phase (approx. 18 months) will provide a boost for the local construction sector in terms of employment generation (average of 50 people employed on-site), capital spend on materials and construction labour costs, and it will generate additional spending on the local economy (retail and local shops). It will complement the new retail, commercial and community uses that are currently under construction on the adjoining Claremont site.

The staff will comprise of managerial, technical, skilled and unskilled workers and as far as practicable, local labour will be employed. It is unlikely that the proposed development will increase the population of the area as a result of the construction phase.

In addition to direct employment, there will be substantial off-site employment and economic activity associated with the supply of construction materials and provision of services, such as professional firms supplying financial, architectural, engineering, legal and a range of other professional services to the project, and additional spending in local shops and other local retail services and as a consequence of the presence of construction staff during the construction phase.

The overall predicted impacts associated with the construction phase on the working population and local economy are **likely** and will have a **positive, temporary/short-term, not significant** effect.

4.8.1.3 Health

Construction sites pose potential risks to the health and safety of the public. However, access by the public would be considered trespassing on private property. In the absence of mitigation, the effect would likely be **negative,** with an effect that might range from **slight to profound** depending on the magnitude of the incident.

In the absence of standard construction mitigation measures, likely significant impacts would arise from construction traffic, noise, dust, and visual effects. It is noted that the potential for effects on population and human health during the construction phase are dealt with in this EIAR under the more specific topics of the environmental media by which they might be caused including landscape and visual, air quality, traffic and noise.

4.8.1.4 Residential Amenity

The anticipated likely significant effects in the absence of mitigation on residential amenities relate to disruption due to increased construction traffic movements on the local road network, noise, dust and visual impact arising from plants (e.g. cranes) necessary to deliver the development.

In the absence of mitigation, the anticipated impact on residential amenity would be **local** and of **temporary to short-term** duration with a **moderate** significance.

Specific potential for effects on residential amenities during the construction phase is dealt with in this EIAR under the more specific topics of the environmental media by which they might be caused including air, traffic and noise.

4.8.2 Operational Phase

4.8.2.1 Population

Regarding population, the proposed residential scheme will result in a generally positive alteration to the existing greenfield site which will serve to the growing population of the area. It is anticipated that the proposed development will accommodate a projected full-time population of approximately 370 persons[5]. Overall, the likely impact of the proposed development of the operational phase on population is determined to be a **moderate-significant**, **positive** and **long-term**.

[5] Estimated future population based the national household average of 2.74.

The **Childcare Demand Assessment** that accompanies this application notes that the scheme would generate a demand for 15 spaces in conjunction with the provision of 72 units capable of accommodating families on the proposed development site. The cumulative demand for childcare in Howth ED is established to be 244 spaces. There is capacity for 226 spaces within the 2.5km catchment as confirmed by the phone survey undertaken on the 15*th* of May 2024. It was also confirmed that the 4 existing facilities within the catchment have 27 available spaces. There are at least 89 childcare spaces provided by the permitted (and under construction) facilities (Techrete (57) & Santa Sabina (32)), meaning the future demand arising from the proposed development (15 childcare spaces) can be comfortably accommodated.

The impact of the proposed development on childcare facilities is determined to be **locally neutral** with an **imperceptible** significance.

As outlined in the **School Demand Assessment** which accompanies the application under separate cover, it is estimated that the proposed development will generate 24 primary school children and a requirement for 16 post-primary school places. It is noted that there are eight primary schools and five post-primary schools with the study area (4.5km catchment, equivalent to 15-minute cycling time or 30-minute drive time). Overall, the impact of the proposed development on primary and post primary schools is determined to be **locally neutral** with a **not significant** effect.

There is a wealth of existing amenities in the wider area including sports and recreational facilities. The increase in population will place additional demands on existing amenities but will also provide a critical mass to support the delivery of social infrastructure. Within the proposed development a series of public and communal open spaces are planned that will ensure future occupants benefit from access to a range of recreational opportunities within the site. The proposed communal and public open spaces incorporate play areas for toddlers, primary school children and teenagers that will further enhance the provision locally and the effect is deemed **positive**.

To support sustainable travel, it is necessary for future population growth to predominantly take place in sustainable compact urban areas, which discourage dispersed development and long commuting. Development of the site at Howth would deliver a critical mass of growth in population that would ensure the long-term viability of public transport infrastructure presented in the area. The effect is thus determined to be **moderate-significant**, **positive**, and **permanent**.

4.8.2.2 Employment & Economy

In terms of the operational phase, the potential employment opportunities will be limited given that residential is the predominant land use proposed. Notwithstanding this, there will be some employment created in the servicing and maintenance of the apartment buildings and for the upkeep of the landscaped areas.

The economic impact of the operational phase on the immediate area would therefore **be positive permanent**, and given the modest nature of employment opportunities, of **imperceptible** significance.

The new residential population will generate additional spending within the Howth area which will likely have a **permanent, slight,** and **positive** impact on local economic activity generated through the multiplier effect.

4.8.2.3 Health & Residential Amenity

Insufficient physical activity has been identified by the World Health Organisation (WHO) as the fourth leading risk factor for global mortality. Urban air pollution and traffic injuries are also responsible for a further 2.6 million deaths annually. The health benefits of active transport (walking and cycling combined with public transport) can prevent many of these deaths from physical inactivity.

The proposed scheme minimises carparking and prioritises both pedestrian and cyclists. 410 bicycle spaces (342 no. secure bicycle parking and 68 visitor bike spaces), which equates to approx. 3 bicycle parking spaces per unit. The layout provides for the segregation of pedestrians and traffic and incorporates the principles of universal access and the requirements of Part M of the Building Regulations so that the development will be readily accessible to all, regardless of age, ability or disability. The predicted effect of these combined measures on the health and wellbeing of future occupants is **significantly positive**.

The integration of energy efficient measures into the design will provide for healthier living standards for future occupants and less dependence on fossil fuels for energy generation. This coupled with the carparking (63 surface car parking spaces which equates to 0.47 no. of space per unit). This lower rate will result in significant CO_2 savings, promote a modal shift, will contribute to improved air quality and the impact is likely to be **locally significantly positive** and of **permanent duration**.

Achieving a high quality living environment requires an integrated and balanced approach when designing a scheme. In this regard, the proposed new home benefit proportions and layouts that meet modern living expectations. The configuration of the proposed development in 2 buildings of four blocks proposes a modest height (3-5 storeys), 37% of the total application area is retained as open space and this is a **positive** effect. High quality and sufficient quantum of open space is critical to health and well-being and is an important design consideration where higher density development to achieve compact growth is an overarching objective.

There are significant benefits for population and human health in pursuing this approach, bringing people closer to where they can access daily living needs, improving air quality and reducing greenhouse gas emissions.

The design of the proposed apartments includes a combined Living, Kitchen, Dining (LKD) format. This results in a layout with generously proportioned deep floor plans that exceed minimum requirements, see Housing Quality Audit (HQA).

Dual-aspect dwellings greatly enhances the likelihood that the internal environment of a dwelling will perform well and have a positive effect on the well-being of the occupants. The design maximises the number of dual-aspect apartments to achieve the many inherent benefits of this approach. These include better daylight, a greater chance of direct sunlight for longer periods, natural cross-ventilation, a greater capacity to address overheating, a choice of views, greater flexibility in the use of rooms, and more potential for future adaptability by altering the use of rooms. The proposed development site is central and accessible, so under SPPR 4 of the Design Standards for New Apartments 33% of the apartments should have dual aspect. Within the proposed development 74 units or 55% are dual aspect. This is determined to be a **Very Significant Positive**.

To provide private amenity space, each apartment benefits from access to balconies and ground floor terraces. The position of balconies is carefully considered to avoid overlooking thereby providing quality private amenity space. The effect of these measures is **positive**.

This application is accompanied by a **Daylight & Sunlight Report** prepared by BPC Engineers and should be referenced in conjunction with this chapter. In terms of amenity areas (public and communal amenity area, see **Figure 4.18** below), the report demonstrates that communal amenity areas, located on the ground floor of each block and dedicated roof garden, and public open space will have excellent levels of daylight and will receive a level of sunlight in excess of the recommended levels (Sunlight BRE Guidelines 'at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March'). The analysis demonstrates that the design of the amenity space is positive in this regard.

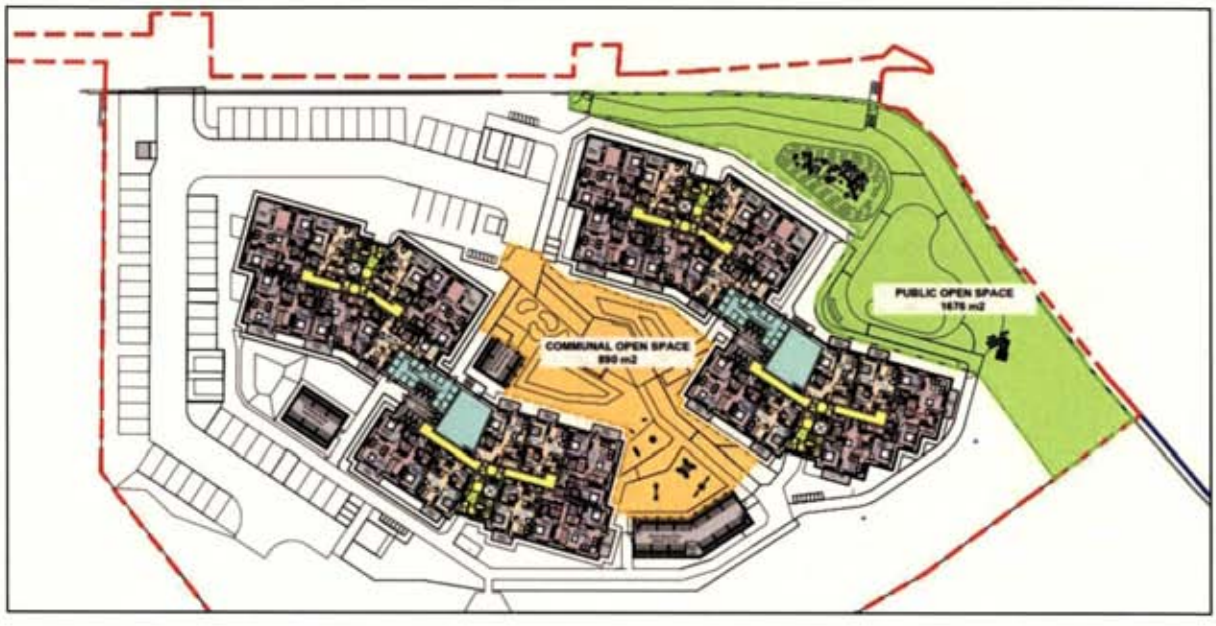


Figure 4.18 Communal and Public Open Space areas

The results of the Daylight and Sunlight Assessment show that the proposed development will have a negligible impact on surrounding buildings with respect to:

- access to skylight;
- access to sunlight; and
- sunlight to gardens/open spaces.

All rooms tested in the proposed development meet the minimum recommendations for internal daylight provision as set out in the BRE Guide and BS EN 17037 (National Annex).

Greater than 50% of each open amenity space of the proposed development site can receive more than 2 hours of sunlight on March 21st. Therefore, the proposed open spaces exceed the BRE's recommendation for sunlight to open spaces and should appear adequately sunlit throughout the year. Overall, the development has been designed with due consideration for sunlight and daylight and meets the recommendations as set out in the BRE Guide – BR 209 "Site Layout Planning for Daylight and Sunlight, A guide to good practice (2022)".

The accompanying Daylight and Sunlight Assessment outlines that the results meet the recommendations of the BRE Guide and show that the proposed development will have a negligible impact on skylight to the existing neighbouring dwellings.

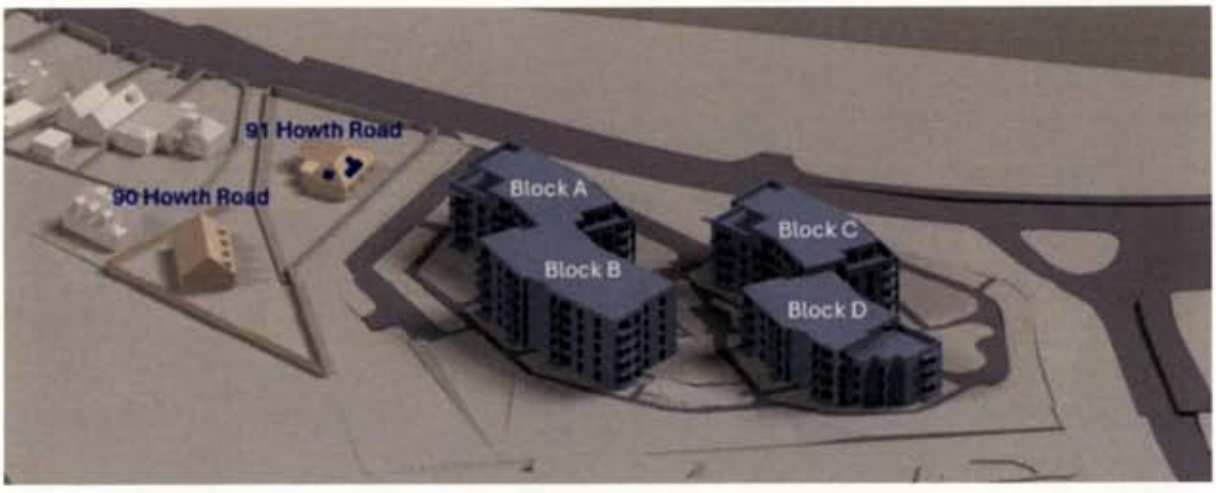


Figure 4.19 Proposed Model and adjoining dwellings - Perspective view facing north (Source: BPC Engineers)

It was deemed that no detailed sunlight analysis to the neighbouring dwellings was required for a number of reasons:

- The windows on the neighbouring dwelling at 90 Howth Road that have a view of the proposed development are orientated within 90 degrees of due North. Windows that lie within 90 degrees of due north are unlikely to meet the criteria and can be excluded.
- As a result of the obstruction angle of the proposed development site is less than 25 degrees for all main windows facing the proposed development there will be a negligible impact on sunlight to these dwellings.
- All main windows tested using Vertical Sky Component (VSC) analysis have VSC values greater than 27% with the proposed development in place, indicating that there will be a negligible impact on sunlight to the existing dwellings.

Due to the scale and distance of the proposed development (setbacks ranging from 26m-44m) from the existing neighbouring dwellings, there will be a negligible impact on sunlight to the neighbouring gardens. To demonstrate that there will be a negligible impact to the gardens, the sunlight availability was checked for the closest neighbouring gardens at:

- 90 Howth Road, and
- 91 Howth Road.

The analysis shows more than 50% of each garden tested receives at least 2hrs of sunlight on March 21st before and after the proposed development. There is no reduction in the area receiving 2hrs of sunlight on March 21st for all gardens. There will be a negligible impact on sunlight to existing gardens as a result of the proposed development.

The property at 91 Howth Road (Tig Bhride) has PV arrays (solar panels) on the roof. The impact of the proposed development on the annual solar radiation received by these PV arrays was assessed. The analysis highlighted that there is only a 1% reduction in the mean annual solar radiation for the south facing array and a 5% reduction for the east facing array, which is well below the maximum recommended reduction of 15% (0.85 times former value) provided in the BRE guide.

Achieving the high quality design e.g. large windows, generous room sizes and private amenity space results in a deep floor plan for LKDs and this can affect daylight penetration. The design incorporates extensive glazing to mitigate this.

Overall, it is determined that the design would provide future residents with a high quality and comfortable living environment and the effect is **positive**.

The **Daylight & Sunlight Report** presents the results of an assessment of the effect the proposed development would have on the level of daylight and sunlight received by existing neighbouring residential properties located to the west. The analysis demonstrates that the proposed development would not result in a perceptible level of reduction to the daylight or sunlight received by the existing properties. The proposed development would also have an imperceptible effect on the level of sunlight received by the gardens of the neighbouring properties. Therefore, it is concluded that the design of the proposed scheme is favourable in terms of impact as no existing properties will experience any noticeable drop in levels of daylight or sunlight and the effect is **neutral** and **imperceptible**.

4.8.2.4 Local Services & Amenities

The proposed development provides high quality communal and public open space. The communal amenity space is laid out with a hierarchy of uses including passive recreational areas and play space for children. The public open space is conveniently located to the north of the proposed development site where it will be most accessible. The inclusion of high-quality landscaping proposals and dedicated play areas is determined to be **locally positive** with a **permanent duration**.

The **Social Infrastructure Audit**, submitted with the application, demonstrates that there is sufficient infrastructure within the study area. The proposed development site incorporates dedicated play areas within the communal and public open space, as detailed in the Landscape Plan provided under separate cover.

As outlined above (**Section 4.8.2.1**), there is a latent capacity to cater for the proposed development and support the needs of the likely childcare, primary and post-primary school population generated by the scheme. Please refer to the **Childcare Demand Report** and **School Demand Assessment** included with this application under separate cover. Accordingly, the impact is deemed **locally neutral** with a significance that at worst would have a **moderate effect**.

4.8.3 Cumulative Effects

The approved Claremont scheme at the former Techrete site (Reg. Ref: ABP 306102) together with this proposed development will provide 647 new homes in Howth. Having regard to the historical low

delivery of homes in the area and the housing crisis that exists across Dublin City and Suburbs, this is a **Very Significant Positive** effect.

The Claremont scheme includes play areas dedicated to different age groups. Together with the proposed development site, the realisation of new amenities, particularly play areas is deemed **Very Significant** and **Positive**.

The proposed development together with the Claremont scheme will increase demand on local infrastructure and services. This will include increased demand on potable water supply, foul water treatment capacity, gas supply, electricity supply, and telecommunication (fibre/broadband) capacity. There will be an increased demand on creche, primary and secondary schools in the locality. The supporting reports included with this application demonstrate together with Confirmation of Feasibility from Uisce Éireann that the cumulative effect will be **neutral** with a significance ranging from **slight** to **moderate**.

Allowing people to live in close proximity to reliable public transport infrastructure (DART Howth Station) will contribute toward reducing dependence on car-based travel and this will be positive in the context of greenhouse gas emission reductions. Furthermore, these developments will generate additional population locally and the consequent effect will be increased demand for local services. The effect is **locally moderate** with a **permanent** effect.

4.9 Mitigation Measures

4.9.1 Incorporated Design

The proposed development complies with the Building Regulations which provide for the safety and welfare of people in and about buildings. The Building Regulations cover matters such as structure, fire safety, sound, ventilation, conservation of fuel and energy, and access, all of which safeguard users of the buildings and the health of occupants.

The proposed design provides for the segregation of pedestrians and bicycle traffic from motorised traffic. The design also incorporates the principles of universal design and the requirements of Part M of the Building Regulations so that the development will be readily accessible to all, regardless of age, ability or disability.

The integration of energy efficient measures into the design will provide for healthier living standards for future occupants, less dependence on fossil fuels and associated improved air quality. The availability of on the doorstep public open space, amenity spaces, and a highly accessible layout across the scheme including segregated pedestrian entrances which is strategically located proximate to the village of Howth will encourage sustainable modes of outdoor access for a wide age group.

4.9.2 Construction Phase

A **Construction and Environmental Management Plan (CEMP)**, and **Resource Waste Management Plan (RWMP)** for the proposed development are included in the application documentation. The

CEMP & RWMP will be further updated by the contractor, agreed with Fingal County Council prior to commencement, and implemented by the selected contractor after any consent is received.

All construction personnel will be required to understand and implement the requirements of the CEMP and RWMP and shall be required to comply with all legal requirements and best practice guidance for construction sites.

The CEMP provides for a construction phase management structure to ensure that environmental protection and mitigation measures are put in place. The CEMP requires that these measures will be checked, maintained to ensure adequate environmental protection. The CEMP also requires that records will be kept and reviewed as required to by the project team and that the records will be available on site for review by the planning authority.

All construction personnel will attend induction and training classes as required to ensure that the CEMP is effectively implemented. The CEMP will comply with all appropriate legal and best practice guidance for construction sites.

Project supervisors for the construction phase will be appointed in accordance with the Health, Safety and Welfare at Work (Construction) Regulations 2021 (as amended), and a Preliminary Health and Safety Plan will be formulated during the detailed design stage which will address health and safety issues from the design stages, through to the completion of the construction phases.

Adherence to the construction phase mitigation measures presented in this EIAR will ensure that the construction of the proposed development will have an **imperceptible** and **neutral** impact in terms of health and safety during the **short-term** duration of the works.

4.9.3 Operational Phase

The proposed development is of a high quality design that incorporates generously sized dwellings with integrated energy efficiency measures and an abundance of open space. The impact assessment section did not identify likely significant negative environmental impacts on population and human health arising from the operational phase of the proposed development. Accordingly, mitigation measures are not proposed.

4.10 Residual Impact Assessment

The residual effect of the proposed development for population and human health is determined to be **significantly positive** having regard to the delivery of much needed new homes in a location that has the carrying capacity in terms of both services and amenities to support the population generated by the scheme.

Allowing people to live in close proximity to their daily living needs and with access to more than one mode of public transport (DART & Bus) to access employment locations is a **significant positive** effect for population and human health.

4.11 Interactions

During the construction phase:

- **Landscape and Visual** - Construction processes and plant such as cranes used during the construction phase may give rise to visual impacts.
- **Material Assets** – Traffic and Transport: Increased construction traffic movements on the local road network during the construction phase may give rise to noise, dust, and road safety impacts.
- **Material Assets** – Built Services: Excavation during the construction phase may give rise to risks to human health from contact with live electricity lines or damage to live gas pipelines.
- **Noise and Vibration:** There is potential for effects on human health associated with noise during the construction phase which may impact upon amenity.

During the operational phase:

- **Landscape and Visual** - The landscape plan will impact the quality of the private, communal and public open spaces, which could impact people's health and well-being.
- **Material Assets** – Traffic and Transport: The proposed development's proximity to services, amenities, and high-quality public transport would interact with patterns of traffic and transport locally during the operational phase. Traffic flows within the site have the potential to create safety risks for pedestrians and cyclists.
- **Air Quality:** Energy efficient design within the proposed development may give rise to reduced electricity consumption by future residents, potentially decreasing dependence on fossil fuels for energy generation, resulting in improved air quality. There is potential for impact on human health from a deterioration in air quality associated with emissions from vehicles.
- **Climate:** Energy efficient design within the proposed development may give rise to reduced electricity consumption by future residents, potentially decreasing dependence on fossil fuels for energy generation, resulting in significant CO_2 savings.

The potential significant effects on population and human health arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative effects will occur.

4.12 Monitoring

Measures to avoid negative impacts on Population and Human Health are largely integrated into the design and layout of the proposed development. Compliance with the design and layout will be a condition of any permitted development.

No specific monitoring is proposed in relation to this section. Monitoring of standard construction mitigation measures as outlined in this EIAR will be undertaken by the appointed contractor.

4.13 Worst Case Scenario

The worst-case scenario on population and human health is considered to be the risk of an accident during the construction phase. According to the Health and Safety Authority[6] , in 2023 there were 11 fatal accidents recorded equivalent to 26% of the total fatal work-related incidents. In 2022, 7 fatal accidents occurred in construction equivalent to approx. 25% of the total fatal work-related incidents. This represents an increase from the number recorded the year previous.

The HSA has undertaken a range of activities in regulation, education, accreditation and enforcement to reduce incidents on construction sites. The appointed contractor is required to comply with all relevant Health and Safety legislation and the risk of a fatality is deemed unlikely.

This worst-case scenario is considered **unlikely**, and the significance of the effect is **indeterminable**.

4.14 Conclusion

There are no significant adverse effects with respect to socio-economic factors, land use, or the amenity value potential of the area. Issues which may cause risks and hazards during the construction and operational phase of the development are given due consideration. All necessary mitigation measures will be put in place to ensure the health and safety of all site personnel and neighbouring properties. All other environmental aspects relating to the human environment which could have an adverse effect on the local population such as soils, geology & hydrogeology, water and ecology have been addressed in the relevant chapters of this EIAR.

[6] Available via: https://www.hsa.ie/eng/topics/statistics/annual_review_of_workplace_injury_illness_and_fatality_statistics/annual-review-of-workplace-injuries-illnesses-and-fatalities-2021-2022.pdf; and https://www.hsa.ie/eng/news_events_media/news/press_releases_2024/health_and_safety_authority_reports_43_work-related_fatalities_in_2023.html

4.15 References

- National Planning Framework, Ireland 2040 – Our Plan (Government of Ireland, 2018);
- Eastern and Midlands Regional Spatial and Economic Strategy 2019-2031;
- Fingal County Council Development Plan 2023-2029;
- Sustainable Urban Housing: Design Standards for New Apartments (Guidelines for Planning Authorities) (Department of Housing, Local Government and Heritage, 2020);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018);
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022);
- Social Infrastructure Audit, MHP 2024;
- School Demand Assessment Report, MHP 2024;
- Childcare Demand Report, MHP 2024;
- Daylight and Sunlight Report, 3D Design Bureau 2024;
- Central Statistics Office (CSO) website www.cso.ie;
- Department of Education and Sciences (DES) website www.education.ie; and
- Health & Safety Authority https://hsa.ie/eng/ .

CHAPTER 5
LANDSCAPE & VISUAL IMPACT

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

5 Landscape and Visual

5.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on the landscape, views and visual amenity of the study area of the subject site itself at Deer Park in Howth, as well as the surrounding landscape context including views to and from the site from the wider landscape that are considered as representative sensitive receptors.

This chapter should be read in conjunction with the verified views/photomontage document prepared by 3D Design Bureau, which forms an appendix to this EIAR (See Appendix 5.2 Photomontages).

5.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Margaret Egan, MILI, of Áit Urbanism + Landscape Ltd. Margaret Egan (MILI) is a director of Áit Urbanism + Landscape Ltd, and has over twenty years' experience working as a Landscape Architect and LVIA Specialist in the public and private sector, undertaking Landscape and Visual Impact Assessments for a vast range of project types and complexities.

Margaret holds the following qualifications: Irish Landscape Institute, Professional Practice Examination 2005, Diploma in EIA Management, UCD 2003, Bachelor in Landscape Horticulture, UCD 1999, Bachelor of Science (Environmental Resources Management), DIT 1993 and has been involved in the preparation of LVIA's for the following projects:

- Newmarket Square Development SHD, LVIA (Mixed Use, multi-storey) Dublin 8
- Brighton Grove LRD LVIA, Foxrock Co. Dublin
- Greystones Media Campus LVIA, Greystones, Co. Wicklow
- The Speaker Conolly Public House, Mixed Use Development, LVIA, Firhouse, Co. Dublin
- Northwood 2E, SHD, LVIA, Santry, Co. Dublin
- Coolegad LRD, LVIA, Greystones, Co. Wicklow
- Glebe House LRD, LVIA, Blackrock, Co. Dublin
- Former Europa Garage site, LVIA, Newtown Avenue, Blackrock, Co. Dublin
- Parson Street Maynooth, LVIA, Co. Kildare
- The Farm at Cashel Palace LVIA, Cashel, Co. Tipperary
- Cookstown Road SHD, Enniskerry, LVIA, Co. Wicklow
- SHD Whitechurch Road, LVIA, Edmondstown, Dublin 16

5.3 Proposed Development

The full description of the proposed development is outlined in Chapter 2 'Development Description' of this EIAR.

GLL PRS Holdco. Limited intends to apply to Fingal County Council for permission for a Large-scale Residential Development on lands adjoining Howth Demesne, Deer Park, Howth, Co. Dublin, with a total site area of approx. 1.5 ha.

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Partial demolition of 3 sections of the existing northern boundary wall, which fronts Howth Road, proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

Aspects Relevant to this Assessment

The proposed development aims to deliver a high quality, medium to high density residential development on the south side of Howth Road in close proximity to Howth town and harbour, in lands that were formerly part of the Howth Demesne landscape, and adjacent to the Howth Castle Demesne Architectural Conservation Area (ACA). The lands at Deer Park are an underutilised greenfield land bank strategically located within walking distance of Howth town centre, which is part of the Dublin Metropolitan Consolidation Area. The site is served by Dublin Bus and DART services (less than 500m to the northeast), and is in close proximity to coastal amenities, beaches, open spaces, coastal walks and golf course.

Howth town, harbour and Howth Head combine to provide a wealth of amenities for residents of the local community, and also serves as a destination for visitors from further afield. In the summer months, Howth is also accessible by sea for day trippers from Dublin City and Dun Laoghaire, with some boating companies providing Howth Cliff Cruises. There is a large sea faring community locally, with many boats visible in and around the harbour.

There is a local fishing industry with wholesale fish markets established at the harbour for commercial sales. Smaller scale fish mongers are also based within the harbour and Howth town. On a recreational level, the harbour attracts many solo fishermen fishing on the piers at the harbour. The summer months see the town and harbour area activated with festivals, families on days trips utilising the open spaces and playgrounds. Therefore, the town and harbour can be, and have historically been regarded as a much sought after place to live, given the multitude of amenities, recreational activities, and its coastal landscape amenity.

In conjunction with the above, the subject site is zoned for residential development. Howth Castle is approximately 100m to the south of the site, St Mary's Church is approximately 100m to the east of the site. Both are protected structures and designated along with a large area of historic demesne

woodland which surrounds the buildings as an Architectural Conservation Area (ACA) in the Fingal County Development Plan 2023-2029.

A substantial area of Howth Head, further east and south of the site, has a Special Amenity Area Order (SAAO) for its protection and in recognition of its recreational and amenity value. The southern part of the subject site lies within a High Amenity area and within the southern extents of the Howth Head buffer zone.

These built, cultural and natural heritage assets present sensitivities to and opportunities for development of the underutilised lands at Deer Park. The following are the key sensitivities that have been considered in the design process of the proposed development at the subject site at Deer Park to date:

- Historical landscape setting
- Its proximity to protected structures of Howth Castle Demesne Architectural Conservation Area (ACA)
- Its proximity to a High Amenity Area (including a southern portion of the site)
- Its proximity to the Special Amenity Area Order (SAAO) of a large area of Howth Head (including a buffer zone on the southern portion of the site)
- Its proximity to protected /preserved views
- The topography of the site
- Its proximity to Howth Road and adjacent suburban residential development
- Proximity to Howth town and harbour
- The open, coastal landscape character type of the local and wider landscape that is highly sensitive

With regard to its potential landscape and visual effects, the key characteristics of the proposed development are:

- Site layout, height and massing
- Architectural materials and treatments en façade
- Landscape Site Plan proposals for the Deer Park development, prepared by Áit Urbanism + Landscape Ltd. that accompany this planning submission

Site layout, height and massing

The proposed Large Scale Residential Development (LRD) is 3-5 storeys in height with the public elevation predominantly facing the Howth Road set back from the historical stone wall boundary of the Howth Demesne as a design response to its sensitive historical landscape context. Architectural treatments such as recessed balconies address the corner of the Howth Road frontage, and the materiality and architectural expression are sensitively considered to take account of the significance of the sites' location adjacent to the gate to Howth Castle and the entrance to Howth town and harbour.

The mass of the proposed built environment is broken down into two offset blocks to maximise available sunlight. The breakdown of the two blocks (Block A with Block B, Block C with Block D) create

three distinct areas of public realm, comprised of both soft and hard landscape materials as part of a high-quality landscape site plan for the site.

To the east of the proposed 3-5 storey-built environment, there is a proposed public open space with two pedestrian access point formed through openings in the existing historic Deer Park stone wall leading to a sheltered public garden. A central communal courtyard style garden is defined between the two blocks with a sheltered pergola allowing for social gatherings. To the west of the blocks is the proposed vehicular entrance into the site through an opening in the historic boundary wall. Parking has been located as close to the entrance as possible with parking bays broken up with street trees.

The proposal seeks to balance the need to provide increased density while being cognisant of the existing local residential amenity and the historical context of the entrance to Howth Castle.

The proposed 'Build to Sell' development includes 135 no apartments in a mix of 1 and 2 bedrooms, over 3-5 floors. The ground floors contain the bin, bike stores and plant rooms. Both blocks face the open landscaped garden and woods to the golf club.

Connectivity is an important consideration within the overall design as well as the objective to create a sense of place by designing an attractive residential area set within and adjacent to a historical landscape setting.

The design team have collaborated to ensure that the proposed development:

- Remains sensitive to the visual and historical context of the Howth Castle Demesne ACA and amenity of existing adjacent dwellings
- Remains sensitive to designated Preserved Views (Fingal County Development Plan 2023-2029)
- Provides generous levels of public and communal open spaces.
- Provides safe vehicular, pedestrian and cycle access.
- Provides a new open activated residential area with ease of connectivity to Howth town and harbour.
- Provides a mix of 1, and 2 -bedroom units which are in short supply locally.

The proposed development is highly permeable to residents with looping pathways linking the public open space, communal garden and main entrance. To the south of the site is the wooded amenity landscape of the Howth Golf Course lands which forms a backdrop to the proposed development. In the southwest an area (within zoned area of High Amenity) will be re-wilded and a small allotment area will be set aside for residents' use. Bicycle parking is provided across the site and has have been carefully considered in terms of accessibility and security for bike users. Bin stores are centrally located and can be accessed from either side for greater accessibility.

Architectural materials and treatments en façade

A number of architectural design features are proposed that allow the built form to visually recede and are of particular note along the proposal's elevations to the Howth Road which the proposed scheme will the most visible. These include:

- Setbacks and step downs of the built environment
- Recessed balconies
- Recessed punctuations to the façade which reduce the apparent length of the elevation.
- 'Earth and sand colour tones' in the material finishes that soften the overall appearance of the built form, and include warm and neutral brick, warm browns to the metal claddings to the top floor setbacks, brown/green metal railings to the balconies. These earth and sand tones finishes are reflective of the colours in the immediate historical landscape setting and also in the local coastal setting; these will assist in reducing the overall apparent massing of the development in the landscape.

Refer to JFA Architectural Design Statement for details.

Figure 5.1 Site Layout (JFA)

Landscape Strategies

Figure 5.2 Landscape Strategies

Figure 5.3 Landscape Strategies

Figure 5.4 Landscape Strategies

Figure 5.5 Green Infrastructure Landscape Strategy

Figure 5.6 Landscape Site Plan

Refer to Landscape Strategy and Report, Landscape Site Plan + Sections by Áit Urbanism + Landscape Ltd. which accompany the planning application documents for further details.

Pocket Park

A publicly accessible pocket park is provided on the east side of the development. The pocket park can be accessed through two openings in the existing stone wall and also directly from the apartments via 2 access gates. The Park will have open lawn areas for informal play and kickabout with seating areas to rest and socialise. Circulation is arranged as a loop for walkers and as a general amenity that allows exploration of the wider site. Along the path, on the eastern side, there are calisthenics and gym equipment with a grass mounds providing privacy for outdoor gym users.

A grove of existing trees to the south will be reinforced with new tree planting to form an attractive open woodland grove with a carpet of spring flowering bulbs. The Pocket Park will be secured from the apartments with steel railings.

Communal Open Space

All four apartment blocks enclose and overlook a large central communal garden space. The communal garden will incorporate an equipped children's play area and play activities for teens and adults (table tennis, chess). Adjoining the play area to the north will be an open lawn area for informal play. Seating is provided overlooking the lawn and play areas and positioned to enjoy southerly aspect. Generous buffer planting separates the active parts of the communal garden form the ground-floor apartments.

The Landscape Site Plan also provides the following amenities:

- Dry Riverbed - Nature play and SuDS
- Outdoor Gym and Calisthenics area - Nature Trim Trail
- Woodland Nature Play Garden
- Play Area

The principal public open space is located in the east of the development and has two public access points directly from Howth Road with two gates providing access from the apartments in the west. The public open space is comprised of three zones of different characters containing an informal play 'Dry Riverbed' which acts as a SuDS area, a pocket park, and a second informal play zone in the woodland in the southeast part of the development.

There are two generous size seating and socializing zones in the Pocket Park section. In the central part of the site, between the apartment blocks, there is communal open space with a substantial-sized socializing area with a retractable canopy pergola.

On both sides are SuDS detention basins of which is larger and can be used as a kickabout area. In the upper part, there is a second, smaller seating area. A play area for toddlers and young children is located in the southern part of the space and additionally, there is an informal play space with a series of small mounds and flowering small trees up from the socializing space.

In the south-west corner of the site, there is an area zoned High Amenity in the Fingal Development Plan 2023-2029. The landscape proposals endeavour to provide a more natural approach to the design and include nature pathways via a mowed strip through the meadow where residents can enjoy walks surrounded by nature. One part of that path will be slightly larger and provide seating / stumping wooden trunks for children to play and adults to be able to sit and relax.

The importance of existing trees and hedgerows is acknowledged as a landscape asset with the majority being retained. Proposed tree removal will be limited to small section of the southern tree belt. *(G102: Tags 174-222 Birch Tree group (Betula spp), approximately 89sq.m to facilitate proposal; G103: Tags 5317-5346 Scots Pine Group (Pinus sylvestris): removal of 5no. Scots pine to allow 5m working space/access for construction. Tree No. 68 (No Tag No: single stem growing from hedgerow).* One street tree located outside the stone wall adjacent to the pathway on Howth Road to the north-east of the site, an early mature Rowan Tree (Sorbus aucuparia) *Tree No. 2(P),* will be removed to facilitate sight-lines onto Howth Road from the proposed development.

The majority of the trees including avenue, ornamental, and small flowering trees are native and/or biodiversity friendly. The proposed planting mixes in both the public and communal open spaces are primarily of native, pollinator-friendly planting species with ornamental species providing additional visual and seasonal amenity interest. To ensure maximum development and healthy growth, trees between parking spaces have a min. of 16cu.m of rooting volume.

5.4 Methodology

Landscape and Visual Impact Assessment

This Landscape and Visual Impact Assessment describes the existing receiving environment, the contiguous landscape and the methodology utilised to assess the effects of the proposed development. It assesses the visual extent of the proposed development and the proposal's visual effects on key views throughout the study area.

The study area referred to in this chapter includes the Deer Park site itself, lands to the immediate north, south, east and west as presented in the landscape analysis mapping and drawings in Figures 5.10 to Figure 5.18 below.

The visual analysis study area includes the site itself, lands to the immediate north, south, east and west along with wider views back to the site from preserved views identified in the Fingal Development Plan 2023-2029 which include Portmarnock coastline to the north-west, the West Pier at Howth Harbour to the north-east and Muck Rock to the south of the site. There is one preserved view along the avenue within the Howth Castle Demesne Architectural Conservation Area (ACA) immediately south of the Howth Castle Gates that has also been considered within the visual study area. Views from within the Howth Castle Demesne (ACA), and from views adjacent to protected structures within and outside the Howth Castle Demesne ACA are also included in the visual analysis study area.

This assessment describes the landscape and urban character of the subject site and hinterland, together with the visibility of the site from short, medium and long-distance viewpoints, that represent sensitive receptors in the local and wider landscape. The LVIA summarises the likely effects of the proposed development on the visual and landscape amenity of the subject site and its immediate area.

The following visual receptors that are considered sensitive, that are addressed in this assessment have been chosen based on the following criteria:

- Key views from designated sites of national or international importance where relevant
- Designated protected views and views/scenic routes protected through development objectives in the Fingal Development Plan 2023-2029
- Views identified and highlighted by the local authority during the consultation process; in particular views south, south-west and south-east from Howth Road that capture the historical landscape context of the Howth Castle Demesne and historical curtilage wall
- Local Amenity and Heritage Features
- Local community views to assess the landscape and visual impact of the proposals on those who live and work in proximity to the proposed development as well as those utilising local amenities
- Relevant local settlement nodes
- Major routes adjacent to the site

Overview

Landscape and visual impact assessments are two separate, but closely related topics. The assessment of visual impact focuses on the extent to which new developments can be seen. Visual analysis forms one part of a Visual Impact Assessment (VIA), the process by which the potential significant effects of a proposed development on the visual resource of an area are methodically assessed. In turn, VIA forms just one part of a Landscape and Visual Impact Assessment (LVIA) and the wider process of Environmental Impact Assessment Report (EIAR). Landscape assessment focuses on the character of the landscape, examining responses which are felt towards the combined effects of the new development.

Desktop Study

Site assessments were undertaken in December 2023. Desktop studies were undertaken to evaluate the existing site conditions such as topography, vegetation, settlement patterns, contiguous land use, drainage, landscape and urban character as well as overall visibility of the site from surrounding areas. Information was also collated on protected views, scenic routes, special and protected landscapes etc.

The following documents and web resources were consulted for the desktop study:

- Fingal Development Plan 2023-2029 www.fingal.ie
- Ordnance Survey Ireland – Interactive Mapping and Aerial Photography www.osi.ie

Other terminology used within this chapter is set out below.

The following terminology, used in this visual assessment, is defined as follows:

Visual Intrusion: where a proposed development will feature in an existing view but without obstructing the view.

Visual Obstruction: where a proposed development will partly or completely obscure an existing view.

Sensitivity and Significance: The significance of effects on the perceived environment will depend partly on the number of people affected, but also on value judgments about how much the changes will matter. In this respect it is important to identify actual visual and physical connections between the site, its adjacent occupiers/landowners and those who interact with it from further afield, in the context of the existing and the proposed situations.

While our visual sense is generally acknowledged to represent the dominant contribution to our perception of place and its context, other factors also contribute. Hearing/sound, smell and a variety of social/cultural factors relating to the land-use, function or business conducted on the land (or indeed, memory) can sometimes over-rule or outweigh the visual aspects and lead to individual perceptions which could be described as relatively subjective. The relevance of these non-visual aspects to our perception of our environment and the impact made by proposed changes is considered in other sections of this assessment document. The purpose of this section is to objectively examine and assess the nature and extent of the visual impact created as a result of the development proposal.

Definition of Landscape

The term '*landscape*' is defined in the Guidelines for Landscape and Visual Impact Assessment (GLVIA) as:

'Landscape is an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factor'.

Forces for Landscape Change

The landscape is not static and is continuously changing. Over time, many different pressures have altered landscapes and will continue to do so in the future. The key drivers of this change come from ongoing development that is required to meet the needs of a growing population and economy. This includes but is not limited to new housing and commercial development, new forms of energy generation and land management.

5.4.1 Guidance

Desktop studies were undertaken to evaluate the existing site conditions such as topography, vegetation, settlement patterns, contiguous land use, drainage, landscape character as well as overall visibility of the site from surrounding areas. Information was also collated on protected views, scenic routes, special and protected landscapes etc.

This section describes landscape and visual effects and has been prepared utilising the following guidance documents:

- 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' Environmental Protection Agency, May 2022.
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- 'Advice notes for Preparing Environmental Impact Statements. Draft'. Environmental Protection Agency, 2015.
- 'Landscape and Landscape Assessment Draft Guidelines', Department of Environment, Heritage and Local Government (DEHLG) 2000
- 'Guidelines for Landscape and Visual Impact Assessment', The Landscape Institute & I.E.M.A., UK, 2013.
- 'Environmental Impact Assessment Handbook', Scottish Natural Heritage (SNH), Version 5, 2018. Appendix 2: Landscape and Visual Impact Assessment.

5.4.2 Key Principles of the Guidelines for Landscape and Visual Impact Assessment

Use of the Term *'Effect'* vs *'Impact'*

The GLVIA advises that the terms *'impact' and effect'* should be clearly distinguished and consistently used in the preparation of an LVIA.

'Impact' is defined as the action being taken. In the case of the development, the impact would include the construction of the high-density residential accommodation along with supporting road and utility infrastructure and public open space. In addition, there is also the localised change on the site, mostly from the existing underutilized greenfield site with no usage, and the works required to facilitate this change.

'Effect' is defined as the change or changes resulting from those actions, e.g. a change in landscape character, or changes to the composition, character and quality of views in the receiving environment. This section of the report focusses on these effects.

5.4.3 Assessment of Both *'Landscape'* and *'Visual'* Effects

Another key distinction to make in a LVIA is that between landscape effects and the visual effects of development.

'Landscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create distinctive characters of landscape in different places. 'Landscape character assessment' is the method used in LVIA to describe landscape, and by which to understand the potential effects of a development on the landscape as 'a resource'. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of landscape that make a place distinctive.

Views and *'visual amenity'* refer to the interrelationship between people and the landscape. The GLVIA prescribes that effects on views and visual amenity should be assessed separately from landscape, although the two topics are inherently linked. Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

5.4.4 Methodology for Landscape Assessment

In section **5.8** of this report the landscape effects of the development are assessed. The nature and scale of changes to the landscape elements and characteristics are identified, and the consequential effect on landscape character and value are discussed. Trends of change in the landscape are taken into account. The assessment of significance of the effects takes account of the sensitivity of the landscape resource and the magnitude of change to the landscape which resulted from the development.

5.4.5 Sensitivity of the Landscape Resource

The sensitivity of the landscape is a function of its land use, landscape patterns and scale, visual enclosure and the distribution of visual receptors, and the value placed on the landscape. It also relates to the nature and scale of development proposed. It includes consideration of landscape values as well as the susceptibility of the landscape to change.

Landscape values can be identified by the presence of landscape designations or policies which indicate particular values, either on a national or local level. In addition, a number of criteria are used to assess the value of a landscape.

Landscape susceptibility is defined in the GLVIA as the ability of the landscape receptor to accommodate the proposed development without undue consequences for the maintenance of the baseline scenario and/or the achievement of landscape planning policies and strategies. Susceptibility also relates to the type of development – a landscape may be highly susceptible to certain types of development but have a low susceptibility to other types of development.

Sensitivity is therefore a combination of Landscape Value and Susceptibility.

For the purpose of assessment, five categories are used to classify the landscape sensitivity of the receiving environment as presented in Table 5.1 below. The following tables were created using EPA guidelines.

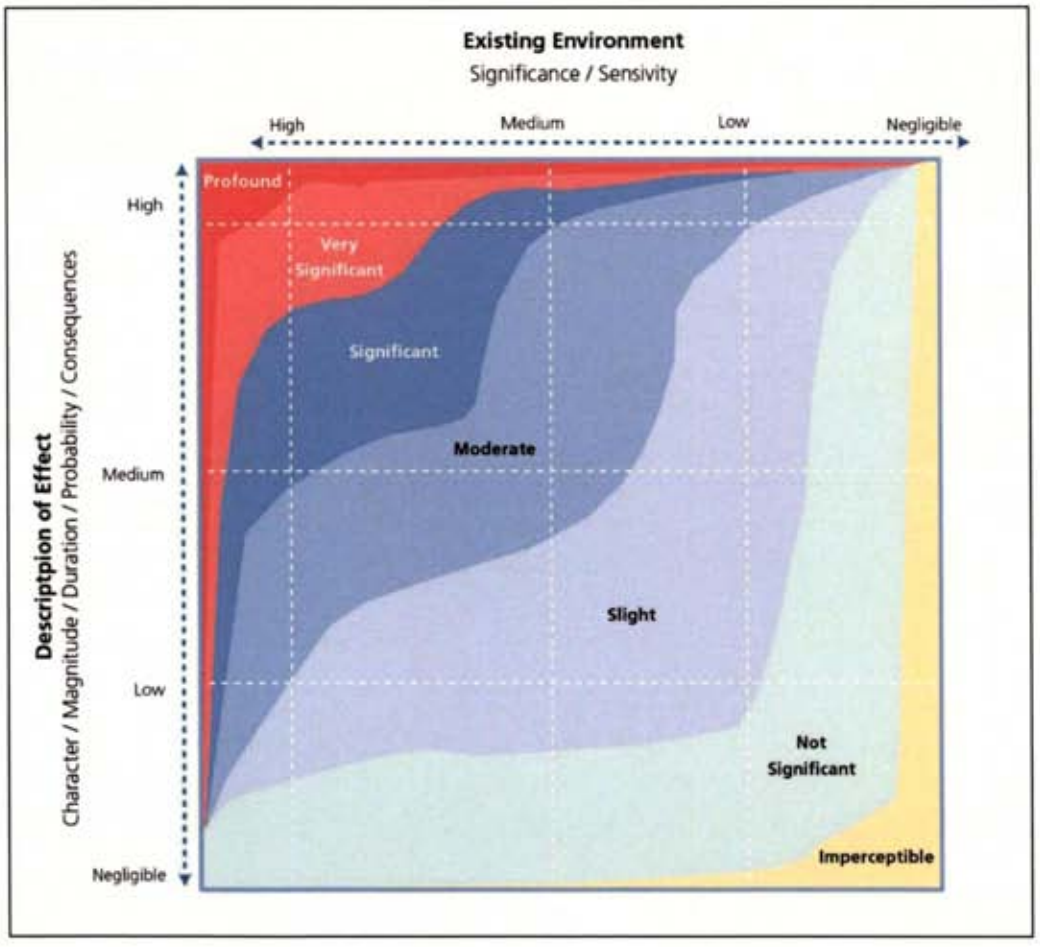


Figure 5.7 Chart Showing Typical Classifications of the Significance of Effects based on the sensitivity of the receiving environment.

Table 5.1 Categories of Landscape Sensitivity

Sensitivity	Description
Very High	Areas where the landscape exhibits a very strong, positive character with valued elements, features and characteristics that combine to give an experience of unity, richness and harmony. The character of the landscape is such that its capacity for accommodating change in the form of development is very low. These attributes are recognised in landscape policy or designations as being of national or international value and the principal management objective for the area is protection of the existing character from change.
High	Areas where the landscape exhibits strong, positive character with valued elements, features and characteristics. The character of the landscape is such that it has limited/low capacity for accommodating change in the form of development. These attributes are recognised in landscape policy or designations as being of national, regional or county value and the principal management objective for the area is conservation of the existing character.
Medium	Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong or has evidence of alteration to / degradation / erosion of elements and characteristics. The character of the landscape is such that there is some capacity for change in the form of development. These areas may be recognised in landscape policy at local or county level and the principal management objective may be to consolidate landscape character or facilitate appropriate, necessary change.
Low	Areas where the landscape has few valued elements, features or characteristics and the character is weak. The character of the landscape is such that it has capacity for change; where development would make no significant change or would make a positive change. Such landscapes are generally unrecognised in policy and where the principal management objective is to facilitate change through development, repair, restoration or enhancement.
Negligible	Areas where the landscape exhibits negative character, with no valued elements, features or characteristics. The character of the landscape is such that its capacity for accommodating change is high; where development would make no significant change or would make a positive change. Such landscapes include derelict industrial lands or extraction sites, as well as sites or areas that are designated for a particular type of development. The principal management objective for the area is to facilitate change in the landscape through development, repair or restoration.

5.4.6 Magnitude of Landscape Change

The magnitude of change is a factor of the scale, extent and degree of change imposed on the landscape with reference to its key elements, features and characteristics (also known as 'landscape receptors'). Five categories are used to classify magnitude of landscape change as described in Table 5.2 following.

Table 5.2 Categories of Landscape Change

Magnitude of Change	Description
Very High	Change that is large in extent, resulting in the loss of or major alteration to key elements, features or characteristics of the landscape and/or introduction of large elements considered totally uncharacteristic in the context. Such development results in fundamental change in the character of the landscape.
High	Change that is moderate to large in extent, resulting in major alteration to key elements features or characteristics of the landscape and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the landscape.
Medium	Change that is moderate in extent, resulting in partial loss or alteration to key elements features or characteristics of the landscape, and/or introduction of elements that may be prominent but not necessarily substantially uncharacteristic in the context. Such development results in change to the character of the landscape.
Low	Change that is moderate or limited in scale, resulting in minor alteration to key elements features or characteristics of the landscape, and/or introduction of elements that are not uncharacteristic in the context. Such development results in minor change to the character of the landscape.
Negligible	Change that is limited in scale, resulting in no alteration to key elements features or characteristics of the landscape key elements features or characteristics of the landscape, and/or introduction of elements that are characteristic of the context. Such development results in no change to the landscape character.

5.4.7 Significance of Effects

In order to classify the significance of effects (both landscape and visual), the predicted magnitude of change is measured against the sensitivity of the landscape/viewpoint, using the following guide (see Table 5.3). There are seven classifications of significance, namely: (1) imperceptible, (2) not significant, (3) slight, (4) moderate, (5) significant, (6) very significant, (7) profound.

Table 5.3 Guide to Classification of Significance of Landscape Effects

		Sensitivity of the Landscape Resource				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Magnitude of Change	**Very High**	Profound	Profound-Very Significant	Very Significant-Significant	Moderate	Slight
	High	Profound-Very Significant	Very Significant	Significant	Moderate-Slight	Slight-Not Significant
	Medium	Very Significant-Significant	Significant	Moderate	Slight	Not Significant
	Low	Moderate	Moderate-Slight	Slight	Not significant	Imperceptible
	Negligible	Slight	Slight-Not Significant	Not significant	Imperceptible	Imperceptible

The matrix above is used as a guide only. The assessor also uses professional judgement informed by their expertise, experience and common sense, to arrive at a classification of significance that is reasonable and justifiable.

Landscape effects are also classified as positive, neutral or negative/adverse. Development has the potential to improve the environment as well as damage it. In certain situations, there might be policy encouraging a type of change in the landscape, and if a development achieves the objective of the policy the resulting effect might be positive, even if the landscape character is profoundly changed.

5.4.8 Methodology for Visual Assessment

The visual effects of the development are assessed in section **5.8** of this chapter. Visual assessment considers the changes to the composition of views, the character of the views, and the visual amenity experienced by visual receptors. The assessment is made for a number of viewpoints selected to represent the range of visual receptors in the receiving environment. The significance of the visual effects experienced at these locations is assessed by measuring the viewpoint sensitivity against the magnitude of change to the view resulting from the development. Definitions of viewpoint sensitivity are provided below in **Table 5.4**

Table 5.4 Categories of Viewpoint Sensitivity

Sensitivity	Description
Very High	Iconic viewpoints - towards or from a landscape feature or area - that are recognised in policy or otherwise designated as being of national value. The composition, character and quality of the view are such that its capacity for accommodating change in the form of development is very low. The principal management objective for the view is its protection from change.
High	Viewpoints that that are recognised in policy or otherwise designated as being of value, or viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features focused on the landscape). The composition, character and quality of the view may be such that its capacity for accommodating compositional change in the form of development may or may not be low. The principal management objective for the view is its protection from change that reduces visual amenity.
Medium	Viewpoints representing people travelling through or past the affected landscape in cars or on public transport, i.e. viewing but not focused on the landscape which is regarded as moderately scenic. The views are generally not designated, but which include panoramic views or views judged to be of some scenic quality, which demonstrate some sense of naturalness, tranquillity or some rare element in the view.
Low	Viewpoints reflecting people involved in activities not focused on the landscape e.g. people at their place of work or engaged in similar activities such as shopping, or on heavily trafficked routes etc. The view may present an attractive backdrop to these activities but is not regarded as particularly scenic or an important element of these activities.
Negligible	Viewpoints reflecting people involved in activities not focused on the landscape e.g. people at their place of work or engaged in similar activities such as shopping where the view has no relevance or is of poor quality.

5.4.9 Magnitude of Change to the View

Classification of the magnitude of change takes into account the size or scale of the intrusion of development into the view (relative to the other elements and features in the composition, i.e. its relative visual dominance), the degree to which it contrasts or integrates with the other elements and the general character of the view, and the way in which the change will be experienced (e.g. in full view, partial or peripheral, or glimpses). It also takes into account the geographical extent of the change, the duration and the reversibility of the visual effects.

Five categories are used to classify magnitude of change in the view as described below in Table 5.5.

Table 5.5 Categories of Visual Change

Magnitude of Change	Description
Very High	Full or extensive intrusion of the development in the view, or partial intrusion that obstructs valued features or characteristics, or introduction of elements that are completely out of character in the context, to the extent that the development becomes the dominant the composition and defines the character of the view and the visual amenity.
High	Extensive intrusion of the development in the view, or partial intrusion that obstructs valued features, or introduction of elements that may be considered uncharacteristic in the context, to the extent that the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity.
Medium	Partial intrusion of the development in the view, or introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity.
Low	Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity.
Negligible	Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.

5.4.10 Significance of Visual Effects

As for landscape effects, in order to classify the significance of visual effects, the magnitude of change to the view is measured against the sensitivity of the viewpoint, using the guide in Table 5.4.

5.4.11 Quality and Timescale

The predicted effects are also classified as beneficial, neutral or adverse. This is not an absolute exercise; in particular, visual receptors' attitudes to development, and thus their response to the impact of a development, will vary. However, the methodology applied is designed to provide robust justification for the conclusions drawn. These qualitative effects are defined as:

- Adverse – Scheme at variance with landform, scale, pattern. Would degrade, diminish or destroy the integrity of valued features, elements or their setting or cause the quality of the landscape(townscape)/view to be diminished.

- Neutral – Scheme complements the scale, landform and pattern of the landscape (townscape)/view and maintains landscape quality.

- Beneficial – improves landscape(townscape)/view quality and character, fits with the scale, landform and pattern and enables the restoration of valued characteristic features or repairs / removes damage caused by existing land uses.

Effects are also categorised according to their longevity or timescale:

- Temporary – Lasting for one year or less.
- Short Term – Lasting one to seven years.
- Medium Term – Lasting seven to fifteen years.
- Long Term – Lasting fifteen years to sixty years.
- Permanent – Lasting over sixty years.

The Glossary of Effects used in the assessment of effects are as per EPA Guidelines below:

Table 5.6 Descriptions of Effects

Quality of Effects	
Positive Effects	*A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).*
Neutral Effects	*No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.*
Negative Effects	*A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).*
Significance of Effects	
Imperceptible Effect	*An effect capable of measurement but without noticeable consequences.*
Not Significant	*An effect which causes noticeable changes in the character of the environment but without significant consequences.*
Slight Effect	*An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.*
Moderate Effect	*An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.*
Significant Effect	*An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.*
Very Significant	*An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.*
Profound Effect	*An effect which obliterates sensitive characteristics.*

Duration of Impact/Effect	
Momentary Effects	*Effects lasting from seconds to minutes.*
Brief Effects	*Effects lasting less than a day.*
Temporary Effects	*Effects lasting less than a year.*
Short-term Effect	*Effect lasting one to seven years.*
Medium-term Effect	*Effect lasting seven to fifteen years.*
Long-term Effect	*Effect lasting fifteen to sixty years.*
Permanent Effect	*It is lasting over sixty years.*
Reversible Effects	*Effects that can be undone, for example through remediation or restoration.*
Temporary Effects	*Effect lasting for one year or less.*
Types of Effects	
Indirect Effects (a.k.a. Secondary or Off-site Effects)	*Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.*
Cumulative Effects	*The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.*
'Do Nothing'	*The environment as it would be in the future should the subject project not be carried out.*
'Worst case' Effect	*The effects arising from a project in the case where mitigation measures substantially fail.*
Indeterminable Effect	When the full consequences of a change in the environment cannot be described.
Irreversible Effect	*When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.*
Residual Effect	*The degree of environmental change that will occur after the proposed mitigation measures have taken effect.*
Synergistic Effects	*Where the resultant effect is of greater significance than the sum of its constituents (e.g., combination of SOx and NOx to produce smog).*

A statement is made as to the appropriateness of the proposed development based on the combined assessment of the predicted landscape and visual effects. This methodology, in accordance with the various guidelines for LVIA, results in a conclusion as to the appropriateness of the proposed development based on objective assessment of its likely landscape and visual effects.

5.4.12 Photomontage Methodology

A photomontage is defined as:

'A visualisation which superimposes an image of a proposed development upon a photograph or series of photographs. Photomontages are generated using computer software.' ('Visual Representation of Wind Farms - Good Practice Guidance', Scottish Natural Heritage (SHN) -. 2006)

Choice of Views

The views were chosen to accurately represent the likely visual impact from all directions. Views from the Public Domain were given priority, particularly those from main roads and access routes. The views submitted are considered to be the most important and representative, having regard to the requirement to examine the greatest likely effects.

A preliminary viewpoint map of the previous planning application *(SHD 'Kenelm' Deer Park, Howth, 2021, ABP: ABP-310413-21) was* reviewed at the outset of the design process with the wider design team and was submitted to Fingal County Council in December 2023, as part of the LRD Opinion Stage X (FCC Ref: LRD0035/S2).

Fingal County Council responded with the following comments:

3. Address concerns regarding visual impacts of this visually prominent site with further consideration and/or justification of the documents as they relate to the design approach of the proposed development and the potential for any negative visual Impacts to the surrounding environs.

- *Required Viewpoints - Additional viewpoints are required from those identified on the Ait document.*

A. *Additional angled viewpoint on Howth Road towards the development at midpoint between Viewpoint 8 and Viewpoint 7*

Response: See additional View 23

B. *Additional viewpoint on Howth Road facing directly southwards towards the development from the location of Viewpoint 7. Viewpoint 7 is angled SE towards the entrance road to Howth Castle.*

Response: See additional View 22

C. *As raised above there are concerns that Viewpoint 12 may be reliant on screening provided by existing trees and undergrowth along the entrance avenue. The undergrowth may be thinned/ removed in the future, so the visualisation needs to consider this.*

Response: All baseline photography for the photomontages was undertaken in the winter months, on November 22nd, 2023.

D. *The visualisations provided should show winter views when leaf cover reduced so it would be appropriate to get images taken now during winter months.*

Response: All baseline photography for the photomontages was undertaken in the winter months, on November 22nd, 2023, and visualisations/photomontages have been prepared showing winter scenarios. Any trees shown in leaf are evergreen trees.

- *Detailed Landscape and Visual Impact Assessment which should include images with verified views.*

Response: Refer to this chapter Landscape & Visual Assessment, Appendix 5.1 and Appendix 5.1

- *Supplementary 3D Images / renders of the proposed development in context.*

Response: Refer to Appendix 5.1

An additional view along with the adjustment of angles of some views were agreed, based on feedback from Fingal County Council in December 2023 and January 2024. A total of twenty-three views were agreed by the design team for this visual assessment, along with cumulative views, where relevant, of the adjacent Claremont development on Howth Road that is currently under construction.

Photography of Site

(See photomontage document by 3D Design Bureau)

Each of the twenty-three chosen views were photographed using a high-resolution digital camera set horizontally using a surveying level to eliminate any possible distortion and to make an accurate match with the computer rendering.

The direction of view was recorded for each shot, together with its position on the ground. The camera positions are then surveyed by GPS to establish their x, y, and z coordinates to an accuracy of +/- 25mm. These positions are then plotted onto Ordnance Survey maps and their distance and angle from the proposed development is recorded to ensure an accurate match with the computer model. The horizontal angle (field) of views for every shot is 67° (unless otherwise stated), therefore if each montage is printed to the same width, there is a consistency of scale and comparative size. It should be noted that this angle (field) of view is considerably less than the human eye viewing angle but greater than a 50 mm lens on a 35 mm camera. It is chosen as the most suitable compromise. The index marks on each photo indicate the size of photo which would be produced by a 50 mm lens on a 35 mm SLR (commonly regarded as a "normal" lens).

Size of Print and Viewing Distance

When the angle of view (field of view) is known, then the correct size of print to view is a function of this angle and distance from the eye. When the photomontages are printed at approximately A3 size (in width), and if they are viewed at approximately 300mm, (normal reading distance) objects seen in the image will appear at approximately the same scale as if viewed in reality from the location from which the photograph was taken.

Rendered View

Rendered views of the proposed development were generated to match the site views. This is achieved by programming in all of the data recorded at the time the site photos were taken i.e.,

surveyed position in relation to the development, angle of view and direction of view. This ensures that the size, position and height of the proposed development in the photograph is correct to at least an accuracy of 0.33%, i.e., +/- 1mm on an A3 print. Careful consideration is given to the direction of sunlight, time of day, weather conditions and distance of the viewer, so that the photomontage will match reality in terms of lighting, sharpness, density of colour etc.

Photomontages

Each rendered view of the proposed development is superimposed onto its matching photograph. The mathematical accuracy is then checked visually by ensuring that existing prominent features which are also modelled, line up exactly in the photo. Careful consideration is given to establishing which existing (retained) landscape features are in the foreground and therefore mark the proposal and those which are in the background.

5.4.13 Relevant Legislation & Guidance

Landscape Planning Policy Context

Landscape Planning policies and objectives relevant to the assessment of the effects of the proposed development are laid out in the Fingal County Development Plan 2023-2029 (FCDP), in the following chapters:

Chapter 2: Planning for Growth, Core Strategy, Settlement Pattern
Chapter 3: Sustainable Placemaking and Quality Homes
Chapter 9: Green Infrastructure and Natural Heritage
Chapter 10: Heritage, Culture and Arts
Chapter 13: Land Use Zoning
Chapter 14: Development Plan Standards

Chapter 2: Planning for Growth, Core Strategy, Settlement Pattern

The headland of Howth is identified as a Metropolitan area of Dublin, within Dublin City and Suburbs Consolidation Area with a land availability of 14 hectares. (***Table 2.10 Remaining Zoned Residential Capacity from Fingal Development Plan 2017–2023).***

Policy CSP1 – Core Strategy	Promote and facilitate housing and population growth in accordance with the overarching Core Strategy to meet the needs of current and future citizens of Fingal.
Policy CSP2 – Compact Growth and Regeneration	Support the implementation of and promote development consistent with the National Strategic Outcome of Compact Growth as outlined in the NPF and the Regional Strategic Outcome of Compact Growth and Regeneration as set out in the RSES.
Policy CSP3 – Strategic Development Areas and Corridors	Support the economic development of Fingal in line with the policies and objectives stipulated in the National Planning Framework and the Regional Spatial and Economic Strategy and utilise active land measures such as provision of LAPs and masterplans across the County as part of the development approach for Strategic Development Areas and Corridors.

Policy CSP4 – Sequential Development	Promote the sequential development of serviceable lands in accordance with the tiered approach to land zoning outlined in the NPF, the RSES and MASP and ensure co-ordination with other neighbouring planning authorities where strategic development corridors traverse county boundaries.
Policy CSP5 – Key Enabling Infrastructure	Identify and support the provision of key enabling infrastructure at strategic development sites in Fingal County, as outlined in the MASP, to facilitate their release for development during the lifetime of the Development Plan.
Objective CSO1 – Sufficient Zoned Land	Ensure that sufficient zoned land is available to satisfy the housing and population requirements of the County, as set out under the Ministerial Guidelines for Housing Supply and the Regional Spatial and Economic Strategy, over the lifetime of the Plan.
Objective CSO2 – Monitoring Process for Housing Delivery	Implement a robust monitoring process for all housing delivery including the performance of large-scale housing developments (Schemes for 100 units+) for each town, village and urban settlement within the County to allow for ongoing assessment of delivery targets whilst ensuring overdevelopment does not occur in any particular area and to ensure that the delivery of necessary infrastructure is provided in a timely manner with the delivery of housing to ensure the sustainability of communities.
Objective CSO3 – Delivery of Housing Units	Provide for flexibility in achieving the housing supply targets and meeting housing demand, the Council will consider the re-distribution of housing and population figures within each settlement. In this regard, where a site greater than 0.25ha has the potential to exceed the allocation for a particular settlement as set out under Table 2.14, the applicant must demonstrate to the Planning Authority that the necessary social and physical infrastructure {including active travel infrastructure, accessibility to both current and planned public transport services} is in place or can be provided as part of the application to accommodate the proposed development. The Council will monitor the delivery of housing units to ensure general compliance with the Core Strategy and housing supply targets for the County and to inform the redistribution potential outlined above.
Objective CSO4 – Database of Sites	Maintain and further expand the database of greenfield, brownfield and infill sites as part of the active land management process.
Objective CSO5 – Database for Residential Zoned Land	Create and maintain a database of land zoned for residential development that has not yet been developed including, where available, information on why this land has not been developed so as to inform future zoning and de-zoning decisions.
Objective CSO6 – Phased Development	Ensure the phased development of new housing areas in tandem with the delivery of physical and social infrastructure provision as identified within Local Area Plans or Masterplans, as informed by assessments carried out by the Planning Authority.
Objective CSO7 – Enabling Infrastructure	Identify and support the provision of key enabling infrastructure at strategic sites in Fingal County to facilitate their release for development in response to the current housing crisis.
Objective CSO8 – Protection of Long-Term Strategic Reserve	Protect the long-term strategic reserve land banks for potential future residential growth and to restrict development except for reasonable intensification of, extensions to and improvement of premises within these areas, subject to normal planning criteria.

Frameworks Plans

Howth has been identified on Fingal County Council's list of **Proposed Frameworks Plans** *Table 2.19 Howth (FP 10.)* to be prepared over the lifetime of the Development Plan.

Policy CSP9 – Framework Plans	Prepare Framework Plans as required for identified areas to facilitate a co-ordinated approach to development.
Policy CSP10 – Implementation of Framework Plans	Prepare Framework Plans for areas designated on Development Plan maps in co-operation with relevant stakeholders, and actively secure the implementation of these plans and the achievement of the specific objectives indicated therein.

General Settlement Objectives

Policy CSP12 – NPF and RSES	Promote compact growth in line with the NPF and RSES through the inclusion of specific policies and targeted and measurable implementation measures that: Encourage infill / brownfield development Focus growth on the County's designated strategic development areas identified in the Metropolitan Area Strategic Plan (MASP) Promote increased densities along public transport corridors.
Policy CSP13 – Addressing Infrastructural Deficits	Accelerate the availability of lands ready for residential development by aiming to address current infrastructural deficits where these are known to be delaying residential development.
Policy CSP14 – Consolidation and Re-Intensification of Infill/Brownfield Sites	Support the consolidation and re-intensification of infill/brownfield sites to provide high density and people intensive uses within the existing built-up area of Dublin City and suburbs and ensure that the development of future development areas is co-ordinated with the delivery of key water infrastructure and public transport projects.
Policy CSP15 – Compact Growth and Regeneration	Support the implementation of and promote development consistent with the National Strategic Outcome of Compact Growth as outlined in the NPF and the Regional Strategic Outcome of Compact Growth and Regeneration as set out in the RSES.
Policy CSP16 – Housing Strategy	Ensure that the Housing Strategy insofar as is feasible, addresses the diverse needs of all of Fingal's citizens meeting, where possible, their diverse accommodation needs.
Policy CSP17 – Socially and Economically Balanced Sustainable Communities	Foster the development of socially and economically balanced sustainable communities
Policy CSP18 – Promotion of Residential Development	Promote residential development addressing the current shortfall in housing provision and meeting target guidance figures, through a co-ordinated planned approach to developing appropriately zoned lands at key locations, including regeneration areas, and vacant and underutilised sites.
Objective CSO17 – Mixture of House Types	Promote high quality residential development which meets the needs of all stages of the life cycle through an appropriate mix of house type and local amenities.
Objective CSO18 – Infill Spaces on FCC Owned Lands (Residential)	Where feasible, that infill spaces on residential zoned lands in the ownership of Fingal County Council, are used to build social houses to increase our housing stock.

Objective CSO19 – Tree Lined Approaches	Retain existing tree-lined approaches to all towns and villages to preserve their special character.
Objective CSO20 – Network of Pathways/Cycleways	Develop a comprehensive network of signed pedestrian and cycleways linking residential areas to one another, to the village centres, schools, recreational hubs and railway stations.

Dublin City and Suburbs- Baldoyle, Sutton and Howth

Baldoyle, Sutton and Howth are long established, historical settlements with distinct character and sense of place which contribute significantly to the character of Fingal. Integral to their character and exceptional amenity offer is their coastal environment including coastal walks, nature reserves, beaches, Racecourse Park, Howth SAAO, Deer Park Castle and Grounds, Irelands Eye, Howth Marina and strong built heritage including the presence of Architectural Conservation Areas in both Baldoyle and Howth Villages as well as excellent public transport accessibility. It is envisaged that these areas will develop through the provision of a range of facilities to support existing and new populations. For this to be achieved, it is vital that the role of Baldoyle, Howth are strengthened, and development consolidated within the original villages. The natural heritage of Baldoyle Estuary and Ireland's eye are areas of international importance, designated through a Special Area of Conservation (SAC) and a Special Protection Area (SPA) and future development must respect the natural heritage sensitivities. Having regard to their proximity to Dublin City, they also comprise consolidation areas within the Metropolitan Area, benefiting from proximity to the DART network and continuing investment in active travel opportunities.

Demand for retail/services is in general, accommodated within Level 4 Small Town and Village Centres/ Local centres within the Retail Hierarchy. Baldoyle has two key employment centres, at Baldoyle Industrial Estate and Kilbarrack Industrial Estate, both providing significant employment for the wider area while Howth continues to demonstrate a wider range of economic functions due to its performance as a high-quality tourist destination and due to its important marine activities. The extension of the Middle Pier to improve access, maintenance, and berthing facilities will further strengthen and enhance Howth's maritime industry.
Sutton Cross is the gateway to the Howth Peninsula and an established suburb with a clear identity, community, and a range of urban services such as schools, retail and community facilities. It supports local services for the immediate populations of Howth, Sutton, Baldoyle and Bayside.

Howth is afforded a high degree of protection because of SAAO and European Site designations while Sutton is also located in proximity to these designations. Significant investment has been carried out in relation to the Howth Head looped trails including improved surfacing, seating and way finding. Racecourse Park Baldoyle will be transformed to include walking and cycling routes, lighting, car parking, playgrounds as well as sporting and recreational facilities. The Baldoyle Portmarnock Greenway, part of the longer-term Sutton to Malahide Greenway, ultimately linking to the permitted Broadmeadow Greenway and the Sutton to Sandycove cycleway is and will continue to bring significant active travel and recreational opportunities to these areas.

Policies and Objectives: Dublin City and Suburbs

Policy CSP19 – Compact, Sequential and Sustainable Urban Growth	Promote compact, sequential and sustainable urban growth to realise targets of at least 50% of all new homes to be built, within or contiguous to the existing built-up area of Dublin city and suburbs and a target of at least 30% for other metropolitan settlements, with a focus on healthy placemaking and improved quality of life.

Policy CSP22 – Howth, Sutton and Baldoyle	Consolidate the development and protect the unique identity of Howth, Sutton and Baldoyle. This includes protection against overdevelopment.
Policy CSP23 – Howth SAAO	Protect the Howth Special Amenity Area Orders (SAAO), including the Buffer zone, from residential and industrial development intended to meet urban generated demand.
Objective CSO21 – Promotion of Higher Densities	Promote higher densities (50+ units per hectare) at appropriate locations in urban built-up areas subject to meeting qualitative standards at appropriate locations with particular reference to urban centres and/or in proximity to high-capacity public transport nodes while demonstrating compliance with all relevant Section 28 Ministerial Guidelines.
Objective CSO22 – Sensitive Redevelopment of Key Sites	Encourage the sensitive redevelopment of key sites within the Dublin City and Suburbs area for mixed use which includes an appropriate residential component to enhance the viability and vitality of existing urban villages.
Objective CSO25 – Optimising Existing Local Heritage Resources and Public Amenities	Require that new development in the urban settlements of the Dublin City and Suburbs area optimises existing local heritage resources and public amenities, while protecting the character and biodiversity of the villages.
Objective CSO26 – High Quality, Sustainable and Inclusive Development	Promote development which incorporates a high quality, sustainable and inclusive approach to proposals in the Dublin City and Suburbs Area, which are supported by sustainable means of travel, and which create locally distinctive neighbourhoods and positively contribute to the existing built and natural heritage.
Objective CSO27 – Promote and Enhance existing ACAs	Continue to promote and enhance the existing ACAs within our urban villages and protect their historic characters.
Objective CSO28 – Improved Sense of Identity	Develop enhanced community identities throughout Fingal through the improvement of social, cultural, community and residential amenities. Support the development of an improved sense of identity for the areas within Dublin City and Suburbs, including improvements to signage, landscaping and physical appearance and through the promotion of mixed uses, including residential, in our urban villages.
Objective CSO29 – LAPs, Masterplans and Frameworks Plans for Dublin City and Suburbs	Objective CSO29 – LAPs, Masterplans and Frameworks Plans for Dublin City and Suburbs Implement existing Local Area Plans and Masterplans within Dublin City and Suburbs Prepare and implement Local Area Plans for identified areas p Prepare and implement Masterplans for identified areas. Prepare and implement Framework Plans for identified areas within the Dublin City and Suburbs area.

Chapter 3: Sustainable Placemaking and Quality Homes

Placemaking is underpinned by good urban design, which seeks to create public spaces that are vibrant, distinctive, safe and accessible and which promote and facilitate social interaction. Such measures may include the provision of outdoor spaces for leisure, exercise and cycling within easy reach of new communities. Community gardens and allotments in appropriate locations, may also be considered in conjunction with local communities.

Policy SPQHP1 – Healthy Placemaking	The Council will support the development and creation throughout Fingal of successful and sustainable settlements which endorse the principles of healthy placemaking and which through a multi-faceted approach to planning, design and management continue to ensure the development of attractive high-quality places to live, work, recreate, visit and invest in, served by a range of local services, provision of quality public realms, diverse and accessible community facilities for all genders, non-binary or none and open spaces for the benefit of the community.
Policy SPQHP2 – Balanced Sustainable Communities	Foster the development of socially and economically balanced sustainable communities.
Objective SPQHO1 – Sustainable Communities	Ensure that proposed residential development contributes to the creation of sustainable communities and accords with the Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas, DEHLG 2009 (and any superseding document) and companion Urban Design Manual – A Best Practice Guide, DEHLG 2009 and the Design Manual for Urban Roads and Streets (DMURS) (as revised).
Objective SPQHO2 – Key Principles	Support development which enhances the quality of the built environment, promotes public health, and supports the development of sustainable, resilient communities. In particular development which supports the following key principles will be supported: • Demonstrates compliance with the Guiding Principles for the creation of healthy and attractive places as set out in Healthy Placemaking, Regional Spatial and Economic Strategy (RSES) 2019–2031. • Promotes the development of healthy and attractive places to live, work, socialise and recreate through the delivery of high-quality public realms and open spaces which encourage physical activity and support wellbeing. • Is inclusive of all members of society, all genders, non-binary or none, irrespective of age, or levels of mobility. • Advocates a universal design approach and is socially inclusive. • Prioritise sustainable, active transport modes by e.g. providing safe cycle lanes and by facilitating public transport services in conjunction with State agencies to meet the needs of the community and to provide access to local services. • Encourages the development of car free neighbourhoods and streets, where appropriate. • Contributes to our climate goals.

Successful Public Realms including Town Centre First Policy

Fingal County Council has taken a proactive approach to improving the attractiveness of towns and villages in the aftermath of the pandemic, with schemes to upgrade the public realm with the provision of planting, seating, bike parking, parklets, toilets and pedestrianisation to encourage footfall and the encouragement of outdoor public realm spaces. This strategy is addressed from an economic perspective in Chapter 7 Employment and Economy.

Policy SPQHP3 – Successful Public Realms	Promote, develop, and implement policies and initiatives which shape and deliver quality accessible and sustainable public realms, which can facilitate a variety of uses, throughout Fingal including enhancement of existing and developing centres in accordance with the principles of good urban design.
Policy SPQHP4 – Town Centre First: A Policy Approach for Irish Towns	Promote a strategic approach to town centre regeneration through the Town Centre First: A Policy Approach for Irish Towns by utilising existing buildings and unused lands for new development, promote increased residential occupancy in rural towns and villages, support high quality design of the public realm and provide for a mix of uses within these areas, including arts, educational, cultural, community and residential uses as appropriate.
Policy SPQHP5 – Quality Placemaking	Add quality to the places where we live, work, and recreate by integrating high quality design into every aspect of the Plan, ensuring good quality accessible public realms, promotion of adaptable residential buildings, and by ensuring development contributes to a positive sense of place, local distinctiveness and character.
Policy SPQHP6 – Urban Design	Enhance and develop the fabric of existing and developing centres in accordance with the principles of good urban design.
Policy SPQHP7 – Clean Air and Noise Reduction	Promote a clean air and noise reduction approach to public realm in town and village centres through pedestrianisation of streets and/or restriction of through traffic where possible and appropriate.
Policy SPQHP8 – Women and Children's Safety	The Council will, during the lifetime of this Plan complete a study of Women and Children's Safety in the public realm in order to identify the factors that make women and children feel safe and unsafe in public spaces, and to make recommendations to guide future public realm changes and developments.
Objective SPQHO4 – Public Realm Strategies	Prepare Public Realm Strategies, where appropriate, liaising closely with residents and other relevant stakeholders.
Objective SPQHO5 – Amenity of Town and Village Centres	Enhance the amenity of existing town and village centres, minimising clutter and proliferation of street furniture and provide guidance on public realm design, including wirescape, shopfront design, street furniture, climate resilient and pollinator friendly planting, signage and the adequate provision of bins and recycling options.
Objective SPQHO6 – Universal Design Approach	Promote and facilitate a Universal Design for all developments.
Objective SPQHO7 – Vibrant Town and Village Centres	Support measures required to create vibrant town and village centres with high quality public realms.
Objective SPQHO8 – Our Balbriggan and Sustainable Swords	Support the objectives arising from Our Balbriggan and the Sustainable Swords Strategy.

Social Inclusion

The Development Plan must take into consideration the needs of persons with disabilities, including sensory disability, physical and intellectual disability and those with mental health concerns. Housing options facilitating an appropriate range of accommodation and related support services promoting equality of opportunity, individual choice and independent living for people with a disability will be supported by the Plan. The ability for those with additional needs to engage in recreational, play, and sporting opportunities will also be supported and encouraged.

Policy SPQHP16 – Accessibility for All	Policy SPQHP16 – Accessibility for All Promote the development of built environments and public realms which are accessible to all, ensuring new developments accord with the seven principles of Universal Design as advocated SPQHP17 – Accessibility Audit by the National Disability Authority, Building for Everyone: A Universal Design Approach, and to consider the appointment of a dedicated Access Officer to coordinate disability issues across departments to include liaising with planning and strategic infrastructure departments.
SPQHP17 – Accessibility Audit	To include an accessibility audit as part of urban framework plans as part of improvements to the public realm for wheelchair users and people with impaired mobility, engaging with disability groups and local organisations throughout the duration of this Development Plan.

Housing Types

Policy SPQHP29 – Housing for All	Support the initiatives proposed under Housing for All – A New Housing Plan for Ireland in providing for Fingal's requirements for social affordable and cost-rental housing provision within Fingal, including with a focus on the development of publicly owned sites with support from state agencies where appropriate and the preparation of Local Authority Delivery Action Plans.

Quality of Residential Development

Design Standards

The provision of a mix and range of housing types is essential to accommodate the housing needs and expectations of the County's residents. Mixed and inclusive communities, which offer a choice of housing and lifestyles, have been proven to provide several community benefits. Social housing should be integrated with private housing. Designing new residential areas at appropriate densities with a range of house types and room sizes is a key factor in achieving sustainable and successful communities which have a sense of identity and community pride.

The Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas, DHPLG 2009 require that new homes offer a high level of amenity, privacy, security and energy efficiency. Standards in relation to the quality of residential development including private open space, dwelling unit sizes, privacy and aspect are set out under Chapter 14 Development Management Standards while public open space is addressed in Chapter 4 Community Infrastructure and Open Space.

Policy SPQHP35 – Quality of Residential Development	Promote a high quality of design and layout in new residential developments at appropriate densities across Fingal, ensuring high-quality living environments for all residents in terms of the standard of individual dwelling units and the overall layout and appearance of developments. Residential developments must accord with the standards set out in the Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas, DEHLG 2009 and the accompanying Urban Design Manual – A Best Practice Guide and the Sustainable Urban Housing; Design Standards for New Apartments (DHLGH as updated 2020) and the policies and objectives contained within the Urban Development and Building Heights Guidelines (December 2018). Developments should be consistent with standards outlined in Chapter 14 Development Management Standards.

Objective SPQHO30 – Rainwater Harvesting	Ensure residential new builds include the provision of infrastructure for the harvesting of rainwater where it is feasible and cost-effective.
Objective SPQHO31 – Variety of Housing Types	Encourage the creation of attractive, mixed use and sustainable residential communities which contain a wide variety of housing and apartment types, sizes, tenures and typologies in accordance with the Fingal Housing Strategy, the HNDA with supporting community facilities, amenities and services.
Objective SPQHO33 – New Residential Development and Energy Efficiency	Ensure new residential development incorporates energy efficiency measures and promotes innovative renewable energy opportunities, for example by passive solar design, natural ventilation, and vegetation (green roofs etc) on buildings and makes most effective and sustainable use of water, aggregates and other resources.
Objective SPQHO34 – Integration of Residential Development	Encourage higher residential densities where appropriate ensuring proposals provide for high quality design and ensure a balance between the protection of existing residential amenities and the established character of the surrounding area with a target minimum amount of 15% (except in cases where the developer can demonstrate that this is not possible, in which case the 12% to 15% range will apply) amount of green space, tree coverage and public space associated with every residential area.

Private, Semi-Private and Public Open Space

In meeting the amenity requirements of residents, appropriate levels of private, semi-private and communal open space must be achieved in new residential developments and in assessing proposals regarding the extension of existing residential schemes. It is also important that new development does not negatively impact the private open space amenities enjoyed by adjacent developments.

All residential units, be they traditional housing or multi-unit apartment schemes are required to provide private open space to serve residents. Schemes incorporating apartments and duplexes where limited private open space may be available may be augmented by high quality, accessible semi-private/communal open spaces. This may take many forms including roof gardens and courtyards provided the space is of a sufficiently high standard to cater for the residential amenity of residents.

Consideration may be given by the Council to the inclusion of civic spaces within overall open space quantum calculations, but only in instances where the space proposed is of a size and layout suitable to cater for civic events, is of an exceptionally high standard of finish, including planting of large trees and associated landscaping and does not fulfil ancillary functions associated with commercial or other land uses, e.g. car parking, servicing, etc.

In certain instances, and on a case-by-case basis, quantitative standards in relation to private and communal open space may be relaxed when considering small scale residential schemes within town and village centres. This will only be considered subject to the development proposal meeting all qualitative standards, demonstrating an exceptionally high-quality of the design and finish and its contribution to achieving consolidation of the urban fabric and enhancement of the streetscape.

Policy SPQHP36 – Private and Semi-Private Open Space	Ensure that all residential development within Fingal is provided with and has access to high quality private open space and semi-private open space (relative to the composition of the residential scheme) which is of a high-quality design and finish and integrated into the design of the residential development.
Policy SPQHP37 – Open Space Hierarchy	Ensure that all residential development in Fingal is served by a clear hierarchy and network of high quality public open spaces providing

	for active and passive recreation purposes which is easily accessible and integrated with local communities.
Objective SPQHO35 – Private Open Space	Require that all private open spaces for houses and apartments/duplexes including balconies, patios, roof gardens and rear gardens are designed in accordance with the qualitative and quantitative standards set out set out in Chapter 14 Development Management Standards.
Objective SPQHO36 – Public open Space	Public open space provision in new residential developments must comply with the quantitative and qualitative standards set out in Chapter 14 Development Management Standards.

Compact Growth, Consolidation and Regeneration

The Council, in line with national and regional planning policies and objectives seeks to promote the regeneration of Fingal's towns and villages by making better use of under-used land and buildings within the existing built-up urban footprint and to drive the delivery of quality housing and increased housing options. This may be achieved in several ways and by projects of varying scale including small residential extensions, subdivision of large gardens to accommodate infill development and where appropriate, backland development opportunities.

Larger consolidation projects may include the reuse/re-purposing of extensive brownfield sites for residential purposes/mixed-use purposes or repurposing vacant commercial premises for alternative uses. The benefits accruing do not relate solely to the individual site or building but can result in multiple benefits to the wider area including enhancement to the public realm, creation of new public open spaces and with good quality architectural design, significant visual improvements for the streetscape.

Policy SPQHP38 – Compact Growth, Consolidation and Regeneration	Promote compact growth in line with the NPF and RSES through the inclusion of specific policies and targeted and measurable implementation measures that: • Encourage infill/brownfield development • Focus growth on the County's designated strategic development areas identified in the Metropolitan Area Strategic Plan • Promote increased densities along public transport corridors
Objective SPQHO37 – Residential Consolidation and Sustainable Intensification	Promote residential consolidation and sustainable intensification at appropriate locations, through the consolidation and rejuvenation of infill/brown-field development opportunities in line with the principles of compact growth and consolidation to meet the future housing needs of Fingal
Objective SPQHO38 – Residential Development at Sustainable Densities	Promote residential development at sustainable densities throughout Fingal in accordance with the Core Strategy, particularly on vacant and/or under-utilised sites having regard to the need to ensure high standards of urban design, architectural quality and integration with the character of the surrounding area.
Objective SPQHO40 – Development of Corner or Wide Garden Sites	Favourably consider proposals providing for the development of corner or wide garden sites within the curtilage of existing dwellings in established residential areas subject to the achievement of prescribed standards and safeguards set out in Chapter 14 Development Management Standards.
Objective SPQHO42 – Development of Underutilised Infill, Corner and Backland Sites	Encourage and promote the development of underutilised infill, corner and backland sites in existing residential areas subject to the character of the area and environment being protected.

Objective SPQHO43 – Contemporary and Innovative Design Solutions	Promote the use of contemporary and innovative design solutions subject to design respecting the character and architectural heritage of the area.
Objective SPQHO44 – Retention, Retrofitting and Retention of Existing Dwellings	The Council will encourage the retention and retrofitting of structurally sound, habitable dwellings in good condition as opposed to demolition and replacement and will also encourage the retention of existing houses, such as cottages, that, while not Protected Structures or located within an ACA, do have their own merit and/or contribute beneficially to the area in terms of visual amenity, character or accommodation type.

Chapter 4: Community Infrastructure and open space

Allotments, Community Gardens and Community Initiatives

Policy CIOSP13 – Open Space/Parks	Continue the development of a hierarchy of multifunctional active and passive recreational open spaces and facilities to serve all age cohorts.
Policy CIOSP14 – Sports, Recreation and Play Amenities	Support sports, recreational and play amenities in the County for all ages and abilities; encourage sporting and recreational organisations to achieve their aims and goals and support platforms for new and alternative sports to develop
Objective CIOSO3 - Community Infrastructure Guidelines	Comply with the aims, objectives and principles in relation to community infrastructure as outlined in the Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas and the accompanying Urban Design Manual – A Best Practice Guide and any amendment thereof.
Objective CIOSO5 – Residential Developments and Community Facilities	Ensure proposals for large scale residential developments include a community facility, unless it can be established that the needs of the new residents can be adequately served within existing or committed community facilities in the area.
Objective CIOSO36 – Variety of Open Space	Provide a wide variety of resiliently designed, sustainably managed and accessible public open spaces, including allotments, community gardens, parklands and sporting facilities, on a hierarchical basis throughout the County in order to achieve a choice of open space facilities. Best practice Green Infrastructure Guidelines should be used to determine the location and type of open spaces to be provided
Objective CIOSO38 – Public Open Space Provision	Require a minimum public open space provision of 2.5 hectares per 1000 population. For the purposes of this calculation, public open space requirements are to be based on residential units with an agreed occupancy rate of 3.5 persons in the case of dwellings with three or more bedrooms and 1.5 persons in the case of dwellings with two or fewer bedrooms.
Objective CIOSO41 – Accessible and Safe Open Space	Ensure public open space is accessible and safety is prioritised by incorporating passive surveillance.
Objective CIOSO44 – Playgrounds	Facilitate the provision of appropriately scaled children's playground facilities within new and existing residential development in line with the Council's Play Policy.

Objective CIOSO49 – Smaller Developments and Open Space	Require an equivalent financial contribution in lieu of open space provision in smaller developments where the open space generated by the development would be so small as not to be viable.
Objective CIOSO51 – Permeability	Ensure permeability and connections between public open spaces including connections between new and existing spaces, in consultation with residents
Objective CIOSO52 – Trees	Protect, preserve and ensure the effective management of trees and groups of trees.
Objective CIOSO53 – Open Space and Privacy	Ensure all areas of private open space have an adequate level of privacy for residents through the minimisation of overlooking and the provision of screening arrangements.

Chapter 6: Connectivity and Movement Greenway Network

With significant coastline, canals, extensive parklands and rural hinterland and a generally attractive and walkable environment, Fingal has the potential to develop an extensive network of strategic Greenway routes for walking and cycling which will become an attractive component of Fingal's integrated transport network. Greenways can serve recreational, commuter and functional users. As such, they offer the potential for a wide range of economic, social, health and environmental benefits.

Policy CMP7 – Pedestrian and Cycling Network	Secure the development of a high-quality, connected and inclusive pedestrian and cycling network and provision of supporting facilities / infrastructure across the County, including the upgrade of the existing network and support the integration of walking, cycling and physical activity with placemaking including public realm improvements, in collaboration with the NTA, other relevant stakeholders, local communities and adjoining Local Authorities in the context of the impact of development schemes with cross boundary impacts and opportunities where appropriate. Routes within the network shall have regard to NTA and TII national standards and policies.
Policy CMP8 – Greenway Network	Secure the development of an expanded Greenway network in collaboration with relevant stakeholders including the NTA, adjoining landowners, local communities and adjoining Local Authorities where appropriate and encourage and facilitate opportunities for enhanced linkage and connectivity to adjoining towns and villages and their services, amenities, attractions and public transport nodes and to cross-County, Regional and National Greenway projects.
Policy CMP9 – Prioritisation of Pedestrians and Cyclists	Support the prioritisation of pedestrians and cyclists and the provision of improved public realm to make walking and cycling safer, healthier, quicker, more direct and more attractive.

Policy CMP10 - Bicycle Infrastructure	Improve bicycle priority measures and cycle parking infrastructure throughout the County in accordance with best accessibility practice.
Objective CMO6 – Improvements to the Pedestrian and Cyclist Environment	Maintain and improve the pedestrian and cyclist environment and promote the development of a network of pedestrian/cycle routes which link residential areas with schools, employment, recreational destinations and public transport stops to create a pedestrian/cyclist environment that is safe, accessible to all in accordance with best accessibility practice.
Objective CMO12 – Walking and Cycling and Green Infrastructure Network	Ensure that new walking and cycling routes are designed, insofar as possible, to function as links in the County's green infrastructure network and that adequate replacement and additional planting of native species and pollinators is provided and that SuDS approaches are used to treat surface water run-off.

Public Realm and Healthy Streets

Policy CMP12 – Public Realm	Support and facilitate the provision of high-quality and attractive public realm that is accessible for all with a focus on improving connectivity and permeability in accordance with best practice public realm and guidance documents.
Objective CMO16 – Public Realm and Development	Encourage and facilitate the delivery of high-quality public realm in tandem with new developments throughout the County through the Development Management process and the retrospective provision in existing developments, including the provision of a pedestrianised core in town centres where appropriate.

Accessibility and Universal Design

Universal design is the design of the environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age or ability. The need for equality of access to all aspects of the built environment for all individuals is recognised by Fingal County Council as essential for equal opportunities and the development of an inclusive society is a recurring theme in this Plan.

Policy CMP13 – Accessible Pedestrian and Cyclist Environment	Promote and facilitate a network of pedestrian and cycle routes and public realm that is universally accessible for all ages and abilities in accordance with best accessibility practice.
Objective CMO19 – Optimising Accessibility for All	Support and facilitate improvements to the pedestrian and cycle network and public realm that prioritise the removal of barriers to active movement, to improve connectivity and permeability and optimise accessibility for all users.
Objective CMO21 – Wayfinding	Support the delivery of way-finding systems with an emphasis around highly trafficked urban areas and routes between public transport interchanges and visitor attractions.

Permeability

Policy CMP14-Permeable Neighbourhoods	Implement the provisions of the Design Manual for Urban Roads and Streets 2019 (DMURS) and the DMURS Interim Advice Note â€" Covid 19 Pandemic Response 2020 in relation to the delivery of safe streets and overall best practice design and promote the principle of filtered permeability in new developments to ensure that all pedestrian entrances are opened as soon as any new development is occupied where feasible and seek opportunities to improve permeability in existing developed areas in accordance with NTA's Permeability Best Practice Guide.

Chapter 9: Green Infrastructure and Natural Heritage

Key policy objectives centre on integrated planning for green infrastructure and Ecosystem Services (NPO 58; NPO 62; RSO 10; RPO 7.12) and enhanced green infrastructure is a key strategic outcome. The NPF also states that: Green Infrastructure planning will inform the preparation of regional and metropolitan strategies and City and County Development Plans by: Assisting in accommodating growth and expansion, while retaining the intrinsic value of natural places and natural assets; Providing increased certainty in planning by proactively addressing relevant environmental issues; Encouraging more collaborative approaches to plan-making by enabling examination of the interactions between future development requirements and the capacity of receiving areas and ensuring that sufficient and well-planned green spaces, commensurate in scale to long-term development requirements, are designated in statutory plans.

Policies and Objectives

Policy GINHP1 – Resilient Design	Promote an awareness of the benefits of resilient design and the multi-functional nature of green infrastructure. Apply multi-functional principles of green infrastructure to inform the Development Management process in terms of design and layout of new residential areas, business/industrial development and other significant projects while maximising the multi-functional nature of green infrastructure by ensuring the development of synergies between Public Open Space, Biodiversity, SuDS/Water Sensitive Design, Climate Change and Active Travel objectives.
Policy GINHP2 – Protection of Green Infrastructure	Ensure that areas and networks of green infrastructure are identified, protected, enhanced, managed and created to provide a wide range of environmental, social and economic benefits to communities.
Policy GINHP3 – Greening of Developments	Encourage measures for the 'greening' of new developments including the use of green roofs, brown roofs, green walls and water harvesting. Where feasible require new developments to incorporate greening elements such as green roofs, brown roofs, green walls, green car parking and SuDs (e.g. clean water ponds fed by rainwater via downpipes).

Objective GINHO1 – Urban Greening Plans	Develop and implement Urban Greening Plans for Balbriggan, Swords and the wider Dublin 15 area within the lifetime of the Development Plan.

Green Infrastructure Themes

Policy GINHP4 – Green Infrastructure Themes	Ensure the green infrastructure strategy for Fingal protects and enhances existing green infrastructure resources and plans for future green infrastructure provision which addresses the five main themes identified in this Plan, namely: Biodiversity, Parks, Open Space and Recreation, Sustainable Water Management, Archaeological and Heritage landscapes, Landscape.

Biodiversity

Policy GINHP5 – Green Infrastructure Network	Develop the green infrastructure network to ensure the conservation and enhancement of biodiversity, including the protection of European Sites, the provision of accessible parks, open spaces and recreational facilities (including allotments and community gardens), the sustainable management of water, the maintenance of landscape character including historic landscape character and the protection and enhancement of archaeological and heritage landscapes.
Objective GINHO2 – Fragmentation	Reduce fragmentation and enhance the resilience of Fingal's green infrastructure network by strengthening ecological links between urban areas, Natura 2000 sites, proposed Natural Heritage Areas, parks and open spaces and the wider regional network by connecting all new developments into the wider green infrastructure network.
Objective GINHO3 – Biodiversity in Open Space	Make provision for biodiversity within public open space and include water sensitive design and management measures (including SuDS) as part of a sustainable approach to open space design and management.
Objective GINHO4 – Green Infrastructure and Development	Resist development that would fragment or prejudice the County's strategic green infrastructure network.

Parks, Open Space and Recreation

This theme is defined as lands zoned open space and/or in use as public open space. The Council has established 2,000 hectares of public open space that are increasingly managed in a sustainable manner to ensure that future generations can enjoy the benefits of these amenities for recreation, health and wellbeing.

Policy GINHP6 – multi-functionality	Ensure delivery of multifunctional green and civic spaces that meet community needs, promote active and passive recreation, flood and surface water management and local habitat improvements. The multi-functionality of spaces will be balanced against the need to protect and enhance local habitat and the recreational and functional requirements of parks.
Objective GINHO7 – Provision of Open Space	Provide a range of accessible new parks, open spaces and recreational facilities accommodating a wide variety of uses (both passive and active), use intensities and interests.

Objective GINHO8 – Routes	Provide attractive and safe routes linking parks and open spaces and other related features such as cultural sites and heritage assets as an integral part of green infrastructure provision, where appropriate and feasible.
Objective GINHO9 – Greenways and Net Gain	Ensure that all greenway developments have a biodiversity net gain. Nature conservation and opportunities for biodiversity enhancement will be a key part of these infrastructure projects and nature conservation will be considered throughout the lifetime of the project and into the future, following project completion.

Sustainable Water Management

Policy GINHP7 – Protection	Protect and enhance the natural, historical, amenity and biodiversity value of the County's watercourses, flood plains, riparian corridors, wetlands and coastal area though long-term and liaison with relevant Prescribed Bodies where appropriate.
Objective GINHO14 – Green Roofs	Objective GINHO14 – Green Roofs Seek the provision of green roofs and green walls as an integrated part of Sustainable Drainage Systems (SuDS) and which provide benefits for biodiversity, wherever possible.
Objective GINHO15 – SuDS	Limit surface water run-off from new developments through the use of appropriate Sustainable Urban Drainage Systems (SuDS) using nature-based solutions and ensure that SuDS is integrated into all new development in the County.

Landscape

Policy GINHP9 – Landscape Character	Ensure green infrastructure provision responds to and reflects landscape character including historic landscape character, conserving, enhancing and augmenting the existing landscapes and townscapes of Fingal which contribute to a distinctive sense of place.

Green Infrastructure and Planning

A key objective of green infrastructure planning is that green infrastructure management and provision is integrated with plans for growth and development. All proposals for development must take account of the County's strategic green infrastructure resources and ensure that these are protected, managed and enhanced as new development takes place.

Policy GINHP10 – Green Infrastructure and Development	Seek a net gain in green infrastructure through the protection and enhancement of existing assets, through the provision of new green infrastructure as an integral part of the planning process, and by taking forward priority projects including those indicated on the Development Plan Green Infrastructure maps during the lifetime of the Development Plan.

Objective GINHO19 – Green Networks	Create an integrated and coherent green infrastructure for the County by requiring the retention of substantial networks of green space in urban, urban fringe and adjacent countryside areas to serve the needs o
Objective GINHO20 – Green Infrastructure and Recreation	Where new residential development is proposed, seek, where appropriate to maximise the use and potential of existing parks, open spaces and recreational provision, by upgrading and improving the play and recreational capacity of these existing facilities through development contributions in lieu of new open space or play provision.
Objective GINHO21 – Integration of Green Infrastructure	Avoid the fragmentation of green spaces in site design and to link green spaces /greening elements to existing adjacent green infrastructure / the public realm where feasible and to provide for ecological functions.
Objective GINHO22 – Network Fragmentation	Resist development that would fragment or prejudice the County's strategic green infrastructure network.

Natural Heritage

Biodiversity includes everything from trees to weeds, from mammals to birds, from coast to countryside. Fingal hosts a wealth of wildlife including many threatened habitats and plant and animal species which are protected by law.

Policy GINHP11 – Biodiversity Action Plan	Support the adoption and implementation of the Fingal Biodiversity Action Plan, implementation of the National Biodiversity Action Plan 2017– 2021 and the All-Ireland Pollinator Plan 2021–2025 and any superseding plans.
Policy GINHP12 – Protected Sites	Protect areas designated or proposed to be designated as Natura 2000 sites (i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, and Refuges for Fauna.
Policy GINHP13 – Fingal Ecological Network	Support the development of the Fingal Ecological Network in line with the Fingal Biodiversity Action Plan.
Policy GINHP14 – Biodiversity Net Gain Guidance	Promote biodiversity net gain in new developments and develop a planning guidance document on Biodiversity Net Gain.
Policy GINHP15 – Biodiversity in Buildings Guidance	Promote the inclusion of swift, swallow, house martin, house sparrow, starling, bat and insect boxes and structures in and on building facades and develop a guidance document on how to incorporate these structures into buildings.
Policy GINHP16 – Rewilding and Pollinator Initiatives	Promote and support rewilding and pollinator initiatives in Fingal.

Objective GINHO27 – National Parks and Wildlife Service	Support the National Parks and Wildlife Service, in the maintenance and achievement of favourable conservation status for the habitats and species in Fingal by taking full account of the requirements of the Habitats and Birds Directives, in the performance of its functions.

Objective GINHO28 – Protection of Natural Heritage Areas	Ensure that development does not have a significant adverse impact on proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Habitat Directive Annex I sites and Annex II species contained therein, and on rare and threatened species including those protected by law and their habitats.
Objective GINHO29 – Biodiversity and Open Space	Ensure that the management of the Council's open spaces and parks is pollinator-friendly, provides more opportunities for biodiversity, and is carried out without the use of pesticides where possible.
Objective GINHO30 – Infrastructure and Net Biodiversity Gain	All greenway and infrastructure projects are to have a net biodiversity gain and this principle shall be incorporated from the start of the project.
Objective GINHO31 – Invasive Species	Continue the control programs of invasive species with all relevant stakeholders and landowners to control the key invasive species.
Objective GINHO32 – Development and Invasive Species	Ensure that proposals for development do not lead to the spread or introduction of invasive species. If developments are proposed on sites where invasive species are or were previously present, the applications will be required to submit a control and management program for the particular invasive species as part of the planning process and to comply with the provisions of European Communities (Birds and Natural Habitats) Regulations 2011 and EU Regulations 1143/2014.

Protection of Trees and Hedgerows

There is extensive evidence for the wide range of services and value of trees and hedgerows including establishing a sense of place and providing healthy environments. Trees also contribute to visual amenity in built-up areas and by adding significant visual interest in more rural areas. Hedgerows often mark historic field patterns and townland boundaries and significantly enhance the landscape character of rural areas. Trees and hedgerows also perform a vital role as wildlife habitats, biodiversity corridors and essential green elements in the County's green infrastructure network. They have a further crucial role in improving urban air quality and carbon sequestration (capturing and storing carbon), contributing to the mitigation of climate change.

Policy GINHP21 – Protection of Trees and Hedgerows	Protect existing woodlands, trees and hedgerows which are of amenity or biodiversity value and/ or contribute to landscape character and ensure that proper provision is made for their protection and management in line with the adopted Forest of Fingal-A Tree Strategy for Fingal.
Policy GINHP22 – Tree Planting	Provide for appropriate protection of trees and hedgerows, recognising their value to our natural heritage, biodiversity and climate action and encourage tree planting in appropriate locations.
Objective GINHO45 – Hedgerow Categorisation	Develop a 'Hedgerow Categorisation and Management Appraisal Tool' and associated appropriate planning and management requirements for Development Management purposes to ensure a sustainable future for retained hedgerows in the context of new developments.
Objective GINHO46 – Tree Removal	Ensure adequate justification for tree removal in new developments and open space management and require documentation and recording of the reasons where tree felling is proposed and avoid removal of trees without justification.

Objective GINHO47 – Woodland Development Schemes	Promote and support woodland development schemes by identifying suitable areas to establish and enhance woodlands for biodiversity, climate change and recreational purposes in partnership with local communities in line with the adopted Forest of Fingal-A Tree Strategy for Fingal.
Objective GINHO48 – Wildlife Act and Roads Act	The Council shall comply with the requirements set out in the Wildlife Act and Roads Act in the context of its maintenance programmes and housing, recreational and infrastructure developments.

Landscape

Policy GINHP24 – National Landscape Strategy	Support the aims and objectives of the European Landscape Convention by implementing the relevant objectives and actions of the National Landscape Strategy 2015–2025.

High Amenity Zoning

A High Amenity zoning (HA) has been applied to areas of the County of high landscape value. These are areas which consist of landscapes of special character in which inappropriate development would contribute to a significant diminution of landscape value in the County.

Policy GINHP28 – Protection of High Amenity Areas	Protect High Amenity areas from inappropriate development and reinforce their character, distinctiveness and sense of place.
Objective GINHO67 – Development and High Amenity Areas	Ensure that development reflects and reinforces the distinctiveness and sense of place of High Amenity areas, including the retention of important features or characteristics, taking into account the various elements which contribute to its distinctiveness such as geology and landform, habitats, scenic quality, settlement pattern, historic heritage, local vernacular heritage, land-use and tranquillity.

Landscape Character Assessment

In terms of Landscape Character, the proposed development site lies within an area categorised as 'Coastal' Landscape Character Type. (Fingal Development Plan 2023-2029, Green Infrastructure 1, Sheet No.14).

Table 5.7 Landscape Character Assessment Summary, Fingal Development Plan 2023-2029 , Chapter 9 – Natural Heritage (Landscape Character Assessment) ***(Table 9.3)***

Table 9.3: Landscape Character Assessment Summary-Character, Value and Sensitivity

Landscape Character Types	Landscape Value	Landscape Sensitivity
Rolling Hills Type	Modest	Medium
High Lying Type	High	High
Low Lying Type	Modest	Low
Estuary Type	Exceptional	High
Coastal Type	Exceptional	High
River Valley and Canal Type	High	High

Table 5.8 Landscape Character Assessment – Capacity Definition – South Downs National Park Petersfield Area Capacity Assessment 2013

Term	Definition
Negligible/None	Key Characteristics of the landscape are highly vulnerable to development. Development would result in a significant change in landscape character and should be avoided if possible.
Low	Key characteristics of the landscape are vulnerable to change. There may be limited opportunity to accommodate development without changing landscape character. Great care would be needed in locating development.
Medium	Some of the key characteristics of the landscape are vulnerable to change. Although the landscape may have some ability to absorb some development, it is likely to cause some change in character. Care would be needed in locating development.
Medium/High	Few of the key characteristics of the landscape are vulnerable to change. The landscape is likely to be able to accommodate development with only minor change in character. Care is still needed to avoid adversely affecting key characteristics where they occur.
High	Key characteristics of the landscape are robust and would not be adversely affected by development. The landscape is likely to be able to accommodate development without a significant change in landscape character

[144] **This particular capacity assessment and criteria are adapted from the South Downs National Park Petersfield Area capacity assessment, 2013.**

Chapter 10: Heritage, Culture and Arts

Archaeological Heritage

Fingal has a wealth of archaeological sites and monuments, over 1311 of which have been recorded to date. All of these sites contain precious information about our past and those people who lived in Fingal before us. Added to this are our burials, shipwrecks, structures, features objects and artefacts, whether located on land, underwater or in the inter-tidal zone. Fingal's archaeological heritage is an important resource for identity, communities, education and tourism and has a powerful contribution to make to the quality of life of today's citizens in terms of social inclusion, environmental protection and sustainable development.

National Monuments

Under Section 14 of the National Monuments (Amendment) Act 2004, a National Monument is a monument in the ownership or guardianship of the Minister of the Department of Housing, Local Government and Heritage, in the ownership of a Local Authority, or are the subject of a Preservation Order or a Temporary Preservation Order.

Policy HCAP2 – Importance of Archaeological Resource	Recognise the importance of our archaeological resource and provide appropriate objectives to ensure its appropriate retention, promotion and recording.
Policy HCAP3 – Record of Monuments and Places/ Sites and Monuments Record	Safeguard archaeological sites, monuments, objects and their settings listed in the Record of Monuments and Places (RMP), Sites and Monuments Record (SMR), underwater cultural heritage including protected wrecks and any additional newly discovered archaeological remains.
Policy HCAP4 – Preservation-in-situ	Favour the preservation in-situ (or at a minimum preservation by record) of all sites and features of historical and archaeological interest.
Objective HCAO1 – Preservation-in-situ	Favour the preservation in situ or at a minimum preservation by record, of archaeological sites, monuments, features or objects in their settings. In securing such preservation the Council will have regard to the advice and recommendations of the National Monuments Service of the Department of the Housing, Local Government and Heritage.
Objective HCAO3 – Management of Archaeological Resource	Encourage and promote the appropriate management and maintenance of the County's archaeological heritage, including historical burial grounds and underwater cultural heritage in accordance with conservation principles and best practice guidelines.
Objective HCAO6 – Climate Change and the Archaeological Resource	Co-operate with other agencies in the investigation of climate change on archaeological sites and monuments and to develop suitable adaptation measures to strengthen resilience and reduce the vulnerability of archaeological heritage in line with the National Climate Change Sectoral Adaptation Plan for Built and Archaeological Heritage 2019.
Policy HCAP5 – Development Design	Incorporate heritage features into infrastructure design at an early stage in the development planning and management process to protect and promote the cultural heritage resource and create awareness and interpretation.

Objective HCAO7 – Archaeology and Development Design	Ensure archaeological remains are identified and fully considered at the very earliest stages of the development process, that schemes are designed to avoid impacting on the archaeological heritage.
Objective HCAO8 – Archaeological Impact Assessment	Require that proposals for linear development over one kilometre in length; proposals for development involving ground clearance of more than half a hectare; or developments in proximity to areas with a density of known archaeological monuments and history of discovery; to include an Archaeological Impact Assessment and refer such applications to the relevant Prescribed Bodies.
Objective HCAO9 – Archaeology in the Landscape	Ensure that in general development will not be permitted which would result in the removal of archaeological monuments with above ground features, protected wrecks and that this will be especially the case in relation to archaeological monuments which form significant features in the landscape.
Objective HCAO11 – Impacts of large-scale development	Ensure that proposals for large scale developments and infrastructure projects consider the impacts on the archaeological heritage and seek to avoid them.
Objective HCAO14 – Archaeology in Open Space	Retain and manage appropriately archaeological monuments within open space areas in or beside developments, ensuring that such monuments are subject to an appropriate conservation management plan, are presented appropriately and are not left vulnerable, whether in the immediate or longer term, to dangers to their physical integrity or possibility of loss of amenity.
Objective HCAO15 – Best Practice	Promote best practice for archaeological excavation by ensuring that they are undertaken according to best practice as outlined by the National Monuments Service, Department of Housing, Local Government and Heritage, The National Museum of Ireland and the Institute of Archaeologists of Ireland.
Objective HCAO16 – Conservation Plans	Manage the archaeological sites and monuments that Fingal County Council owns or is responsible for according to best practice and according to Conservation Plans where they exist.
Objective HCAO18 – Public Awareness	Raise public awareness of the cultural heritage and improve legibility by providing appropriate interpretation in areas, sites, villages, and buildings of archaeological and historic significance.
Objective HCAO19 – Community Archaeology Strategy	Continue to implement the findings of the Community Archaeology Strategy for Fingal.
Objective HCAO21 – Climate Change	Promote awareness and the appropriate adaptation of Ireland's built and archaeological heritage to deal with the effects of climate change.

Architectural Heritage

Fingal has a diverse building stock. Within the range of building types and uses in Fingal are structures, streetscapes, village and town cores of distinctive, innovative or rare architectural heritage significance that they are deemed worthy of protection by statutory designation as individual elements or clusters of buildings. There are also more modest or everyday structures that are part of the built heritage of the County. Through their form, scale, materials and placement they contribute positively to the urban and rural areas of Fingal, assisting in placemaking and establishing the distinctive character and architectural interest of a particular location. These structures are also of value in the embodied energy they contain, their display of traditional building craftmanship and skill in their construction, the survival within them of original or historic materials and methodologies some of which may no longer be in use.

Policy HCAP8 – Protection of Architectural Heritage	Ensure the conservation, management, protection and enhancement of the architectural heritage of Fingal through the designation of Protected Structures and Architectural Conservation Areas, the safeguarding of designed landscapes and historic gardens, and the recognition of structures and elements with no specific statutory designation that contribute positively to the vernacular, industrial, maritime or 20th century heritage of the County
Policy HCAP9 – Re-use of Architectural Heritage	Champion the maintenance, repair, re-use and sensitive retrofitting of the architectural heritage and older building stock of the County as a cornerstone of its sustainable development policy and will require that adaptative re-use and regeneration adheres to best conservation practice.
Policy HCAP10 – Retention	Continue to support and encourage the sympathetic and appropriate reuse, rehabilitation and retention of protected structures and historic buildings ensuring the special interest, character and setting of the building or structure is preserved

Architectural Conservation Area (ACA)

An Architectural Conservation Area (ACA) is a place, area, group of structures or townscape that is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or value or contributes to the appreciation of Protected Structures. ACAs could encompass, for example, a terrace of houses, a whole streetscape, town centre or a small cluster of structures associated with a specific building such as a mill or country house. Most structures in an ACA are important in the context of their contribution to the streetscape or character of an area and so the protection status generally relates only to the exterior of the buildings or the streetscape, except for Protected Structures within ACAs where the protection extends to the interior and curtilage of these properties. Any works that would have a material effect on the special character of an ACA require planning permission.

Policy HCAP11 – Conservation of Architectural Heritage	Conserve and protect buildings, structures and sites of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest by adding or retaining them on the Record of Protected Structures or by

	designating groups of structures as Architectural Conservation Areas.
Policy HCAP12 – Interventions to Protected Structures	Ensure that direct or indirect interventions to Protected Structures or adjoining development affecting them are guided by architectural conservation principles so that they are sympathetic, sensitive and appropriate to the special interest, appearance, character, and setting of the Protected Structure and are sensitively scaled and designed.
Policy HCAP13 – Retention of Protected Structures	Require the retention and appropriate active use of Protected Structures.
Policy HCAP14 – Architectural Conservation Areas	Protect the special interest and character of all areas which have been designated as an Architectural Conservation Area (ACA). Development within or affecting an ACA must contribute positively to its character and distinctiveness and take opportunities to protect and enhance the character and appearance of the area and it's setting wherever possible. Development shall not harm buildings, spaces, original street patterns, archaeological sites, historic boundaries or features, which contribute positively to the ACA.
Policy HCAP15 – Character of Architectural Conservation Areas	Support and encourage the sympathetic and appropriate adaptive reuse, refurbishment, and upgrading of protected structures and buildings or structures that contribute to the character of an Architectural Conservation Area ensuring that their special interest, character and setting is retained. Prohibit development that seeks the demolition of a Protected Structure or buildings that contribute to the character of an ACA in almost all circumstances.
Policy HCAP16 – Conservation Best Practice	Promote best conservation practice and encourage the use of appropriately qualified and experienced conservation professionals, contractors, and craft persons.
Objective HCAO22 – Record of Protected Structures	Review the Record of Protected Structures (RPS) to assess current entries and to add structures of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest as appropriate.
Objective HCAO23 – Expansion of Record of Protected Structures	Expand the RPS to include structures of industrial, maritime, vernacular and twentieth century heritage where they are of sufficient significance and complete the assessment of the few remaining Ministerial Recommendations from the National Inventory of Architectural Heritage (NIAH) Survey of Fingal.
Objective HCAO24 – Alteration and Development of Protected Structures and ACAs	Require proposals for any development, modification, alteration, extension or energy retrofitting affecting a Protected Structure and/or its setting or a building that contributes to the character of an ACA are sensitively sited and designed, are compatible with the special character, and are appropriate in terms of the proposed scale, mass, height, density, architectural treatment, layout, materials, impact on architectural or historic features.

Objective HCAO25 – Architectural Heritage Impact Statement	Require an Architectural Heritage Impact Statement as part of the planning documentation for development that has the potential to affect the relationship between the Protected Structure and any complex of adjoining associated buildings, designed landscape features, or designed views or vistas from or to the structure. This particularly relates to large landholdings such as country estates, institutional complexes, and industrial sites where groups of structures have a functional connection or historical relationship with the principal building.
Objective HCAO27 – Protected Structures within Larger Developments	Where permission is being sought for a development in which works to the Protected Structure are one element of a larger proposal, the Council will seek for the repair and refurbishment of the Protected Structure to be contained and completed within the first phase.
Objective HCAO28 – Conservation Plans for Protected Structures	Demonstrate best practice in relation to the management, care and maintenance of Protected Structures by continuing the programme of commissioning Conservation Plans for the principal heritage properties in the Council's ownership (several of which are also ACAs), implement the policies and actions of these Conservation Plans where they exist, and ensure the Plans are used by all sections of the Council to inform and direct the design of interventions within the heritage properties, both to buildings and landscapes.
Objective HCAO29 – Protected Structures Audit	Carry out an audit and assess the condition of all Protected Structures within the Council's ownership and pilot a management/maintenance plan as a template for these structures.

Historic Designed Landscapes – Historic Gardens, Demesnes and Country Estates

Historic designed landscapes relate to gardens, parkland, woodland, estates, and public parks that were deliberately laid out for artistic effect. By using both natural and built features such as trees, shrubs, f lowers, lawns, ponds, watercourses, views/vistas, follies, statues, walled gardens, gate lodges or gates, an architectural and horticultural composition was created for the enjoyment of the owners or the general public. These landscapes or gardens could be formal set pieces with ornamental planting in set patterns usually geometric designs or they could be 'naturalised' parkland made to look like the rural countryside, but which had been carefully planned through the placement of individual or groups of trees, expanses of open lawns, and sunken boundary walls known as 'ha-has' that allowed uninterrupted views of pastoral scenes. The architectural components of historic gardens, from small gardens to large parks, include:

- *Plan and topography*
- *Vegetation e.g. species, proportions, colour schemes, spacing and respective heights*
- *Structural and decorative features*
- *Water*

Policy HCAP18 – Designed Landscape Features, Settings and Views	Protect the setting, significant views, and built features of historic designed landscapes and promote the conservation of their essential character, both built and natural.
Policy HCAP19 – Development and Historic Demesnes	Resist proposals or developments that would lead to the loss, or cause harm to the character, principal components or setting of historic designed landscapes and demesnes of significance in the County.
Policy HCAP20 – Conservation and Woodland Management Plans	Support the commissioning of Conservation Plans and Woodland Management Plans and the cataloguing of the collections for the historic designed landscapes in the Council's ownership. Encourage private owners to undertake Conservation Plans and Woodland Management Plans for their historic landscapes.
Objective HCAO31 – Protection of Designed Landscapes	Identify the historic designed landscapes of significance in the County and determine the appropriate mechanism to ensure their future protection. Several of the most significant are already designated, as Architectural Conservation Areas.
Objective HCAO32 – Designed Landscape Appraisal	Require that proposals for development within historic designed landscapes include a Designed Landscape Appraisal (including an ecological assessment) as part of the planning documentation to fully consider the potential impacts of the proposal. The appraisal should be carried out prior to the initial design of any development, in order that this evaluation to inform the design which must be sensitive to and respect the built heritage elements and green space values of the site.
Objective HCAO33 – Conservation Plans	Continue the programme of commissioning Conservation Plans for the principal heritage properties in the Council's ownership that contain historic designed landscapes.

Industrial Heritage

The sites, structures, machinery, artefacts and plant associated with manufacturing, transportation, communications, construction, public utilities, raw material extraction and production form our industrial heritage. Rapid advancements and developments in engineering and technology have left much of our historic industrial heritage obsolete and under threat from dereliction, demolition or unsympathetic adaptation.

Objective HCAO47 – Historic Harbours	Ensure that repairs and new insertions to the historic harbours, piers and quays are appropriate in the materials used and, in the design, and scale of any new structures or equipment.

Climate Change and Heritage

Climate change relates to long-term alterations in regional and global climate patterns which is affecting existing environments and resulting in more extreme weather events. Climate change impacts on the historic environment and cultural heritage directly through the loss or damage of archaeology, older structures and historic landscapes resulting from severe weather incidents, coastal

erosion and rising sea levels. Gradual environmental changes can also require increased or different maintenance regimes, impact the availability of traditional building materials, lead to structural issues arising from soil shrinkage and affect the survival of planting schemes and mature trees in designed landscapes. To address these, the Council needs to make provision for risk assessments, disaster risk management planning, maintenance regimes, reduction of carbon emissions and improved energy performance of the existing building stock. The National Climate Change Sectoral Adaptation Plan for Built and Archaeological Heritage 2019 sets out specific goals and actions to build adaptive capacity within this sector and reduce its vulnerability to climate change. The Council is already delivering on several of these through the implementation of the Fingal Climate Action Plan 2019–2024 which includes actions relating to the historic environment. The Council has also carried out the Fingal Cultural Heritage and Climate Change Risk Assessment 2021 to understand the vulnerability of Fingal's Cultural Heritage to climate hazards.

Policy HCAP29 – Climate Change and Heritage	Advance and support mechanisms through which the Council can develop resilience, adapt or mitigate the impact of Climate Change on the archaeological and built heritage of the County.
Policy HCAP30 – Effects of Climate Change	Co-operate with other agencies in the investigation of climate change on the fabric of historic buildings and traditional construction to enhance adaptive capacity, strengthen resilience and reduce the vulnerability of the built heritage.
Objective HCAO50 – Climate Change Mitigation	Utilise the data provided by the Fingal Cultural Heritage and Climate Change Risk Assessment 2021 to address or mitigate, where possible, the potential Climate Change impacts identified. Where managed loss is the most appropriate option to ensure the site or structure is fully recorded and the data retained by the Council.
Objective HCAO51 – Adaptation Strategies	Develop resilience and adaptation strategies for the built and archaeological heritage in the Council's ownership.
Objective HCAO52 – Risk Management Pilot	Pilot a disaster risk management plan for a Council owned heritage property to serve as a template for other historic buildings in the Council's ownership.

Access to the Heritage Resource

The protection and conservation of the archaeological and built heritage will be best achieved through the recognition and appreciation of it by all sections of society. It is important that awareness of the location and significance of protected sites and structures is achieved and that these are conserved and presented to the highest quality.

Policy HCAP31 – Access	Improve access, visitor facilities, enhance animation of heritage sites and upgrade visitor infrastructure at Council owned heritage sites, where appropriate.
Objective HCAO54 – Understanding of the Heritage Resource	Promote and enhance the understanding of the archaeological and architectural heritage of Fingal through the development of cultural tourism products, talks, exhibitions and publications. digital access through interactive maps, videos, virtual exhibitions, and podcasts.

Objective HCAO55 – Universal Access	Accommodate and improve universal access to Council owned archaeological and architectural heritage sites open to the general public, where possible. Ensure the archaeological and architectural heritage significance of the site is taken into account when providing such access and is not damaged or compromised.

Chapter 13: Land Use Zoning

The Deer Park development site lies within Land-Use Zoning RS and HA in the *Fingal Development Plan 2023-2029*. This zoning objective describes a vision for Residential development (RS) and High Amenity (HA) within Howth, while Howth continues to demonstrate a wide range of economic functions due to its performance as a high-quality tourist destination and due to its important marine activities.

Land Use Zoning Objectives:

RS: Provide for residential development and protect and improve residential amenity.
Objective: *Ensure that any new development in existing areas would have a minimal impact on and enhance existing residential amenity.*

HA: Protect and enhance high amenity areas
Objective: *Protect these highly sensitive and scenic locations from inappropriate development and reinforce their character, distinctiveness and sense of place. In recognition of the amenity potential of these areas opportunities to increase public access will be explored.*

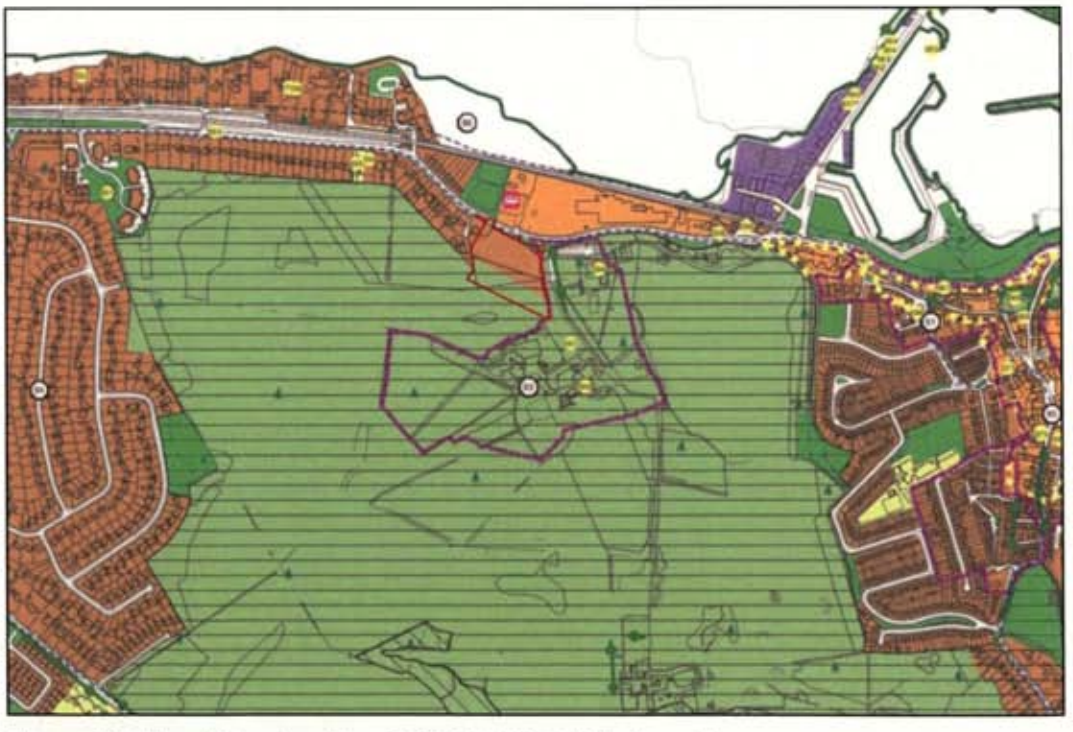


Figure 5.8 Fingal Zoning Map G (2023-2029) (Site in red)

Figure 5.9 Fingal Zoning Objective (2023-2029)

Planning objective specific to the site and environs

The following Development Plan Objectives for Howth as presented in the Fingal Development Plan 2023-2029 (Map 10) are as follows:

Zoning Objectives	
RS - Residential (the site itself)	Provide for residential development and protect and improve residential amenity
HA - High Amenity (south, east and west of the site)	Protect and enhance high amenity areas
TC - Town and District Centre (north, and north-east of the site)	Protect and enhance the special physical and social character of town and district centres and provide and/or improve urban facilities
OS - Open Space (north-west of the site)	Preserve and provide for open space and recreational amenities
Specific Objectives	
ACA (immediately west and south of the site)	Architectural Conservation Area – Howth Castle and Demesne
Howth SAA (immediately south, east and west of the site)	Special Amenity Area - Buffer Zone
Preserved Views	Local protected views ▪ Along access avenue to Howth Castle (east of the site) ▪ From the south looking north from Muck Rock and also from views adjacent to the Hotel and car park ▪ Views from Howth Piers
Local Objective Point 86 (north of the site)	Maintain and protect the public amenity of the beach and improve public access to the beach, provided such increased public access is shown through Screening for Appropriate Assessment to be compatible with the conservation

	objectives of Baldoyle Bay Special Protection Area (SPA) and any other European Sites which may be directly or indirectly impacted upon.
Local Objective Point 93 (south of the site)	Facilitate the provision of tourist, leisure, craft, artisan and restaurant uses at Howth Castle whilst ensuring the setting and character of the protected structures are maintained.
Protected Structures	All outside the site boundary
North-west of the site	RPS 554
North-west of the site	RPS 555
South-east of the site	RPS 556
South-east of the site	RPS 557
East of the site	RPS 558
East of the site	RPS 559
East of the site	RPS 594
Protect & Preserve Trees, Woodlands and Hedgerows	None within the site. Three within Howth Castle Demesne
Traveller Accommodation	Proposed Traveller accommodation immediately north of the site

5.4.14 Site Surveys/Investigations

A site walkabout and photographic survey of the site was undertaken on the 7th of December 2023. The site was accessed by foot via a pathway leading from the stable yards area, through the perimeter of the golf course. (See Appendix 5.1 for Visual Assessment of the site). On inspection, there had been relatively recent low level vegetation clearance works within the site. It was noted that in October 2023, the applicant carried out minor clearance works to the site over a period of 3 days, which predominantly consisted of the cutting and removal of overgrown grassland and overgrown areas of boundary scrub and low-level vegetation. These works were required to assist with obtaining important accurate site surveys which included a full Topographical survey of the existing levels & topography, boundary walls and trees within the Applicant's site and a Ground Investigation. The applicant also required an accurate survey of the existing services which traversed the site including a 'live' underground 90mm dia. 4 bar gas main, which had to be identified and accurately marked out prior to commencing Ground Investigation works. The removal of this vegetation was also required to provide a safe and clear platform for the stable erection of the Ground Investigation equipment including excavators, boring rigs and dynamic probing rig. A photographic record of the site itself, approaches to the site from the south and southwest, along with a site walkabout of the wider Howth Castle Demesne, golf course and hotel area. Photograph was also taken from the east and west of Howth Road and the entrance area to the castle grounds.

5.4.15 Consultation

A S247 meeting took place between the applicants and Fingal County Council on 12 September 2023. A number of items of concern were raised including the building heights, elevations and proposed tree planting. A Section 32C-LRD Meeting was held on the 13th of December 2023. Concerns were raised regarding the built heritage and the historic landscape setting. Fingal County Council requested further

design amendments in terms of heights, potential impacts on the heritage gates at the castle entrance and planting proposals.

Based on this feedback further design amendments were made to the scheme in conjunction with the wider design team. Block D has been revised to reduce the impact on the existing treeline and on the Howth Castle Demesne Gates. The building has been set back further from the historic structures at the castle gates, and the height of end block (Block D) reduced to three storeys.

A preliminary viewpoint map with 21 suggested views (representative sensitive receptors) was presented for discussion. The local authority requested amendments to some angles of view on Howth Road, particularly looking south and southwest to the castle gates from Howth Road and additional viewpoints to be considered in the Landscape and Visual Impact Assessment. Further discussions were undertaken by the design team and agreement made on 23 views in total with amendments to the angle of views from the north, northeast and northwest of the castle gates looking south from Howth Road.

Following on from the above consultation, further design changes were undertaken by the design team. A site visit was organised between Áit Urbanism + Landscape and Gemma Carr, Senior Executive Parks and Landscape Officer from the Parks & Green Infrastructure Division of the Planning + Strategic Infrastructure Department, to further discuss potential tree removal due to the design development changes, as well as discussing the landscape site plan proposals as a whole in February 2024.

5.5 Difficulties Encountered

Access to the site is by arrangement only as the lands are privately owned and not accessible to the public. Otherwise, there were no difficulties encountered.

5.6 Baseline Environment

5.6.1 The site

Baseline Assessment

The subject site is located in Deer Park, Howth, to the south of the Howth Road R105 and to the north-west of Howth Castle, and immediately west of the entrance to Howth Castle. The site area is approximately 1.53 ha of greenfield land, presenting as one large field. The net developable area is 1.10ha. The site consists of 1.10 ha of land zoned for residential development (Fingal Development Plan 2023-2029) and 0.31 ha zoned High Amenity. The site is enclosed on the north and east by a tall natural stone boundary wall which is approximately 2.46m in height. To the west the site adjoins two private dwellings and an undeveloped field. The site is separated from the field by hedgerow and scrub. The interior of the site consists of an unmanaged grassland (grassland and low scrub were cleared for site surveys etc. in October 2023).

The lands within the site were historically part of wider demesne or estate lands associated with Howth Castle Demesne and surrounding Deer Park lands. The site is in relatively close proximity to Howth Castle (approx. 220m to the south-east of the southern boundary of the site.) and St. Mary's Church (approx. 100m to the east of eastern boundary of the site).

Figure 5.10 Site Context

The wider contiguous landscape is coastal in nature, located on the northern edge of the Howth premonitory. The coastline itself to the Irish Sea is approximately 165m north of the site. The Dart line runs parallel to the coastline, Howth Station being the final stop on the line, which is located less than 500m to the north-east of the site.

The site itself is enclosed along the northern boundary by a tree line, and along the eastern boundary by a treeline and the historic Howth Demesne wall. The southern boundary is also bounded by the continuation of this historic wall and scattered tree plantings.

Overhead powerlines traverse the site in two locations. One runs from a midpoint along the western boundary in a north-east direction through the site terminating close the northern boundary of the site. The second runs parallel to the eastern boundary of the site. There are also overhead wires and poles running along Howth Road.

Contiguous Land Use and Open Space

Figure 5.11 Contiguous Land Use and Open Space

In a wider context, the lands to the south of the proposed development site and surrounding the historic core of Howth Castle were developed over time from use as a racecourse in the 1800's to their development in the early 20th century into a golf course, with the first competition being played there in 1916. These lands are zoned as High Amenity (HA) in the Fingal Development Plan 2023-2029.

The Deer Park Hotel, now closed, is located further south and upland. The bar remains open to the public, being regularly frequented by golfers and walkers of the Hill of Howth for lunches and drinks.

Lands bounding Howth Road to the north-west of the site as well as lands to the west of the golf course are predominantly in residential usage and comprise of two storeys detached and semi-detached houses. Lands immediately north and north-east of the proposed development site are currently under construction. This development known as Claremont, (Bord Pleanála Case reference: PL06F.246151 and Planning Authority Case Reference: F15A/0362). The Claremont development will consist of 512 one, two, and three-bed apartments, a 240m² creche, and over 2,600m² of retail space. It will have south facing public and communal space, and landscaped public realm.

Howth Village is located to the east with Howth Harbour to its immediate north. The harbour and piers are an attractive coastal and maritime and recreational amenity for local residents but also attracts tourists year-round. There are public open spaces, Howth Pier Park, a substantial playground, beaches, Howth Lighthouse, Howth Yacht Club and numerous cafes, fish shops, seafood restaurants etc.

Figure 5.12 Public Open Space

There are a number of public open spaces locally adjacent to the site. To the north/north-west is Baltray Park and tennis courts; to the east and north-east are Howth Pier Park. There are a number of smaller pockets of open space located within residential housing development to the east and west of the site. Howth Head and Howth Cliff Walks are popular walking routes, as are the walks through the Howth Demesne itself.

Access and Circulation

The site is accessible by foot only through the golf course lands to the rear of the Transport Museum, which is located immediately north-west of Howth Castle, and through breaks in the treelines to the south-west of the site. The main vehicular circulation around the site is via the R105, Howth Road.

Figure 5.13 Circulation

Topography

The topography of the site rises from a low point on north-eastern corner at approximately 6.20mOD to a high point along the southern tree lined boundary of the site along the 10m OD contour line. The fall of the lands are generally in a north/north-east direction with an average of 1:50 slope.

Trees and Vegetation

A tree survey was undertaken in July 2023 by John Morris Arboricultural Consultancy. There are two prominent tree lines, one to the south bounding the Deer Park Golf Course, the second to the east bounding the avenue to Howth Castle.

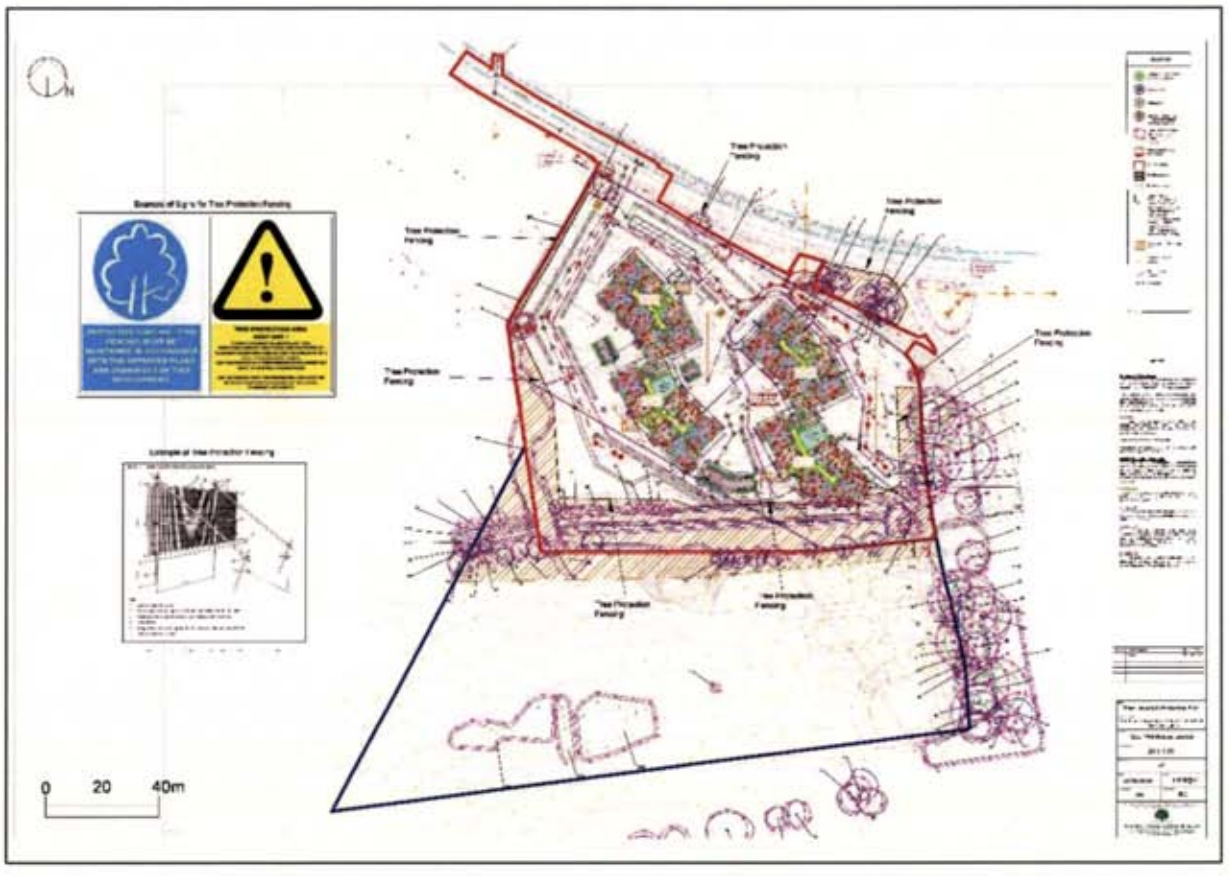


Figure 5.14 Tree Impact + Protection Plan ***by John Morris (Arboricultural Consultant)***

The tree line to the south is comprised a shelter belt of semi-mature and early mature trees, between 25 to 30 years old, and which extends west to east along the southern boundary of the site. The main species of tree Scots Pine *(Pinus sylvestris)* and Birch *(Betula spp).*

The trees along the eastern perimeter of the site along the main avenue to Howth Castle consist mainly of Sycamore (*Acer pseudoplatanus*), Beech (*Fagus sylvatica*), all mature trees with heights ranging from 12-19m forming a broadleaf woodland.

The following trees will be removed to facilitate the proposed development:

G102: Tags 174-222 Birch Tree group (*Betula spp*): Approximately 89sq.m to facilitate the proposal

G103: Tags 5317-5346 Scots Pine Group *(Pinus sylvestris): Removal of 5no. Scots pine to allow 5m working space/access for construction.*

Tree No. 68 (No Tag No: single stem growing from hedgerow)

Tree No. 2(P), Rowan (Sorbus Aucuparia), street tree, to facilitate site lines on Howth Road.

Other trees that are in poor condition will be retained and allowed to naturally decline in current location: these include a Yew tree *(Taxus baccata)* (Tag No. 5354) and a Sycamore *(Acer pseudoplatanus)* (Tag No. 5353).

Existing mixed species hedgerows will be retained. Some will require cutting back and supplementary planting to enhance future vigour.

Tree coverage to the south and east of the site provides substantial visual enclosure and screen views to the east, south-east and east to adjacent protected structures within Howth Demesne.

Biodiversity

An ecological assessment was undertaken by Enviroguide with habitats assessed on site in September 2023 comprising of the following surveys:

- *Habitat mapping to level 3 (Fossitt 2000).*
- *Preliminary Bat Roost Assessment and Habitat Suitability Survey.*
- *Bird Scoping Survey.*
- *Invasive Flora Survey.*
- *A search for signs of protected fauna (e.g., mammals, reptiles, amphibians).*

The habitats present within the as recorded by Enviroguide Consulting in September 2023 include the following:

- Rank dry meadows and grassy verges (GS2) habitat within the main field itself
- Mixed broadleaved/conifer woodland (WD2) to the southern boundary
- Mature mixed broadleaved woodland (WD1) along the eastern boundary
- The western boundary of the site is comprised of mature hedgerow (WL1) habitat, with bramble scrub (WS1)
- The northern and eastern boundary include a stone wall (BL1) overgrown by ivy (Hedera sp.)
- A mature hedgerow (WL1) along the western boundary of the site with a mixture of hawthorn (Crataegus Monogyna), ivy (Hedera helix), leyland cypress (Cupressus leylandii)
- Buildings and Artificial Surfaces (BL3) habitat were recorded (pedestrian pathway along the south of the subject site)
- Two invasive species were identified along the northern boundary wall: Butterfly Bush and Himalayan Honeysuckle

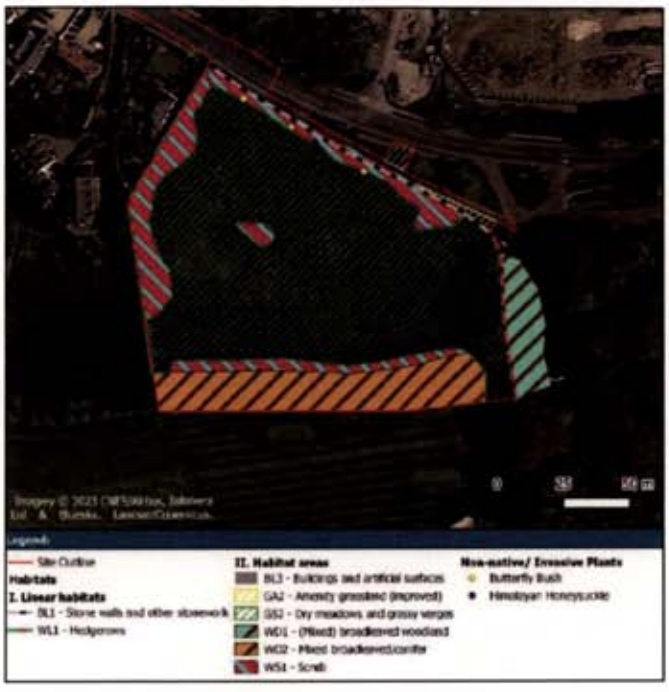


Figure 5.15 Habitats Map (Enviroguide)

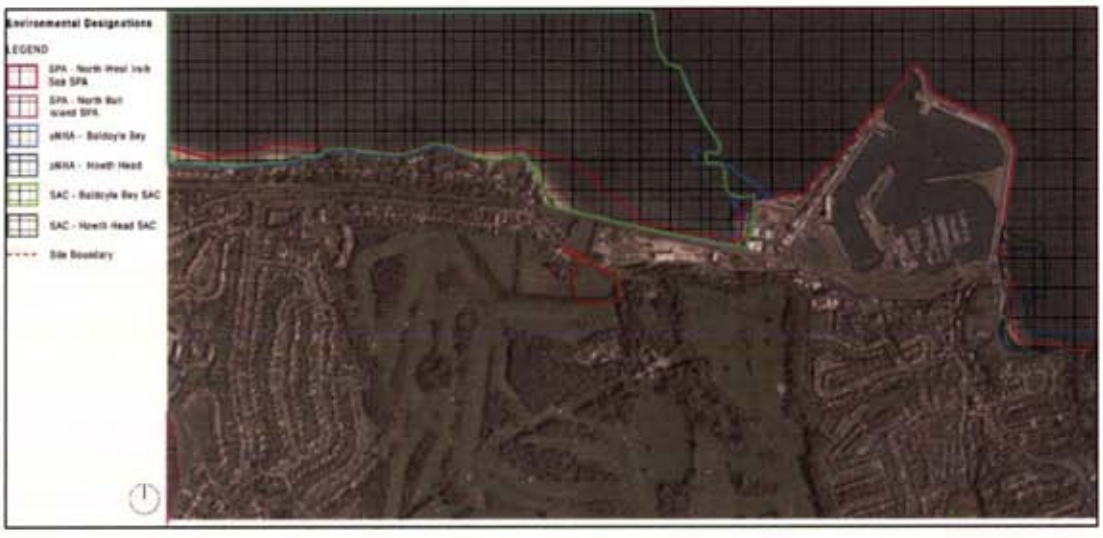


Figure 5.16 Environmental Designations

Figure 5.17 Howth Special Amenity Area Order Map A, 1999. Fingal County Council

In 1999, Fingal County Council recognised the exceptional character of the Howth area by making the Howth Special Amenity Area Order which protects many of the special qualities of the area and aims to preserve and enhance the character and special features of Howth. The Howth Special Amenity Area has a total area of 547 hectares.

It includes Ireland's Eye (28 ha) and the heathland, woods, cliffs, shingle beaches and wooded residential areas of the south-eastern half of the Howth peninsula (519 ha) which have a rich diversity of flora and fauna.

The Howth Special Amenity Area includes large and flourishing colonies of seabirds on Ireland's Eye, and on the cliffs of Howth Head between Balscadden Bay and the Baily Lighthouse. The order designates a 21 km network of rights-of-way as public footpaths. Every large area of heathland and woodland on the peninsula can be reached by these paths – see SAAO Map A.

The SAAO order designates 35 sites and areas of special natural, historical, architectural, archaeological and geological interest. These sites and areas of special interest are shown on SAAO Map B below.

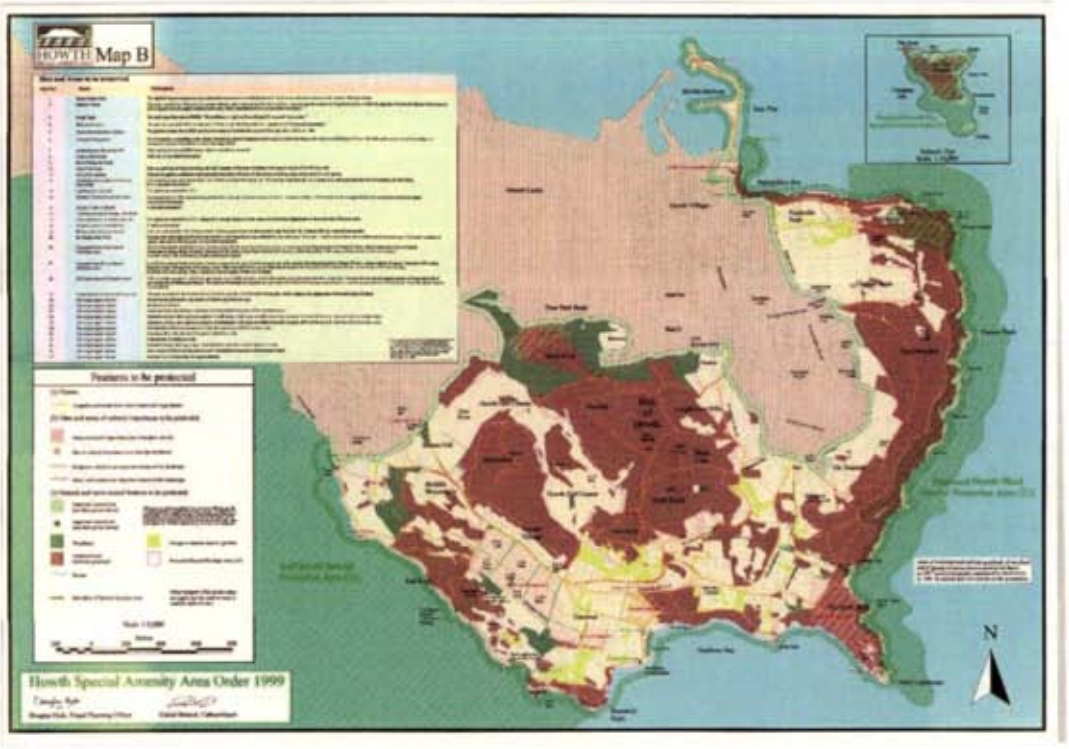


Figure 5.18 Howth Special Amenity Area Order Map B, 1999. Fingal County Council

5.6.2 Landscape Character

Landscape Character Assessment

In terms of Landscape Character, the proposed development site lies within an area categorised as 'Coastal Landscape Character Type.

Figure 5.19 Fingal Development Plan 2023-2029, Green Infrastructure 1, Sheet No.14

Table 9.3: Landscape Character Assessment Summary-Character, Value and Sensitivity

Landscape Character Types	Landscape Value	Landscape Sensitivity
Rolling Hills Type	Modest	Medium
High Lying Type	High	High
Low Lying Type	Modest	Low
Estuary Type	Exceptional	High
Coastal Type	Exceptional	High
River Valley and Canal Type	High	High

Table 9.3 Landscape Character Assessment Summary, Fingal Development Plan 2023-2029, Chapter 9 – Natural Heritage (Landscape Character Assessment)

Term	Definition
Negligible/None	Key Characteristics of the landscape are highly vulnerable to development. Development would result in a significant change in landscape character and should be avoided if possible.
Low	Key characteristics of the landscape are vulnerable to change. There may be limited opportunity to accommodate development without changing landscape character. Great care would be needed in locating development.
Medium	Some of the key characteristics of the landscape are vulnerable to change. Although the landscape may have some ability to absorb some development, it is likely to cause some change in character. Care would be needed in locating development.
Medium/High	Few of the key characteristics of the landscape are vulnerable to change. The landscape is likely to be able to accommodate development with only minor change in character. Care is still needed to avoid adversely affecting key characteristics where they occur.
High	Key characteristics of the landscape are robust and would not be adversely affected by development. The landscape is likely to be able to accommodate development without a significant change in landscape character

[144] This particular capacity assessment and criteria are adapted from the South Downs National Park Petersfield Area capacity assessment, 2013.

Landscape Character Assessment – Capacity Definition – South Downs National Park Petersfield Area Capacity Assessment 2013

Deer Park Landscape Character

The landscape character of Howth Head as a unified landscape, is described in the Fingal County Development Plan 2023-2029, Chapter 9, Green Infrastructure and Natural Heritage, as a *Coastal* Landscape Character Type with *Exceptional* Landscape Value; its Landscape Sensitivity is considered *High*.

The Deer Park site, as a underutilised greenfield landscape, is not accessible to the public, and is set within the historic stone wall of the former Howth Demesne historic landscape setting on Howth Road. It is outside of the Howth Castle Demesne ACA, and both physically and visually separated from the castle itself and St. Marys Church. The remaining connections with the former historic landscape setting is the presence of the historic 'Deer Park' stone wall to the north and east of the site, its proximity to the entrance gates to the castle and the presence of the historic woodland and tree canopy of the demesne landscape setting. The southern portion of the site is zone High Amenity and also lies within the buffer zone of the Howth Head SAAO. There are a number of preserved Views, one along the avenue to the castle, one further south at Muck Rock, one from Howth Pier and a number of Preserved Views with the Howth Castle Demesne ACA itself, along with preserved views from the Portmarnock coastline.

Given the current nature, visual presentation and context of the land-use, the landscape sensitivity generally would be considered medium to high, and therefore its capacity for change and improvement is considered medium.

The habitats present within the as recorded by Enviroguide Consulting in September 2023 include rank dry meadows and grassy verges (GS2) habitat within the main field itself. The southern boundary of

Mixed broadleaved/conifer woodland (WD2) to the southern boundary, and mature mixed broadleaved woodland (WD1) along the eastern boundary. The western boundary of the site is comprised of mature hedgerow (WL1) habitat, with bramble scrub (WS1). The northern and eastern boundary include a stone wall (BL1) overgrown by ivy (*Hedera sp.*). A mature hedgerow (WL1) was recorded along the western boundary of the site, comprised of hawthorn *(Crataegus Monogyna),* ivy *(Hedera helix),* leyland cypress *(Cupressus leylandii).* Buildings and Artificial Surfaces (BL3) habitat were recorded (pedestrian pathway along the south of the subject site), none of which are of ecological significance.

The landscape condition can be described as undulating, falling towards Howth Road with some panoramic views of the harbour and Irish Sea from higher points within the site. There are some vertical structures such as ESB poles/overhead wires crossing through the site reducing its visual sensitivity. Sections of the historic 'Deer Park' wall have been replaced and rebuilt with lesser quality materials in places, particularly along the east of the site. There is substantial vegetation growth on sections of the wall which appear to be damaging to the wall itself.

The land use to the west, northwest is residential. Land use to the north-east is residential (high density) currently under construction. Howth town, harbour and Dart Station are located to the east, northeast of the site.

In general, the landscape sensitivity of the general locale of the site and its immediate contiguous land uses would be considered low to medium given its suburban nature, in transition, with regional road infrastructure and bus routes and cycle paths. Substantial road, construction and advertising signage adjacent to the entrance to Howth Castle along poor quality public realm locally detracts substantially from the overall landscape setting, compounded by the temporary effects of construction parking locally. The construction of Claremont, a 4-8 storey development to the northeast of the site will substantially alter the character of the landscape character when complete. It will change from suburban to urban in nature and will be seen as an extension of the urban built environment of Howth town itself.

General Landscape Character Assessment of Landscape Capacity and Sensitivity

Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
Medium to High	Medium	Medium	Medium	Medium

5.6.3 Historical Landscape Context

Howth Castle Demesne

The proposed development site is located with the Demesne for Howth Castle. The castle is located to the south and includes several archaeological monuments. Howth Town, which has evidence of settlement from prehistoric times, is located to the east.

The origins of Howth Castle trace back to medieval times with several generations modifying the house and grounds to suit their needs and following the fashion of day of the landed gentry. The original

demesne was approximately 600 acres. The Deer Park dates back to the 1600's with extensive stone boundary walls to contain the deer herd. A boundary wall defines the extent and grandeur of an estate with a public announcement to the outside world.

Figure 5.20 Ordnance Survey 6 Inch Map (surveyed 1837-1842)

Beside the main entrance the demesne wall originally followed the seashore but was infilled with the railway tracks into Howth train station, now Dart station.

The demesne wall which enclosed the Deer Park followed the land boundary of castle and what is now the Howth Road between Sutton Cross and the town and enclosed Corr Castle. Along the road very little remains of the original wall on this stretch of the road due to the development of houses. *(See Appendix 16.1 Historic Background and Appraisal of Howth Castle Demesne, prepared by Clare Hogan, MRIAI, MUBC in 2020).*

A racecourse was established in the castle grounds in the early 1800's by Thomas St. Lawrence, 3rd Earl of Howth. The course was known as Howth Park Racecourse and ran from the backgate lodge of the castle on Carrickbrack Road down to the corner of the grounds of Seafield House (now Santa Sabina school) and North broadly along the route of Offington before circling Corr Castle and returning up along the Howth Road. The races stopped permanently at Howth in 1842 before the famine.

Figure 5.21 Ordnance Survey 25 Inch Map (surveyed 1888-1913)

Figure 5.22 Ordnance Survey 25 Inch Map (surveyed 1888-1913) (enlarged)

The Ordnance Survey 6-inch map surveyed between 1837 and 1842, shows the Howth Demesne wall, with a large woodland with a central ride to the west of the castle. East of the castle were formal gardens and to the north alongside the road was St. Marys' Church. The site was part of a field of the deer park around the castle, and a racecourse ran through the field inside the boundary along the road, which led to Howth Harbour to the east. The village had a linear form with the bulk of the development along Main Street at the eastern end of the harbour.

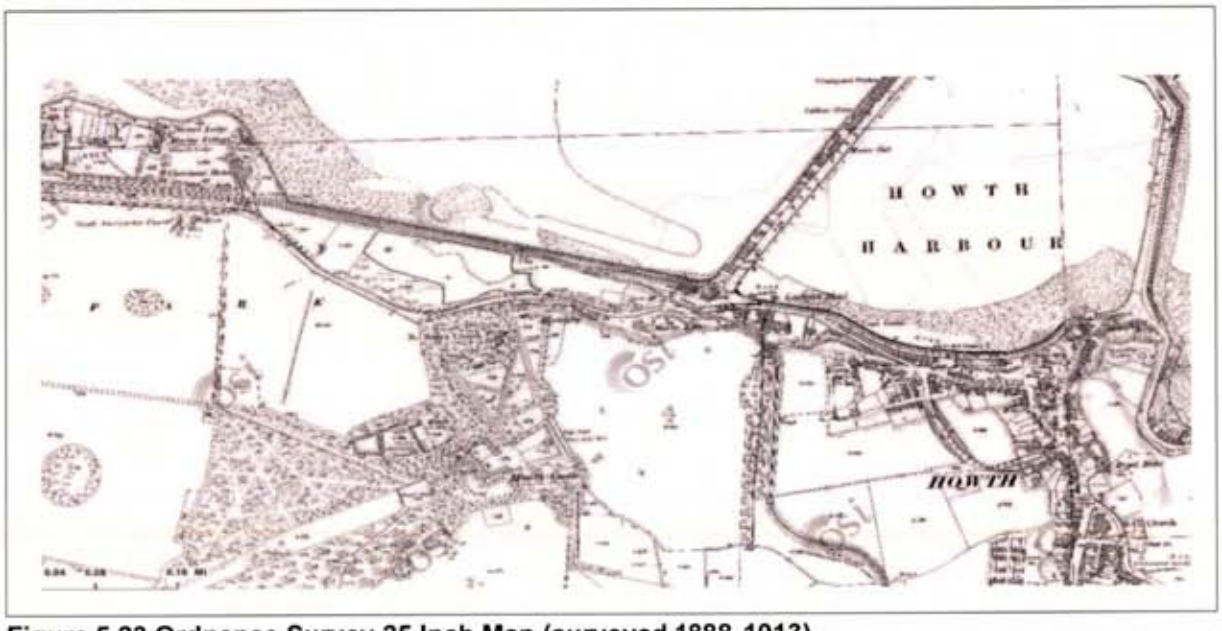


Figure 5.23 Ordnance Survey 25 Inch Map (surveyed 1888-1913)

The 25-inch map (Figure 5.23), surveyed between 1888 and 1913, shows the early stages of the town's evolution following the construction of a tramway along the Howth Road, and the railway line, terminating at the western end of the harbour.

The urban area had begun to spread westwards along the harbour-front, and onto the lands behind the harbour and Main Street, along secondary streets. The St Lawrence Hotel was built near the railway station, and industry had developed along the west pier of the harbour. The railway line's construction created an area of reclaimed land north of the road, opposite the subject site and St Marys' church. This area would later be occupied by the Techrete factory and is now the site of construction works for the Claremont development. The Claremont Hotel on the shoreline north of the railway line is also visible. This site was later developed as the Howth Lodge apartments, as well as a row of houses fronting the beach to the west of the hotel, accessed by Claremont Road.

Over the course of the 20th century extensive suburban expansion occurred behind the Howth harbour front, west of Main Street and all around the sides of the peninsula. The central part of the peninsula, including much of the Howth Demesne Deer Park were developed into a series of golf courses. The Techrete factory was developed on the north side of Howth Road, and a linear strip of housing was developed along the road to the west, the easternmost of these residential properties adjoining the site's western boundary.

Figure 5.24 Aerial View: Geohive Historic Maps 1995

Figure 5.25 Aerial View: Geohive Historic Maps 1998-2000

Figure 5.26 Aerial View: Geohive Historic Maps 2001-2005

Figure 5.27 Aerial View: Geohive Historic Maps 2005-2012

Approaching the turn of the 21st century a further phase of change began with the start of densification of the suburban area. The Claremont Hotel site on the shoreline near the site was redeveloped as the Howth Lodge apartment complex, with four blocks four storeys in height. To the west along Howth Road, halfway between the town centres of Howth and Sutton, two apartment developments were built on neighbouring sites, namely Corr Castle (six blocks, four storeys) and Offington Manor (three blocks, 3-4 storeys). Some densification took place in Howth town centre also, for example the Findlater apartments in two new four storey blocks near the refurbished Villa Hotel building.

Figure 5.28 Aerial View: Geohive Historic Maps 2013-2018

5.6.4 Views & Prospects

Protected Views and Prospects are identified on the Green Infrastructure and Zoning Maps

Preserved Views	**Local protected views** ▪ **Along access avenue to Howth Castle (east of the site)** ▪ **From the south looking north (in particular adjacent to the Hotel and car park)** ▪ **Views from Howth Piers**

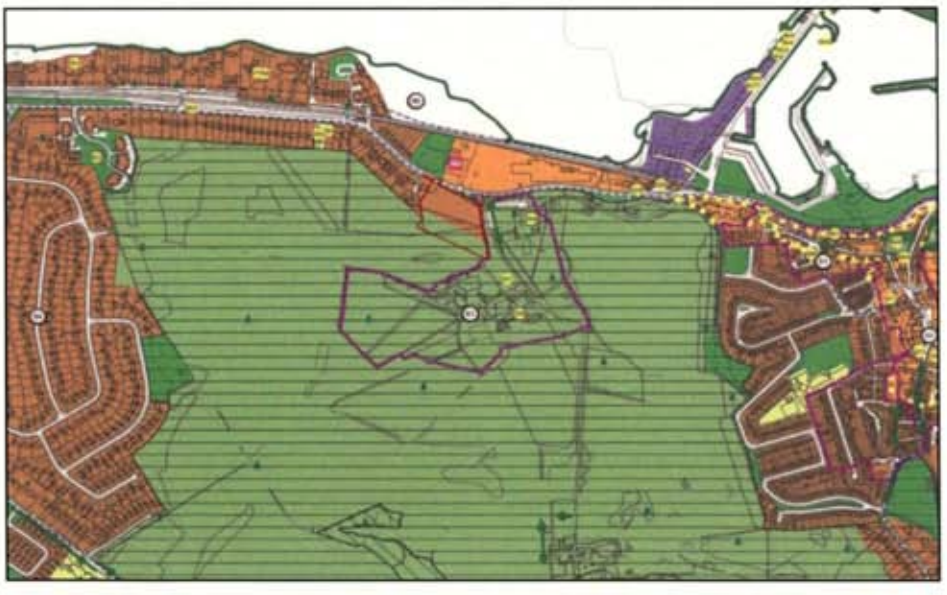


Figure 5.29 Preserved Views identified by a green line with green dots: Fingal County Development Plan 2023-2029 (Extract from Sheet 10 Baldoyle and Howth)

Additional Protected Views are highlighted within the Architectural Conservation Area of Howth Castle Demesne ACA.

Figure 5.30 Howth Castle Demesne ACA

5.7 The 'Do Nothing' Scenario

If the site were to remain as is, as an underutilised greenfield land parcel, the landscape character and views into and out of the site will undergo substantial change as a result of the Claremount development that is currently under construction in close proximity to the site. The lands are zoned 'Residential' and may be subject to further planning application/s for similar scale developments in the future. The site has an optimal location for residential development given its location on the Howth Road, adjacent to existing established linear residential use, in close proximity to Howth town, the Dart Station and bus services. The landscape character of the contiguous lands to the north and northwest are in currently in transition from a suburban road / route to Howth town, harbour and the amenities of the local coastal landscape as well as Howth Head to an urbanised extension of Howth town that is expanding to facilitate a growing population. The high density 4-8 storey development at the Claremont site is indicative of the local authority's' urban growth policy in the area given local housing needs in conjunction with development constraints that exist such as the preservation of the Howth Castle Demesne ACA, the SAAO of Howth Head, the High Amenity of the south of the site, and the general highly sensitive landscape character of Howth. The opportunities for a well-considered relatively low-rise high density development set within a landscape designed for multi-purpose uses set against the backdrop of a historic landscape setting could be seen as a sustainable residential development opportunity. Therefore, is it considered unlikely that the site will remain as is and may continue to go unmanaged.

5.8 Potential Significant Effects

This section identifies potential effects of the construction and operational phases of the development on the landscape and visual resource study area. Twenty-three viewpoints were chosen for the purposes of this visual assessment. The views assess the potential visual effects of the proposed residential development, as well as the cumulative visual effects of a future residential development

currently under construction on lands to the northeast of the Deer Park site ((Bord Pleanála Case reference: PL06F.246151 and Planning Authority Case Reference: F15A/0362).

The views were chosen as being representative of the key sensitive views in terms of effects on local sensitive receptors and are taken from the public domain, with the exception of View 15 taken from within the castle. **(Please see 3D Design Bureau Document for Verified Views in A3 format, Appendix 5.2).**

Viewpoint Maps

Views Assessment

Existing Viewpoint 1 – Preserved View – West Pier (Fingal Development Plan 2023-2029)

This viewpoint is taken looking west, southwest back towards the site from the West Pier at Howth Harbour. The view depicts a urbanised coastal setting, with the Irish sea, harbour infrastructure and rock wall armour visible along the periphery of the coastline. Howth Harbour shipyard, warehouses, and factory buildings are visible in the left of view. There are a number of high-density residential development blocks under construction in the middle distance (Claremont Scheme) along the northern side of Howth Road, with construction compounds and crane infrastructure dominating the view and breaking the canopy of the woodland and skyline in the distance. A yellow industrial stairwell is partially visible in the middle distance to the left of view, in front of the second development under construction; these are access steps to the platforms at Howth Dart Station. A Dart train is partially visible. The Dart/rail line runs parallel to the coastline for this section of its route before moving inland adjacent to the Howth Road to the right of view. At this point, the harbour infrastructural walls transition to sandy coastal beach (Claremont Beach) to the right of view, in the middle distance.

The built environment is a mixture of low rise single and semi-detached houses along the Howth Road, with some sheds and gardens structures visible in rear gardens that back onto the rail-line. There is a three and part 4 storey apartment complex at Howth Lodge on the coastline to the right of view with Claremont Beach to its foreground.

There is substantial tree coverage within the wider landscape, much of this canopy cover is associated with the woodland and trees on Howth Castle Demesne and Golf Course. Others are large trees in

private properties and public space along Howth Road. The spire of St. Mary's Church is visible protruding over the wooded canopy of the Howth Demesne landscape.

Overall, the view is a depiction of a coastal urbanised setting with a working harbour undergoing substantial development and transition.

View No. 1	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 1

The proposed development will be marginally visible over the high-density residential development at the Claremont site that is under construction but will essentially be visually absorbed by the construction works currently underway. The redline indicates the extent of the proposed development in the background of view.

(It should be noted that the construction works depicted in this view have advanced since the baseline photography was undertaken in January 2024.)

Impact Assessment

View No. 1	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Slight	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view which is a preserved view in the Fingal County Development Plan 2023-2029.

Cumulative 1

This view depicts the extent of the Claremont development when it will be complete. The proposed development at Deer Park will be screened from view by the completed development at the Claremont site. The extent of the proposed development is outline in red, showing its location in the background of the view.

Impact Assessment

View No. 1	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/a

It is considered that cumulatively, the proposed development will not be visible along with the future completed Claremont development and will not have a significant adverse effect on this view which is a preserved view in the Fingal County Development Plan 2023-2029.

Existing Viewpoint 2

This viewpoint is taken looking west towards the site from the northern side of Howth Road. The view depicts a suburban regional road with pedestrian and cycling infrastructure. The landscape depicted is in transition. A rubble wall with mature vegetation, trees and woodland is visible along the left of view that is part of the historical landscape setting of Howth Demesne that is zone High Amenity. There are both ornamental street trees and canopies of larger parkland visible on the skyline in the background of view. The historical wall of Howth Demesne is visible in the background of view as is the access an area of ornamental planting and grassed areas at the entrance to Howth Castle. These landscape features have a high level of sensitivity, and are associated with a former rural, sylvan landscape and exiting historic landscape aesthetic associated with the Howth Demesne and the Howth Road access to Howth Village. The rooftops of adjacent two storey private properties to the west of the subject site on Howth Road are visible in the middle distance.

The construction works at Claremont development, with site hoarding, crane, temporary lighting and security cameras are visible along the left of view. The former blockwork boundary wall, tree line and built environment of the former Techcrete factory has been removed to facilitate the development. There is substantial visual clutter within the view with both permanent and temporary power poles

and wire infrastructure on either side of Howth Road. The current construction works, site hoarding and plant are temporary features having a short term negative visual impact locally.

A new high density urban development is under construction to the right of view that is in the process of changing the landscape character from a suburban regional road access to Howth town to one of an urbanised streetscape on the outskirts of Howth town centre and harbour.

View No. 2	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal / Historic	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 2

The proposed development will be visible in the middle distance of view. Two to three of upper floors of the 3-5 storey development (Block C and Block A) will be visible from this viewpoint on Howth Road. Building heights are stepped down, with step backs to the top floors along the Howth Road elevations. A number of architectural design features are visible that allow the built form to visually recede along this view of the Howth Road elevation. These include recessed balconies, recessed punctuations to the façade which reduce the apparent length of the elevation and fifth floor set back. The material finishes appear as earth tones that soften the overall appearance of the built form and include warm and neutral brick, with warm browns to the metal cladding to the fourth floor set back, and brown/green metal railings to the balconies. These earth tones finishes will assist in reducing the overall apparent massing of the development.

The lower floors of the proposed development will be screened by the existing historical boundary stone wall of site along Howth Road, along with substantial screening by existing trees external to the site. Some new tree plantings within the development site are also visible. There will be additional softening and screening of the northern elevation of Block C when trees are in leaf during the growing season.

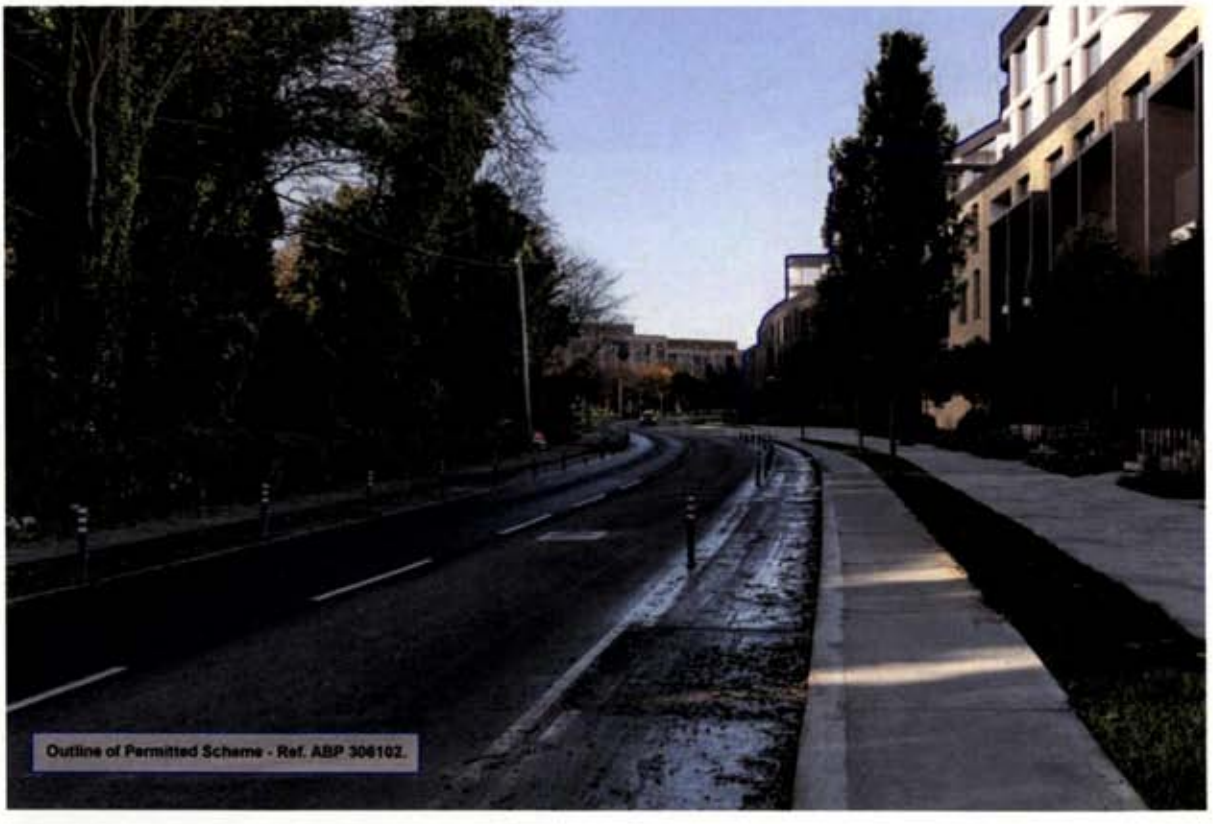
The ongoing construction works at the Claremont site are visually dominant along the right of the view. The overall proposed scenario presents an urbanised regional access road to Howth town and harbour set within lands zoned for residential development and expansion adjacent to a High Amenity area with historical landscape qualities, which is currently in transition. Visual intrusion remains in the form the temporary construction works to the right of view, and both temporary and permanent power and overhead wire infrastructure along Howth Road.

Impact Assessment

View No. 2	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Slight	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 2



This view depicts the extent (blue line) of the Claremont development to the right of view when it will be complete, with floor heights ranging from four to eight storeys, with step backs to the upper floors

along the southern elevations to Howth Road. The Claremont scheme, when complete, will have a substantial set back from the Howth Road itself, creating a more robust public realm with grass verge, street tree plantings, and ornamental buffer planting along the built edge. Earth tones and neutral brick and metal finishes assist in reducing the apparent massing of this development along what is depicted as an urbanised streetscape.

Block C of the proposed development at Deer Park will be visible in the middle distance. A portion of the western edge of this block will be screened from view by the finished built environment of the Claremont scheme. The proposed development at Deer Park will be seen as an extension of the urbanised development along the Howth as part of the planned residential zoning in the area set within and adjacent to a highly sensitive historical landscape setting.

Impact Assessment

View No. 2	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Slight	Permanent

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 3

This viewpoint is taken looking west towards the development site from the southern side of Howth Road. The construction works at Claremont development on the north of Howth Road, with site

hoarding and crane infrastructure are visible along the left of view. There is substantial visual clutter within the view with both power poles and wire infrastructure on either side of Howth Road. The current construction works, site hoarding and plant are temporary features having a short term negative visual impact locally. Other elements of visual clutter present include signage and the bus stop shelter. Temporary roadworks measures are visible in the foreground. The historic stone wall and woodland edge planting of Howth Demesne are visible to the left of view.

There are ornamental street trees and canopies of larger parkland visible on the skyline in the background of view. The historical wall of Howth Demesne is visible in the middle distance of view as is the access an area of ornamental planting and grassed areas at the entrance to Howth Castle. These landscape features have a high level of sensitivity, and are associated with a former rural, sylvan landscape and exiting historic landscape aesthetic associated with the Howth Demesne and the Howth Road access to Howth Village. A portion of one of the rooftops of an adjacent two storey private property to the west of the subject site on Howth Road is visible in the middle distance over the site hoarding at the Claremont site.

The landscape character is suburban, transitioning to an urban residential area along the Howth Road, with elements of the highly sensitive historic landscape setting of Howth Demesne present.

View No. 3	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal/Historic	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 3

The upper floors of Block C and A of the proposed development at Deer Park will be visible from this viewpoint. Two to three of the upper floors of the 3-5 storey development will be visible from this viewpoint on Howth Road. Building heights are stepped down, with step backs to the top floors along the Howth Road elevations. Block A is lower at 4 storeys and set further back within the site plan than Block C which is 5 storeys.

The architectural design features visible which allow the built form to visually recede along this view of the Howth Road elevation, the stepped back site layout of Block A, recessed balconies, recessed punctuations to the façade which reduce the apparent length of the elevations and fourth and fifth floor setbacks (Block A and Block C respectively.) The material finishes appear as earth tones that soften the overall appearance of the built form and include warm and neutral brick, with warm browns to the metal cladding to the fourth floor set back, and brown/green metal railings to the balconies. These earth tones finishes will assist in reducing the overall apparent massing of the development in the landscape.

The lower floors of the proposed development will be screened by the existing historical boundary stone wall of site along Howth Road, along with substantial screening by existing trees external to the site. New tree plantings within the development site are also visible to the north of Block A where the building has been set back further than Block C. There will be additional softening and screening of the northern elevations of Blocks A and C when trees are in leaf during the growing season.

The ongoing construction works at the Claremont site are visually dominant along the right of the view. The overall proposed scenario presents an urbanised regional access road to Howth town and

harbour set within lands zoned for residential development and expansion adjacent to a High Amenity area with historical landscape qualities, which is currently in transition. Visual intrusion remains in the form the temporary construction works to the right of view, and both temporary and permanent power and overhead wire infrastructure along Howth Road.

Impact Assessment

View No. 3	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Moderate	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 3

This cumulative view depicts the extent (blue line) of the Claremont development to the right of view when it will be complete, with floor heights ranging from four to eight storeys, with step backs to the upper floors along the southern elevations to Howth Road. The Claremont scheme, when complete, will have a substantial set back from the Howth Road itself, creating a more robust public realm with grass verge, street tree plantings, and ornamental buffer planting along the built edge. The new built environment of the Claremont scheme will alter the landscape character of this Earth tones and neutral brick and metal finishes assist in reducing this regional road in transition to an urbanised streetscape.

Blocks A and C of the proposed development at Deer Park will be visible in the middle distance and will be viewed as a high-quality high density residential development sensitively designed in response to its surrounding historic landscape context. The proposed heights of four and five storeys of the elevations of the Deer Park scheme on the Howth Road will appear smaller in scale than the Claremont scheme (4 -8 storeys) which will dominate the view in terms of height and scale on the northern side of the Howth Road.

The proposed development at Deer Park will be seen as an extension of the urbanised development along the Howth as part of the planned residential zoning in the area set within and adjacent to a highly sensitive historical landscape setting.

Impact Assessment

View No. 3	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Slight	Long term

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 4

This viewpoint is taken looking west from the entrance road to the northwest of St Mary's Church within the historic Howth Demesne lands. The view depicts the woodland edge planting along the northwest of St. Mary's Church. Part of the entrance to Howth Castle is visible in the middle distance with the historic stone wall of Howth Demesne partially covered in vegetation beyond and running along the southern edge of the site adjacent to the public pathway on the south side of Howth Road. Some ornamental tree planting at the intersection of the Howth Road and the entrance to Howth Castle are visible, with some canopies of larger parkland coniferous plantings within the demesne visible in the distance. There are larger groups of trees visible in the distance on the northern side of Howth Road. The construction compound and construction access gate to the Claremont development site is visible to the right of view. The access road in the foreground, to the north of St. Mary's Church is being used for parking by construction workers at the Claremont site. The grassed verge to the left of view is damaged by overuse by vehicles parking. Some of the stone wall associated with the historic Howth Demesne and scrub planting is visible along the right of view.

Visual intrusion remains in the form of temporary construction compound and signage, crane infrastructure to the right of view, and permanent power and overhead wire infrastructure along Howth Road, which also moves south into the Deer Park itself.

View No. 4	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal/Historic	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 4

The proposed development will be visible in the middle distance of view. Two to three of upper floors of the 3-5 storey development (Block C) will be visible from this viewpoint on Howth Road. Building heights are stepped down, with step backs to the top floors along the Howth Road elevation. A number of architectural design features are visible that allow the built form to visually recede along this view of the Howth Road elevation. These include recessed balconies, recessed punctuations to the façade which reduce the apparent length of the elevation and fifth floor set back. The material finishes appear as earth tones that soften the overall appearance of the built form and include warm and neutral brick, with warm browns to the metal cladding to the fourth floor set back, and brown/green metal railings to the balconies. These earth tones finishes will assist in reducing the overall apparent massing of the development. New stepped access to the development site is visible through a proposed break in the historical wall on the northeastern corner of the site.

The lower floors of the proposed development will be screened by the existing historical boundary stone wall of site along Howth Road, along with some screening by existing trees external to the site. Some new tree plantings within the development site are also visible inside the historic wall. There will be additional softening and screening of the northern elevation of Block C when trees are in leaf during the growing season.

The ongoing construction site works at the Claremont site are visible along the right of the view. The overall proposed scenario presents a view of an urbanised regional access road to Howth town and harbour set within lands zoned for residential development and expansion adjacent to a High Amenity area with historical landscape qualities, which is currently in transition. Visual intrusion remains in the

form the temporary construction works to the right of view, and both temporary and permanent power and overhead wire infrastructure along Howth Road.

Impact Assessment

View No. 4	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Moderate	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 4

This cumulative view depicts the extent (blue line) of the Claremont development to the right of view when it will be complete, with floor heights ranging from four to seven storeys. A small portion of the western extents of the Claremont scheme will be visible from this location.

The proposed development at Deer Park will be seen as an extension of the urbanised development along the Howth as part of the planned residential zoning in the area set within and adjacent to a highly sensitive historical landscape setting.

Impact Assessment

View No. 4	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Slight	Permanent

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 5

Viewpoint 5 is taken looking southeast towards the site from the Howth Road, adjacent to the access /entrance to Howth Castle. The view gives a broader depiction of a section of the northern historic landscape setting of Howth Demesne. The woodland and historic stone wall along with the entrance and historic boundary wall running the length of Howth Road are visible from this location. Some sections of the historic wall have substantial vegetation cover. Ornamental trees on the south side of the Howth Road are visible along with woodland and treelines visible within the Howth Demesne in the distance. There is substantial overhead wire and associated infrastructure visible within the view, along the Howth Road and within the Deer Park site itself. Ad hoc signage on the historic walls at the entrance to Howth Castle, along with road signage detracts from the historic setting.

Site hoarding and construction works associated with the Claremont development are visible to the right of view, although temporary, reduces the overall visual sensitivity of the view. Generally, the existing landscape is in transition from a suburban regional road access to Howth town and harbour, to one with an urban landscape character.

View No. 5	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal/Historic	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 5

Impact Assessment

A broader view of the proposed development will be visible from this viewpoint. Blocks D, C and A will be visible. The northern elevation of Block A will be visible in the distance, set back from the historic boundary wall on the Howth Road. The north and southeast elevations of Block C will be visible. The northern and some of the southeast elevations of Block D will be visible. The step downs and variation in heights of these blocks are in response to the historical sensitivities of the site context. Block D is 3-

4 storeys; its 3-storey element is located closest to the historical gates of Howth Demesne, and is partially visible in the background, screened by distance and existing tree canopy.

Two and some of the third upper floors of Block C, and the two upper floors of Block A of the proposed development at Deer Park will be visible from this viewpoint. Building heights are stepped down, with step backs to the top floors along the Howth Road elevations. Block A is lower at 4 storeys and set further back within the site plan than Block C which is 5 storeys.

The architectural design features visible which allow the built form to visually recede along this view of the Howth Road elevation, the stepped back site layout of Block A, recessed balconies, recessed punctuations to the façade which reduce the apparent length of the elevations and fourth and fifth floor setbacks (Block A and Block C respectively.) The material finishes appear as earth tones that soften the overall appearance of the built form and include warm and neutral brick, with warm browns to the metal cladding to the fourth floor set back, and brown/green metal railings to the balconies. These earth tones finishes will assist in reducing the overall apparent massing of the development in the landscape.

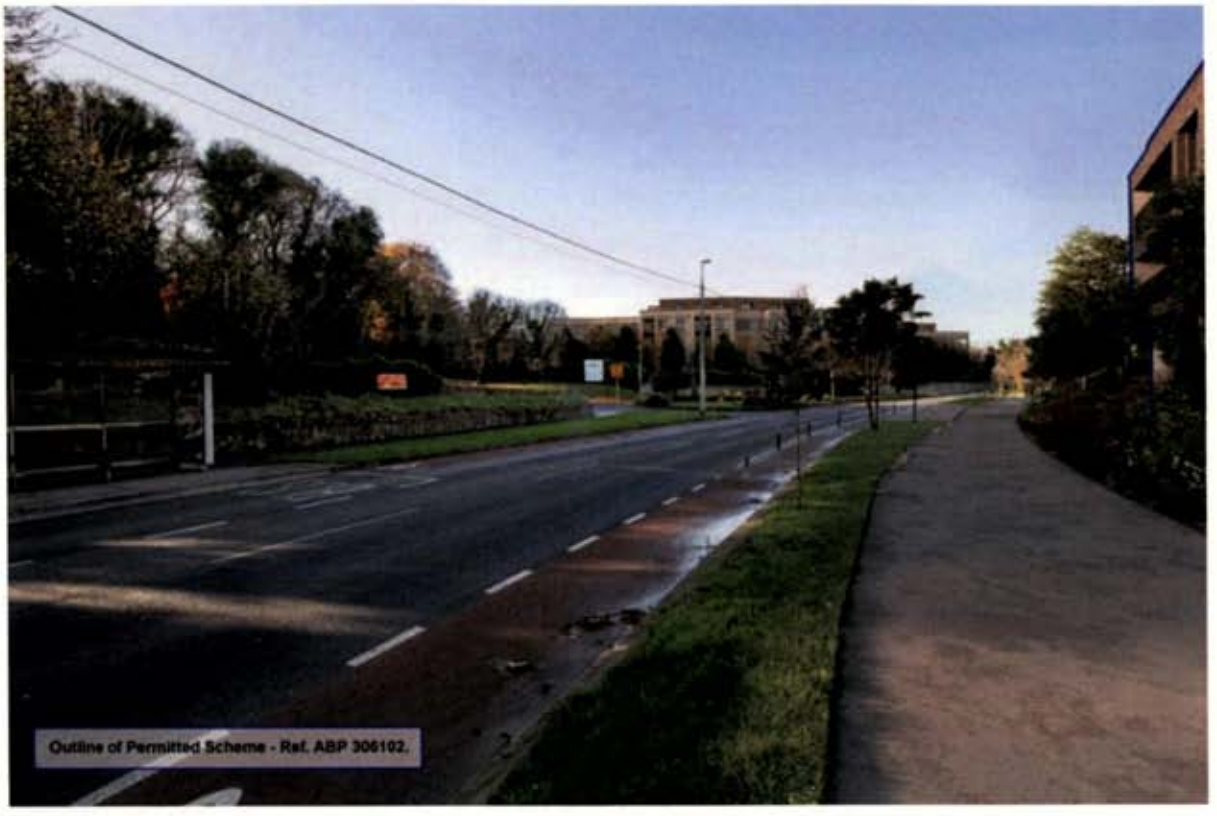
The lower floors of the proposed development will be screened by the existing historical boundary stone wall of site along Howth Road, along with substantial screening by existing trees external to the site. New tree plantings within the development site are visible to the north and east of the site where setbacks in the site layout have provided adequate space for plantings. There will be additional softening and screening of the northern and eastern elevations of the new built environment when trees are in leaf during the growing season. Two new pedestrian access points through the historical stone wall are partially visible.

The ongoing construction works at the Claremont site are visually dominant along the right of the view. The overall proposed scenario presents an urbanised regional access road to Howth town and harbour set within lands zoned for residential development and expansion adjacent to a High Amenity area with historical landscape qualities, which is currently in transition. Visual intrusion remains in the form the temporary construction works to the right of view, and permanent power and overhead wire infrastructure along Howth Road.

View No. 5	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Moderate to Significant	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 5



This view depicts the extent (blue line) of the Claremont development to the right of view when it will be complete, with floor heights ranging from four to eight storeys, with four floors visible along the southern elevations to Howth Road from this viewpoint location. The Claremont scheme, when complete, will have a substantial set back from the Howth Road itself, creating a wider public realm with grass verge, street tree plantings, and ornamental buffer planting along the built edge. Earth tones and neutral brick finishes assist in reducing the apparent massing of this development along what is depicted as a new urbanised streetscape.

Block A, C and some of Block D of the proposed development at Deer Park will be visible in the middle distance. New street tree plantings along the northern side of Howth Road, as part of the public realm improvement works associated with the Claremont development will screen some sections of the northern elevations of the Deer Park development from view. The proposed development at Deer Park will be seen as an extension of the urbanised development along the Howth as part of the planned residential zoning in the area set within and adjacent to a highly sensitive historical landscape setting.

Impact Assessment

View No. 5	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Slight	Permanent

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 6

This view is taken looking southwest towards the proposed development from the northern side of Howth Road, immediately north of the entrance gate and avenue to Howth Castle Demesne and is a representative view to assess the effects of the proposed development on the preserved view and historic fabric along the entrance avenue to Howth Castle and Howth Castle and Demesne Architectural Conservation Area (ACA).

The viewpoint depicts the entrance area to the grounds of Howth Castle Demesne set back from the Howth Road. To the left of view, in the middle distance are the Hindu gothic style gated entrance and pillars of the Howth Castle Demesne which are protected structures and is part of the Architectural Conservation Area setting. *Recorded Monuments: DU015-027001-3, DU015-042; DU015-026*
Curtilage Protected structures: FCC RPS 0556; RPS 0554; RPS 0557

The ACA protects what remains of the designed landscape associated with Howth Castle. Several of the castle buildings have been assessed of National Importance for reasons of archaeological, architectural, artistic and historical reasons. The core demesne landscape is of National Importance.

The boundary of the Howth Castle ACA extends from the Howth Road to just south of Howth Castle and includes St. Mary's Church, the formal gardens and old orchard to the castle, the ruins of an ancient church, the Howth Transport Museum complex, a large copse of trees to the west of the castle, as well as Howth Castle itself and adjoining outbuildings.

The ACA Statement of Character identifies surviving views within the core landscape setting. Additional views and visual connections have been identified through the study of historic drawings and maps between built features inside and outside the demesne stretching as far away as Dublin Castle.

The development of Deer Park golf-course reimagined the estate, and subsequently a reduced core landscape was identified by the Howth Castle Architectural Conservation Area (ACA) boundary in 2006.

Also visible within the view is the historical stone wall (Deer Park Demesne Wall) that surrounds the northern and eastern boundaries of the proposed development site at Deer Park and is described in Chapter 16 as follows:

- *Outside of the Howth Castle Demesne ACA and not specifically included in any existing inventories.*
- *Within the attendant grounds of Howth Castle (DU015-027001; DU015-027002; DU015-027003; FCC RPS 0556; NIAH 11358050-62)*
- *In the curtilage of Howth Castle Entrance Gates though not described in the accompanying description (FCC RPS 0556; NIAH 11358027)*

The stone boundary walls with an approximate height of 2.46m, are located to the north and east of the Deer Park site and are considered as historical landscape features of the former deer park. The original wall ran along length of Howth Road and defined the wider demesne boundary.

Given the presence of Protected Structures and Recorded Monuments as well as historical landscape features of what remains of the Howth Castle Demesne landscape setting identified within the ***Howth Castle Demesne ACA***, a number of views are identified for protection under 'Preserve Views' on the Fingal Development Plan Map (Baldoyle/Howth).

The view is looking south-west, capturing the historic entrance gates and Deer Park limestone wall running along the eastern and northern perimeter of the site. Substantial sections of the wall are covered in vegetation. Large mature trees within around the gated entrance to the Howth Demesne are visible along with the canopies of taller trees within the grounds of Howth Castle and golf course. There are areas of grass, ornamental plantings and ornamental street trees at the intersection of Howth Road and the castle entrance also visible within the view.

There is much visual clutter locally, in what can be described as a low-quality public realm, that detracts from the historical and heritage amenity and landscape sensitivity of the view. These include signage posts, signage on either sign of the entrance area, road signage, cycle path bollards, road lighting and overhead wire infrastructure along Howth Road and within the subject site itself.

View No. 6	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal/Significant	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 6

The upper two to three floors of the proposed 3-5 storey LRD development will be visible from this viewpoint. The upper 3rd and 4th floor of Block A will be visible to the right of view. Parts of the upper 3rd floor, along with the 4th and 5th floors of north and northeast and southeast elevations of Block C will be visible, along with some of the 3rd floor of Block D in the middle distance. The lower floors will be screened from view by the existing historical stone wall, exiting tree canopies and the canopies of new trees planted along the north and east of the site. There will be additional screening of the upper levels of the proposed development when trees are in leaf during growing season. Two new access points into the proposed development are visible in the middle distance through two points along the wall where sections removed to provide new circulation. One entrance will be comprised of stepped access from the public footpath at the northeastern corner of the site. A section of approximately 2m of wall and overgrown vegetation will be removed and replaced access steps and handrails. The second proposed pedestrian access will be further west along the boundary wall.

The architectural design features visible which allow the built form to visually recede along this view of the entrance to Howth Demesne and views of the historic gated entrance and Deer Park wall, include the site layout with Blocks D, C and A the stepped back site from the historical built features ; the stepped downs of the blocks themselves, recessed balconies, recessed punctuations to the façade which reduce the apparent length of the elevations and fourth and fifth floor setbacks (Block A and Block C respectively). The material finishes appear as earth tones that soften the overall appearance of the built form and include warm and neutral brick, with warm browns to the metal cladding to the fourth floor set back, and brown/green metal railings to the balconies. These earth tones finishes will assist in reducing the overall apparent massing of the development in the landscape.

Visual intrusion remains in the form of the visual clutter and overhead wires that forms the public domain to areas north of the castle gates, the historic stone wall and Howth Road itself.

Impact Assessment

View No. 6	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Moderate to Significant	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

The Claremont development that is currently under construction on the northern side of Howth Road is not visible from this viewpoint. It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 7

This view is taken looking east, southeast along Howth Road. The proposed development site is located on the south side of Howth Road to the right of view. The view depicts the poor quality of the public realm of Howth Road itself where the road curves south towards the entrance to Howth Castle Demesne.

The road itself is comprised of vehicular and cycling infrastructure, a wide grass verge to the right of view and pedestrian pathway that runs parallel to the historic Deer Park wall that forms the northern boundary to the site.

There is vegetation visible on top of and overgrowing the wall. An old ESB post is visible inside the wall, with wires hanging loosely from it and overgrown in climbers. There is no apparent land use visible over the top of the wall giving the impression of a vacant site, with remnants of a former historical landscape.

Contemporary road lighting and wire infrastructure is visible along the southern side of the road within the grassed margins. The entrance area to Howth Castle and Demesne is out of view in the middle distance (a yellow bus is visible in the area to the front of the gates). Parking associated with the construction works is visible along the access road to St. Marys Church. The steeple of St. Marys Church (Protected Structure and Recorded monument) is visible over the canopies of trees and substantial woodland that is part of the wider landscape setting and Howth Castle and Demesne landscape in the middle distance. The mature woodland coverage and canopy extends north along the southern side of Howth Road as the road itself curves north in the middle distance.

The wall of the former Techcrete site, the construction works of the Claremont site and associated site hoarding and crane infrastructure is visible to the left of view. The quality of the public realm is low with substantial visual clutter in the form of road and construction signage, road lighting and overhead wire infrastructure locally.

View No. 7	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal/Historic	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 7

There will be a glimpse view of the proposed development to the right of view. Views to the new built environment will be screened for the most part by the existing Deer Park wall and proposed plantings along the northern edge of the development. Further screening will be provided when trees are in leaf during the growing season along with the anticipated future growth of all soft planting proposed. The view of the steeple of St. Marys Church will remain as is. A new gated pedestrian access point is visible to the right of view adjacent to a section of the historic wall that is covered in climbers.

The existing vacant land use (with pole and wires overgrown with climbers) has been removed and replaced with substantial boundary tree plantings and a new 3-5 storey high density residential development. Glimpses of the 5 storey Block C will be partially visible through the trees at this location.

Impact Assessment

View No. 7	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Slight	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 7

The upper levels of the proposed 4-8 storey development at Claremont on the north side of Howth Road, when complete, will be visible from this viewpoint. A very small glimpse view of the proposed development at Deer Park will be visible over the trees to the right of view.

Impact Assessment

View No. 7	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Imperceptible	Permanent

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 8

This view is taken from the northwest, looking southeast along Howth Road and gives a wider view of the landscape context of the subject site from the western approach on Howth Road. The extent of the historical Deer Park wall is visible, part of which forms the northern boundary to a private residence to the northwest of the subject site. A section of the Deer Park wall has been removed and replaced with pillars and gates to provide access to this property. The extensive canopy of trees within Howth Castle and Demesne are visible in the background, in the middle distance and right of view. A low concrete boundary wall with tree and scrub planting is visible to the left of view (boundary to Baltray Park).

The presence of vehicular, cyclist and pedestrian infrastructure gives the view a suburban character, along with public road lighting and overhead wire infrastructure on the south side of Howth Road. There are more street trees visible in the grass verge on the north side of Howth Road at this location.

The proposed development site is located on the south side of Howth Road to the right of view, in the middle distance. There is vegetation visible on top of and overgrowing the wall. ESB posts and wire infrastructure are visible within the site. There is no apparent land use visible over the top of the wall giving the impression of a vacant site, with remnants of a former historical landscape.

The entrance area to Howth Castle and Demesne is out of view in the middle distance, left of view (a yellow bus is visible in the area to the front of the gates). Some of the parking associated with the construction works is visible along the access road to St. Marys Church which is not visible from this viewpoint.

View No. 8	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal/Historic	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 8

The proposed 3-5 storey development will be visible from this viewpoint. Some of the upper floors of the north and west elevations of Block A, the upper two floors of the west elevation of Block C and a small portion of the top floor of the west elevation of Block D will be visible from this viewpoint. A section of the historic Deer Park wall will be removed and replaced with a vehicular (pedestrian and cyclist) access to the site. This will essentially both physically and visually open up views into the site itself. The new pedestrian access gate through the wall will be partially visible from this location.

Some of the views to the canopies of trees within the wider historic landscape setting of Howth Castle and Demesne will be removed along with views of the power and overhead wire infrastructure within the site and replaced with a high-density residential development.

The architectural design features which allow the built form to visually recede along this view of the historic Deer Park wall and wider historical landscape setting of Howth Castle and Demesne from Howth Road, include the site layout with Blocks A,C and D stepped back from its northern boundary; the stepped downs of the blocks themselves, recessed balconies, recessed punctuations to the façade

which reduce the apparent length of the elevations and fourth and fifth floor setbacks (Block A and Block C respectively), as the substantial set back of Block D in the background of view.

The material finishes utilising earth tones soften the overall appearance of the built form and include warm and neutral brick, with warm browns to the metal cladding to the fourth floor set back, and brown/green metal railings to the balconies. These earth tones finishes will assist in reducing the overall apparent massing of the development in the landscape.

Visual intrusion remains in the form of the visual clutter (cycling bollards), public road lighting infrastructure and overhead wire infrastructure along the south side of Howth Road

Impact Assessment

View No. 8	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Moderate to Significant	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 8

The Claremont development currently under construction will not be visible from this viewpoint location. The extent of the development, when complete is indicated by a blue line. It will be screened from view by distance, intervening topography and vegetation.

Impact Assessment

View No. 8	Quality of Effects	Significance of Effects	Duration Of Impact
	No Effect	No Effect	N/A

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 9

This viewpoint is taken from northwest along on the Howth Road, looking southeast towards the proposed development site. The viewpoint is located adjacent to a linear strip of residential land use that line both sides of the Howth Road, where the houses are predominantly of two storeys detached and semi-detached homes with private front gardens with both stone and concrete boundary walls, gated entrances and ornamental plantings; some are visible to the right and left of view. One dormer bungalow is visible to the right of view, with remnants of the Deer Park wall forming its boundary with the Howth Road. The historic Deer Park wall continues southeast along the Howth Road in the middle distance. The higher elevations of Howth Head rising above the canopies of trees within Howth Demesne and the wider landscape is visible in the background. One mature parkland coniferous tree breaks the view of the Howth Head and is located within the lands of Howth Castle. ESB poles and overhead wires are visible within the subject site in the middle distance. No land use is visible or apparent from this location.

The view depicts a suburban setting, with vehicular, cyclist and pedestrian infrastructure locally. There is a grass verge with street tree visible on the north side of the Howth Road, left of view. Road signage, cycling bollards, public road lighting and substantial overhead wire infrastructure add substantial visual clutter to the view and reduces the overall sensitivity of the viewpoint.

View No. 9	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal/Historic	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 9

The upper floors of the proposed development will be visible from this viewpoint. Views of the upper elevations of Howth Head and the woodland canopies of the trees within the Howth Demesne are removed and replaced with a 3-5 storey high density residential development. The lower levels of the scheme will be screened from view by the existing 2.46m (approx.)

Deer Park wall and new tree planting along the north and west off the site. The upper 2-3 storeys of the western elevation of Block B will be visible to the right of view, 3-4 storeys of Block A will be visible in the centre of view, and 2-3 storeys of the upper levels of Block C's western and southern elevations will be visible from this viewpoint. Given the angle of the viewpoint, more the southern elevations will be visible from this location.

The architectural design features which allow the built form to visually recede within this view of the of the wider historical landscape setting of Howth Castle and Demesne, include the site layout with Blocks A, B and C stepped back from its northern boundary; the stepped downs of the blocks A and C, recessed balconies, recessed punctuations to the façade which reduce the apparent length of the elevations. Block D is not visible from this location.

The material finishes utilising earth tones soften the overall appearance of the built form and include warm and neutral brick, with warm browns to the metal cladding to the fourth floor set back, and brown/green metal railings to the balconies. These earth tones finishes will assist in reducing the overall apparent massing of the development in the landscape.

Visual intrusion remains in the form of the visual clutter (cycling bollards), public road lighting infrastructure and overhead wire infrastructure along the south side of Howth Road.

The predominant land use along this section of the Howth Road is residential. The subject lands are zoned residential on the outskirts of Howth town. The proposed development will be seen as a transition from underutilised vacant lands within the subject site (adjacent to the Howth Castle and Demesne ACA), to one with a higher density land use, carefully designed and considered to sit within the wider landscape setting of Howth Demesne in the background of view.

The relative lower heights of 3-5 storeys, in comparison with the 4-8 storey high Claremont scheme, sit within the same relative roof height of the existing built environment to the right of view. The initial removal of views to Howth Head and the wider tree canopy may be considered negative in the short-term, particularly during construction works, but will reduce once these works are complete and the development is operational.

Impact Assessment

View No. 9	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Significant	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

The 4-8 storey Claremount development currently under construction adjacent to the site is outside the viewpoint and will not be perceptible from this location. It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 10

This viewpoint is taken further northwest on the Howth Road, looking southeast towards the proposed development site. The viewpoint is located adjacent to a linear strip of residential land use that line both sides of the Howth Road, where the houses are predominantly of two storeys detached and semi-detached homes with private front gardens with mainly concrete boundary walls, gated entrances and ornamental plantings. Two dormer bungalows are partially visible to the right of view in the middle distance, that lie immediately adjacent to the western boundary of the subject site, with remnants of the Deer Park wall forming their boundary along the Howth Road.

The historic Deer Park wall continues southeast along the Howth Road in the centre of view. The higher elevations of Howth Head are visible rising above the canopies of trees and woodlands within Howth Demesne and the wider landscape in the background of view. Some tree canopies within and outside the site breaks the view of the Howth Head, along with ESB poles and substantial overhead wires infrastructure along the Howth Road.

The view depicts a suburban setting, with vehicular, cyclist and pedestrian infrastructure locally. There are grass verges with a mix of street trees visible on the north and south side of the Howth Road. Road signage, cycling bollards, public road lighting and substantial overhead wire infrastructure add substantial visual clutter to the view and reduces the overall sensitivity of the viewpoint.

View No. 10	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 10

Proposed Viewpoint 10

The proposed development is visible in the background of view. Four of the 4-5 storeys of the western elevation of Block A will be visible along with some of the upper levels of the western and southern elevations of the 4 storey Block B. External cantilevered balconies are visible along the 4th floor southern elevation of Block B. There will be substantial screening of much of Block B from this viewpoint by the existing built environment, trees and vegetation in the intervening landscape.

The first-floor level of Block A will be screening from view by the existing historical Deer Park wall and existing trees and vegetation in the existing landscape. ESB poles and wire infrastructure along Howth Road will remain. One large street tree on the south side of Howth Road will break the view of Blocks A and B, with more screening when trees are in leaf during the growing season. The facades of Block A and B appear merged from this viewpoint. However, Block B, which is 4 storeys is set back into the southern portion of the site.

The architectural design features which allow the built form to visually recede within this view of the of the wider historical landscape setting of Howth Castle and Demesne, include the site layout with Blocks A and Block B stepped back from the northern and western boundary of the site; the stepped downs of the blocks A and B, recessed balconies, recessed punctuations to the façade which reduce the apparent length of the elevations. Block D is not visible from this location.

The material finishes utilising earth and sand coastal tones will soften the overall appearance of the built form, and also include warm and neutral brick, with warm browns to the metal cladding to the fourth and fifth floor setbacks, and brown/green metal railings to the balconies. The overall materiality finishes will assist in reducing the overall apparent massing of the development in the landscape.

Much of the woodland canopy of the Howth Demesne landscape setting along with some of the views of the upper levels of Howth Head in the background will be removed and replaced with a 3-5 storey high quality high density residential development. Visual intrusion will remain throughout the view in the form of the visual clutter (cycling bollards), public road lighting infrastructure and overhead wire infrastructure along both sides of Howth Road in this suburban residential setting.

The relative low heights of this this high density 3-5 storeys, sit within the same or lower relative roof level heights of the existing built environment, particularly to the left of view. The initial removal of views to Howth Head and views of the wider tree canopy may be considered negative in the short-term, particularly during construction works, but will reduce once these works are complete and the development is operational.

Impact Assessment

View No. 10	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Moderate	Long term

It is considered that the proposed development will not have a significant adverse effect on this view.

The Claremont development currently under construction will not be visible from this viewpoint location. The extent of the development, when complete is indicated by a blue line. It will be screened from view by distance from the site and the intervening built environment.

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 11

This viewpoint is taken from the grounds immediately west of St. Marys Church (Protected Structure), looking west, northwest towards the proposed development site. The view depicts a gravelled area surround the church for vehicular access, with an area of flat grassed lawn, ornamental trees and hedgerows along its perimeter. The larger trees visible in the background for, the middle distance to the left of view is part of the wider woodland that exists between the church grounds and avenue to Howth Castle and Demesne and are part of the wider historic landscape demesne setting. Some of the trees appear in poor health with substantial ivy coverage. There are some canopies of larger trees visible in the background, right of view. One low level ornamental street light column is visible to the right of view along with one arm of a crane and hoist that are part of the ongoing construction works at The Claremont site on the south side of the Howth Road.

View No. 11	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal/ Historic	Medium to High	Medium to High	Medium	Medium	Medium

Proposed Viewpoint 11

The proposed development will not be visible from this location. The extent of the proposed development is indicated on the view in a red line representing the outlining its location in the background of view. It will be screened from view by the intervening distance from the site, topography, trees and vegetation.

Impact Assessment

View No. 11	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 11

Two of the upper floors of the adjacent 4-8 storey Claremont development that is currently under construction will be visible to the right of the view when construction works are complete. The extent of the Claremont development is indicated in a blue line.

Impact Assessment

View No. 11	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Slight	Permanent

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 12 – Preserved View - Howth Castle Avenue (Fingal Development Plan 2023-2029)

This viewpoint is taken looking northwest towards the subject site from the avenue to Howth Castle and Demesne. The view is located to the southwest of St. Mary's Church and is also a representative view of the preserved view along the along the avenue in the Fingal County Development Plan 2023-2029.

The Hindu-gothic style entrance gates to the castle and demesne which are protected structures are visible to the right of view. The entrance to the grounds is visible, as is Howth Road, and the construction site and compound of the Claremont development the north side of Howth Road. As the topography of the landscape falls, there are views of the Irish Sea in the distance.

Within the grounds themselves the mature trees that line the western edge of the avenue are visible along a low embankment. There is an occasional smaller scrub, the majority of the lower coverage are groundcovers and mosses. The historical Deer Park wall is partially visible beyond the tree line and appears to be covered in ivies or climbers. The lower ground covers and individually mature trees allow views into the subject site in the background over the stone wall. Some of the tree plantings within the site are visible.

The hardscape of the avenue road is visually poor. It presents as a macadam surface, patched in places. A simple fence and wire have been erected along the road verge, possible to prevent cars parking and providing a temporary safe pedestrian route for walkers who frequently the site for recreational purposes. The verges are in poor condition, comprised of hardcore and soil.

View No. 12	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal /Historical Landscape	High	High	High	High	Low

Proposed Viewpoint 12

There may be a glimpse view of the proposed development from this viewpoint, but it is difficult to discern due to the existing vegetation coverage. The red line indicates the massing of the proposed development in the background of view. It will be screened by both the built structure of the historic Deer Park wall in the middle distance, and the existing trees and vegetation on the avenue and within the site itself. There is considerable set back of the proposed built environment along the east and north-east of the proposed development site; with substantial areas of open space, deciduous and evergreen trees, and hedgerows that will assist in filtering views of the proposed development during the winter months.

Impact Assessment

View No. 12	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Imperceptible to Slight	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 12

The built environment of the Claremont development currently under construction will not be visible from this viewpoint location. The new public realm proposals to the streetscape of Howth Road will be visible from this viewpoint location mainly in the form of soft landscaping and street tree planting. Views out to the Irish Sea will be removed by these landscape interventions.

There may be a glimpse view of the proposed development from this viewpoint, but it is difficult to discern due to the existing vegetation coverage. The red line indicates the massing of the proposed development in the background of view. It will be screened by both the built structure of the historic Deer Park wall in the middle distance, and the existing trees and vegetation on the avenue and within the site itself.

Impact Assessment

View No. 12	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Slight	Permanent

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view which is a preserved view in the Fingal County Development Plan 2023-2029.

Existing Viewpoint 13

This view is taking within the grounds of Howth Castle and Demesne ACA. The view is taken looking northwest towards the subject site from an ornamental area of mown lawn west of the existing golf course lands. Part of the protected structures of Howth Castle are visible to the left of view. Substantial mature coniferous and some deciduous parkland trees are visible through the middle distance with some ornamental scrub plantings in the centre of view. The lawn area is undulating, rising to a high point to the right of view where the lawn meets the boundary of the golf course lands to the east of the view. The view can be described as an historical landscape setting. A large coniferous tree which is visible in the wider landscape can be seen to the left of view behind the built structures of the castle itself.

View No. 13	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal / Historical Landscape	High	High	High	High	Low

Proposed Viewpoint 13

The proposed development will not be visible from this viewpoint. The red line indicates the massing of the proposed development in the background of view. It will be screened from view by intervening distance, topography, trees and vegetation. The red line indicates the location of the proposed development in the background of view.

Impact Assessment

View No. 13	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that the proposed development will not have a significant adverse effect on this view.

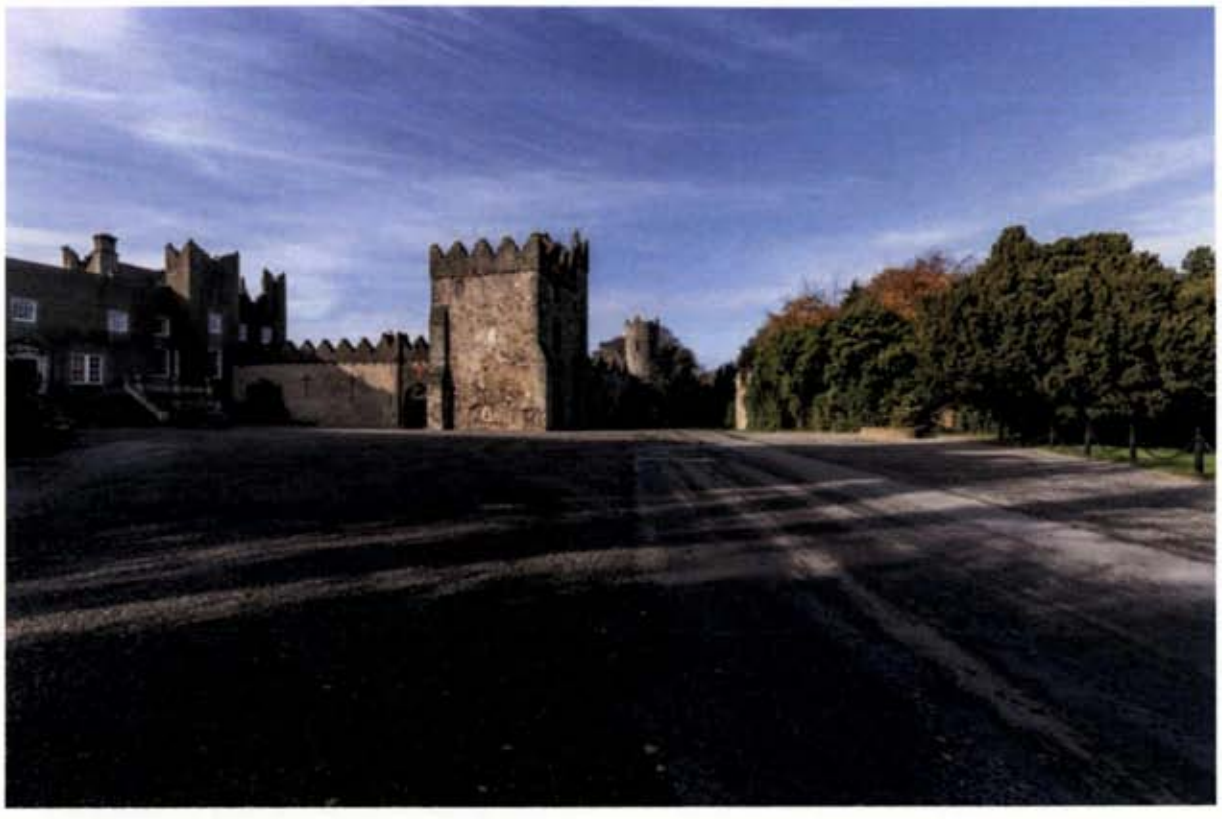
Cumulative 13

The Claremont development currently under construction will not be visible from this viewpoint location. The extent of the development, when complete, is indicated by a blue line to the right of view in the middle distance. It will be screened from view by distance from the site, intervening built environment, topography, trees and vegetation.

View No. 13	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

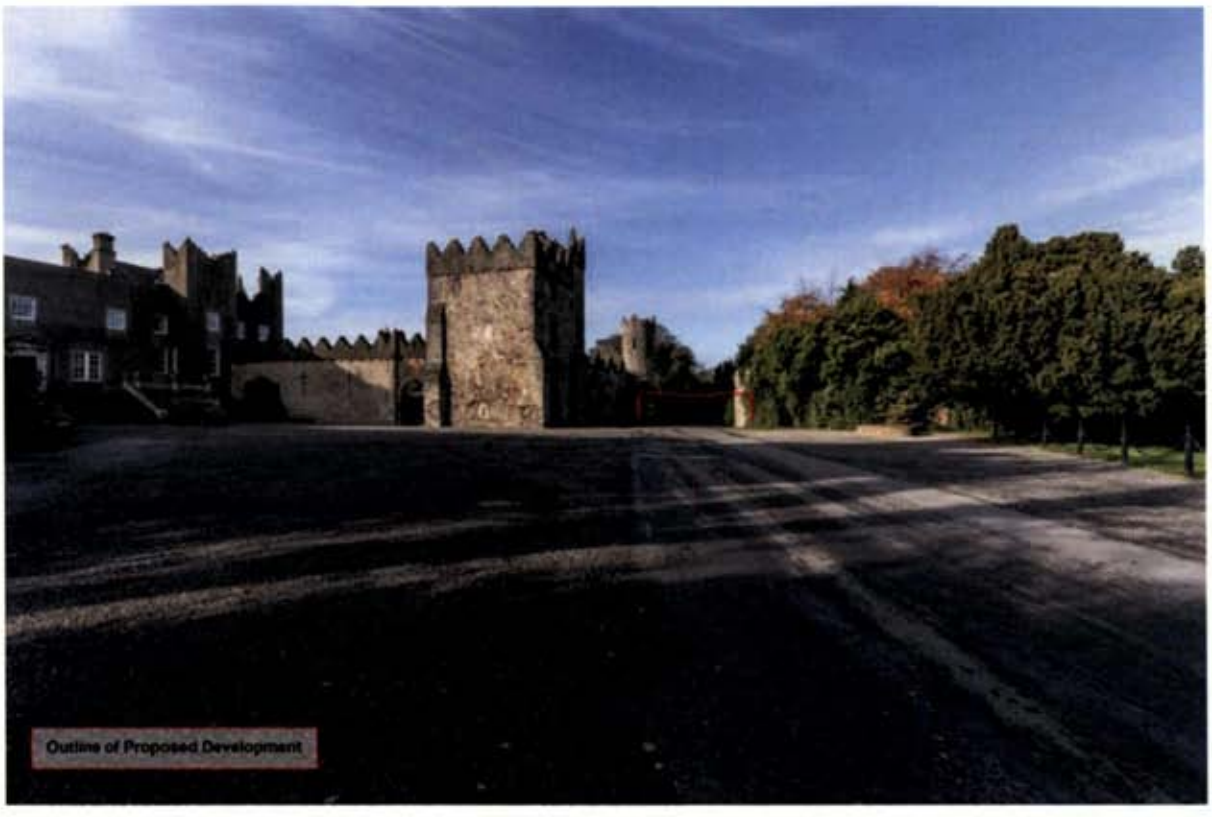
Existing Viewpoint 14



This view is taken adjacent to the curtilage of Howth Castle within the ACA, looking northwest towards the subject site. The historic and protected structures of the Castle are visible to the left of view. The historical avenue is visible in the centre of view, with the canopies of the woodlands and trees along the avenue itself and the wider historical demesne landscape setting visible in the centre of view through to the right of view. Other protected structures of a smaller scale are also visible at the southeast of the avenue itself.

View No. 14	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal / Historical Landscape	High	High	High	High	Low

Proposed Viewpoint 14



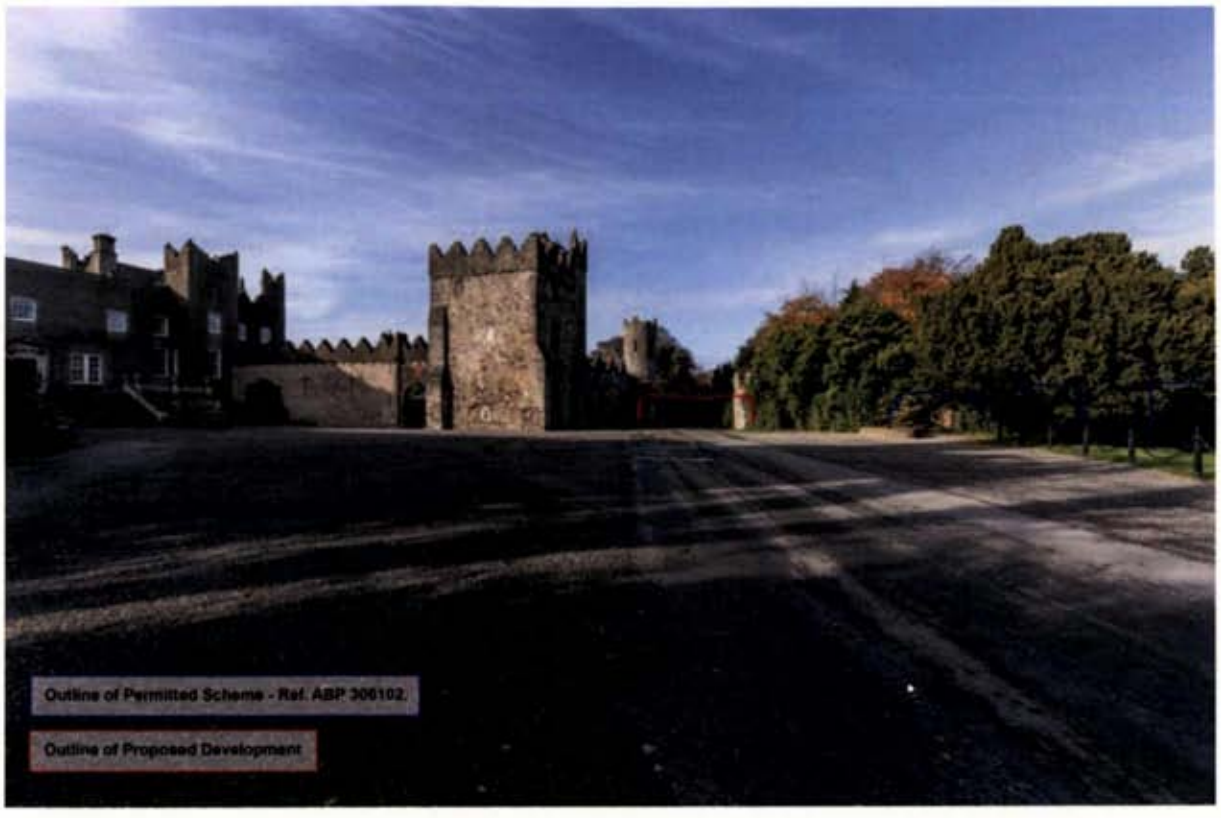
The proposed development will not be visible from this viewpoint. The red line indicates the massing of the proposed development in the background of view. It will be screened from view by intervening distance, topography, trees and vegetation. The red line indicates the location of the proposed development in the background of view.

Impact Assessment

View No. 14	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 14



The Claremont development currently under construction will not be visible from this viewpoint location. The extent of the development, when complete, is indicated by a blue line. It will be screened from view by distance from the site, intervening built environment, topography, trees and vegetation.

View No. 14	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 15

This view is taken from the 3rd floor window within a western extension of the castle, looking north, northwest towards the subject site. The view overlooks a walled garden that is open to the public (and a clients of a cookery school). The wall that surrounds the garden is a historical structure. Parts of the castle are visible to the right of view. To the left, over what appears to be a historical wall or structure, overgrown in vegetation, the roof of one of the agricultural sheds in the yard to the northwest of the castle is visible. There is substantial mature tree planting visible right through the middle distance of the view. There is one glimpse view of the Irish Sea and coastline of (possibly) Rush in the background of view.

View No. 15	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal / Historical Landscape	High	High	High	High	Low

Proposed Viewpoint 15

The proposed development will not be visible from this viewpoint. The red line indicates the massing of the proposed development in the background of view. It will be screened from view by intervening distance, topography, trees and vegetation. The red line indicates the location of the proposed development in the background of view.

Impact Assessment

View No. 15	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 15

The Claremont development currently under construction will not be visible from this viewpoint location. The extent of the development, when complete, is indicated by a blue line. It will be screened from view by distance from the site, intervening built environment, topography, trees and vegetation.

View No. 15	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 16

This viewpoint is taken from the southern vehicular entrance to the service yards to the northwest of Howth Castle. The yard is comprised of substantial hard macadam surface with a number of double height sheds. To the right of view is a historic two storey vernacular building used by the employees who manage external works at the castle grounds and golf course. To the left of view is an older building with metal doors that is used as a transport museum. Two old army tanks are visible in the yard. Some canopies of trees are visible over the rooftops of the sheds in the middle distance.

View No. 16	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal / Part Historical Landscape	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 16

The proposed development will not be visible from this viewpoint. The red line indicates the massing of the proposed development in the background of view. It will be screened from view by intervening distance, topography, trees and vegetation. The red line indicates the location of the proposed development in the background of view.

Impact Assessment

View No. 16	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 16

The Claremont development currently under construction will not be visible from this viewpoint location. The extent of the development, when complete, is indicated by a blue line. It will be screened from view by distance from the site, intervening built environment, topography, trees and vegetation.

View No. 16	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 17

This viewpoint is taken from a wide pathway within an area of woodland to the southwest of the castle and south of the service yard and transport museum identified in View 16. The view is looking north, northwest towards the subject site. The built environment of the service yard/transport museum is visible through the stems of the mature trees. Other lower scale outbuildings and sheds are visible in the background. There is substantial mature tree cover within the view given its location within a woodland edge.

View No. 17	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal / Part Historical Landscape	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 17

Impact Assessment

The proposed development will not be visible from this viewpoint. The red line indicates the massing of the proposed development in the background of view. It will be screened from view by intervening distance, topography, trees and vegetation. The red line indicates the location of the proposed development in the background of view.

View No. 17	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 17

The Claremont development currently under construction will not be visible from this viewpoint location. The extent of the development, when complete, is indicated by a blue line. It will be screened from view by distance from the site, intervening built environment, topography, trees and vegetation.

Impact Assessment

View No. 17	Quality of Effects	Significance of Effects	Duration Of Impact
	No effect	No effect	N/A

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 18

This view is taken from the edge of a large area of woodland to the northwest of the service yard and transport museum, and northwest of the castle looking northeast towards the subject site over the golf course lands. There is a substantial mature linear woodland to the right of view that extends along the north of the service yard area and Howth Castle. The woodland extends along the west of the avenue to the castle. More woodland, mainly young to semi-mature trees are visible in the middle distance between the fairways. The mature woodland visible in the background is a linear woodland edge that bounds the south of the subject site and extends west along the boundary of the golf course. The golf course lands within the view are of a relatively flat topography. There are views of the historical Deer Park wall in the middle distance, right of view. Crane infrastructure on the Claremont site currently under construction are visible on the skyline in the background of view.

View No. 18	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal / Part Historical Landscape	Medium	Medium	Medium	Medium	Medium

Proposed Viewpoint 18

The upper 4th floor of Block B and the part of the upper floor of Block D will be visible over the woodland canopy in the background of view. There will be some tree removal along the southern boundary to facilitate the development, although this will not be discernible from this location.

View No. 18	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Slight	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 18

A small section of the roofline of the Claremont scheme may be visible from this viewpoint, but the majority of this development will not be visible from this viewpoint due distance from the site and intervening woodland planting.

View No. 18	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Imperceptible to Slight	Permanent

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing Viewpoint 19 - Preserved View- Muck Rock - (Fingal Development Plan 2023-2029)

This viewpoint is taken from Muck Rock that lies on the 90m OD contour line immediately south of Howth Castle. The view is taken looking north towards the subject site.

Views from around Muck Rock are preserved in the Fingal Development Plan 2023-2029.

Muck Rock lies to the southwest of the Ben of Howth (154m+OD) on Howth Hill. This area lies within the existing pNHA and SAC of Howth Headland is used as a recreational walking route via the numerous local pathways and rights of way. Access to the site is by numerous public footpaths that criss-cross the area. Muck Rock affords panoramic views over the northern side of the Howth headland, over the historic landscape demesne setting of Howth Castle and Demesne and ACA, and out to the Irish Sea.

The golf course fairways landscape, divided by lines of trees are visible, along with the substantial canopy of woodland through the demesne. The south elevation of Howth Castle is visible, along with the roof and spire of St. Marys Church nestled in woodland.

The linear suburban development along the west of Howth Road is visible to the left of view in the middle distance. The Howth Lodge (3-4 storey) apartments are visible on the shoreline where the Howth Road curves south.

The Claremont development is under construction with the works themselves and crane infrastructure visible along Howth Road set against the Irish Sea in the background. Some of the infrastructure of Howth harbour is visible to the right of view. Irelands Eye and Lambay Island (Martello Tower can be seen) are visible in the middle distance. Further in the distance is the coastline of Rush.

The view is coastal and panoramic.

View No. 19	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal/Historic	High	High	High	Exceptional	Low

Proposed Viewpoint 19

Some of the upper levels of the proposed development at Deer Park will be discernible from this viewpoint. Two to three of the southern elevation of the 4 storey Block B along with a small portion of the 3rd floor of Block D set against the 5th floor of Block C will be partially visible over the canopy of woodland within the wider landscape.

The development is for the most part visually absorbed through its considered site layout and the relative low number of floor heights within the 3-5 storey development. The set back of the proposed development from Howth Road along with existing trees and vegetation to the north of the Deer Park site ensure the roof line does not break the coastline to the north of headland. The extent of the development is outlined in red.

The architectural design features which allow the built form to visually recede within this view of the of the wider historical landscape setting of Howth Castle and Demesne, the site layout with Blocks B and Block D stepped back to the south; the step backs of the 5th floors of Block C and 3-4 storey step down of Block D from 3-4 storeys to the west of the site; recessed balconies, recessed punctuations to the façade also reduce the apparent length of the elevations.

The material finishes utilising earth and sand coastal tones will soften the overall appearance of the built form and also include warm and neutral brick, with warm browns to the metal cladding to the fourth and fifth floor setbacks, and brown/green metal railings to the balconies. The overall materiality finishes will assist in reducing the overall apparent massing of the development in the landscape.

The proposed development will not break the view of the coastline or impinge on views of the Irish Sea.

View No. 19	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Slight	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 19

The upper floors of the 4-8 storey Claremont scheme will be visible from this location when complete. The seven blocks will protrude into the views of the Irish Sea and break the line of the coast from view. The spire of St. Marys Church which currently is an iconic heritage feature in the landscape will be absorbed into the built environment of the new development. This change will be significant and adverse and will be seen as an expansion of the town west along Howth Road with the substantial visual reduction of the separation of the castle, church and demesne landscape setting from its original historical landscape context.

View No. 19	Quality of Effects	Significance of Effects	Duration Of Impact
	Adverse	Significant	Permanent

The proposed development at the Deer Park site will be predominantly visually contained within the existing landscape of site by the existing tree coverage. The greater visual effect arises from the anticipated finished Claremont scheme to the northeast of the site. It is considered that cumulatively,

the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view which is a preserved view in the Fingal County Development Plan 2023-2029 but the Claremont scheme will have a significant adverse impact on this preserved view.

Existing View 20

This viewpoint is taken from Portmarnock looking southeast towards Howth. The viewpoint affords panoramic views over the Irish Sea. Urban and suburban development is visible along the Howth coastline and up into higher ground. The crane infrastructure at the Claremont site is visible in the distance. Views from the Portmarnock coastline are protected.

View No. 20	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal	Medium	Medium	Medium	Medium	Medium

Proposed View 20

The proposed development at Deer Park will be discernible in the distance and will present as an urban built environment on the north coast of Howth. The development will be visually absorbed by the existing suburban built environment to the right as well as the urban built environment to the left.

View No. 20	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Not significant	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 20

The proposed development at Deer Park will be visible to the right of the completed development at the Claremont site. The proposed development will be less prominent than that of the Claremont development to the left. Both developments will be perceived as the urban expansion of Howth town along Howth Road. Given the distance from the site, the magnitude of change is considered low.

View No. 20	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Slight	Permanent

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view which is a preserved view in the Fingal County Development Plan 2023-2029.

Existing View 21

This viewpoint is taken from Baltray Park looking southeast towards the site. The higher elevations of Howth Head are visible in the distance. The canopy of trees on the subject site is visible in the middle distance, right of view. Some of the low-rise housing on the south of Howth Road are visible to the right of view, along with ESB poles and overhead wire infrastructure along Howth Road.

To the left of view is the Claremont development under construction with crane infrastructure visible. The lower portions of the Claremont site are screened by trees and hedgerow. The large expanse of amenity sunken grass lawn within Baltray Park affords a wider view back towards the site.

View No. 21	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal	Medium	Medium	Medium	Medium	Medium

Proposed View 21

Part of the proposed 3-5 storey development will be visible from this viewpoint. Some of the northern elevation and most of the western elevation of Block B will be visible from this location. The upper 5th floor of Block C will be visible over the canopies of trees in the middle distance. New mature tree planting within the scheme will be visible from this viewpoint. Some of the views to the higher elevation of Howth Head will be removed. There will be further screening when trees and vegetation will be in leaf during growing season. Visual clutter will remain in the form of ESB poles and overhead wire infrastructure. The landscape character of the view will change from suburban to urban.

View No. 21	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Moderate	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

Cumulative 21

The western elevation of the 4-8 storey Claremont development will be visible from this viewpoint, along with a portion of the western extents of the proposed development at Deer Park. The landscape character will alter from suburban to urban in nature.

View No. 21	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Moderate	Permanent

It is considered that cumulatively, the proposed development along with the future completed Claremont development will not have a significant adverse effect on this view.

Existing View 22

This view is taken from the north side of Howth Road looking south towards the site. The view depicts the boundary to the west of the entrance to Howth Castle and Demesne. There has been some ivy clearance along the historic Deer Park wall which runs through the view from left to right. Part of the wall to the left appears to be made of different stone, part of historical repairs to the original structure. The tree line to the east of the subject site is visible along with canopies of trees within the grounds in the distance. The ESB pole and overhead wire infrastructure within the site is visible along with overhead wire infrastructure on Howth Road itself. Howth Road, cycling infrastructure and grassed areas along the northeastern boundary of the site are visible in the middle distance, all of which are of poor visual quality. Given the presence of the historic wall and part of the historic demesne landscape along the avenue to the left of view, the landscape value is considered medium.

View No. 22	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal / Historic	Medium	Medium	Medium	Medium	Medium

Proposed View 22

Part of the proposed development will be visible from this viewpoint. Some of the northern and eastern elevations of Block C, along with the northern elevations of Blocks B and A will be visible. A small portion of the lower 3 storey will be partly visible in the background. Existing tree planting along Howth Road will screen much of Block C from view. Proposed planting within the scheme will screen views of Blocks B, A and D, with further screening when trees are in leaf during growing season. The 3-5 storey development will not be seen above the canopy of trees in the middle distance. The relative open views into the wider lands and overhead wirescape will be removed and replaced with the built environment of the proposed development.

The setback of the scheme from the eastern boundary of the avenue to Howth Castle is apparent from this location. The lower 3 storey Block D, along with the stepback of the 5th floor of Block C and A assists in reducing the apparent massing of the development as a whole particularly in relation to the historic landscape context. The materiality of proposed scheme along with earth and sand tone colours finishes, and variation in elevational treatments are visible with recessed balconies, enable the scheme to visually recede into the landscape setting. A new pedestrian and cyclist access to the scheme is visible where a section of the historic wall is removed. The proposed materials are subtle earth tones with a bespoke design to the placename.

View No. 22	Quality of Effects	Significance of Effects	Duration Of Impact
	Neutral	Moderate	Permanent

The proposed development at Claremont will not be visible from this viewpoint. There will be no cumulative effect in this instance.

Existing View 23

This viewpoint is taken from the north side of Howth Road, looking east southeast towards the subject site. The presents as a suburban road with cycling and pedestrian infrastructure set against the backdrop of the historic Deer Park wall which bounds the wider landscape setting of Howth Castle and Demesne. The historic tree canopy along the avenue and surrounding St. Marys Church is visible to the left of view in the middle distance. Some of larger mature trees canopies further into demesne are visible in the background. The tree line to the east and south of the site are also visible form this location. A small portion of the upper elevations of Howth Head is visible in the distance. Some of the ESB posts and overhead wire infrastructure within the site are visible over the wall. There is substantial visual clutter on this section of Howth Road, given its suburban nature, mainly in the form of road lighting and overhead wires, cycling bollards, as well as construction and road signage at the entrance to the castle itself in the distance. There are a number of street trees set within grass verges along both sides of Howth Road.

View No. 23	Landscape Character Type	Landscape Character Sensitivity	Visual Sensitivity	Overall Landscape Sensitivity	Landscape Value	Landscape Capacity
	Coastal / Historic	Medium	Medium	Medium	Medium	Medium

Proposed View 23

The proposed development will be visible from this location. The upper levels of Block C along with a partial view of its western elevation will be visible along with views of some of the northern and western elevation of Block A. Blocks B will be visible in the background, set back into the south of the site. Block D will not be visible from this location. Sections of the historic wall have been removed to allow for pedestrian/cyclist access in the middle distance along with a wider opening to the left of view to allow for vehicular access to the proposed development. The wider opening opens up views into the site, and the new public realm showing car parking bays, pathways, soft landscaping and new street lighting. New larger mature trees will be visible along the northern boundary of the site along with a variety of new trees within the site. The proposed planting will afford substantial screening of the visible elevations, in conjunction with screening from existing trees along Howth Road itself. Further screening will be afforded when trees are in leaf during growing season. The breakup of the blocks within the site layout is apparent from this viewpoint. The setbacks of the scheme from the northern and western boundaries of the site are also apparent. The stepback of the 5th floor of Blocks A C assists in reducing the apparent massing of the development as a whole particularly in relation to the historic landscape context. Block B, which is 4 storeys, sits back further and lower in the landscape. The materiality of proposed scheme along with earth and sand tone colours finishes, and variation in elevational treatments are visible with recessed balconies, enable the scheme to visually recede into the landscape setting. Signage to the scheme is consistent and bespoke utilising a deer motif void on corten plate set against the historic stonework of the wall at the vehicular entrance to the left of view.

Some views of the wider tree canopy in the background of view will be removed along with the partial view of the upper levels of Howth Head. Views of a large area of historic woodland at the entrance to

demesne and St. Marys Church will be retained. The underutilised greenfield site adjacent to the Howth Castle and Demesne will be removed and the site will be opened up with a well-considered high quality high density residential development with access to public open spaces.

View No. 23	Quality of Effects	Significance of Effects	Duration Of Impact
	Positive	Moderate	Permanent

It is considered that the proposed development will not have a significant adverse effect on this view.

The proposed development at Claremont will not be visible from this viewpoint. There will be no cumulative effect in this instance.

5.8.1 Demolition Phase

5.8.1.1 Landscape

Given the nature of the Deer Park site as a green field, there are no structures on-site to be demolished in their entirety, however there will be partial demolition of the existing boundary wall in the form of the three interventions proposed to facilitate vehicular and pedestrian access. There is the potential for likely moderate, adverse, and short-term effects on the landscape during this stage of the project resulting from the following elements associated with demolition work:

- The removal of sections of trees at the southern boundary of the site
- The removal of sections of wall for vehicular and pedestrian access
- Soil movement and stock piling of topsoil
- Removal/moving existing ESB pole and wire infrastructure

The effects on the landscape amenity of the site during this phase are unlikely to be significant and adverse given that there are no built structures on site to be demolished in their entirety. With the exception of the removal of sections of the historic wall for pedestrian and vehicular access, demolition works will be largely contained within the site as listed above. Any effects will be short term, terminating at the completion of this phase.

5.8.1.2 Visual Impact

There is potential for moderate and adverse temporary visual effects on views into the site during the demolition stage. These will be short-term, terminating upon completion of the development. The effects on the visual amenity of the site during this phase are unlikely to be significant and adverse given that there are no built structures on site to be demolished in their entirety. With the exception of the removal of sections of the historic wall for pedestrian and vehicular access, demolition works will be largely contained within the site as listed above. Any effects are likely to be short term, terminating at the completion of this phase.

5.8.2 Construction Phase

5.8.2.1 Landscape

There is the potential for likely significant and adverse temporary effects on the landscape during the construction stage of the project resulting from the following elements associated with construction works:

- Erection of physical structures such as site compounds and storage area
- Erection of site hoarding, signage, security fencing
- Presence of site machinery and delivery/storage of materials etc
- Lighting:
  - Temporary security lighting
  - Lighting at height associated with construction of structures
  - Lighting in the contractor's compound and car parking areas
  - Light spill and glare towards surrounding residential receptor areas to the north of the site
  - Light spill which could impact ecology/biodiversity

5.8.2.2 Visual Impact

The visual effects due to construction are likely to be short term, terminating upon completion of the development. There is potential for likely significant and adverse short-term effects during construction from the following elements associated with construction and works:

- Dust
- Site huts
- Building materials
- Ground disturbance (e.g. topsoil, stockpiles, etc.)
- Site hoarding/security fencing
- Construction works

There is potential for likely significant and adverse short-term visual effects from the use of temporary buildings, machinery necessary for construction works at proposed works, as well as stockpiling of materials.

There is potential for a significant and adverse short-term effects from the transportation of the material to be recycled and the recycled material to and from the site if applicable. There is the potential for a likely significant and adverse short-term visual impact on views into the site.

The main stages of the construction phasing will include the following:

- Site preparation works
- Site establishment and erection of temporary structures
- Diversion and connection of services and utilities
- Construction of foundations and structures
- Mechanical and electrical installation
- Fit-out and external works.

5.8.3 Operational Phase

5.8.3.1 Landscape

It is understood that the proposed development of this type, results in a permanent change and may fundamentally alter the appearance of the landscape. However, altered appearance does not necessarily equate to long-term/permanent negative effects to landscape character. Therefore, it is essential that a holistic view is taken with proposals of this nature, that not only assess the potential impact during the construction phase, but critically how the proposal will appear when fully implemented and the new planting/landscaping have matured. The proposed design will feature public and communal open spaces that incorporate a diverse palette of soft landscaping including new woodland tree copses, wildflower meadow planting, bulb planting and ornamental planting. Landscape mitigation measures are designed into the landscape site plan and include the retention of the majority of existing boundary trees and hedgerows as well as the historic stone wall, in order to protect the historic landscape aesthetic of the existing landscape setting and to foster biodiversity.

Without designed in landscape mitigation measures in place, the potential landscape effects resulting from the proposed development during the operational phase are considered to be significant and adverse.

5.8.3.2 Visual Impact

Potential effects will arise from the proposed medium to high density residential development once it is operational and construction is complete. The patterns of use from day to day will alter as both vehicular, cyclist and pedestrian movement are likely to increase both throughout the site itself and along Howth Roads on approach to the development. There is potentially a perceived adverse and moderate visual effects resulting from the replacement of the historic landscape aesthetic with a medium to high density residential development and associated ancillary site infrastructure. However, the site is currently an underutilised greenfield site, and as such is a remnant of the former wider demesne landscape. These potential adverse effects will be mitigated by extensive landscape proposals shown in the landscape site plan. There is potential for a likely moderate and positive visual effects from the creation of public open spaces in the north and south of the site, for the use of residents and the wider community. There is also potential for moderate and positive visual effects from the creation of new access points (two pedestrian and one vehicular) through the historic stone wall that will open up the site, its open spaces and woodland walks to the wider community.

Based on the above, it is considered unlikely that there will be significant adverse visual effects from the proposed development once it is operational and all landscape installations and proposals as presented in the landscape site plan are implemented in full.

The proposed design will encompass the following elements:

- Public and communal open spaces
- A variety of hardscape materials including permeable paving, soft fall play safety surfacing and in-situ exposed aggregate concrete footpaths
- Improved public pedestrian and cyclist permeability through the site from the Howth Road

- The creation of green links connecting pockets of open space and amenity areas through the landscape site plan's green infrastructure strategy
- A hierarchy of native and ornamental planting including trees, shrubs, hedging, ornamental grasses, herbaceous and perennial planting, wildflower meadow, tree copses, bulb and pollinator friendly planting generally.
- The retention of existing trees, scrub and hedgerows and the planting of native broadleaf tree species for biodiversity protection and enhancement
- Hard and soft surface open spaces with seating areas
- SuDS features, green roofs, rain garden
- Bike store
- Fire Tender access (reinforced grass)
- Potential community garden
- Pergola with Retractable Canopy
- Outdoor gym / Calisthenics

The architectural treatments en façade of the proposed development will be reflective of the site context and coastal landscape character. A number of architectural design features are proposed that allow the built form to visually recede and are of particular note along the proposal's elevations to the Howth Road which the proposed scheme will the most visible. These include:

- Setbacks and step downs of the built environment
- Recessed balconies
- Recessed punctuations to the façade which reduce the apparent length of the elevation.
- Material finishes that soften the overall appearance of the built form, and include warm and neutral brick, warm browns to the metal claddings to the top floor setbacks, brown/green metal railings to the balconies. These earth and sand tones finishes are reflective of the colours in the immediate historical landscape setting and also in the local coastal setting; these will assist in reducing the overall apparent massing of the development in the landscape.

5.8.4 Cumulative Effects

Three local development projects have been reviewed as part of this review of cumulative effects of other projects in conjunction with the proposed development at the Deer Park lands. All three are at different stages in the planning process.

Claremont Development, Howth Road

Northeast of the site: **Currently under construction**

(Bord Pleanála Case reference: PL06F.246151 and Planning Authority Case Reference: F15A/0362).

Development Description:

The development would include the demolition and removal of the industrial and commercial structures on the site and the excavation of a basement. Four buildings would be erected up to 8 storeys high. Blocks A and B at the western end of the site would be U-shaped with the open end

towards the sea. They would have parking and plant rooms at the ground floor level with communal open space at a podium level equivalent to the lowest floor of apartments. That level would accommodate shared amenities including a gym in Block A and the creche in Block B. Public open space would be provided to the west of Block A up to the site boundary. An open space would be provided between Blocks A and B through which the Bloody Stream would be diverted into a new open channel. Blocks C and D at the eastern end of the site would have the shops, restaurant and café at ground floor level facing the Howth Road and a plaza between them. A pedestrian path would be provided along the northern side of the site at the podium level with access from the street at both ends. The parking areas at ground and basement level would be served by 2 vehicular accesses from the Howth Road. 439 car parking spaces would be provided, 80 of which are designated to serve the commercial premises. 1,335 bike spaces are proposed, 49 of which would serve the commercial premises and the creche.

There may be significant adverse visual effects on views from higher ground to the south of the site (Muck Rock - preserved views Fingal Development Plan 2023-2029) and from views adjacent to the hotel and car park) back to the Irish Sea and Howth Harbour. The proposed development at the Deer Park site will be largely visually contained due to substantial tree coverage to the south and east of the subject site and will not break views of the coastline or Irish Sea. The Claremont scheme when complete, is likely to substantial break views of the coastline with the finished built environment breaking the line of the coast, and break views of the Irish Sea forming a substantial urbanised edge. (see photomontage View 19).

Howth Castle, Howth Road, Co. Dublin, D13 EH73

(Bord Pleanála Case reference: **and ABP-316113** and Planning Authority Case Reference**: F22A/0046**)

Permission Granted

Development Description:

Protected Structures (Ref: 0556 and 0557) and within an Architectural Conservation Area. WSHI Ltd. and the Michal J Wright Group intend, in summary, to apply for planning permission to refurbish, redevelop, conserve, and change the use of part of the existing Howth Castle buildings, Stable Block and Attendant lands. The development proposed involves the demolition of some farm buildings, the refurbishment and construction of new buildings, and a change of use of part of the lower and upper ground floors of the castle and adjoining stable block and stable yard from primarily residential use to hospitality and tourist retail use. All of the reimagined, and new, areas will be under the control of a single management company which will be set up to manage the existing castle, stable areas and surrounding attendant lands.

Cumulatively, given the scale and nature of the proposed development at Howth Castle, which will be visually contained within the Howth Castle grounds it is unlikely that there will be significant adverse landscape and visual effects.

Deer Park Hotel and Golf Club, Deer Park Howth Co. Dublin; Within the grounds of Howth Estate, Deer Park, Howth, Dublin

Awaiting decision from ABP

(Bord Pleanála Case reference: and **ABP-317883-23**and Planning Authority Case Reference: **F22A/0372**)

The development will consist of the demolition of the existing "Deer Park Hotel" building and all associated structures; and the construction of 1 No. 4 storey building including lower ground floor (Gross Floor Area of c.10,833m2 plus ancillary plant), and consisting of: 1 No. hotel comprising 142 No. bedrooms at 1st to 3rd floor levels incorporating balconies/terraces; a bar, restaurant, gym/spa facility including swimming pool, retail use and back of house facilities at ground floor; meeting rooms, bar and function area at lower ground floor; a restaurant and bar including external dining areas at 3rd floor; photovoltaic panels and sedum roof at roof level and 1 No. ESB substation at ground floor level. A new vehicular access, beginning north of St. Mary's Church (a Protected Structure, RPS Ref. 0594) to proposed hotel, the provision of 170 No. space car park to south of proposed hotel; and all associated hard and soft landscape and boundary treatment works, provision of SUDS measures, associated lighting, site services (foul and surface water drainage and water supply); and all other associated site excavation, infrastructural and site development works above and below ground.

Cumulatively, given the existence of the existing Deer Park Hotel and car park, and given the proposed scale and nature of the proposed development at the Deer Park Hotel, it is unlikely that there will be significant adverse landscape and visual effects if the proposed development were to proceed.

If all of the above projects that are currently in the planning stage, in conjunction with the Claremont scheme that is under construction, as well as the Deer Park development were to proceed, there is potential for cumulative significant adverse landscape and visual effects during the demolition and construction stages of these projects.

The potential cumulative landscape and visual effects without a construction and environmental management plan in place are considered to be very significant and adverse during the construction stage of the projects.

The potential cumulative landscape and visual effects of all of the above projects if they were to proceed without designed-in landscape mitigation measures in place are considered to be very significant and adverse during the operational stage of the projects. The residual cumulative visual effects are described in Section 5.8.

5.8.5 Summary

The following Table summarises the identified likely significant effects during the construction phase:

Table 5.9 Summary of Construction Phase Likely Significant Effects

Viewpoint No.	Location	Quality	Significance	Extent	Probability	Duration	Type
1	**Howth Harbour (west pier)**	Negative	Not significant	Local	Likely	Temporary	Direct
2	**Howth Road east of site adjacent to Claremont construction site**	Negative	Slight	Local	Likely	Temporary	Direct
3	**Howth Rd east of site Adjacent to Claremont construction**	Negative	Moderate	Local	Likely	Temporary	Direct
4	**St Mary's Church Access Road**	Negative	Moderate	Local	Likely	Temporary	Direct
5	**Howth Rd from the east**	Negative	Significant	Local	Likely	Temporary	Direct
6	**Howth Rd - Howth Castle demesne Entrance**	Negative	Significant	Local	Likely	Temporary	Direct
7	**Howth Road from west**	Negative	Significant	Local	Likely	Temporary	Direct
8	**Howth Rd from the west**	Negative	Significant	Local	Likely	Temporary	Indirect
9	**Howth Rd from the west**	Negative	Significant	Local	Likely	Temporary	Indirect
10	**Howth Rd from the west**	Negative	Moderate	Local	Likely	Temporary	Indirect
11	**St Mary's Church**	Neutral	No effect	n/a	n/a	n/a	n/a
12	**Howth Castle Demesne Avenue**	Negative	Slight	Local	Likely	Temporary	Direct
13	**Howth Castle grounds**	Neutral	No effect	n/a	n/a	n/a	n/a
14	**Howth Castle grounds**	Neutral	No effect	n/a	n/a	n/a	n/a
15	**Howth Castle 3rd floor window**	Neutral	No effect	n/a	n/a	n/a	n/a
16	**Howth Castle Stable Yards**	Neutral	No effect	n/a	n/a	n/a	n/a
17	**Howth Castle grounds west of castle – A**	Neutral	No effect	n/a	n/a	n/a	n/a
18	**Howth Castle grounds west of castle – B**	Negative	Slight	Local	Likely	Temporary	Direct
19	**Muck Rock**	Negative	Slight	Local	Likely	Temporary	Indirect
20	**Portmarnock**	Neutral	Not significant	Local	Likely	Temporary	Indirect
21	**Baltray Park – Howth Road**	Negative	Significant	Local	Likely	Temporary	Direct
22	**Howth Road**	Negative	Significant	Local	Likely	Temporary	Direct
23	**Howth Road**	Negative	Significant	Local	Likely	Temporary	Direct

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 5.10 Summary of Operational Phase Likely Significant Effects

Viewpoint No.	Location	Quality	Significance	Extent	Probability	Duration	Type	Cumulative
1	**Howth Harbour (west pier)**	Neutral	Slight	Local	Likely	Permanent	Direct	No effect
2	**Howth Road east of site adjacent to Claremont construction site**	Positive	Slight	Local	Likely	Permanent	Direct	Slight
3	**Howth Rd east of site Adjacent to Claremont construction**	Positive	Moderate	Local	Likely	Permanent	Direct	Slight
4	**St Mary's Church Access Road**	Positive	Moderate	Local	Likely	Permanent	Direct	Slight
5	**Howth Rd from the east**	Positive	Moderate to Significant	Local	Likely	Permanent	Direct	Slight
6	**Howth Rd - Howth Castle demesne Entrance**	Positive	Moderate to Significant	Local	Likely	Permanent	Direct	N/A
7	**Howth Road from west**	Neutral	Slight	Local	Likely	Permanent	Direct	Imperceptible
8	**Howth Rd from west**	Positive	Moderate to Significant	Local	Likely	Permanent	Direct	N/A
9	**Howth Rd from west**	Positive	Significant	Local	Likely	Permanent	Direct	N/A
10	**Howth Rd from west**	Positive	Moderate	Local	Likely	Permanent	Direct	N/A
11	**St Mary's Church**	No effect	No effect	N/A	N/A	N/A	N/A	Slight
12	**Howth Castle Demesne Avenue**	Neutral	Imperceptible to Slight	Local	Likely	Permanent	Direct	Slight
13	**Howth Castle grounds**	No effect	No effect	N/A	N/A	N/A	N/A	N/A
14	**Howth Castle grounds**	No effect	No effect	N/A	N/A	N/A	N/A	N/A
15	**Howth Castle 3rd floor window**	No effect	No effect	N/A	N/A	N/A	N/A	N/A
16	**Howth Castle Stable Yards**	No effect	No effect	N/A	N/A	N/A	N/A	N/A
17	**Howth Castle grounds west of castle – A**	No effect	No effect	N/A	N/A	N/A	N/A	N/A
18	**Howth Castle grounds west of castle – B**	Neutral	Slight	Local	Likely	Permanent	Direct	Imperceptible to Slight
19	**Muck Rock**	Neutral	Slight	Local	Likely	Permanent	Indirect	Slight
20	**Portmarnock**	Neutral	Not significant	Local	Likely	Permanent	Indirect	Slight
21	**Baltray Park – Howth Road**	Neutral	Moderate	Local	Likely	Permanent	Direct	Slight
22	**Howth Road**	Neutral	Moderate	Local	Likely	Permanent	Direct	N/A
23	**Howth Road**	Positive	Moderate	Local	Likely	Permanent	Direct	N/A

5.9 Mitigation

5.9.1 Incorporated Design Mitigation

Site layout, height and massing

The proposed layout of the LRD presents as a 3-5 storey high density residential development, that has through several design iterations and consultation with the local authority been sensitively considered to take account of the significance of the sites' location adjacent to the adjacent Howth Castle and Demesne ACA, in particular the gated access to Howth Castle, as well as to the entrance to Howth town and harbour. The breakdown of the two blocks (Block A with Block B, Block C with Block D) create three distinct areas of public realm and are set back from the historical Deer Park Wall to the north of the site, as well as the eastern boundary with the Howth Castle and Demesne ACA. The retention of the Deer Park wall as well the majority of the existing trees within the site are considered as positive measures that will enhance the overall quality and aesthetic of the proposed development generally. The site layout, height and massing are also cognisant of local preserved views, the High Amenity area to the south of the site as well the buffer zone to the Howth Head SAAO. The height of the proposals are of a considered scale that will not imping on the sensitive historical buildings within the Howth Castle and Demesne ACA, (St. Marys Church, Howth Castle) and will generally not break the canopy of existing trees within the wider demesne landscape setting.

Architectural materials and treatments en façade

The proposed development has incorporated a number of design interventions that respond to the coastal and historic setting, that combined, assist in reducing the apparent massing of the built environment. These architectural interventions include setbacks and step downs of the blocks, with recessed balconies, recessed punctuations to the façade which assist in reducing the apparent length of the elevations. Earth and sand colour tones in the materially of the finishes soften the overall appearance of the built form, and include warm and neutral brick, warm browns to the metal claddings to the top floor setbacks, brown/green metal railings to the balconies. These earth and sand tones finishes are reflective of the colours in the immediate historical landscape setting and also in the local coastal setting.

Landscape Site Plan Proposals

Connectivity is an important consideration within the overall design as well as the objective to create a sense of place by designing an attractive residential area set within and adjacent to a historical landscape setting. In conjunction with the architectural design above, the landscape proposals are a sensitive response to the visual and historic landscape setting. The landscape proposals are a response to utilising the new connectivity through the proposed pedestrian, cyclist and vehicular access to the site through the proposed openings in the historical Deer Park Wall into the site itself. The proposed development is highly permeable to residents with looping pathways linking the public open space, communal gardens, amenity and recreational spaces within the scheme and to the wooded amenity landscape of the Howth Golf Course lands which forms a backdrop to the proposed development. In the southwest an area (within zoned area of High Amenity) will be re-wilded and a small allotment area set aside for residents' use. Bicycle parking is provided across the site and has have been carefully

considered in terms of accessibility and security for bike users. Bin stores are centrally located and can be accessed from either side for greater accessibility. The landscape design has considered the historical landscape setting, existing and future green infrastructure, biodiversity and sustainable urban drainage systems and materials. The future viability and management of the existing tree and hedgerows of the site are considered vital for the retention of the historic landscape aesthetic and for the future benefit of residents of the scheme and the wider community.

5.9.2 Demolition Phase Mitigation

Any demolition works will be undertaken by the contractor in accordance with the Construction and Environmental Management Plan. The historical boundary walls in particular will require protective fencing to be erected prior to any demolition works taking place. The removal of the two pedestrian sections of wall and one vehicular access entrance will be monitored by the project architectural heritage consultant during demolition. It is not anticipated that there will be significant adverse effects during this stage of the project as there are no substantial existing buildings to be removed within the site given its greenfield nature.

5.9.3 Construction Phase Mitigation

There are no additional mitigation measures proposed other than the standard best practice construction mitigation outlined below.

- The following mitigation measures will be implemented:
- Height of temporary stockpiles to be restricted to a practicable minimum to avoid impacts on local sensitive receptors
- Hoarding will be erected around site boundaries to reduce visual impacts of construction works
- Plant will be held in designated compound on site
- Protective fencing will be installed around the RPA's existing boundary trees

Visual effects during the construction phase will be mitigated somewhat by appropriate site management measures and work practices to ensure the site is kept tidy, dust is kept to a minimum, and that public areas are kept free from building material and site rubbish. Appropriate site hoardings will be put in place around the perimeter of the site where required to minimise the landscape and visual impact. Mitigation measures for the protection of the historic Deer Park wall present to the north and east of the site are also necessary and are dealt with separately in Chapter 16 of the EIAR.

5.9.4 Operational Phase Mitigation

The major visual remediation of the project will be accomplished through the following mitigation measures which have been incorporated into the design :

- Through the positioning of the various elements of the development on site in order to enhance the appearance of the scheme as a whole through the design of the site layout and built form.
- The creation of high-quality public and communal open spaces for the use and amenity of the users of the development and the wider community.

- Through the creation of a universally accessible green public pedestrian route through the development in order to provide safe pedestrian circulation
- The provision of a new vehicular access point from Howth Road
- The retention of existing trees and perimeter hedgerows where feasible. Existing planting will be enhanced and strengthened by additional planting of native broadleaf species and dense woodland and understory planting. The retention of existing trees and hedgerows is important for the protection of local foraging and commuting bat populations as well as existing green infrastructure.
- Monitoring, maintenance and management of the existing tree and hedgerow canopy.

The above 'designed in' or incorporated mitigation will ensure that the developments' landscape effects will be considered positive once construction phase is completed and the development is operational. There are no operational phase mitigation measures bar the future maintenance and management of the existing and proposed tree and hedgerow canopy along with all future soft landscaping proposals within the scheme.

5.10 Residual Impact Assessment

This section assesses potential significant environmental effects which remain after mitigation measures are implemented.

This section describes the residual effects on the landscape resources arising from the proposed scheme. The effects are residual in that they cannot be mitigated in the same way as those measures described above. The cumulative effect on the landscape of the permitted adjacent Claremont Residential Development is also considered. No cumulative effects on the landscape are predicted over and above the effects from the proposed development.

The landscape resource is the physical pattern of components and features that in combination characterize the surrounding physical area. The effects of the proposed scheme on this resource are those that will directly alter the physical pattern, and so the character will change in an adverse, neutral or beneficial way.

The extent of the proposed development site is shown in Figure 5.1 Site Layout (JFA) and Figure 5.10 Site Context. The baseline assessment of the site revealed a remnant of a historical landscape setting in a now underutilised greenfield site on the south side of Howth Road, and adjacent to an ACA with many protected structures, with a portion of the south of the site zoned as an area of High Amenity, and within a buffer zone of the SAAO for Howth Head. There are a number of Preserved Views. The Landscape Character of the wider Howth area is considered Highly Sensitive with Exceptional Landscape value.

Assessments are made during the construction stage of the project and at operational stage. Effects are considered under the following headings:

- temporary effects (construction phase up to five years).
- short-term effects (operation phase up to seven years).

- medium-term effects (operation phase, seven to fifteen years) and
- long-term effects (operation phase, fifteen years and beyond).

5.10.1 Demolition Phase

5.10.1.1 Landscape

The demolition phase would generally be considered to have a moderate to significant adverse and temporary effect on the landscape while demolition works are undertaken.

5.10.1.2 Visual Impact

The demolition phase would generally be considered to have a moderate, negative visual effect. Again, these effects will temporary and not significant while demolition works are undertaken.

5.10.2 Construction Phase

5.10.2.1 Landscape

The construction phase of the project would generally be considered to have negative and significant effects on the landscape while construction works are ongoing. These will be short term/temporary and cease once construction works are completed in full.

5.10.2.2 Visual Impact

The construction phase of the project would generally be considered to have negative and significant visual effects on the landscape while construction works are ongoing. These will be short term/temporary and cease once construction works are completed in full.

5.10.3 Operational Phase

5.10.3.1 Landscape

Given the current underutilised nature of the greenfield site at Deer Park, the landscape effects will generally be considered to have a positive and moderate effect on landscape once the site is operational. The site will be opened up and transformed to a high quality medium to high density residential development set within a well-considered landscape setting for use by future residents and the wider community. The proposed scheme, in its totality will be seen as a positive addition to the current urbanisation of lands zoned for residential development along Howth Road while respecting the historical and high amenity sensitivities present in lands contiguous to the site.

5.10.3.2 Visual Impact

Based on the assessment of existing and proposed views in section 5.8 above, the landscape effects will generally be considered to have a positive and moderate effect on views into and out of the site. The current underutilised nature of the site will be replaced with a high-quality development of a medium height respecting the constraints present that have been considered in the design process. Some visual degradation associated with the visual landscape setting as it exists will be removed, such as ESB poles and overhead wire-scape, the somewhat poor management of the historic wall where

sections are overgrown with ivies, will be replaced by a 3-5 storey residential development with a high quality public realm. The new openings in the historical wall will encourage circulation within the site generally, not only for future residents but also for the wider community.

5.10.4 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures. However, there are no specific landscape mitigation measures recommended. The residual effects will be the same as those identified under Likely Effects in **Table 5.9** above.

Table 5.11 Summary of Construction Phase Effects

Sensitive Receptor	Quality	Significance	Extent	Probability	Duration	Type
Historical Landscape Setting	Negative	Moderate	Local	Likely	Temporary	Direct
Proximity to protected structures of Howth Castle Demesne (ACA) Architectural Conservation Area	Negative	Moderate	Local	Likely	Temporary	Direct
Local Green Infrastructure Network	Negative	Slight	Local	Likely	Temporary	Direct
Proximity to a High Amenity Area (including a southern portion of the site)	Negative	Moderate	Local	Likely	Temporary	Direct
Proximity to the Special Amenity Area Order (SAAO) of a large area of Howth Head (including a buffer zone on the southern portion of the site)	Negative	Moderate	Local	Likely	Temporary	Direct
Preserved views	Negative	Moderate	Local	Likely	Temporary	Direct
Proximity to Howth Road and adjacent suburban residential development	Negative	Moderate	Local	Likely	Temporary	Indirect
Proximity to Howth town and harbour	Neutral	Not significant	Local	Likely	Temporary	Direct

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation. However, there are no specific landscape mitigation measures recommended as these have been 'designed in'. The residual visual effects will be the same as those identified under Likely Effects in **Table 5.10.** The likely landscape effects are summarized in the **Table 5.12** below:

Table 5.12 Summary of Operational Phase Likely Significant Landscape Effects

Sensitive Receptors	Quality	Significance	Extent	Probability	Duration	Type
Historical Landscape Setting	Positive	Slight	Local	Likely	Permanent	Direct
Proximity to protected structures of Howth Castle Demesne (ACA) Architectural Conservation Area	Neutral	Moderate	Local	Likely	Permanent	Direct
Local Green Infrastructure Network	Positive	Moderate	Local	Likely	Permanent	Direct
Proximity to a High Amenity Area (including a southern portion of the site)	Neutral	Moderate	Local	Likely	Permanent	Direct
Proximity to the Special Amenity Area Order (SAAO) of a large area of Howth Head (including a buffer zone on the southern portion of the site)	Neutral	Moderate	Local	Likely	Permanent	Direct
Preserved views	Neutral	Slight	Local	Likely	Permanent	Direct
Proximity to Howth Road and adjacent suburban residential development including Claremont Development	Positive	Moderate	Local	Likely	Permanent	Indirect
Proximity to Howth town and harbour	Positive	Slight	Local	Likely	Permanent	Direct

5.10.5 Cumulative Residual Effects

There is potential for the proposed development and the development at the Claremont scheme currently under construction to have cumulative effects on the landscape and on a number of views to the site from the public realm. The two developments when complete would transform a suburban road corridor into Howth town and harbour, currently in transition in terms of landscape character, to an urbanised road/streetscape in close proximity to the town centre, and merge with the existing linear residential area further west on the Howth Road. This would be seen as an expansion of the built environment of Howth town as a metropolitan urban area along the Howth Road corridor. The new contemporary built environments set within substantial public realm improvements of the Claremont development along with the new Deer Park development will be seen against the finer historic grain of the built environment of Howth town and harbour.

There are no landscape or visual mitigation measures outside those that have been designed-in to the scheme as a whole. The residual landscape effects would be the same as those identified **Table 5.13 Summary of Operational Phase Likely Significant Landscape Effects**

Table 5.13 Summary of Operational Phase Visual Effects

View point No.	Location	Quality	Significance	Extent	Probability	Duration	Type	Cumulative
1	**Howth Harbour (west pier)**	Neutral	Slight	Local	Likely	Permanent	Direct	No effect
2	**Howth Road east of site adjacent to Claremont construction site**	Positive	Slight	Local	Likely	Permanent	Direct	Slight
3	**Howth Rd east of site Adjacent to Claremont construction**	Positive	Moderate	Local	Likely	Permanent	Direct	Slight
4	**St Mary's Church Access Road**	Positive	Moderate	Local	Likely	Permanent	Direct	Slight
5	**Howth Rd from the east**	Positive	Moderate to Significant	Local	Likely	Permanent	Direct	Slight
6	**Howth Rd - Howth Castle demesne Entrance**	Positive	Moderate to Significant	Local	Likely	Permanent	Direct	N/A
7	**Howth Road from west**	Neutral	Slight	Local	Likely	Permanent	Direct	Imperceptible
8	**Howth Rd from west**	Positive	Moderate to Significant	Local	Likely	Permanent	Direct	N/A
9	**Howth Rd from west**	Positive	Significant	Local	Likely	Permanent	Direct	N/A
10	**Howth Rd from west**	Positive	Moderate	Local	Likely	Permanent	Direct	N/A
11	**St Mary's Church**	No effect	No effect	N/A	N/A	N/A	N/A	Slight
12	**Howth Castle Demesne Avenue**	Neutral	Imperceptible to Slight	Local	Likely	Permanent	Direct	Slight
13	**Howth Castle grounds**	No effect	No effect	N/A	N/A	N/A	N/A	N/A
14	**Howth Castle grounds**	No effect	No effect	N/A	N/A	N/A	N/A	N/A
15	**Howth Castle 3rd floor window**	No effect	No effect	N/A	N/A	N/A	N/A	N/A
16	**Howth Castle Stable Yards**	No effect	No effect	N/A	N/A	N/A	N/A	N/A
17	**Howth Castle grounds west of castle – A**	No effect	No effect	N/A	N/A	N/A	N/A	N/A
18	**Howth Castle grounds west of castle – B**	Neutral	Slight	Local	Likely	Permanent	Direct	Imperceptible to Slight
19	**Muck Rock**	Neutral	Slight	Local	Likely	Permanent	Indirect	Slight
20	**Portmarnock**	Neutral	Not significant	Local	Likely	Permanent	Indirect	Slight
21	**Baltray Park – Howth Road**	Neutral	Moderate	Local	Likely	Permanent	Direct	Slight
22	**Howth Road**	Neutral	Moderate	Local	Likely	Permanent	Direct	N/A
23	**Howth Road**	Positive	Moderate	Local	Likely	Permanent	Direct	N/A

5.11 Risk of Major Accidents or Disasters

Given the nature of the proposed development it is considered unlikely that there will be any risk of major accidents or disasters.

5.12 Worst Case Scenario

The 'worst-case' scenario relating to this chapters assessment, describes the effects that arise from a development in the case where the designed in mitigation measures substantially fail. In respect of the landscape and visual amenity of the proposed development, the designed in mitigation measures include substantial green infrastructure proposals, multi-tiered landscape planting proposals as well as all hard landscape elements. These elements combine to add visual and landscape amenity to the proposed scheme as well as enhancing the existing biodiversity throughout the site. If the planted installations fail due to poor plant stock, poor planting or maintenance methods or regimes, there may be potential for significant adverse landscape and visual effects locally within the subject site that may require re-planting.

5.13 Interactions

This chapter on Landscape and Visual Impact Assessment of the proposed development, has the potential to interact with the following chapters of the EIAR:

- Chapter 4: Population and Human Health
- Chapter 11 : Biodiversity
- Chapter 15: Cultural Heritage : Archaeology
- Chapter 16 : Cultural Heritage : Built Heritage
- CEMP (Construction and Environmental Management Plan)

There is also potential for interaction with chapters on Population and Human Health and Climate Change.

Chapter 4: Population and Human Health

During the construction phase, the emergence of plant to facilitate the development have potential to result in short-term, slight to not-significant, neutral visual effects for the existing resident population and users of the surrounding road network.

During the operational phase the provision of new housing opportunities set within a high quality development with landscape and visual amenities and recreational opportunities, in close proximity to Howth town centre and harbour, with access to bus, dart, cycling and pedestrian infrastructure as well as a host of local amenities has been considered. The interaction of the future potential landscape and visuals effects of the proposed scheme with existing and future population and human health has the potential to have a significant positive effect in the long term.

Chapter 11 : Biodiversity

Habitats of note which have been recorded on site include Mixed broadleaved/conifer woodland (WD2) to the southern boundary, and mature mixed broadleaved woodland (WD1) along the eastern boundary. The western boundary of the site is comprised of mature hedgerow (WL1) habitat, with bramble scrub (WS1) . The northern and eastern boundary include a stone wall (BL1) overgrown by ivy (Hedera sp.). A mature hedgerow (WL1) was recorded along the western boundary of the site, comprised of hawthorn (Crataegus Monogyna), ivy (Hedera helix), leyland cypress (Cupressus leylandii). The Leyland cypress hedge is not of any ecological value. It was noted that site clearance works necessary for site investigation works entailed the clearance of some areas of scrub in October 2023. The retention of the majority of trees and hedgerows within the site is part of the overall green infrastructure strategy of the overall landscape site plan and is essential for the retention of the 'historical demesne' aesthetic of the proposed development, providing instant visual and landscape amenity value. The proposed landscape and green infrastructure strategies that are proposed for the Deer Park site along with designed in mitigation measures for the flora and fauna on the site as presented in Table 11.17 (Summary of Construction Phase Mitigation and Monitoring) of Chapter 11: Biodiversity have the potential to have an interaction that can be described as a significant positive effect in the long term.

Chapter 15: Cultural Heritage : Archaeology

The archaeological cultural heritage of the site as a whole, the history of the historical demesne landscape setting along with the presence of the Howth Castle and Demesne Architectural Area, with a number of protected structures has been considered and reviewed as part of this assessment. The historical use of the lands at the Deer Park site are associated with former and historical agricultural practices. There are no archaeological or cultural features recorded or identified within the site itself. It is recommended that archaeological monitoring of topsoil stripping takes place during the construction phase of the project as there is a low potential for small archaeological features or deposits to exist below ground. The potential effects of the interaction between the archaeological cultural heritage of the Deer Park site and the landscape and visual effects of the proposed development are considered to be imperceptible and neutral. It is likely that there will be no significant adverse effects on interactions in this instance.

Chapter 16 : Cultural Heritage : Built Heritage

The cultural heritage of the site as a whole, the history of the historical demesne landscape setting along with the presence of the Howth Castle and Demesne Architectural Area, with a number of protected structures has been considered and reviewed as part of this assessment. The considered architectural design approach which includes the layout, massing, tiering and stepping of the roof line and facades of the proposed development, along with the subtle material palette of colours and materials en façade are enhanced by a considered landscape and green infrastructure strategy that addresses the existing and future green infrastructure of the site and its surrounds, as well as retaining the existing historic aesthetic of the adjacent Architectural Conservation Area of Howth Castle and Demesne and protected structures. (A small part of the site forms part of the ACA - 102sqm in the north eastern corner where the proposed pedestrian footpath and pedestrian access is proposed.)

The interaction of the future potential landscape and visuals effects of the proposed scheme with existing cultural heritage of the site and it's surrounds has the potential to have a significant positive effect in the long term.

A Construction and Environmental Management Plan (CEMP) has been prepared for the proposed development and is included in the planning application documentation. The CEMP will be adopted by the construction contractor prior to commencement of construction if the proposed development is approved for planning. The CEMP will be further updated by the site contractor and agreed with Fingal County Council prior to commencement of development. The CEMP is based on international best practice covering all elements of construction, health and safety, site compound locations, stock piling of topsoil, temporary protective fencing etc. All construction personnel will be briefed on the CEMP, undergo site induction and training on its requirements, and their obligation to clearly understand, implement and adhere to the legal requirements of the CEMP. Strict adherence to the CEMP has the potential to have significant positive interaction with the success of the landscape and green infrastructure proposals that are presented in the Landscape Site Plan for the Deer Park site.

5.14 Monitoring

A suitably qualified arboricultural consultant / Arboricultural Clerk of Works (ACoW) will be employed prior to commencement of demolition and constructions works to monitor and supervise any tree removal and ensure tree protection measures are in place and maintained. Archaeological monitoring will be undertaken during the construction stage of the project.

A suitably qualified Ecological Clerk of Works (ECoW) will be employed prior to commencement of demolition and construction works to provide ecological consultancy to the construction team. The ECoW will carry out monitoring activities as listed in section 11.17.1 of Chapter 11: Biodiversity. Summary of Mitigation and Monitoring.

Both the ACow and ECow will liaise with each other as there will be interactions between both professions. Both will also liaise with the conservation consultant on inspections and supervision of any works and protection measures to the Deer Park Wall.

5.15 Conclusion

GLL PRS Holdco Limited intends to apply to Fingal County Council for permission for a Large-scale Residential Development on lands adjoining Howth Demesne, Deer Park, Howth, Co. Dublin, with a total site area of 1.53ha.

The development will consist of two offset blocks ranging in height from 3-5 storeys providing 135 residential units comprising of 63 one-bedroom units and 72 two-bedroom units. The landscape public realm will consist of a public open space area of 1,676 sq.m and communal open space with an area of 890 sq.m. The proposals include the provision of 63 surface car parking spaces, including 4 accessible parking spaces & 13 EV charging spaces, and 6 motorcycle spaces as well as the following :

- Provision of 410 bicycle parking spaces, including 342 secure bicycle spaces and 68 visitor spaces

- Partial demolition of 3 sections of the existing demesne northern boundary wall, which fronts Howth Road to facilitate pedestrian and vehicular access in the northwestern corner; the two separate pedestrian/cyclist access points along the centre and eastern side of the northern boundary wall
- Restoration and refurbishment of the remaining extant northern and eastern demesne boundary wall
- Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipe around the site.
- Works to facilitate bicycle infrastructure upgrades and drainage connections along Howth Road
- ESB kiosks, rooftop solar photovoltaics, waste storage and plant rooms, drainage, bicycle storage areas, boundary treatment, public lighting, and all ancillary site and development works to enable the proposed development.

The proposed development aims to deliver a high quality, high density residential development on the south side of Howth Road in close proximity to Howth town and harbour, in lands that were formerly part of the Howth Demesne landscape, and adjacent to the Howth Castle Demesne Architectural Conservation Area (ACA). The lands at Deer Park are an underutilised greenfield land bank strategically located within walking distance of Howth town centre, which is part of the Dublin Metropolitan Consolidation Area. The site is served by Dublin Bus and DART services (less than 500m to the northeast), and is in close proximity to coastal amenities, beaches, open spaces, coastal walks and golf course. As outlined in section 5.3.1 of this chapter, Howth is regarded as a sought after location for prospective home owners given its location and coastal amenity setting on the north side of Dublin city.

The proposed Deer Park site is located in lands zoned for residential development. It is part of a former historical demesne landscape setting, and is adjacent to Howth Castle and Demesne ACA, an area of High Amenity to the south along with lands that are part of the buffer zone to the Howth Head SAAO. The site is currently not accessible to the public, and has no apparent use, and lies vacant. The public realm locally is visually poor with much visual clutter, construction and road signage, ESB poles and overhead wire infrastructure.

There are built, cultural, and natural heritage assets presents that have been considered through the design and local authority consultation process. The key sensitivities that have been reviewed as part of this assessment are as follows :

- Historical landscape setting
- Its proximity to protected structures of Howth Castle Demesne Architectural Conservation Area (ACA)
- Its proximity to a High Amenity Area (including a southern portion of the site)
- Its proximity to the Special Amenity Area Order (SAAO) of a large area of Howth Head (including a buffer zone on the southern portion of the site)
- Its proximity to preserved views
- The topography of the site
- Its proximity to Howth Road and adjacent suburban residential development

- Proximity to Howth town and harbour
- The open, coastal landscape character type of the local and wider landscape that is highly sensitive

The presence of substantial tree and some hedgerow coverage along with identified habitats mainly in the form of mixed broadleaf trees along the eastern and southern permitter of the site, are considered as landscape assets along the presence of the historical Deer Park wall to the north and east of the site. These elements are considered, retained and utilised as part of the wider design intent in order to retain the historical landscape aesthetic, adding both landscape and visual amenity assets to the scheme form the outset.

The proposed development, has through the design process and consultation with the local authority considered site layout, height, massing as well as materiality of treatments on façade to present a scheme that is visually sensitive to its site context while respecting the historical sensitivity of the ACA, preserved views, area of High Amenity and buffer zone of the SAAO to the south of the site. The landscape site plan, has, through a layers approach in the form of landscape strategies and green infrastructure plan developed a high quality landscape site plan proposal for the site that will enhance circulation through the site, provide public open space for both residents and the wider community along with communal opens paces with passive and active recreational amenity offerings.

The retention of the majority of the trees on site, combined with a future management plan for the future viability of existing and proposed trees will greatly enhance the existing and proposed green infrastructure within and adjacent to the site. Green infrastructure, SuDs, biodiversity planting, pollinator friendly planting will be utilised to add colour and seasonality to the soft landscaping within the scheme. The site will be opened up with new pedestrian, cyclist and vehicular access via new openings in the historical stone wall. New signage and placenames will be bespoke and acknowledge the historical legacy of the Howth Demesne.

Twenty three viewpoints were assessed to establish the landscape and visual effects of the proposed development on the local and wider sensitive receptors. Cumulative effects were also considered. The Claremont development, which will be 4-8 storeys when complete, is currently under construction was modelled by 3D Design Bureau to determine its visibly form the 23 viewpoints chosen.

All proposed views depict 'winter' scenarios when trees are not in leaf. Additional screening will be provided when trees are in leaf during growing season. It is anticipated that the existing and proposed tree canopies will continue to grow and provide additional screening into the future.

The summary of the assessment of the likely potential significant effects of the construction and operational stages are presented in Tables 5.9 to 5.13.

There are no post operational mitigation measures as all mitigation has been considered and designed in, during the design and consultation process. Generally, the landscape and visual effects will be considered adverse and moderate to significant in the short term when construction works are underway and will terminate upon completion of the development. The landscape and visual effects during the operational stage will generally be considered as having 'No effect' as they will not be visible due to the relative low height of the proposals, to a 'Positive' effect where the proposals can be seen given the well-considered design, site layout and presentation of the scheme as a whole.

The significance of the effects is considered generally as 'Slight' to 'Moderate' where the scheme is visible, mainly from the west and eastern approaches of the Howth Road. Some views of the upper levels of Howth Head will be removed from locations on the Howth Road, but these are not considered to be adversely significant given the visual clutter of the existing overhead wire scape that detracts from these views in the existing scenarios. Due to the site layout and relative low height of the proposals, the likely effect on Preserved Views is considered neutral and slight. The visual effect of the local protected structures is also considered neutral and slight. It is considered that the proposed development will not have any significant adverse effects on the landscape and visual amenity of the subject site, adjacent Architectural Conservation Area of the Howth Castle Demesne or residential lands adjacent to the site.

The cumulative effects are considered mainly in the form of the Claremont scheme currently under construction on the north side of Howth Road. The scheme will be 4-8 storeys in height when complete and will be substantially higher that than proposed scheme at the subject site.

The two developments when complete would transform a suburban road corridor into Howth town and harbour, currently in transition in terms of landscape character, to an urbanised road/streetscape. This would be seen as an expansion of the built environment of Howth town as a metropolitan urban area along the Howth Road corridor. The new contemporary built environments set within substantial public realm improvements of the Claremont development along with the new Deer Park development will be seen against the finer historic grain of the built environment of Howth town and harbour.

5.16 References and Sources

The following documents and web resources were consulted for the desktop study:

- Fingal Development Plan 2023-2029 www.fingal.ie
- Ordnance Survey Ireland – Interactive Mapping and Aerial Photography www.osi.ie
- 'Guidelines on the Information to be Contained in Environmental Impact Statements' Environmental Protection Agency, 2002
- 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' Environmental Protection Agency, May 2022.
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018);
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- 'Advice notes on current practices (in the preparation of an Environmental Impact Statement), Environmental Protection Agency, 2003
- 'Advice notes for Preparing Environmental Impact Statements. Draft'. Environmental Protection Agency, 2015.
- 'Landscape and Landscape Assessment Draft Guidelines', Department of Environment, Heritage and Local Government (DEHLG) 2000
- 'Guidelines for Landscape and Visual Impact Assessment', The Landscape Institute & I.E.M.A., UK, 2013.
- 'Environmental Impact Assessment Handbook', Scottish Natural Heritage (SNH), Version 5, 2018. Appendix 2: Landscape and Visual Impact Assessment.
- Howth Castle Architectural Conservation Area Statement of Character, 2006, Fingal County Council.
- Townscape Character Assessment, Technical Information Note 05/2017, Landscape Institute.
- Urban Design Manual – A Best Practice Guide, Department of Environment, Heritage and Local Government, 2009.
- Urban Development and Building Height Guidelines for Planning Authorities, December 2018, Department of Housing, Planning and Local Government.

CHAPTER 6
MATERIAL ASSETS: TRAFFIC & TRANSPORT

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

6 Material Assets: Traffic & Transport

6.1 Introduction

Transport Insights has been commissioned by GLL PRS Holdco. Ltd. to prepare an Environmental Impact Assessment Report (EIAR) Traffic and Transport Chapter in relation to a proposed residential development at Deer Park, Howth, Co. Dublin. The proposed development comprises 135 no. apartments with associated access, car parking, and cycle parking facilities. A detailed description of the proposed development is provided in Chapter 2 of this EIAR.

6.2 Expertise and Qualifications

The Traffic and Transport Chapter of the EIAR was prepared by Eoin Munn as Project Director, Jurek Gozdek as Project Manager and Narendra Jillelamudi as Consultant Transport Planner (all of Transport Insights Limited). Details of their experience and qualifications are provided within the following Table 6.1.

Table 6.1 – Competency of Chapter Authors

Reviewer **Title**	**Eoin Munn** **Director (Project Director)**
Relevant Experience and Qualifications	Experience Over 12 years' experience working within Transport Planning and Engineering, including project management of a variety of small to large sized projects from feasibility to detailed design stage. Recent experience in providing transport planning support (including production of Traffic and Transport Assessment and Mobility Management Plans) in relation to residential developments includes a 233 no. unit residential development at Enniscorthy, Co. Wexford, a 282 no. unit residential development at Brickfield Drive, Crumlin, Dublin 12, and a 321 no. units residential development at Jamestown Road, Finglas, Dublin 11. Qualifications: • BSc Transport Operations, Technological University Dublin (2003-2007) • MSc Business Analytics, University College Dublin (2007-2008)
Professional Membership	• Member, Transport Planning Society (MTPS)
Principal Author **Title**	**Jurek Gozdek** **Senior Consultant Transport Planner (Project Manager)**
Relevant Experience and Qualifications	Experience: Over 6 years' experience working within Transport Planning and Engineering, Jurek has project-managed and supported delivery of multiple traffic and transport assessment projects for a variety of residential and commercial developments across Ireland. Recent experience in providing transport planning support (including production of Traffic and Transport Assessment and Mobility Management Plans) in relation to residential developments includes a ca. 500 unit scheme at Hole in The Wall Road, Clongriffin; a ca. 40 unit scheme at Keeper Road, Drimnagh, and a ca. 270 unit scheme at Chapelizod Hill, Chapelizod (all on behalf of private developers). Qualifications: • BScEng (Transport Engineering), Warsaw University of Technology (2017) • MSc (Geographic Information Science), Technological University Dublin (2021)

Professional Membership	• Member, Transport Planning Society (MTPS)
Second Author	**Narendra Jillelamudi**
Title	**Consultant Transport Planner (Analyst)**
Relevant Experience and Qualifications	Experience: Over 4 years' experience working within Transport Planning and Engineering, on a variety of public and private sector projects including providing analytical support for a 100 no. unit residential development at Firhouse, Dublin 24. Narendra is currently providing analytical support for a 158 no. unit residential development at Mungret, Co. Limerick. Qualifications: • B.Tech in Civil Engineering, Aacharya Nagarjuna University (2012-2016) • M.Tech in Traffic and Transportation Planning, NIT Calicut (2017-2019)
Professional Membership	Member, Chartered Institution of Highways and Transportation (CIHT)

6.3 Proposed Development

The proposed development comprises the delivery of 135 no. dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys, in addition to landscaping and all supporting infrastructure.

Transport characteristics of the proposed development includes:

- 63 no. car parking bays, including:
  - 4 no. wheelchair accessible spaces; and
  - 13 no. EV charging points;
- 6 no. motorcycle parking spaces;
- 342 no. resident/ long stay cycle parking spaces, including:
  - 296 no. stacked bike parking spaces;
  - 28 no. bicycle lockers; and
  - 18 no. cargo bike parking spaces;
- 68 no. visitor/ short stay cycle parking spaces.

All car parking spaces shall be located in a surface car park including 2 no. cul-de-sac parking aisles, each with a turning head.

Vehicular access to the proposed development shall be accommodated via a newly constructed site access junction from R105 Howth Road, which adjoins the site's northern boundary. Demolition of three sections of the existing demesne northern boundary wall, which fronts Howth Road is proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

The proposed development is noted to be located on an undeveloped greenfield site, with minor demolition works to be completed prior to the construction commencement (demolition of three sections of the existing demesne northern boundary wall, which fronts Howth Road to facilitate vehicular access in the northwestern corner and two separate pedestrian/cyclist access points along the centre and eastern side of the northern boundary wall).

A detailed description of the proposed development is provided in **Chapter 2** of this EIAR.

6.4 Methodology

This section of the EIAR outlines the methodology followed in order to carry out the Traffic and Transport Assessment set out within this Chapter. The approach pursued in undertaking the Assessment is consistent with the national best practice, namely Transport Infrastructure Ireland's (TII's) Traffic and Transport Assessment Guidelines (May 2014).

The existing conditions on the surrounding road network were informed by a comprehensive site assessment undertaken on Wednesday 13 September 2023. Furthermore, a set of Junction Traffic Count (JTC) surveys were carried out on Tuesday, 26 September 2023 between 07:00hrs and 19:00hrs at 4 no. key junctions in the Study Area (as detailed in Section 6.4.2). The survey results were then used to establish a baseline from which to predict traffic growth on the local road network. The Do-Nothing scenario, the scenario in which the proposed development does not proceed was established for the YoO (Year of Opening), YoO +5 years and YoO + 15 years. This was then developed into the Do-Minimum scenario, which has included committed developments in the Study Area in addition to the established background traffic. Finally, a Do Something scenario was prepared, which sets out potential development traffic on the local road network in the YoO, YoO+5 and YoO +15 assessment years.

Information from the industry standard Trip Rate Information Computer System (TRICS) database has been utilised to calculate the quantum of vehicle trips likely to be generated by a development of the scale and type proposed.

A comprehensive list of guidance documents that have informed specific parts of the Assessment is set out in Section 6.4.1. of this EIAR Chapter. The Assessment is in accordance with the guidance documents set out therein.

It should be noted that a comprehensive Traffic and Transport Assessment (TTA) Report, which includes a Mobility Management Plan (MMP), has been produced in relation to the proposed development and is included in the application package.

6.4.1 Relevant Legislation & Guidance

The EIAR Traffic and Transport Assessment has been prepared in accordance with the following policy and technical guidance documents:

- EPA (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports;
- European Commission Guidance on the preparation of the Environmental Impact Assessment Report (2017);
- Sustainable Urban Housing: Design Standards for New Apartments (July 2023);
- Fingal Development Plan 2023-2029;
- Transport Infrastructure Ireland (TII) (2014) Traffic and Transport Assessment Guidelines;
- Transport Infrastructure Ireland (TII) Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts (October 2016);
- Transport Infrastructure Ireland (TII) Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (October 2021); and

- Design Manual for Urban Roads and Streets (DMURS) (May 2019).

6.4.2 Study Area

The Study Area of this EIAR Chapter has included the section of the R105 Howth Road extending from the three-arm priority controlled R105 Harbour Road/ Church Street Junction in Howth Village Centre to Sutton Cross, i.e. the four-arm signal controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction, including key junctions along that section (see: Section 6.4.3). Thus, the defined Study Area includes the part of the regional road network directly receiving the traffic generated by the proposed development, which will subsequently distribute to other parts of the wider road network. Such definition of the Study Area is aligned with best practice and, as required by the TII's *Traffic and Transport Assessment Guidelines* (May 2014) have been agreed with the planning authority (i.e. FCC) at the scoping stage (see: Section 6.4.4).

With regard to cumulative assessment, a wider area of interest was examined to identify relevant proposed or permitted third-party developments that could adversely impact the traffic conditions within the Study Area by generating additional traffic, that would discharge onto the network within the Study Area. In this case, the entire Howth Peninsula area to the east of Sutton Cross has been considered, with the identified relevant third-party developments set out and commented on in Section 6.8.2 and accounted for in this EIAR Chapter.

6.4.3 Consultation

Following a pre-planning Section 247 meeting, feedback from Fingal County Council's (FCC's) Transportation Planning Section was sought in relation to the proposed Traffic and Transport Assessment approach and associated data collection scope by email sent on 12 September 2023. The scope of the assessment presented in this EIAR chapter is noted to be fully consistent with the TTA scope, with the TTA report included in the application package.

The proposed scope of the current data collection and traffic impact analysis has been informed by the approach and outputs of the TTA supporting a prior (2021) planning application for the subject site (which has since been quashed), which related to a development similar in nature to and somewhat larger in scale (ca. 20% more units) than the current proposed development (see: site planning history in Section 6.6.2). Accordingly, it was proposed that traffic data collection be undertaken at the following locations, consistent with those assessed by the prior TTA:

- Location A: four-arm, signal controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction (Sutton Cross);
- Location B: four-arm, priority controlled R105 Howth Road/ Church Road Junction;
- Location C: three-arm, signal controlled R105 Howth Road/ Offington Park Road Junction; and
- Location D: three-arm, priority controlled R105 Harbour Road/ Church Street Junction.

The preceding application TTA demonstrated significant spare capacity in the with-development scenarios at the locations B, C, and D, with capacity pressures only identified at location A (i.e. Sutton

Cross). In light of those findings, and given that the current proposed development is smaller in scale and therefore would have a proportionally smaller traffic impact, it was proposed to FCC that for the purposes of the current planning application only the Sutton Cross junction be subject to detailed traffic modelling by default (with traffic impact at other junctions being assessed in terms of percentage traffic increase only, unless modelling be warranted by the outputs thereof).

It was also proposed that the planning application be supported in mobility terms by a Traffic and Transport Assessment Report (including an MMP), in addition to a Transport Chapter of the EIAR.

The above approach was agreed with Mr Shane Comaskey, Executive Engineer at FCC's Planning and Strategic Infrastructure Department, by email sent on 19 September 2023.

6.4.4 Site Surveys/Investigations

In order to determine baseline traffic conditions and provide a basis from which future development traffic impact can be measured, classified junction turning count surveys were undertaken on Tuesday, 26 September 2023 between 07:00hrs and 19:00hrs.

Traffic survey data was collected at the following junctions, as agreed with FCC at the scoping stage:

- **Location A**: four-arm, signal controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction (Sutton Cross);
- **Location** B: four-arm, priority controlled R105 Howth Road/ Church Road Junction;
- **Location** C: three-arm, signal controlled R105 Howth Road/ Offington Park Road Junction; and
- **Location** D: three-arm, priority controlled R105 Harbour Road/ Church Street Junction.

The surveyed locations outlined above are presented in

Figure 6.1 (overleaf) and include all junctions of note within the extent of the Study Area (see: Section 6.4.2). Omission of minor junctions and individual accesses along the considered section of the R105 Howth Road is consistent with best practice.

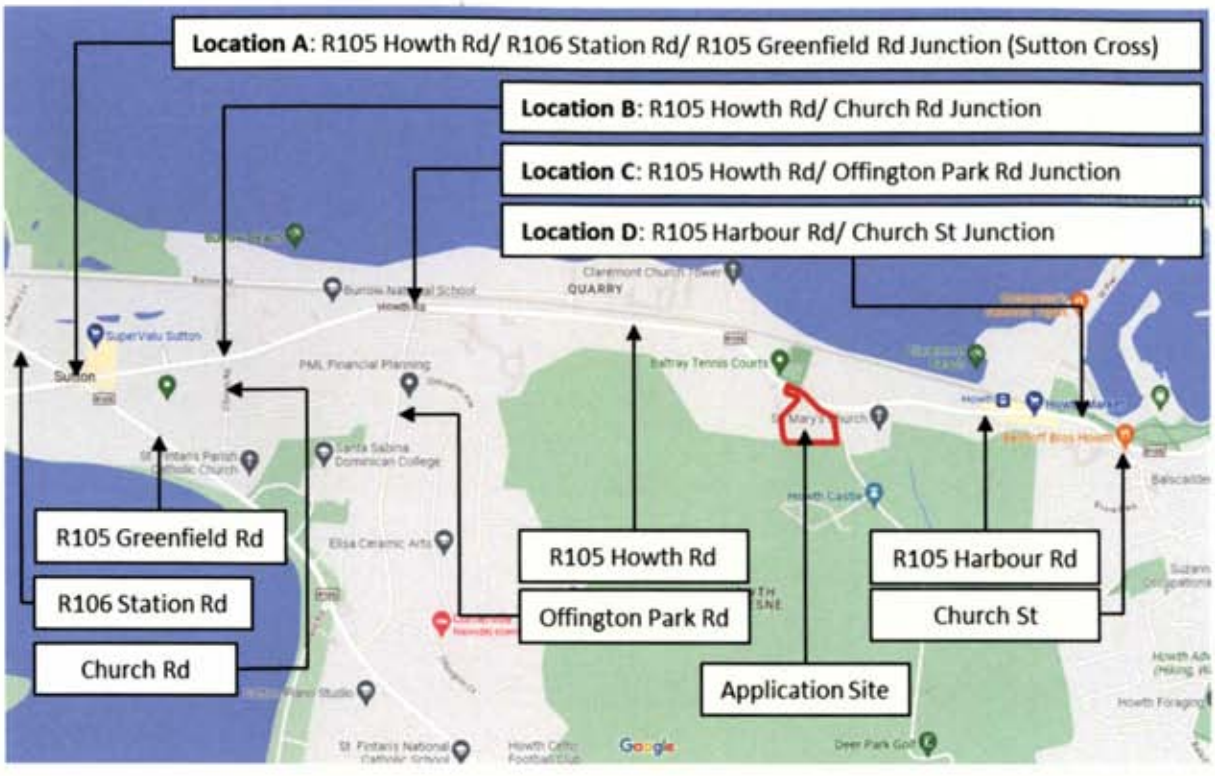


Figure 6.1 Traffic Survey Locations

6.5 Difficulties Encountered

No difficulties were encountered when compiling this EIAR Chapter.

6.6 Baseline Environment

6.6.1 Site Location

The ca. 1.16-hectare site is located to the northwest of Howth, Co. Dublin, as shown in Figure 6.2 (overleaf). The site is a greenfield plot bounded by Howth Road to the north, Howth Castle Access Road to the east, low-density residential development and an undeveloped plot to the west, and a golf course to the south. The site is noted to be located ca. 80 metres from the nearest bus stops on Howth Road and less than 500 metres from Howth Railway Station.

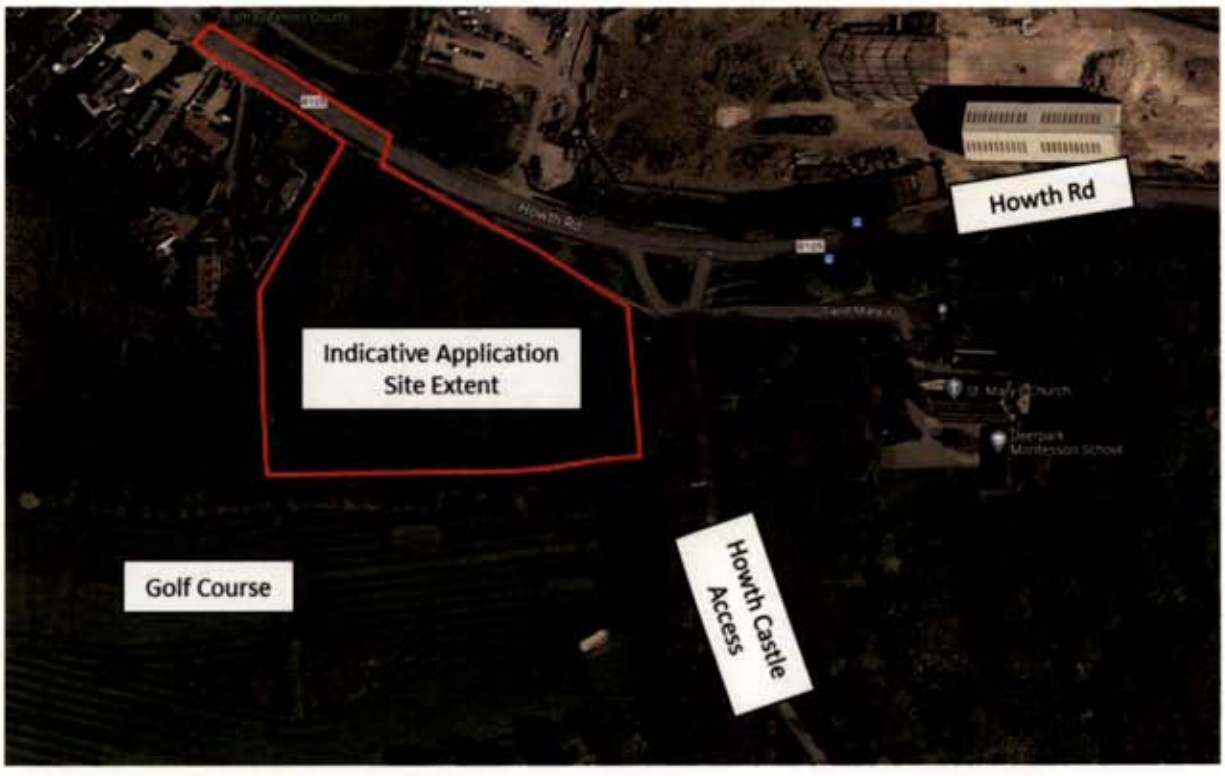


Figure 6.2 Development Site Location

6.6.2 Recent Site Planning History

Planning permission for development on the current site was sought from An Bord Pleanála (ABP) in 2021 under application Reg. Ref. ABP-310413-21 (FCC Reg. Ref. SHD/009/20), pursuant to the Strategic Housing Development (SHD) process. The application related to a proposed development comprising 162 no. residential units (29 no. 1-bedroom apartments, 104 no. 2-bedroom apartments and 29 no. 3-bedroom apartments), in addition to an ancillary ca. 108 sqm GFA resident services and amenity space distributed across 3 no. rooms.

The associated residential car parking demand was proposed to be accommodated within a basement car park with capacity of 132 no. car parking spaces (ca. 0.81 space per apt.). In addition, the proposed development included 325 no. resident and visitor cycle parking spaces (ca. 2 spaces per apt.).

The proposed development was granted planning permission by ABP, with its decision issued on 21 September 2021. However, the decision was subsequently subject to judicial review, and has since been quashed. While the current proposed development is a completely new design and does not represent an extension or modification of the previous proposal, both are noted to represent high-density housing land use (with the current proposal being smaller in scale by ca. 14%).

In terms of mobility-related documentation, the planning application for the proposed development was supported by a Traffic and Transport Assessment Report, a Mobility Management Plan, and a DMURS Compliance Statement, in addition to a Traffic and Transport section of the Environmental Impact Assessment Report (EIAR). Based on a review of that documentation, the following items have been deemed pertinent to the current planning application:

The previously proposed development's traffic impact was assessed with respect to the following four junctions:

- four-arm, signal controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction (Sutton Cross);
- three-arm, priority controlled R105 Howth Road/ Church Road Junction;
- three-arm, signal controlled R105 Howth Road/ Offington Park Road Junction; and
- three-arm, priority controlled R105 Harbour Road/ Church Street Junction.

The above junctions have been subject to traffic data collection, with modelling of with and without proposed development scenarios being undertaken to establish the level of spare available at those junctions. The site access junction was also modelled (as a priority junction). The analysis demonstrated that while the Sutton Cross junction had been at capacity, the remaining junctions examined had worked "well within capacity", with a minimum of 23% to 91% spare capacity forecast at those locations in the year 2038 (Year of Opening + 15 years).

The previously proposed development's vehicular entrance was from Howth Road via a priority junction in the northwestern corner of the application site. The current proposed development shall be accessed via equivalent arrangements.

An FCC Transportation Planning Section report produced in response to the 2021 planning application noted that the Section was "generally in favour of the proposed development".

6.6.3 Road Infrastructure

6.6.3.1 R105 Howth Road

Howth Road is a two-way regional road, which runs in an east-west alignment and connects the R105/ Sutton Cross junction to the west and the R105 with Harbour Road to the east.

Howth Road has a uniform horizontal and vertical alignment adjacent to the development site. Its carriageway adjacent to the site is approximately 7.0 metres wide, and its overall cross-section includes a single general traffic lane and a one-way cycle lane in each direction. The cycle tracks are noted to be segregated from adjacent traffic lanes by road markings and flexible bollards. Footpaths are provided on both sides of the road, separated from the carriageway by grass verges.

No on-street car parking facilities are provided on Howth Road. A 50 km/ h speed limit is in operation on this road and public street lighting is present.

6.6.4 Public Transport

6.6.4.1 DART Services

The Howth railway station is located less than 500 meters (ca. 5 minutes' walk) to the east of the site. The station is served by DART services from Bray/ Greystones to Howth at daytime headways of 10-20 minutes.

6.6.4.2 Bus Services

The bus supplements the DART in serving the site. The nearest bus stops to the site are located on Howth Road, ca. 80 meters (ca. 2-minute walk) to the east. These stops are served by the H3 route, which runs between Howth Summit and Lower Abbey Street at daytime headways of 30 minutes.

6.6.4.3 Site Accessibility by Public Transport

Figure 6.3 (overleaf) presents the application site's accessibility by public transport, showing travel time from various locations to the site.

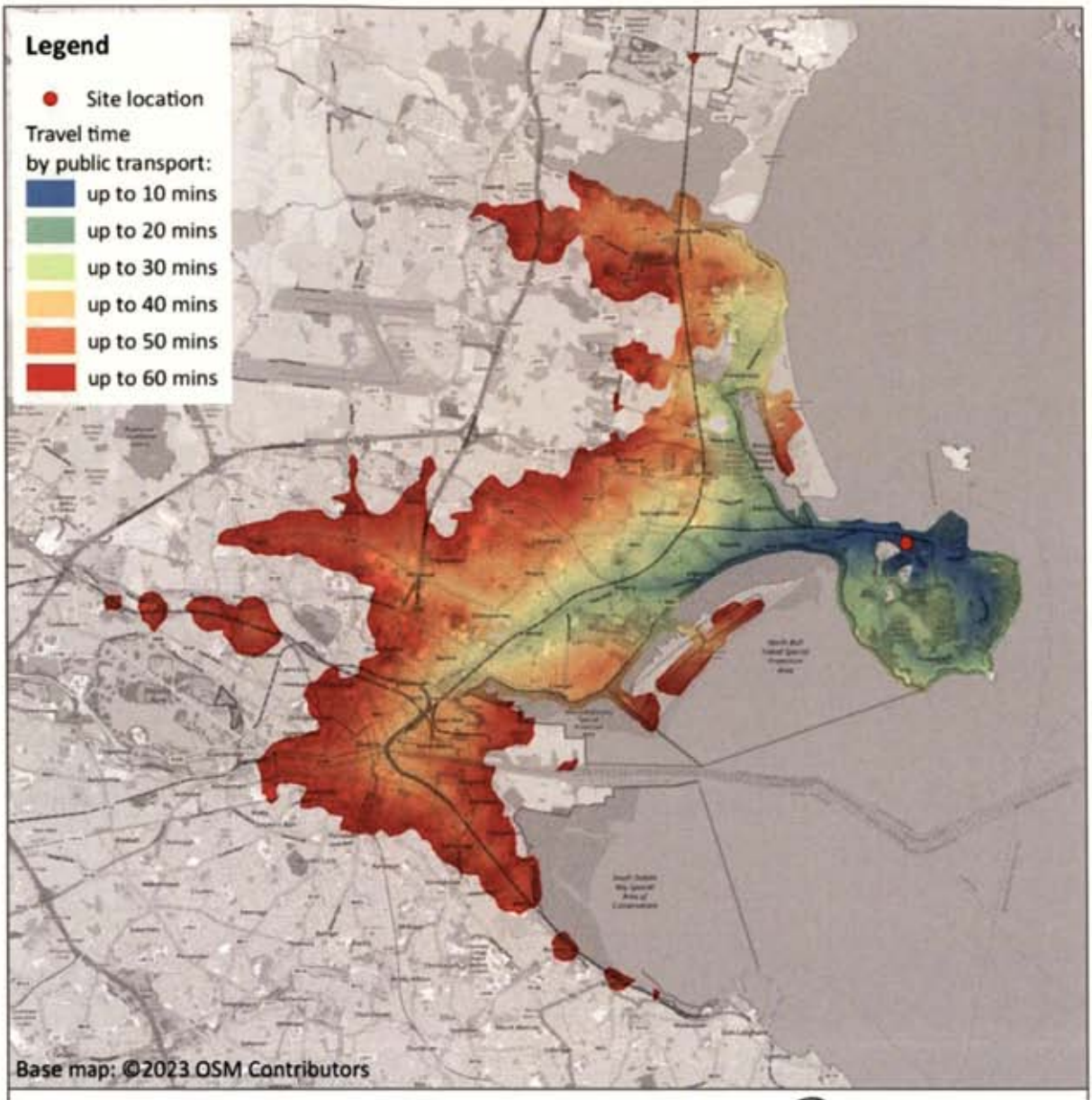


Figure 6.3 Current Public Transport Travel Time Isochrones

As can be seen from the preceding Figure 6.3, the available public transport services enable access to a significant part of north Dublin City and Dublin City Centre in under 60 minutes, with many key employment areas such as Dublin Airport, the Docklands, and Dublin City University (DCU) campus accessible within that timeframe.

6.6.4.4 Public Transport Capacity

Within Table 6.6, which follows, the capacity of DART services on the Howth branch has been calculated.

Table 6.2 – DART Capacity Calculation

Typical DART Train Capacity	1,200	Persons
No. of DART Services on the Howth Branch per Peak Hour	3	Services
Average Weekday Peak DART Service Capacity	3,600	Persons per hour per direction (pphpd)

As set out in the preceding table, based on the capacity of DART rolling stock and the peak period frequency, the average weekday peak DART service capacity has been estimated as 3,600 persons per hour per direction (pphpd).

The DART capacity utilisation has been estimated by reference to the boarding figures from the *National Rail Census 2023* provided to the project team by the NTA (upon request). Daytime boarding, alighting, and total passenger footfall numbers recorded on Census day are presented in Table 6.3, which follows.

Table 6.3 – Howth Station Daily Passenger Footfall (Rail Census 2023)

Station	Passenger Footfall on Census Day		
	Boardings	Alightings	Total
Howth	1,012 pax	1,620 pax	**2,632 pax**

Individual DART train boardings at Howth station are presented in Figure 6.4, which follows. Howth being a terminus station and the first station of the southbound DART trains, the initial loading of each departing train is zero. Thus, the loading of each train leaving the Howth station is equal to the number of passengers boarding on that station.

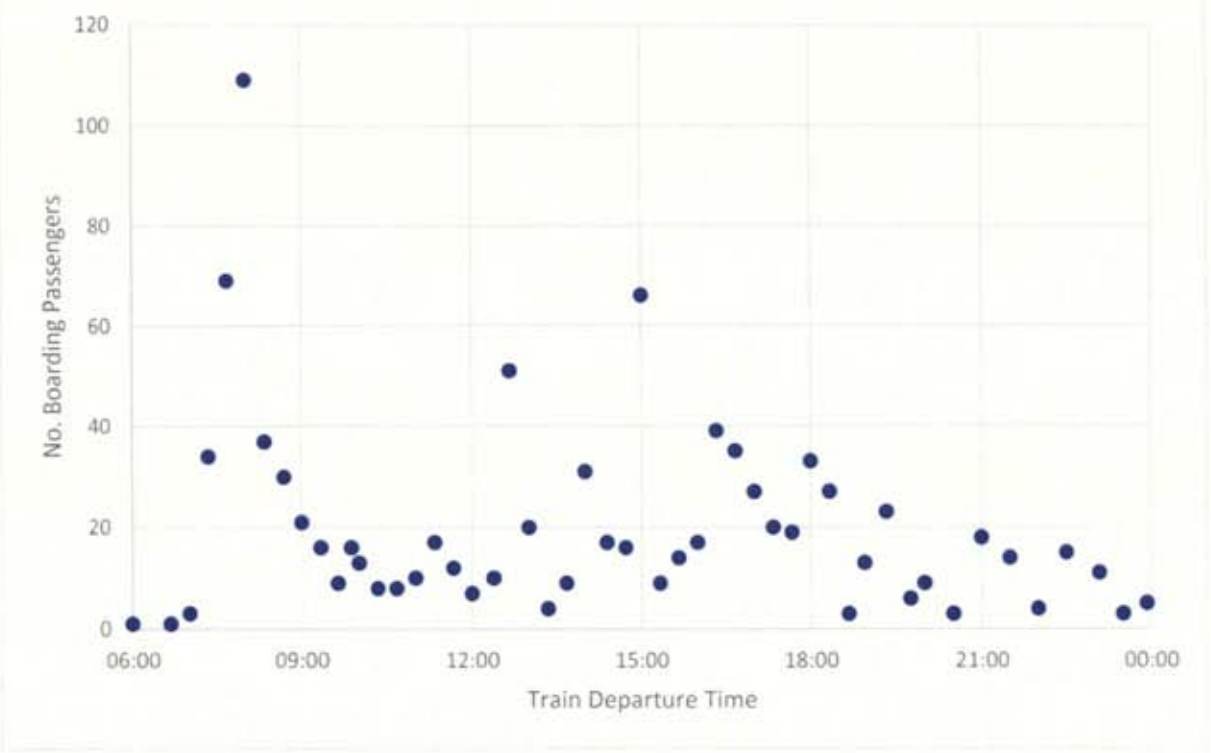


Figure 6.4 DART Train Boardings at Howth on Census Day (Rail Census 2023)

As can be seen in the preceding figure, on most trains, boardings at Howth have not exceeded 40 no. passengers (versus the capacity of each train of ca. 1,200 passengers). Based on the analysis of the above data, the average train boarding figure in the AM peak hour 07:30 to 08:30 has been 53 no. passengers (with the maximum of 109 no. passengers boarding the 08:00 train). Overall, the average train capacity utilisation at Howth is estimated at 4.4% in the AM peak, with a spare capacity of 1,147 no. passengers available on the trains leaving Howth in the busiest AM peak period (and more at other times). Considering the overall AM peak hour, 215 no. passengers were recorded to board the 3 no. trains with the combined capacity of 3,600 no. passengers, resulting in a capacity utilisation at 6.0% and spare capacity of 3,385 no. passengers. Capacity utilisation is lower still at other times of day.

Within Table 6.4 (below), the capacity of bus service H3 running on the R105 Howth Road adjacent to the application site has been calculated. As set out in this table, based on the capacity of a typical bus operating on that route and the weekday peak period frequency of that route, the average weekday peak bus service capacity has been estimated as 190 persons per hour (ppdph).

Table 6.4 – Existing H3 Bus Service Capacity

Typical Bus (Volvo B5TL (Euro 6)) Capacity	95	Persons
No. of Services in Vicinity of Site (Peak Frequency)	2	Services
Average Weekday Peak Bus Service Capacity	190	persons per direction per hour (ppdph)

As set out above, the available bus service offers a capacity of 190 no. seating and standing passenger spaces per direction per hour.

For additional robustness, a bus occupancy survey has been undertaken, wherein the number of passengers on board of the H3 buses serving the bus stops closest to the application site has been observed. The observations were conducted over 2-hour time windows corresponding with the AM and PM peak periods, i.e. 07:30-09:30 hrs and 16:30-18:30 hrs. The recorded passenger volumes in the demand direction (i.e. southbound in the AM peak and northbound in the PM peak) are presented in Table 6.5, which follows.

Table 6.5 – Bus Occupancy Survey Outputs

Direction	Time	No. Occupants on Arrival	No. Boarders	No. Alighters	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
Southbnd	07:33	3	1	0	4	90	96%
	07:57	19	3	0	22	72	76%
	08:27	51	0	0	51	43	46%
	08:56	6	0	0	6	88	93%
	09:19	1	0	0	1	93	99%
	09:26	13	1	0	14	80	85%
	Average	**16**	**1**	**0**	**16**	**78**	**83%**
Northbnd	16:47	29	0	1	28	66	70%
	17:21	10	0	0	10	84	90%
	17:44	26	0	0	26	68	73%
	18:06	10	0	1	9	85	91%
	Average	**19**	**0**	**1**	**18**	**76**	**81%**

As can be seen in the preceding table, an average excess capacity for 78 no. passengers on southbound buses in the AM peak and 76 no. passengers on northbound buses in the PM peak has been recorded, with a minimum of 43 no. passenger spaces being available for additional passengers.

6.6.5 Current Traffic Movements

6.6.5.1 Summary Traffic Survey Results

Following analysis of the traffic survey results undertaken on Tuesday, 26 September 2023 between 07:00hrs and 19:00hrs (as set out in Section 6.4), the AM peak hour was determined to be between 08:00hrs and 09:00hrs, with the PM peak hour determined to be between 16:00hrs and 17:00hrs, based on total traffic flow through the surveyed junctions. A summary of the survey results for the AM and PM peak hours is provided in Table 6.6 (below). The complete set of survey data is included in Appendix 6.1.

Table 6.6 – Recorded Two-Way Link Traffic Volumes

Junction	Road Link	AM Peak Hour (08:00hrs-09:00hrs)			PM Peak Hour (16:00hrs-17:00hrs)			Total Survey Period (07:00hrs-19:00hrs)		
		LV	HV	Tot	LV	HV	Tot	LV	HV	Tot
4-Arm, Signal Controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction	R106 Station Road (N)	438	17	455	358	5	363	8,064	293	8,357
	Dublin Road (W)	523	14	537	447	3	450	9,802	282	10,084
	Greenfield Road (S)	326	11	337	335	13	348	6,519	233	6,752
	R105 Howth Road (E)	561	11	572	573	11	584	10,863	336	11,199
	Total	1848	53	1901	1713	32	1745	35,248	1,144	36,392
4-Arm, Priority Controlled R105 Howth Road/ Church Road Junction	Church Road (N)	0	0	0	0	0	0	2	3	5
	R105 Howth Road (W)	460	9	469	520	4	524	10,752	316	11,068
	Church Road (S)	228	3	231	125	2	127	1,947	17	1,964
	R105 Howth Road (E)	421	8	429	449	7	456	9,151	304	9,455
	Total	1109	20	1129	1094	13	1107	21,852	640	22,492
3-Arm, Signal Controlled R105 Howth Road/ Offington Park Road Junction	R105 Howth Road (W)	343	9	352	423	5	428	8,953	293	9,246
	Offington Pk (S)	204	1	205	79	1	80	2,099	28	2,127
	R105 Howth Road (E)	353	8	361	430	8	438	9,098	297	9,395
	Total	900	18	918	932	14	946	20,150	618	20,768
3-Arm, Priority Controlled R105 Harbour Road/ Church Street Junction	R105 Harbour Road (W)	286	7	293	408	4	412	7,550	206	7,756
	Church Street (S)	167	0	167	94	0	94	2,520	19	2,539
	R105 Howth Road (E)	219	3	222	240	5	245	5,164	187	5,351
	Total	672	10	682	742	9	751	15,234	412	15,646

As can be seen from the preceding Table 6.6, the four-arm signal controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction (Sutton Cross) was found to cater for considerably higher traffic volumes during both the AM (08:00hrs-09:00hrs) and PM (16:00hrs to 17:00hrs) peak hours than at the four-arm priority controlled R105 Howth Road/ Church Road Junction, three-arm signal controlled R105 Howth Road/ Offington Park Road Junction and three-arm priority controlled R105 Harbour Road/ Church Street Junction. This was to be expected due to the Sutton Cross junction location on the R105, which connects M1/ M50 motorways and settlements along the east coast.

All arms of the Sutton Cross junction were found to carry similar traffic volumes, however the Howth Road west link carried considerably higher traffic volumes at the four-arm priority controlled R105 Howth Road/ Church Road Junction and three-arm signal controlled R105 Howth Road/ Offington Park Road Junction.

Heavy vehicle (HV) traffic represented 3% and 2% of all recorded vehicles through the Sutton Cross junction during the AM and PM peak hour periods respectively. HV traffic represented 2% and 1% of all recorded vehicles through the four-arm priority controlled R105 Howth Road/ Church Road

Junction and three-arm signal controlled R105 Howth Road/ Offington Park Road Junction during the AM and PM peak hour periods respectively, and 1% through the three-arm priority controlled R105 Harbour Road/ Church Street Junction during the AM and PM peak hour periods.

6.6.5.2 Annual Average Daily Traffic (AADT)

In order to further understand the existing traffic flows on the local road network and establish a baseline to assess the traffic impact of the development proposals, it is first necessary to establish future levels of background traffic. The survey data summarised in preceding sections was expanded in accordance with TII's Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts – PE-PAG-02039 (October 2016), to derive Annual Average Daily Traffic (AADT) on the local road network.

The following Table 6.7 outlines the expansion factors used in expanding the survey data to AADT using data for the Dublin Region.

Table 6.7 – 24-hour, WADT and AADT factors for Dublin Region

Variable	Survey Period	Day of Week	Month of Year
Data Recorded	07:00hrs – 18:59 hrs	Tuesday	September
Factor	1.20 (24-hr factor)	0.94 (WADT factor)	0.96 (AADT factor)

Based on the calculated two-way 12-hour traffic flows, 24-hour, weekly average daily traffic (WADT) and AADT have been calculated using the factors in Table 6.7 above. AADT data for roads in the vicinity of the site are presented in the following Table 6.8.

Table 6.8 – AADT Traffic Data

Junction	Road Link	AADT			
		LV	HV	Tot	%HV
4-Arm, Signal Controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction	R106 Station Road (N)	8,736	317	9,053	3.5%
	Dublin Road (W)	10,619	305	10,924	2.8%
	Greenfield Road (S)	7,062	252	7,315	3.5%
	R105 Howth Road (E)	11,796	336	12,132	2.8%
	Total	38,213	1,211	39,424	3.1%
4-Arm, Priority Controlled R105 Howth Road/ Church Road Junction	Church Road (N)	2	3	5	60.0%
	R105 Howth Road (W)	11,648	342	11,990	2.9%
	Church Road (S)	2,109	18	2,128	0.9%
	R105 Howth Road (E)	9,939	304	10,243	3.0%
	Total	23,698	668	24,366	2.7%
3-Arm, Signal Controlled R105 Howth Road/ Offington Park Road Junction	R105 Howth Road (W)	9,699	317	10,016	3.2%
	Offington Pk (S)	2,274	30	2,304	1.3%
	R105 Howth Road (E)	9,856	322	10,178	3.2%
	Total	21,829	669	22,498	3.0%
3-Arm, Priority Controlled R105 Harbour Road/ Church Street Junction	R105 Harbour Road (W)	8,179	223	8,402	2.7%
	Church Street (S)	2,730	21	2,751	0.7%
	R105 Harbour Road (E)	5,594	203	5,797	3.5%
	Total	16,503	446	16,950	2.6%

The data set out in Table 6.8 above is used in the following sections of this Chapter as a baseline in order to assess the impact of the proposed development under the different prescribed scenarios.

6.6.6 Road Safety

The traffic collision records for the roads in the Study Area are presented in Figure 6.5. The content of the figure is based on the Road Safety Authority records for the period 2005-2016, as no newer data was available at the time of drafting this report. However, the records are deemed representative, as no substantial changes to the road network or local development patterns have occurred that might have significantly impacted the traffic safety patterns in the area.

As shown in the figure, no fatal collisions have been recorded on the roads in proximity of the application site, notwithstanding one such collision being recorded on the R105 Howth Road by the junction with Lauder's Lane, ca. 2.0 kilometres west of the application site. A single serious collision has been recorded at the bend of the R105 Howth Road, ca. 200 metres to the northwest of the site, and a small number of minor collisions by the R105 Howth Road/ Howth Castle Access Road Junction. As can be seen in the figure, the traffic safety patterns in the application site's vicinity do not differ from those in the wider area.

Figure 6.5 Traffic Collision Records in the Application Site's Vicinity

Given the proposed development's relatively minor scale and traffic impact (as elaborated upon in the remainder of this Chapter), it is deemed unlikely that it would have any adverse impact on local traffic safety. Moreover, improved cycling facilities on the R105 Howth Road at the proposed site access junction may have an incremental positive impact on cyclist safety on the R105 Howth Road.

6.6.7 Future Infrastructural Improvement

No committed or planned road schemes have been identified, which would directly impact the future capacity of the road network in vicinity of the application site. However, it is noted that the ongoing Dublin-wide implementation of bus priority measures under the BusConnects Core Bus Corridor project will result in reduced capacity of main radial corridors between the suburbs and the City Centre for general traffic.

In the above context, it should be noted that the accessibility of the application site by public transport should be improved in the coming years, with enhanced bus routing (the BusConnects programme) and increased DART running frequencies (Dart+ Coastal North). The above-mentioned Core Bus Corridor project should further contribute to improved attractiveness of public transport in accessing the site.

Furthermore, the development of Dublin-wide cycle network, as envisaged in the Greater Dublin Area Cycle Network Plan, should improve the site's accessibility by cycling, with dedicated infrastructure being provided.

The above future changes to the application site's accessibility attributes are expected to have a positive cumulative impact on the modal split in the trips related to the proposed development, with

fewer trips completed by car and more residents and visitors electing alternative modes of travel. However, the scale and timing of those impacts have been deemed non-quantifiable within the scope of this assessment. As such, a conservative approach has been taken, with the above-impacts being omitted in the proposed development's trip generation forecasting.

6.7 Do-Nothing Scenario

6.7.1 Do-Nothing Scenario Definition

In order to identify the impact of the development proposals on the local road network, it is first necessary to establish background traffic conditions under the assumption of no changes to the underlying land use arrangements. For this purpose, a Do-Nothing scenario has been defined, assuming the proposed development does not go ahead. Traffic levels in the do-nothing scenario comprise forecast background traffic flows, which are assumed to grow organically over the assessment period. The background traffic growth has been forecast for the proposed development's assumed year of opening (YoO, 2025), year of opening + 5 years (YoO+5, 2030) and the year of opening + 15 years (YoO+15, 2040).

It should be noted that the Do-Nothing scenario has formed the starting point for further analysis, in particular for development of the Do-Minimum scenario, as defined in section 6.8.

6.7.2 Background Traffic Forecasting

To obtain forecast future background traffic volumes, the calculated base year (2023) AADTs, as reported on in Section 6.6.4.2, have been factored up as per TII's Project Appraisal Guidelines for National Roads Unit 5.3 – Trav–l Demand Projections - PE-PAG-02017 (October 2021) central growth factors for Dublin Metropolitan. These factors are set out in the following Table 6.10Table 6.9Table 6.10.

Table 6.9 – Annual traffic growth factors: Dublin Metropolitan Region

Central Growth Rates			
2016-2030		2030-2040	
LV	HV	LV	HV
1.0162	1.0295	1.0051	1.0136

Outputs of the above calculations for each arm of the four considered junctions are presented in Table 6.10, which follows.

Table 6.10 – Future Forecast AADT (Do-Nothing)

Junction	Road Link	YoO			YoO+5			YoO+15		
		LV	HV	Tot	LV	HV	Tot	LV	HV	Tot
4-Arm, Signal Controlled R105 Howth Road/ R106	R106 Station Road (N)	9,021	336	9,358	9,776	389	10,165	10,286	445	10,731
	Dublin Road (W)	10,965	324	11,289	11,883	374	12,257	12,503	429	12,932

Junction	Road Link	YoO			YoO+5			YoO+15		
		LV	HV	Tot	LV	HV	Tot	LV	HV	Tot
Station Road/ Greenfield Road Junction	Greenfield Road (S)	7,293	268	7,560	7,903	309	8,212	8,315	354	8,670
	R105 Howth Road (E)	12,152	386	12,538	13,169	446	13,615	13,856	511	14,367
	Total	39,432	1,314	40,745	42,731	1,519	44,250	44,961	1,739	46,700
4-Arm, Priority Controlled R105 Howth Road/ Church Road Junction	Church Road (N)	9,021	336	9,358	9,776	389	10,165	10,286	445	10,731
	R105 Howth Road (W)	10,965	324	11,289	11,883	374	12,257	12,503	429	12,932
	Church Road (S)	7,293	268	7,560	7,903	309	8,212	8,315	354	8,670
	R105 Howth Road (E)	12,152	386	12,538	13,169	446	13,615	13,856	511	14,367
	Total	39,432	1,314	40,745	42,731	1,519	44,250	44,961	1,739	46,700
3-Arm, Signal Controlled R105 Howth Road/ Offington Park Road Junction	R105 Howth Road (W)	10,016	336	10,352	10,854	389	11,243	11,420	445	11,865
	Offington Pk (S)	2,348	32	2,380	2,545	37	2,582	2,677	43	2,720
	R105 Howth Road (E)	10,178	341	10,519	11,029	394	11,424	11,605	451	12,056
	Total	22,542	710	23,251	24,428	821	25,248	25,703	939	26,642
3-Arm, Priority Controlled R105 Harbour Road/ Church Street Junction	R105 Harbour Road (W)	8,446	237	8,683	9,153	274	9,426	9,630	313	9,944
	Church Street (S)	2,819	22	2,841	3,055	25	3,080	3,214	29	3,243
	R105 Harbour Road (E)	5,777	215	5,992	6,260	248	6,509	6,587	284	6,871
	Total	17,042	473	17,515	18,468	547	19,015	19,432	626	20,058

6.8 Do-Minimum Scenario

6.8.1 Do-Minimum Scenario Definition

The Do-Minimum scenario has been developed to reflect relevant third-party developments identified in the Study Area that have been deemed likely to cause growth in background traffic volumes on the road network in the Study Area, beyond that assumed in the Do-Nothing scenario. Accordingly, the traffic volumes forecast for the Do-Minimum scenario account for both the organic growth in background traffic and the trip generation by permitted development. An equivalent increase in public transport demand has also been considered.

6.8.2 Relevant Committed Developments and Their Trip Generation

As stated in Section 6.4.2, the wider Howth Peninsula area to the east of Cross has been interrogated to identify relevant third-party developments, which could potentially generate an increase in traffic on the road network in the Study Area (also defined in Section 6.4.2) in excess of that reflected by the general background traffic growth (as per Section 6.7.2). Any adverse traffic impact of such developments would coincide with the impact of the current proposed development, resulting in a cumulative impact. The individual relevant third-party developments are listed in Table 6.11

(overleaf), with a comment provided on how they have been accounted for in this chapter of the EIAR in terms of cumulative impact.

Table 6.11 – Relevant Third-Party Developments in the Study Area

Reg. Ref.	Description	Status	Comments	Cumulative Impact Consideration
F23A/0512	Improvements to GAA Club at Balkill Road, Howth	Additional Information	Improvements to existing facilities only, unlikely to generate substantial additional traffic	Captured in the general background traffic growth (as per TII growth factors)
F23A/0286	Retention permission for a 36.8m telecommunications support structure	Grant	Land use unlikely to generate additional traffic	Captured in the general background traffic growth (as per TII growth factors)
F22A/0372, ABP-317883-23	Replacement of the existing "Deer Park Hotel" building (and all associated structures) with a new 142-bed hotel	Grant - Appeal Pending	Minor increase in the number of bedrooms by 17 no., from existing 125 no. to 142 no. Unlikely to result in substantial additional traffic generation	Captured in the general background traffic growth (as per TII growth factors)
F22A/0558	Claremont Industrial Estate, West Pier, Howth: two storey building (1293 sq.m.) for the processing, storage, and distribution of food.	Grant	Land use unlikely to generate substantial additional traffic	Captured in the general background traffic growth (as per TII growth factors)
SHD/009/21, ABP-313133-22	Balscadden SHD, Bailey Court, Balscadden Road, Howth: residential scheme comprising 180 no. units	Grant (Conditional)	-	Considered individually above the general background traffic growth
F22A/0477, ABP-316294-23	60 Main Street, Howth, Co. Dublin, D13 N8K3: residential scheme comprising 36 no. units	Grant - Appeal Pending	-	Considered individually above the general background traffic growth
F22A/0046, ABP-316113-23	Refurbishment/ redevelopment/ change of use for part of the existing Howth Castle buildings, Stable Block and Attendant lands	Grant - Appeal Pending	Land use unlikely to generate substantial additional traffic	Captured in the general background traffic growth (as per TII growth factors)
F21A/0386, ABP-311476-21	Graymount, Dungriffin Road, Howth: residential scheme comprising 32 no. units	Grant (Conditional) on Appeal (3rd Party)	-	Considered individually above the general background traffic growth

Reg. Ref.	Description	Status	Comments	Cumulative Impact Consideration
F17A/0615, ABP-301643-18, ABP-306872-20	Seafield SHD, Santa Sabina, Greenfield Road, Sutton: residential scheme originally comprising 96 no. units, later increased to 143 no. units.	Grant (Conditional)	-	Considered individually above the general background traffic growth
SHD/009/19, ABP-306102-19	Claremont SHD, Former Techrete Site, Howth Road, Howth: residential scheme comprising 512 no. units in addition to ca. 2,900 sqm retail floor area.	Grant (Conditional)	-	Considered individually above the general background traffic growth

As can be seen in the preceding table, 5 no. of the identified developments are unlikely to generate significant volumes of new traffic, and as such their impact on the road network performance in the Study Area is deemed to be fully accounted for by the application of general background traffic growth factors (as per Section 6.7.2). The remaining 5 no. developments have been deemed sufficiently substantial to merit an individual consideration over and above the application of general background traffic growth factors. Those developments are as follows:

- Balscadden SHD, comprising 180 no. residential units;
- Claremont SHD, comprising 512 no. residential units (in addition to ca. 2,900 sqm retail floor area);
- 60 Main Street, Howth, comprising 36 no. residential units;
- Graymount, Dungriffin Road, Howth, comprising 32 no. residential units; and
- Seafield SHD, Santa Sabina, Greenfield Road, Sutton, comprising 143 residential units.

Given that all relevant third-party developments have the same (i.e. residential) land use as the current proposed development, their individual vehicular trip generation has been estimated by reference to the same unit rates derived from TRICS ('Residential – flats privately owned' profile), which have been used for the current proposed development's trip generation forecasting (see: Section 6.9.2.1). In the case of the Claremont SHD, which includes a relatively substantial retail component (ca. 2,900 sqm, including on-site crèche), the retail component's trip generation has been added as presented in the original Traffic and Transport Assessment (TTA) Report for that development (under FCC Reg. Ref. SHD/009/19)[1].

To obtain all day traffic generation of the third-party developments, the combined AM and PM peak hour trip generation of those developments has been factored by the proportion of the combined AM

[1] In the Claremont SHD TTA, development trip generation figures have been provided for the time periods 08:00-09:00hrs and 17:00-18:00hrs. Herein, the same figures have been applied, respectively, to periods 08:00-09:00hrs (AM peak hour) and 16:00-17:00hrs (PM peak hour)

and PM peak hour trips in the total daytime (07:00-19:00hrs) trip generation according to the said TRICS profile. A daytime to all-day conversion factor has subsequently been applied to the daytime trip generation figure. The calculations have been undertaken separately for arriving and departing trips. The relevant calculations and the obtained permitted development all-day trip generation are presented in the Table 6.12, which follows.

Table 6.12 – Development Trips

No.	Development		No. All-Day Vehicular Trips		
			Inbound	Outbound	Total
1	Bailey Court – Balscadden Road, Howth, Co. Dublin (Balscadden SHD)		156	212	367
2	60 Main Street, Howth, Co. Dublin		31	42	73
3	Graymount, Dungriffin Road, Howth, Co. Dublin		28	38	65
4	Santa Sabina – Greenfield Road, Sutton, Co. Dublin (Seafield SHD)		124	168	292
5	Former Techrete Site, Howth Road (Claremont SHD)	Residential	443	602	1,045
		Retail	565	535	1,099
		Overall	1,007	1,137	2,144

Consistently with the current proposed development traffic distribution assumptions (see: Section 6.9.3.2), the following traffic distribution has been assumed for the relevant third-party developments:

- 75% to/ from the west (towards/ from Dublin City); and
- 25% to/ from the east (towards/ from Howth Village).

Considering the third-party developments' locations (as shown in Figure 6.1), it has been assumed that movements to and from the west (including to and from the City Centre) associated with Balscadden SHD (no. 1), 60 Main Street (no. 2), Graymount (no. 3), and Claremont SHD (no.5) would be served by the R105 Howth Road and the east arm of the Sutton Cross junction (i.e. would coincide with the current proposed development's trips in the same direction). Conversely, the Seafield SHD is located in Sutton, to the southwest of the proposed development, and it has been assumed that its associated movements to and from the west (including to and from the City Centre) would be served by the R105 Greenfield Road and the south arm of the Sutton Cross junction.

6.8.3 Do-Minimum Traffic Forecasting

The above-presented permitted development's AADT trip generation has been added to the Do-Nothing background traffic volumes for each of the three assessment years to obtain the Do-Minimum AADT figures. As noted above, all vehicular trips forecast to be generated by the permitted development have been considered as light vehicle (LV) trips, with no changes to heavy vehicle (HV) volumes between the Do-Nothing and Do-Minimum scenarios. Furthermore, trip distribution pattern

of the permitted development have been assumed the same as for the proposed development, i.e. 75% of trips to/ from the City Centre and 25% trips to/ from Howth Village Centre (details are described in Section 6.9.2.2). The outputs of this calculation are presented in Table 6.13, which follows.

Table 6.13 – Future Forecast AADT (Do-Minimum)

Junction	Road Link	YoO			YoO+5			YoO+15		
		LV	HV	Tot	LV	HV	Tot	LV	HV	Tot
4-Arm, Signal Controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction	R106 Station Road (N)	9,888	336	10,224	10,643	389	11,032	11,153	445	11,598
	Dublin Road (W)	12,046	324	12,370	12,964	374	13,338	13,584	429	14,012
	Greenfield Road (S)	7,531	268	7,799	8,141	309	8,451	8,554	354	8,908
	R105 Howth Road (E)	13,949	386	14,334	14,965	446	15,412	15,653	511	16,163
	Total	43,414	1,314	44,727	46,713	1,519	48,232	48,943	1,739	50,682
4-Arm, Priority Controlled R105 Howth Road/ Church Road Junction	Church Road (N)	2	3	6	2	4	6	3	5	7
	R105 Howth Road (W)	13,822	363	14,185	14,828	420	15,248	15,508	480	15,989
	Church Road (S)	2,178	20	2,198	2,360	23	2,383	2,484	26	2,509
	R105 Howth Road (E)	12,031	349	12,380	12,887	404	13,291	13,466	462	13,928
	Total	28,033	735	28,768	30,078	850	30,928	31,461	973	32,433
3-Arm, Signal Controlled R105 Howth Road/ Offington Park Road Junction	R105 Howth Road (W)	11,809	336	12,146	12,647	389	13,036	13,214	445	13,659
	Offington Pk (S)	2,348	32	2,380	2,545	37	2,582	2,677	43	2,720
	R105 Howth Road (E)	11,971	341	12,312	12,823	394	13,217	13,399	451	13,850
	Total	26,129	710	26,838	28,015	821	28,835	29,290	939	30,229
3-Arm, Priority Controlled R105 Harbour Road/ Church Street Junction	R105 Harbour Road (W)	9,044	237	9,281	9,751	274	10,024	10,228	313	10,541
	Church Street (S)	3,010	22	3,032	3,246	25	3,271	3,406	29	3,435
	R105 Harbour Road (E)	6,184	215	6,398	6,667	248	6,915	6,994	284	7,278
	Total	18,238	473	18,711	19,664	547	20,211	20,628	626	21,254

6.8.4 Do-Minimum Public Transport Travel Demand

As detailed in Section 6.8.2, 10 no. potentially relevant third-party developments have been identified in the Study Area, with 5 no. of those deemed likely to give rise to increase in traffic above the general background traffic growth factors. Of those 5 no. developments, 4 no. are residential development projects located in Howth (as detailed in Section 6.5), within the catchment of the Howth railway station and likely to be served by the H3 bus service. The relevant developments are as follows:

- Balscadden SHD, comprising 180 no. residential units;
- Claremont SHD, comprising 512 no. residential units;

- 60 Main Street, Howth, comprising 36 no. residential units; and
- Graymount, Dungriffin Road, Howth comprising 32 no. residential units.

The remaining third-party development identified to be relevant in the context of the traffic impact, namely the Seafield SHD (comprising 143 no. residential unit), is noted to be located in Sutton, outside of the Howth station and the H3 service catchment.

Public transport trip generation of the above permitted developments has been calculated using the approach detailed in Section 6.9.3.8 for the current proposed development. Furthermore, same assumptions with respect to the demand split between DART and bus have been made. The outputs of these calculations are presented in Table 6.14, which follows.

Table 6.14 – Peak Hour PT Trip Generation by Relevant Third-Party Developments

Development Name	No. Units	Daily No. of Resident Trips by PT	Trips by DART (75%)			Trips by Bus (25%)		
			All Day	AM Peak Hr	PM Peak Hr	All Day	AM Peak Hr	PM Peak Hr
Balscadden SHD	180	273	204	29	22	68	10	7
Claremont SHD	512	776	582	81	64	194	27	21
60 Main Street, Howth	36	55	41	6	4	14	2	1
Graymount, Dungriffin Road	32	48	36	5	4	12	2	1
Overall	**760**	**1,152**	**863**	**121**	**94**	**288**	**41**	**30**

As can be seen in the preceding table, the combined public transport trip generation of the identified relevant third-party developments is estimated at 1,152 no. trips per day, including 863 no. DART trips and 288 no. bus trips. The third-party developments are forecast to generate 121 no. DART trips and 41 no. bus trips in the AM peak hour, and 94 no. DART trips and 30 no. bus trips in the PM peak hour.

By reference to the current public transport capacity (as detailed in Section 6.6.4.4), it can be established that existing DART and bus (H3) services offer ample capacity to accommodate the additional demand associated with the above-stated developments. The generated trips in the busiest time period (i.e. AM peak hour) will not exceed 3.5% of the available spare capacity on DART services and 26% of the available spare capacity on the H3 bus service.

With all the relevant third-party developments operational, the spare capacity on DART services is forecast to fall from 3,385 no. to 3,264 no. spaces in the busiest AM peak (with more spaces available at other times of day). Spare capacity on the H3 bus service is forecast to fall from 156 no. to 115 no. seating and standing paces in the busiest AM peak hour (with more spaces available at other times of day).

6.9 Potential Significant Effects

6.9.1 Demolition Phase

The demolition phase of the proposed development will be very minor, only including removal of three sections of an existing boundary wall. As such, the scale of works involved will be minimal, with no significant effects anticipated.

6.9.2 Construction Phase

As noted in the preceding section, the application is for the construction of a residential development including 135 no. dwellings in the form of apartments. The construction period shall be ca. 18 months as set out within the Construction Management Plan accompanying the application.

The application package includes a Construction Management Plan (CMP), including a Construction Traffic Management Plan (CTMP), prepared by Donnachadh O'Brien & Associates Consulting Engineers, which provides details of the planned construction activities, including their scale and intensity. It is estimated that at the peak construction period, up to 100 no. construction workers will be based on site each day in order to carry out construction works. This would likely equate to a peak of 50 no. contractor staff vehicle trips (assuming a vehicle occupancy of 2 no. contractors per vehicle).

As set out within the Construction Management Plan accompanying the application, it is estimated that a typical day would result in ca. 10-15 no. HGV trips during the construction phase. Given the temporary nature of the construction related traffic, the impact of the estimated construction traffic is expected to be minimal. It should be noted that all staff and construction vehicles will be parked within the boundary of the proposed development site and no construction related parking will take place on the adjoining local road network.

Construction related traffic will access/ egress the site from the main site access. In general, the impact of the construction period will be temporary in nature and will cease following completion of the works. No significant effects are likely to occur due to construction phase traffic.

The construction period, which is expected to last for 18 months, will involve works being undertaken during the following time periods, subject to restrictions imposed by the local authority:

- 07:00hrs to 19:00hrs – Monday to Friday;
- 08:00hrs to 14:00hrs – Saturday; and
- No works to be undertaken on Sundays and bank holidays, unless separately authorised.

6.9.2.1 Haulage Routes

All HGVs shall access the site from the western direction via the R105 Howth Road. An on-site assessment of the local road network (described in Section 0) confirms that the regional road proposed to form the haul route to site is appropriate to accommodate traffic associated with the construction phase and operational phase of the proposed development. HGV access to and egress from the site will be via the proposed site entrance, secured by a banks person. Details are provided in the relevant section of the CMP.

6.9.3 Operational Phase

6.9.3.1 Development Trip Generation

Data from the Trip Rate Information Computer System (TRICS) has been utilised to calculate the quantum of vehicle trips likely to be generated by a development of the scale and type proposed (as per Section 4). Trip generation data was determined for on-site land use namely 'residential – flats privately owned'. Given the site's location, developments in 'suburban/edge of town' locations were selected, with data analysed for the morning (08:00-09:00hrs) and evening (16:00-17:00hrs) network peak hours in order to determine the maximum impact of the proposed development on the local road network. Daytime trip rates have also been considered. The Determined car trip rates for the AM and PM network peak hour hours and the daytime period are shown in Table 6.15 (below). The complete TRICS profile information is included in Appendix 6.2. Due to the nature of the proposed development, generation of other vehicular traffic (i.e. HGVs) will be negligible. No significant effects are likely.

Table 6.15 – TRICS Unit Trip Rates

TRICS Land Use Category	Rate	AM Peak (08:00-09:00)		PM Peak (16:00-17:00)		Daytime (07:00-19:00)	
		Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Residential – flats privately owned	per dwelling	0.042	0.15	0.108	0.07	1.07	1.032

Applying the trip rates shown in Table 6.15 above to the assumed number of units (i.e. 135 no.), the following Table 6.16 indicates the daily expected development traffic generation from the TRICS data outputs. A conversion factor of 1.2 has been used to calculate the all day (00:00-23:59hrs) development trip generation based on the daytime figures.

Table 6.16 – Proposed Development's Traffic Generation – Network Traffic Peaks and All-Day

Time Period	Inbound	Outbound	Total
AM Peak 08:00-09:00hrs	6	20	26
PM Peak 16:00-17:00hrs	15	9	24
Daytime 07:00-19:00hrs	117	127	244
All-Day 24 hrs	140	153	293

As can be seen from the preceding Table 6.16, it is robustly estimated that the development proposal would generate 117 no. additional inbound vehicle trips and 127 no. additional outbound vehicle trips i.e. 244 no. total additional trips over the daytime period from 07:00-19:00hrs. This converts into a

total of 293 no. one-way trips over the 24hr all-day period. The majority of the development traffic is forecast to occur in the periods 08:00-09:00hrs (26 trips) and 17:00-18:00hrs (27 trips).

6.9.3.2 Development Trip Distribution

Due to the location of the site, all traffic generated by the proposed development will access/ egress though the R105 Howth Road. While it is unknown how the future residents trip distribution at the proposed development might occur, the following conservative traffic distribution has been assumed:

- 75% to the west Via Howth Road (Towards Dublin City); and
- 25% to the east Via Howth Road (Towards Howth Village).

6.9.3.3 Do-Something Traffic Forecast

Table 6.17 below details the total AADT and proportion of which comprises HGVs through each arm of the junctions assessed for the Do-Something scenario. The Do-Something scenario is considered the worst-case scenario and includes factored background traffic for the year of opening (2025), year of opening + 5 years (2030), and year of opening + 15 years (2040).

Table 6.17 – Future Forecast AADT (Do-Something)

Junction	Road Link	YoO			YoO+5			YoO+15		
		LV	HV	Tot	LV	HV	Tot	LV	HV	Tot
4-Arm, Signal Controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction	R106 Station Road (N)	9,974	336	10,310	10,729	389	11,118	11,239	445	11,684
	Dublin Road (W)	12,154	324	12,478	13,071	374	13,446	13,692	429	14,120
	Greenfield Road (S)	7,535	268	7,803	8,146	309	8,455	8,558	354	8,912
	R105 Howth Road (E)	14,147	386	14,533	15,164	446	15,610	15,851	511	16,362
	Total	43,810	1,314	45,124	47,110	1,519	48,629	49,339	1,739	51,078
4-Arm, Priority Controlled R105 Howth Road/ Church Road Junction	Church Road (N)	2	3	6	2	4	6	3	5	7
	R105 Howth Road (W)	14,020	363	14,383	15,026	420	15,446	15,707	480	16,187
	Church Road (S)	2,178	20	2,198	2,360	23	2,383	2,484	26	2,509
	R105 Howth Road (E)	12,229	349	12,578	13,086	404	13,489	13,664	462	14,126
	Total	28,429	735	29,164	30,475	850	31,324	31,857	973	32,830
3-Arm, Signal Controlled R105 Howth Road/ Offington Park Road Junction	R105 Howth Road (W)	12,007	336	12,344	12,845	389	13,235	13,412	445	13,857
	Offington Pk (S)	2,348	32	2,380	2,545	37	2,582	2,677	43	2,720
	R105 Howth Road (E)	12,170	341	12,511	13,021	394	13,416	13,597	451	14,048
	Total	26,525	710	27,235	28,411	821	29,232	29,686	939	30,625
3-Arm, Priority Controlled R105 Harbour Road/ Church Street Junction	R105 Harbour Road (W)	9,110	237	9,347	9,817	274	10,090	10,294	313	10,608
	Church Street (S)	3,041	22	3,063	3,277	25	3,302	3,436	29	3,465
	R105 Harbour Road (E)	6,219	215	6,434	6,702	248	6,951	7,029	284	7,313
	Total	18,370	473	18,843	19,796	547	20,343	20,760	626	21,386

6.9.3.4 Traffic Impact

Table 6.18 (overleaf) sets the forecast Do-Something traffic volumes against the Do-Minimum, with percentage increase in traffic at each arm of the junctions considered also being calculated. It should be noted that all increases in traffic in both Do-Minimum and Do-Something scenarios, compared to the Do-Nothing, are associated with light vehicle movements, with heavy vehicle volumes being the same in all scenarios. For this reason, a separate consideration of development impact on HGV volumes on the road network has been omitted (i.e. it has been assumed that the proposed development will have no adverse effect on HGV movements on the considered road network). Calculations have been undertaken for the development's year of opening (2025), year of opening + 5 years (2030), and year of opening + 15 years (2040).

Table 6.18 – Proposed Development's Estimated Traffic Impact

Junction	Road Link	YoO			YoO+5			YoO+15		
		Do-Min	Do-Sth	% Δ	Do-Min	Do-Sth	% Δ	Do-Min	Do-Sth	% Δ
4-Arm, Signal Controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction	R106 Station Road (N)	10,224	10,310	0.8%	11,032	11,118	0.8%	11,598	11,684	0.7%
	Dublin Road (W)	12,370	12,478	0.9%	13,338	13,446	0.8%	14,012	14,120	0.8%
	Greenfield Road (S)	7,799	7,803	0.1%	8,451	8,455	0.1%	8,908	8,912	0.0%
	R105 Howth Road (E)	14,334	14,533	1.4%	15,412	15,610	1.3%	16,163	16,362	1.2%
	Total	44,727	45,124	0.9%	48,232	48,629	0.8%	50,682	51,078	0.8%
4-Arm, Priority Controlled R105 Howth Road/ Church Road Junction	Church Road (N)	6	6	0.0%	6	6	0.0%	7	7	0.0%
	R105 Howth Road (W)	14,185	14,383	1.4%	15,248	15,446	1.3%	15,989	16,187	1.2%
	Church Road (S)	2,198	2,198	0.0%	2,383	2,383	0.0%	2,509	2,509	0.0%
	R105 Howth Road (E)	12,380	12,578	1.6%	13,291	13,489	1.5%	13,928	14,126	1.4%
	Total	28,768	29,164	1.4%	30,928	31,324	1.3%	32,433	32,830	1.2%
3-Arm, Signal Controlled R105 Howth Road/ Offington Park Road Junction	R105 Howth Road (W)	12,146	12,344	1.6%	13,036	13,235	1.5%	13,659	13,857	1.5%
	Offington Pk (S)	2,380	2,380	0.0%	2,582	2,582	0.0%	2,720	2,720	0.0%
	R105 Howth Road (E)	12,312	12,511	1.6%	13,217	13,416	1.5%	13,850	14,048	1.4%
	Total	26,838	27,235	1.5%	28,835	29,232	1.4%	30,229	30,625	1.3%
3-Arm, Priority Controlled R105 Harbour Road/ Church Street Junction	R105 Harbour Road (W)	9,281	9,347	0.7%	10,024	10,090	0.7%	10,541	10,608	0.6%
	Church Street (S)	3,032	3,063	1.0%	3,271	3,302	0.9%	3,435	3,465	0.9%
	R105 Harbour Road (E)	6,398	6,434	0.6%	6,915	6,951	0.5%	7,278	7,313	0.5%
	Total	18,711	18,843	0.7%	20,211	20,343	0.7%	21,254	21,386	0.6%

The analysis presented above has demonstrated that the traffic impact of the proposed development will be insignificant, with the maximum forecast traffic increase being 1.5% at the Howth Road(W)/Offington Pk/ Howth Road Junction (in the development's assumed 2025 Year of Opening). With respect to strategic infrastructure, it is noted that the proposed development is forecast to result

in a 0.8 % increase through the Station Road/ Dublin Road/ Greenfield Road/ Howth Road Junction in the Year of Opening. A more detailed assessment of the development's traffic impacts of Station Road/ Dublin Road/ Greenfield Road/ Howth Road Junction is set out in the subsequent Sections 6.9.3.5 and 6.9.3.6.

6.9.3.5 Traffic Modelling Approach

As agreed with FCC during scoping (see: Section 6.4.3), traffic modelling has been undertaken at the four-arm, signal controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction (Sutton Cross) using industry-standard LinSig software package.

The list of modelling scenarios has been based on the number of key variables, which are set out in Table 6.19, which follows.

Table 6.19 – List of Modelling Variable

Variable	No.	Description
Time of Day	2	Network AM Peak Hour, Network PM Peak Hour
Modelling Year	4	2023[2], 2025 (YoO), 2030 (YoO+5), 2040 (YoO+15)
Development Scenarios	3	No Development (Do-Nothing), Permitted Development (Do-Minimum), Permitted Development and Proposed Development (Do-Something)

Overall, 20 model runs have been undertaken and the outputs presented within Section 6.9.3.6. The model outputs are presented as a Degree of Saturation, Average Delay per PCU, Mean Maximum Queue Length, and Level of Service.

6.9.3.6 Traffic Modelling Outputs

Table 6.20, below, presents the LinSig traffic modelling outputs for the existing 4-arm signal controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction (Sutton Cross) with the different scenarios for the identified network AM and PM peak hours, i.e. 08:00-09:00hrs and 16:00-17:00hrs respectively. For each arm, outputs for the critical (i.e. worst performing) lane have been provided. The following arm designations have been used in the table:

- Arm A: R106 Station Road (North);
- Arm B: Dublin Road (West);
- Arm C: Greenfield Road (South); and
- Arm D: R105 Howth Road (East).

The complete LinSig modelling report is included in Appendix 6.3.

[2] "Do-Nothing" Scenario only

Table 6.20 – LinSig Model Summary Results for 4-Arm Signal Controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction (Sutton Cross)

Arm	AM				PM			
	Deg Sat [%]	Avg Delay per PCU [s]	Mean Max Queue [pcu]	LOS	Deg Sat [%]	Avg Delay per PCU [s]	Mean Max Queue [pcu]	LOS
Base Year 2023								
A	53%	50s	10pcu	D	37%	51s	5pcu	D
B	68%	66s	11pcu	E	50%	65s	6pcu	E
C	66%	53s	13pcu	D	73%	60s	15pcu	E
D	57%	60s	9pcu	E	53%	54s	10pcu	D
Do Nothing YoO (2025)								
A	56%	51s	11pcu	D	39%	51s	6pcu	D
B	70%	67s	11pcu	E	52%	66s	7pcu	E
C	68%	54s	14pcu	D	75%	62s	16pcu	E
D	59%	61s	9pcu	E	55%	54s	10pcu	D
Do Nothing YoO+5 (2030)								
A	64%	54s	12pcu	D	48%	54s	6pcu	D
B	76%	72s	13pcu	E	57%	66s	7pcu	E
C	74%	57s	16pcu	E	82%	68s	18pcu	E
D	64%	63s	10pcu	E	60%	56s	11pcu	E
Do Nothing YoO+15 (2040)								
A	71%	57s	13pcu	E	53%	56s	7pcu	D
B	81%	76s	14pcu	E	60%	69s	8pcu	E
C	78%	60s	17pcu	E	87%	75s	20pcu	E
D	68%	65s	11pcu	E	63%	57s	12pcu	E
Do Minimum YoO (2025)								
A	56%	51s	11pcu	D	39%	51s	7pcu	D
B	70%	67s	11pcu	E	57%	66s	13pcu	E
C	68%	54s	14pcu	D	76%	62s	16pcu	E
D	68%	65s	16pcu	E	62%	57s	13pcu	E
Do Minimum YoO+5 (2030)								
A	64%	54s	12pcu	D	48%	54s	7pcu	D
B	76%	72s	13pcu	E	61%	66s	14pcu	E
C	74%	57s	16pcu	E	82%	68s	18pcu	E
D	73%	68s	17pcu	E	67%	58s	15pcu	E
Do Minimum YoO+15 (2040)								
A	71%	57s	13pcu	E	53%	56s	8pcu	E
B	81%	76s	14pcu	E	63%	69s	15pcu	E
C	78%	60s	17pcu	E	87%	75s	20pcu	E
D	77%	71s	19pcu	E	70%	60s	16pcu	E
Do Something YoO (2025)								
A	56%	51s	11pcu	D	39%	51s	7pcu	D
B	70%	67s	11pcu	E	58%	66s	13pcu	E
C	68%	54s	14pcu	D	76%	62s	16pcu	E
D	66%	66s	16pcu	E	63%	57s	12pcu	E
Do Something YoO+5 (2030)								
A	64%	54s	12pcu	D	48%	54s	7pcu	D
B	76%	72s	13pcu	E	62%	66s	15pcu	E

Arm	AM				PM			
	Deg Sat [%]	Avg Delay per PCU [s]	Mean Max Queue [pcu]	LOS	Deg Sat [%]	Avg Delay per PCU [s]	Mean Max Queue [pcu]	LOS
C	74%	57s	16pcu	E	82%	68s	18pcu	E
D	75%	69s	18pcu	E	67%	59s	15pcu	E
Do Something YoO+15 (2040)								
A	71%	57s	13pcu	E	53%	56s	8pcu	E
B	81%	76s	14pcu	E	64%	69s	16pcu	E
C	78%	60s	17pcu	E	87%	75s	20pcu	E
D	78%	72s	19pcu	E	71%	60s	16pcu	E

The results of traffic modelling presented above demonstrate that the existing Signal Controlled R105 Howth Road/ R106 Station Road/ Greenfield Road Junction (Sutton Cross) currently operates within capacity in both the network AM and PM peak hours. In terms of capacity utilisation, Arm B (i.e. the western arm) is expected to reach a 81% degree of saturation by YoO+15 (2040) during AM peak hour in the Do-Nothing scenario, while Arm C (i.e. the eastern arm) is expected to reach a 82% degree of saturation by YoO+15 (2040) during the PM peak hour in the Do-Nothing scenario. The remaining arms are expected to operate with a wider spare capacity margin up to and including the development's YoO+15 (2040).

The impact of any development at the subject site is expected to only be incremental, with negligible differences between the Do-Nothing, Do-Minimum, and Do-Something scenario outputs for each respective year. The most significant impact is expected at Arm B, where delays in the 2040 AM peak are expected to 76 seconds in all the three scenarios. This reflects the fact that the arm in question is expected to operate at capacity by that time, resulting in a disproportionate impact of any increase in traffic volume on the level of service.

Overall, the presented modelling outputs demonstrate that the proposed development will not give rise to any noticeable impact on junction performance, notwithstanding the existing capacity pressures arising due to high background traffic volumes. There will therefore be no significant effect arising from the proposed development, as confirmed by outputs of the traffic modelling.

Detailed modelling results are included as Appendix B of the TTA Report included in the application package.

6.9.3.7 Traffic Modelling Results Compared with Previous Assessment

The traffic modelling and associated results presented in the previous Section and included at Appendix 6.3 are considered to be robust, undertaken in accordance with best practice guidance, based on representative traffic data, with appropriate trip rate and traffic distribution assumptions. Furthermore, the choice of traffic modelling software and geometric model inputs are considered to be suitable and in accordance with best practice.

Notwithstanding the above, it is acknowledged that the previous Traffic and Transport Assessment prepared by Barrett Mahony Civil and Structural Consulting Engineers (BMCSCE) for a Strategic Housing Development (SHD) (which has been quashed) at the application site contained traffic

modelling of this junction. The conclusions of this analysis stated (Section 6.2 Conclusions from Analysis):

> *"Sutton crossroads is at present at capacity and other adjacent permitted developments will result in it being over capacity in future years. The proposed development will add relatively little to further congestion at this location. The volumes generated by the proposed development constitute a very low proportion of these committed flows from adjacent developments."*

The findings of the analysis undertaken by BMCSCE therefore differ from the findings contained within this TTA. The reasons for the differences could be as follows:

- Traffic surveys undertaken in support of the BMCSCE traffic modelling were undertaken in 2019. This was just before onset of the COVID-19 pandemic and associated changes in traffic volumes, travel patterns and road user behaviour.
- Traffic surveys were undertaken at slightly different times of year (October in the case of the BMCSCE surveys and September in the case of surveys for this TTA). Both are noted to be representative, neutral months.
- Provision of additional active travel infrastructure on the local road network in the intervening period.
- Use of different traffic modelling software (the BMCSCE assessment used OSCADY software, whereas the modelling for this assessment was undertaken using LinSig). Both software packages are considered to be appropriate, however they would be based on different algorithms and therefore may yield slightly different results for equivalent input data. Both pieces of software are noted to be commonly applied, with the LinSig software named in the *Traffic and Transport Assessment Guidelines* (TII 2014) among the key modelling packages for individual signalised junction and signalised junction network modelling.
- There may have been slight changes to the traffic signals at Sutton Cross between the BMCSCE surveys being undertaken in 2019 and our surveys being undertaken in 2023. Unfortunately, if this was the case, there is no record of changes available from FCC. It is noted however that can be common for traffic signals to be optimised from time to time.
- The development now proposed has a lower quantum of residential units (135 no.) and car parking provision (63 no. car parking bays) than that analysed by BMCSCE (162 no. residential units and 132 no. car parking bays).

Considering the above potential differences associated with both background conditions and proposed development characteristics between the analysis undertaken previously at the site and that now proposed, the findings of this assessment are still considered to be robust and appropriate.

6.9.3.8 Public Transport Utilisation Impact

In order to establish whether sufficient capacity is present on the public transport services serving the application site to accommodate the additional travel demand generated by the proposed development, an appropriate analysis has been undertaken. In doing so, combined travel demand of the identified relevant third-party developments in the Study Area (see: Section 6.8.4) and the current proposed development has been compared to the spare capacity on the DART services at Howth and the H3 service at the bus stops nearest to the application site (i.e. stops nos. 555 and 580), as detailed in Section 6.6.4.4..

determine whether the above modal splits are achievable in relation to existing public transport (i.e. DART and bus services) provision in the vicinity of the site, an analysis of the capacity of the existing bus services has been undertaken. This analysis is based on the modal splits set out above, the number of residents expected to occupy the proposed development, existing DART and bus service provision and data given with the NTA's latest and *National Rail Census Report 2022*.To establish current bus service usage and available spare capacity, a bus occupancy survey was undertaken on the bus stops on the R105 Howth Road closest to the site, i.e. stops no. 555 and 580 (as elaborated upon in the remainder of this section).

The following Table 6.21 gives an overview of residential travel demand based on the proposed no. of units within the current proposed development, the assumed average occupancy of these units and the average no. of trips per person per day taken within the Greater Dublin Area, as set out within the *National Household Travel Survey (NHTS) 2017 Final Report* (NTA, December 2018).

Table 6.21 – Daily Public Transport Travel Demand, Residential Land Use

No. of units proposed	135	Units
Assumed no. of residents per unit	2.7	Persons
Total residents	365	Persons
No. trips per person per day within GDA (As per NHTS 2017)	1.87	trips/person/day
Target PT Modal Split (as per Table 6.26)	30%	-
Total PT trips per day	**204**	**trips**

Based on the above, it is estimated that 365 no. persons may occupy the residential portion of the site. As the development is comprised of 1- and 2-bed units, this is deemed to a conservative estimate. Based on evidence provided within the NHTS 2017, it is assumed that each one of these residents will generate 1.87 trips per day, equating to a total daily production of ca. 683 no. trips. Of these 683 no. daily trips, 30% are assumed to travel by public transport, as per the target public transport mode share in the framework MMP for the proposed development (included in the TTA Report, which forms part of the application package). This equates to ca. 204 no. public transport trips per day.

Using data included within the NHTS 2017 Final Report, the proportion of daily trips undertaken during each hour of the day can be estimated. As set out in the following Table 6.22, 08:00-09:00hrs

represents the AM peak hour during which 14% of all daily trips are undertaken. Similarly, 17:00-18:00hrs represents the PM peak hour during which 11% of all daily trips are undertaken. Through the application of the proposed mode share of public transport as set out above in Table 6.21, the number of resident trips undertaken by public transport in each of the AM and PM peak hours has been calculated.

Table 6.22 – Peak Hour PT Trip Generation by Proposed Development

	Daily No. of Resident Trips by PT	Time of day (Hr Beginning)	% Share of Daily Trips	No. of Resident PT Trips
AM Peak Hour	205	08:00hrs	14%	29
PM Peak Hour		17:00hrs	11%	22

As set out in Table 6.22 above, 29 no. and 22 no. trips are expected to be undertaken by public transport in the direction of peak demand during the 08:00-09:00hrs and 17:00-18:00hrs respectively.

Given the site's location at the end of railway and bus routes, it has been assumed that all public transport resident trips will take place in the direction of peak demand (i.e. in the direction of Dublin City in the AM peak period and towards Howth in the PM peak period). Given the significant advantage in terms of travel time and frequency of DART versus the H3 bus service in travel to and from Dublin City, it has been assumed that 75% of resident public transport trips will be completed by DART, with the remaining 25% completed by bus. Accordingly, the forecast number of trips by DART and by bus generated by the proposed development in the AM and PM peak hours is presented in Table 6.23, which follows.

Table 6.23 – Assumed Distribution of PT Trips between DART and Bus Services

	Overall Resident Trips	% Trips by Dart	Trips by DART	% Trips by Bus	Trips by Bus
AM Peak Hour	29	75%	22	25%	7
PM Peak Hour	22		17		5

As can be seen in the preceding table, the proposed development is expected to generate 22 no. trips by DART and 7 no. trips by the H3 bus service in the AM peak hour, and respectively 17 no. and 5 no. trips in the PM peak hour.

As detailed in Section 6.8.4, assuming all identified third-party developments are operational, the spare public transport capacity during the busiest AM peak hour has been estimated at 3,264 no. and 115 no. passenger spaces (seating and standing) on the DART and H3 bus, respectively. Considering the travel demand forecast presented above, the proposed development is expected to utilise 0,7% of the DART capacity and 6% of the H3 bus service capacity in the AM peak hour, which represents the critical period during the day. The remaining spare capacity would then amount to 3,242 no. and 108 no. passenger spaces on the DART and H3, bus respectively.

As demonstrated, existing public transport capacity offer sufficient capacity to accommodate the demand associated with the current proposed development in addition to relevant third-party

developments in the Study Area. Moreover, it is forecast that both DART and H3 services will retain significant spare capacity for accommodating further development of the area.

The assessment presented is deemed highly conservative, as no improvements to public transport services over time have been assumed. It should be noted that the DART capacity is expected to be doubled in the next couple of years under the DART+ North Coastal scheme, while bus service frequency tends to be adjusted to respond to changes in demand. In applying such analytical approach, it has been demonstrated that the proposed development does not rely on any public transport improvements with regard to its forecast travel patterns.

6.9.4 Cumulative Effects

6.9.4.1 Demolition and Construction Phase

As noted in Section 6.8.2, five relevant proposed or permitted third-party developments have been identified that due to their location, land use, and scale could potentially give rise to cumulative traffic impacts on the road network within the Study Area, as follows:

- Balscadden SHD, comprising 180 no. residential units;
- Claremont SHD, comprising 512 no. residential units (in addition to ca. 2,900 sqm retail floor area);
- 60 Main Street, Howth, comprising 36 no. residential units;
- Graymount, Dungriffin Road, Howth, comprising 32 no. residential units; and
- Seafield SHD, Santa Sabina, Greenfield Road, Sutton, comprising 143 residential units.

It should be noted that the Seafield SHD has become operational since the traffic surveys underpinning this EIAR Chapter have been completed, while the Claremont SHD is at an advanced stage of construction and is expected to be completely or largely finished before ground is broken on the current proposed development. While the delivery timescales of the remaining identified third-party developments relative to the current proposed development are unclear, it should be noted that their traffic generation in the construction phase would most likely be lower than in the operational phase. Furthermore, any cumulative impact of the third party developments' operation and construction and the proposed development's demolition or construction phase would be transient in nature and not significant, given the proposed development's low construction and demolition phase trip generation. Overall, it is expected that any cumulative traffic impact prior to completion of the third party developments and the current proposed development will be smaller than their cumulative operational phase impacts (see: Section 6.9.4.2). As such, no significant cumulative effects are likely to arise in the demolition or construction phase.

6.9.4.2 Operational Phase

The assessment presented herein has considered the proposed development's operational phase impacts in the context of relevant proposed and permitted third-party developments, as detailed in Section 6.8.2, with the Do-Nothing scenario representing none of the considered developments taking place, the Do-Minimum scenario representing the impact of the third-party developments only, and the Do-Something scenario representing the cumulative impact of the third-party developments and

current proposed developments. The traffic impact assessment presented in Section 6.9.3.4 has shown the cumulative traffic impact to be minor, particularly in comparison to the impact of the committed developments only. The traffic modelling outputs presented in Section 6.9.3.6 demonstrate that the increase in traffic volumes associated with the committed and current proposed developments is unlikely to have a tangible impact on the performance of the critical R105 Howth Road/ R106 Station Road/ Greenfield Road Junction (Sutton Cross). As such, no significant cumulative effects have been identified in this transport impact analysis.

6.9.5 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 6.24 Summary of Construction Phase Likely Significant Effects in the absence of mitigation

Likely Effect	Quality	Significance	Extent	Probability	Duration	Type
Additional HGV movements on the road network	Negative	Not Significant	Road network	Certain	Construction period (24 Months)	Traffic

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 6.25 Summary of Operational Phase Likely Significant Effects in the absence of mitigation

Likely Effect	Quality	Significance	Extent	Probability	Duration	Type
Additional light vehicle movements on the road network	Negative	Not Significant	Road network	Certain	Operating period	Traffic

6.10 Mitigation

6.10.1 Incorporated Design Mitigation

The proposed development's design includes multiple features aimed at promoting sustainable mobility choices and minimising risks associated with vehicle and people movements within the site. While car parking provision has been reduced to ca. 0.5 space per apartment to manage car ownership (and associated traffic and environmental impact), ample cycle parking will be provided at ca. 3.1 spaces per apartment (including visitor spaces). Resident cycle parking spaces will be provided at a ratio of ca. 2.5 spaces per apartment and will be located in secure, weather protected, and easily

accessible enclosures. Cargo bike parking (18 no. spaces) will also be provided to facilitate sustainable movement of larger packages or groceries by residents. The proposed car and visitor cycle parking provision meets the requirements set out in Fingal Development Plan and relevant guidelines (as detailed in Section 2 of the TTA Report, which is included in the application package).

The proposed development's mobility features are noted to be compliant with Design Manual for Urban Roads and Streets (DMURS), with a detailed compliance statement included in the TTA Report, which forms part of the application package.

6.10.2 Demolition and Construction Phase Mitigation

As part of the demolition and construction phases, a number of mitigation measures will be implemented. These are as follows:

- In order to minimise the potential impact on the local road network surfaces, road cleaning will be implemented on site during the earliest construction phase to mitigate against material such as dust, earth, debris etc. from entering the local road network, as required.
- Furthermore, parking of all construction vehicles including staff vehicles will take place within the bounds of the subject site.
- Haul route outlined within 6.9.2.1 will be strictly adhered to by construction vehicles so as not to have an undue impact on the local road network.

6.10.3 Operational Phase Mitigation

A Mobility Management Plan (MMP) has been produced as a section of the TTA Report, which forms part of the planning application package for this proposed development. The MMP outlines a list of actions and measures in order to promote sustainable modes of travel to/ from the proposed development, thus mitigating its traffic impact. The actions to be implemented are as follows (with details provided in the MMP):

- A Mobility Management Plan Coordinator (MMPC) to be appointed following planning approval to manage and proactively coordinate all subsequent mobility management measures and undertake related data collection and reporting to measure their effectiveness.
- Residents will be informed about sustainable travel options available to them by means of new resident information packs, travel information on residents' noticeboard, and resident website (if applicable).
- TaxSaver and Cycle to Work schemes will be promoted among residents
- Tours of cycling facilities available on site for new residents will be organised
- A cycle repair station including a pump will be installed in or at each resident cycle compound and in one location within the site adjacent to visitor cycle parking spaces.

The measures set out above shall enable achievement of a higher level of travel sustainability compared to the surrounding area, with the baseline and target modal split presented in Table 6.26

below. The baseline modal split has been established by interrogating the Central Statistics Office (CSO) Census 2022 dataset.

Table 6.26 Baseline Mode Share Targets and MMP Targets

	On Foot	Bicycle	Public Transport	Car Driver	Car Passenger	Other	Remote work
Baseline (Census 2022)	5%	2%	20%	47%	2%	3%	20%
Target	5%	10%	30%	35%	2%	3%	15%

Within 3 months following occupation of the site, a resident and visitor travel survey will be undertaken to enable updating and expanding the MMP. Thereafter, the surveys shall be repeated every year, with the MMP provisions updated subsequently. The MMPC will review the actions carried out or due to be carried out every six months and document the actions and any feedback received in a written memo to the apartment scheme's management company.

The proposed development's travel demand and resident mode split characteristics presented in this EIAR Chapter are fully cognisant of the MMP provisions and aligned therewith.

6.11 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

6.11.1 Construction Phase

The implementation of the mitigation measures detailed in the Construction Management Plan, as included in this planning application package, will ensure that the residual impact on the local receiving environment is both managed and minimised. The increase in background traffic volumes due to the proposed development's construction, while impossible to be completely avoided, will be both insignificant and short-term, with the construction period expected to not exceed 24 months. There is no risk of the additional HGV movements associated with the construction to become a permanent feature on the local road network.

6.11.2 Operational Phase

There will likely be a slight increase in traffic on the local road network in the vicinity of the application site as a result of the proposed development, however the mitigation measures implemented, including both "hard" design measures and soft measures set out in the MMP (as included in the application package), will ensure that the impact is minimised and continuously managed. As demonstrated by the numerical traffic impact analysis presented above, the forecast increase in network traffic volumes is unlikely to adversely affect congestion patterns or vehicular delays. As such, no significant effects are forecast.

6.11.3 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 6.27 Summary of Construction Phase Effects Post Mitigation

Likely Effect	Quality	Significance	Extent	Probability	Duration	Type
Additional HGV movements on the road network	Negative	Not Significant	Road network	Certain	24 Months	Traffic

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 6.28 Summary of Operational Phase Effects Post Mitigation

Likely Effect	Quality	Significance	Extent	Probability	Duration	Type
Additional light vehicle movements on the road network	Negative	Not Significant	Road network	Certain	Operating period	Traffic

6.12 Risk of Major Accidents or Disasters

Due to the scale and nature of the proposed development it is not expected that any risk of major accidents or disasters in transport and mobility terms shall arise due to its construction or operation phases.

6.13 Worst Case Scenario

The worst case scenario in terms of traffic and transportation, is the scenario which operations at the proposed development site have the capacity to generate the greatest amount of traffic on the surrounding road network. To provide a robust basis for this assessment, the Do-Something scenario analysed above represents the worst case scenario.

6.14 Interactions

The analysis contained within this chapter interacts with the climate, local air quality, and noise impact assessments contained within this EIAR, in addition to the population and human health chapter. This is primarily due to the potential for an increase in traffic movements on the surrounding road network due to development.

6.14.1 Construction Phase

At the construction phase, increased noise and dust may impact the amenities and health of existing residents in close proximity to the site.

6.14.2 Operational Phase

At the operational phase, the proposed development will allow people to live in proximity of services, amenities and high quality public transport, interacting with patterns of traffic and transport locally.

6.15 Monitoring

6.15.1 Construction Phase

During the construction stage, the following monitoring actions will be implemented (expanded upon in the CMP):

- Compliance with construction vehicle routing plan;
- Compliance with construction vehicle internal circulation, loading/ unloading, and parking plan;
- Monitoring of internal and external road conditions (including surface cleaning); and
- Compliance with restrictions on construction activities' timing.

6.15.2 Operational Phase

As part of the MMP process, the following actions will be undertaken during the proposed development's operational phase:

- Informed by a residents and visitors travel survey, the MMP should be updated within 3 months of site occupation; and the Action Plan tailored to meet the specific requirements of its residents and visitors.
- A resident and visitor travel survey should be carried out annually thereafter, forming the baseline from which the MMP's future performance is measured and additional/ amended interventions identified.
- A review of the actions carried out or due should be carried out by the MMP Coordinator every six months. This should take the form of a memo to the apartment scheme's management company, documenting actions implemented, residents' feedback etc.

6.16 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 6.29 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Additional HGV movements on the road network	CMP includes a construction vehicle circulation plan and sets out actions aimed at minimising the impact of construction-related movements on the wider road network	Compliance with CMP prescriptions

The following Table summarises the Operational Phase mitigation and monitoring measures.

Table 6.30 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Additional light vehicle movements on the road network	Development design includes features aimed at promoting sustainable mobility and reducing car ownership	-
	MMP sets out actions to support modal shift away from the car and sustain sustainable travel choices over the operational period	Compliance with CMP

6.17 Conclusion

The purpose of this EIAR chapter is to quantify the existing transport environment of the subject site and to detail the results of assessment work undertaken to identify the potential level of transport impact generated as a result of the construction and operational phases of the proposed residential development.

CHAPTER 7
MATERIAL ASSETS: BUILT SERVICES

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

7 Material Assets: Built Services

7.1 Introduction

This chapter of the EIAR addresses issues relating to the material assets of surface water drainage, wastewater drainage, water supply, and utilities (electricity, telecommunications, and gas) in respect of the subject lands and assesses the impact of the proposed development on these aspects of the existing environment. Where necessary, mitigation measures are proposed together with monitoring to ensure the effective implementation of mitigation measures. It should be read in conjunction with all other Chapters of the EIAR and assessments/reports/plans etc. submitted with the planning application.

7.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Donnachadh O'Brien and Paul Doyle of Donnachadh O'Brien & Associates Consulting Engineers (DOBA).

Donnachadh is a Chartered Engineer (CEng) and a Fellow of the Association of Consulting Engineers of Ireland (FConsEI) with over 26 years' experience as a Consulting Civil & Structural Engineer. Paul is also a Chartered Engineer (CEng) and a Registered Professional Consulting Engineer (RConsEI) with the Association of Consulting Engineers of Ireland (ACEI) with 15 years' experience as a Consulting Civil & Structural Engineer. Donnachadh and Paul both have extensive experience in the design and delivery of urban development schemes and have advised clients including government bodies, local authorities and private developers. DOBA have been involved in the preparation of EIARs for the following projects:

- Southwest Gate Mixed Use Development, Dublin 12.
- Lands at Leixlip Demesne, Leixlip, Co. Kildare
- Lands at Haggardstown, Dundalk, Co. Louth

7.3 Proposed Development

A detailed description of the proposed development is provided in Chapter 2 of this Environmental Impact Assessment Report (EIAR).

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Partial demolition of 3 sections of the existing northern boundary wall, which fronts Howth Road, proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

7.3.1 Aspects Relevant to this Chapter

7.3.1.1 Existing Surface Water Drainage

The Applicant commissioned a Ground Penetrating Radar (GPR) and Topographical Survey to confirm the location and the invert level of the existing 300mm dia. surface water sewer located to the west of the proposed development to facilitate a new gravity connection from the proposed development. This sewer increases in size to a 450mm dia. and then to a 60mm dia. sewer prior to discharging to the Irish Sea to the north of the subject site.

7.3.1.2 Proposed Surface Water Drainage Strategy

The design and management of surface water for the proposed development will comply with the policies and guidelines outlined in the Greater Dublin Strategic Drainage Study (GDSDS), the CIRIA SuDS Manual and the Fingal County Council SuDS Guidance. A 30% climate change factor will be included for the design of the surface water network which exceeds the 20% requirement of Fingal County Council.

7.3.1.3 Estimation of Proposed Greenfield Runoff Rate

In accordance with the IH24 method, the greenfield runoff for existing undeveloped sites measuring less than 50Ha can be estimated adopting the following formula and the total permissible outflow has been calculated as 4.81 l/s.

7.3.1.4 Proposed SuDS Hierarchy

The following SuDS hierarchy shall be implemented to ensure a 2 stage treatment train is adopted;

- Nature Based SuDS (NBS) features provided throughout including bioretention areas, bioswales, rain gardens, tree pits and green-blue roofs,
- As infiltration of surface water run-off to ground is not feasible, filtration system SuDS measures including filter drains and lined permeable paving will be implemented,
- A lined underground attenuation tank shall be provided to surface water runoff arising from all storms up to and including a 1:100 Year + 30% Climate Change event, and finally,
- An hydrocarbon separator shall be provided on the surface water outfall from the site prior to discharging to the public surface water sewer.

7.3.1.5 GDSDS

The design of the sustainable drainage system shall comply with the Greater Dublin Strategic Drainage Study (GDSDS) as follows;

- River Quality Protection – 10mm of rainfall shall be intercepted without discharging to the public system,
- River Regime Protection – surface water shall discharge to the receiving public network at Q_{bar}, 4.81 l/s,
- Level of Service (Flooding) for the Site – no pluvial out-of-manhole flooding of the proposed surface water network shall occur for all storms up to and including a 1:100 Year event plus 30% Climate Change, and,

- River Flood Protection - the proposed Q_{bar} for the site is 4.81 l/s and as the surface water run-off generated on site does not exceed Q_{bar} there is no requirement for long-term storage to limit the impact on the receiving surface water sewer.

7.3.1.6 Flooding

A Site Specific Flood Risk Assessment has been undertaken which summarises that the proposed development is situated within Flood Zone C and is not at risk of flooding arising from Tidal, Fluvial, Pluvial, Groundwater or Human/ Mechanical Error sources

7.3.1.7 Wastewater Drainage

The proposed wastewater network will collect effluent from the new development via a main Wastewater drainage network which is located around the proposed development where it will finally discharge by gravity to the existing 400mm dia. wastewater sewer to the north of the subject site. The wastewater sewer network and has been designed in accordance with the principles and methods set out in Uisce Éireann's Code of Practice for Wastewater Infrastructure IW-CDS-5030-03, IS EN 752 Drain & Sewer Systems outside Buildings, IS EN 12056 Gravity Drainage Systems inside Buildings and the Building Regulations Technical Guidance Document Part H Drainage & Wastewater. The estimated peak Wastewater loading generated by the proposed development's Dry Weather Flow is estimated at 0.70 l/s while the Design Wastewater Flow of 6DWF is 4.18 l/s. A Confirmation of Feasibility & Statement of Design Acceptance has been received from Uisce Éireann and is appended to the Infrastructure Report prepared by DOBA.

7.3.1.8 Water Supply

A new 150mm dia. looped watermain with 100mm dia. spurs with associated Bulk Flow Meters as required to serve each individual block of apartments shall be installed on site with a new 150mm dia connection to the existing 160mm dia. MoPVC watermain on the Howth Road. The watermain layout and connections, valves, hydrants, meters etc. shall be designed in accordance with Uisce Éireann's Code of Practice for Water Infrastructure IW-CDS-5020-03/ Standard Details and the Department of the Environment's Building Regulations "Technical Guidance Document Part B Fire Safety". The new site watermain network will adequately serve the firefighting requirements with Fire Hydrants provided on the loop main in accordance with Part B of the Building Regulations. The estimated peak hour water demand generated by the proposed development is 3.96 l/s. A Confirmation of Feasibility & Statement of Design Acceptance has been received from Uisce Éireann and is appended to the Infrastructure Report prepared by DOBA.

7.3.1.9 Electrical Supply

A new underground power cable shall connect into the existing network and route through the proposed development to serve the new ESB kiosks. The Existing 10kV/ 20kV overhead power lines traversing the site will be diverted around the site, underground, in accordance with ESB Standards. Discussions have taken place with ESB regarding the undergrounding of the existing overhead ESB line and the most likely alignment is illustrated in this application. As per ESB Networks procedures, this will be agreed post planning.

7.3.1.10 Gas Supply

Gas is not required for the development as a low carbon, electricity powered heat pump system is proposed. Full details of the proposed system are included in Energy Analysis Report submitted under separate cover. An existing 90mm dia. 4 bar medium pressure gas main which traverses the site shall be disconnected by Gas Networks Ireland (GNI) and diverted around the site

7.3.1.11 Telecommunications

The supply of telecommunications infrastructure to the proposed development site will be provided by way of a connection to a telecoms control room from the existing EIR telecommunication networks and future proposed Virgin Media Network on Howth Road.

7.4 Methodology

This chapter has been prepared in accordance with the following guidelines:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)

7.4.1 Relevant Legislation & Guidance

The following sources of information were in used in completion of this assessment

- Fingal Development Plan 2023 - 2029
- Greater Dublin Area Regional Code of Practice for Drainage Works
- Greater Dublin Strategic Drainage Study (GDSDS)
- Environmental Protection Agency (EPA)
- Site Investigation Report November 2019 (Site Investigations Ltd.)
- Ground Investigation Report March 2024 (IGSL)
- Geological Survey of Ireland (GSI) online maps and databases
- Correspondence and meetings with Fingal County Council
- Correspondence with Uisce Éireann
- Uisce Éireann Code of Practice for Wastewater Infrastructure
- Uisce Éireann Code of Practice for Water Infrastructure
- Utility Network Maps as follows:
    - Public Water Mains (Uisce Éireann)
    - Public Stormwater Drainage (Fingal County Council)
    - Public Foul Drainage (Uisce Éireann)
    - Electricity Supply Networks (ESB Networks)
    - Gas Supply (Gas Networks Ireland)
    - Telecommunications (eir)
    - Telecommunications (Virgin)

The above information was reviewed to determine how the development site is currently serviced and in conjunction with the advice of the relevant utility providers and authorities, assess its adequacy in terms of the proposed overall mixed-use development. The assessment of potential impacts on the built services for the Proposed Development were assessed through a desktop study of the information provided in consultation with the relevant utility providers and authorities, as listed above. The details of that consultation are set out below. The rating of impacts within this chapter is in line with the Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022). The rating of impacts is reproduced in Chapter 1 of this EIAR.

7.4.2 Site Surveys/Investigations

7.4.3 Consultation

The sub-sections below describe the consultations carried out under the following headings;

- Surface Water Drainage
- Wastewater Drainage
- Water Supply
- Electricity
- Telecommunications
- Gas

7.4.3.1 Surface Water Drainage

Extensive consultation has taken place between the Applicant and the Fingal County Council Water Services Department during the preparation of the planning documentation. The Applicant has formally engaged with Fingal County Council Water Services Department on the following dates to discuss the proposed Surface Water & SuDS strategy:

- S247 Meeting with Fingal County Council dated 12.09.2023
- Fingal County Council LRD Opinion ISSUED 18 January 2024 (FCC Ref. LRD0035/S2)

7.4.3.2 Wastewater Drainage

Wastewater from the proposed development will discharge by gravity to the existing 400mm dia. wastewater sewer to the north of the site where it shall drain to the Deer Park Wastewater Pumping Station (WwPS) prior to being pumped west to the Ringsend Wastewater Treatment Plant (WwTP). The Uisce Eireann Confirmation of Feasibility (CoF) dated 22nd of May 024 (Appendix 10.4) notes that a wastewater connection is feasible subject to upgrade works. Additionally, UÉ have provided a Statement of Design Acceptance in respect to the proposed Wastewater drainage layout and design.

7.4.3.3 Water Supply

Consultation has taken place with Uisce Éireann (UÉ) through a Pre-Connection Enquiry. UÉ issued a Confirmation of Feasibility letter which confirmed that connection from the proposed development to the existing Water Supply network can be facilitated through the connection of the proposed development's water infrastructure to the existing 160mm dia. Molecular-Oriented PVC (MOPVC) watermain on the Howth Road via a new 150mm watermain. Additionally, UÉ have provided a

Statement of Design Acceptance (Appendix 10.5) in respect to the proposed Water Supply layout and design.

7.4.3.4 Electricity

Liaison with ESB took place throughout 2023 and to review the strategy and initial network capacity review. No concerns were raised in this meeting.

7.4.3.5 Gas

Consultation has taken place with Gas Networks Ireland (GNI) with regard to disconnection and diversion of the existing services on site and no concerns have been raised by GNI. Site maps were provided along with network capacity advice from GNI on the 05.12.2023 . Liaison with Gas Networks Ireland regarding the diversion took place through December 2023.

7.4.3.6 Telecommunications

Telecom records were requested from Eir and Virgin Media. Existing records have been received from Eir for the area adjacent to the site. Virgin Media have no existing infrastructure in the area. From consultation with Virgin Media in September 2023, Virgin Media have emphasised that there are plans in place to extend their network down Howth Road outside the site and into Howth.

7.5 Difficulties Encountered

7.5.1.1 Surface Water Drainage

None.

7.5.1.2 Wastewater Drainage

None.

7.5.1.3 Water Supply

None.

7.5.1.4 Electricity

Due to the operational procedures of the ESB, they do not confirm if network upgrade works will be required until planning permission is granted and an application to the ESB is submitted. ESB electrical distribution maps indicate substantial infrastructure in the area with medium voltage (MV) distribution cables both in Howth Road and traversing the site overhead and that the ESB have raised no concerns about availability of power during consultation with them. The exact location and set out of above and below ground power lines have been verified via Topographical and Ground Penetrating Radar

7.5.1.5 Telecommunications

None.

7.5.1.6 Gas

The exact location and set out of gas pipework will be verified in the next stage through further site investigation and GPR survey.

7.6 Baseline Environment

The subject site is located in lands at Deer Park, Howth Road, Howth Co. Dublin and is c. 1.5 Hectares and currently greenfield. Howth is located to the East of Dublin city and forms a peninsula into the Irish Sea. The site is bounded to the west by residential dwellings. Howth Castle and St. Marys Church to the south and east of the subject site have a separate access road from the R105 Howth Road. The proposed vehicular entrance to the site is located to the north west of the site adjacent to R105 Howth Road and provides the requisite sightlines for vehicles exiting the site. It is also intended to use this entrance during the construction phase. The south is bounded by the Deer Park Golf Club. The land surrounding the site is a mixture of residential, commercial and recreative use.

Figure 7.1 Site Location (Source: Google Maps)

7.6.1.1 Surface Water Drainage

There is no formal surface water drainage on the subject site. The Applicant commissioned a Ground Penetrating Radar (GPR) and Topographical Survey to confirm the location and the invert level of the existing 300mm dia. surface water sewer to the north-west of the subject site to facilitate a new gravity connection from the proposed development. Figure 7.2 below illustrates the location of the existing 300mm dia. concrete surface water sewer to the north-west of the subject site.

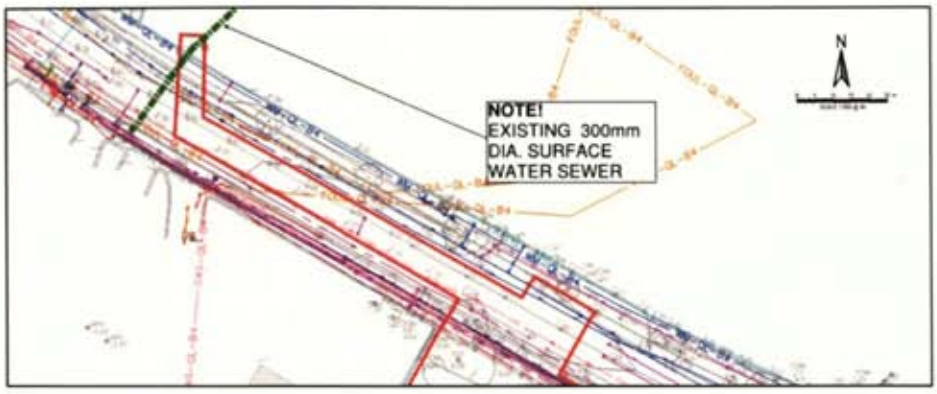


Figure 7.2 Extract from GPR survey illustrating presence of existing 300mm dia. surface water sewer to the north-west of the subject site

7.6.1.2 Wastewater Drainage

There is no formal wastewater drainage on the subject site. Uisce Éireann GIS mapping indicates the presence of an existing 400mm dia. concrete Wastewater sewer located to the north-east of the subject site which flows northwards. The Applicant commissioned a Ground Penetrating Radar (GPR) and Topographical Survey to confirm the location and the invert level of the existing 400mm dia. wastewater sewer to facilitate a new gravity connection from the proposed development. Figure 7.3 below illustrates the location of the existing 400mm dia. concrete wastewater sewer to the north-east of the subject site.

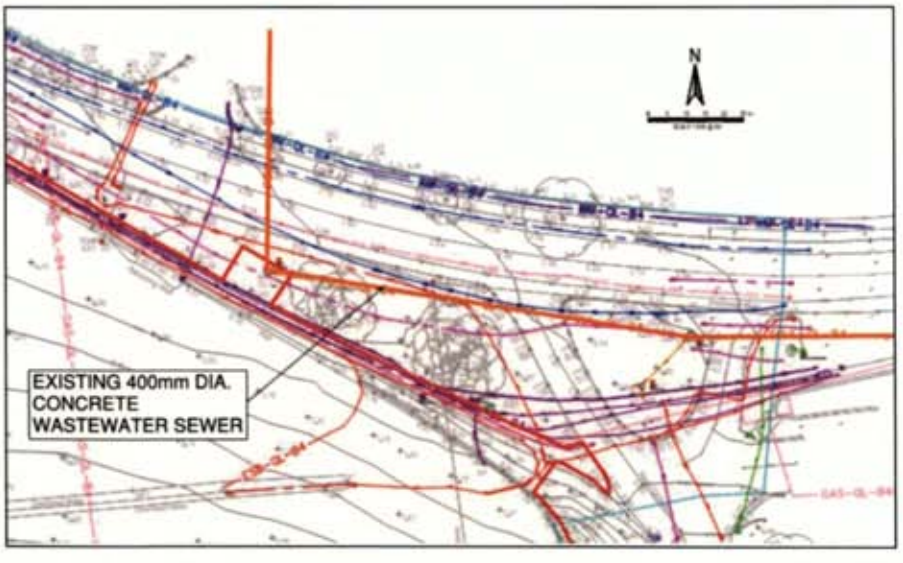


Figure 7.3 Extract from GPR survey illustrating confirmed location of existing 400mm dia. concrete Wastewater sewer to the north-east of the subject site

7.6.1.3 Water Supply

There is no existing watermain connection into the subject site. There is existing water supply infrastructure located to the north of the proposed development in the form of an existing 9" cast iron watermain and an existing 160mm dia. Molecular-oriented PVC (MoPVC) watermain as illustrated in Figure 7.4 below. The existing water supply is illustrated on Engineering drawing C-0005.

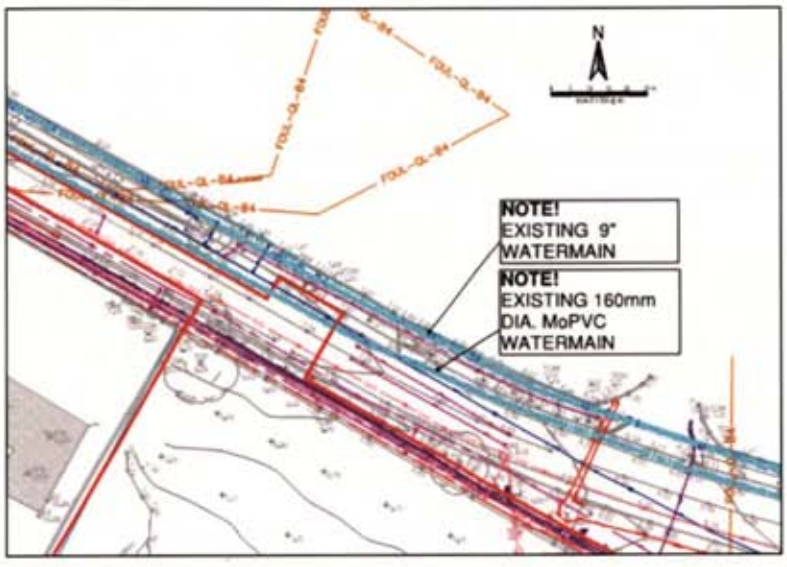


Figure 7.4 Extract from GPR survey illustrating confirmed location of existing 225mm dia. and 160mm dia. watermains to the north of the subject site

7.6.1.4 Electrical Supply

There is no existing ESB supply to the site but there is existing below ground (red) and overhead (green) cabling that traverse the site as illustrated in Figure 7.5 following. Consultation has taken place with ESB with regard to the diversion of the existing overhead lines to below ground and to the provision of a new kiosks on the site. No concerns have been raised by ESB Networks during the consultation process about these proposals.

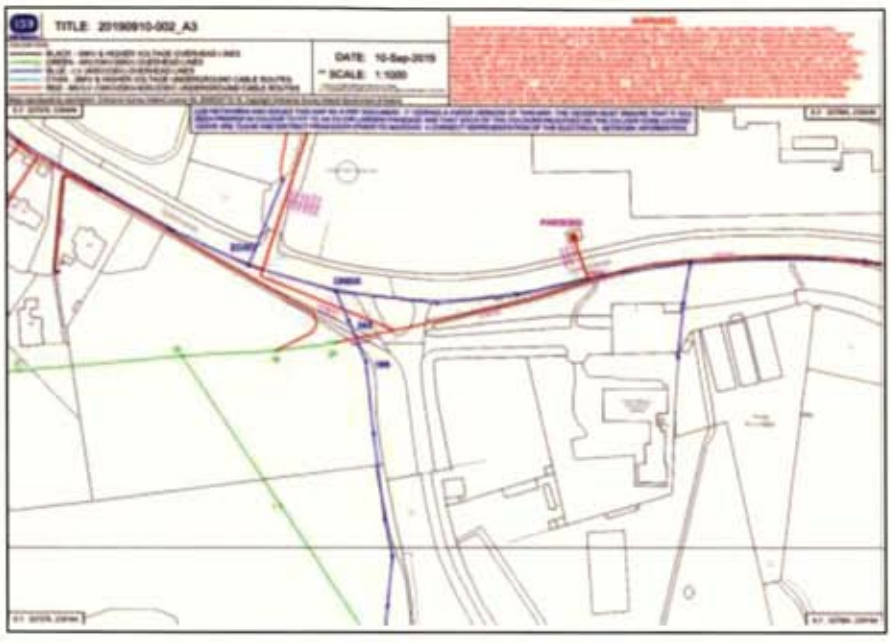


Figure 7.5 Existing ESB Infrastructure

7.6.1.5 Telecommunications

There is existing Eir infrastructure located along the Howth Road as illustrated in Figure 7.6 below. Virgin Media have plans in place to install infrastructure along the Howth Road.

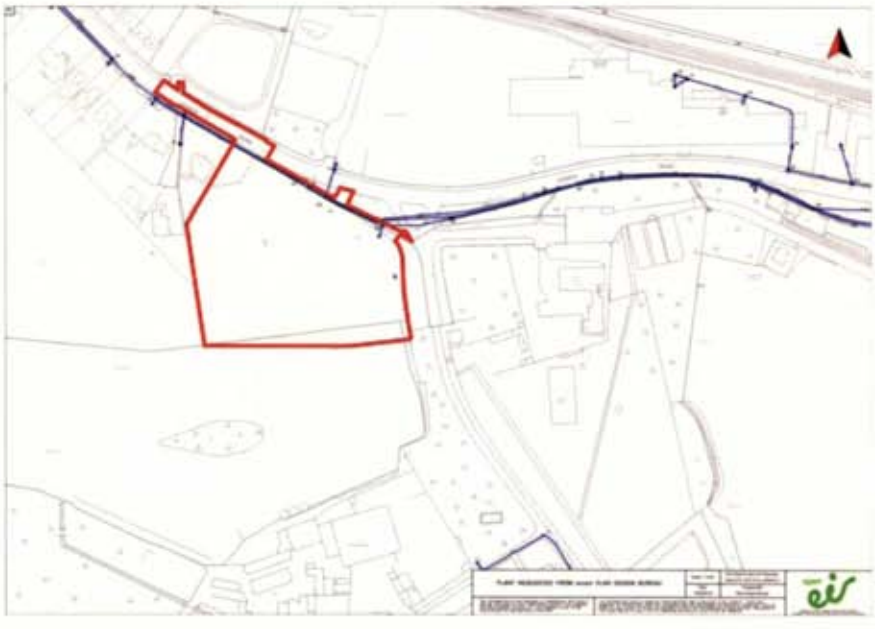


Figure 7.6 Existing Eir telecommunication infrastructure

7.6.1.6 Gas

There is an existing 90mm 4bar gas main within Howth Road which traverses the site as illustrated in Figure 7.7 overleaf. Consultation has taken place with GNI with regard to the diversion of the existing

medium pressure gas main. No concerns have been raised by GNI during the consultation process about this proposal.

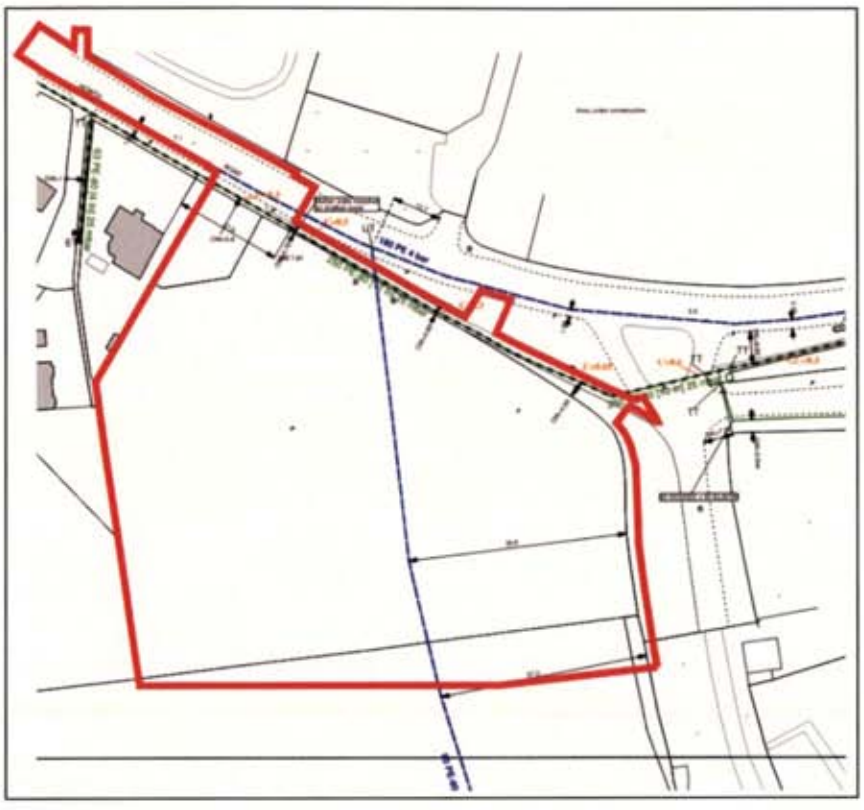


Figure 7.7 Existing Gas Networks Ireland infrastructure

7.7 The 'Do Nothing' Scenario

7.7.1 Surface Water Drainage

If the proposed development did not proceed, there would be no increase in the design surface water flows to the existing storm water network and thus would be a neutral, imperceptible, long-term effect. The site is zoned for development and it is likely that in the absence of this subject proposal that a development of a similar nature, with a similar surface water flow, would be progressed on the site that accords with national policy for compact growth. If the proposed development were not to proceed there would be no increase in the design surface water flows to the existing storm water network and no significant effect would arise.

7.7.2 Wastewater Drainage

If the proposed development did not proceed, there would be no increase in the design wastewater flows to the existing wastewater network and thus would be a neutral, imperceptible, long-term effect. The site is zoned for development and it is likely that in the absence of this subject proposal that a development of a similar nature, with a similar wastewater discharge, would be progressed on the site that accords with national policy for compact growth. If the proposed development did not

proceed, there would be no increase in the design wastewater flows to the existing wastewater network and no significant effect would arise.

7.7.3 Water Supply

If the proposed development was not to proceed, there would be no increase in the demand on the existing water supply network and thus would be a neutral, imperceptible, long-term effect. However, the site is zoned for development and having regard to planning policy that supports consolidation of the built environment and high-density development it is likely that in the absence of this subject proposal that a development of a similar nature, with similar water demand requirements, would be progressed on the site. If the proposed development did not proceed, there would be no increase in the demand on the existing water supply network and no significant effect would arise.

7.7.4 Electricity

If the proposed development did not proceed, there would be no increase in the demand on the existing electricity networks and thus would be a neutral, imperceptible, long-term effect. However, the site is zoned for development and it is likely that in the absence of this subject proposal that a development of a similar nature, with similar demand requirements, would be progressed on the site that accords with National policy for compact growth. If the proposed development did not proceed, there would be no increase in the demand on the existing electricity networks and no significant effect would arise.

7.7.5 Telecommunications

If the proposed development did not proceed, there would be no increase in the demand on the existing telecommunications networks and thus would be a neutral, imperceptible, long-term effect. However, the site is zoned for development and it is likely that in the absence of this subject proposal that a development of a similar nature, with similar demand requirements, would be progressed on the site that accords with National policy for compact growth. If the proposed development was not to proceed, there would be no increase in the demand on the existing telecommunications networks and no significant effect would arise.

7.7.6 Gas

If the proposed development did not proceed, there would be no increase in the demand on the existing gas networks and thus would be a neutral, imperceptible, long-term effect. However, the site is zoned for development and it is likely that in the absence of this subject proposal that a development of a similar nature, with similar demand requirements, would be progressed on the site that accords with National policy for compact growth. If the proposed development did not proceed, there would be no increase in the demand on the existing gas networks and no significant effect will arise.

7.8 Potential Significant Effects

7.8.1 Demolition and Construction Phase

It is noted that a traditional demolition phase is not proposed as no buildings are located on the site. However, there are minor demolition works proposed to the boundary wall to provide 3 no. openings to facilitate access to the site.

7.8.1.1 Surface Water Drainage

During the construction phase, surface water shall be discharged to onsite settlement tank prior to discharging to the existing surface water network to the west of the site and onwards to the Irish Sea. The following are the likely significant effects of the proposed scheme in the absence of mitigation measures during the construction stage:

- Mobilisation of sediments and harmful substances during the construction phase, due to exposed soil and earth movement/excavation, which may be flushed into the public surface water network during rainfall events.
- Accidental spills of harmful substances such as petrol/diesel or oil during the delivery and storage of harmful substances or by leakages from construction machinery. Construction materials such as concrete and cement are alkaline and corrosive and can cause pollution in watercourses
- Potential for building materials or silts to be washed into the Surface Water system, causing blockages and pollution. Waterborne silt can arise from dewatering excavations, exposed ground, stockpiles and site roads. Heavy siltation or grit in the Surface Water runoff would lead to maintenance issues for the receiving surface water network
- Temporary dewatering measures will be necessary to manage water within excavations. Water collected in temporary excavations shall be pumped to settlement ponds on site and treated before discharge to the existing watercourses subject to agreement with Fingal County Council.

In the absence of mitigation measures, these potential impacts are considered to be adverse, moderate and temporary.

7.8.1.2 Wastewater Drainage

The Contractor's welfare facilities for construction personnel will be located on site and temporary wastewater effluent from these facilities shall be discharged to the existing wastewater network to the north of the site at a flow rate subject to the conditions of a temporary connection from Uisce Éireann. The following are the likely significant effects of the proposed scheme in the absence of mitigation measures during the construction stage:

- Temporary discharge from excavations could potentially lead to siltation, surcharge and flooding within the public Wastewater system.
- Effluent from the Contractor's temporary welfare facilities could potentially lead to flooding within the sewerage system.

In the absence of mitigation measures, these potential impacts are considered to be adverse, significant and temporary.

7.8.1.3 Water Supply

During the Construction Phase, the Contractor shall install temporary welfare facilities on site for construction personnel via a temporary connection to the existing water supply network in agreement with Uisce Éireann. The water demands during the Construction Phase arising from the Contractor's welfare facilities on the existing Water Supply network are considered to be a neutral and imperceptible effect with a temporary duration. The water demands during the Construction Phase will not be significant.

7.8.1.4 Electricity

Electricity will be required for the construction activities for temporary lighting, equipment use etc. It is anticipated that a temporary connection to existing spurs at the site boundary will facilitate electricity supply to the site during construction, subject to the appropriate agreements. The power demands during the construction phase on the existing electricity network are considered to be a imperceptible, neutral and short-term effect. Where the excavation strategy or temporary works require any temporary diversion of local services or utilities on the site perimeter, this would be undertaken with prior agreement of the relevant service provider. A negative, moderate, short-term effect is identified where utility diversions are required. The existing overhead 10kV/20kV power-lines which traverse the subject site are to be undergrounded and diverted. These works will require a temporary power outage of approximately 2 days, which shall be confirmed by the ESB, on the network in order to facilitate the connection and is considered a moderate, negative and temporary effect. The electricity demand during the Construction Phase will not be significant.

7.8.1.5 Telecommunications

Telecommunications will be required for the construction activities. It is anticipated that a temporary connection to existing spurs at the site boundary will facilitate telecommunications supply to the site during construction, subject to the appropriate agreements. The telecommunications demands during the construction phase on the existing telecommunications network are considered to be a imperceptible, neutral and temporary effect. The telecommunications demand during the Construction Phase will not be significant.

7.8.1.6 Gas

The existing 90mm dia. 4 bar gas main which traverses the subject site is to be diverted. These works will require a temporary gas supply outage of approximately 2 days, which shall be confirmed by GNI, on the network in order to facilitate the connection and is considered a moderate, negative and temporary effect. The diversion of the gas main during the Construction Phase will not be significant.

7.8.2 Operational Phase

7.8.2.1 Surface Water Drainage

Surface Water run-off from the existing undeveloped greenfield site flows over-land in a northerly direction towards the Irish Sea or soaks into the existing ground. The estimated greenfield run-off rates for the subject site is 4.81 l/s. The proposed development, shall implement SuDS measures to achieve a 2-stage treatment process which will intercept Surface Water run-off and treat the water by

a minimum of two stages of filtration and treatment through Nature Based SuDS (NBS) measures and conveying this water to storage facilities. The proposed discharges from the development to the existing surface water sewer to the west of the site is limited to 4.81 l/s which is the permitted equivalent greenfield run-off rates. The impacts on Surface Water discharge from the site are neutral, imperceptible and permanent. The impacts on Surface Water discharge from the site will not be significant.

7.8.2.2 Wastewater Drainage

Wastewater from the proposed development will drain northwards to the existing Deer Park Howth Wastewater Pumping Station (WwPS) prior to being pumped to the Ringsend Waste Water Treatment Plan (WwTP). The UÉ CoF notes that a wastewater connection is feasible subject to upgrade works. Additionally, UÉ have provided a Statement of Design Acceptance in respect to the proposed wastewater drainage layout and design. The impacts on the existing wastewater network are considered to be neutral, not significant and permanent.

7.8.2.3 Water Supply

UÉ have advised, through the Connection and Developer Services (CDS) confirmation of feasibility letter which confirmed that connection from the proposed development to the existing Water Supply network can be facilitated through the connection of the proposed development's water infrastructure to the existing 160mm dia. Molecular-Oriented PVC (MOPVC) watermain on the Howth Road via a new 150mm watermain. Additionally, UÉ have provided a Statement of Design Acceptance in respect to the proposed Water Supply layout and design. As such, the impacts on the existing Water Supply network are considered to be neutral, not significant and permanent.

7.8.2.4 Electricity

The proposed development will increase the demand on the electricity supply system. However, it is expected that infrastructural requirements for future development will be accommodated by ESB Networks. Therefore, the impact of the proposed development on the electricity supply network is expected to be neutral, not significant and permanent.

7.8.2.5 Telecommunications

The additional demand on the existing Eir telecommunication s network is not deemed to have any material impact on the surrounding area as there is sufficient capacity in the telecoms network system to manage the additional demand created by the development. The likely impact from the operational phase on the telecoms network is likely to be imperceptible, long term and neutral effect. The additional demand on the existing Eir telecommunications network will not be significant. Virgin Media have plans in place to deliver Virgin media network down Howth Road to serve the site as well as providing availability of their fibre network solution to neighbours. Therefore, it is considered that the impact of the proposed development on the future Virgin Media infrastructure will give rise to significant, positive and long-term effect.

7.8.2.6 Gas

It is not proposed to provide gas as a utility within the proposed development. Therefore, it is considered the impact on the existing gas network are neutral, imperceptible and permanent. As it is not proposed to provide gas as a utility no significant effect will arise.

7.8.3 Cumulative Effects

- There are a number of granted planning permissions for activities/plans/projects which may be in construction at the same time as the proposed development: All elements of the project have been cumulatively assessed together for their overall impact and the project has then been assessed in combination with the other existing, consented or planned projects as listed below.
- DART+ Coastal North – Rail improvement project including (a) extension of the existing electrified rail network to Drogheda MacBride station, and (b) an increase to the rail capacity on the Northern Line between Dublin City Centre and Drogheda MacBride Station, including the Howth Branch.
- F23A/0512 Improvements to GAA Club at Balkill Road, Howth, including: A single storey 159sq.m extension to the existing Beann Eadair club house, new external seating, 5m hurling wall enclosure with artificial grass surface, new 190sq.m single-storey changing room building, and a non-potable fresh water well for pitch irrigation and grey water use
- F23A/0286 Retention permission for a 36.8m telecommunications support structure carrying antenna and dishes, communications building and associated site works at Ben of Howth
- F22A/0372 ABP-317883-23 Replacement of the existing "Deer Park Hotel" building (and all associated structures) with a new 142-bed hotel, including: a bar, restaurant, gym/spa facility, swimming pool, retail, meeting rooms, bar and function area, external dining areas, photovoltaic panels, ESB substation, 170-space car park, and a new vehicular access.
- F22A/0558 Claremont Industrial Estate, West Pier, Howth – two storey building (1293 sq.m.) for the processing, storage, and distribution of food. Also includes a 74.17 sq.m factory retail outlet for sale to the public and ancillary office and welfare facilities.
- ABP-313133-22 Bailey Court - Balscadden Road, Howth (Balscadden SHD) – Demolition of existing structures on site, construction of 180 no. apartments and associated site works.
- F22A/0477 ABP-316294-23 Residential scheme (36 no. units – 14 no. 1 bed, 22 no. 2 bed) at 60 Main Street, Howth, Co. Dublin, D13 N8K3
- F22A/0046 ABP-316113-23 Refurbishment/redevelopment/change of use for part of the existing Howth Castle buildings, Stable Block and Attendant lands including the demolition of some farm buildings, the refurbishment and construction of new buildings, and a change of use of part of the lower and upper ground floors of the castle and adjoining stable block and stable yard from primarily residential use to hospitality and tourist retail use.
- F21A/0386 ABP-311476-21 Graymount, Dungriffin Road, Howth – Demolition of buildings, construction of a 2-4 storey apartment block comprising 32 apartments and all ancillary works.
- ABP-306872-20 Former Techrete Site, Howth Road (Claremont SHD) – demolition of existing industrial/commercial buildings (c8,162 sq.m GFA) at Howth Road, and the construction of a mixed-use development including 512 no. apartments (4 no. studio, 222 no. 1-bed, 276 no. 2-bed, 10 no. 3-bed), childcare facility and associated site works.

- F17A/0615 ABP-301643-18 Greenfield Road, Sutton – Residential development for 96 no. units comprising 86 no. apartment units (71 no. 2-bed, 15 no. 1-bed) in 4 no. 3-storey blocks, 10 no. semi-detached houses (8 no. 5-bed, 1 no. 4-bed, 1 no. 3-bed). Includes crèche, site access, new access to the school, 165 car parking spaces

7.8.3.1 Surface Water Drainage

The policies of Fingal County Council for the provision of separate Wastewater and Surface Water Drainage systems, together with sustainable drainage systems to treat and attenuate Surface Water discharge in all new developments, shall result in an equivalent stormwater discharge to the existing 300mm dia. surface water sewer in rainfall events, resulting in a neutral, long-term and imperceptible effect.

7.8.3.2 Wastewater Drainage

Wastewater from the proposed development will drain northwards to the existing Deer Park Howth Wastewater Pumping Station (WwPS) prior to being pumped to the Ringsend Waste Water Treatment Plan (WwTP). The UÉ (CoF) notes that a wastewater connection is feasible subject to upgrade works. Additionally, UÉ have provided a Statement of Design Acceptance in respect to the proposed Wastewater drainage layout and design.

7.8.3.3 The Ringsend Wastewater Treatment Plant

The 2012 Ringsend Wastewater Treatment Plant application for planning permission (Ref. PL.29N.YA0010) was for a population equivalent of 2.04 million and was predicated on the findings of the 2005 Greater Dublin Strategic Drainage Study (GDSDS). The GDSDS set out the drainage requirements for the Greater Dublin Area (GDA) up to 2031. The GDSDS relied on the Regional Planning Guidelines (RPGs) and the National Spatial Strategy (NSS) in order to estimate the future projected population increases for the GDA. The studies indicated a predicted growth in population from 1.2 million in 2002 to just over 2 million in 2031 for the GDA region. The permitted 2019 revised upgrade planning permission (Ref. ABP-301798-18) for Ringsend Wastewater Treatment Plant was for a population equivalent of 2.4 million. The first phase of upgrade works are complete which included a 400,000 PE extension for the plant. The full upgrade works to cater for a population equivalent of 2.4 million are planned to be completed in 2025. Both applications were subject to EIA and therefore accompanied by an EIAR. Additionally, both applications were accompanied by an AA screening report and a NIS. Under the heading of "*Potential impact – Discharge of treated effluent, impacts on water quality, effects on qualifying interests*", the NIS for the Ringsend Wastewater Treatment Plant 2019 revised upgrade state that, "*In the operational phase, the proposed upgrade of the Ringsend WwTP Component will result in an increase in the plant capacity and also an improvement in the final effluent quality. This will result in a reduction in the licensed parameters discharged into the receiving water, with significantly reduced quantities in respect of ammonia and phosphorous.*" The EIAR concludes that assessment considered potential cumulative impacts arising from the construction and operation of the Proposed WwTP Component in accordance with the EIA Directive and corresponding guidelines. It has done so mainly through the integration of cumulative impacts in the undertaking of baseline surveys and the development of models that assess emissions that relate to Water, Odour, Noise, Air Quality and Traffic. The Proposed WwTP Component is not likely to give rise to any significant or

interactive cumulative impacts. In effect, the impact of the proposed development has already been assessed as part of the application process for the existing planning permissions pertaining to Ringsend Wastewater Treatment Plant.

7.8.3.4 Contribution from the Proposed Development

Notwithstanding the above, the proposed development, contributing less than 0.1% of the population equivalent of the total catchment of the Ringsend WwTP, will have an imperceptible impact on the wastewater capacity, in terms of flows, relative to the total amount of wastewater currently being received at Ringsend Wastewater Treatment Plant. In support of this view, Uisce Éireann has provided a Confirmation of Feasibility Letter dated May 2024 which notes that a wastewater connection is feasible subject to upgrade works. Additionally, UÉ have provided a Statement of Design Acceptance in respect to the proposed Wastewater drainage layout and design.

Uisce Éireann is in control of this infrastructure and the purpose of the Confirmation of Feasibility Letter and Statement of Design Acceptance is to confirm the viability of the Proposed Development with respect to its potential effect on the capacity of Ringsend Wastewater Treatment Plant as the receiving infrastructure. By providing a Confirmation of Feasibility Letter and Statement of Design Acceptance, Uisce Éireann has confirmed that, based on current projected infrastructure, the Proposed Development can be accommodated within the drainage network.

7.8.3.5 Water Supply

The effect of the water demand on the Uisce Éireann supply network has been assessed by Uisce Éireann as part of the Pre-Connection Enquiry process. The assessment uses a model of the Dublin area Water Supply network. Through the pre-connection enquiry process, UÉ assess the feasibility of a connection for all proposed developments prior to granting a connection to their system or deciding on whether network upgrades are required to facilitate same. Where the proposed demand cannot be catered for by the network, Uisce Éireann advise this in their pre-connection enquiry response, citing that either network upgrades are necessary to facilitate the water demand of the proposed development, or potentially, that the scale of development cannot be catered for without large scale upgrades to the network. Uisce Éireann have provided confirmation through the Pre-Connection Enquiry process that the proposed development can be facilitated through the connection of the proposed development's water infrastructure to the existing 160mm dia. Molecular-Oriented PVC (MOPVC) watermain on the Howth Road via a new 150mm watermain. This correspondence confirms that the assessment of the existing Water Supply network that includes a review of the effect on the existing Water Supply network from both existing and all other known proposed developments is acceptable. The cumulative effects is neutral, not significant and long term.

7.8.3.6 Electricity

Any redevelopment in the area resulting in an intensification of land use or increased density of occupation would likely lead to an increase in demand on the electricity supply network. While there is substantial existing electricity supply infrastructure in place, continued cumulative development will tend to necessitate future provision of new electricity supply infrastructure with increased capacity. The cumulative effect is a neutral, not significant and short-term effect.

7.8.3.7 Gas

Any redevelopment in the area resulting in an intensification of land use or increased density of occupation would likely lead to an increase in demand on the gas supply network. As it is not proposed to provide gas as a utility within the proposed development, it is considered the impact of the proposed development on the existing gas network is neutral, imperceptible and permanent.

7.8.3.8 Telecommunications

Eir have been contacted and utility maps received from them. Eir have no raised any concerns about availability of network in the area. Therefore, it is considered that the cumulative impact of the proposed development on the telecom's infrastructure will not be significant, with neutral long-term effects. Virgin Media have plans in place to deliver Virgin Media network on the Howth Road and into Howth. This will be available to serve the site as well as providing availability of their fibre network solution to neighbours. Therefore, it is considered that the cumulative impact of the proposed development on the Virgin Media infrastructure will give rise to significant positive long-term effects.

7.8.4 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 7.1 Summary of Construction Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Surface Water – mobilisation of sediments, accidental spills, silts washed into surface water system	Adverse	Moderate	Local	Likely	Temporary	Direct
Wastewater – temporary discharge, temporary welfare facilities	Adverse	Significant	Local	Likely	Temporary	Direct
Water Supply – temporary connection	Neutral	Imperceptible	Local	Likely	Temporary	Direct
Electricity – temporary connection & diversion	Moderate	Negative	Local	Likely	Temporary	Direct
Telecommunications	Neutral	Imperceptible	Local	Likely	Temporary	Direct
Gas – diversion	Moderate	Negative	Local	Likely	Temporary	Direct

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 7.2 Summary of Operational Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Surface Water – discharge to existing surface water sewer	Neutral	Imperceptible	Local	Likely	Permanent	Direct
Wastewater	Neutral	Not significant	Local	Likely	Permanent	Direct
Water Supply – impact on existing network	Neutral	Not significant	Local	Likely	Permanent	Direct
Electricity	Neutral	Not significant	Local	Likely	Permanent	Direct
Telecommunications	Positive	Significant	Local	Likely	Long-Term	Direct
Gas	Neutral	Imperceptible	Local	Likely	Permanent	Direct

7.9 Mitigation

7.9.1 Incorporated Design Mitigation

The design has been prepared based on relevant codes of practice, design guidance and in consultation with relevant local and statutory authorities to ensure best practice design, considering the effect on local and wider network for water supply, foul and surface water drainage, gas supply, electrical network and the telecommunication network. The development will be constructed to the Part L Near Zero Energy Building (NZEB) standard which will result in an improved thermal performance along with the incorporation of renewable technology, accordingly, the demand on energy infrastructure will be reduced.

7.9.2 Demolition & Construction Phase Mitigation

7.9.2.1 Surface Water Drainage

The Contractor shall prepare and implement a Construction Phase Surface Water Management Plan that ensures avoidance and minimisation of effects. Surface Water storage in excavations shall be directed to on-site settlement ponds, where silt removal will be facilitated prior to discharge off site at a controlled and agreed rate in accordance with the greenfield runoff rates for the site. In order to reduce and minimise the risk on impacting the existing water environment from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas or chemical storage containers. This is a positive, imperceptible and brief effect. No significant effect will arise.

7.9.2.2 Wastewater Drainage

The construction phase discharge of Wastewater to the existing 400mm wastewater sewer to the north of the subject site shall comply with the conditions of a temporary connection from Uisce Éireann. During construction, all new sewers shall be pressure tested and CCTV surveyed in accordance with the Uisce Éireann Standards to identify potential defects and such defects, should

they arise, shall be repaired prior to the connection. This is a positive, imperceptible and brief effect. No significant effect will arise.

7.9.2.3 Water Supply

During construction, the temporary connection off the existing 160mm dia. MOPVC shall comply with the conditions of a temporary connection from Uisce Éireann. The watermains shall be tested in accordance with the requirements of Uisce Éireann prior to connection. This is a positive, imperceptible and brief effect. No significant effect will arise.

7.9.2.4 Electricity

The ESB shall install the new incoming supply to the proposed development. The ESB shall also liaise with residents and keep existing customers fully informed of any brief outages which may be required due to the diversion and undergrounding of the existing overhead 10kV/ 20kV line or connections to the proposed development. The Contractor shall ensure that construction works on site adhere to the ESB Networks / HSA "Code of Practice for Avoiding Danger from Overhead Electricity Lines". This is a positive, imperceptible and brief effect. No significant effect will arise.

7.9.2.5 Telecommunications

The relevant utility provider shall install the new incoming supplies to the proposed development and shall liaise with existing customers to advise of possible outages in order to facilitate the connections. The works shall be carried out such that they minimise disruption to surrounding areas. This is a positive, imperceptible and brief effect. No significant effect will arise.

7.9.2.6 Gas

GNI shall liaise with residents and keep existing customers fully informed of any brief outages which may be required due to the diversion of the existing 90mm dia. 4 bar gas main which traverses the site. It is not proposed to provide gas as a utility within the proposed development. Therefore, it is considered the impact of the proposed development on the existing gas network is neutral, imperceptible and permanent. No significant effect will arise.

7.9.3 Operational Phase Mitigation

7.9.3.1 Surface Water Drainage

Surface Water runoff from the proposed development will be managed in accordance with the requirements of the Greater Dublin Strategic Drainage Study (GDSDS), CIRIA SuDS and the requirements of the Fingal County Council Water Services Department. The Surface Water management proposals shall serve to reduce the overall impact of the proposed development on the existing environment. The features to be maintained include all SuDS features. This is a positive, imperceptible and permanent.

7.9.3.2 Wastewater Drainage

Uisce Éireann shall implement an operational inspection and maintenance regime to ensure the system keeps operating within the design specifications. This is a positive, significant and permanent.

7.9.3.3 Water Supply

The proposed Water Supply system shall be commissioned and subject to a, as a minimum, monthly operational inspection and maintenance regime to ensure the system keeps operating within the design specifications. This is a positive, significant and permanent.

7.9.3.4 Electricity

The proposed electricity supply system shall be commissioned and subject to a regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications. This is a neutral, moderate and long-term effect.

7.9.3.5 Telecommunications

The proposed telecommunications system shall be commissioned and subject to a regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications. This is a neutral, moderate and long-term effect.

7.9.3.6 Gas

it is not proposed to provide gas as a utility within the proposed development. Therefore, it is considered the impact of the proposed development on the existing gas network is neutral, imperceptible and permanent. GNI shall commission the diverted gas main and be subject to regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications. This is a neutral, moderate and long-term effect.

7.10 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

7.10.1 Demolition & Construction Phase

7.10.1.1 Surface Water Drainage

Considering the above-mentioned mitigation measures which are designed to avoid and prevent any adverse issues arising during construction, any residual effects on the built services during the construction phase are brief, temporary and imperceptible, where surface water drainage service is unavoidably disrupted to facilitate the construction phase. No significant effect will arise.

7.10.1.2 Wastewater Drainage

Considering the above-mentioned mitigation measures, which are designed to avoid and prevent any adverse issues arising during construction, any residual effects on the built where wastewater drainage services are unavoidably disrupted to facilitate the construction phase are brief, temporary and imperceptible. No significant effect will arise.

7.10.1.3 Water Supply

Considering the above-mentioned mitigation measures, which are designed to avoid and prevent any adverse issues arising during construction, any residual effects on the built services during the construction phase are brief, temporary and imperceptible, where supply is unavoidably disrupted to facilitate the construction phase. No significant effect will arise.

7.10.1.4 Electricity

Considering the above-mentioned mitigation measures, which are designed to avoid and prevent any adverse issues arising during construction, any residual impacts on the built services during the construction phase are considered to brief, temporary and imperceptible except where service is unavoidably disrupted to facilitate the construction phase. No significant effect will arise.

7.10.1.5 Telecommunications

Considering the above-mentioned mitigation measures there will be no residual impact to the telecommunications infrastructure following the construction phase. Any residual impacts on the built services during the construction phase are brief, temporary and imperceptible, where service is unavoidably disrupted to facilitate the construction phase. No significant effect will arise.

7.10.1.6 Gas

Considering the above-mentioned mitigation measures, there will be no residual impact to the gas mains following the construction phase. Any residual impacts on the built services during the construction phase are brief, temporary and imperceptible, where service is unavoidably disrupted to facilitate the construction phase No significant effect will arise.

7.10.2 Operational Phase

7.10.2.1 Surface Water Drainage

The provision of a Sustainable Urban Drainage System (SuDS) for the proposed development will ultimately limit Surface Water run-off to 4.81 l/s from the existing subject site which is the allowable green-field run-off rate. This is a neutral, imperceptible and permanent effect.

7.10.2.2 Wastewater Drainage

Wastewater from the proposed development will drain north to the existing Deer Park Howth Wastewater Pumping Station prior to being pumped west to the Ringsend Waste Water Treatment Plan (WwTP). The Uisce Eireann Confirmation of Feasibility (CoF) dated May 2024 notes that a wastewater connection is feasible subject to upgrade works. It is considered that the residual effects on the existing Wastewater network will be neutral, not significant and permanent.

7.10.2.3 Water Supply

It is considered that the residual effects on the existing Water Supply network will be neutral, not significant and permanent.

7.10.2.4 Electricity

The proposed development will increase the demand on the electricity supply system. However, it is expected that infrastructural requirements for future development will be accommodated by ESB Networks. This is a neutral, moderate and short-term effect.

7.10.2.5 Telecommunications

The proposed development will increase the demand on the telecommunications systems. However, it is expected that infrastructural requirements for future development will be accommodated by utility service providers. This is a neutral, moderate and short-term effect.

7.10.2.6 Gas

It is not proposed to provide gas as a utility within the proposed development. Therefore, it is considered the impact of the proposed development on the existing gas network is neutral, imperceptible and permanent.

7.10.3 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 7.3 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Short-term disruption to water supply	Neutral	Imperceptible	Local	Likely	Brief	Direct
Surface Water Drainage	Positive	Imperceptible	Local	Likely	Brief	Direct
Wastewater Drainage	Positive	Imperceptible	Local	Likely	Brief	Direct
Water Supply	Positive	Imperceptible	Local	Likely	Brief	Direct
Electricity	Positive	Imperceptible	Local	Likely	Brief	Direct
Telecommunications	Positive	Imperceptible	Local	Likely	Brief	Direct
Gas	Neutral	Imperceptible	Local	Likely	Permanent	Direct

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 7.4 Summary of Operational Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Surface Water Drainage	Positive	Imperceptible	Local	Likely	Permanent	Direct
Wastewater Drainage	Positive	Significant	Local	Likely	Permanent	Direct
Water Supply	Positive	Significant	Local	Likely	Permanent	Direct
Electricity	Neutral	Moderate	Local	Likely	Long-term	Direct
Telecommunications	Neutral	Moderate	Local	Likely	Long-term	Direct
Gas	Neutral	Moderate	Local	Likely	Long-term	Direct

7.10.4 Cumulative Residual Effects

7.10.4.1 Surface Water Drainage

Fingal County Council Drainage Department have confirmed that the existing surface water network has capacity to cater for the development surface water flows without network upgrades. All future developments are required to incorporate SuDS measure to treat and attenuate surface water discharge rates to 4.81 l/s. Along with the above-mentioned mitigation measures, the cumulative effect is considered to be neutral, imperceptible and long term.

7.10.4.2 Wastewater Drainage

Uisce Éireann have confirmed that the existing wastewater sewer network has capacity to cater for the proposed development foul flows subject to upgrade works being carried out by Uisce Éireann on an existing 225mm dia. wastewater sewer on Dungriffin Road, which is based on their assessment of the effect of the proposed development and all other known proposed development foul flows in combination. Overall, it is considered there is a cumulative, imperceptible, long term effect.

7.10.4.3 Water Supply

Based on the confirmation received from Uisce Éireann that the existing water supply network has capacity to cater for the proposed development water demand without network upgrades, which is based on their assessment of the effect of the proposed development and all other known proposed developments in combination, along with the above-mentioned mitigation measures, the residual cumulative effect to the water supply infrastructure will be neutral, imperceptible and long term.

7.10.4.4 Electrical Supply

Based on ESB raising no concern about existing local network capacity to cater for the developments electrical demand and the above-mentioned mitigation measures, there should be no residual cumulative impact to the electrical supply network.

7.10.4.5 Telecommunications

Based on Eir raising no concern about existing local network capacity to cater for the development's telecommunication demand and the above-mentioned mitigation measures, there should be no residual cumulative impact to the telecommunication supply infrastructure. In consultation with Virgin Media, they have advised there are plans in place to extend their network down Howth Road in adjacency to the proposed development and have advised there will be capacity for this site as well as neighbours. This will lead to a positive cumulative impact to the local supply infrastructure.

7.10.4.6 Gas

As there are no demands for gas on site, other than diverting the existing gas main, there should be no residual impact to the gas supply infrastructure.

7.11 Risk of Major Accidents or Disasters

There are no expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned.

7.12 Worst Case Scenario

7.12.1 Surface Water Drainage

The 'worst-case' scenario is that flooding occurs on-site and in the surrounding area due to this development. The design of the new drainage system ensures that the pipe sizes, gradients etc. will be adequate for the design stormwater flows plus 30% Climate Change.

7.12.2 Wastewater Drainage

The 'worst-case' scenario resulting from the construction of the development would result in the contamination of groundwater and the local watercourses and surface water sewers by Wastewater effluent from the development. However, the mitigation measures outlined are standard and proven to ensure that this is not likely to occur.

7.12.3 Water Supply

The 'worst-case' scenario would be the pollution of the Water Supply by an accidental spillage or contamination during the connection process. However, the mitigation measures proposed are standard and proven to ensure that this will not occur. Prior to connection to the public watermain, all watermains in the development will be tested and cleaned to the requirements of Uisce Éireann.

7.12.4 Electricity

The 'worst-case' scenario would be the striking of the existing overhead power lines which traverse the subject site which would be fatal and lead to an unplanned power outage. The Contractor shall

liaise at all times with the ESB and adhere to the ESB/ HSA "Code of Practice for Avoiding Danger from Overhead Electricity Lines to mitigate against this.

7.12.5 Telecommunications

The 'worst-case' scenario would be striking the existing telecommunications infrastructure during excavating works and causing an unplanned outage of service to customers. The Contractor shall ensure that all of the work will be carried out by authorised personnel who have expertise in the required works. This will minimise disruption to surrounding areas.

7.12.6 Gas

The 'worst-case' scenario would be striking the existing gas infrastructure during excavating works and causing an unplanned outage of service to customers. The Contractor shall ensure that all of the work will be carried out by authorised personnel who have expertise in the required works. This will minimise disruption to surrounding areas.

7.13 Interactions

7.13.1 Population & Human Health

There is adequate capacity in existing infrastructure for construction and operational stages of the proposed development. A risk to the human health of the installer from built services can occur as a result of any excavation work in areas where built services exist, through coming into contact with live electricity lines or damaging live gas or watermains. With the implementation of appropriate mitigation measures, the impact of the proposed built services on human health is likely to be negligible.

7.13.2 Land, Soils & Geology

Construction of the proposed development will require the removal of topsoil and earthworks to facilitate the construction of the road and infrastructure service provision, storage systems, etc. These initial and short term adverse impacts would be ameliorated through the re-use of soils for fill, levelling and landscaping works resulting in a neutral impact. Additionally, trench excavations to facilitate site service installation will result in exposure of subsoils to potential erosion and subsequent sediment generation. Mitigation measures are outlined in Chapter 9 Land & Soils (i.e. service trenches to be backfilled as soon as practicable to minimise potential erosion of subsoils).

7.13.3 Water & Hydrology

The proposed development is designed to comply with the recommendations of the GDSDS including the provision of SUDS and is therefore unlikely to have any residual impacts in terms of the impact on hydrology and hydrogeology.

7.13.4 Climate

The built services have an interaction with climate in the availability and use of non-greenhouse gas reliant power and heat sources. Sustainable power and heat sources serve to reduce reliance on imported fossil fuels and reduce greenhouse gases (GHG) emissions.

7.14 Monitoring

7.14.1 Demolition & Construction Stage Monitoring

7.14.1.1 Surface Water Drainage

During the construction of the Surface Water drainage, the system shall be inspected and monitored for compliance with the design and relevant Fingal Count Council and GDSDS standards in accordance with the Preliminary Inspection Plan. The requisite air and pressure testing shall be carried out on all sewer installations during construction while exfiltration testing shall be carried out on all manholes. Records of these tests shall be maintained by the Contractor. The connection to the existing surface water sewer will not be made until all the works are complete and temporary surface water management will remain in place until this time to ensure only clean uncontaminated surface water is discharged to the existing surface water sewer to the west.

7.14.1.2 Wastewater Drainage

During the construction of the Wastewater drainage, the system shall be inspected, tested and monitored in accordance with the requirements of the relevant Uisce Éireann Code of Practice. Records of these tests shall be maintained by the Contractor as required and shall be witnessed by Uisce Éireann in accordance with the relevant Quality Procedures. The connection to the existing Wastewater network will not be made until all the works are complete and temporary Wastewater management associated with the Contractor's compound will remain in place until this time.

7.14.1.3 Water Supply

During the construction of the water supply network, the system shall be inspected, tested and monitored in accordance with the requirements of the relevant Uisce Éireann Code of Practice. Records of these tests shall be maintained by the Contractor as required and shall be witnessed by Uisce Éireann in accordance with the relevant Quality Procedures. The connection to the existing water supply network will not be made until all the works are complete and temporary water connection associated with the Contractor's compound will remain in place until this time.

7.14.1.4 Electricity

The ESB shall monitor the existing and proposed networks during the diversion and undergrounding of the existing over-head 10kV/ 20kV powerlines. The ESB shall carry out ongoing testing and commissioning of the installed infrastructure during construction.

7.14.1.5 Telecommunications

The incoming telecommunications provider shall monitor the existing and proposed networks during the installation of the proposed telecommunications network throughout the site during construction.

The incoming telecommunications provider shall carry out ongoing testing and commissioning of the installed infrastructure during construction.

7.14.1.6 Gas

It is not proposed to provide gas as a utility within the proposed development. Therefore, monitoring of this utility is not required. GNI shall carry out ongoing testing and commissioning of the diverted gas main.

7.14.2 Operational Stage Monitoring

7.14.2.1 Surface Water Drainage

Following construction of the proposed Surface Water drainage network, pressure tests shall be carried out to assess the potential for leaks to occur in the newly laid sewers. In addition, the Contractor shall carry out periodic testing of the Surface Water discharge to ensure compliance in accordance with the requirements of the Fingal County Council Water Services Department. Following completion of the proposed drainage systems, a short-term flow and rainfall survey including the use of flow monitors and rain gauges shall be carried out to identify misconnections and allow for comparison with watermain meter readings to facilitate assessment and identification of any potential leakages. Following commissioning of the proposed Surface Water network, the management company shall implement a maintenance regime, as a minimum, monthly inspections to ensure that it operates in accordance with the design specification. The features to be maintained include the piped Surface Water network and all SuDS features.

7.14.2.2 Wastewater Drainage

Following construction of the proposed Wastewater drainage network, pressure tests shall be carried out in accordance with the Uisce Éireann Standards to assess the potential for leaks to occur in the newly laid sewers. Following completion of the proposed drainage systems, a short-term flow and rainfall survey including the use of flow monitors and rain gauges shall be carried out to identify misconnections and allow for comparison with watermain meter readings to facilitate assessment and identification of any potential leakages.

7.14.2.3 Water Supply

Following construction of the prosed watermain infrastructure, pressure tests will be carried out in accordance with the Uisce Éireann Standards to assess the potential for leaks to occur in the newly laid watermains. The proposed watermain system will incorporate water meters at all points of connection to the public watermain network which facilitates ongoing monitoring of demand and assessment for potential leakage.

7.14.2.4 Electricity

ESB shall test and commission all of the work they carry out and shall monitor and maintain the ESB kiosks and network cabling post installation. All supplies shall be metered to allow the new loads on the network to be monitored in use.

7.14.2.5 Telecommunications

The providers of incoming telecommunications supplies will test and commission all of their cabling/ work and will monitor and maintain their network cabling post installation.

7.14.2.6 Gas

GNI shall test and commission all of the work they carry out and shall monitor and maintain the diverted gas main post installation.

7.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 7.5 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Quality	Significance
Contamination of local surface water sewer	Testing Prior to Connection to public network	Ongoing inspections by Applicant's Engineer
Wastewater Drainage system	Testing & commissioning of new network	Ongoing inspections by Applicant's Engineer and Uisce Éireann
Contamination of local water supply from new connections	Testing Prior to Connection to public network	Ongoing Inspections by IW and Applicants Engineers
Impact of ESB diversion on public supply	Testing and commissioning of diverted network	ESB to monitor all works
Impact on existing Telecommunications network	Testing and commissioning of new network connections	Utility provider to monitor all works
Impact on existing gas network	Testing and commissioning of diverted gas main	GNI provider to monitor all works

The following Table summarises the Operational Phase mitigation and monitoring measures.

Table 7.6 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Quality	Significance
Silting/blocking of SuDS	Regular maintenance regime	Periodic inspections by management company
Potential leaks in wastewater system	Regular maintenance regime	Periodic inspections by Uisce Éireann.
Leakage and water loss from water supply system	Construction in accordance with UÉ COP. Metering of supply.	Review and assessment of water meter readings. Water Audit by Uisce Éireann.
Increase in electrical load	Regular monitoring & maintenance	ESB periodic inspections

Likely Significant Effect	Quality	Significance
Increase on existing network	Regular monitoring & maintenance	Telecommunications provider
Diverted gas main	Regular monitoring & maintenance	GNI periodic inspections

7.16 Conclusion

In relation to surface water drainage, wastewater drainage and water supply, it has been demonstrated that the proposed development, which is designed in accordance with Uisce Éireann Codes of Practice and the recommendations of the Greater Dublin Strategic Drainage Study, primarily in the provision of separate wastewater and surface water drainage systems and sustainable design principals to treat and attenuate surface water run-off, is not likely to have significant effects on the environment. The relevant authorities have confirmed that the design proposals put forward and associated water demand and discharge rates, can be catered for within the capacity of the existing systems. From initial discussions with the ESB, it is expected that the proposed development, which is to be designed in accordance with ESB and Irish standards, will not have significant negative environmental impacts. ESB have not identified any risk of insufficient capacity in local area network but will be assessed in detailed design phase as per ESB requirements. Other than diverting the gas main, as natural gas is not proposed for use, the development will have no significant negative environmental impacts. From initial discussions with Eir, there is capacity for the proposed development and in discussions with Virgin Media, they will deliver Virgin Media fibre network to the area in the future. Following the application of standard design measures and mitigation as set out in this chapter, there is no likely significant effect anticipated as a result of the proposed development.

7.17 References and Sources

- Uisce Éireann – Code of Practice for Water Infrastructure
- Uisce Éireann – Code of Practice Wastewater Infrastructure
- Uisce Éireann – Wastewater Standard Details
- Uisce Éireann – Water Standard Details
- BS EN 752:2008 "Drain and Sewer Systems outside Buildings"
- The Building Regulations Technical Guidance Document H
- Ciria C753 "The SUDS Manual"
- Sewers for adoption: 6th Edition
- Guidelines on the information to be contained in Environmental Impact Assessment Report (EPA 2022)
- Uisce Éireann Local Area Network Map
- ESB Construction Standards for MV Sub-Station Buildings.
- ESB electrical services handbook for housing schemes.
- GNI – Guidelines for Designers and Builders Domestic Sites
- https://www.esbnetworks.ie/staying-safe/contractor-safety/digging-and-excavation-work
- https://www.gasnetworks.ie/corporate/freedom-of-information/make-a-request/
- https://cbyd.emaps.eircom.ie/Eircom-CBYD/
- Climate Action Plan 2024 – 2029, Fingal County Council, 2024.

CHAPTER 8
MATERIAL ASSETS: WASTE

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

8 Material Assets: Waste

8.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects that construction and operational wastes associated with the proposed development may have on the receiving environment, and regional and national waste management infrastructure.

It should be read in conjunction with the site-specific Operational Waste Management Plan (OWMP) (**Appendix 8.1**) and the site-specific Resource and Construction Waste Management Plan (RWMP) (**Appendix 8.2**).

8.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Ian Byrne MSC, Principal Environmental Consultant of Byrne Environmental Consulting Ltd.

Ian Byrne holds a Master's Degree in Environmental Protection and a Diploma in Environmental and Planning Law. Ian Byrne has prepared numerous Resource and Construction Waste Management Plans, Operational Management Plans and Waste Impact Assessment Chapters of EIAR'S for SHD's, LRD's, Mixed-Use Developments and Industrial and Commercial developments and has been involved in the recent preparation of EIARs for the following projects:

- Clonburris SDZ
- Hollystown LRD
- Balbriggan LRD

8.3 Proposed Development

A detailed description of the proposed development is provided in Chapter 2 of this Environmental Impact Assessment Report (EIAR).

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Demolition of 3 sections of the existing demesne northern boundary wall, which fronts Howth Road is proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

8.3.1 Aspects Relevant to this Chapter

Construction Phase

All construction phase wastes will be managed in accordance with the Resource and Construction Waste Management Plan waste materials will be segregated and temporarily stored in the on-site waste storage compound. The calculated construction waste tonnage has been derived from the *Building Research Establishment Environmental Assessment Method (BREEAM)* which specifies that 11.1 tonnes of construction waste is generated for every 100m^2 of development area. Based on the combined building area contained in the Schedule of Accommodation for the development of c.11,704m^2, it has been calculated that up to c. 1299 tonnes of construction waste may be produced.

In addition, approximately 16,000 tonnes of soils will be excavated to facilitate the development.

Operational Phase

All operational phase wastes will be managed in accordance with the Operational Waste Management Plan. All apartment units will contain a 3-bin domestic waste segregation at source system which will comply with Section's 4.8 and 4.9 Refuse Storage of The Department of Housing, Planning and Local Government – Sustainable Urban Housing : Design Standards for New Apartments – Guidelines for Planning Authorities, 2022 which require that *"within apartments, there should be adequate provision for the temporary storage of segregated materials prior to the deposition in communal waste storage"*.

Communal waste storage areas shall be appropriately sized to accommodate segregated domestic waste, glass and WEEE generated by the fully occupied development and with provision for extra capacity to store additional waste for contingency purposes as indicated in Figure 8.1 below. The volume of weekly domestic waste to be generated at the site (19,320 litres) has been calculated in accordance with *British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice*.

Figure 8.1 Communal Bin Store Areas & Bin Marshalling Area

8.4 Methodology

This Chapter of the EIAR has been prepared with regard to the *Waste Management Plan for a Circular Economy 2024-2030 (WMPCE).* This is Ireland's national waste strategy published in March 2024 that replaces the existing regional waste management plans across provincial and local regional authorities and places the emphasis on more waste prevention and increased recycling, reusing and repair practices.

The *Waste Management Plan for a Circular Economy 2024-2030* intends to move Ireland toward a circular economy in which focus is shifted away from waste disposal, favouring circularity and sustainability by identifying and maximising the value of material through improved design, durability, repair and recycling. By extending the time resources are kept within the local economy, both environmental and economic benefits are foreseen.

The waste reduction and recycling targets set out in the WMPCE are as follows:

Municipal Waste

Target 1A	Achieve a 6% reduction in residual municipal waste by 2030
Target 2A	Achieve 90% compliance in the dry recycling bin by 2030
Target 2B	Achieve a 10% increase per annum in material compliance in the residual bin by 2030

Construction & Demolition Waste

Target 1B	Reduce Construction and Demolition Waste by 12% by 2030

The *Waste Framework Directive* as referenced in the WMPCE has set a recycling target of 70% of non-hazardous Construction & Demolition Waste.

The Circular Economy

The principals of the Circular Economy will be implemented by ensuring that waste generation is minimised. Excess materials will be treated as a by-product where possible. The maximum amount of materials shall be removed off-site and re-used in accordance with the Article 27 notification procedure. Where possible, soils and excavated materials shall be treated as an Article 27 by-product (a non-waste). Consideration shall also be given to using Article 28 notified materials which satisfy end of waste criteria in the future.

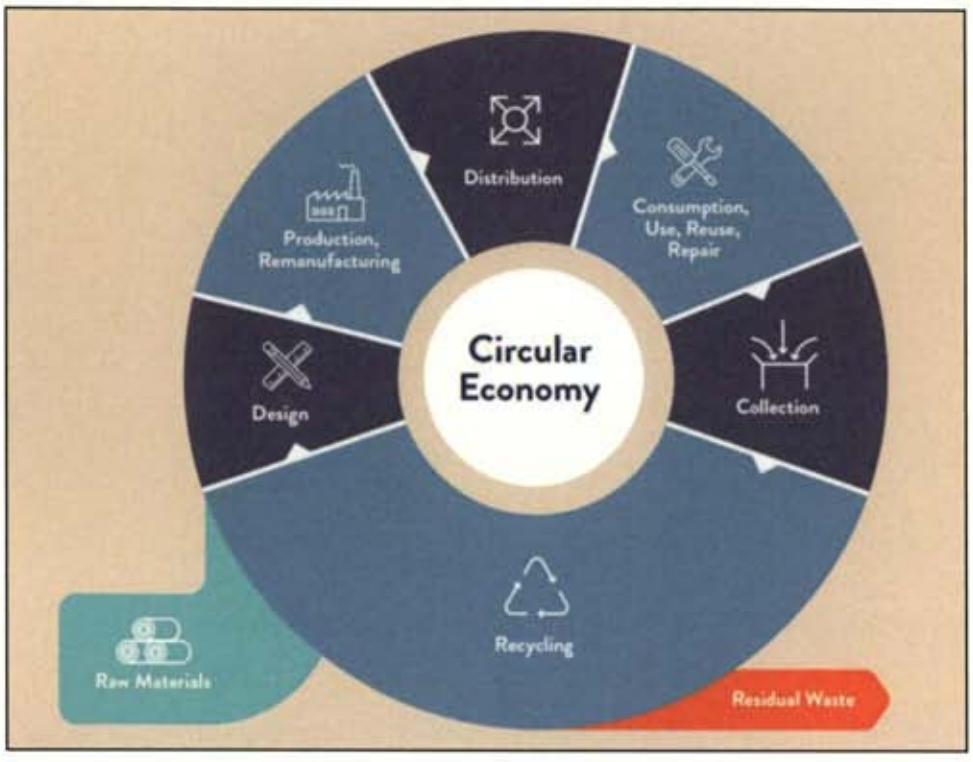


Figure 8.2 Communal Bin Store Areas & Bin Marshalling Area

The Waste Hierarchy

The foundation of EU waste management is the five-step "waste hierarchy", established in the Waste Framework Directive. It establishes an order of preference for managing and disposing of waste. This Chapter of the EIAR demonstrates how the design, construction and operation of the development will comply with the waste hierarchy whereby waste prevention is the most preferred strategy. Where waste generation is unavoidable, re-use is the most preferred fate, followed by recycling and then energy recovery, with disposal (e.g. to landfill) being the least preferred fate.

Figure 8.3 The Waste Hierarchy (WFD)

8.4.1 Construction Phase Waste Assessment Methodology

The calculated construction waste tonnage has been derived from the *Building Research Establishment Environmental Assessment Method (BREEAM)* which specifies that 11.1 tonnes of construction waste is generated for every 100m^2 of development area.

8.4.2 Operational Phase Waste Assessment Methodology

The volume of waste in tonnes that will be generated during the full occupancy of the development have been calculated with regard to *British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice.*

British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice states that 70 litres of waste are generated per bedroom per week with an allowance of an additional 30 litres per unit per week.

8.4.3 Relevant Legislation & Guidance

Construction Phase

The construction waste management impact assessment has been prepared in accordance with the following relevant legislative instruments, policies and guidance:

- Waste Management Acts 1996-2011
- European Union (Waste Directive) Regulations 2020 (SI No. 323/2020)
- The European Union Waste Framework Directive EU WFD (2008/98/EC)
- National Waste Management Plan for a Circular Economy 2024-2030
- Waste Management (Collection Permit) (Amendment) (No.2) Regulations 2023 (SI No. 104 of 2023)
- EPA (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports
- EPA (2020). A guide to by-products and submitting a notification under Article of the European Communities (Waste Directive) Regulations 2011 (S.I. No 126 of 2011) (Draft)
- EPA (2019). Guidance on Soil and Stone By-products in the context of article 27 of the European Communities (Waste Directive) Regulations 2011
- EPA (2021). Best Practice Guidelines for the preparation of resource and management plans for construction and demolition projects
- Fingal Development Plan 2023-2029

The *Fingal Development Plan 2023-2029* includes specific Objectives relating to the management of Construction and Demolition Waste as follows:

OBJ DMSO241 Construction and Demolition Waste Management Plan. Require that Construction and Demolition Waste Management Plans be submitted as part of any planning application for projects in excess of any of the following thresholds:

- *New residential development of 10 units or more.*
- *New developments other than above, including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250 sqm.*

- *Demolition / renovation / refurbishment projects generating in excess of 100m³ in volume of C&D waste.*
- *Civil engineering projects in excess of 500m³ of waste materials used for development of works on the site.*

Operational Phase

- The operational waste management impact assessment has been prepared with regard to the following relevant legislative instruments, policies and best practice guidelines:
- Waste Management Acts 1996-2011
- Waste Management (Collection Permit) (Amendment)(No.2) Regulations 2023 (SI No. 104 of 2023)
- European Union (Waste Directive) Regulations 2020 (SI No. 323/2020) The European Union Waste Framework Directive EU WFD (2008/98/EC)
- Waste Management Plan for a Circular Economy 2024-2030
- Department of Housing, Local Government and Heritage (2022). Sustainable Urban Housing: Design Standards for New Apartments. Guidelines for Planning Authorities
- Fingal County Council (2023). Fingal Development Plan 2023-2029

Relevant waste management objectives of the Fingal County Council Development Plan 2023-2029 are:

- OBJ IU028 Eastern Midlands Region Waste Management Plan - Implement the provisions of the Eastern Midlands Region Waste Management Plan 2015–2021 or any subsequent Waste Management Plan applicable within the lifetime of the Development Plan. All prospective developments in the County will be expected to take account of the provisions of the Regional Waste Management Plan and adhere to the requirements of that Plan.
- OBJ IU034 Waste Management in New Developments - Require the provision of appropriate, well designed, accessible space to support the storage, separation and collection of as many waste and recycling streams as possible in all new commercial and residential developments within the County.
- OBJ DMSO235 Communal Refuse Storage Provision - In the case of communal refuse storage provision, the collection point for refuse should be accessible both to the external collector and to the resident and be secured against illegal dumping by non-residents. In the case of individual houses, the applicant shall clearly show within a planning application the proposed location and design of bin storage to serve each dwelling and having regard to the number of individual bins required to serve each dwelling at the time of the application and any possible future requirements for refuse storage/collection.
  The proposed development has been designed to comply with the requirements of this Objective and are included in the OWMP.
- OBJ DMSO236 Segregation and Collection of Waste - Ensure all new large-scale residential and mixed-use developments include appropriate facilities for source segregation and collection of waste.

- OBJ DMSO237 Distance from Front Door to Communal Bin Area - Ensure all new residential schemes include appropriate design measures for refuse storage areas, details of which should be clearly shown at pre planning and planning application stage. Ensure refuse storage areas are not situated immediately adjacent to the front door or ground floor window, unless adequate screened alcoves or other such mitigation measures are provided.
- OBJ DMSO238 Maximum Distance Communal Bin Area - Ensure the maximum distance between the front door to a communal bin area does not exceed 50 metres.

Fingal Development Plan Development Management Standards – 14.7.12 Refuse Storage in Apartments:

Provision shall be made for the storage and collection of waste in all applications for apartment development. Refuse facilities should be accessible to each apartment stair/lift core and be adequately sized to cater for the projected level of waste generation, types and quantities. Within apartments, there should be adequate provision for the temporary storage of segregated materials prior to removal to communal waste storage. Waste storage areas should not be on the public street and should not be visible to or accessible by the general public. Waste storage areas in basement car parks should be avoided where possible, but where provided, must ensure adequate manoeuvring space for collection vehicles.

BS 5906:2005 Waste Management in Buildings-Code of Practice

This Chapter of the EIAR has been prepared in accordance with *British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice* which provides guidance on methods of waste calculation, storage, collection, segregation for recycling and recovery for residential buildings and are included in the OWMP.

The Department of Housing, Planning and Local Government – Sustainable Urban Housing: Design Standards for New Apartments

The development will include 3-bin waste segregation systems at source together with the communal waste storage areas have been designed in compliance with *Section's 4.8 and 4.9 Refuse Storage* of *The Department of Housing, Planning and Local Government – Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities. 2018 (as revised 2022)* as follows:

4.8 Provision shall be made for the storage and collection of waste materials in apartment schemes. Refuse facilities shall be accessible to each apartment stair/lift core and designed with regard to the projected level of waste generation and types and quantities of receptacles required. Within apartments, there should be adequate provision for the temporary storage of segregated materials prior to deposition in communal waste storage and in-sink macerators are discouraged as they place a burden on drainage systems.

4.9 The following general design considerations should be taken into account in the provision of refuse storage facilities:

- *Sufficient communal storage area to satisfy the three-bin system for the collection of mixed dry recyclables, organic waste and residual waste;*
- *In larger apartment schemes, consideration should also be given to the provision of separate collection facilities for other recyclables such as glass and plastics;*
- *Waste storage areas must be adequately ventilated so as to minimise odours and potential nuisance from vermin/flies and taking account the avoidance of nuisance for habitable rooms nearby;*
- *Provision in the layout for sufficient access for waste collectors, proximity of, or ease of access to, waste storage areas from individual apartments, including access by disabled people;*
- *Waste storage areas should not present any safety risks to users and should be well-lit;*
- *Waste storage areas should not be on the public street and should not be visible to or accessible by the general public. Appropriate visual screening should be provided, particularly in the vicinity of apartment buildings;*
- *Waste storage areas in basement car parks should be avoided where possible, but where provided, must ensure adequate manoeuvring space for collection vehicles;*
- *The capacity for washing down waste storage areas, with wastewater discharging to the sewer.*

8.4.4 Consultation

The relevant waste management policies and development management standards of the *Fingal County Development Plan 2023-2029* were reviewed considered and integrated where relevant into this Chapter and form the basis of how waste shall be managed during the construction phase and how the design of the development has considered the management of waste during the operational phase of the development.

8.5 Difficulties Encountered

No difficulties were encountered in the preparation of this Chapter of the EIAR.

8.6 Baseline Environment

The baseline environment is characterised by the nature of the existing site and the local and regional waste management infrastructure that serves the Howth area in which the site is located. The Zone of Influence (ZOI) associated with waste generated by the construction and operational phases of the development relate to the impact that the site will have on Regional licenced and permitted facilities that will accept waste for recycling, re-use and disposal. With regard to the locations of these facilities

which are located within the greater Dublin Area and with regard to the Indaver Waste Incinerator in Duleek County Meath, the ZOI extends to approximately 50km.

8.6.1 Construction Phase

Soils at the site have been classified as non-hazardous in the *Ground Investigations Ireland* Waste Classification Report January 2020 in accordance with the *EPA (2018) Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* by utilising the results of laboratory analysis and the *Haz Waste Online Classification Tool.* Soils have been classified as Category A - Non-Hazardous. Figure 8.4 details the location of the soil sample trial pits.

Construction wastes including soils arising from bulk excavation works can be accepted at a range of licenced facilities within approximately 30km of the subject site including:

- Integrated materials Solutions, The Naul, Co. Dublin
- Thorntons Recycling, Killeen Road, Ballyfermot

Figure 8.4 Trial Pit Locations

8.6.2 Operational Phase

Local waste management infrastructure has been reviewed and there are a range of local domestic recycling facilities within 10km of the subject site including:

- A clothing bring bank is located at Howth Marina Car-Park
- Civic Amenity Recycling Centres are located at the Estuary Recycling Centre, Swords and at Coolmine Industrial Estate.
- A bottle bank is located at Supervalu at Sutton Cross.

Domestic waste collection services in the Howth area are currently provided by the following companies.

- Greyhound Recycling
- Panda Waste
- Thorntons Recycling

8.7 The 'Do Nothing' Scenario

Should the subject development not proceed, it is likely that another residential development may be applied for in the future as the subject site is zoned for residential development.

Should the site remain undeveloped there is a likely risk that it could be subject to illegal fly-tipping and the effect would be **locally negative** with a significance ranging from **imperceptible to profound**, depending on the magnitude of fly-tipping, with a **duration of temporary to short-term** depending on the responsiveness of the relevant authorities to any such situation.

8.8 Potential Significant Effects

8.8.1 Construction Phase

The development of the subject site will require ground preparation works prior to the commencement of construction activities which will generate a range of waste types.

Construction wastes if not managed and segregated on-site will have the potential to be difficult to separate into different waste streams to allow for further processing, recovery, re-use or to be recycled. Table 8.2 below details the impact of construction waste without mitigation.

The calculated construction waste tonnage has been derived from the *Building Research Establishment Environmental Assessment Method (BREEAM)* which specifies that 11.1 tonnes of construction waste is generated for every 100m^2 of development area. Based on the combined building area contained in the Schedule of Accommodation for the development of c.11,704m^2, it has been calculated that up to c. 1299 tonnes of construction waste may be produced.

The tonnage of soils and stones to be generated has been determined from the cut and fill analysis for the site.

Table 8.1 details the EPA's most recently published (2023) % breakdown of Construction waste.

Table 8.1 Construction Waste Composition EPA 2020 Waste Statistics

Waste Type	% composition of total waste
Metal	15
Wood Plastic Glass	4
Bituminous Materials	10
Concrete Brick Gypsum	41
Mixed C&D	30

Table 8.2 below details the calculated tonnages of construction wastes that will be generated.

Table 8.2 Predicted construction waste

LoW Code	Description	Volume Generated (tonnes)	Prevention (tonnes) Non-Waste	Reused (tonnes) Non-Waste	Recycled (tonnes) Waste	Recovered (tonnes) Waste	Disposed (tonnes) Waste
17 01 01	Concrete Brick Tiles and Ceramics	533	0	288	218	0	27
17 01 02							
17 01 03							
17 02 01	Wood Glass Plastic	52	0	0	41	10	1
17 02 02							
17 02 03							
17 03 02	Bituminous Material	130	0	56	74	0	0
17 04 07	Mixed Metals	195	0	0	195	0	0
17 05 04	Soil and Stone	16,000	0	16,000	0	0	16,000
17 09 04	Mixed C&D Waste	390	0	510	608	296	230
20 01 08	Biodegradable Canteen Waste	10	0	0	0	0	10
20 03 01B	Mixed Municipal Waste	10	0	0	0	0	10
20 01 01	Paper & Cardboard	1	0	0	1	0	0

The likely significant effects associated with construction waste will be negative, not significant and short-term.

8.8.2 Operational Phase

The volume of waste that will be generated during the full occupancy of the development have been calculated with regard to *British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice.*

British Standard *BS 5906:2005* states that 70 litres of waste are generated per bedroom per week with an allowance of an additional 30 litres per unit per week.

The subject development includes 207 no. bedrooms in 135 no. residential units.

The total domestic waste generated per week is detailed in Table 8.3.

Table 8.3 Total Weekly Domestic waste generation

Scenario	#	Factor	Weekly Waste litres
Bedrooms	207	70 Litres per week / bedroom	14,490
Units	135	30 litres per week / unit	4,050
Total Weekly Domestic Waste			18,540

The likely significant effects associated with operational waste will be negative, not significant and long-term.

8.8.3 Cumulative Effects

The local area in which the subject development is located has a number of existing and permitted developments which together with the proposed development will have a cumulative short-term construction impact and a long-term operational impact. The other projects listed under Appendix 1.1 of this EIAR have been considered in terms of additional potential demand on regional waste management infrastructure should these other developments proceed.

Should other local sites be constructed during the construction phase of the subject site, there will be an increased demand on Regional Waste Management Infrastructure including Waste Recovery and Waste Recycling Facilities to process construction wastes.

If all local permitted developments are constructed and become operation in the future, there will be an increased demand on Regional Waste Management Infrastructure including Waste Recovery, Waste Recycling Facilities and Waste Disposal to process operational wastes.

Table 8.4 details the cumulative Likely Significant Effects associated with construction and operational wastes. These effects have been determined with regard to how construction and operational wastes must be managed on developments in accordance with the Waste Legislation and Guidance detailed above in Section 8.4.3 of this Chapter of the EIAR.

Table 8.4 Summary of cumulative Likely Significant Effects of construction and operational waste

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Construction Waste	Negative	Not Significant	Regional	Likely	Short-Term	Worst-Case
Operational Waste	Negative	Not Significant	Regional	Likely	Long-Term Permanent	Worst-Case

8.8.4 Summary

The following tables summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

In the scenario where a Resource and Construction Waste Management Plan has not been prepared or implemented in accordance with the Waste Legislation and Guidance detailed in Section 8.4.3 of this Chapter of the EIAR for the development, the Likely Significant Effects are detailed below in Table 8.5.

Table 8.5 Summary of Construction Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Construction Waste	Negative	Significant	Regional	Likely	Short-Term	Worst-Case
Receiving Environment	Negative	Significant	Regional	Likely	Short-Term	Worst-Case

The following table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

In the scenario where an Operational Waste Management Plan has not been prepared or implemented in accordance with the Waste Legislation and Guidance detailed in Section 8.4.3 of this Chapter of the EIAR for the development, the Likely Significant Effects are detailed below in Table 8.6.

Table 8.6 Summary of Operational Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Operational Waste	Negative	Slight	Regional	Likely	Long-Term	Worst-Case
Receiving Environment	Negative	Significant	Regional	Likely	Long-Term	Worst-Case

8.9 Mitigation

8.9.1 Incorporated Design Mitigation

The RWMP includes specific details on how construction phase wastes and resources shall be controlled, managed and monitored throughout the construction phase as detailed in Section 8.9.2.

The OWMP includes specific details on how operational phase wastes shall be controlled, managed and monitored throughout the lifetime of the development as detailed in Section 8.9.3.

8.9.2 Construction Phase Mitigation

Construction Waste Management

- From the outset of construction activities, a dedicated and secure compound containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the active construction phase of the development site.
- Spill kits shall be located within the site compound with clearly labelled instructions on how they shall be used to clean up fuel/oil spills to minimise the potential for ground contamination.
- All vehicle and plant oils and liquid construction materials shall be stored in secure impermeable storage units.
- All diesel-powered generators shall be inspected on at least a weekly basis by a delegate of the project manager to ensure it is not leaking diesel or oils.
- All empty containers containing residual quantities of oils, greases and hydrocarbon-based liquids shall be stored in a dedicated, clearly labelled impermeable container.
- In order to ensure that the construction contractor correctly segregate waste materials, it is the responsibility of the site construction manager to ensure all staff are informed by means of clear signage and verbal instruction and made responsible for ensuring site housekeeping and the proper segregation of construction waste materials.
- It will be the responsibility of the Resource and Waste Manager (RWM) to ensure that a written record of all quantities and natures of wastes exported off-site are maintained on-site in a Waste File at the Project office.

- The RWM shall ensure that all contracted waste collection contractors hold an appropriate Waste Collection Permit for the transport of waste loads and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the following relevant Regulations:

  Waste Management (Collection Permit) Regulations 2007 – 2023 (as amended)

  Waste Management (Collection Permit) (Amendment) Regulations 2008

  Waste Management (Collection Permit) (Amendment) Regulations 2015

  Waste Management (Facility Permit and Registration) Regulations 2007 to 2023 (as amended)

  Waste Management (Facility Permit and Registration) (Amendment) Regulations 2008

  Waste Management (Facility Permit and Registration) (Amendment) Regulations 2023

  Waste Management Acts 1996 - 2011.

- Prior to the commencement of the Project, the Resource and Waste Manager (RWM) shall identify a permitted Waste Contractor(s) who shall be engaged to collect and dispose of all inert and hazardous wastes arising from the project works.
- The RWM shall maintain copies of all Waste Collection Permits and copies of the Waste Facility Permit or Waste Licence to which waste materials are exported to. The RWM shall ensure that all Permits/Licences are within date.
- All waste soils prior to being exported off-site, shall be classified as inert, non-hazardous or hazardous in accordance with the *EPA (2018) Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* document to ensure that the waste material is transferred by an appropriately permitted waste collection permit holder and brought to an appropriately permitted or licensed waste facility.

Resource Management

- Materials shall be ordered on an *"as needed"* basis to prevent over supply and preventing damage to bulk orders stored on-site.

- Materials shall be stored and handled in a manner that minimises the generation of damaged materials.

- Materials shall be ordered in appropriate sequence to minimise materials stored on site.

- All staff and Subcontractors shall be advised through inductions and toolbox talks on how to dispose of their waste correctly on-site.

- Broken concrete blocks and excess aggregate materials shall be segregated and stored off-site for use as hard standing material on future projects. This will result in the following positive impacts:
    - Reduction in the requirement for virgin aggregate materials from quarries
    - Reduction in energy required to extract, process and transport virgin aggregates.
    - Reduced HGV movements associated with the delivery of imported aggregates to the site.
    - Reduction in the amount of landfill space required to accept C&D waste.
- Excess wood will be segregated in separate skips and sent for recycling.
- Plastic arising from general waste or packaging will be segregated and stored in separate skips.
- Metals waste shall be stored in dedicated skips.
- Topsoil that is stripped shall be retained for landscaping purposes.

8.9.3 Operational Phase Mitigation

The OWMP is defined by the following stages of waste management with regard to the Circular Economy and the Waste Hierarchy

Stage 1	Occupier Source Segregation
Stage 2	Occupier Deposit and Storage
Stage 3	Bulk Storage and On-Site Management
Stage 4	Off-Site Removal
Stage 5	End Destination of wastes

The Key Aspects that are designed into the development are:

- 3-Bin systems in each unit to encourage waste segregation at source
- Communal Bin Store to provide for Organic, Recyclable, Mixed Waste, Glass and WEEE waste storage.
- Residents to be provided with a Bulky Waste collection service.
- Waste Management & Record Keeping

The Facilities Management Company shall maintain a weekly register detailing the quantities and breakdown of general mixed domestic waste, recyclable waste and organic waste wastes removed from the apartment aspect of the development. Supporting documentation shall be provided by the Waste Collection Contractor on a monthly basis.

The Facilities Management Company shall prepare an annual information report for all apartment residents detailing the quantities and waste types generated by the development for the previous year. The report shall include reminder information on the correct segregation at source procedures and the correct placement of wastes in the waste storage area. Other aspects of ongoing waste management continuous improvement shall also be stated.

8.10 Residual Impact Assessment

This section assesses potential significant effects which remain after mitigation measures are implemented.

8.10.1 Construction Phase

The potential likely effects of construction waste will be negative, not significant and short--term. This conclusion is based on the implementation of the Resource and Construction Waste Management Plan through the construction phase of the development.

Construction phase wastes will be managed through design, management and waste reduction and recycling initiatives at the proposed development, it is predicted that the impact of the construction phase of the development is not likely to have a significant effect on the receiving environment, or on local and regional waste management services or infrastructure and the development shall be managed to comply with Local Authority objectives for construction waste management.

8.10.2 Operational Phase

The potential likely effects of operational waste will be negative, not significant and long-term. This conclusion is based on the implementation of the Operational Waste Management Plan through the lifetime of the development.

The development shall be designed to provide adequate domestic waste infrastructure and storage areas for all apartments. This will promote the appropriate segregation at source of domestic generated waste from all residential units at the development and thus reduce the potential for the generation of mixed un-recyclable waste streams. The operational phase of the development is not likely to have a significant effect on regional waste infrastructure and the operation of the development shall be managed to comply with Local Authority objectives for domestic waste management.

8.10.3 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 8.7 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Regional Construction Waste Infrastructure	Negative	Not Significant	Regional	Likely	Short-Term	Residual
Receiving Environment	Neutral	Not Significant	Regional	Unlikely	Short-Term	Residual

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 8.8 Summary of Operational Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Regional Domestic Waste Infrastructure	Negative	Not Significant	Regional	Likely	Long Term	Residual
Receiving Environment	Neutral	Not Significant	Regional	Unlikely	Long-Term	Residual

8.10.4 Cumulative Residual Effects

Table 8.9 Summary of cumulative residual construction and operational waste effects

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Construction Waste	Negative	Not Significant	Regional	Likely	Short-Term	Residual
Operational Waste	Negative	Not Significant	Regional	Likely	Long-Term Permanent	Residual

8.11 Risk of Major Accidents or Disasters

This section is not applicable to this Chapter.

8.12 Worst Case Scenario

A worst-case scenario would arise if the construction phase and operational phase wastes streams were not managed in accordance with the Resource and Waste Management Plan or the Operational Waste Management Plan. Unmanaged waste streams will reduce the ability to re-use and recycle waste fractions and result in the generation of unsegregated waste streams which will have an increased impact on the environment as a result of the energy required to dispose of them in landfill or by incineration. In this worst-case scenario the effect would be short-term to long-term, significant and negative.

8.13 Interactions

The identified interactions between the management of waste arisings during both the construction and operational stages are as follows;

- Population & Human Health (Chapter 4): management of waste in the construction and operational phase to mitigate nuisance, vermin, litter, etc.
- Land, Soils, Geology & Hydrogeology (Chapter 9): excavation to facilitate the development.
- Traffic & Transportation (Chapter 6): specifically, movement of waste associated with the construction stage.

These have been comprehensively addressed herein and / or in the corresponding other specialist chapters, where appropriate.

8.14 Monitoring

Construction Phase Waste Monitoring

The Resource and Waste Manager will maintain a written record of all quantities and types of construction wastes generated, reused / recycled and exported off-site during the construction phase.

The following information shall be recorded for each load of waste exported off-site:

- Waste Type EWC Code and description.
- Volume of waste collected.
- Waste collection contractor's Waste Collection Permit Number and collection receipt including vehicle registration number.
- Destination of waste load including Waste Permit / Licence number of facility.
- Description of how waste at facility shall be treated i.e. disposal / recovery / export.

Construction Phase Waste Auditing

In order to ensure that construction wastes generated during the course of the development are being effectively managed and recorded, a waste management audit shall be conducted on a routine basis to determine compliance with the RWMP.

The effectiveness of a Resource and Waste Management Plan and its implementation will be subject to quarterly audits by the RWM throughout the duration of the construction phase.

Audits will focus on materials inputs to the project and the waste outputs identifying:

Resources

- How resource management was integrated into the design of project buildings and areas
- Re-use, recycling of existing on-site materials prior to development including soils, buildings, structures.
- Re-using surplus materials from previous development projects e.g. office cabins, fencing, aggregates, concrete products.
- Additional opportunities for future resource management.

Waste

The audits will also investigate the operational factors and management policies that contribute to the generation of waste and identify appropriate corrective actions, where necessary.

- Performance targets will be developed, e.g. an 85% overall recycling target, successes and failures will be recorded and Action Plans will be developed to address any issue which arise.
- Inspections of the waste storage areas will be undertaken and recorded on a weekly basis, issues relating to housekeeping, inappropriate storage and segregation of wastes.
- The RWM will record the findings of the audits, including types and quantities of waste arising, final treatments and costs, in a quarterly audit report.
- The Final Waste Audit will examine the manner of how resources were managed and how and where the waste was produced and how waste generation can be reduced in future projects.

Operational Phase Waste Monitoring

The Facility Management Company shall prepare an annual report for the Local Authority and residents of the development on the quantities of waste generated within the development to demonstrate how waste reduction and recycling targets are being achieved with regard to the targets defined in the *Waste Management Plan for a Circular Economy 2024-2030.*

8.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 8.10 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Additional construction Waste generation	Implementation of Site-Specific Resource and Waste Management Plan	Recording of all waste generated and exported off-site Waste auditing

The following Table summarises the Operational Phase mitigation and monitoring measures.

Table 8.11 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Additional domestic waste generation	Implementation of Site-Specific Operational Waste Management Plan	Recording of all waste generated.

8.16 Conclusion

The proposed development shall be designed, constructed and operated in accordance with-Irelands national waste strategy contained in the *National Waste Management Plan for a Circular Economy 2024-2030.*

The construction phase of the development shall be managed in accordance with a Resource and Waste Management Plan which will defines how the segregation of construction wastes will allow for the maximum potential for recycling, re-use or recovery and to minimise the volume of waste sent for disposal.

The operational phase of the development shall be managed in accordance with an Operational Waste Management Plan The development shall be designed and managed to provide residents with the required waste management infrastructure to minimise the generation of un-segregated domestic waste and maximise the potential for segregating and recycling domestic waste fractions.

8.17 References and Sources

- Waste Management Act 1996-2011
- The European Waste Framework Directive (2008/98/EC)
- National Waste Management Plan for a Circular Economy 2024-2030
- Waste Management (Collection Permit) (Amendment) (No.2) Regulations 2023 (SI No. 104 of 2023);
- EPA (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports;
- EPA (2020). A guide to by-products and submitting a notification under Article of the European Communities (Waste Directive) Regulations 2011 (S.I. No 126 of 2011) (Draft);
- EPA (2019). Guidance on Soil and Stone By-products in the context of article 27 of the European Communities (Waste Directive) Regulations 2011;
- EPA (2021). Best Practice Guidelines for the preparation of resource and management plans for construction and demolition projects.
- Fingal Development Plan 2023-2029
- *Building Research Establishment Environmental Assessment Method (BREEAM)*
- Department of Housing, Local Government and Heritage (2022). Sustainable Urban Housing: Design Standards for New Apartments. Guidelines for Planning Authorities
- *British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice.*

CHAPTER 9
LAND & SOILS

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

9 Land & Soils

9.1 Introduction

This chapter of the EIAR was prepared by Donnachadh O'Brien & Associates Consulting Engineers (DOBA) to assess and evaluate the potential impacts of the development on the land, soil, geological and hydrogeological aspects of the proposed development site and surrounding area during the construction and operational phases. It should be read in conjunction with all other Chapters of the EIAR and assessments/reports/plans etc. submitted with the planning application. In assessing likely significant effects, account is taken of both the importance of the attributes and the predicted scale and duration of the likely effects.

9.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Donnachadh O'Brien and Paul Doyle of Donnachadh O'Brien & Associates Consulting Engineers (DOBA).

Donnachadh is a Chartered Engineer (CEng) and a Fellow of the Association of Consulting Engineers of Ireland (FConsEI) with over 26 years' experience as a Consulting Civil & Structural Engineer. Paul is also a Chartered Engineer (CEng) and a Registered Professional Consulting Engineer (RConsEI) with the Association of Consulting Engineers of Ireland (ACEI) with 15 years' experience as a Consulting Civil & Structural Engineer. Donnachadh and Paul both have extensive experience in the design and delivery of urban development schemes and have advised clients including government bodies, local authorities and private developers. DOBA have been involved in the preparation of EIARs for the following projects:

- Southwest Gate Mixed Use Development, Dublin 12.
- Lands at Leixlip Demesne, Leixlip, Co. Kildare
- Lands at Haggardstown, Dundalk, Co. Louth

9.3 Proposed Development

A detailed description of the proposed development is provided in Chapter 2 of this Environmental Impact Assessment Report (EIAR).

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Partial demolition of 3 sections of the existing northern boundary wall, which fronts Howth Road, proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

9.3.1 Aspects Relevant to this Chapter

The full description of the proposed development is outlined in Chapter 2 – Project Description, of this Environmental Impact Assessment Report. The proposed development site is bounded to the south by the Deer Park Golf Course, to the east by a road that leads to Howth Castle, to the north by the Howth Road, R105, and to the west by private dwellings.

The proposed development site currently comprises a greenfield site and part of the Deer Park golf course to the south. The design of the surface water drainage network has taken cognisance of the objectives and guidance contained in the Greater Dublin Strategic Drainage Study (GDSDS). A series of SuDS elements are incorporated in the design, which will comprise treatment via the use of a blue/green roofs, bio-retention areas, bioswales, rain gardens, bioretention tree-pits, lined permeable paving, filter drains, lined underground attenuation tank and a petrol interceptor. The new development will be connected to an existing 300mm diameter surface water sewer (increasing to 450mm diameter surface water sewer) which discharges north towards the Baldoyle Bay c. 170m to the subject site. The proposed development will be served by a gravity wastewater network and it is proposed to provide 1no. connection from the site drainage system into the existing public 400mm diameter wastewater network.

A new 225mm diameter wastewater sewer will connect into the existing wastewater manhole to the north of the site. This connection will serve as the developments wastewater connection to the existing Uisce Éireann wastewater network which eventually discharge to the Ringsend Waste Water Treatment Plant (WwTP), where it is treated and ultimately discharges into Dublin Bay. The WwTP operates under the EPA licence D0034-01.

9.4 Methodology

This chapter evaluates the effects, if any, which the development may have or will have on Land, Soils, Geology and Hydrogeology as defined in the Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022) (refer to Chapter 1 of this EIAR for further details). The Draft EPA document entitled 'Advice Notes for Preparing Environmental Impact Statements' (EPA, 2015) is also followed in this geological and hydrogeological assessment and classification of environmental effects. Due consideration is also given to the guidelines provided by the Institute of Geologists of Ireland (IGI) in the document entitled Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements' (IGI 2013). In addition, the document entitled 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' by the National Roads Authority (NRA/TII, 2009) is referenced where the methodology for assessment of impact is appropriate. The rating of potential environmental effects on the land, soil, geological and hydrogeological environment is based on the matrix presented in Table 1 in Appendix 9.1 (Volume III) which takes account of the quality, significance, duration and type of effect characteristic identified (in accordance with impact assessment criteria provided in the Draft EPA Guidelines (2017) publication). The duration of each effect is considered to be either momentary, brief, temporary, short-term, medium term, long-term, or permanent. Momentary effects are considered to be those that last from seconds to minutes. Brief effects are those that last less than a day. Temporary effects are considered to be those which are construction related and last less than one year. Short term effects are seen as effects lasting one to seven years; medium-term effects lasting seven to fifteen

years; long-term effects lasting fifteen to sixty years; and permanent effects lasting over sixty years. The NRA/TII criteria for rating the magnitude and significance of impacts on the geological related attributes and the importance of hydrogeological attributes at the site during the EIA stage are also relevant in assessing the impact and are presented in Tables 1-5 in Appendix 9.2.

The principal attributes (and effects) to be assessed include the following:

- Geological heritage sites in the vicinity of the perimeter of the subject site;
- Landfills, industrial sites in the vicinity of the site and the potential risk of encountering contaminated ground;
- The quality, drainage characteristics and range of agricultural uses of soil around the site;
- Quarries or mines in the vicinity, the potential implications (if any) for existing activities and extractable reserves;
- The extent of topsoil and subsoil cover and the potential use of this material on site as well or requirement to remove it off-site as waste for disposal or recovery;
- High-yielding water supply springs/ wells in the vicinity of the site to within a 2km radius and the potential for increased risk presented by the proposed development;
- Classification (regionally important, locally important etc.) and extent of aquifers underlying the site perimeter area and increased risks presented to them by the proposed development associated with aspects such as for example removal of subsoil cover, removal of aquifer (in whole or part), drawdown in water levels, alteration in established flow regimes, change in groundwater quality;
- Natural hydrogeological/karst features in the area and potential for increased risk presented by the activities at the site; and
- Groundwater-fed ecosystems and the increased risk presented by operations both spatially and temporally.

Desk-based geological information on the substrata (both Quaternary deposits and bedrock geology) underlying the extent of the site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Geological Survey of Ireland (GSI) - on-line mapping, Geo-hazard Database, Geological Heritage Sites & Sites of Special Scientific Interest, Bedrock Memoirs and 1: 100,000 mapping;
- Teagasc soil and subsoil database;
- Ordnance Survey Ireland - aerial photographs and historical mapping;
- Environmental Protection Agency (EPA) – website mapping and database information; and,
- National Parks and Wildlife Services (NPWS) – Protected Site Register

Site specific data was derived from the following sources:

- Infrastructure Design Report (IDR), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024;
- Site Specific Flood Risk Assessment (SSFRA), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024;
- Site Investigation Report, Howth Road, Howth Co. Dublin. Site Investigation Ltd. November 2019;
- Ground Investigation Report (GIR), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024;

- Construction Management Plan (CMP), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024; and,
- Various design site plans and drawings;

9.4.1 Relevant Legislation & Guidance

The methodology adopted for this assessment is in accordance with the relevant guidelines in particular, the following:

- EU Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the Environment, as amended by Directive 2014/92/EU of the European Parliament and of the Council (the "**EIA Directive**").
- EU Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives (the "**Waste Framework Directive**") (as amended).
- Environmental Protection Agency, May 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022)
- European Commission Guidance on the preparation of the Environmental Impact Assessment Report;
- 2018 Department of Housing Guidance.
- EU Soil Strategy 2030
- Institute of Geologists of Ireland Guidelines, 2002. Geology in Environmental Impact Statements, A Guide (IGI, 2002).
- Institute of Geologists of Ireland Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI, 2013).
- National Roads Authority, 2009. Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA, 2009).

9.4.2 Site Surveys/Investigations

9.4.2.1 Site Investigations Limited Ground Investigations 2019

During October and November 2019 ground investigations at the subject site were carried out by Site Investigations Ltd (SIL), see Appendix 9.3. Cable percussion boring was undertaken at 7 No. locations using a Dando 150 rig and constructed 200mm diameter boreholes. The borehole depths were consistent in depth from 6.6m below existing ground level (BEGL) (BH06), see Figure 9.1 Figure 9.1 Site Investigations Limited Borehole locations (Source: SIL, 2019)to 7.3mBEGL (BH03) where the boreholes terminated. The site ground conditions in the boreholes are consistent with cohesive soils dominating the site with sandy gravelly silty Clay encountered at most locations. Perched water was recorded in all of the boreholes ranging from 4.20mBEGL to 4.70mBEGL. All soakaway tests across the site showed that infiltration stormwater drainage would not be physically feasible due to the low permeability of overburden.

Figure 9.1 Site Investigations Limited Borehole locations (Source: SIL, 2019)

9.4.2.2 IGSL Ground Investigations Limited Ground Investigations 2023/ 2024

During October, November and December 2023 ground investigations at the subject site were carried out by IGSL and comprised machine dug trial pits, rotary drilling, slit trenching and in situ plate bearing tests (refer to Figure 9.2 below), see Appendix 9.4. Geotechnical, chemical and environmental laboratory testing was scheduled on a range of soil samples. The geotechnical soil testing included moisture contents, Atterberg Limits and particle size distribution [PSD] testing in addition to hydrometer testing. Suites of both chemical testing and environmental testing were undertaken on soils. The following is a summary of the ground conditions encountered across the site.

- A topsoil surface cover of 200mm was noted across the five trial pits. The soil was described as a soft brown sandy slightly gravelly CLAY with a low cobble content, frequent rootlets and rare ceramic fragments (2% anthropogenic fragments). Beneath the upper mantle of Topsoil, the natural subsoils were often reported as soft to firm initially in consistency. They were variably classified as SILT and CLAY-dominant deposits often with colour mottling of grey and orange. The soils in TP01 from 0.20m to 1.60m were logged as firm in consistency with similar firm soils reported in TP03 from 0.20m to 2.30mBEGL. At TP02, the soils were reported to be increasingly silty and sandy with SAND remarked from 0.80m to 1.50mBEGL. At depth across pits TP01, TP02 and TP03, a firm to stiff CLAY entered the stratigraphy at levels ranging from 5.13m OD to 5.27m OD and in the case of TP03, on topographically higher ground, from 7.35m OD. These depths correspond to 1.60m to 2.30m. Both TP04 and TP05 ended in firm brownish grey and brown sandy slightly gravelly CLAY, both at a depths of 2.50m. In-situ testing was undertaken during the construction of the four drillholes. The standard penetration test [SPT] allows for an appraisal of the ground stiffness. Drillholes demonstrate the entry of the stiff to very stiff CLAY flagged by the higher SPT N-values obtained in test drives. the higher SPT N-values were consistently obtained indicative of stiff and very stiff CLAY deposits. The SPT plot highlights the soft to firm predominantly firm nature of soils in test drives performed in shallow overburden. 'Low strength' deposits are those where N values of <10 blows are

present. With the exception of the test drive at 1.50m in RC02, no such blowcounts were recorded.

Figure 9.2 IGSL Ground Investigation works (Source: IGSL, 2024)

9.6.6 Soil Quality Monitoring

Five soil samples selected from trial pits TP01-TP05 in the IGSL Ground Investigations were analysed for their compliance to the criteria set out in the 2003/33/EC: Council Decision of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC (as amended) . The natural soil samples proved compliant with Waste Acceptance Criteria and therefore would be accepted by an inert landfill. The results obtained from the testing were also compared with published limits set out in the EPA Guidance on waste acceptance criteria at authorized soil recovery facilities (EPA, 2020). The samples were found to meet each of the criteria set for Total Organic Carbon and for the organic compounds BTEX, Mineral Oil, PAH and PCB's. The samples meet the metal concentrations published for Geochemical Domain 2 and would therefore, based on metal and TOC / organic compound contents be accepted at an authorized soil recovery facility. The site is therefore not polluted and the development will be managed so as to increase its health in accordance with the EU Soil Strategy.

9.6.7 Aquifer Classification and Groundwater Status

Groundwater can be defined as water that is stored in, or moves through, pores and cracks in sub-soils. Aquifers are rocks or granular deposits that contain sufficient void spaces, and which are permeable enough, to allow water to flow through them in significant quantities. The potential of rock or deposits to store and transport water is governed by permeability of which there are two types, intergranular and fissure permeability.

The GSI classifies the principal bedrock aquifer types as:

- Lk - Locally Important Aquifer – Karstified.
- Ll - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones.
- Lm - Locally Important Aquifer - Bedrock which is Generally Moderately Productive.
- Pl - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones.
- Pu - Poor Aquifer - Bedrock which is Generally Unproductive.
- Rkd - Regionally Important Aquifer (karstified diffuse).

Reference to the GSI National Draft Bedrock Aquifer Map for the site (refer to Figure 9.3 below) indicates that the planning site is underlain by a Locally Important Aquifer (Ll), which is described by the GSI as bedrock as 'moderately productive only in local zones' and is related to the Waulsortian Formation above described.

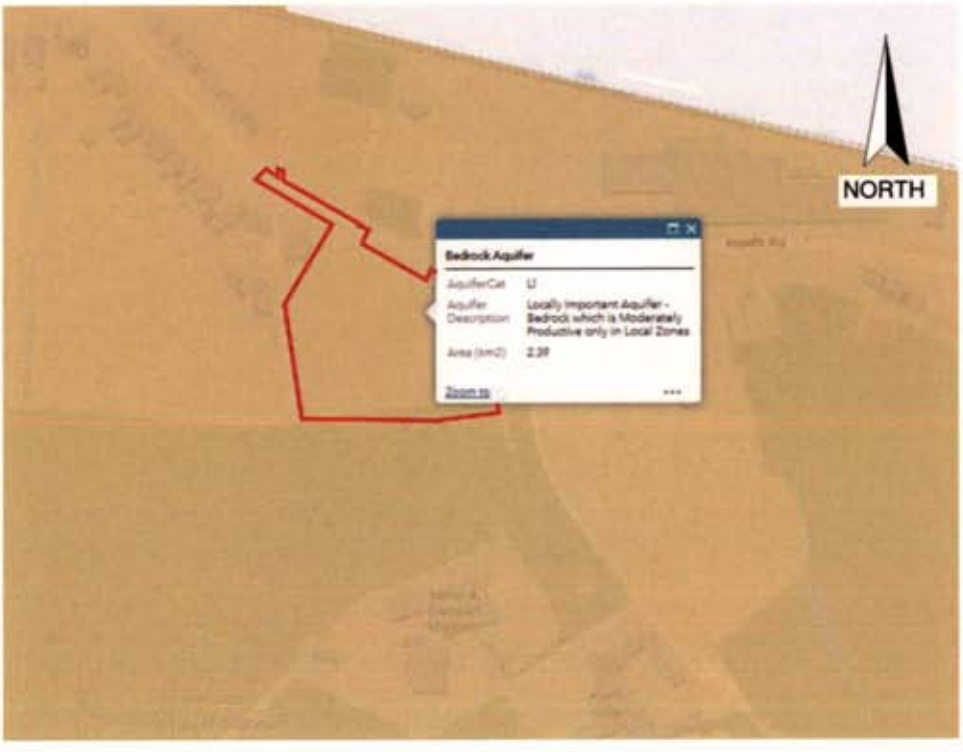


Figure 9.3 Bedrock Aquifer Classification Map (Source: dcenr.maps.arcgis.com, 2024)

The Water Framework Directive (WFD) Directive 2000/60/EC (as amended), was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater and transitional (estuarine) and coastal waters. In addition to protecting said waters, its objectives include the attainment of 'Good Status' in water bodies that are of lesser status at present and retaining 'Good Status' or better where such status exists at present. The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring. 'Good status' means both 'good ecological status' and 'good chemical status'. The proposed development is located over the 'Dublin' (EU Code IE_EA_G_008) WFD groundwater body (GWB). The most recent WFD groundwater status (2016-2021) is 'Good' for this GWBs and the WFD environmental risk score is under review.

9.6.8 Aquifer Vulnerability

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrological characteristics that determine the ease with which groundwater may be contaminated generally by

human activities. Due to the nature of the flow of groundwater through bedrock in Ireland, which is almost completely through fissures, the main feature that protects groundwater from contamination, and therefore the most important feature in protection of groundwater, is the subsoil (which can consist solely or of mixtures of peat, sand, gravel, glacial till, clays or silts). The GSI, EPA, and the Department of Environment, Heritage and Local Government (DoEHLG) have developed a programme of Groundwater Protection Schemes, with the aim of maintaining the quantity and quality of groundwater in Ireland, and in some cases improving groundwater quality, by applying a risk assessment approach to groundwater protection and sustainable development. As part of this scheme, the GSI have mapped the vulnerability of the country's aquifers. Reference to the GSI Vulnerability data indicates that the Proposed Development site is classified as having a 'High' aquifer vulnerability which indicates that the soil cover is 3-5m of low permeability soil at the site, given by the Tills deposits underlying the site (Refer to Figure 9.4 below and Table 9.1 Vulnerability Mapping Guidelines (Source: GSI, 2024)

Figure 9.4 Groundwater Vulnerability Map (Source: dcenr.maps.arcgis.com, 2024)

Table 9.1 Vulnerability Mapping Guidelines (Source: GSI, 2024)

Vulnerability Rating	Hydrogeological Condition				
	Subsoil Permeabiloity (type) and Thickness			Unsaturated Zone	Karst Features
	High Permeability (sand/ gravel)	Moderate Permeability (e.g. sandy subsoil)	Low Permeability (e.g. clayey subsoil, clay, peat)	(Sand/ gravel aquifers only)	(<30m radius)
Extreme (E)	0 - 3m	0 - 3m	0 - 3m	0 - 3m	-
High (H)	> 3m	3 - 10m	3 - 5m	> 3m	n/a
Moderate (M)	n/a	> 10m	5 - 10m	n/a	n/a
Low (L)	n/a	n/a	> 10m	n/a	n/a
Notes	(1) n/a: Not Applicable				
	(2) Precise permeability values cannt be given at present				
	(3) Release point of contaminants is assumed to be 1-2m below ground surface				

Site investigations carried out in 2023 show that the bedrock was not encountered at depths up to 15m below ground level. Therefore, the actual vulnerability at the subject site would be 'Low' according to Table 9.1 above.

9.6.9 Groundwater Wells

There is no licensing system for wells in Ireland at present and as such no complete data set. The GSI Well Card Index is a record of wells drilled in Ireland, kept by the Geological Survey of Ireland. It is noted that this record is not comprehensive as licensing of wells is not currently a requirement in Ireland and therefore it requires individual drillers to submit details of wells in each area. This current index indicates there are no groundwater wells, boreholes or dug wells within the subject site boundary within a 2 Km radius if the site area (i.e., throughout the Howth peninsula). The nearest spring to the subject site is St. Fintan's Well located 1.7km south per Figure 9.5 below. There would not be a hydraulic connection between the subject site and the nearest spring. The site is not located near any public groundwater supplies or group schemes. There are no groundwater drinking water protection areas within 20km of the site.

Figure 9.5 St. Fintans Well, Howth (source: Google Maps)

9.6.10 Geological Heritage

The Geological Survey of Ireland (GSI) Public Viewer www.gsi.ie/mapping was reviewed to identify sites of geological heritage for the site and surrounding area. There is a recorded geological heritage site (county geological site) located approximately 300 m to the north: Claremont Strand (IGH8), which is a coastal and foreshore section and is described as a 'Coastal exposures of fossiliferous Lower Carboniferous limestone' by the GSI (see Figure 9.6 overleaf). There will be no direct or indirect impact on these exposures.

Figure 9.6 Geological Heritage Map (Source: dcenr.maps.arcgis.com, 2024)

9.6.11 Economic Geology

The Extractive Industry Register (www.epa.ie) and the GSI mineral database was consulted to determine whether there were any mineral sites close to the proposed development. There are no active quarries located in the immediate vicinity. A mineral locality can be observed on the GSI maps at Howth Harbour (c. 800 to the east of the site) which in turn is referred to the OSi historical 6 inch maps (1837-1842); therefore, it is believed that this location is currently inactive.

9.6.12 Geo-Hazards

There are no expected geohazards at this location. In general, Ireland suffers few landslides. Landslides are more common in unconsolidated material than in bedrock, and where the sea constantly erodes the material at the base of a cliff landslides and falls lead to recession of the cliffs. Landslides have also occurred in Ireland in recent years in upland peat areas due to disturbance of peat associated with construction activities. The GSI landslide database was consulted and the nearest landslide to the proposed development was 14km to the south, referred to as the Killiney event which occurred on 12 August 2000 in South Dublin. There have been no recorded landslide events at the site. Due to the local topography and the underlying strata there is a negligible risk of a landslide event occurring at the site. In Ireland, seismic activity is recorded by the Irish National Seismic Network. The Geophysics Section of the School of Cosmic Physics at the Dublin Institute for Advanced Studies (DIAS) has been

recording seismic events in Ireland since 1978. The station configuration has varied over the years. However, currently there are five permanent broadband seismic recording stations in Ireland and operated by DIAS. The seismic data from the stations comes into DIAS in real-time and are studied for local and regional events. Records since 1980 show that the nearest seismic activity to the proposed location was in the Irish sea (1.0 – 2.0 Ml magnitude) and c. 55 km to the south in the Wicklow Mountains. There is a very low risk of seismic activity to the proposed development site.

9.6.13 Areas of Conservation

The lands in which the proposed development is located have no formal designations. However, as mentioned above, the Baldoyle Bay SAC/pNHA is located c. 170m to the north of the subject site. There is no direct hydrological connection from the subject site to the bay due to the absence of a surface water feature. However, an indirect connection will exist as the proposed surface water drainage will be connected to the existing public network which ultimately discharges into the Baldoyle Bay. There would also be an indirect hydrogeological connection with the site, as local groundwater would eventually outfall into the Baldoyle Bay. However, as the site is underlain by very low permeability subsoil, this hydraulic connectivity can be considered as negligible. In addition, the proposed development would have an indirect connection with the South Dublin Bay SAC/SPA/pNHA (located c. 7 km to the southwest of the site) through the proposed foul water drainage, which eventually discharge to the Ringsend Wastewater Treatment Plant (WwTP), where it is treated and ultimately discharges into Dublin Bay.

9.6.14 Conceptual Model

According with the SIL 2019 and IGSL 2023 Ground Investigations undertaken, cohesive deposits composed of sandy gravelly Clay were encountered across the site at all locations beneath the Topsoil/Surfacing and were present to a depth of 15m in the subject site. No evidence of contamination was encountered in the subsoil underlying the site. Perched water was recorded in all of the SIL 2019 boreholes ranging from 4.20 mBEGL to 4.70mBEGL, however, only water seepage was observed in TP04 of the IGSL 2023 Ground Investigation. As this is a Clay it is likely to be a discontinuous water table but overall groundwater flow direction will be towards Baldoyle Bay, following the surface topography. A cross section of the site geology can be seen in Figure 9.7 overleaf.

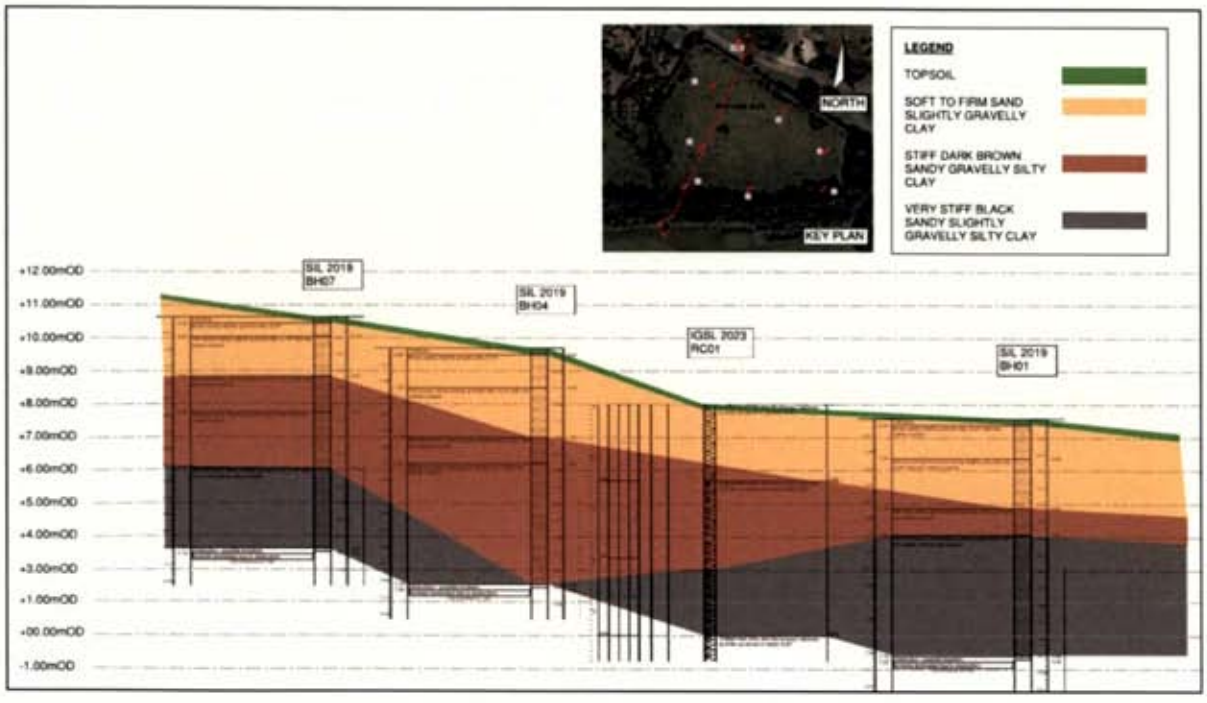


Figure 9.7 Typical Site Cross-Section

Rating of Site Importance of the Geological and Hydrogeological Features Based on the TII methodology (2009), the criteria for rating the importance of geological features, the importance of the geological features at this site is rated as Moderate Importance. This is based on the presence of a county geological site in the vicinity of the subject site (Claremont Strand) but considering that the site is underlain by very low permeability subsoil (SIL Ground Investigation 2019) and therefore there would be poor hydraulic connectivity with Claremont Strand. Based on the TII methodology (2009), the criteria for rating the importance of hydrogeological features, the importance of the hydrogeological features at this site is rated as Moderate Importance. This is based on the close distance between the local aquifer and the Baldoyle Bay SAC/pNHA EU Natura site which is located c. 170m to the north of the site. However, as the site is underlain by very low permeability subsoil, there would be poor hydraulic connectivity between the site and the Baldoyle Bay. The aquifer is a Locally Important Aquifer but is not widely used for public water supply or generally for potable use.

9.4.3 Consultation

Consultation with Fingal County Council confirmed that there are no known illegal/historic landfills within 500 metres of the site.

9.5 Difficulties Encountered

No difficulties were encountered during the preparation of this chapter.

9.6 Baseline Environment

The subject site is located in lands at Deer Park, Howth Road, Howth Co. Dublin and is c. 1.5 Hectares and currently greenfield. Howth is located to the East of Dublin city and forms a peninsula into the Irish Sea. The site is bounded to the west by residential dwellings. Howth Castle and St. Marys Church

to the south and east of the subject site have a separate access road from the R105 Howth Road. The proposed vehicular entrance to the site is located to the north west of the site adjacent to R105 Howth Road and provides the requisite sightlines for vehicles exiting the site. It is also intended to use this entrance during the construction phase. The south is bounded by the Deer Park Golf Club. The land surrounding the site is a mixture of residential, commercial and recreative use.

Adjacent to the Howth Road to the north, the site is at a level of approximately +6.500m and gradually rises to a level of +14.000m towards the Deer Park golf course. The site, therefore, slopes towards the Irish Sea (Baldoyle Bay). There is no existing surface water infrastructure within the greenfield site. On Howth Road, to the north west of the site, there is an existing 450mm diameter surface water sewer that discharges north towards the coast. In addition, there is no existing wastewater sewer infrastructure within the site boundary. There is an existing 400mm diameter concrete wastewater sewer and manhole to the north of the site adjacent to Howth Road. The Baldoyle Bay is located c. 170m to the north of the subject site. This bay is a protected Natura European Site (Special Area of Conservation [SAC, site code IE0000199] and a proposed Natural Heritage Area (pNHA, site code 000199). (refer to Figure 9.8 below). There are a number of local streams in the vicinity of the site that form part of the Bloody Stream catchment (refer to Chapter 10). The Bloody Stream flows towards the bay c. 180 m east of the site (i.e., to the east side of St. Mary's Church). There is also a local stream which drains the lands of Howth Castle and flows to the bay c. 50m east of the subject site.

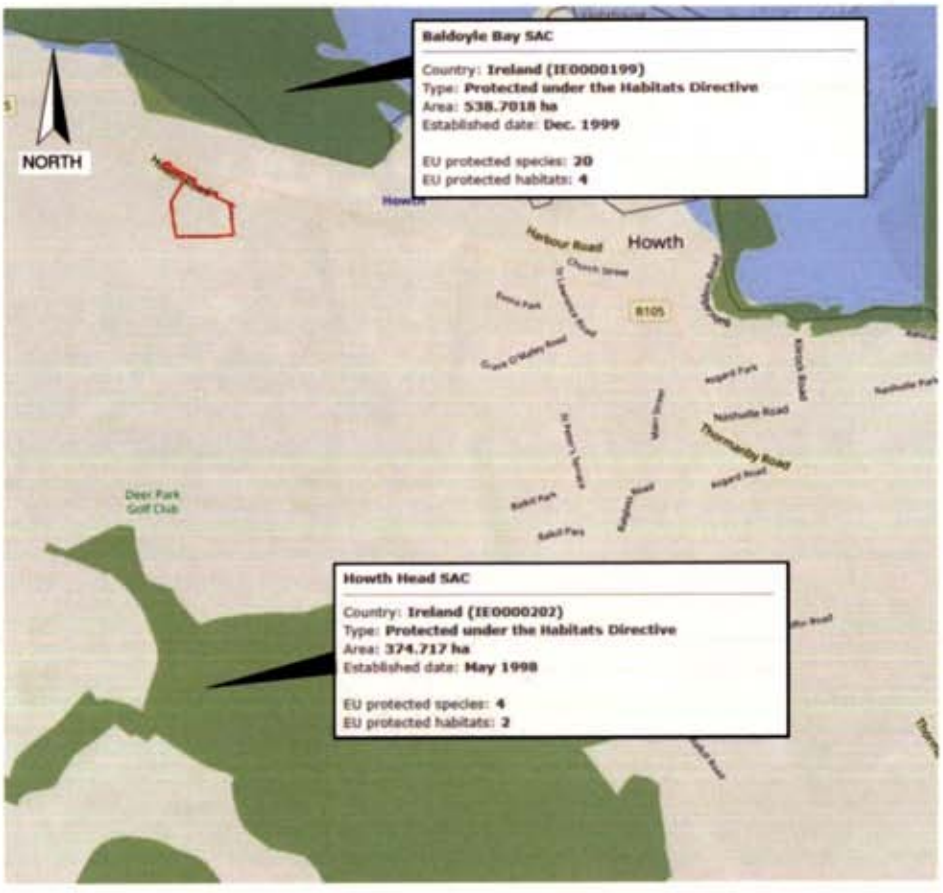


Figure 9.8 Proximity to the Howth Head SAC and Baldoyle Bay SAC

9.6.1 Soils

The EPA soil map of Ireland shows that at the location and surrounding area, the soil types found are predominantly Carboniferous Limestone till which is to be expected considering the greenfield location of the site. There is also Made (Made Ground) in the vicinity of the subject site associated with the Howth road and the urban area. See Figure 9.9 below.

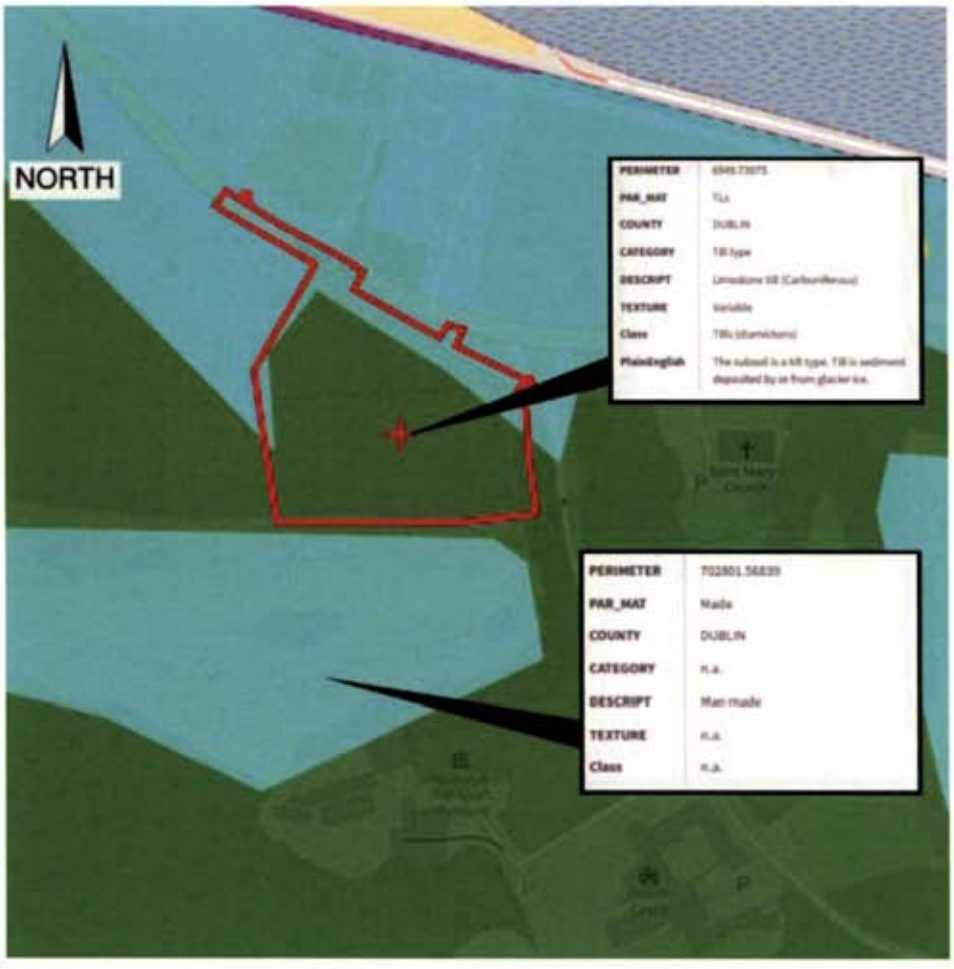


Figure 9.9 Soils Map (Source: gis.epa.ie/EPAMaps/, 2024)

9.6.2 Quaternary Deposits

The Quaternary Period is the final stage of the geological time scale. This period includes the start of the Ice Age (approximately 1.6 million years ago), known as the Pleistocene Epoch right through to the postglacial period, known as the Holocene Epoch, which began 10,000 years ago and extends from the Pleistocene to the present day. The Pleistocene Epoch in Ireland began when there was a significant cooling of the Earth's climate, and was characterised by alternating extended periods of very cold conditions, during which time much of the country was covered by an ice sheet. These colder periods were interspaced with warmer periods, known as interglacial, which lasted for approximately 10,000 years at a time. A subsoil map, produced by the GSI, indicates that the majority of the site and surrounding area is underlain by Till (TLs) and Gravels (GLs) derived from limestones. Figure 9.10 following shows the subsoils underlying the site. Site investigation carried out in 2019 (refer to Section

9.6.5 below) show that the subsoil underlying the subject site is mainly sandy gravelly Clay (i.e., no gravels were detected).

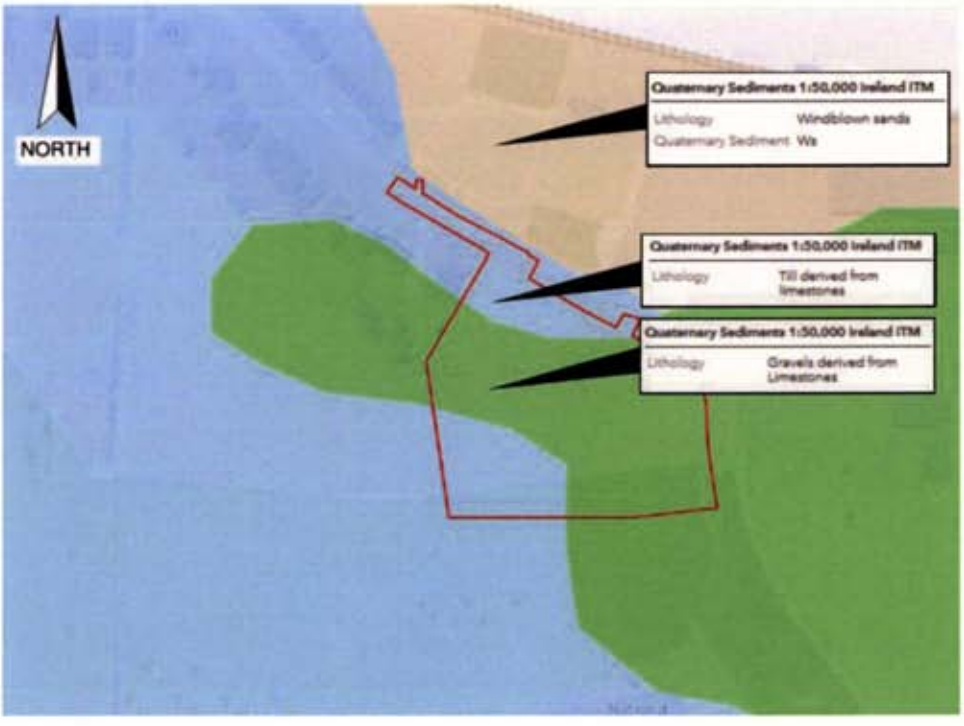


Figure 9.10 Subsoils Map (Source: dcenr.maps.arcgis.com, 2024)

9.6.3 Bedrock Geology

Inspection of available GSI data shows that the bedrock geology underlying the site and surrounding area is dominated by limestones of Carboniferous Age. The site and local area is underlain by Massive, unbedded lime mudstones of the Waulsortian Formation (refer to Figure 9.11 below).

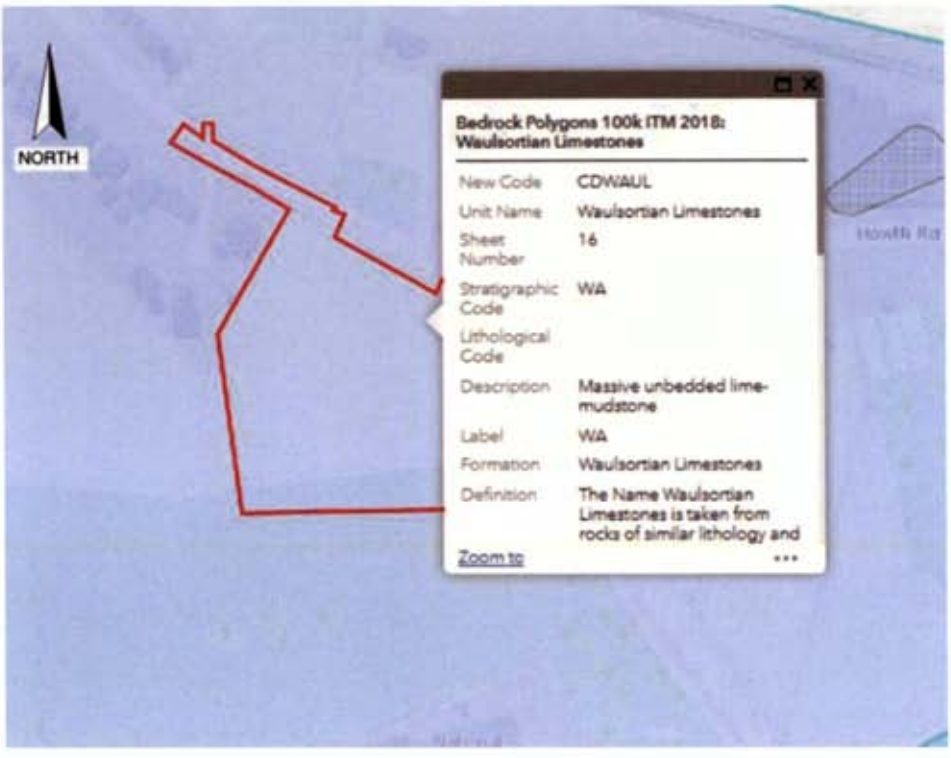


Figure 9.11 Bedrock Geology Map (Source: dcenr.maps.arcgis.com, 2024)

9.7 The 'Do Nothing' Scenario

In the event that the site is not developed it would remain in its current condition, a greenfield site. This scenario would not have any likely significant impact on land use or the soils and geology beneath the site. However, the site is zoned for development and it is likely that in the absence of this subject proposal a development of a similar nature would be progressed on the site.

9.8 Potential Significant Effects

9.8.1 Demolition Phase

A traditional demolition phase is not proposed as the removal works are limited to interventions in the existing boundary wall to facilitate access. Following the completion of site clearance and levelling, all structures will require traditional strip and pad foundations to be installed in accordance with the structural engineer specifications. A foundation plan of the proposed buildings refer to Figure 9.12 below which has been included under separate cover, namely 2326-DOB-XX-FN-DR-S-0010. Foundations will require moderate scale excavations, with formation levels extending to c. 2.5m BEGL founding within the stiff to very stiff boulder clays. Rock excavation will not be required and temporary works such as sheet piling or continuous flight auger or secant piling are not required It is expected

during the excavation works that localised dewatering of the subsoils will be required to address perched groundwater as an indirect effect. It can be expected minor ingress of rainfall in the excavation during construction phase.

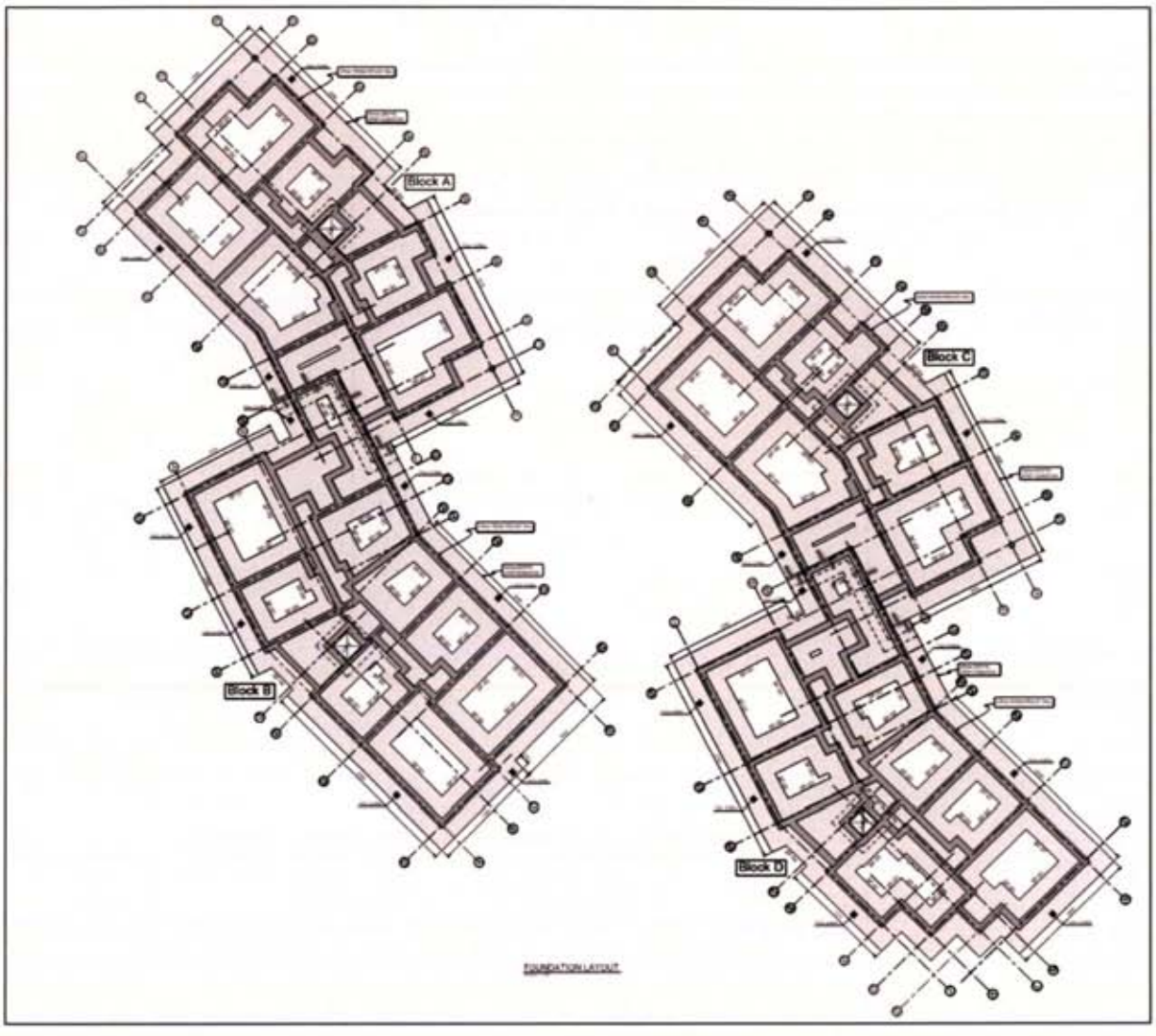


Figure 9.12 Foundation Layout (source: DOBA Consulting Engineers 2326-DOB-XX-FN-DR-S-0010)

9.8.2 Construction Phase

During construction of the development, there is a risk of accidental pollution incidences from the following sources if not adequately mitigated:

- Spillage or leakage of oils and fuels stored on site.
- Spillage or leakage of oils and fuels from construction machinery or site vehicles.
- The use of concrete and cement during pad foundation construction.

9.8.3 Operational Phase

The change of land use from greenfield to residential is the main effect on the land environment. Potential for negative impacts on subsoils, geology and hydrogeology during operation are low. The

storage volume of any liquid hazards is low and there will be no direct discharges to the water or soil environment during the operational phase. Leakage of petrol/ diesel fuel may occur from car park/road areas. However, given the petrol/oil interceptor system considered in the design (SuDS elements), this effect is considered unlikely.

The implementation of the SuDS elements and the increasing of hard standing areas in 5,065m^2 decrease the potential vulnerability of the subsoils and groundwater regime. Therefore, these design measures are considered a positive effect on this component.

9.8.4 Cumulative Effects

9.8.3 Cumulative

The surrounding lands are largely zoned as 'HA – High Amenity', 'RS – Residential', 'OS – Open Space' and 'TC - Town and District Centre' under the Fingal Development Plan 2023-2029 (Fingal County Council, 2023).

There are a number of granted planning permissions for activities/plans/projects which may be in construction at the same time as the proposed development: All elements of the project have been cumulatively assessed together for their overall impact and the project has then been assessed in combination with the other existing, consented or planned projects as listed below.

- DART+ Coastal North – Rail improvement project including (a) extension of the existing electrified rail network to Drogheda MacBride station, and (b) an increase to the rail capacity on the Northern Line between Dublin City Centre and Drogheda MacBride Station, including the Howth Branch.
- F23A/0512 Improvements to GAA Club at Balkill Road, Howth, including: A single storey 159sq.m extension to the existing Beann Eadair club house, new external seating, 5m hurling wall enclosure with artificial grass surface, new 190sq.m single-storey changing room building, and a non-potable fresh water well for pitch irrigation and grey water use
- F23A/0286 Retention permission for a 36.8m telecommunications support structure carrying antenna and dishes, communications building and associated site works at Ben of Howth
- F22A/0372 ABP-317883-23 Replacement of the existing "Deer Park Hotel" building (and all associated structures) with a new 142-bed hotel, including: a bar, restaurant, gym/spa facility, swimming pool, retail, meeting rooms, bar and function area, external dining areas, photovoltaic panels, ESB substation, 170-space car park, and a new vehicular access.
- F22A/0558 Claremont Industrial Estate, West Pier, Howth – two storey building (1293 sq.m.) for the processing, storage, and distribution of food. Also includes a 74.17 sq.m factory retail outlet for sale to the public and ancillary office and welfare facilities.
- ABP-313133-22 Bailey Court - Balscadden Road, Howth (Balscadden SHD) – Demolition of existing structures on site, construction of 180 no. apartments and associated site works.
- F22A/0477 ABP-316294-23 Residential scheme (36 no. units – 14 no. 1 bed, 22 no. 2 bed) at 60 Main Street, Howth, Co. Dublin, D13 N8K3
- F22A/0046 ABP-316113-23 Refurbishment/redevelopment/change of use for part of the existing Howth Castle buildings, Stable Block and Attendant lands including the demolition of some farm buildings, the refurbishment and construction of new buildings, and a change of

use of part of the lower and upper ground floors of the castle and adjoining stable block and stable yard from primarily residential use to hospitality and tourist retail use.

- F21A/0386 ABP-311476-21 Graymount, Dungriffin Road, Howth – Demolition of buildings, construction of a 2-4 storey apartment block comprising 32 apartments and all ancillary works.
- ABP-306872-20 Former Techrete Site, Howth Road (Claremont SHD) – demolition of existing industrial/commercial buildings (c8,162 sq.m GFA) at Howth Road, and the construction of a mixed-use development including 512 no. apartments (4 no. studio, 222 no. 1-bed, 276 no. 2-bed, 10 no. 3-bed), childcare facility and associated site works.
- F17A/0615 ABP-301643-18 Greenfield Road, Sutton – Residential development for 96 no. units comprising 86 no. apartment units (71 no. 2-bed, 15 no. 1-bed) in 4 no. 3-storey blocks, 10 no. semi-detached houses (8 no. 5-bed, 1 no. 4-bed, 1 no. 3-bed). Includes crèche, site access, new access to the school, 165 car parking spaces

Contractors for the proposed scheme will be contractually required to operate in compliance with the CMP which includes the mitigation measures outlined in this EIAR. The other developments aforementioned will also have to incorporate measures to protect soil and water quality in compliance with legislative standards for receiving water quality European Communities Environmental Objectives (Groundwater) Regulations (as amended). During operational phase, all developments are required to manage groundwater discharges in accordance with European Communities Environmental Objectives (Groundwater) Regulations (as amended) amendments. As such there is no likely cumulative significant effects on the natural groundwater regime.

9.8.5 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 9.2 Summary of Construction Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Excavation	Negative	Moderate	Local	Unlikely	Short-term	Worst case
Dewatering of perched water	Neutral	Imperceptible	Site specific	Likely	Brief	Worst case
Spillage of fuels stored on site	Negative	Moderate	Site specific	Unlikely	Brief	Worst case
Spillage of fuels from construction vehicles	Negative	Moderate	Site specific	Unlikely	Brief	Worst case
Spillage of concrete	Negative	Moderate	Site specific	Unlikely	Brief	Worst case

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 9.3 Summary of Operational Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Change in land use (greenfield to residential)	Positive	Significant	Local	Likely	Long-term	Direct
Implementation of SuDS measures and increase of hardstanding areas	Negative	Slight	Site specific	Likely	Long-term	Direct
Leakage of fuel from car park areas	Negative	Slight	Site specific	Unlikely	Brief	Worst case

9.9 Mitigation

9.9.1 Incorporated Design Mitigation

The proposed development will be designed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and will maintain run-off rates at the existing greenfield condition and improve storm water quality discharging to the public storm water system.

The SuDS will be addressed by the provision of the following elements:

- Interception storage: Green-Blue roofs, permeable paving, bio-retention areas, bio-retention tree pits, and oil/petrol interceptors,
- Attenuation storage: It is proposed to provide an attenuation tank within the site. This will be designed for the 1 in 100 year storm + 30% climate change, and will form the last part of the SuDS management train. A Hydrobrake will be fitted downstream the tank in order to restrict the flow to the greenfield equivalent runoff for the catchment area.

The SuDS measures proposed are linked in series, and this is commonly known as a SuDS Management Train, (SMT). The SMT ensures that rainwater falling on a site is captured, conveyed, stored, intercepted and removed of pollutants correctly and efficiently before it is discharged back into the surrounding water course or network.

9.9.2 Demolition & Construction Phase Mitigation

Excavation will require soil excavation and infill. The re-use of topsoil for completion of the main site works and landscaping will be evaluated. If it is adequate, topsoil will be stored and protected in an appropriate manner on site for the duration of the construction works. Previous uses of the site and site testing has not indicated any evidence of soil contamination at the site. However, where any excavated material is found to be contaminated, an appropriate disposal method shall be selected depending on the type of contaminant found. Testing will be carried out in pre-construction works by the contractor to determine the soil classification; i.e. inert, non-hazardous or hazardous (WAC testing). Excess material arising from excavations shall be treated as a by-product in accordance with Article 27. During the construction phase, all excavations and exposed sub-soils in open cuts will be blinded and protected with clean broken stone as soon as possible after exposing the subsoil in order to prevent erosion. Silt and sediment barriers will be installed at the perimeter of earthworks construction areas to limit transport of erodible soils outside of the site. An appropriate dewatering system and groundwater management system specific to the site conditions will be designed and maintained. These will include measures to minimise any surface water inflow into the excavation, where possible, and the prolonged exposure of groundwater to the atmosphere will be avoided. The pumping of water will be carried out under the conditions of a Trade Effluent Discharge License issued to the construction contractor by Uisce Éireann. Qualitative and quantitative monitoring will be adopted to ensure that the water is of sufficient quality to discharge. The use of silt traps will be adopted if the monitoring indicates the requirement for same with no silt or contaminated water permitted to discharge to the receiving water environment. Any discharge of construction surface water or groundwater from excavations shall pass through appropriate filtration and sedimentation system, designed in accordance with "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (CIRIA C532)".

A Construction Environmental Management Plan (CEMP) is included with this application under separate cover. It will be adopted by the construction contractor prior to commencement of construction. The CMP will incorporate the mitigation measures outlined below as they relate to the construction phase. The CMP will include emergency response procedures in the event of a spill, leak, fire or other environmental incident related to construction. This is an active document which is continuously updated to manage risk during the construction programme. All relevant personnel working on the site will be trained in the implementation of the procedures. As a minimum, the manual will be formulated in consideration of the standard best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors.
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005.
- BPGCS005, Oil Storage Guidelines.
- Eastern Regional Fisheries Board, (2006), Fisheries Protection Guidelines: Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites..
- CIRIA 697, The SUDS Manual, 2007.
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004.

9.9.2.1 Accidental Spills and Leaks

To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas. Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal. Refuelling of construction machinery and vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated refuelling areas using a prescribed re-fuelling procedure. Plant nappies or absorbent mats to be place under refuelling point during all refuelling to absorb drips. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with. Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility All ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil. The pouring of concrete will take place within a designated area using a geosynthetic material to prevent concrete runoff into the soil/groundwater media. Pours will not take place during forecasted heavy rainfall. Washout of concrete transporting vehicles will not take place on site. Concrete trucks will be washed out off site at the source quarry. To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The location of the chute washdown area will be appropriately located. The system is sealed with no overflow discharge to the drainage system. In the event of a spillage on site, the dirty water drains in the immediate area will temporarily be blocked and the pH levels of the water in the associated settlement ponds will be monitored and if necessary will adjust the pH levels using CO2 entrainment. Any spillage will be cleared immediately and deposited in the Chute wash down area. In the case of drummed fuel or other chemical which may be used during construction containers will be stored in a dedicated internally bunded chemical storage cabinet and labelled clearly to allow appropriate remedial action in the event of a spillage.

9.9.3 Operational Phase Mitigation

No mitigation measures have been considered during the operational phase as the SuDS elements incorporated in the design addresses any potential leakage from car parks. As stated above, these measures ensure that any potential pollutants associated with car park areas will be captured, conveyed, stored, intercepted and removed.

9.10 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

9.10.1 Demolition Phase

Given the extent of demolition is limited to removal of parts of the existing boundary wall, there are no likely significant negative impacts on the status of the local aquifer and on the land, geological or hydrogeological environment associated with demolition activities with mitigation measures aforementioned in place. The development will not have a significant effect on the Baldoyle Bay Natura site.

9.10.2 Construction Phase

There are no likely significant negative impacts on the status of the local aquifer and on the land, geological or hydrogeological environment associated with construction activities with mitigation measures aforementioned in place. The development will not have a significant effect on the Baldoyle Bay Natura site.

9.10.3 Operational Phase

There are no likely significant negative impacts on the status of the local aquifer and on the land, geological or hydrogeological environment associated with construction activities with mitigation measures aforementioned in place. The development will not have a significant effect on the Baldoyle Bay Natura site.

9.10.4 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 9.4 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Excavation/ Disposition of Contaminated Soils	Negative	Imperceptible	Local	Unlikely	Short-Term	Residual
Dewatering of Perched water	Neutral	Imperceptible	Site specific	Likely	Brief	Residual
Spillage of fuels stored on site	Negative	Imperceptible	Site specific	Unlikely	Brief	Residual
Spillage of fuels from construction vehicles	Negative	Imperceptible	Site specific	Unlikely	Brief	Residual
Spillage of concrete	Negative	Imperceptible	Site specific	Unlikely	Brief	Residual

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 9.5 Summary of Operational Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Change in land use (greenfield to residential)	Positive	Not significant	Local	Likely	Long-term	Residual
Implementation of SuDS measures and increase of hardstanding areas	Positive	Not significant	Site specific	Likely	Long-term	Residual
Leakage of fuel from car park areas	Negative	Imperceptible	Site specific	Unlikely	Brief	Residual

9.10.5 Cumulative Residual Effects

During the construction phase, impacts to land and land use are anticipated to be localised and temporary in duration and have been classified as slight or not likely to be significant. Any impacts to the hydrogeological receiving environment will be adequately mitigated through the implementation of the CMP in addition to the mitigation embedded in the design detailed in Chapter 3 Description of the Development. Therefore, there will be no likely significant residual cumulative effects as a result of the proposed development.

9.11 Risk of Major Accidents or Disasters

9.11.1 Geohazards Risks

Earthquakes are not likely to occur in the vicinity of the subject site at a sufficient intensity to pose a risk for the proposed development. The GSI database indicates the subject site is located within an area of 'Low' susceptibility to landslides. The subject site is not located within an area associated with karst geology and therefore there is no identified risks associated with karst features. All aggregates imported to the Site for use in the proposed development will be subject to strict quality control procedures in accordance with design specification and relevant Building Regulations (as amended). Thus, the impacts of geohazard risks due to the proposed development is 'neutral' 'imperceptible' and 'permanent'.

9.12 Worst Case Scenario

In a 'Worst Case' scenario the potential accidental release of hazardous material including fuels, or other hazardous materials being used on-site during the construction Phase would present a

'negative', 'moderate' and 'long-term' impact on the receiving land, soils, and geology environment and would be a significant effect. However, this scenario would only occur through the failure of secondary containment or a major incident on the proposed development site. This worst case scenario is deemed to be unlikely to occur.

9.13 Interactions

Due to the inter-relationship between land, soils, geology and hydrogeology and surface water (water & hydrology chapter) the discussed impacts will be considered applicable to Chapter 10 of the EIAR. In addition, the potential effects on surface water drainage involve the Biodiversity component due to the presence of a sensitive aquatic receptor in the vicinity of the subject site (Baldoyle Bay SAC/pNHA).

9.14 Monitoring

During construction phase the following monitoring measures will be considered:

- Regular inspection of surface water run-off and sediments controls e.g. silt traps will be carried during the construction phase.
- Soil sampling to confirm disposal options for excavated soils.
- Regular inspection of construction/mitigation measures will be undertaken e.g. concrete pouring, refuelling, etc.

9.14.1 Operational Phase

There will be no requirement for soil or groundwater monitoring as there is no likely discharge to ground. Maintenance of the surface water drainage system and foul sewers as per normal urban developments is recommended to minimise any accidental discharges to ground.

9.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 9.6 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Excavation/ Disposition of Contaminated Soils	Appropriate disposal	Testing to determine soil classification
Spillage of fuels stored on site	Oil storage in bunded tanks	Regular inspection of tanks
Spillage of fuels from construction vehicles	Implementation of designated refuelling areas	Regular inspection of refuelling areas
Spillage of concrete	The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound	Regular inspection of wash down area

There will be no requirement for soil or groundwater monitoring as there is no likely discharge to ground. Maintenance of the surface water drainage system and foul sewers as per normal urban developments is recommended to minimise any accidental discharges to ground.

9.16 Conclusion

The proposed development does not constitute a likely significant effect on the land and soils environment of the site and surrounding area, having considered the cumulative effects with other existing and/or approved projects.

9.17 References and Sources

- Infrastructure Design Report (IDR), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024;
- Site Specific Flood Risk Assessment (SSFRA), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024;
- Site Investigation Report, Howth Road, Howth Co. Dublin. Site Investigation Ltd. November 2019;
- Ground Investigation Report (GIR), Deer Park Howth LRD. IGSL. March, 2024;
- Construction Management Plan (CMP), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024;
- Enterprise Ireland. Best Practice Guide BPGCS005. Oil Storage Guidelines. Environmental Protection Agency, 2023. EPA Envision Maps. https://gis.epa.ie/EPAMaps/.
- Environmental Protection Agency, 2020. Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities. Environmental Protection Agency, August 2017.
- Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports. Environmental Protection Agency, September 2015.
- Draft Advice Notes for preparing Environmental Impact Statements. Environmental Protection Agency, 2004.
- IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities with amendments. Environmental Protection Agency, 2002.
- Guidelines on Information to be Contained in Environmental Impact Statements. Environmental Protection Agency, 2003.
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements. Geological Society of Ireland, 2023.
- GSI web mapping. https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2a aac3c228.
- Google Earth Pro, 2023.
- Institute of Geologists of Ireland Guidelines, 2002. Geology in Environmental Impact Statements, A Guide. Institute of Geologists of Ireland Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements. Louth County Council Development Plan 2021-2027 National Roads Authority, 2009.
- Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes.
- Construction Industry Research and Information Association (2015) Environmental good practice on site guide (CIRIA -C741). Construction Industry Research and Information Association, 2001.
- Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors (CIRIA – C532).
- Climate Action Plan 2024 – 2029, Fingal County Council, 2024.

CHAPTER 10
WATER & HYDROLOGY

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

10 Water & Hydrology

10.1 Introduction

This chapter of the EIAR assesses and evaluates the likely effects of the development on water and hydrological aspects of the site and surrounding area during the construction and operational phases. In assessing likely potential and predicted effects, account is taken of both the importance of the attributes and the predicted scale and duration of the likely effects. It is noted that the likely significant effects of the proposed development on the hydrogeological environment is considered in Chapter 9 of this EIAR.

10.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Donnachadh O'Brien and Paul Doyle of Donnachadh O'Brien & Associates Consulting Engineers (DOBA).

Donnachadh is a Chartered Engineer (CEng) and a Fellow of the Association of Consulting Engineers of Ireland (FConsEI) with over 26 years' experience as a Consulting Civil & Structural Engineer. Paul is also a Chartered Engineer (CEng) and a Registered Professional Consulting Engineer (RConsEI) with the Association of Consulting Engineers of Ireland (ACEI) with 15 years' experience as a Consulting Civil & Structural Engineer. Donnachadh and Paul both have extensive experience in the design and delivery of urban development schemes and have advised clients including government bodies, local authorities and private developers. DOBA have been involved in the preparation of EIARs for the following projects:

- Southwest Gate Mixed Use Development, Dublin 12.
- Lands at Leixlip Demesne, Leixlip, Co. Kildare
- Lands at Haggardstown, Dundalk, Co. Louth

10.3 Proposed Development

A detailed description of the proposed development is provided in Chapter 2 of this Environmental Impact Assessment Report (EIAR).

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Partial demolition of 3 sections of the existing northern boundary wall, which fronts Howth Road, proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

10.3.1 Aspects Relevant to this Chapter

10.3.1.1 Existing Surface Water Drainage

The Applicant commissioned a Ground Penetrating Radar (GPR) and Topographical Survey to confirm the location and the invert level of the existing 300mm dia. surface water sewer located to the west of the proposed development to facilitate a new gravity connection from the proposed development. This sewer increases in size to a 450mm dia. and then to a 60mm dia. sewer prior to discharging to the Irish Sea to the north of the subject site.

10.3.1.2 Proposed Surface Water Drainage Strategy

The design and management of surface water for the proposed development will comply with the policies and guidelines outlined in the Greater Dublin Strategic Drainage Study (GDSDS), the CIRIA SuDS Manual and the Fingal County Council SuDS Guidance. A 30% climate change factor will be included for the design of the surface water network in accordance with the requirements of Fingal County Council.

10.3.1.3 Estimation of Proposed Greenfield Runoff Rate

In accordance with the IH24 method, the greenfield runoff for existing undeveloped sites measuring less than 50Ha can be estimated adopting the following formula and the total permissible outflow has been calculated as 4.81 l/s.

10.3.1.4 Proposed SuDS Hierarchy

The following SuDS hierarchy shall be implemented to ensure a 2 stage treatment train is adopted;

- Nature Based SuDS (NBS) features provided throughout including bioretention areas, bioswales, rain gardens, tree pits and green-blue roofs,
- As infiltration of surface water run-off to ground is not feasible, filtration system SuDS measures including filter drains and lined permeable paving will be implemented,
- A lined underground attenuation tank shall be provided to surface water runoff arising from all storms up to and including a 1:100 Year + 30% Climate Change event, and finally,
- A hydrocarbon separator shall be provided on the surface water outfall from the site prior to discharging to the public surface water sewer.

10.3.1.5 GDSDS

The design of the sustainable drainage system shall comply with the Greater Dublin Strategic Drainage Study (GDSDS) as follows;

- River Quality Protection – 10mm of rainfall shall be intercepted without discharging to the public system,
- River Regime Protection – surface water shall discharge to the receiving public network at Q_{bar}, 4.81 l/s,
- Level of Service (Flooding) for the Site – no pluvial out-of-manhole flooding of the proposed surface water network shall occur for all storms up to and including a 1:100 Year event plus 30% Climate Change, and,

- River Flood Protection - the proposed Q_{bar} for the site is 4.81 l/s and as the surface water run-off generated on site does not exceed Q_{bar} there is no requirement for long-term storage to limit the impact on the receiving surface water sewer.

10.3.1.6 Flooding

A Site Specific Flood Risk Assessment has been undertaken which summarises that the proposed development is situated within Flood Zone C and is not at risk of flooding arising from Tidal, Fluvial, Pluvial, Groundwater or Human/ Mechanical Error sources

10.3.1.7 Wastewater Drainage

The proposed wastewater network will collect effluent from the new development via a main Wastewater drainage network which is located around the proposed development where it will finally discharge by gravity to the existing 400mm dia. wastewater sewer to the north of the subject site. The wastewater sewer network has been designed in accordance with the principles and methods set out in Uisce Éireann's Code of Practice for Wastewater Infrastructure IW-CDS-5030-03, IS EN 752 Drain & Sewer Systems outside Buildings, IS EN 12056 Gravity Drainage Systems inside Buildings and the Building Regulations Technical Guidance Document Part H Drainage & Wastewater. The estimated peak Wastewater loading generated by the proposed development's Dry Weather Flow is estimated at 0.70 l/s while the Design Wastewater Flow of 6DWF is 4.18 l/s. A Confirmation of Feasibility & Statement of Design Acceptance has been received from Uisce Éireann and is appended to the Infrastructure Report prepared by DOBA.

10.3.1.8 Water Supply

A new 150mm dia. looped watermain with 100mm dia. spurs with associated Bulk Flow Meters as required to serve each individual block of apartments shall be installed on site with a new 150mm dia connection to the existing 160mm dia. MoPVC watermain on the Howth Road. The watermain layout and connections, valves, hydrants, meters etc. shall be designed in accordance with Uisce Éireann's Code of Practice for Water Infrastructure IW-CDS-5020-03/ Standard Details and the Department of the Environment's Building Regulations "Technical Guidance Document Part B Fire Safety". The new site watermain network will adequately serve the firefighting requirements with Fire Hydrants provided on the loop main in accordance with Part B of the Building Regulations. The estimated peak hour water demand generated by the proposed development is 3.96 l/s. A Confirmation of Feasibility & Statement of Design Acceptance has been received from Uisce Éireann and is appended to the Infrastructure Report prepared by DOBA.

10.4 Methodology

This chapter evaluates the effects, if any, which the development has had or will have on Water and Hydrology as defined in the Environmental Protection Agency (EPA) ' Guidelines on the information to be contained in Environmental Impact Assessment Reports' (EPA, 2022) (refer to Chapter 1 of this EIAR for further details). The Draft EPA document entitled 'Advice Notes for Preparing Environmental Impact Statements' (EPA, 2015) is also followed in this geological and hydrogeological assessment and classification of environmental effects. In addition, the document entitled 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes'

by the National Roads Authority (NRA/TII, 2009) is referenced where the methodology for assessment of impact is appropriate. The rating of potential environmental effects on the hydrological environment is based on the matrix presented in Table 1 in Appendix 10.1 which takes account of the quality, significance, duration and type of effect characteristic identified (in accordance with impact assessment criteria provided in the EPA Guidelines (2022) publication). The duration of each effect is considered to be either momentary, brief, temporary, short-term, medium term, long-term, or permanent. Momentary effects are considered to be those that last from seconds to minutes. Brief effects are those that last less than a day. Temporary effects are considered to be those which are construction related and last less than one year. Short term effects are seen as effects lasting one to seven years; medium-term effects lasting seven to fifteen years; long-term effects lasting fifteen to sixty years; and permanent effects lasting over sixty years.

The NRA/TII criteria for rating the magnitude and significance of impacts on hydrology related attributes and the importance of hydrological attributes at the site during the EIA stage are also relevant in assessing the impact and are presented in Tables 1-3 in Appendix 10.2.

The principal attributes (and effects) to be assessed include the following:

- River and stream water quality in the vicinity of the site (where available);
- Surface watercourses near the site and potential impact on surface water quality arising from proposed development related works including any discharge of surface water run-off;
- Localised flooding (potential increase or reduction) and floodplains including benefitting lands and drainage districts (if any); and,
- Surface water features within the area of the site.

Desk-based geological information on the substrata (both Quaternary deposits and bedrock geology) underlying the extent of the site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Environmental Protection Agency (EPA) – website mapping and database information.
- Envision water quality monitoring data for watercourses in the area;
- River Basin Management Plan for Ireland 2018-2021.
- The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW));
- Office of Public Works (OPW) flood mapping data (www.floodmaps.ie)
- South Dublin City Council (2005), Greater Dublin Strategic Drainage Study: Technical Documents of Regional Drainage Policies. Dublin: Dublin City Council; and
- 'Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA 532, 2001);
- National Parks and Wildlife Services (NPWS) – Protected Site Register Site specific data was derived from the following sources:
- Infrastructure Design Report (IDR), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024;
- Site Specific Flood Risk Assessment (SSFRA), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024;

- Site Investigation Report, Howth Road, Howth Co. Dublin. Site Investigation Ltd. November 2019;
- Ground Investigation Report (GIR), Deer Park Howth LRD. IGSL. March, 2024;
- Construction Management Plan (CMP), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024;
- Various design site plans and drawings; and
- Consultation with site engineers.

10.4.1 Relevant Legislation & Guidance

The methodology adopted for this assessment takes cognisance of the relevant guidelines in particular, the following:

- Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (as amended). ;
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (as amended) (Water Framework Directive, WFD);
- European Commission, 2022. WFD Reporting Guidance 2022. Final Draft V4;
- Local Government (Water Pollution) Acts (as amended);
- Local Government Acts (as amended);
- Water Services Acts (as amended);
- European Communities (Water Policy) Regulations (as amended) ;
- S.I. No. 489/2011 – European communities (Technical Specifications for the Chemical Analysis and Monitoring of Water Status) Regulations 2011;
- European Communities (Assessment and Management of flood Risks) Regulations (as amended);
- European Communities Environmental Objectives (Surface Waters) Regulations (as amended);
- European Communities Environmental Objectives (Groundwater) Regulations (as amended) ; and
- WFD Working Group, 2005. Guidance on the Assessment of the Impact of Groundwater Abstractions (WFD, 2005).

Other guidance used in the assessment of potential impacts on the receiving water environment are referenced where relevant in this EIAR Chapter and include:

- Construction Industry Research and Information Association, 2001. Control of Water Pollution from Construction Sites (CIRIA – C532);
- Construction Industry Research and Information Association, 2023. Environmental Good Practice on Site Guide (CIRIA – C811);
- Construction Industry Research and Information Association, 2016. Groundwater Control: Design and Practice (CIRIA – C750);
- Department of the Environment, Heritage and Local Government, Environmental Protection Agency and Geological Survey of Ireland, 1999. Groundwater Protection Schemes (DEHLG/EPA/GSI, 1999);

- Department of the Environment, Heritage and Local Government, 2010. Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DEHLG, 2010);
- Department of Housing, Planning and Local Government, August 2018. Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DHPLG, 2018);
- Environmental Protection Agency, 2014. Guidance on the Authorisation of Direct Discharges to Groundwater;
- Environmental Protection Agency, 2013. Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites;
- Environmental Protection Agency, 2013. Storage and Transfer of Materials for Scheduled Activities;
- Environmental Protection Agency, May 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022); and
- Planning Regulators Guidelines

10.4.2 Site Surveys/Investigations

The following sub-sections describe the Site Surveys/ Investigations carried out to date relevant to this Chapter of the EIAR.

10.4.2.1 Topographical Survey

During May and June 2019, Murphy Surveys Limited carried out a Topographical Survey of the site and adjoining public road. This survey was supplemented by another Topographical Survey by Metroscan Utility Locating Limited of the boundaries and public road in July 2023 and again in November 2023.

10.4.2.2 Ground Penetrating Radar

A Ground Penetrating Radar (GPR) Survey of the site and public road was carried out by Metroscan Utility Locating Limited in July 2023 which located the critical infrastructure such as underground 90mm 4 bar gas main which traverses the site, existing wastewater network to the north and existing surface water network to the west.

10.4.2.3 Site Investigations Limited Ground Investigations 2019

During October and November 2019 ground investigations at the subject site were carried out by Site Investigations Ltd (SIL) (Appendix 9.3). Cable percussion boring was undertaken at 7 No. locations using a Dando 150 rig and constructed 200mm diameter boreholes. The borehole depths were consistent in depth from 6.6m below existing ground level (BEGL) (BH06), (see Figure 10.1) to 7.3mBEFL (BH03) where the boreholes terminated. The site ground conditions in the boreholes are consistent with cohesive soils dominating the site with sandy gravelly silty Clay encountered at most locations. Perched water was recorded in all of the boreholes ranging from 4.20mBEGL to 4.70mBEGL. All soakaway tests across the site showed that infiltration stormwater drainage would not be physically feasible due to the low permeability of overburden.

Figure 10.1 Site Investigations Limited Borehole locations (Source: SIL, 2019)

10.4.2.4 IGSL Ground Investigations Limited Ground Investigations 2023/ 2024

During October, November and December 2023 ground investigations at the subject site were carried out by IGSL (Appendix 9.4) and comprised machine dug trial pits, rotary drilling, slit trenching (to determine the exact location the existing 900mm dia. 4 bar gas main which traverses the site) and in situ plate bearing tests (refer to Figure 10.2 below). Geotechnical, chemical and environmental laboratory testing was scheduled on a range of soil samples. The geotechnical soil testing included moisture contents, Atterberg Limits and particle size distribution [PSD] testing in addition to hydrometer testing. Suites of both chemical testing and environmental testing were undertaken on soils. The following is a summary of the ground conditions encountered across the site.

- A topsoil surface cover of 200mm was noted across the five trial pits. The soil was described as a soft brown sandy slightly gravelly CLAY with a low cobble content, frequent rootlets and rare ceramic fragments (2% anthropogenic fragments). Beneath the upper mantle of Topsoil, the natural subsoils were often reported as soft to firm initially in consistency. They were variably classified as SILT and CLAY-dominant deposits often with colour mottling of grey and orange. The soils in TP01 from 0.20m to 1.60m were logged as firm in consistency with similar firm soils reported in TP03 from 0.20m to 2.30mBEGL. At TP02, the soils were reported to be increasingly silty and sandy with SAND remarked from 0.80m to 1.50mBEGL. At depth across pits TP01, TP02 and TP03, a firm to stiff CLAY entered the stratigraphy at levels ranging from 5.13m OD to 5.27m OD and in the case of TP03, on topographically higher ground, from 7.35m OD. These depths correspond to 1.60m to 2.30m. Both TP04 and TP05 ended in firm brownish grey and brown sandy slightly gravelly CLAY, both at a depths of 2.50m. In-situ testing was undertaken during the construction of the four drillholes. The standard penetration test [SPT] allows for an appraisal of the ground stiffness. Drillholes demonstrate the entry of the stiff to very stiff CLAY flagged by the higher SPT N-values obtained in test drives. the higher SPT N-

values were consistently obtained indicative of stiff and very stiff CLAY deposits. The SPT plot highlights the soft to firm predominantly firm nature of soils in test drives performed in shallow overburden. 'Low strength' deposits are those where N values of <10 blows are present. With the exception of the test drive at 1.50m in RC02, no such blowcounts were recorded.

Figure 10.2 IGSL Ground Investigation works (Source: IGSL, 2024)

10.4.3 Consultation

A Pre-Connection Enquiry (PCE) was submitted to Uisce Éireann and the Confirmation of Feasibility (CoF) received dated May 2024 notes that a water connection is feasible without upgrades and the wastewater connection is feasible subject to upgrade works being carried out, see Appendix 10.4. . Additionally, UÉ have provided a Statement of Design Acceptance in respect to the proposed Wastewater drainage layout and design, see Appendix 10.5.

10.5 Difficulties Encountered

No difficulties were encountered during the development of this chapter

10.6 Baseline Environment

10.6.1 Site Area Description

The subject site as illustrated in Figure 10.3 is located in lands at Deer Park, Howth Road, Howth Co. Dublin and is c. 1.5 Hectares and currently greenfield. Howth is located to the East of Dublin city and forms a peninsula into the Irish Sea. The site is bounded to the west by residential dwellings. Howth Castle and St. Marys Church to the south and east of the subject site have a separate access road from the R105 Howth Road. The proposed vehicular entrance to the site is located to the north west of the site adjacent to R105 Howth Road and provides the requisite sightlines for vehicles exiting the site. It is also intended to use this entrance during the construction phase. The south is bounded by the Deer Park Golf Club. The land surrounding the site is a mixture of residential, commercial and recreative use. Adjacent to the Howth Road to the north, the site is at a level of approximately +6.500m and gradually rises to a level of +14.000m towards the Deer Park golf course. The site, therefore, slopes towards the Irish Sea (Baldoyle Bay).

Figure 10.3 Site Location (Source: Google Maps)

10.6.2 Hydrology

The proposed development site lies within the Liffey and Dublin Bay Catchment (Hydrometric Area 09), River Mayne sub-catchment (WFD name: Mayne_SC_010, Id 09_17) and Howth river sub-basin (WFD name: Howth_010, EU Code IE_EA_09H230880) (EPA, 2021). The Bloody Stream (WFD river waterbody IE_EA_09H230880; segment code 09_2176) flows from Howth Head (specifically from an old reservoir) towards the Baldoyle Bay coastal waterbody which includes Special Area of

Conservation (SAC)/proposed Natural Heritage Area (pNHA). The Baldoyle Bay is located c.170m to the north of the subject site. This bay is a protected Natura European Site (Special Area of Conservation [SAC, site code IE0000199] and a proposed Natural Heritage Area (pNHA, site code 000199). The local lands are drained by the Bloody stream and a network of local streams which directly discharges to the Bay (refer to Figure 10.4 below). The Bloody Stream flows towards the bay c. 180 m east of the site (i.e., to the east side of St. Mary's Church) as illustrated in Figure 10.5 overleaf. In addition, the Claremont Beach is a sandy, gently sloping north facing beach which is located c. 150m to the north of the subject site.

Figure 10.4 Site Location and Environmental Context

Figure 10.5 Site Location and Bloody Stream (source: gis.epa.ie/EPAMaps/)

10.6.3 Water Quality

The Water Framework Directive (WFD) Directive 2000/60/EC (as amended) covers rivers, lakes, groundwater and transitional (estuarine) and coastal waters. In addition to protecting said waters, its objectives include the attainment of 'Good Status' in water bodies that are of lesser status at present and retaining 'Good Status' or better where such status exists at present. The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring. 'Good status' means both 'good ecological status' and 'good chemical status'. The WFD status of the Bloody Stream is classified as not at risk. .The Irish Sea Dublin (HA 09) coastal waterbody hosts the Baldoyle Bay and according to the EPA information, has a 'Good' WFD status and is 'Not at risk' of not achieving good status. Water quality data is collected for nearby Claremont Beach bathing area and is reported by the EPA on www.beaches.ie. The EPA bathing status is not based on single events, rather it is based on a review of data over 4 years (based on data collected during the bathing season only). Bathing classes are determined as Excellent (highest cleanest class), Good (Generally good water quality), Sufficient (The water quality meets the minimum standard) and Poor (The water quality has not met the minimum standard). A review of this data for the last four years, shows that the Claremont Beach is classified as achieving Sufficient Water Quality in 2019 based on the assessment of bacteriological results for the period 2016 to 2019. Claremont Beach had a Sufficient Water Quality rating in 2018 and 2017 and achieved a Good Water Quality rating in 2016. The proposed development will not have any effect on the Bloody Stream or the Baldoyle Bay. **A**

Water Framework Directive Compliance Assessment has been carried out and is included in Appendix 10.3.

10.6.3.1 Rating of Site Importance of the Hydrological Features

Based on the TII methodology (2009) (refer to Appendix 10.2), the criteria for rating the importance of hydrological features, the importance of the hydrological features at this site is rated as Extremely High Importance. This is based on the connectivity through surface water drainage with Baldoyle Bay SAC/pNHA EU Natura site which is located c. 170m to the north of the site.

10.6.4 Hydrology

10.6.4.1 Flood Risk

In accordance with the Site Specific Flood Risk Assessment carried out by DOBA and included under separate cover, there is no risk of flooding affecting the site from fluvial or coastal sources, since the site lies within Flood Zone C (i.e., where the probability of flooding from rivers is less than 0.1% or 1 in 1000). There is no evidence that the Bloody Stream results in any flooding on the proposed site, and it is separated by the west boundary of St. Marys Church and the access road to Howth Castle which would divert any flood water towards Howth Road. Therefore, the likelihood of flooding on site is low from either Tidal, Fluvial, Pluvial Surface Water or Groundwater.

10.6.5 Hydrogeology

10.6.5.1 Aquifer Classification

Groundwater can be defined as water that is stored in, or moves through, pores and cracks in sub-soils. Aquifers are rocks or granular deposits that contain sufficient void spaces, and which are permeable enough, to allow water to flow through them in significant quantities. The potential of rock or deposits to store and transport water is governed by permeability of which there are two types, intergranular and fissure permeability.

The GSI classifies the principal bedrock aquifer types as:

- Lk - Locally Important Aquifer – Karstified.
- Ll - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones.
- Lm - Locally Important Aquifer - Bedrock which is Generally Moderately Productive.
- Pl - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones.
- Pu - Poor Aquifer - Bedrock which is Generally Unproductive.
- Rkd - Regionally Important Aquifer (karstified diffuse).

Reference to the GSI National Draft Bedrock Aquifer Map for the site (refer to Figure 10.6 below) indicates that the planning site is underlain by a Locally Important Aquifer (Ll), which is described by the GSI as bedrock as 'moderately productive only in local zones' and is related to the Waulsortian Formation above described.

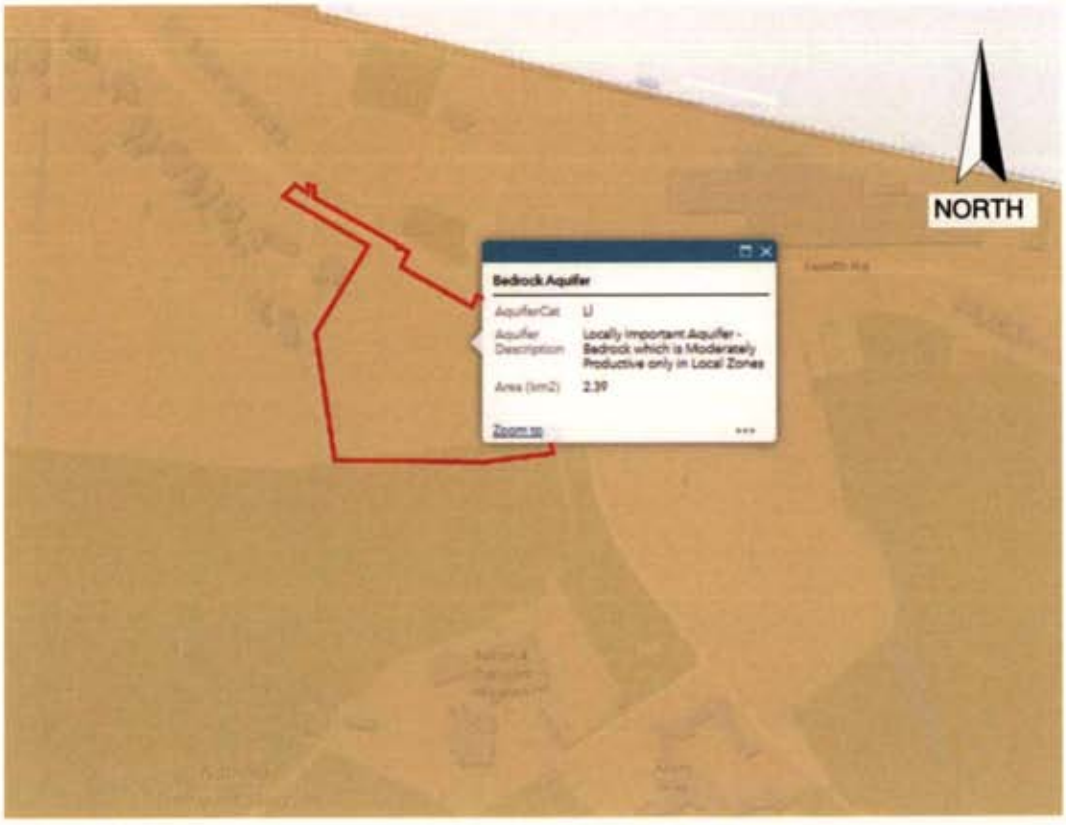


Figure 10.6 Bedrock Aquifer Classification Map (Source: dcenr.maps.arcgis.com, 2024)

The Water Framework Directive (WFD) Directive 2000/60/EC (as amended), covers rivers, lakes, groundwater and transitional (estuarine) and coastal waters. In addition to protecting said waters, its objectives include the attainment of 'Good Status' in water bodies that are of lesser status at present and retaining 'Good Status' or better where such status exists at present. The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring. 'Good status' means both 'good ecological status' and 'good chemical status'. The proposed development is located over the 'Dublin' (EU Code IE_EA_G_008) WFD groundwater body (GWB). The most recent WFD groundwater status (2013-2018) is 'Good' for this GWBs and the WFD environmental risk score is under review.

10.6.5.2 Aquifer Vulnerability

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrological characteristics that determine the ease with which groundwater may be contaminated generally by human activities. Due to the nature of the flow of groundwater through bedrock in Ireland, which is almost completely through fissures, the main feature that protects groundwater from contamination, and therefore the most important feature in protection of groundwater, is the subsoil (which can consist solely or of mixtures of peat, sand, gravel, glacial till, clays or silts). The GSI, EPA, and the Department of Environment, Heritage and Local Government (DoEHLG) have developed a programme of Groundwater Protection Schemes, with the aim of maintaining the quantity and quality of groundwater in Ireland, and in some cases improving groundwater quality, by applying a risk assessment approach to groundwater protection and sustainable development. As part of this scheme, the GSI have mapped the vulnerability of the country's aquifers. Reference to the GSI

Vulnerability data indicates that the Proposed Development site is classified as having a 'High' aquifer vulnerability which indicates that the soil cover is 3-5m of low permeability soil at the site, given by the Tills deposits underlying the site (Refer to Figure 10.7) and Table 10.1 Vulnerability Mapping Guidelines (Source: GSI, 2024).

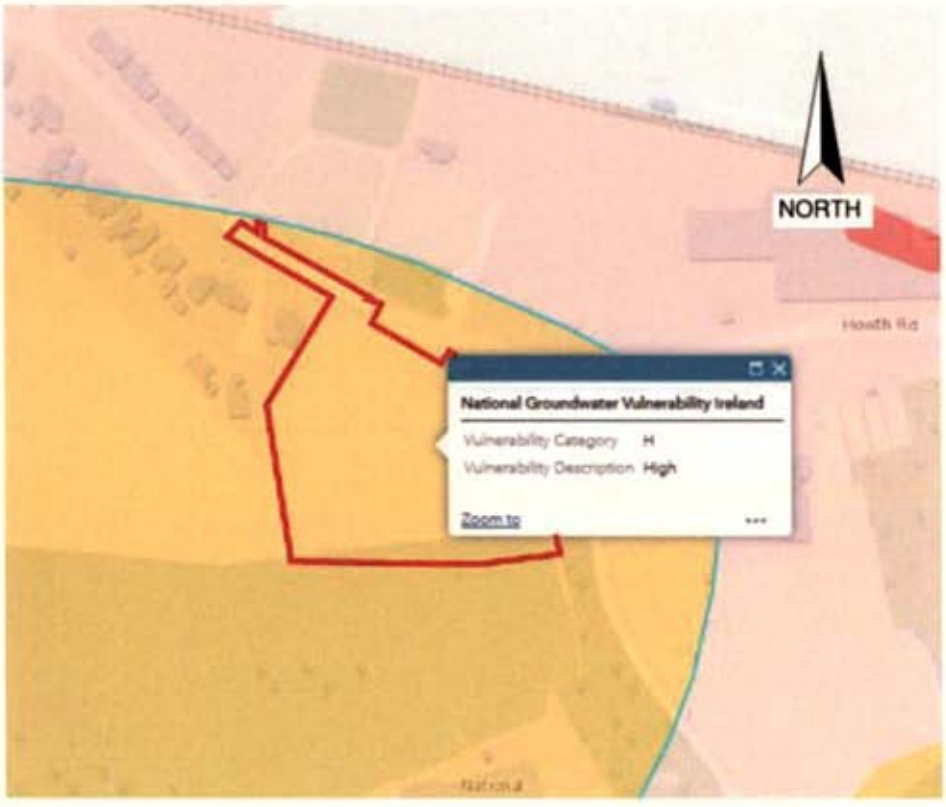


Figure 10.7 Groundwater Vulnerability Map (Source: dcenr.maps.arcgis.com, 2024)

Table 10.1 Vulnerability Mapping Guidelines (Source: GSI, 2024)

Vulnerability Rating	Hydrogeological Condition				
	Subsoil Permeabiloity (type) and Thickness			Unsaturated Zone	Karst Features
	High Permeability (sand/ gravel)	Moderate Permeability (e.g. sandy subsoil)	Low Permeability (e.g. clayey subsoil, clay, peat)	(Sand/ gravel aquifers only)	(<30m radius)
Extreme (E)	0 - 3m	0 - 3m	0 - 3m	0 - 3m	-
High (H)	> 3m	3 - 10m	3 - 5m	> 3m	n/a
Moderate (M)	n/a	> 10m	5 - 10m	n/a	n/a
Low (L)	n/a	n/a	> 10m	n/a	n/a
Notes	(1) n/a: Not Applicable				
	(2) Precise permeability values cannt be given at present				
	(3) Release point of contaminants is assumed to be 1-2m below ground surface				

Site investigations carried out in 2023 show that the bedrock was not encountered at depths up to 15m below ground level. Therefore, the actual vulnerability at the subject site would be 'Low' according to Table 10.1 above.

10.6.6 Baseline Groundwater Quality

The EPA (EPA, 2023) groundwater monitoring data was reviewed and there are no groundwater quality monitoring stations within a 2.0 km radius of the Site or that are hydraulically connected to the Site (EPA, 2023).

10.7 The 'Do Nothing' Scenario

In the event that the site is not developed it would remain in its current condition, a greenfield site. This scenario would not have any likely significant impact on the hydrological environment. However, the site is zoned for development and it is likely that in the absence of this subject proposal that a development of a similar nature would be progressed on the site. It is likely that another development would require surface water drainage infrastructure and a connection to the water supply, the impact would thus be similar to this subject development.

10.8 Potential Significant Effects

10.8.1 Demolition & Construction Phase

10.8.1.1 Increased Sediments Loading in Run-off

Surface water runoff during the construction phase may contain increased silt levels or become polluted from construction activities. Runoff containing large amounts of silt can cause damage to surface water systems and receiving watercourses. Silt water can arise from dewatering excavations, exposed ground, stockpiles and access roads. During the construction phase at this site there is potential for an increase in run-off due to the introduction of impermeable surfaces and the compaction of soils. This will reduce the infiltration capacity and increase the rate and volume of direct surface run-off. The potential impact of this is a possible increase in surface water run-off and sediment loading which could potentially impact local drainage. Previous uses of the site (greenfield site) and site testing has not indicated any evidence of soil contamination at the site.

10.8.1.2 Accidental Spills and Leaks

During construction of the development, there is a risk of accidental pollution incidences from the following sources if not adequately mitigated:

- Spillage or leakage of oils and fuels stored on site.
- Spillage or leakage of oils and fuels from construction machinery or site vehicles.
- The use of concrete and cement during pad foundation construction.

Machinery activities on site during the construction phase may result in contamination of runoff into surface water. Potential impacts could arise from accidental spillage of fuels, oils, paints etc. which

could impact surface water if allowed to runoff into surface water systems and/or receiving watercourses. Concreting operations carried out near surface water drainage points during construction activities have the potential to lead to discharges to a watercourse. Concrete (specifically, the cement component) is highly alkaline and any spillage to a local watercourse would be detrimental to water quality and local fauna and flora.

10.8.2 Operational Phase

Potential for likely significant impacts during operation are low. The proposed development does not require any bulk chemical storage and therefore the potential for water quality impact is negligible. Leakage of petrol/ diesel fuel may occur from car park/road areas. The stormwater drainage system comprises the following;

- Nature Based SuDS (NBS) features provided throughout including bioretention areas, bioswales, rain gardens, tree pits and green-blue roofs,
- As infiltration of surface water run-off to ground is not feasible, filtration system SuDS measures including filter drains and lined permeable paving will be implemented,
- A lined underground attenuation tank will be provided to surface water runoff arising from all storms up to and including a 1:100 Year + 30% Climate Change event, and finally,
- A hydrocarbon separator will be provided on the surface water outfall from the site prior to discharging to the public surface water sewer.

The attenuation system and associated hydrobrake will discharge following the characteristics of a greenfield run-off into the existing public surface water sewer located to the north-west of the site. As such the potential for silt laden runoff is low. The development will be fully serviced with separate wastewater and stormwater sewers which will have adequate capacity for the facility and discharge limits as required by Uisce Éireann licencing requirements. Discharge from the site to the public wastewater sewer will be sewage and grey water only due to the residential nature of the proposed development. The wastewater discharge from the site will join the public sewer and will be treated at the Uisce Éireann Ringsend Wastewater Treatment Plant (WwTP) prior to subsequent discharge to Dublin Bay. This WwTP is required to operate under an EPA licence and meet environmental legislative requirements as set out its licence. During the operational phase, there will be an increase in demand on water supply and wastewater public services. However, Uisce Éireann has confirmed that the public networks have sufficient capacity to accommodate the demand from the proposed development.

10.8.3 Cumulative Effects

The surrounding lands are largely zoned as 'HA – High Amenity', 'RS – Residential', 'OS –Open Space' and 'TC - Town and District Centre' under the Fingal Development Plan 2023-2029 (Fingal County Council, 2023). There is a Special Amenity Area Order (SAAO) buffer zone towards the south of the proposed development site. There are a number of granted planning permissions for activities/plans/projects which may be in construction at the same time as the proposed development:

- PL06F.306102 (Atlas GP Ltd) – Strategic Housing Development application for 512 apartments, 2 shops, a crèche, a café and a restaurant on lands at the former Techrete manufacturing

facility, former Beshoff's car showroom, and former Howth Garden Centre, Claremont, Howth Road, Howth, County Dublin.

- F20A/0294 (Marine Engineering Division) - Construction of a workshop with Offices and Canteen facilities and a gross internal area of 374sqm. The proposed development is an amendment to a previous granted Planning Ref; F18A/0633.
- F20A/0412 (Downey) - Permission to replace entrance lobby with a two storey pitched roof extension; kitchen to rear to be extended by 1.3.m; hips to be replaced with gables and east gable to extend to roadside boundary; east and central chimney stacks to be removed and west stack to be increased in height; front and rear monopitch dormers to be replaced; roof over sunroom to be replaced with monopitch roof extending back to rear pitch with 3 roof lights and, timber leaf pattern added to all gables.
- F18A/0267 (Dept. of Agriculture, Food & Marine) – Construction of two number ground level industrial buildings (5 number units each) and associated site works at Claremont, West Pier, Howth, Co. Dublin.
- F18A/0074 (Minister for Agriculture, Food & Marine) - The provision of 130m long quay wall; associated deck area, road access, hard standing; localised dredging to facilitate works, dredging to -4m Chart Datum along the front of new quay wall to provide berthing depth and land reclamation of approximate 0.30 Ha on the east side of middle pier at Middle Pier, Howth Fishery Harbour Centre, Howth, Co Dublin.
- CH06F.CH3350 – Howth Water Supply Scheme (Fingal County Council and Uisce Éireann) – Uisce Éireann, working in partnership with Fingal County Council, is working to improve the water supply for Malahide, Howth, Swords, Balbriggan and the surrounding areas. John Craddock Limited is carrying out these works on behalf of Uisce Éireann.

Contractors for the proposed scheme will be contractually required to operate in compliance with the outline CMP which includes the mitigation measures outlined in this Environmental Report. There is potential for cumulative impacts to arise, as a consequence of the proposed development acting in-combination with the other developments aforementioned, on water quality in the downstream surface water environment. However, these developments will also have to incorporate measures to protect surface water quality in compliance with relevant legislative standards for receiving water quality (European Communities Environmental Objectives (Surface Waters) Regulations (as amended)). During operational phase, all developments are required to manage groundwater discharges in accordance with European Communities Environmental Objectives (Surface Waters) Regulations (as amended). As such there is no likely cumulative impact on the natural hydrological regime.

10.8.4 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 10.2 Summary of Construction Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Increase of sediments in run-off	Negative	Slight	Local	Unlikely	Brief	Worst case
Spillage of fuels stored on site	Negative	Moderate	Local	Unlikely	Brief	Worst case
Spillage of fuels From construction vehicles	Negative	Moderate	Local	Unlikely	Brief	Worst case
Spillage of concrete	Negative	Moderate	Local	Unlikely	Brief	Worst case

Table below summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 10.3 Summary of Operational Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Leakage of fuel from car park areas	Negative	Slight	Local	Unlikely	Brief	Worst case

10.9 Mitigation

10.9.1 Incorporated Design Mitigation

The proposed development will be designed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and will maintain run-off rates at the existing greenfield condition and improve storm water quality discharging to the public storm water system. According to the Infrastructure Report, the flow associated to the greenfield condition is 7.91 l/s.

The SuDS will be addressed by the provision of the following elements:

- Interception storage: Green roofs, permeable paving, rain gardens and bioretention tree-pits,
- Attenuation storage: It is proposed to provide an attenuation tank within the site. This will be designed for all storms up to and including a 1 in 100 year storm + 30% climate change, and will form the last part of the SuDS management train. A Hydrobrake will be fitted downstream of the attenuation tank in order to restrict the flow to the greenfield equivalent runoff for the catchment area.

These elements will intercept any potential leakage of fuel from car park areas. The main source of pollutant is potentially from surface water run-off from the basement car park & access roads. The

SuDS measures proposed are linked in series, and this is commonly known as a SuDS Management Train, (SMT). The SMT ensures that rainwater falling on a site is captured, conveyed, stored, intercepted and removed of pollutants correctly and efficiently before it is discharged back into the surrounding water course or network.

10.9.2 Demolition & Construction Phase Mitigation

A Construction Environmental Management Plan (CEMP) is included under separate cover and will be adopted by the construction contractor prior to commencement of construction. The CMP incorporates the mitigation measures outlined below as they relate to the construction phase. The CMP will include emergency response procedures in the event of a spill, leak, fire or other environmental incident related to construction. This is an active document which is continuously updated to manage risk during the construction programme. All relevant personnel working on the site will be trained in the implementation of the procedures.

As a minimum, the manual will be formulated in consideration of the standard best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors.
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site Guide (C811), 2023.
- BPGCS005, Oil Storage Guidelines.
- Inland Fisheries Ireland (IFI) Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters, 2016.
- CIRIA 697, The SUDS Manual, 2015.

10.9.3 Management of sediment loading and water quality

During the construction phase, specific measures to prevent the release of sediment over baseline conditions in the downstream receiving water environment. These measures include, but not limited to, the use of silt fences, silt curtains, settlement lagoons and filter materials. These will be maintained by the contractor to the satisfaction of Inland Fisheries Ireland for the entire construction period. Provision of exclusion zones and barriers (e.g. silt fences) between earthworks, stockpiles and temporary surfaces to prevent sediment washing into the existing drainage systems and hence the downstream receiving water environment. Compounds and internal access road will be graded so that all runoff is directed to the dirty water drains. A low mound will be constructed between the compounds / road and the clean water drain to ensure that runoff from the compound / road cannot flow into the clean water system. A wheel wash will be provided for heavy vehicles exiting the site to ensure that roads outside of the site boundary are clean. These can take the form of dry or wet wheel wash facilities. In the case of a wet wheel wash it is recommended that a designated bunded and impermeable wheel wash area is provided and that the resultant waste water is diverted to a settlement pond for settling out of suspended solids. The area of exposed ground will be kept to a minimum by maintaining where possible existing vegetation that would otherwise be subject to erosion in the vicinity of the development. The clearing of topsoil will be delayed until just before construction begins rather than stripping the entire site months in advance. Temporary drainage

measures such as the underground rainwater harvesting tank, oil bypass separator and storm water settlement tank will be installed within the compound. Piped and channel drainage systems incorporating roadside gullies will be installed to collect storm water from the finished compound areas and internal access road. Collected storm water runoff will pass through the oil bypass separator before discharging to the storm water settlement tank. Excavation and stockpiling activities will be minimised during wet weather periods. Stockpiles of excavated soil and/or subsoil will be graded so as to shed water. Stockpiles of soil/subsoil will be restricted to less than 3m in height. Interception and channelling of surface water runoff over exposed soil/subsoil surfaces to sumps, silt traps or settlement ponds, will occur prior to discharge to existing drains or outfalls. Interception and diversion of surface water runoff away from open excavations will occur. Repeated handling of soil will be avoided and ideally all soil stockpiles will remain undisturbed pending later re-use for landscaping. In addition, any discharge of construction surface water or groundwater from excavations shall pass through appropriate filtration and sedimentation system, designed in accordance with "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (CIRIA C532)".

10.9.4 Fuel and Chemical Handling

To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas. Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal. Refuelling of construction machinery and vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated refuelling areas using a prescribed re-fuelling procedure. Plant nappies or absorbent mats to be place under refuelling point during all refuelling to absorb drips. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with. Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility. All ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil. The pouring of concrete will take place within a designated area using a geosynthetic material to prevent concrete runoff into the soil/groundwater media. Pours will not take place during forecasted heavy rainfall. Washout of concrete transporting vehicles will not take place on site. Concrete trucks will be washed out off site at the source. To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The location of the chute washdown area will be appropriately located. In the event of a spillage on site, the dirty water drains in the immediate area will temporarily be blocked and the pH levels of the water in the associated settlement ponds will be monitored and if necessary will adjust the pH levels using CO2 entrainment. Any spillage will be cleared immediately and deposited in the Chute wash down area. In the case of drummed fuel or other chemical which

may be used during construction containers will be stored in a dedicated internally bunded chemical storage cabinet and labelled clearly to allow appropriate remedial action in the event of a spillage.

10.9.5 Operational Phase Mitigation

No mitigation measures have been considered during the operational phase as the SuDS elements incorporated in the design, and presented in the Infrastructure Design Report prepared by DOBA submitted under separate cover, address any potential hydrocarbon leakage from the proposed basement car park. There are no other potential hazards during operation.

The peak wastewater discharge is calculated at an average wastewater discharge of 4.18 litres/sec. Sewage will be collected in the public sewer and treated at Uisce Éireann's WwTP at Ringsend prior to discharge to Dublin Bay. In providing a permission for discharge to sewer, Uisce Éireann will have considered the capacity of their infrastructure (current and future capacity) and environmental impact. This WwTP is required to operate under an EPA licence (D0034-01) and to meet environmental legislative requirements. The Ringsend WwTP received planning permission for upgrading works in 2012. In June 2018, Uisce Éireann submitted a planning application for strategic infrastructure development to An Bord Pleanála seeking permission to further progress the upgrade of the Ringsend Wastewater Treatment Plant (WwTP) and In April 2019, Uisce Éireann was granted planning permission by An Bord Pleanála to further progress the upgrade of the Ringsend WwTP.

The 2019 planning permission facilitated upgrading works to meet nitrogen and phosphorus standards set out in the licence and which are temporarily exceeded currently. The design includes aerobic granular sludge which will result in treatment of sewage to a higher quality than current thereby ensuring effluent discharge to Dublin Bay will comply with the Water Framework Directive (WFD) Directive 2000/60/EC (as amended),, Urban Wastewater Treatment Directive (as amended) and Bathing water Directive (as amended). It is understood at this point in time that the upgrade to use of aerobic granular sludge and other phased upgrades will achieve a population equivalent of 2.4 million and are to be completed between by 2027 to 2028. As outlined in the EIAR provided with the 2018 planning submission, modelling has shown that the upgrades which are currently underway will result in improved water quality within Dublin Bay. The 2018 EIAR predicts that the improvement in effluent quality achieved by the upgrade will compensate for the increase in flow through the plant. The project is being progressed in stages to ensure that the plant continues to treat the wastewater (1.98 million population equivalent) to the current treatment levels throughout the delivery of the upgrade. The project comprises four key elements and underpinning these is a substantial programme of ancillary works:

1. Provision of additional secondary treatment capacity with nutrient reduction (400,000 population equivalent);
2. Upgrade of the 24 existing secondary treatment tanks to provide additional capacity and nutrient reduction, which is essential to protect the nutrient-sensitive Dublin Bay area; and
3. Provision of a new phosphorous recovery process.

Uisce Éireann have stated that all works to the Rinsgend WwTP are to be completed in 2025.

Even without treatment at the Ringsend WwTP, the peak effluent discharge, calculated for the proposed development as 4.18 litres/sec (which would equate to 0.045% of the current licensed discharge at Ringsend WwTP [peak hydraulic capacity]), would not have a measurable impact on the overall water quality within Dublin Bay and therefore would not have significant effect on the current Water Body Status (as defined within the Water Framework Directive (WFD) Directive 2000/60/EC (as amended)). In any case, it is assumed that any water discharged from the EPA licensed Ringsend will not be likely to have a significant effect on the environment or on any European or other protected site.

10.10 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

10.10.1 Demolition & Construction Phase

There are no likely significant impacts on the status of the water and hydrological environment associated with construction activities with mitigation measures aforementioned in place. No perceptible effects on the Baldoyle Bay Natura Site are expected.

10.10.2 Operational Phase

There are no likely significant negative impacts on the status of the water and hydrological environment associated with construction activities with mitigation measures aforementioned in place. No likely significant effects on the Baldoyle Bay Natura Site are expected.

10.10.3 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 10.4 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Increase of Sediments in run-off	Negative	Imperceptible	Local	Unlikely	Brief	Residual
Spillage of fuels stored on site	Negative	Imperceptible	Local	Unlikely	Brief	Residual
Spillage of fuels From construction vehicles	Negative	Imperceptible	Local	Unlikely	Brief	Residual
Spillage of concrete	Negative	Imperceptible	Local	Unlikely	Brief	Residual

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 10.5 Summary of Operational Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Leakage of fuel from car park areas	Negative	Imperceptible	Local	Unlikely	Brief	Residual

10.10.4 Cumulative Residual Effects

There are no likely cumulative impacts on the water and hydrological environment associated with construction activities.

10.11 Risk of Major Accidents or Disasters

10.11.1 Geohazards Risks

Earthquakes are not likely to occur in the vicinity of the subject site at a sufficient intensity to pose a risk for the proposed development. The GSI database indicates the subject site is located within an area of 'Low' susceptibility to landslides. The subject site is not located within an area associated with karst geology and therefore there is no identified risks associated with karst features. All aggregates imported to the Site for use in the proposed development will be subject to strict quality control procedures in accordance with design specification and relevant Building Regulations (as amended). Thus, the impacts of geohazard risks due to the proposed development is 'neutral' 'imperceptible' and 'permanent'.

10.12 Worst Case Scenario

The worst case scenario would be an accidental spill of contaminant into the surface water drainage which potentially could affect the Baldoyle Bay SAC/pNHA. However, due to the negligible potential contaminant loading, this would be attenuated, diluted and dispersed to below statutory guidelines prior to reach the Natura Site aforementioned. Therefore, no significant effects are likely on the Baldoyle Bay. The proposed development will not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plans or projects.

10.13 Interactions

Due to the inter-relationship between land, soils, geology and hydrogeology and surface water (water & hydrology chapter) the following impacts discussed will be considered applicable to Chapter 9 of the EIAR. In addition, the potential effects on surface water drainage involve the Biodiversity chapter due to the presence of a sensitive aquatic receptor in the vicinity of the subject site (Baldoyle Bay SAC/pNHA).

10.14 Monitoring

10.14.1 Construction Phase

During the construction phase the following monitoring measures will be considered:

- Regular inspection of surface water run-off and sediments controls e.g. silt traps will be carried during the construction phase.
- Regular inspection of construction/mitigation measures will be undertaken e.g. concrete pouring, refuelling, etc.

10.12.2 Operational Phase

Following construction of the proposed Surface Water drainage network, pressure tests shall be carried out to assess the potential for leaks to occur in the newly laid sewers. In addition, the Contractor shall carry out periodic testing of the Surface Water discharge to ensure compliance in accordance with the requirements of the Fingal County Council Water Services Department. Following completion of the proposed drainage systems, a short-term flow and rainfall survey including the use of flow monitors and rain gauges shall be carried out to identify misconnections and allow for comparison with watermain meter readings to facilitate assessment and identification of any potential leakages. Following commissioning of the proposed Surface Water network, the management company shall implement a maintenance regime, as a minimum, monthly inspections to ensure that it operates in accordance with the design specification. The features to be maintained include the piped Surface Water network and all SuDS features.

Following construction of the proposed Wastewater drainage network, pressure tests shall be carried out in accordance with the Uisce Éireann Standards to assess the potential for leaks to occur in the newly laid sewers. Following completion of the proposed drainage systems, a short-term flow and rainfall survey including the use of flow monitors and rain gauges shall be carried out to identify misconnections and allow for comparison with watermain meter readings to facilitate assessment and identification of any potential leakages.

Following construction of the prosed watermain infrastructure, pressure tests will be carried out in accordance with the Uisce Éireann Standards to assess the potential for leaks to occur in the newly laid watermains. The proposed watermain system will incorporate water meters at all points of connection to the public watermain network which facilitates ongoing monitoring of demand and assessment for potential leakage.

10.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 10.6 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Increase of Sediments in run-off	Implementation of silt trap, sediment ponds, etc.	Regular inspection of silt trap and sediments ponds
Spillage of fuels stored on site	Oil storage in bunded tanks	Regular inspection of tanks
Spillage of fuels from construction vehicles	Implementation of designated refuelling areas and appropriate containment of fuel	Regular inspection of refuelling areas
Spillage of concrete	The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound	Regular inspection of wash down area

The following Table summarises the Operational Phase mitigation and monitoring measures.

Table 10.7 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Quality	Significance
Silting/blocking of SuDS	Regular maintenance regime	Periodic inspections by management company
Potential leaks in wastewater system	Regular maintenance regime	Periodic inspections by Uisce Éireann.
Leakage and water loss from water supply system	Construction in accordance with UÉ COP. Metering of supply.	Review and assessment of water meter readings. Water Audit by Uisce Éireann.

10.16 Conclusion

It is therefore concluded that as a result of the design of the project and prevention and mitigation measures to be taken, there is not likely to be a significant effect on surface and groundwater quantity and quality from the proposed development either alone or in combination with other plans or projects. The project is not likely to cause a deterioration in surface or groundwater status or to compromise the ability of any surface or groundwater to meet the objectives of the Water Framework Directive (WFD) Directive 2000/60/EC (as amended)) and River Basin Management Plan; that there are not likely to be any significant discharges of pollutants from priority or other polluting substances to groundwater or surface water so that the chemical status of the surface and groundwater will not deteriorate. Moreover, the ecological status of surface waters is not likely to be significantly affected by any discharge to surface waters and as established in other chapters of this EIAR and AA screening, there is not likely to be a significant effect on any European or other protected site in view of their conservation objectives. The proposed development is not likely to have a significant adverse effect on the water & hydrology environment of the site and surrounding area, either alone or in combination with other existing and/or approved projects. Finally, as a result of the complete, precise and definitive findings of the Natura Impact Statement prepared by Enviroguide under separate cover, it has been concluded, beyond reasonable scientific doubt, that the proposed development will have no significant adverse effects on the QIs, SCIs and on the integrity and extent of Baldoyle Bay SAC

(000199) and/or North-west Irish Sea SPA (004236). Accordingly, the proposed development will not adversely affect the integrity of any relevant European site.

10.17 References and Sources

- Infrastructure Design Report (IDR), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024 (accompanies this planning application under separate cover);
- Site Specific Flood Risk Assessment (SSFRA), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024 (accompanies this planning application under separate cover);;
- Site Investigation Report, Howth Road, Howth Co. Dublin. Site Investigation Ltd. November 2019;
- Ground Investigation Report (GIR), Deer Park Howth LRD. IGSL. March, 2024;
- EPA Website - gis.epa.ie/EPAMaps
- Department of the Environment, Climate & Communications - https://dcenr.maps.arcgis.com/home/index.html
- Construction Environmental Management Plan (CEMP), Deer Park Howth LRD. Donnachadh O'Brien & Associates Consulting Engineers. March, 2024; and,
- Climate Action Plan 2024 – 2029, Fingal County Council, 2024.

CHAPTER 11
BIODIVERSITY

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

11 Biodiversity

11.1 Introduction

Enviroguide Consulting was commissioned by GLL PRS Holdco. Limited, to prepare the Biodiversity Chapter of an Environmental Impact Assessment Report (EIAR) for a Proposed Large-scale Residential Development (LRD) (hereafter referred to as the 'Proposed Development') at lands adjoining Howth Demesne, Deer Park, Howth, Co. Dublin (hereafter referred to as the 'Site').

This chapter of the EIAR (the 'Chapter') details the Ecological Impact Assessment (EcIA) of the Proposed Development, which assesses the potential significant effects of the same on habitats and species; particularly those protected by national and international legislation or considered to be of particular nature conservation importance on or adjacent to the Site. This Chapter will describe the ecology of the Site, with emphasis on habitats, flora and fauna, and will assesses the potential effects of the Construction and Operational Phases of the Proposed Development on these ecological receptors. The chapter follows the *Guidelines for Ecological Impact Assessment in the UK and Ireland*, by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) and supplemented by the National Roads Authority (2009) *Guidelines for Assessment of Ecological Impacts of National Road Schemes*. The purpose of this Chapter is to:

- Set out the methodologies used to inform the assessment.
- Identify Key Ecological Receptors (KERs) within the Zone of Influence (ZOI).
- Assess the impacts from the Proposed Development on the KERs and the resulting significant effects.
- Set out measures to avoid or mitigate negative impacts.
- Assess the residual effects after the incorporation of agreed avoidance or mitigation measures to ensure legal compliance.
- Set out agreed measures to offset significant residual effects.
- Set out opportunities for ecological enhancement.

This Chapter should be read in conjunction with the Appropriate Assessment (AA) Screening (Enviroguide, 2024a) and Natura Impact Statement (NIS) (Enviroguide, 2024b) that accompany this planning application under separate cover.

11.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by LG of Enviroguide Consulting.

LG is a Senior Ecologist with Enviroguide with 5 years of experience in Ecological Consultancy and a B.Sc. in Zoology (Hons) and a M.Sc. (Hons) in Wildlife Conservation and Management from University College Dublin. LG's MSc thesis was a literature scoping review on the ecosystem services provided by Irish bats, and LG has completed best practice guidance courses on bat survey and mitigation techniques such as: 'Bat Ecology & Survey' and 'Bat Impacts and Mitigation' both held by the Chartered Institute of Ecology and Environmental Management (CIEEM). LG is experienced in desktop research, literature scoping-review, and report writing, as well as practical field skills (Bats, habitats,

invasive species, bird surveys). LG is experienced in compiling Biodiversity Chapters of EIARs, EcIAs, AA screenings and NIS reports, and in the overall assessment of potential impacts to ecological receptors from a range of developments. LG is a Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

LG has been involved in the preparation of numerous EIARs including the following projects:

- LRD at lands to the south of Bóthar Maol and to the west of Blackrock Road at Haggardstown, Dundalk, Co. Louth (on behalf of Marina Quarter Ltd., in 2023).
- LRD at lands at Milltown Park, Sandford Road, Dublin 6 (on behalf of Sandford Living Ltd., in 2023).
- LRD at lands at Bennetstown, Dunboyne, Co. Meath (on behalf of Marina Quarter Ltd., in 2023).

All surveying and reporting have been carried out by qualified and experienced ecologists and environmental consultants. LG authored and undertook the desktop research for this Report, along with the preliminary ecological walkover. BMcC, Enviroguide Ornithologist, undertook the wintering bird surveys at the Site of the Proposed Development. BD and FS, Ecologists with Altemar Environmental Consulting, undertook the bat and breeding bird surveys that inform this Chapter, respectively.

BMcC is an experienced Ornithologist with a BSc in Planning and Environmental management from the Technological University of Dublin (TUD) and 12 years of bird survey experience, including three years of professional Ornithology work. BMcC is a longstanding and active member of Bird Watch Ireland and is also the author of several articles in UK birding publication *Birdwatch Magazine*. BMcC is highly experienced in all survey methodologies and with surveying all species groups of Irish birds and migrants, having provided a range of ornithology survey work for ecological consultancies, e.g., vantage points surveys of gulls, terns, raptors, waders and wildfowl; hinterland surveys of the above as well as riverine species; and breeding waders and country birds.

BD MSc, BSc (MCIEEM) has over 28 years of experience providing ecological consultancy services in Ireland. He has extensive experience in carrying out a wide range of bat surveys including dusk emergence, dawn re-entry and static detector surveys. He also has extensive experience reducing the potential impact of projects that involve external lighting on Bats. BD trained with Conor Kelleher author of the Bat Mitigation Guidelines for Ireland (Kelleher and Marnell (2022)) and is currently providing bat ecology (impact assessment and enhancement) services to Dun-Laoghaire Rathdown County Council primarily on the Shanganagh Park Masterplan. The desk and field surveys were carried out having regard to the guidance: Bat Surveys for Professional Ecologists – Good Practice Guidelines 3rd Edition (Collins, J. (Ed.) 2016) and Marnell, Kelleher and Mullen (2022), Bat Mitigation Guidelines for Ireland V2 (which update and replace the Bat Mitigation Guidelines for Ireland published in 2006).

FS (BSc Zoology, MSc Zoology) has previous experience in carrying out a wide range of fauna surveys as both a sub-contractor and employee for consultancies and organisations in Ireland and the US. These include both roving and static acoustic bat surveys, badger, bear, moose, and boar surveys, both

breeding/wintering bird surveys, Arctic tern breeding surveys (egg/chick counts, and chick mortality/foraged fish sampling), as well as hummingbird banding.

11.3 Proposed Development

A detailed description of the proposed development is provided in **Chapter 2** of this Environmental Impact Assessment Report (EIAR).

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Partial demolition of 3 sections of the existing northern boundary wall, which fronts Howth Road, proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

The layout of the Proposed Development is shown in Figure 11.2.

11.3.1 Aspects Relevant to this Assessment

11.3.1.1 Site Location

The Proposed Development Site is located on lands adjoining Howth Demesne, Deer Park, Howth, Co. Dublin (Figure 11.1) The Site is bound to the north by Howth Road, to the northwest by private residential lands, to the west by rank grassland field, to the south by part of Deer Park Golf Course and to the east by a strip of woodland associated with Howth Castle's main entrance avenue. The general surroundings of the Site comprise of undeveloped greenfield lands and woodland associated with Deer Park Golf Course, and built land associated with the town of Howth located to the east of the Site. Claremont Strand and the Irish Sea are located *ca.* 135m to the north of the Site, while Howth Train Station is located ca. 420m to the northeast.

11.3.1.2 Drainage

An Infrastructure Design Report (IDR) has been prepared by Donnacha O'Brien and Associates (DOBA) for the application (DOBA, 2024a). The following information is drawn from the IDR and EIAR Chapter 7 – Material Assets: Built Services also prepared by DOBA.

11.3.1.2.1 Surface Water

The IDR notes no existing surface water infrastructure at the Site, which is predominantly comprised of a green field land parcel abutting a road. Ground Penetrating Radar (GPR) and Topographical Surveys were conducted to confirm the location and the invert level of an existing 300mm dia. surface water sewer located to the west of the Site. This sewer increases in size to a 450mm dia. and then to a 60mm dia. sewer prior to discharging to the Irish Sea to the north of the Site. Previous investigations were also undertaken at the Site, including cable percussive boreholes and soakaway testing, which

revealed light brown, sandy, slightly gravelly, silty Clays with no infiltration potential whatsoever. Therefore, the IDR notes that infiltration system type SuDS will not be possible as part of the proposed surface water drainage design and instead filtration system SuDS will be adopted, in addition to the nature-based SuDS solutions proposed across the development (DOBA, 2024a).

The surface water design proposed for the Site is detailed in the IDR and entails the following:

- The design will comply with the policies and guidelines outlined in the Greater Dublin Strategic Drainage Study (GDSDS), the CIRIA SuDS Manual and the Fingal Co. Co. SuDS Guidance.
- A 30% climate change factor will be included for the design of the surface water network in accordance with the requirements of Fingal Co. Co., in addition to an Urban Creep factor of 10% being applied to all roof areas.

The SuDS measures proposed include:

- **Bioretention Areas** will be utilised throughout the Proposed Development
- **Bioswales** are included within the road design through cross falls; allowing run-off to flow over dropped kerbs into linear bioswales to be located parallel to roadways throughout the Proposed Development.
- **Rain Gardens** will be adopted within the Proposed Development with surface water discharge from roofs conveyed to same.
- **Green Roofs and Blue roofs with extensive Green Roof** coverings will be provided on buildings with flat roofs.
- **Tree Pits** will be provided in combination with the bioretention swales and bioretention areas.
- **Filtration system SuDS** will be incorporated into the development due to the lack of infiltration capacity identified during ground investigations. As such, **lined permeable paving**, filter drains and filter strips will be utilised.
- **A lined underground attenuation** tank will be required prior to the controlled discharge of surface water from the Proposed Development to the existing surface water drainage to the west of the Site. The attenuation tank will be proceeded by all of the nature-based SuDS features noted above. The size of the underground tanks shall be limited through the provision of hydro-brake flow restricting devices in each of the sub-catchments upstream and on the blue roofs; to delay the time of entry into the surface water system.
- A **bypass petrol interceptor** will be provided prior to discharge of surface water from the Site.

11.3.1.2.2 Foul Drainage

The IDR (DOBA, 2024a) notes the presence of an existing 400mm dia. concrete wastewater sewer located to the north-east of the Site which flows northwards. The proposed wastewater network will collect effluent from the new development via a main wastewater drainage network which is located around the Proposed Development where it will finally discharge by gravity to the aforementioned existing 400mm dia. wastewater sewer. The wastewater sewer network and has been designed in accordance with the principles and methods set out in Uisce Éireann's Code of Practice for Wastewater Infrastructure IW-CDS-5030-03, IS EN 752 Drain & Sewer Systems outside Buildings, IS EN 12056 Gravity Drainage Systems inside Buildings and the Building Regulations Technical Guidance Document Part H Drainage & Wastewater. The estimated peak Wastewater loading generated by the proposed

development's Dry Weather Flow is estimated at 0.70 l/s while the Design Wastewater Flow of 6DWF is 4.18 l/s. A Confirmation of Feasibility & Statement of Design Acceptance has been received from Uisce Éireann and is appended to the IDR prepared by DOBA. The Wastewater from the Proposed Development will eventually be treated at Ringsend Wastewater Treatment Plant (WwTP).

11.3.1.2.3 Landscape Plan

The proposed landscaping of the Site has been designed by Áit Urbanism + Landscape Limited. The landscape design for the Proposed Development entails the replacement of the rank grassland presently covering the majority of the field that contains the Site with the mixture of hard and soft landscaping to be expected with a large-scale residential development.

The majority of the existing boundary vegetation is to be retained, notably the mature trees located along the eastern Site boundary, the band of early mature (*c.* 30 year old) planted woodland running along the southern Site boundary, and the mature hedgerow that exists along the western Site boundary. As detailed in the Arboricultural Impact Statement (Document Ref: 23-316-04) prepared by John Morris Arboricultural Consultancy Ltd. (JMAC), the Proposed Development will require the removal of two sycamores (*Acer pseudoplatanus*); T5 (Mature) and T68 (early mature) in the north and west of the Site; to protect the wall structure and facilitate underground attenuation respectively, and a total of 89m² of semi-mature silver birch (G104) and 5no. semi mature Scots pine (G103) that make up the early mature woodland band that runs along the southern boundary, to facilitate the proposed Block D. These tree groups comprise birch (*Betula sp.*), beech (*Fagus sylvatica*), oak (*Quercus sp.*) and Scot's pine (*Pinus sylvestris*). Alder (*Alnus glutinosa*) was recorded in this woodland during the ecology walkover in September 2023.

Three further trees, all early mature rowans (*Sorbus aucuparia*); T2, T4 and T17 are recommended for removal irrespective of the proposal because, respectively, they either block sightlines or are growing from the base of the stone boundary wall and are likely to cause further structural damage. All other trees on and within influencing distance of the Site will be retained, protected and integrated into the new built environment.

As detailed in the Landscape Strategy Report (Áit, 2024), the landscape approach includes areas of meadow, bulb and woodland planting in the southwest, southeast and east of the Site, along with native evergreen and deciduous hedgerow planting throughout. In terms of tree cover, it is estimated that new tree planting will provide a combined total of 3,362m² of canopy cover five years post development.

11.3.1.2.4 Public Lighting Plan

The lighting scheme for the Proposed Development has been designed by IN2 with input from Enviroguide to ensure it is sensitive to local wildlife usage of the Site and the areas around the Site. The scheme has been designed so that lux levels along the vegetated boundaries of the Site have been minimised and limited to 0.5-1 lux. There will be no public lighting located within public open spaces in the south of the Site to allow for minimal levels of light-spill on to the southern woodland belt. The luminaires selected are also of a warm lighting temperature of 2700k-3000k to minimise their impact to bats and other wildlife.

11.3.1.3 Description of the Construction Phase

As detailed within the Construction Environmental Management Plan (CEMP) prepared by DOBA (2024b), It is envisaged that the construction of the Proposed Development will take 18 months and be sequenced as follows:

Site Set-Up & Enabling Works

- Demolition of existing wall to create site and pedestrian accesses.
- Erect perimeter site hoarding.
- Locate and identify existing ESB and gas services. Erect bunting, warning signage, etc.
- Removal of vegetation as required, Site Strip & Topsoil Stockpile.
- Establishment of Contractor's Compound including storage compound and waste management compound, installation of site offices and welfare units.
- Diversion of existing overhead powerlines.
- Diversion of existing gas main.

Main Site Works

- Excavation & Installation of Foundations for Block A/B and C/D.
- Excavation & Installation of Main Surface Water, Wastewater, Watermains and Utility services (power, data) on site.
- Excavation & Installation of Main Surface Water, Wastewater, Watermains and Utility connections (power, data) and outfalls on the R105 Howth Road.

Main Building Works (Block A/B and C/D)

- Construction of Rising Elements to Ground Floor and local drainage & services.
- Construction of Ground Floor Slabs.
- Installation of Super-Structure from Level 01 to Roof which shall be manufactured off-site and include Pre-cast Concrete elements such as Walls, Columns, Beams, Floors, Stairs.
- Erection of scaffolding around the perimeter of each block.
- Installation of the external cladding including masonry, windows, doors, balconies and thereafter removal of the perimeter scaffolding.
- Installation of the roofs including weathering, Green-Blue Roofs for surface water attenuation and solar Photovoltaic (PV) roof panels.
- Internal fit-out including 1st & 2nd Fix Carpentry, Mechanical and Electrical Packages.
- Completion of internal works including Furniture, Fittings & Equipment.
- Testing & Commissioning of all services.

Site Completion Works

- Construction of main roads, parking spaces, footpaths and the installation of Public Lighting.
- Completion of nature Based SuDS and Landscaping.
- Testing & Commission of all services.

11.3.1.4 Description of the Operational Phase

The Operational Phase of the Proposed Development is indefinite and will entail use of the Site as an active residential development, with an associated increase in human activity from the current baseline. The hedgerows and treelines/woodland areas surrounding the Site will almost entirely be retained, and will be incorporated as part of the landscape design of the Proposed Development.

Figure 11.1 Site Location

Figure 11.2 Proposed Site Layout (JFA Drwg no: DPK-00-00-DR-JFA-AR-P1003)

11.4 Relevant Legislation and Guidance

An Ecological Impact Assessment (EcIA) is a process of identifying, quantifying, and evaluating potential effects of development-related or other actions on habitats, species and ecosystems (CIEEM, 2018). When an EcIA is undertaken as part of an EIA process it is subject to the EIA Directive 2011/92/EU (as amended), the Planning and Development Acts (as amended) and the Planning and Development Regulations (as amended). An EcIA is not a statutory requirement, however it is a best practice evaluation process. The EcIA encompassed within this Chapter is provided to assist the Competent Authority with its decision-making in respect of the Proposed Development.

There are a number of pieces of legislation, regulations and policies specific to ecology which underpin this assessment. These may be applicable at a European, National or Local level. Legislation at the International level relevant to the Proposed Development are listed below:

- *Council Directive 92/43/EEC* on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended); hereafter the 'Habitats Directive'.
- *Directive 2009/147/EEC (as amended)*, hereafter the 'Birds Directive'.

- Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU (the "EIA Directive")
- EU Regulation 1143/2014, on Invasive Alien Species (as amended).
- *Convention on the Conservation of European Wildlife and Natural Habitats 1982*, hereafter the 'Bern Convention'
- *The Convention on the Conservation of Migratory Species of Wild Animals 1983*, hereafter the 'Bonn Convention'.
- *Ramsar Convention on Wetlands 1971*, hereafter referred to as 'Ramsar'.
- *Water Framework Directive 2000/60/EC (as amended)*, hereafter the 'WFD'.

National legislation and policy relevant to the Proposed Development are listed below:

- Wildlife Act 1976, as amended.
- Flora (Protection) Order 2022.
- The Planning and Development Act (as amended).
- National Biodiversity Plan 2023-2030.

Additionally, Natural Heritage Areas (NHAs) are designations under the Wildlife Acts to protect habitats, species, or geology of national importance. The boundaries of many of the NHAs in Ireland overlap with Special Areas of Conservation (SAC) and/or Special Protection Area (SPA) sites. Although many NHA designations are not yet fully in force under this legislation (referred to as 'proposed NHAs' or pNHAs), they are offered protection in the meantime under planning policy which normally requires that planning authorities give recognition to their ecological value.

Local plans relevant to the Proposed Development are listed below:

- Fingal County Development Plan 2023-2029.
- Fingal Biodiversity Action Plan (BAP) 2023-2030.

Further details on legislation and policy relevant to the Proposed Development are detailed in Appendix 11.1.

11.5 Consultation

The client and design team have liaised with the various departments of Fingal CoCo through the preapplication stages of the LRD process. An email to Fingal CoCo's Biodiversity Department was sent by Enviroguide on 23rd October 2023 requesting comment on the proposed winter bird survey approach for the Site, however no response has been received at the time of writing.

11.6 Methodology

11.6.1 Scope of Assessment

The specific aims and objectives of this Biodiversity Chapter were to:

- Undertake baseline ecological surveys and evaluate the nature conservation importance of the Site;
- Identify and assess the direct, indirect and cumulative ecological implications or impacts of the Proposed Development during its lifetime; and
- Where possible, propose mitigation measures to remove or reduce those impacts at the appropriate stage of the development.

11.6.2 Desk Study

A desktop study was carried out to collate and review available information, datasets and documentation sources pertaining to the Site's natural environment. The desk study, completed in March 2024, relied on the following sources:

- Information on species records[1] and distributions, obtained from the National Biodiversity Data Centre (NBDC) at *maps.biodiversityireland.ie*;
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at *gis.epa.ie*;
- Information on bedrock, groundwater, aquifers and their statuses, obtained from Geological Survey Ireland (GSI) at *www.gsi.ie*;
- Information on the network designated conservation sites, site boundaries, qualifying interests and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at *www.npws.ie*;
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe, Bing and Ordnance Survey Ireland; and,
- Information on the extent, nature and location of the Proposed Development, provided by the applicant and/or their design team.

A comprehensive list of all the specific documents and information sources consulted in the completion of this report is provided in Section 11.20 of this Chapter.

11.6.3 Zone Of Influence

The 'zone of influence' (ZOI) for a project is the area over which ecological features may be affected by changes as a result of the Proposed Development and associated activities. This is likely to extend beyond the development Site, for example where there are ecological or hydrological links beyond the Site boundaries (CIEEM, 2018). The ZOI will vary with different ecological features, depending on their sensitivities to an environmental change.

The ZOI of the Proposed Development is largely confined to habitats within and immediately adjacent to the Site due to the scale, nature and location of the Proposed Development. However, due to its proximity to the Dublin coast and the many Special Areas of Protection (SPA) that exist along the east coast of Ireland, the ZOI will be expanded to account for the potential *ex-situ* usage of the Site and surrounding lands by SCI bird species protected under these SPA designations.

[1] The Site of the Proposed Development lies within the 2km grid square O23U. Records from the last 20 years from available datasets are given in the relevant sections of this report.

11.6.4 Identification of Relevant Designated Sites

To determine the ZOI of the Proposed Development for designated sites, reference was made to the OPR Practice Note PN01 - Appropriate Assessment Screening for Development Management' (OPR, 2021), a practice note produced by the Office of the Planning Regulator, Dublin. This note was published to provide guidance on screening for AA during the planning process, and although it focuses on the approach a planning authority should take in screening for AA, the methodology is also readily applied in the preparation of PEA reports such as this to identify all relevant designated sites potentially linked to the Proposed Development.

The most recent guidance advises against the use of arbitrary distances that serve as precautionary ZOI (e.g., 15km), and instead recommends the application of the Source-Pathway-Receptor (S-P-R) model in the identification of designated sites, stating that "*This should avoid lengthy descriptions of European sites, regardless of whether they are relevant to the proposed development, and a lack of focus on the relevant European sites and issues of importance*". Although this statement refers to European sites, it is also applicable to other designated sites.

The methodology used to identify relevant designated sites comprised the following:

- Identification of potential sources of effects based on the Proposed Development description and details;
- Identification of potential pathways between the Site of the Proposed Development and any designated sites within the ZOI of any of the identified sources of effects.
    - Water catchment data from the EPA (*www.epa.ie*) were used to establish or discount potential hydrological connectivity between the Proposed Development and any designated sites.
    - Groundwater and bedrock information used to establish or discount potential hydrogeological connectivity between the Proposed Development and any designated sites.
    - Air and land connectivity assessed based on Proposed Development details and proximity to designated sites.
    - Consideration of potential indirect pathways, e.g., impacts to flight paths, *ex-situ* habitats, etc.
- Review of Ireland's designated sites to identify those sites which could potentially be affected by the Proposed Development in view of the identified pathways, using the following sources:
    - European sites and nationally designated sites (e.g., NHAs and pNHAs) from the NPWS (*www.npws.ie*);
    - Ramsar sites from the Irish Ramsar Wetland Committee (*https://irishwetlands.ie/irish-sites/*);
    - Other internationally designated sites e.g., UNESCO Biospheres; and

- Regional development plans to identify any remaining sites or areas designated for nature conservation at a local level.

11.6.5 Field Surveys

A range of field surveys have been carried out at the Site to date. These are summarised in Table 11.1. No limitations to field surveys were encountered which would prevent robust conclusions being drawn as to the potential impacts of the Proposed Development (see Section 11.7).

Table 11.1 Field surveys undertaken at the Proposed Development Site.

Survey	Surveyor	Dates
Preliminary Habitat and Invasive Flora Survey	Enviroguide Consulting (LG)	19th September 2023
Mammal/ Fauna Survey		
Breeding Bird Surveys	Altemar (FS)	6th, 21st & 31st July 2023
Non-breeding (Winter) Bird Surveys	Enviroguide Consulting (BMcC)	19th October 2023 31st October 2023 10th November 2023 21st November 2023 28th November 2023 20th December 2023 18th January 2024 25th January 2024 6th February 2024 19th February 2024 4th of March 2024 11th of March 2024
Bat Dusk Activity Surveys	Altemar (BD)	2nd October 2019 20th July 2023 19th May 2024

11.6.5.1 Habitat and Flora Surveys

Habitat surveys of the Site were conducted by Enviroguide on the 19th of September 2023. Habitats were categorised according to the Heritage Council's '*A Guide to Habitats in Ireland*' (Fossitt, 2000) to level 3. The habitat mapping exercise had regard to the 'Best Practice Guidance for Habitat Survey and Mapping' (Smith *et al.*, 2010) published by the Heritage Council. Where possible species compositions and abundance are described using the DAFOR (Dominant, Abundant, Frequent, Occasional or Rare) scale, a simple method of assigning abundance categories to species.

The habitats at the Site were also assessed for their potential to support protected and/or notable fauna.

11.6.5.2 Bat Surveys

11.6.5.2.1 Preliminary Bat Roost Assessment

A preliminary bat roost assessment (PBRA) of Potential Roost Features (PRFs) within trees at the Site was completed by Enviroguide on 19th of September 2023. No buildings are present on-Site, however, stone walls are present along the northern and eastern boundaries and were assessed for bat roosting potential. The PBRA was conducted in adherence to best practice guidelines (Collins, 2023 and Marnell et al., 2022). This was undertaken to determine the suitability of the Site for roosting bats and the potential requirement for further surveys to be undertaken.

Collins (2023) recommends that structures and trees are assessed for their ability to support roosting bats under separate categorizations using professional judgement.

A structure with roosting potential can be further divided into one of four sub-categories as presented in Table 4.1 (Collins, 2023):

- Negligible – No suitable features observed, however, a small element of uncertainty remain;
- Low – A structure with one or more roost features as used by individual bats opportunistically at any time of year;
- Moderate – A structure with one or more roost features that could be used by bats on a regular basis or by a larger number of bats; or
- High – A structure with one or more roost features that are obviously suitable for use by a larger number of bats on a regular basis, and potentially for longer periods of time. These features have the potential to support high conservation status roosts.

Trees are categorized separately according to Table 4.2 of the guidance outlined in Collins (2023). The classifications for trees are as follows:

- NONE – Either no PRFs in the tree or highly unlikely to be any;
- FAR – Further assessment required to establish if PRFs are present in the tree; or
- PRF – A tree with at least one PRF present.

Where a tree contains at least one PRF, each PRF is further assessed according to Table 6.2 of the Bat Conversation Trust guidelines (Collins, 2023). PRFs are scored as either one of the following:

- PRF-I – PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats; or,
- PRF-M – PRF is suitable for multiple bats and may therefore be used by a maternity colony.

For trees with PRF-Is only, no further surveys may be required, but appropriate compensation for all PRF-Is must be designed and incorporated in advance of impacts, along with a Precautionary Working Method Statement (PWMS).

As the Site increases in suitability for roosting bats e.g., a PRF-M being present, the survey effort increases accordingly. A PRF-M will require a PRF inspection which can entail an aerial inspection, conducted over three survey visits, a minimum of three weeks apart, which should be carried out between May and September with at least two in the period May to August.

Where features are inaccessible by ladder, climbing, or MEWP, or too extensive for a PRF inspection, an emergence survey should be carried out in summer with a Night Vision Aid (NVA) or otherwise surveyed using Advanced Licence Bat Survey Techniques (ALBST), such as trapping, tagging, and radio-tracking to inform of the importance of a roost.

11.6.5.2.2 Bat Habitat Suitability Survey

A Bat Habitat Suitability Assessment was carried out in conjunction with the roost assessment on the 19th of September 2023. This assessment evaluated the habitats present on Site and in the wider area for bat foraging and commuting suitability. Habitat suitability is assessed qualitatively from Negligible to High as per Collins (2023):

- None - No habitat features on site likely to be used by any roosting bats at any time of the year (i.e., a complete absence of crevices/suitable shelter at all ground/underground levels);
- Negligible – No suitable foraging or commuting habitats on-Site;
- Low – Suitable but isolated habitats that could be used by small numbers of commuting and/or foraging bats, such as poorly connected gappy hedgerows, lone trees, unvegetated streams, etc.;
- Moderate – Suitable continuous habitat connected to the wider landscape that could be used by commuting and/or foraging bats, such as treelines, scrub, grassland, water, etc.; or,
- High – Continuous high-quality habitat that is well-connected to the wider landscape, and is likely used regularly by commuting and/or foraging bats, such as river valleys, broadleaved woodland, woodland edge, grazed parkland, etc.

All survey methodologies will follow those of the Bat Conservation Trust *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2023). Any further recommended bat survey work will be undertaken within the recommended survey period of May to September inclusive and as per best practice guidelines.

11.6.5.2.3 Bat Activity Surveys

The Site was assessed by an experienced ecologist (BD of Altemar) on the 2nd of October 2019, 20th of July 2023 and 19th May 2024. The bat activity surveys were undertaken according to best practice guidance at the time (Collins, 2023 and Marnell et al., 2022) (See Bat Report in Appendix 11.6). At dusk, a bat detector survey was carried out onsite using a*n Echo meter touch 2 Pro* detector to determine bat activity. Bats were identified by their ultrasonic calls coupled with behavioural and flight observations.

The activity surveys were undertaken within the active bat season and the transects covered the entire Site multiple times during each of the survey nights. Weather conditions were good, with mild temperatures greater than 10°C immediately after sunset. Winds were light throughout, and there was no rainfall during the survey. Insects were observed in flight during the surveys and bat activity was observable by surveyors at the Site. There were no constraints in relation to the surveys carried out. All areas of the Site were accessible.

Two dusk bat activity surveys conducted by Scott Cawley Ltd., at the Site in June and August 2020 as part of a separate SHD application (ABP Reference: 310413-21) were also considered as part of this assessment and are discussed further where relevant.

11.6.5.3 Bird Surveys

11.6.5.3.1 Bird Scoping Survey

A bird scoping survey was carried out on the 19th of September 2023 to scope out the breeding and non-breeding bird potential at the Site based on available habitats. Additionally, all bird species encountered during the survey were recorded and activity noted where possible.

The survey methodology employed was based on that recommended in standard literature used by for example the British Trust for Ornithology (BTO) (Gillings et al, 2007; Bibby et al, 1992 and Gilbert et al, 1998), which has subsequently been adapted into guidelines for ecological consultants by the Bird Survey & Assessment Steering Group (2022). During the surveys, the Site was walked slowly, approaching all habitats within and adjacent to the Proposed Development and scanning and listening for birds.

11.6.5.3.2 Breeding Bird Surveys

To inform an evaluation of the on-site habitats for bird species, three breeding bird survey visits were undertaken by FS of Altemar on 6th, 21st & 31st of July 2023. A breeding bird transect survey was carried out on each occasion (See Breeding Bird Report in Appendix 11.5).

A 15-minute settlement period was given following arrival to allow resumption of bird activity after any possible disturbance caused by arrival to the Site. Various features such as hedgerows, tree lines, grasslands throughout a single transect following the full perimeter of the Site outline and ownership boundary was carried out, covering all areas and features available for breeding activity within and adjacent to the survey area. Each survey was carried out by a single surveyor.

The transect began in the south of the Site on the southern end of the adjacent fairway, taking an anti-clockwise direction, following the contours of hedgerows/tree lines along the outer perimeter, while further circumnavigating features such as woods, trees, tree lines, scrub, and hedgerows. Movements were carried out slowly, with pauses every few meters as appropriate to identify and locate birds through movements & calls, continuing once all birds within an area/feature had been recorded. The transect took 1-2 hours to complete, ending once the transect was completed. Care was taken not to double count any observations. One dawn and two dusk surveys were carried out to account for varying activity levels between species.

11.6.5.3.3 Non-breeding (Winter) Bird Surveys

To inform an evaluation of the on-site habitats for wintering bird species, a suite of winter bird survey visits were undertaken over the 2023/2024 winter. The surveys were conducted by Enviroguide twice monthly, from October 2023 to March 2024.

The objective of these surveys was:

- To assess the potential usage of the Site and lands adjacent to it by waterbirds associated with nearby SPAs during the winter months as an *ex-situ* site; and
- To determine the composition, numbers, frequency, and heights of species in flight over the Site of the Proposed Development, if any, in order to inform decisions on potential

disturbance to flight-lines of birds commuting to/from roost sites and/or between feeding sites as a result of the construction of the proposed buildings.

The survey methodology followed the non-breeding bird survey guidance published by the Bird Survey & Assessment Steering Group (2022) "*Bird Survey Guidelines for assessing ecological impacts*". Each survey consisted of a combination of walked transects of the Site (being walked at a slow, ambling pace, stopping to scan priority habitat/features where appropriate) and vantage point observation from fixed points, as required. The flight-line survey component consisted of vantage point observation by a surveyor using binoculars and identification guides where necessary to identify all target species in flight over the Site.

All surveys were undertaken using:

- Opticron 8x42 binoculars (or equivalent).
- Opticron 20x Telescope (or equivalent).
- Agreed survey methodology.
- A4 map of the survey area.

The winter bird survey effort at the Site over winter 2023/24 is described in Table 11.2. For the majority of surveys, each survey was completed around high tide to ensure that any waterbirds that were displaced from the coast due to the high tide and foraging/roosting on or near the Site were accounted for. Surveys on 25/01/2024, 06/02/2024, 19/02/2024, 04/03/2024 and 11/03/2024 were conducted around low tide to collect data on the usage of Claremont Strand during this time also. It is noted that the focus of the non-breeding bird surveys was to ascertain the levels of usage of the Site and lands directly adjacent to it by bird species particularly *ex-situ* usage by waterbirds, therefore, these surveys of Claremont Strand only provide a snapshot of species activity and are indicative of the types and numbers of species that use this strand.

Table 11.2 Winter Bird Survey Effort Information

Survey Date	Start Time	Finish Time	High Tide Times	Low Tide Times	Claremont Strand Surveyed
19/10/2023	12:00	16:00	02:36 14:57	08:32 20:51	No
31/10/2023	12:00	16:00	00:15 12:42	06:16 18:36	Yes: 12:00-12:15
10/11/2023	10:00	14:00	09:39 21:46	03:12 15:25	Yes: 13:30-1400
21/11/2023	12:30	16:30	05:44 17:54	11:32 -	Yes: 16:00-16:30
28/11/2023	12:00	16:00	11:50 -	05:22 17:43	Yes: 12:00-12:15
20/12/2023	12:00	15:00	05:22 17:28	11:00 23:44	Yes: 12:00-12:10

Survey Date	Start Time	Finish Time	High Tide Times	Low Tide Times	Claremont Strand Surveyed
18/01/2024	13:30	16:40	04:44 16:56	10:23 23:05	Yes: 16:30-16:40
25/01/2024	13:20	17:00	11:29 -	04:43 17:13	Yes: 13:20 -13:30
06/02/2024	14:15	17:15	08:12 20:49	01:36 14:12	Yes: 13:50 - 14:05
19/02/2024	14:30	17:30	07:33 20:17	00:55 13:42	Yes: 14:15 - 14:30
04/03/2024	12.30	15.30	05:08 17:53	10:59 23:40	Yes: 12:00 - 12:15
11/03/2024	14:40	17:40	11:52 -	05:27 17:56	Yes: 14:15 - 14:30

11.6.5.4 Fauna Survey

A general fauna survey of the Site was carried out in conjunction with the other field surveys on the 19th of September 2023. The habitat types recorded throughout the survey area were used to assist in identifying the fauna considered likely to utilise the area. The Site was searched for tracks and signs of mammals as per Bang and Dahlstrom (2001) and other fauna as per the National Road Authority (NRA, 2005; NRA.2009a).

11.6.5.5 Invasive Species Survey

An invasive species survey was carried out in conjunction with the habitat surveys on the 19th of September 2023. This included a detailed search for signs or any invasive flora or fauna, with any incidental observations of evidence for invasive species, with their locations and extent recorded whenever on Site. A particular focus was given to any species that appear on the Third Schedule of the EC (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/2011 (as amended).

11.6.6 Ecological Assessment

This Chapter has been undertaken in accordance with the methodology set out in Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018); and with reference to the National Roads Authority 'Guidelines for Assessment of Ecological Impacts of National Road Schemes' (NRA, 2009) and the Environmental Protection Agency (EPA) 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (EPA, 2022) and BS 42020:2013 Biodiversity: Code of practice for planning and development (BSI, 2013).

The evaluation of significant impacts should be based on available scientific evidence. Based on the precautionary principle, if the available information is not sufficient, then a significant impact may be assumed likely to occur.

11.6.6.1 Evaluation of Ecological Features

The value of the ecological features, i.e., the habitats and species present or potentially present, was determined using the ecological evaluation at different geographical scales (NRA, 2009), presented in Appendix 11.2. This evaluation scheme, with values ranging from locally important to internationally important, seeks to provide value ratings for habitats and species present that are considered ecological receptors of impacts that may ensue from a proposal. Based on best practice (CIEEM, 2018), any features considered to be less than of local value are not assessed within this Chapter.

11.6.6.2 Impact Assessment

As per the NRA guidelines, impact assessment is only undertaken of Key Ecological Receptors (KERs). The assessment of the potential impact of the Proposed Development on the identified KERs was carried out with regard to the criteria outlined in the EPA Guidelines (EPA, 2022), presented in Appendix 11.3. These guidelines set out a number of parameters that should be considered when determining which elements of the Proposed Development could constitute impact or sources of impacts. These include:

- Positive, neutral or negative effect;
- Significance;
- Extent;
- Probability;
- Duration;
- Timing;
- Frequency; and
- Reversibility.

The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process, or feature, e.g., the creation of roads which cause hydrological changes, which, in the absence of mitigation, could lead to a significant impact on a sensitive habitat.

11.6.6.3 Assessment of Cumulative Impacts

Cumulative impacts can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative impacts can occur where a Proposed Development results in individually insignificant impacts that, when considered in combination with impacts of other proposed or permitted plans and projects, can result in significant impacts on an ecological receptor.

Relevant plans and policies (see Appendix 11.1) were reviewed to identify any potential for negative cumulative impacts with the Proposed Development. Additionally, existing planning permissions from the past five years (from 2019 onwards) within the ZOI of the Proposed Development were reviewed, with particular focus on potential cumulative impacts on the identified KERs. Long-term developments were also considered where applicable.

11.6.6.4 Avoidance, Mitigation, Compensation and Enhancement Measures

Where potentially significant impacts have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied residual impacts are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement. When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an impact is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

It is important for the Biodiversity Chapter of the EIAR to clearly differentiate between avoidance, mitigation, compensation and enhancement and these terms are defined here as follows:

- Avoidance is used where an impact has been avoided, e.g., through changes in scheme design. In practice, avoidance measures are typically implemented during the design stage via discussions and re-design (e.g., avoiding a sensitive habitat by relocating a building). Avoidance measures are therefore rarely reported within a Biodiversity Chapter of an EIAR, which focuses on assessing the final design.
- Mitigation is used to refer to measures to reduce or remedy a specific negative impact in situ.
- Compensation describes measures taken to offset residual impacts, i.e. where mitigation *in-situ* is not possible.
- Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

11.7 Difficulties Encountered

Every effort has been made to provide a comprehensive description of the Site, however, the following specific limitations apply to this assessment:

- An extensive search of available datasets for records of rare and protected species within proximity of the Proposed Development has been undertaken as part of this assessment. However, the records from these datasets do not constitute a complete species list. The absence of species from these datasets does not necessarily confirm an absence of species in the area.
- With regard to invasive species and habitat surveys, although within the acceptable survey period (as per Smith et al., 2010), the timing of the surveys was not within the optimal survey period, as habitat and flora surveys are typically carried out during summer months when plants are in flower. However, in light of the types of habitats supported by the Site, i.e., predominantly low diversity, rank *Dry meadows and grassy verges* habitat (Fossitt code: GS2), the limited biodiversity of the Site and the context of the Site in the surrounding built-up

environment, the timing of surveys is not considered to pose any significant limitations on the survey results.

- Habitat surveys of the Site were conducted by Enviroguide on the 19th of September 2023. In October 2023, the Applicant carried out minor clearance works to the Site over a period of 3 days, which predominantly consisted of the cutting and removal of overgrown grassland and overgrown areas of boundary scrub and low-level vegetation. These works were required to assist with obtaining important accurate site surveys which included a full Topographical Survey of the existing levels & topography, boundary walls and trees within the Applicant's Site and a Ground Investigation. The Applicant also required an accurate survey of the existing services which traversed the Site including a 'live' underground 90mm dia. 4 bar gas main, which had to be identified and accurately marked out prior to commencing Ground Investigation works. The removal of this vegetation was also required to provide a safe and clear platform for the stable erection of the Ground Investigation equipment including excavators, boring rigs and dynamic probing rig.
- The applicant consulted with the author of this Chapter prior to carrying out the above work and it was agreed that as the habitat survey had been carried out prior to the works taking place, the assessment in this chapter would not be affected by the aforementioned clearance works at the Site. As such, the pre-clearance condition of the Site is assessed in this Chapter as per best practice, as this is the more ecologically valuable scenario and more representative of any habitat losses the Proposed Development would entail should it be granted. The clearance was also carried out outside of the nesting bird season.
- With regards wintering bird surveys which were carried out after the clearance, it was noted that the Site in its pre-clearance condition i.e., high-sward, rank grassland, provided negligible suitable *ex-situ* habitat for species such as light-bellied brent geese (*Branta bernicla hrota*) which do not utilise tall grassland habitats, and minimal suitability for other SCI species such as waders, gulls etc., for similar reasons. The post-clearance condition of the Site likely increased its foraging suitability for species such as waders, gulls etc., by lowering the sward and exposing the ground.
- Therefore, it is deemed that the winter bird surveys being conducted after the above clearance had taken place had no significant bearing on the survey results, other than to slightly increase the *ex-situ* suitability of the Site for some SCI species. The winter bird survey results are discussed further in Section 11.8.4.3.2.2.

With the above noted, it is deemed that no limitations were encountered which would prevent robust conclusions being drawn as to the potential impacts of the Proposed Development on the receiving ecological environment.

11.8 Ecological Baseline Conditions

This section sets out the baseline conditions for the ecological features within the Site using the findings of the desk study and field surveys.

11.8.1 Desk Study results

11.8.1.1 Hydrology, Geology and Hydrogeology

The Site of the Proposed Development is within the Liffey and Dublin Bay catchment, and within the Mayne_SC_010 sub catchment (EPA, 2024). The Site is located along the coast with the closest waterbody being the Howth_09 waterbody (IE_EA_09H230880) or Bloody Stream which runs *c.*35m to the east of the Site, due north, discharging into the sea at Claremont Strand and the Irish Sea Dublin (HA 09) coastal waterbody (IE_EA_070_0000) *c.* 120m to the north of the Site. Another unnamed waterbody (IE_EA_09H230880; segment code: 09_410) lies *c.* 1km to the east of the Site, flowing due north and discharging into the same coastal waterbody at Howth Harbour, *c.* 1km to the east of the Site.

The WFD ecological status of both the Howth_09 and the unnamed watercourse for the 2016-2021 period were classed as 'Moderate'. Regarding waterbody risk, the status of these waterbodies is under review (EPA, 2024). The WFD ecological status of Irish Sea Dublin (HA 09) for the 2016-2021 period was classed as 'Good' (EPA, 2024) and this waterbody is not at risk of not meeting its WFD targets.

There is no EPA water quality monitoring data for the one monitoring station; HOWTH_09 - Interstitial, Br NW of Howth, located on the Howth_09 waterbody *c.*30m to the east of the Site.

The Site of the Proposed Development is situated on the Dublin (IE_EA_G_008) groundwater body, which has a WFD ecological status of 'Good' for the 2016-2021 survey period, and for which risk status is under review (EPA, 2024). The bedrock aquifer identified beneath the Site is mapped as "Locally important aquifer - Bedrock which is Moderately Productive only in Local Zones" (Ll) (GSI, 2024). The level of vulnerability to groundwater contamination from human activities is considered 'High' across the Site (GSI, 2024).

The groundwater rock units underlying the locally aquifer are classified as 'Dinantian Pure Unbedded Limestones' (GSI, 2024). The soil beneath the Site is mapped as 'Limestone till (Carboniferous)', while the soil surrounding the Site comprises 'Man made' (EPA, 2024). The quaternary sediments beneath the Site are mapped as predominantly 'Gravels derived from Limestones (GLs)' , with areas of 'Tills derived from Limestones (GLs)' in the north and south-west of the Site (GSI, 2024).

The Waterbody Status for river, groundwater, transitional and coastal water bodies relevant to the Site as recorded by the EPA (2024) in accordance with European Communities (Water Policy) Regulations 2003 (SI no. 722/2003) (as amended) are provided in Table 11.3.

Table 11.3 WFD Risk and Water Body Status

Waterbody Name	Water body; EU code	Location from Site	Distance from Site (km)	WFD water body status (2016-2021)	WFD 3rd cycle Risk Status	Hydraulic Connection to the Site
Surface Water Bodies						
Howth_09	IE_EA_09H230880	East	0.03km	Moderate	Under Review	Unlikely, due to physical

Waterbody Name	Water body; EU code	Location from Site	Distance from Site (km)	WFD water body status (2016-2021)	WFD 3rd cycle Risk Status	Hydraulic Connection to the Site
						separation of the Site and watercourse.
Unnamed Watercourse	IE_EA_09H230880 (segment code: 09_410)	East	1km	Moderate	Under Review	Unlikely, given distance between the Site and this waterbody
Groundwater Bodies						
Dublin	IE_EA_G_008	N/A	N/A	Good	Under Review	Yes, underlying groundwater-body
Coastal Waterbodies						
Irish Sea Dublin (HA 09)	IE_EA_070_0000	North (downstream)	0.12km	Good	Not At Risk	Unlikely, due to physical separation of the Site and the coast.

11.8.2 Designated Sites

All European sites potentially linked to the Proposed Development have been identified and fully assessed in the AA Screening Report (Stage 1 AA) and subsequent Natura Impact Statement (NIS) (Stage 2 AA) accompanying this submission under separate cover (Enviroguide, 2024a & 2024b respectively). A summary of the AA conclusions is given below.

11.8.2.1 European Sites – Appropriate Assessment

The AA Screening identified two European sites to be at risk of potential significant adverse effects as a result of the Proposed Development, namely Baldoyle Bay SAC (000199) and North-west Irish Sea SPA (004236), located to the north of the Site. Accordingly, a NIS was prepared to assess the impacts in detail and to provide suitable mitigation measures. The following conclusion is extracted from the NIS accompanying this application under separate cover:

"This NIS details the findings of the Stage 2 Appropriate Assessment conducted to further examine the potential for direct and indirect significant effects resulting from the Proposed Large-scale Residential Development (LRD), entitled 'Deer Park Howth LRD' at Lands adjoining Howth Demesne, Deer Park, Howth, Co. Dublin, on the following European Sites:

- *Baldoyle Bay SAC (000199).*
- *North-west Irish Sea SPA (004236).*

The above sites were identified by a screening exercise that assessed likely significant effects of a range of impacts that have the potential to arise from the Proposed Development. The NIS investigated the

likely direct and indirect effects of the proposed works, both during construction and operation, on the integrity and qualifying interests of the two above European Sites, alone and in combination with other plans and projects, taking into account the site's structure, function and conservation objectives, and having regard to best scientific knowledge.

Where potentially significant effects were identified, a range of mitigation and avoidance measures have been suggested to avoid them. This NIS has concluded that, once the avoidance and mitigation measures are implemented as proposed, the Proposed Development will not have an adverse effect on the integrity of the above European sites, individually or in combination with other plans and projects. Where applicable, a suite of monitoring measures have been proposed to confirm the efficacy of said mitigation in relation to ensuring no adverse effects on the habitats or species of the relevant European sites have occurred.

As a result of the complete, precise and definitive findings in of this NIS, it has been concluded, beyond reasonable scientific doubt, that the Proposed Development will have no adverse effects on the integrity and extent of Baldoyle Bay SAC (000199) and/or North-west Irish Sea SPA (004236). Accordingly, the Proposed Development will not adversely affect the integrity of any relevant European site."

As such, European sites are not considered further in this assessment unless mentioned due to their overlapping with a pNHA or other such site.

11.8.2.2 Other Designated Sites

A designated site will only be at risk from likely significant effects where a S-P-R link of note exists between the Proposed Development and the designated site. All designated sites considered using the S-P-R method (excl. European sites) are listed in Table 11.4 and shown in Figure 11.3, Figure 11.4 and Figure 11.5.

The AA Screening ruled out all pathways to European sites with the exception of a Construction Phase hydrological connection between the Site and Baldoyle Bay SAC and the North-west Irish Sea SPA downstream via the local surface water drainage network. This has subsequently been addressed by proposing appropriate Construction Phase surface water mitigation measures in the NIS. The other designated sites considered as part of this assessment, and listed in Table 11.4, overlap with those SACs and SPAs assessed in the AA Screening and NIS prepared for this application and are designated for analogous reasons e.g., the same waterbird species, habitats etc. It is deemed that the AA Screening and NIS therefore have assessed the potential impact of the Proposed Development on these other designated sites assessed by proxy.

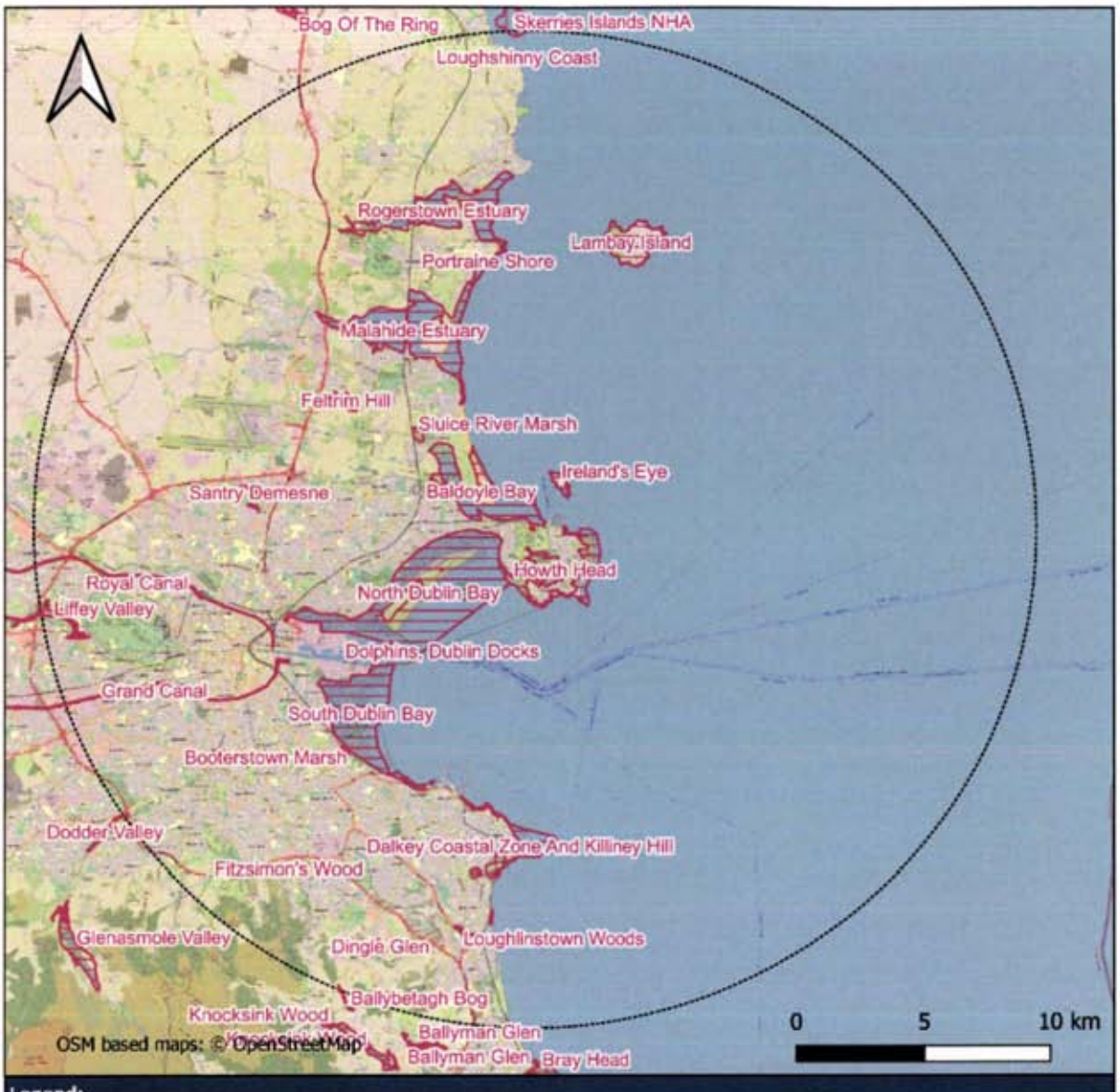
As such, the potential for likely significant effects to occur to these designated sites has been assessed in the AA Screening and NIS and they will not be assessed further as part of this Chapter.

Table 11.4 Designated sites considered with the Source-Pathway-Receptor (S-P-R) method to establish notable links between the sources of effects arising from the Proposed Development

and any relevant designated sites. Those sites with notable S-P-R links that are assessed further are highlighted in green (if any).

Site Name & Code (Receptor)	Distance to Site of Proposed Amendments	Qualifying Interests (* = priority habitats) / Designation Rationale	Potential Pathway to receptors
Natural Heritage Areas (NHAs)			
Skerries Island NHA (001218)	19.8km N	See Skerries Island SPA designation.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species.
Proposed Natural Heritage Areas (pNHAs)			
Baldoyle Bay pNHA	0.1km N	See SPA/SAC designation.	Direct hydrological, hydrogeological, and air / land pathways. Potential *ex-situ* disturbance and flight-line collisions with SCI bird species. Indirect recreational usage pathway.
Howth Head pNHA	0.7km S	See SPA/SAC designation.	Indirect recreational usage pathway.
North Dublin Bay pNHA	1.3km SW	See SPA/SAC designation.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species. Foul water discharge from Ringsend WwTP.
Ireland's Eye pNHA	1.8km NE	See SPA/SAC designation.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species.
Malahide Estuary pNHA	5.6km NW	See SPA/SAC designation.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species.
South Dublin Bay pNHA	7.6km SW	See SPA/SAC designation.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species.
Lambay Island pNHA	11.1km N	See SPA/SAC designation.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species.
Rogerstown Estuary pNHA	11.6km NW	See SPA/SAC designation.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species.
Other Designated Sites (Ramsar, Etc.)			
Baldoyle Bay Ramsar Site (413)	2km W	Designated for wetlands/waterbirds as per SPA.	Direct hydrological, hydrogeological, and air / land pathways. Potential *ex-situ* disturbance and flight-line collisions with SCI bird species. Indirect recreational usage pathway.
Broadmeadow Estuary Ramsar Site (833)	7.8km NW	Designated for wetlands/waterbirds as per Malahide Estuary SPA.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species.
North Bull Island Ramsar Site (406)	1.3km SW	Designated for wetlands/waterbirds as per North Bull Island SPA.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species. Foul water discharge from Ringsend WwTP.

Sandymount Strand/Tolka Estuary Ramsar Site (832)	8km SW	Designated for wetlands/waterbirds as per South Dublin Bay and River Tolka Estuary SPA.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species. Foul water discharge from Ringsend WwTP.
Rogerstown Estuary Ramsar Site (412)	11.6km NW	Designated for wetlands/waterbirds as per Rogerstown Estuary SPA.	Potential *ex-situ* disturbance and flight-line collisions with SCI bird species.



Enviroguide, a DNV company a 3D Core C, Block 71, The Plaza, Park West, Dublin 12 D12F9TN w www.enviroguide.ie e info@enviroguide.ie t +353 (0)1 565 4730	**Applicant:** GLL PRS Holdco. Limited	**Figure Title:** NHAs and pNHAs within 20km of the Proposed Development.	Drawn By: LG; Checked: BL Date: 10/11/2023 Projection: ETRS89 / Irish Transverse Mercator Scale @ A4: 1:214416
	Project: Proposed Large-scale Residential Development	**Location:** Lands adjoining Howth Demesne, Deer Park, Howth, Co. Dublin.	**Notes:** Site boundaries shown are for illustration purposes only and do not represent legal or exact boundaries.

Figure 11.3 NHAs and pNHAs considered as part of this Chapter (20km ZOI used due to Waterbird *ex-situ* potential).

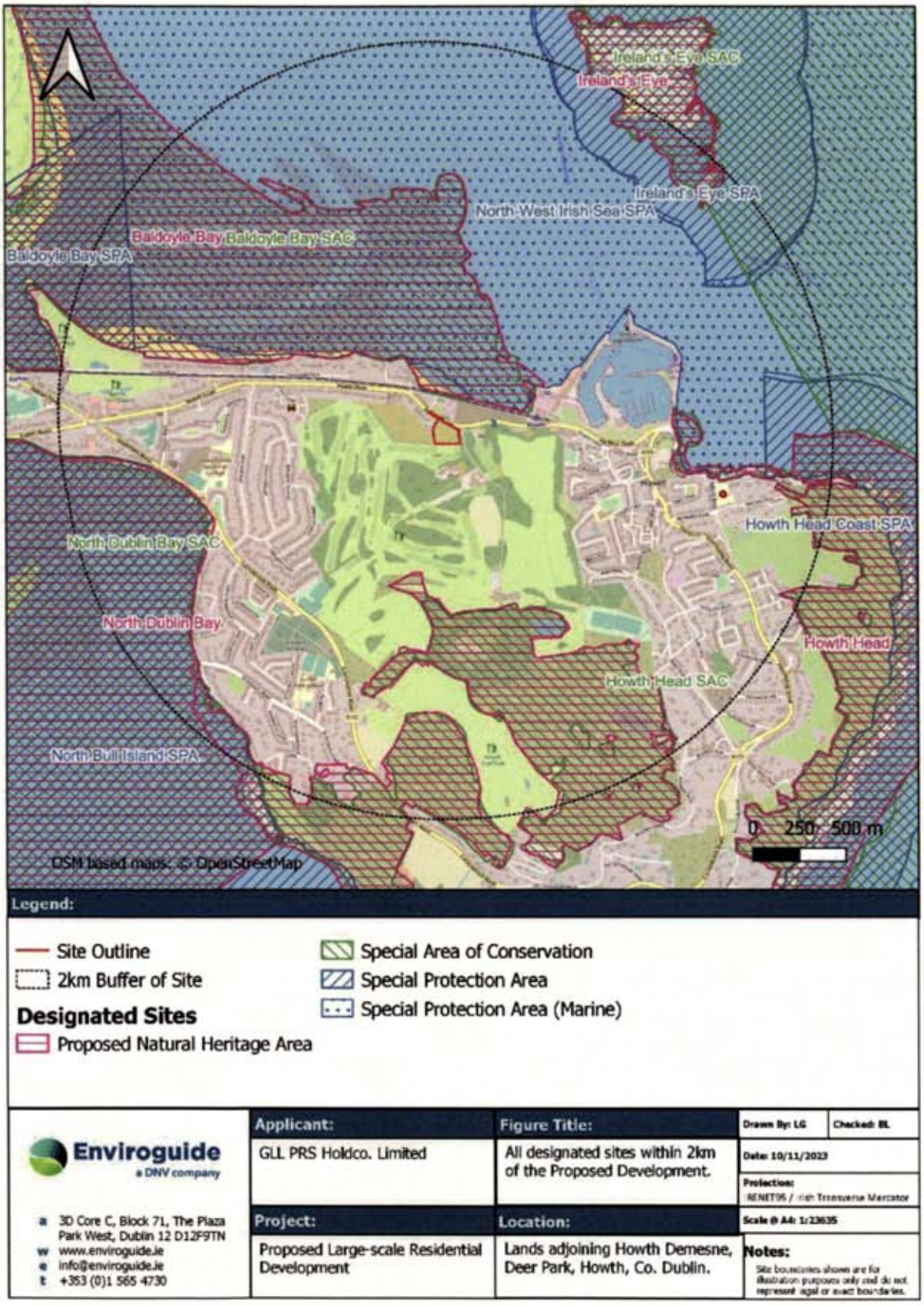


Figure 11.4 Designated sites within 2km of the Proposed Development for reference.

Figure 11.5 Adapted image showing Dublin Ramsar Sites considered as part of this Chapter (Red) and overlap with SAC (yellow) and SPA (Blue) designation areas. Site of Proposed Development indicated with white star. (Source: Irish Ramsar Wetlands Committee website https://www.irishwetlands.ie/irish-sites/).

11.8.3 Habitats and Flora

The habitats present within the Site, as recorded during the field survey on 19th of September 2023, are described in this section, and summarised below. Site photographs of these habitats are included, and a map of the habitats is presented in Figure 11.12. At the time of survey, the majority of the Site consisted of rank dry meadows and grassy verges (GS2) habitat, comprising the main field area. The

southern boundary of the Site is comprised of mixed broadleaved/conifer woodland (WD2), while the eastern boundary of the Site is made up of mature mixed broadleaved woodland (WD1). The western boundary of the Site comprises mature hedgerow (WL1) habitat, with bramble scrub (WS1) encroaching into the Site. The northern Site boundary and eastern boundary both include a stone wall (BL1) which is rendered for the most part, with little in the way of cracks and crevices, but also has been overtaken by ivy (*Hedera sp.*) along much of the northern Site-side boundary wall.

As noted in Section 11.7, clearance of some scrub (WS1) and grassland vegetation at the Site was undertaken by the applicant in October 2023 to enable necessary ground investigations to take place. The photos included in this Chapter were taken during the Enviroguide Site visit conducted prior to these works taking place and thus represent the condition of the Site pre-clearance. As per a best practice approach, this Chapter will therefore assess the habitats on Site in their pre-clearance condition, as this is the more ecologically valuable scenario and more representative of any losses the Proposed Development would entail should it be granted.

11.8.3.1 Dry Meadows and Grassy Verges (GS2)

This habitat makes up the majority of the Site area in the form of an unmanaged, high-sward field (See Figure 11.6). This habitat was grass dominated with species such as creeping bent-grass (*Agrostis stolonifera*), cocksfoot (*Dactylis glomerata*), and false oat-grass (*Arrhenatherum elatius*) present. The herb component of this habitat comprised of common nettle (*Urtica dioica*) (near the field margins), creeping buttercup (*Ranunculus repens*), meadow buttercup (*Ranunculus acris*), dandelion (*Taraxacum sp.*), and bush vetch (*Vicia sepium*) and the occasional curled dock (*Rumex crispus*) and common hogweed (*Heracleum sphondylium*) protruding from the sward.

Figure 11.6 Dry Meadows (GS2) habitat at the Site (image taken facing NE).

11.8.3.2 Mixed Broadleaved / Conifer Woodland (WD2)

A band of semi-mature/early mature planted woodland runs along the southern boundary of the Site east-west (See Figure 11.7). This habitat comprises a mix of oak, Scots pine, alder, sycamore, birch, and beech. The understorey was dominated by ivy and bramble (*Rubus fruticosus*) throughout and also included occasional false brome (*Brachypodium sylvaticum*); rare occurrences of dandelion; occasional common nettle; abundant herb Robert (*Geranium robertianum*), common hogweed and cleavers (*Galium aparine*); and frequent occurrences of Alexanders (*Smyrnium olusatrum*) and an unidentified sedge species (*Carex* sp.).

Figure 11.7 Mixed broadleaved/ conifer woodland (WD2) habitat in the south of the Site.

11.8.3.3 Mature Mixed Broadleaved Woodland (WD1)

This habitat runs to the east of the Site in a north-south direction, along the Howth Castle main entrance road (See Figure 11.8). It lies largely outside of the Site's boundary and overhangs the eastern boundary wall and is dominated by mature beech and sycamore. The understorey is dominated by ivy, with lords and ladies (*Arum maculatum*) and various ornamental shrubs also recorded.

Figure 11.8 Mixed Broadleaved woodland (WD1) along the eastern boundary of the Site (image taken facing west).

11.8.3.4 Scrub (WS1)

At the time of survey this habitat was present along the southern, northern and western boundaries of the Site and was largely bramble dominant (See Figure 11.9). It formed a dense impenetrable layer running along the northern side of the east-west band of woodland that makes up the Site's southern boundary. Blackthorn (*Prunus spinosa*) and hawthorn (*Crataegus monogyna*) are present in this habitat in the south of the Site. This habitat has since been cut back to the boundaries of the Site as discussed in section 11.7. Two medium impact invasive plant species were recorded in the strip of scrub located along the Site's northern boundary: three butterfly bush (*Buddleja davidii*) plants and one Himalayan honey-suckle (*Leycesteria formosa*) plant.

Figure 11.9 Scrub (WS1) habitat present along the Site side of the Southern boundary woodland (image taken facing south).

11.8.3.5 Hedgerow (WL1)

A mature hedgerow containing multiple gaps makes up part of the Site's western boundary and comprises hawthorn, ivy and leyland cypress (*Cupressus leylandii*). This links with more managed, ornamental hedgerows of the private gardens to the north-west of the Site (See Figure 11.10).

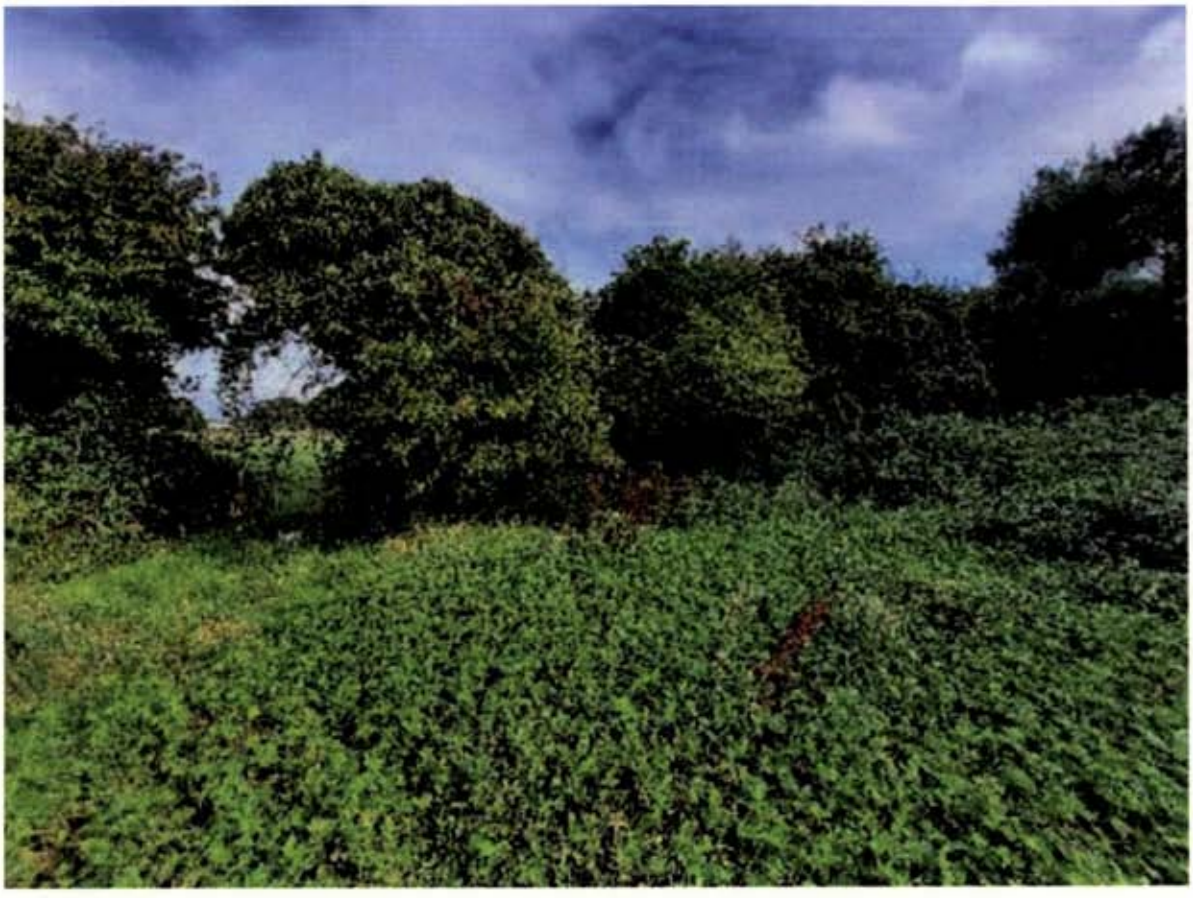


Figure 11.10 The western hedgerow (WL1) (image take facing west).

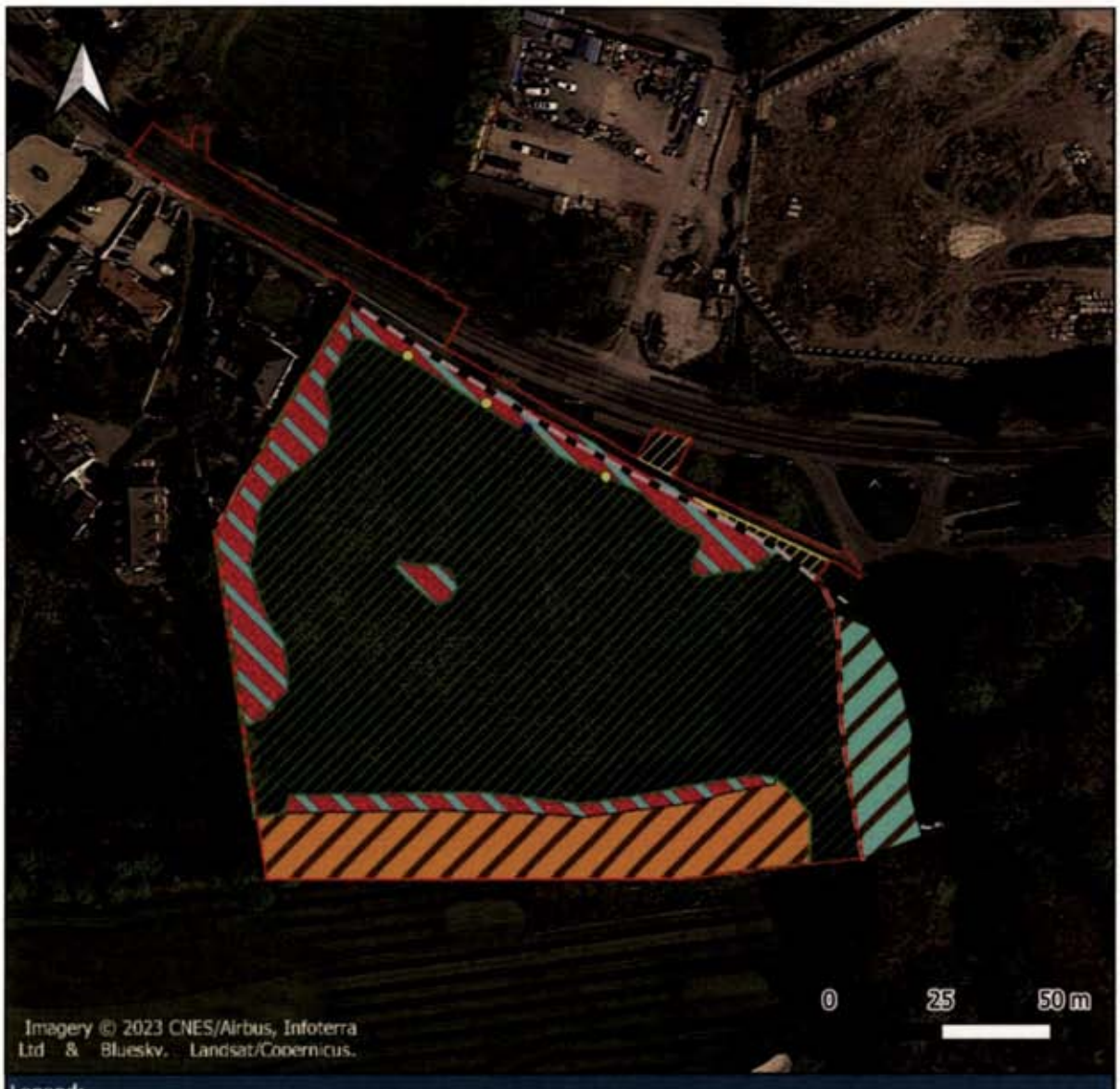
11.8.3.6 Stone Wall (BL1)

The stone wall running along the eastern and northern Site boundaries is largely fully rendered, with some exposed/repointed areas along its base in the east, and along the Howth Road side of the northern wall. The wall supports dense, bush-like ivy growth along its north and north-eastern sections (See Figure 11.11).

Figure 11.11 Example of the stone wall habitat (BL1) at the Site.

11.8.3.7 Buildings and Artificial Surfaces (BL1) & Amenity Grassland (GA2)

Small areas of these habitat are present along the northern boundary of the Site, where the redline includes sections of pathway and associated grassy verge.



Legend:

Site Outline

Habitats

I. Linear habitats

BL1 - Stone walls and other stonework

WL1 - Hedgerows

II. Habitat areas

BL3 - Buildings and artificial surfaces

GA2 - Amenity grassland (improved)

GS2 - Dry meadows and grassy verges

WD1 - (Mixed) broadleaved woodland

WD2 - Mixed broadleaved/conifer

WS1 - Scrub

Non-native/ Invasive Plants

Butterfly Bush

Himalayan Honeysuckle

Enviroguide a DNV company a 3D Core C, Block 71, The Plaza Park West, Dublin 12 D12F9TN w www.enviroguide.ie e info@enviroguide.ie t +353 (0)1 565 4730	Applicant: GLL PRS Holdco. Limited	Figure Title: Habitat Map	Drawn By: LG; Checked: BL Date: 10/11/2023 Projection: IRENET95 / Irish Transverse Mercator
	Project: Proposed Large-scale Residential Development	Location: Lands adjoining Howth Demesne, Deer Park, Howth, Co. Dublin.	Scale @ A4: 1:1224 Notes: Site boundaries shown are for illustration purposes only and do not represent legal or exact boundaries.

Figure 11.12 Map of habitats and ecological constraints at the Site of the Proposed Development.

11.8.4 Species and Species Groups

11.8.4.1 Flora

11.8.4.1.1 Rare and Protected Flora

The Site of the Proposed Development is located within the NBDC 2km tetrad O23U. Species records from the NBDC online database for these grid squares were studied for the presence of rare and/or protected species within the last 20 years. This database contained no records of protected flora within the last 20 years, and no endangered plant species. The Floral Protection Order (FPO) Bryophytes database was also checked for rare and protected flora records within the vicinity of the Proposed Development. No rare and/or protected bryophyte records exist within the Site or its immediate vicinity.

11.8.4.1.2 Invasive Flora

There are records for seven species of flora considered to be invasive within the O23U 2km grid square which encompasses the Site of the Proposed Development. Details of these records are listed below in Table 11.5.

Table 11.5 Records of invasive species of flowering plant for the surrounding 2km grid squares associated with the Site from the NBDC.

Species	Grid square	Date of last record	Source	Designations
Butterfly-bush (*Buddleja davidii*)	O23U	24/05/2014	Ireland's BioBlitz	Medium Impact Invasive Species
Giant hogweed (*Heracleum mantegazzianum*)	O23U	31/12/2017	National Invasive Species Database	High Impact Invasive Species Regulation S.I. 477/2011 (as amended) (Ireland)
Japanese knotweed (*Reynoutria japonica*)	O23U	23/05/2016	National Invasive Species Database	High Impact Invasive Species Regulation S.I. 477/2011 (as amended) (Ireland)
Rhododendron (*Rhododendron ponticum*)	O23U	18/11/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	High Impact Invasive Species Regulation S.I. 477/2011 (as amended) (Ireland)
Salmonberry (*Rubus spectabilis*)	O23U	24/05/2014	Ireland's BioBlitz	Medium Impact Invasive Species Regulation S.I. 477/2011 (as amended) (Ireland)
Sycamore (*Acer pseudoplatanus*)	O23U	24/05/2014	Ireland's BioBlitz	Medium Impact Invasive Species
Three-cornered garlic (*Allium triquetrum*)	O23U	24/05/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive Species Regulation S.I. 477/2011 (as amended) (Ireland)

11.8.4.1.3 Field Survey Results

No rare or protected plant species were recorded on site during ecological walkovers. Three non-native plant species were recorded along the northern Site boundary wall, namely, sycamore, butterfly-bush and Himalayan honey-suckle. Neither of these species are listed on the Third Schedule of S.I. 477/2011 (as amended) and are considered to be 'risk of medium impact' invasive species (Kelly et al., 2013).

Sycamore is considered to be an invasive species due to its ability to outcompete native tree species, and its supposedly low contribution to local biodiversity by supporting fewer insect species than native tree species. However sycamore's invasiveness is considered to be more of an issue in some sensitive native woodland settings, and this species has been found to support relatively high numbers of lichen species, including rarer species, when compared to native tree species (Leslie, 2005). Sycamore is not considered to pose any risk of impacts at the Site of the Proposed Development and will be removed where required as per the Arborist's Tree Impact Plan.

A per the description given in TII (2020), butterfly bush has established itself as a problem plant in many countries where along watercourses, due to its shallow root system, it is frequently washed away, resulting in erosion of the riverbanks and downstream blockages. In Ireland, Buddleia must be considered an invasive species because of the damage it can cause to hard standings and structures, and to native biodiversity. Butterfly bush produces very large numbers of viable seeds, which are dispersed *via* wind and water. The seeds are relatively short-lived in the soil, rarely lasting longer than four years. The plant can also readily spread by producing roots, and ultimately new plants, where stem nodes come into contact with the ground. It can also spread by fragmentation of stems or roots.

The TII (2020) note that Himalayan honeysuckle's red-purple berry-like fruits are widely dispersed by birds. Its bamboo-like stems can grow up to 2m tall and commonly form dense thickets, which can dominate hedgerows and displace native species.

11.8.4.2 Bats

11.8.4.2.1 Desk Study Results

A minimum of three bat species have been recorded within the O23U 2km grid square which encompasses the Site of the Proposed Development, described below in Table 11.6.

Table 11.6 Records of bats for the surrounding 2km Grid Square associated with the Site (NBDC).

Species	Date of last record	Database	Designation
Brown long-eared bat (*Plecotus auritus*)	19/04/2016	National Bat Database of Ireland	EU Habitats Directive: Annex IV Wildlife Act 1976 (as amended)
Leisler's bat (*Nyctalus leisleri*)	23/05/2006	National Bat Database of Ireland	EU Habitats Directive: Annex IV Wildlife Act 1976 (as amended)
Pipistrelle sp. (*Pipistrellus pipistrellus sensu lato*)	23/05/2006	National Bat Database of Ireland	EU Habitats Directive: Annex IV Wildlife Act 1976 (as amended)
Soprano pipistrelle (*Pipistrellus pygmaeus*)	23/05/2006	National Bat Database of Ireland	EU Habitats Directive: Annex IV Wildlife Act 1976 (as amended)

The Bat Conservation Ireland Landscape Suitability Model (Lundy *et al.*, 2011) provides a habitat suitability index for bat species across Ireland. The model divides the country into grid squares and ranks the habitat within the squares according to its suitability for various bat species. The scores are divided into five qualitative categories of suitability, namely:

- 0.0000000 - 13.000000: Low
- 13.000001 - 21.333300: Low – Medium
- 21.333301 - 28.111099: Medium
- 28.111100 - 36.444401: Medium – High
- 36.444402 - 58.555599: High

The Proposed Development Site is located in an area with an overall Medium-High (29.44) suitability for bats in general (Figure 11.13). The suitability index for specific bat species is presented in Table 11.7.

Table 11.7 Landscape Suitability Index for individual bat species (Source: NBDC). Those species that have been recorded in the NBDC database within the O23U 2km grid square are highlighted in green.

Bat Species	Suitability Index (2km Grid Square)
Soprano pipistrelle *(Pipistrellus pygmaeus)*	55 (High)
Brown long-eared bat *(Plecotus auritus)*	39 (High)
Common pipistrelle *(Pipistrellus pipistrellus)*	45 (High)
Lesser horseshoe bat *(Rhinolophus hipposideros)*	0 (Low)
Leisler's bat *(Nyctalus leisleri)*	*47 (High)*
Whiskered bat *(Myotis mystacinus)*	21 (Low - Medium)
Daubenton's bat *(Myotis daubentonii)*	19 (Low - Medium)
Nathusius' pipistrelle (*Pipistrellus nathusii*)	12 (Low)
Natterer's bat *(Myotis nattereri)*	25 (Medium)

Figure 11.13 Bat Landscape Suitability Model (All bats) surrounding the Proposed Development Site indicated within black square (Adapted from NBDC).

11.8.4.2.2 Field Study Results

11.8.4.2.2.1 Preliminary Bat Roost Assessment

The trees on Site hold negligible – low bat roost potential. This includes the trees marked for removal namely two sycamores: T5 (Mature) and T68 (early mature) in the north and west of the Site, three early mature rowans: T2, T4 and T17, and a total of 89m² of semi-mature silver birch (G104) and 5no. semi mature Scots pine (G103) that make up the early mature woodland band that runs along the southern boundary. These trees were all observed to be in relatively good condition with no obvious PRFs visible. The mature trees along the Site's eastern boundary provide low bat roost potential. As per Collins (2023), trees with negligible and low roost potential do not require further surveys unless deemed so by the surveyor. In this case no further surveys are required to confirm presence or absence of roosts in these trees on Site, however further surveys prior to felling may be prudent if a significant period of time has elapsed since between this survey and the felling taking place (trees can become damaged over time increasing their roost suitability).

11.8.4.2.2.2 Bat Habitat Suitability

The vegetation features that make up the Site's boundaries provide moderate foraging and commuting habitat for local bats, with good connectivity to adjacent scrub, woodland, hedgerow and

treelines habitats to the west, south and east of the Site. The central portion of the Site is open field and provides minimally suitable foraging / commuting habitat.

11.8.4.2.2.3 Bat Activity

Altemar's Bat Activity Report (See Appendix 11.6) recorded the following results:

"A single Soprano pipistrelle (Pipistrellus pygmaeus) was noted emerging from the eastern tree line (trees on opposite side of eastern boundary wall of subject site) during all surveys. There was minor foraging activity detected on site in 2019 but not in 2023 and 2024. Streetlights illuminated the northern boundary, which would have had a deterring effect on bat activity. In 2024, a single Leisler's Bat (Nyctalus leisleri) was noted foraging along the southwestern and southeastern boundary of the subject site and a single common pipistrelle was also noted foraging within the treeline along the eastern boundary and in the southeastern corner of the site.".

The results of the activity survey indicate a low level of bat activity at the Site of the Proposed Development, with one individual soprano pipistrelle recorded at the Site during the surveys.

Scott Cawley Ltd. recorded four species of bat within the Site and surrounding woodland in 2020 (Scott Cawley Ltd., 2020b): common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle, Leisler's bat (*Nyctalus leisleri*) and brown long-eared bat (*Plecotus auritus*), with only two of these species common pipistrelle and Leisler's bat recorded within or passing over the Site. Small numbers of bats were recorded foraging along the southern boundary vegetation at the Site during the survey, with more significant activity recorded outside of the Site, along the main avenue and within the woodland to the south of the Site.

11.8.4.3 Birds

11.8.4.3.1 Desk Study Results

A total of 71 bird species have been recorded within the 2km grid square O23U. Of these, 24 are Amber-listed birds and 2 are Red-listed birds as identified on the Birds of Conservational Concern in Ireland (BoCCI) (Gilbert et al. 2021). Details of Amber and Red-listed species are detailed in Table 11.8. The remaining species are all green listed and are omitted from the below results.

Table 11.8 Details of amber and red listed bird species recorded within the relevant NBDC 2km grid square (O23U)

Species	Date of record	National and International Designation
Arctic tern (*Sterna paradisaea*)	24/05/2014	BoCCI Amber List EU Birds Directive: Annex I
Barn swallow (*Hirundo rustica*)	23/05/2014	BoCCI Amber List
Bar-tailed godwit (*Limosa lapponica*)	13/01/2018	BoCCI Amber List EU Birds Directive: Annex I
Brent goose (*Branta bernicla*)	31/12/2011	BoCCI Amber List
Common greenshank (*Tringa nebularia*)	13/01/2018	BoCCI Amber List
Common guillemot (*Uria aalge*)	24/05/2014	BoCCI Amber List
Common kestrel (*Falco tinnunculus*)	31/12/2011	BoCCI Amber List

Species	Date of record	National and International Designation
Common linnet (*Carduelis cannabina*)	24/05/2014	BoCCI Amber List
Common shelduck (*Tadorna tadorna*)	24/05/2014	BoCCI Amber List
Common starling (*Sturnus vulgaris*)	31/12/2011	BoCCI Amber List
Common swift (*Apus apus*)	24/06/2023	BoCCI Amber List
Common tern (*Sterna hirundo*)	24/05/2014	BoCCI Amber List EU Birds Directive: Annex I
Eurasian curlew (*Numenius arquata*)	03/03/2014	BoCCI Red List
Eurasian oystercatcher (*Haematopus ostralegus*)	24/05/2014	BoCCI Amber List
Great black-backed gull (*Larus marinus*)	24/05/2014	BoCCI Amber List
Herring gull (*Larus argentatus*)	24/05/2014	BoCCI Red List
House martin (*Delichon urbicum*)	23/05/2014	BoCCI Amber List
House sparrow (*Passer domesticus*)	31/07/1991	BoCCI Amber List
Little egret (*Egretta garzetta*)	24/05/2014	EU Birds Directive: Annex I
Mallard (*Anas platyrhynchos*)	23/05/2014	BoCCI Amber List
Northern gannet (*Morus bassanus*)	30/12/2022	BoCCI Amber List
Ringed plover (*Charadrius hiaticula*)	31/07/1991	BoCCI Amber List
Sand martin (*Riparia riparia*)	24/05/2014	BoCCI Amber List
Sandwich tern (*Sterna sandvicensis*)	24/05/2014	BoCCI Amber List
Sky lark (*Alauda arvensis*)	31/12/2011	BoCCI Amber List
Spotted flycatcher (*Muscicapa striata*)	31/07/1991	BoCCI Amber List
Stock pigeon (*Columba oenas*)	31/12/2011	BoCCI Amber List

11.8.4.3.2 Field Study Results

11.8.4.3.2.1 Breeding Bird Surveys

A total of 12 species were recorded on Site across three surveys undertaken by FS of Altemar on 6th, 21st & 31st of July 2023 (see Altemar Breeding Bird Report in Appendix 11.5 for details). Two of these species were confirmed breeding during at least one survey.

Two Amber-listed bird species of conservation concern were recorded on Site: herring gull (*Larus argentatus*) and swallow (*Hirundo rustica*). Both species were observed taking flight paths across the Site, neither of which landed or persisted over the Site for the purpose of foraging, resting, or breeding. Two Red-listed bird species of conservation concern were recorded in flight over the Site: curlew (*Numenius arquata*) and swift (*Apus apus*).

Breeding activity was confirmed for two Green-listed species: blue tit (*Cyanistes caeruleus*) and magpie (*Pica pica*). A blue tit pair showed breeding behaviour within the hedgerow along the western boundary between the central tree line and housing to the northwest on the 6th of July. An active magpie nesting site was observed during the same survey within a sycamore tree emerging from the same hedgerow approximately 20 m north of the observed blue tit breeding location towards the residential housing.

No Amber-listed or Red-listed species of conservation concern in Ireland or Annex species under the EU Birds Directive were observed breeding on Site during the breeding bird surveys.

11.8.4.3.2.2 Non-breeding (Winter) Bird Surveys

Site of the Proposed Development and Golf Course Adjacent

No SCI species of nearby SPAs were recorded utilising the Site over the course of the 2023/24 winter bird surveys.

A walk of the Site, the overgrown field to the west and the sections of golf course to the south-west and south of the Site on each survey date produced no wintering target species or indicators of usage e.g., light-bellied brent goose droppings. Disturbance was observed to be minimal on the golf course and adjacent fields over the course of the winter, and there were no disturbance events noted on the Site itself during the surveys.

On the 21st of November 2023, a flock of twenty-one curlew arrived from the north over the adjacent field, circled overhead, and landed briefly on the golf course immediately south of the Site before flying south.

On the 20th of December 2023, an individual grey heron (*Ardea cinerea*) was recorded at a small pool at the Site created by machinery tracks. This bird departed upon detecting the surveyor, flying due north gaining height to 20 metres. An hour later, two grey herons landed on the Site, departing shortly after to the northwest. These birds were in flight over the site for 20 seconds, gaining height to between 15 and 20 metres. Grey heron are not a designated SCI species listed for the SPAs relevant to this assessment, however it can be considered to fall under the broader 'Wetlands and waterbirds' SCI included for many of these SPAs.

No further records of waterbird usage of the Site itself for foraging, roosting etc., were recorded for the remainder of the winter surveys.

A total of 36 non-SCI passerine bird species were recorded during the winter, comprising of 25 Green listed, six Amber-listed, four Red-listed and one un-classified species (feral pigeon (*Columba livia domestica*)). The Site was not observed to support a significant wintering population of rare or endangered passerine species, with three out of the four Red-listed species only recorded flying over the Site; meadow pipit (*Anthus pratensis*), redwing (*Turdus iliacus)* and stock dove (*Columba oenas).* The fourth Red-listed species; curlew, landed once briefly on the golf course to the south of the Site before flying off. Similarly, four of the six Amber-listed species were only recorded as fly-overs: cormorant (*Phalacrocorax carbo),* greenfinch *(Chloris chloris),* herring gull *(Larus argentatus)* and mallard *(Anas platyrhynchos).* The remaining suite of Green-listed species and Amber-listed species recorded within the Site or in-flight overhead are common and widespread species associated with coastal areas, woodland and parkland habitats.

A full species list of birds recorded during the non-breeding bird surveys conducted over the 2023/24 winter survey period are provided in Appendix 11.4 of this EIAR.

Claremont Strand

During the winter bird survey on the 31st of October 2023, Claremont strand was checked at high tide. No roosting waders were recorded; however, human disturbance was noted, and it is likely that birds are using the islands offshore as a high tide roost. Twelve herring gulls were recorded on the water just offshore, and two cormorants (*Phalacrocorax carbo*) and a red-throated diver (*Gavia stellata*) were recorded swimming inshore to the strand on the 31st of October.

On the 10th of November 2023, the survey of the strand recorded fourteen oystercatcher (*Haematopus ostralegus*), six sanderling (*Calidris alba*), 200+ herring gulls, twenty-four great black-backed gulls (*Larus marinus*), one grey heron and two cormorants on the water. On the 21st of November 2023, two roosting greenshank (*Tringa nebularia*), three oystercatchers, one curlew, twelve herring gulls, one grey heron and two great black-backed gulls were recorded along the strand. On the water, one great northern diver (*Gavia immer*), one shag (*Phalacrocorax aristotelis*) and two cormorants were observed.

On the 28th of November 2023, no waders were recorded along the strand, however, 31 herring gulls, two black-headed gulls (*Larus ridibundus*) and three great black-backed gulls were recorded and were the only species of note during this survey. A check of the strand on 20th December 2023 revealed low activity, with three grey herons roosting on adjacent buildings, four black-headed gulls and fifteen herring gulls recorded as being the only species of note present. The surveyor noted, off-lead dogs were likely the cause of this low activity on the beach, as it was observed to be a popular location for walkers and dog owners.

A check of the strand on the 18th of January just before high tide produced very little other than three herring gulls and one grey heron on the buildings. The check of the strand on the receding tide on the 25th of January recorded 80 herring gulls, 12 black-headed gulls and 10 great black-backed gulls. Further out there were two greenshanks and a small flock of 11 oystercatchers. On the small rocky spit at the Howth end of the beach, was one roosting oystercatcher.

A check of the strand just before low tide on the 6th of February produced 85 light-bellied brent geese, 64 oystercatcher, 8 great black-backed gull, 115 herring gulls, and four grey herons on the adjacent buildings. The check of the strand on the 19th of February recorded 86 herring gulls, 12 oystercatcher and 5 grey herons roosting on the adjacent buildings.

The survey of the strand on the 4th of March recorded two great black-backed gulls, 53 herring gulls and one oystercatcher on the strand. The 11th of March survey recorded six light-bellied brent geese flying over the strand, two cormorants offshore, six great black-backed gulls on the strand, a great crested grebe (*Podiceps cristatus*) offshore, one greenshank, two grey wagtail (*Motacilla cinerea*) foraging along the strand promenade, 76 herring gull and one shag feeding offshore. Grey herons were recorded on both dates roosting on the buildings east of the strand.

Full survey results for Claremont Strand are provided in Appendix 11.4 of this EIAR.

Flight-line Survey Results

During the October 19th and 31st surveys, herring gulls were frequently recorded flying over the Site, with many flying from west-east over the field. Great black-backed gull was the second most frequent gull species recorded flying over the Site, with all ages recorded, from first-winter to adult. Black-

headed gull was recorded in very small numbers over the Site on both surveys. As gulls were very frequently passing over the Site, individual flight lines were not recorded.

Grey herons were frequently recorded flying over the Site, particularly on the 31st of October, when they were recorded in flight over the Site on four separate occasions, including adults and one first-winter bird. All the grey heron sightings in flight over the Site included birds flying at heights between 75m and 100m. The maximum time spent over the Site was 15 seconds. One grey heron flew off in a northerly direction (19th October), whereas the other four flew west over the Site.

The survey on the 10th of November 2023 revealed no target species recorded other than herring gulls flying over the Site regularly. Incidental species records of redwings (*Turdus iliacus*), a meadow pipit (*Anthus pratensis*) and two ravens (*Corvus corax*) were also observed in flight over the Site. On the 21st of November 2023, two species of gulls were noted flying over the Site, herring gull, and great black-backed gull. The aforementioned flock of twenty-one curlew recorded landing briefly on the golf course on the 21st of November 2023 were in flight over the Site for ten seconds at a height of 30 metres. On the 20th of December 2023, one cormorant flew west over the Site for 20 seconds, at a height of 100m, while herring gull was the only gull species recorded on this date.

On the 18th of January, herring gulls flew over the Site every few minutes. At 14:40, two curlews flew north over the Site (5 seconds) at a height of 30 metres. Less than an hour later at 15:20, 32 curlew circled over the Site before disappearing south after 25 seconds flying at a height of 50 metres. A great black-backed gull flew south-west over the Site at 15:55 keeping to a height of 50-70 metres (20 seconds).

On the 25th of January, an oystercatcher flew over the adjacent field to the west; however, it was heard only and not seen. A grey heron flew over the Site heading west at a height of 50 metres and spent 15 seconds over the Site. Herring gulls were very common in flight over the Site as with previous surveys.

Surveys on the 6th and 19th of February recorded no fly-overs except herring gulls. The surveys in March recorded two mallards (*Anas platyrhynchos*) in flight over the Site due northwest at a height of 30m for 7 seconds.

Full flightline survey results are provided in Appendix 11.4 of this EIAR.

The results of the winter bird surveys are also of relevance to the assessment of likely significant effects on European sites as detailed in the AA Screening (Enviroguide, 2024a) that accompanies this application under separate cover.

11.8.4.4 Mammals (excl. bats)

11.8.4.4.1 Desk Study Results

Records for terrestrial mammals were obtained from the NBDC online database. Table 11.9 lists these species, their date of last record and summarises their protected status/designation. In total, nine mammal species (six native and three non-native or invasive) were recorded within the 2km grid square which encompasses the Proposed Development Site.

Table 11.9 Records of terrestrial mammals (native and non-native) for the surrounding O23U 2km grid square associated with the Site (NBDC).

Species	Date of last record	Source	Designation
NATIVE SPECIES			
Common porpoise (*Phocoena phocoena*)	10/06/2018	IWDG Cetacean Strandings Database	EU Habitats Directive: Annex II and Annex IV Wildlife Act 1976 (as amended)
Grey seal (*Halichoerus grypus*)	24/05/2014	Ireland's BioBlitz	EU Habitats Directive: Annex II and Annex V Wildlife Act 1976 (as amended)
Minke whale (*Balaenoptera acutorostrata*)	01/01/1860	IWDG Cetacean Strandings Database	EU Habitats Directive: Annex IV Wildlife Act 1976 (as amended)
Northern bottlenose whale (*Hyperoodon ampullatus*)	31/12/1837	IWDG Cetacean Strandings Database	EU Habitats Directive: Annex IV Wildlife Act 1976 (as amended)
Eurasian red squirrel (*Sciurus vulgaris*)	23/05/2014	Ireland's BioBlitz	Wildlife Act 1976 (as amended)
West European hedgehog (*Erinaceus europaeus*)	05/05/2020	Hedgehogs of Ireland	Wildlife Act 1976 (as amended)
NON-NATIVE AND INVASIVE SPECIES			
Brown rat (*Rattus norvegicus*)	23/05/2014	Ireland's BioBlitz	Regulation S.I. 477/2011 (Ireland)
European rabbit (*Oryctolagus cuniculus*)	24/05/2014	Ireland's BioBlitz	Medium Impact Invasive Species
Eastern grey squirrel (*Sciurus carolinensis*)	05/10/2018	Mammals of Ireland 2016-2025	Regulation S.I. 477/2011 (Ireland)

11.8.4.4.2 Field Study Results

Limited evidence of mammals was observed during the survey on the 19th of September 2023. Some possible mammal trails were recorded within the woodland to the southwest of the Site, however this may be as a result of human activity, with people observed on the golf course lands and the field to the west of the Site. A grey squirrel (*Sciurus carolinensis*) was recorded in the golf course lands to the south and European rabbit (*Oryctolagus cuniculus*) has also been recorded in the golf course by the author on separate occasions. These mammal species are both considered invasive.

No signs of badger (*Meles meles*) were observed during the survey in September 2023, despite a thorough survey being conducted for setts, latrines, mammal trails and prints. It is therefore unlikely that badger regularly use the Site or the immediately adjacent fields that were accessible during the survey. Similarly, no signs of otter (*Lutra lutra*) were recorded during the field survey and the Site does not contain suitable habitat for otter. Otter may be present along the coast to the north, which is weakly hydrologically linked to the Site, however due to the nature of the weak hydrological

connection (via the existing public surface water network) and the wide foraging and commuting range of otter, it is not likely that otter will be impacted by the Proposed Development.

The smaller mammals recorded in the desk study, i.e., West European hedgehog (*Erinaceus europaeus*) and red squirrel (*Sciurus vulgaris*) could potentially utilise the Site and its immediate surrounding. The woodland and hedgerows provide commuting features and potential shelter for nesting and resting. Red squirrel is known to be present in Howth (Carr, 2011) with NBDC present records from the area, most recently in 2014. The records of invasive grey squirrel (*Sciurus carolinensis*) in proximity to the Site reduces the likelihood of red squirrel being present.

The marine mammals recorded in desk study of the Site would be restricted to the coastal and marine areas around the peninsula and will not be at risk of significant impacts as a result of the Proposed Development.

11.8.4.5 Amphibians

11.8.4.5.1 Desk Study Results

The NBDC database held one previous record of amphibians within the O23U 2km grid square in which the Site is located, namely, common frog (*Rana temporaria*). The date of the last record was in 2018, and this species is protected internationally under Annex V of the EU Habitats Directive and nationally under the Wildlife Act 1976 (as amended).

11.8.4.5.2 Field Study Results

No evidence of amphibians or suitable breeding habitat for this species group was identified at the Site e.g., pools, drainage ditches, ponds etc., however this does not preclude their presence. However, it is highly unlikely that a locally important population of breeding common frog is present at the Site, given the lack of suitable habitat.

11.8.4.6 Reptiles

11.8.4.6.1 Desk Study Results

There were no previous NBDC records of reptiles within the O23U 2km grid square in which the Proposed Development is situated.

Common lizard (*Lacerta vivipara*) is knowns to inhabit the upland and coastal areas of the Howth Peninsula and a survey on behalf of Fingal CoCo in 2019 (Gandola, 2019) recorded a widespread distribution throughout the southern and eastern coastal areas of Howth peninsula with the highest densities found along the cliff walks in an area known as 'East Mountain', along the eastern side of the peninsula. This area was noted as the most ecologically significant area in Howth for common lizard in terms of abundance, with the highest densities found in the heathland adjacent to the cliff walks.

11.8.4.6.2 Field Study Results

No signs or evidence of common lizard was recorded at the Site although this does not preclude their presence on-Site. The Site provides suboptimal habitat for this species in the form of the existing woodland and rank grassland habitats, and Gandola (2019) noted that the highest abundances of common lizards were found associated with heathland, dry-stone walls, and clifftop grassland

respectively, none of which are present at the Site of the Proposed Development. It is therefore highly unlikely that a locally important population of breeding common lizard is present at the Site.

11.8.4.7 Fish Species

11.8.4.7.1 Desk Study Results

There were no previous NBDC records of fish species within the O23U 2km grid square encompassing the Site of the Proposed Development. The Irish Sea likely supports a range of fish species.

11.8.4.7.2 Field Study Results

No watercourses exist on Site and as such there is no suitable habitat capable of supporting fish or other aquatic species within the Site. The Site maintains a weak hydrological connection to the Irish Sea via the public surface water network. However, the Proposed Development does not have the potential to significantly impact upon fish species within this, or any other waterbody, given the nature of this connection via the surface water drainage network and assimilative capacity of the intervening waters.

11.8.4.8 Invertebrates

11.8.4.8.1 Desk Study Results

No protected invertebrate species were returned from the desk study.

11.8.4.8.2 Field Study Results

No protected invertebrate species were recorded at the Site during the surveys. Additionally, no suitable habitat (i.e. the foodplant Devil's-bit scabious (*Succisa pratensis*)) exists therein for the only internationally protected invertebrate species in Ireland, namely, the marsh fritillary butterfly (*Euphydryas aurinia*).

11.8.4.9 Other Protected and/or notable Species

No other protected or notable fauna have been previously recorded in the 2km O23U grid square (NBDC) for the Site of the Proposed Development or the surrounding areas. Other notable and/or rare species/species listed on Annex IV of the Habitats Directive that were also considered but that are unlikely to occur at the Site include:

- **Flora**
  - Marsh Saxifrage (*Saxifraga hirculus*) – Known populations only in Co. Mayo.
  - Killarney Fern (*Vandenboschia speciosa*) – Nearest known populations in Co. Wicklow, not recorded at the Site, no suitably sheltered and moist habitats available.
  - Slender Naiad (*Najas flexilis*) – A clear water, lowland lake species. No suitable habitat available at the Site.
- **Fauna**
  - White-clawed Crayfish (*Austropotamobius pallipes*) – no suitable habitat at the Site or connected to the Site.
  - Freshwater Pearl Mussel (*Margaritifera margaritifera*) – no suitable habitat at the Site or connected to the Site.

- Natterjack Toad (*Epidalea calamita*) – Distribution restricted to a few coastal sites I the south-east and south-west.
- Kerry Slug (*Geomalacus maculosus*) – Distribution restricted to south and west of Ireland.

11.8.5 Evaluation of Ecological Features

Habitats have been evaluated for their conservation importance, based on the NRA evaluation scheme (NRA, 2009b). Those selected as KERs are those which are evaluated to be of at least local importance (higher value).

Fauna that has the potential to utilise the Site and immediate area of the Proposed Development, or for which records exist in the wider area, have been evaluated for their conservation importance. This evaluation follows the Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009b).

The impacts of the Proposed Development on the identified KERs are assessed in Section 11.10. Table 11.10 overleaf summarises the evaluation rating assigned to each ecological feature and the rationale behind these evaluations is also provided.

Table 11.10 Evaluation of Designated Sites, Habitats, Flora and Fauna recorded within the Site and the surrounding area. Those identified as Key Ecological Receptors (KERs) are highlighted in green.

Site / Species / Species Group	Evaluation	Rationale	Key Ecological Receptor (KER)
DESIGNATED SITES			
Nationally designated sites (pNHAs, NHAs)	National Importance	These designated sites overlap with those SACs and SPAs assessed in the AA Screening and NIS prepared for this application (Enviroguide, 2024a & 2024b) and are designated for analogous reasons e.g., the same waterbird species, habitats etc. It is deemed that the AA Screening and NIS therefore have assessed the potential impact of the Proposed Development on these other designated sites assessed by proxy and no further assessment is required.	**No**
International sites (Ramsar)	International Importance		
HABITATS			
Woodland Habitats (WD1, WD2)	Local Importance (Higher Value)	Notable examples of mature and early mature woodland present along southern boundary and outside the Site to the east, along Howth Castle Avenue, that will be protected and incorporated into the project design. Woodland is included within the Fingal CoCo Development Plan as a Specific Objective to protect and preserve trees, woodlands and hedgerows (NH27).	**Yes**
Scrub (WS1)	Local Importance (Lower Value)	A common and widespread bramble dominant habitat located along the southern and western boundaries of the Site.	No
Hedgerow (WL1)	Local Importance (Higher Value)	A mature hedgerow runs along the western Site boundary that will be protected and incorporated into the project design. Provides connectivity with woodland belt to the south of the Site. Hedgerows are included within the Fingal CoCo Development Plan as a Specific Objective to protect and preserve trees, woodlands and hedgerows (NH27).	**Yes**
Stone Wall (BL1)	Local Importance (Lower Value)	May be of considerable age but is largely rendered and pointed with little to no cracks and crevices for flora/ fauna to use.	No
Dry Meadows (GS2)	Local Importance (Lower Value)	A common habitat; the result of recent lack of management at the Site. Low diversity and grass dominant.	No

Site / Species / Species Group	Evaluation	Rationale	Key Ecological Receptor (KER)
Buildings and Artificial surfaces (BL1) & Amenity Grassland (GA2)	Negligible Ecological Value	Small sections of human-made habitat with negligible ecological value.	No
FLORA			
Rare & Protected Flora	Local Importance (Lower Value)	No rare flora present at the Site and unlikely to be present based on nature of the Site (low diversity rank grassland and associated field boundaries). Unlikely to be present in notable numbers/densities.	No
Invasive Species	Negligible Ecological Value	Sycamore, butterfly bush and Himalayan honeysuckle are not considered high-impact species. Limited occurrences at the Site that provide little ecological value and no significant threat to the surrounding environment. However as best-practice they should be removed and disposed of appropriately to ensure no spread off Site.	**Yes**
NATIVE FAUNA			
Bat Assemblage	Local Importance (Higher Value)	No suitable roost trees or buildings recorded within the Site and no trees with roosting suitability to be removed. Limited activity recorded during the surveys, however, moderate habitat suitability and good connectivity with the habitats in the golf course. Potential to be impacted by inappropriate lighting.	**Yes**
Wintering Bird Assemblage	Local Importance (Higher Value)	Wintering SCI waterbird species associated with relevant SPAs have been assessed in the AA and NIS that accompanies this application under separate cover (Enviroguide, 2024a & 2024b) with no significant populations recorded utilising the Site or adjacent lands. The remaining passerine species recorded during the winter surveys were common and widespread with no significant usage of the Site by Amber-listed or Red-listed species of conservation concern recorded (See Section 11.8.4.3.2.2).	**No**
Potential Breeding Bird Assemblage	Local Importance (Higher Value)	No significant usage of the Site by Amber-listed or Red-listed species of conservation concern recorded during the breeding bird surveys. Suitable nesting habitat exists for the range of passerine species recorded during both the	**Yes**

Site / Species / Species Group	Evaluation	Rationale	Key Ecological Receptor (KER)
		breeding and non-breeding bird surveys at the Site, however, and as such, nesting birds may be impacted by vegetation clearance at the Site should this occur during the nesting season (March-August inclusive).	
Marine Mammals (Common porpoise, Grey seal, Minke whale, Northern bottlenose whale)	Local Importance (Lower Value)	No significant impact pathway linking the Site to areas of the Irish Sea supporting these marine mammal species. The weak hydrological connection linking the Site to the Irish Sea (i.e., Construction Phase surface water entering local storm sewer network) is not deemed to pose a risk of significant impacts on marine mammals.	No
Eurasian red squirrel	Local Importance (Lower Value)	Red squirrel is unlikely to use the Site due to the presence of grey squirrel and its general rarity and limited distribution in Howth.	No
West European hedgehog	Local Importance (Higher Value)	No evidence of hedgehog recorded on Site, however, this is an elusive and discrete species not often easy to record in passing. There are NBDC records present from the surrounding area and suitable hedgerow habitat to support this species is present on Site.	**Yes**
European Badger	Local Importance (Higher Value)	No evidence of badger on Site despite a thorough survey conducted for setts, latrine, mammal trails and prints. Suitable habitat for badgers exists at the Site and wider Deer Park Golf Course lands and badgers could take up residence in the future.	**Yes**
Eurasian Otter	Local Importance (Lower Value)	No suitable habitat for otter on Site or nearby and no habitat connectivity present. The weak hydrological connection linking the Site to the Irish Sea (i.e., Construction Phase surface water entering local storm sewer network) is not deemed to pose a risk of significant impacts on coastal otters if present.	No

Site / Species / Species Group	Evaluation	Rationale	Key Ecological Receptor (KER)
Invasive Non-native Mammals (Brown rat, European rabbit, Eastern grey squirrel)	Negligible Ecological Value	Established invasive species with negative impacts on native fauna species.	No
Common Frog	Local Importance (Lower Value)	No evidence during the surveys of the Site and no suitable breeding habitat present. The Site is unlikely to support a locally important population of frogs.	No
Common Lizard	Local Importance (Lower Value)	No evidence of lizard during surveys of the Site and limited suboptimal habitat present. Highly unlikely that a locally important population of lizards is present at the Site.	No
Fish	Local Importance (Lower Value)	No suitable habitat present within the Site. The weak hydrological connection linking the Site to the Irish Sea (i.e., Construction Phase surface water entering local storm sewer network) is not deemed to pose a risk of significant impacts on fish species in the Irish Sea.	No
Invertebrates	Negligible Ecological Value	No rare species recorded at the Site and no suitable habitat for marsh fritillary present.	No

11.9 The 'Do Nothing' Scenario

Should the Proposed Development not proceed, the lands within the Site would likely remain as they are in the short-term i.e., unmanaged grassland. Bramble and blackthorn scrub would continue to encroach from the southern and western margins of the Site, forming dense thickets and widening the existing hedgerow along the western boundary. In the long-term the southern woodland belt would also continue to mature. The Site would likely slowly increase in its biodiversity value over time if the grassland was left unmanaged and vegetative succession allowed to take place.

11.10 Potential Significant Effects

11.10.1 Avoidance and Mitigation Embedded in Project Design

The Proposed Development includes several embedded design features that may act to avoid or mitigate negative impacts that would likely occur in the absence of these features. However, as opposed to typical mitigation measures, the implementation of these features is integral to the design and completion of the Proposed Development, and as such the assessment of potential significant

effects to KERs is performed with consideration of these features as integrated parts of the Proposed Development. All considered embedded design features that may act to mitigate negative impacts on local ecology and environment are listed in Table 11.11.

Table 11.11 Embedded design features and their potential to act to avoid or mitigate negative impacts on the local ecology and environment.

Embedded Design Feature	Avoidance / Mitigation Potential
SuDS: ▪ Bioretention areas ▪ Rain gardens ▪ Permeable paving ▪ Bioswales ▪ Green/blue roofs ▪ Tree pits	The SuDS features included in the Project Design will ensure the surface water generated by the Proposed Development once operational is reduced to greenfield runoff rates and has been filtered prior to discharge to the local storm sewer network.
Landscape Design: ▪ Retention of the majority of boundary vegetation at the Site. ▪ Widespread tree and shrub planting throughout the Proposed Development.	The retention of the majority of the existing boundary vegetation, coupled with the proposed planting of trees and shrubs throughout the Site, planting of native hedgerow along the north-west boundary and provision of meadow and woodland planting in the south-western and south-eastern corners of the Site, will more than offset the loss of existing grassland, scrub and lesser section of the southern woodland belt at the Site.
Lighting Design ▪ Lux levels of 0.5-1 lux along the vegetated boundaries of the Site. ▪ No Public lighting within the public open spaces in the south of the Site.	The lighting scheme has been designed to allow for minimal levels of light-spill on to the western hedgerow, southern woodland belt and eastern wooded boundary of the Site, which will be used by bats and other wildlife to forage and commute around the Site.

11.10.2 Construction Phase

11.10.2.1 Designated Sites

As detailed in the preceding sections, potential impacts to designated sites have been addressed in the AA Screening and NIS reports that accompany this application under separate cover (Enviroguide, 2024a & 2024b). Once the mitigation measures included within the NIS are adhered to, no likely significant effects are expected on any designated site. Please refer to these documents for further details.

11.10.2.2 Habitats and Flora

There will be the loss of five individual trees at the Site: two sycamores T5 (Mature) and T68 (early mature) in the north and west of the Site, two early mature rowans T4 and T17, and a total of 89m² of semi-mature silver birch (G104) and 5no. semi mature Scots pine (G103) that make up the early mature woodland band that runs along the southern boundary, to facilitate the proposed Block D. The four trees named trees are isolated individuals located along scrub and hedgerows at the Site and so provide some limited value to local birds as nesting/foraging habitat. The loss of these trees, two of

which are non-native sycamores and the other three being early mature planted rowans, is not considered to be significant in the context of the quantity of trees being retained and planted at the Site as part of the landscape plan prepared by Áit.

The loss of 89m² of the early mature planted trees located within a portion of the southern boundary woodland is also not deemed to be significant in the context of the landscape proposals for the Site. It is noted that the vast majority of this woodland belt is being retained with the exception of the section to be removed to facilitate Block D and associated pathway infrastructure. The landscape plan includes the planting of 269 trees across the Site (Áit, 2024), including 5 Scots pines along the south of Block D to replace those to be removed to facilitate its construction, as well as a new native hedgerow proposed along the Site's northwestern boundary. The level of tree planting proposed for the Site will therefore more than replace those trees proposed for removal.

In this regard, and as detailed in the Arboricultural Impact Assessment & Method Statements Report (JMAC, 2024), the existing canopy cover that will be lost due to the Proposed Development will be 227m². It is estimated that new tree planting will provide a combined total of 3,362m² of canopy cover five years post development. The new planting will therefore provide a net-gain in canopy cover of around 3,135m² and this will increase year on year as trees become established and reach maturity. The loss of KER woodland, hedgerow and tree habitats at the Site is therefore deemed to represent a **negative, short-term, slight** impact **at the Local scale** and will be ameliorated once the landscape and tree planting has been completed and becomes established.

In the absence of mitigation measures, there is potential for damage to occur to woodland (WD1 and WD2) and hedgerow (WL1) habitats being retained along the margins of the Site during the Construction phase of the Proposed Development e.g., through plant machinery movements, inappropriate location of earth stockpiles and materials and general site-creep. This is considered to represent a potential **negative, short-term, slight** to **significant** impact **at the Local scale**, with the level of significance depending on the level of damage that occurs/extent of habitat effected.

Three non-native plant species were recorded along the northern Site boundary wall, namely, sycamore, butterfly-bush and Himalayan honey-suckle. These species are not listed on the Third Schedule of S.I. 477/2011 (as amended) and are considered to be 'risk of medium impact' invasive species (Kelly et al., 2013). However, as best practice these species will be removed and disposed of appropriately. In the absence of appropriate removal, there is the potential for **negative, short-term, slight** impacts **at the Local scale** should these plants be spread off Site. The significance level is deemed to be short-term and slight for these species on the basis that they are widespread in the urban environment, are not considered to cause significant issues where present, and are easily removed where required.

11.10.2.3 Fauna

11.10.2.3.1 Bat Assemblage

If lighting is required at the Site during the Construction Phase e.g., in the case of security lighting, improper placement or direction of luminaires could cause light spill onto the hedgerows and woodland areas that run along the Site's boundaries. These vegetated edge habitats are used by bats for commuting and foraging and therefore Construction Phase lighting could impact bats through a

loss of suitable foraging/commuting habitat. This is considered to represent a potential **negative, short-term, significant** impact **at the Local scale**, in the absence of mitigation.

The trees marked for removal have all been assessed and confirmed to be of low-negligible bat roost potential and do not have the capacity to support roosts of multiple bats (e.g. maternity, hibernation roosts). Nevertheless, should individual bats be present during felling, there is the potential for **negative, short-term, slight** impacts on the local bat population **at the Local scale**, in the absence of mitigation.

11.10.2.3.2 Breeding Bird Assemblage

Should any vegetation clearance take place within the breeding bird season (within period March 1st to August 31st, inclusive), there is the potential for harm/mortality to nesting birds and their eggs/young. This would represent a **negative, short-term, significant** impact to breeding birds at the **Local scale** in the absence of mitigation.

There will be likely some noise disturbance to local birds at the Site during the construction works, and some minor loss of habitat in the trees and scrub to be removed at the Site. The latter will be more than offset by the tree and shrub planting proposed as part of the landscape plan for the Site (Áit, 2024). As such both of the above will represent **negative, short-term, slight** impacts to breeding birds at the **Local scale.**

11.10.2.3.3 West European Hedgehog and European Badger

Hedgehog may utilise the grassland and hedgerow habitats at the Site. The Proposed Development may result in the injury/mortality of this species during the vegetation clearance works if carried out during the hibernation period for hedgehog. Badger could take up residence at the Site between the time of the mammal survey that informed this Chapter and the commencement of works on Site. Should a sett be present when works commence badgers could be subject to disturbance impacts as a result of construction activity. The above could result in **negative, short-term, significant** impacts to hedgehogs and badgers at the **Local scale**, in the absence of mitigation.

Construction sites can pose a source of harm for mammals should they find themselves trapped in an excavation or uncapped pipe, or within construction materials e.g., plastic sheeting or netting. There is therefore a potential for **negative, short-term, significant** impacts at the **Local scale**, via harm/entrapment, in the absence of construction mitigation.

11.10.3 Operational Phase

11.10.3.1 Designated Sites

No impacts to designated sites as a result of the operation of the Proposed Development are envisaged. As detailed in the preceding sections, potential impacts to designated sites have been addressed in the AA Screening and NIS reports (Enviroguide, 2024a & 2024b) that accompany this application under separate cover. Please refer to these documents for further details.

11.10.3.2 Habitats and Flora

No Operational Phase impacts to habitats and flora have been identified. The landscape proposals for the Site will ensure that no significant impacts in terms of habitats and flora will occur as a result of the Operation Phase of the Proposed Development.

11.10.3.3 Fauna

11.10.3.3.1 Bat Assemblage

No Operational Phase impacts to bats have been identified. The bat-friendly lighting included within the lighting design as embedded mitigation will ensure that no impacts to bats as a result of the proposed public lighting at the Site will occur.

11.10.3.3.2 Breeding Bird Assemblage

No Operational Phase impacts to breeding birds have been identified and none are likely to occur.

11.10.3.3.3 West European Hedgehog and European Badger

The Site of the Proposed Development currently contains suitable habitat for hedgehogs and badgers and the planted landscaped areas will likely also do so into the future. The Proposed Development therefore has the potential to reduce habitat connectivity for these species moving between the Site and the surrounding lands by way of fenced and walled boundaries. This represents a **negative, long-term moderate** impact at the **Local scale**, in the absence of mitigation.

11.10.4 Cumulative Effects

11.10.4.1 Existing Planning Permissions

A search of planning applications located within a 1km radius of the Site of the Proposed Development was conducted using online planning resources such as the National Planning Application Database (NPAD) (MyPlan.ie), the DHLGH EIA Portal, and Fingal County Council Planning Applications online map resource. Any planning applications listed as granted or decision pending from within the last five years were assessed for their potential to act in-combination with the Proposed Development and cause likely significant effects on the surrounding ecological environment. Long-term developments granted outside of this time period were also considered where applicable.

Based on the coastal location of the Site and the nature and scale of the Proposed Development as a residential project on a Site of approx. 1.53ha in size, a 1km radius is deemed sufficient to capture any projects that could act in-combination with the Proposed Development to cause likely significant effects.

It is noted that the majority of developments within the vicinity of the Site of the Proposed Development are applications granted for small scale residential upgrades to private dwellings and are unlikely to contribute to any in-combination effects involving the Proposed Development. The larger developments located in the vicinity of the Proposed Development are outlined in Table 11.12.

Table 11.12 Granted and Pending Development applications within 1km of the Proposed Development. Location and distance given is relative to the Proposed Development

Planning Reference	Planning Authority	Status	Location
ABP-306102-19	**Fingal CoCo and ABP**	**Granted (under construction)**	**c.20m to the north**

Development Description:

The development would include the demolition and removal of the industrial and commercial structures on the site and the excavation of a basement. Four buildings would be erected up to 8 storeys high. Blocks A and B at the western end of the site would be U-shaped with the open end towards the sea. They would have parking and plant rooms at the ground floor level with communal open space at a podium level equivalent to the lowest floor of apartments. That level would accommodate shared amenities including a gym in Block A and the creche in Block B. Public open space would be provided to the west of Block A up to the site boundary. An open space would be provided between Blocks A and B through which the Bloody Stream would be diverted into a new open channel. Blocks C and D at the eastern end of the site would have the shops, restaurant and café at ground floor level facing the Howth Road and a plaza between them. A pedestrian path would be provided along the northern side of the site at the podium level with access from the street at both ends. The parking areas at ground and basement level would be served by 2 vehicular accesses from the Howth Road. 439 car parking spaces would be provided, 80 of which are designated to serve the commercial premises. 1,335 bike spaces are proposed, 49 of which would serve the commercial premises and the creche.

Potential for In-combination effects:

In a worst-case scenario, combined surface water impacts are possible in the absence of mitigation; if pollution events of a significant scale were to occur during the construction of both developments should their construction phases overlap. An NIS has been prepared for the Proposed Development to address this impact pathway and is provided under separate cover. As such, no likely significant effects will occur as a result of the Proposed Development that could contribute to any in-combination effect relating to surface water run-off. An NIS was also prepared for ABP-306102-19 and addressed surface water impacts in a comprehensive manner. Therefore there is no likelihood of significant effects to European sites as a result of in-combination effects due to incorporation of mitigation measures into both projects.

Combined construction phase noise impacts similarly are possible, however, significant effects on SCI waterbirds using Claremont Strand are not likely for either project; with the NIS prepared for ABP-306102-19 including noise mitigation as an additional precaution regardless. There is therefore no likelihood of significant effects to European sites as a result of in-combination effects relating to noise due to the lack of noise impacts associated with the Proposed Development and the noise mitigation included in the NIS prepared for ABP-306102-19.

No in-combination effects on ecological receptors are envisaged. The Proposed Development and ABP-306102-19 will not result in any combined loss of KER habitats as the site in question was originally an industrial brown-field site with limited habitat or ecological value.

Planning Reference	Planning Authority	Status	Location
ABP-313133-22	**Fingal CoCo and ABP**	**Granted (under construction)**	**c.1km to the east**

Development Description:

The proposed development is for 180no. apartment units on a 1.43ha site as follows: • Demolition of existing structures on site including the disused sports building (c.604sqm) on the Balscadden Road portion of the site and the Former Bailey Court Hotel Buildings on Main Street (c.2051sqm) and the construction of a residential development set out in 4no. residential blocks, ranging in height from 2 to 5 storeys to accommodate 180no. apartments and duplexes with associated residential tenant amenity, 1no. retail unit and 2no. café/retail units. • The site will accommodate a total of 139no. car parking spaces and 410no. bicycle spaces. • Landscaping will include a new linear plaza which will create a new pedestrian link between Main Street and Balscadden Road to include the creation of an additional 2no. new public plazas and also maintains and upgrades the pedestrian link from Abbey Street to Balscadden Road below the Martello Tower. • The 4no. residential buildings range in height from 2 storeys to 5 storeys, accommodating 180no. apartments comprising 4no. studios, 62no. 1 bed units, 89no. 2 bed units and 25no. 3 bed units as follows: - Block A is a 3 storey building, including balconies, accommodating 2no. units; - Block B is a 2 to 5 storey building, including setbacks, balconies, and external roof terraces at 3rd to 4th floors accommodating 126no. units; - Block C is a 3 to 5 storey building, including setbacks and balconies, accommodating 43no. units; - Block D is a 3 storey building, including balconies, accommodating 9 no. residential units; ABP-313133-22 Inspector's Report Page 8 of 155 - Residential Tenant Amenity Space is provided in Blocks B and C, totalling c.427.1sqm and Communal External Amenity Space is provided throughout the scheme including at roof level on Block B, totalling c.4,108sqm. • Non-residential uses comprise of retail unit of c.106.4sqm in Block A at ground level, café/retail unit of c.142.7sqm in Block C at ground and first floor, café/retail unit of c.187.7sqm in Block D at ground level resulting in a total of c.436.8sqm of non-residential other uses. • The development will include a single level basement under Block B, accessed from Main Street only, containing 139 car spaces, including 7 accessible spaces, plant, storage areas, waste storage areas and other associated facilities. A total of 410 cycle parking spaces are provided for at both basement and ground level, comprising 319 resident spaces and 91 visitor spaces. • The scheme provides for a new linear plaza which will create a new pedestrian and cycle link between Main Street and Balscadden Road to include the creation of an additional 2no. new public plazas and also maintains and upgrades the existing pedestrian link from Abbey Street to Balscadden Road below the Martello Tower. • All other ancillary site development works to facilitate construction and the provision of the basement car park, site services, piped infrastructure, a sub station, public lighting, plant, signage, bin stores, bike stores, boundary treatments and hard and soft landscaping. • It is proposed to reduce the ground levels on the site from c.34.5m OD to c.19.97m OD locally under Block C. A single storey basement is proposed under Block B with the existing ground level reduced from c.20m OD to c.17.1m OD. occurring at formation level.

Potential for In-combination effects:

There is no potential for significant in-combination effects involving the Proposed Development and this development (ABP-313133-22) because there is a significant separation distance between the two development sites, such that no significant construction related effects on any waters or from noise are likely to occur. Furthermore both developments applications are accompanied by NIS which conclude that, once mitigation measures are adhered to, neither development will result in likely significant effects on European sites.

The Proposed Development and ABP-313133-22 will contribute to a combined loss of grassland habitats in the area, as the site in question was originally a brown-field site with some rank grassland and scrub habitats. However, no significant in-combination effects are envisaged due to the relatively small scale of both Sites compared to the rest of the semi-natural green spaces on Howth peninsula, and the common, widespread nature of these unmanaged rank grassland habitats. No other in-combination effects on ecological receptors are envisaged.

Planning Reference	Planning Authority	Status	Location
F21A/0368 (ABP-314487-22)	**Fingal CoCo and ABP**	**Under Appeal**	**C. 480m to the north-east**

Development Description:

The development works will consist of the following;

(i) Dredging of the harbour.

(ii) Stabilisation of dredge material.

(iii) Reclamation of land on the west side of the West Pier using dredge material.

(iv) Construction of an embarkment and rock armour revetment around the perimeter of the reclaimed area.

(v) Landscaping of the reclaimed area and provision of pavements, including footways, roadways and parking areas.

(vi) Construction of a slipway access to the water.

(vii) Provision of storage areas for harbour activities; and

(viii) Provision of services, including surface water drainage, mains water supply, lighting, and associated underground ducting.

The proposed development consists of work to the West Pier at Howth FCC, a protected structure (RPS 0595b/NIAH 11359040)). The proposed development will require an Industrial Emissions (IE) licence or waste licence from the Environmental Protection Agency. An Environmental Impact Assessment Report (EIAR) has been prepared and will be submitted to the Planning Authority with the application. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the application.

Potential for In-combination effects:

In a worst-case scenario, combined surface water impacts are possible in the absence of mitigation; if pollution events of a significant scale were to occur during the construction of both developments should their construction phases overlap. An NIS has been prepared for the Proposed Development to address this impact pathway and is provided under separate cover. As such, no likely significant effects will occur as a result of the Proposed Development that could contribute to any in-combination effect relating to surface water run-off. An NIS was also prepared for F21A/0368 / ABP-314487-22 and addressed surface water impacts comprehensively by way of mitigation measures. Therefore there is no likelihood of significant effects to European sites as a result of in-combination effects due to incorporation of mitigation measures into both projects.

Combined construction phase noise impacts similarly are possible, however, likely significant effects on SCI waterbirds using Claremont Strand will not occur for either project; with the NIS and EIAR prepared for F21A/0368 / ABP-314487-22 including noise mitigation as an additional precaution regardless (e.g., protective screening erected around known roost locations).

No other in-combination effects on ecological receptors are envisaged. The Proposed Development and F21A/0368 / ABP-314487-22 will not result in any combined loss of KER habitats.

Planning Reference	Planning Authority	Status	Location
F22A/0046 and ABP-316113	**Fingal CoCo and ABP**	**Under Appeal**	**Adjacent to the east**

Development Description:

Protected Structures (Ref: 0556 and 0557) and within an Architectural Conservation Area. WSHI Ltd. and the Michal J Wright Group intend, in summary, to apply for planning permission to refurbish, redevelop, conserve, and change the use of part of the existing Howth Castle buildings, Stable Block and Attendant lands. The development proposed involves the demolition of some farm buildings, the refurbishment and construction of new buildings, and a change of use of part of the lower and upper ground floors of the castle and adjoining stable block and stable yard from primarily residential use to hospitality and tourist retail use. All of the reimagined, and new, areas will be under the control of a single management company which will be set up to manage the existing castle, stable areas and surrounding attendant lands.

A Natura Impact Statement has been prepared in respect of this development.

Potential for In-combination effects:

In a worst-case scenario, combined surface water impacts are possible in the absence of mitigation; if pollution events of a significant scale were to occur during the construction of both developments should their construction phases overlap. An NIS has been prepared for the Proposed Development to address this impact pathway and is provided under separate cover. As such, no likely significant effects will occur as a result of the Proposed Development that could contribute to any in-combination effect relating to surface water run-off. An NIS was also prepared for F22A/0046 / ABP-316113 and addressed surface water impacts comprehensively by way of mitigation measures. Therefore, there is no likelihood of significant effects to European sites as a result of in-combination effects due to incorporation of mitigation measures in both projects.

The Proposed Development and F21A/0368 / ABP-314487-22 both entail the removal of trees to facilitate each both developments. Development F21A/0368 / ABP-314487-22 entails the removal of 96 trees, including several trees to the east of the Site, along the main Howth Castle, and to the south of the Site in the vicinity of the National Transport Museum buildings. The Proposed Development itself entails a far smaller degree of tree removal (5 individual trees and 89m² of early mature woodland belt). The Proposed Development retains much of its existing boundary tree cover and maintains habitat connectivity around the Site and so, although it will contribute to a cumulative loss of trees in the area with Development F21A/0368 / ABP-314487-22, the more significant tree removal is associated with the latter development and the Proposed Development will not contribute in a significant manner. Furthermore, the landscape plan includes the planting of 269 trees across the Site (Áit, 2024) and will provide a net-gain in canopy cover of around 3,135m² at the Site, and so the level of tree planting proposed for the Site will more than replace those trees proposed for removal.

No other in-combination effects on ecological receptors are envisaged.

Planning Reference	Planning Authority	Status	Location
F22A/0372 and ABP-317883	**Fingal CoCo and ABP**	**Under Appeal**	**c.200m to the east**

Development Description:

The development will consist of the demolition of the existing "Deer Park Hotel" building and all associated structures; and the construction of 1 No. 4 storey building including lower ground floor (Gross Floor Area of c.10,833m2 plus ancillary plant), and consisting of: 1 No. hotel comprising 142 No. bedrooms at 1st to 3rd floor levels incorporating balconies/terraces; a bar, restaurant, gym/spa facility including swimming pool, retail use and back of house facilities at ground floor; meeting rooms, bar and function area at lower ground floor; a restaurant and bar including external dining areas at 3rd floor; photovoltaic panels and sedum roof at roof level and 1 No. ESB substation at ground floor level. A new vehicular access, beginning north of St. Mary's Church (a Protected Structure, RPS Ref. 0594) to proposed hotel, the provision of 170 No. space car park to south of proposed hotel; and all associated hard and soft landscape and boundary treatment works, provision of SUDS measures, associated lighting, site services (foul and surface water drainage and water supply); and all other associated site excavation, infrastructural and site development works above and below ground.

Potential for In-combination effects:

In a worst-case scenario, combined surface water impacts are possible in the absence of mitigation; if pollution events of a significant scale were to occur during the construction of both developments should their construction phases overlap. An NIS has been prepared for the Proposed Development to address this impact pathway and is provided under separate cover. As such, no likely significant effects will occur as a result of the Proposed Development that could contribute to any in-combination effect relating to surface water run-off. An NIS was also prepared for F22A/0372 / ABP-317883 and addressed surface water impacts comprehensively by way of mitigation measures.

Therefore, there is no likelihood of significant effects to European sites as a result of in-combination effects due to incorporation of mitigation measures in both projects.

The Proposed Development will not act in-combination with the development in question in terms of habitat loss. F22A/0372 will result in the replacement of like-with-like in terms of buildings to replace existing buildings. The lands surrounding the hotel are comprised of car park areas and highly maintained golf course lands, therefore it is unlikely significant amounts of valuable habitat will be affected. No other in-combination effects on ecological receptors are envisaged.

11.10.4.2 Relevant Policies and Plans

The local policies and plans detailed in Appendix 11.1 were reviewed and considered for possible in-combination effects with the Proposed Development. Each of these plans has undergone AA, and where potential for likely significant effects has been identified (e.g., in the case of the Fingal County Development Plan), an NIS has been prepared which identifies appropriate mitigation. As such, it is considered that the plans and policies listed will not result in in-combination effects with the Proposed Development in terms of impacts to designated sites. The Fingal County Development Plan 2023-2029 has directly addressed the protection of European sites and biodiversity through specific objectives as detailed in Appendix 11.1 and will therefore not act in-combination with the Proposed Development to cause significant adverse effects on the surrounding ecological environment. The Fingal Biodiversity Action Plan 2023-2030 has been developed to promote biodiversity within the county council area and will also not act in-combination with the Proposed Development to cause significant adverse effects on the surrounding ecological environment.

11.10.5 Summary

The following Table summarises the identified likely significant effects during the Construction Phase of the Proposed Development before mitigation measures are applied.

Table 11.13 Summary of Construction Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
KER Habitats: Inadvertent damage/loss of hedgerow / woodland habitat.	Negative	Slight to Significant (depending on level/ extent of damage)	Local Scale	Likely	Short-term	Direct
KER Habitats: Tree removal.	Negative	Slight	Local Scale	Likely	Short-term	Direct
Invasive Plant Species: Spread off Site and potential nuisance.	Negative	Slight	Local Scale	Likely	Short-term	Direct
Bat Assemblage: Loss of habitat due to lighting disruption along boundary habitats.	Negative	Significant	Local Scale	Likely	Short-term	Direct

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Bat Assemblage: Harm of individual bats if present during tree felling.	Negative	Slight	Local Scale	Likely	Short-term	Direct
Potential Breeding Bird Assemblage: Risk of injury or death during vegetation clearance.	Negative	Significant	Local Scale	Likely	Short-term	Direct
Potential Breeding Bird Assemblage: Minor loss of nesting habitat.	Negative	Slight	Local Scale	Likely	Short-term	Direct
Potential Breeding Bird Assemblage: Disturbance from noise.	Negative	Slight	Local Scale	Likely	Short-term	Direct
Western European Hedgehog & European Badger: Risk of injury/ death/ disturbance during vegetation clearance and / or entrapment in construction-related rubbish/ excavations.	Negative	Significant	Local Scale	Likely	Short-term	Direct

The following Table summarises the identified likely significant effects during the Operational Phase of the Proposed Development before mitigation measures are applied.

Table 11.14 Summary of Operational Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Woodland / hedgerows: Increase in tree planting and diversity of habitats across the Site.	Positive	Slight	Local Scale	Likely	Long-term	Direct
Potential Breeding Bird Assemblage: Increase in tree planting and diversity of habitats across the Site.	Positive	Slight	Local Scale	Likely	Long-term	Direct
Western European Hedgehog & European Badger Loss of habitat connectivity with surrounding lands.	Negative	Moderate	Local Scale	Likely	Long-term	Direct

11.11 Mitigation

11.11.1 Incorporated Design Mitigation

The incorporated or 'embedded' mitigation included in the Proposed Development from an ecology perspective includes a the suite of SuDS measures detailed in Section 11.3.1.2.1, and the bat friendly public lighting plan as discussed in Section 11.3.1.2.4.

11.11.2 Construction Phase Mitigation

11.11.2.1 Mitigation 1: Pre-clearance Invasive Species Survey and Management

A pre-clearance survey of the Site will be conducted by a suitable qualified Ecologist before any clearance of vegetation or soil strip takes place. This survey will identify any locations of invasive plant species e.g., the butterfly-bush and Himalayan honey-suckle plants recorded along the northern Site boundary wall. For examples imagery of butterfly bush and Himalayan honeysuckle, please see Figure 11.14.

These plants will be removed as per the species-specific guidance for each species included in the Traffic Infrastructure Ireland (TII) guidance document titled "The Management of Invasive Alien Plant Species on National Roads – Technical Guidance - GE-ENV-01105" (TII, 2020). It is noted that sycamore is not considered to pose a risk of spread or impacts at the Site or off Site due to the nature of its invasiveness (See Section 11.8.4.1.3 for details). This species is not included in the TII guidance and does not require a specific removal approach; it can be removed as per normal tree removal protocol.

Figure 11.14 Images of butterfly bush (left) and Himalayan honeysuckle (right) from TII (2020).

11.11.2.2 Mitigation 2: Tree Protection Measures

Protective tree fencing in compliance with BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' will be erected prior to any Construction works being undertaken to prevent damage to the canopy and root protection areas of existing trees to be retained at the Site, particularly the western hedgerow and southern woodland belt.

The fencing will be signed off by a qualified arborist prior to Construction to ensure it has been properly erected. No ground clearance, earthworks, stock-piling or machinery movement will be undertaken within these areas.

The project Arborist will be instructed **prior to commencement on Site**; to ensure that appropriate tree protection measures are in place. These measures will entail robust fencing around the root protection zones of all trees and hedgerows being retained on Site. An adequate level of signage will also be provided to highlight 'no work zones' and ensure that Site creep and damage to retained habitats does not occur. The western boundary hedgerow and southern boundary woodland must be sufficiently protected for the duration of the Construction Phase to maximise their ecological value in the final landscape plan.

The project Arborist, the project Ecologist and the Site Manager will work together to ensure these sections of hedgerow/woodland are protected for the duration of the works.

11.11.2.3 Mitigation 3: Construction Phase Lighting

Any night-time lighting required during the Construction Phase for security etc., will be directed away from the boundary vegetation at the Site (i.e., away from hedgerows and woodland areas), and will not be directed skyward. Lighting will be focused into the centre of the Site and only on equipment and machinery that needs to be illuminated.

The Project Ecologist acting as ECoW for the project will review the Construction Phase lighting with the Contractor regularly during their site visits and make recommendations as required to ensure the lighting is maintained as bat friendly for the duration of the works.

11.11.2.4 Mitigation 4: Timing of Vegetation Clearance

To ensure compliance with the Wildlife Act 1976 as amended, the removal of areas of vegetation will not take place within the nesting bird season (March 1st to August 31st inclusive) to ensure that no significant impacts (i.e., nest/egg destruction, harm to juvenile birds) occur as a result of the Proposed Development. Should nesting birds be found, then the area of habitat in question will be noted and suitably protected until the ecologist confirms the young have fledged.

Table 11.15 provides guidance for when vegetation clearance is permissible. Information sources include British Hedgehog Preservation Society's *Hedgehogs and Development* and *The Wildlife (Amendment) Act, 2000*.

The preferred period for vegetation clearance is **within the months of September and October**. Vegetation will be removed in sections working in a consistent direction to prevent entrapment of protected fauna potentially present (e.g., hedgehog). Where this seasonal restriction cannot be

observed, a check will be carried out immediately prior to any Site clearance by an appropriately qualified ecologist and repeated as required to ensure compliance with legislative requirements.

11.11.2.5 Mitigation 5: Bat Precautions when Felling Trees

Although all trees on Site set for felling have been assessed and confirmed to be of low-negligible bat roost suitability, harm to individual bats is possible should they be present during the felling process. It is also possible that trees can become damaged in the time between the original PBRA survey and the tree felling taking place, and this can sometimes increase the bat roost suitability of a tree, providing new roost features e.g., cracks, holes etc.

As such, a pre-felling check will be conducted by a suitably qualified Ecologist of all trees to be felled at the Site prior to felling taking place; to ensure that no changes have occurred and that no individual bats will be harmed. In the unlikely event that a roosting bat is found, no felling of the tree in question will take place and a derogation licence will be obtained from the NPWS to proceed. The Area around the tree will be protected with an appropriate buffer to prevent disturbance of the bat.

It is important to note that permission for the Proposed Development can be granted without any reliance on the potential grant of a derogation licence, and that any references to the potential need to obtain a licence are purely precautionary, as detailed above, and therefore not integral to the decision on whether to grant permission.

11.11.2.6 Mitigation 6: Construction Site Management for Mammals

As a precaution, a **pre-construction badger survey of the Site** will be conducted by a suitably qualified Ecologist prior to any clearance of scrub, cutting back of hedgerows/woodland taking place; to confirm whether badger have occupied the Site between the time of the mammal survey that informed this Chapter and the commencement of works on Site.

As best-practice all construction-related rubbish on Site e.g., plastic sheeting, netting etc. will be kept in a designated area and kept off ground level so as to prevent small mammals such as hedgehogs from entrapment and death.

Trenches/pits must be either covered at the end of each working day or include a means of escape for any animal falling in e.g., a plank or objects placed in the corner of an excavation (Species such as badgers will continue to use established paths across a site even when construction work has started).

Any temporarily exposed open pipe system will be capped in such a way as to prevent animals gaining access as may happen when contractors are off Site.

Table 11.15. Seasonal restrictions on habitat/vegetation removal for relevant KER species. Red boxes indicate periods when clearance/works are not permissible.

Ecological Feature	January	February	March	April	May	June	July	August	September	October	November	December
Breeding Birds	Vegetation clearance permissible **(Sept - Feb)**		Nesting bird season. No clearance of vegetation unless confirmed to be devoid of nesting birds by an ecologist. **(Mar - Aug)**						Vegetation clearance permissible **(Sept - Feb)**			
Hibernating mammals (e.g., Hedgehog)	Mammal hibernation season. No clearance of vegetation unless confirmed to be devoid of hibernating mammals by an ecologist. **(Jan - Mar)**			Vegetation clearance permissible **(Apr - Oct)**							Mammal hibernation season. No clearance of vegetation unless confirmed to be devoid of hibernating mammals by an ecologist. **(Nov - Dec)**	

11.11.3 Operational Phase Mitigation

11.11.3.1 Mitigation 7: Mammal Habitat Connectivity

By fencing the boundaries of a Site, the land becomes fragmented and largely inaccessible to species such as hedgehog, which like to roam each night in search of food (garden pests e.g., slugs). This can easily be fixed by ensuring that the boundaries and barriers within and surrounding the Site i.e., the external mesh fencing proposed for the Site, is permeable for hedgehogs. This will allow hedgehogs to move between the golf course lands and the Site's woodlands and hedgerows.

This will be achieved by:

- Providing 13 x 13 cm holes at ground level at various locations along the external mesh fencing (Hedgehog holes).
- Leaving a sufficient gap beneath gates.
- Leaving brick spaces at the base of brick walls.

Should badger activity be recorded at the Site during the pre-commencement check carried out by the Ecologist (See Section 11.11.2.1 – Mitigation 1), provision will be made for larger mammal holes to allow badger to continue to utilise the Site. These measures will be agreed between the Ecologist and the Site Contractor.

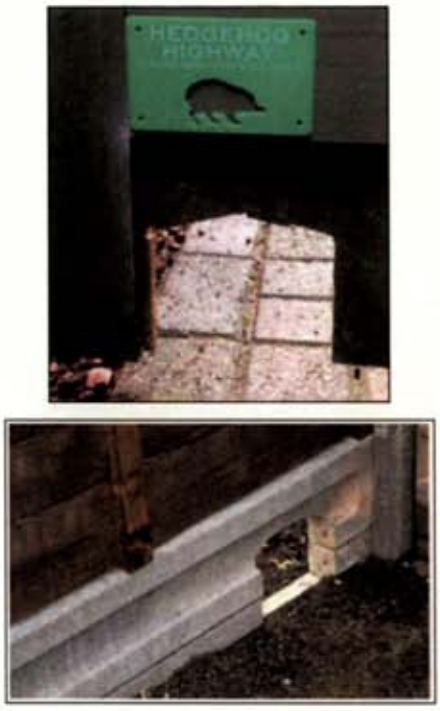


Figure 11.15 Examples of Hedgehog Highways that will be incorporated into the Proposed Development.

The inclusion of hedgehog highways will be included as part of the landscape design of the Site, specifically the external mesh fencing proposed. A variety of fence suppliers stock specific hedgehog-friendly fencing options, which can be easily incorporated at little or no additional cost. The 13 x 13cm holes can also be cut into mesh fencing on site quite easily. These simple measures will provide habitat connectivity at the Site for hedgehogs and reduce the impact of the land-use change on this species.

11.12 Biodiversity Enhancement Measures

11.12.1 Enhancement 1: Swift Bricks

It is proposed to include 32 No. swift bricks as part of the Proposed Development. The swift bricks will be installed side by side, with two sets of eight bricks located on the south-eastern and south-western elevations of Block B, four swift bricks located on the south-western elevation of Block D, and 13 on the south-eastern elevation of Block D. The bricks are located in groups as swifts are a social nesting species (See Figure 11.16). As per best practice, swift bricks will be installed at least 5 metres above the ground, in safe areas where they will not be disturbed. As the bricks tend not to overheat, they can be placed facing in any direction. Care has been taken to ensure no obstacles or plate glass windows are located below the bricks.

Guidelines for the bird box scheme follow the guidelines published by Swift Conservation Ireland, and those published by Birdwatch Ireland entitle "Saving Swifts" (2009/2010). The incorporation of Swift Bricks will help recover the declining swift population, which are now Red Listed in Ireland (Gilbert et al., 2021).

Swifts are a "clean" bird species which remove their own wastes from their nests periodically. As such, Swift bricks do not require any cleaning by the management company.

A **Swift calling system** will be installed to attract Swifts and encourage them to take up residence at a new site. A Swift calling system is a small speaker set-up that plays Swift calls during the summer. It will be located close to the brick entrances and has been seen to greatly increase the chances of Swifts using the Swift boxes/bricks. Solar powered options are available.

An Ecologist will be instructed to set up the Swift calling system once the construction of the Proposed Development is complete. This can be with the help of active local Swift groups as required (e.g., Dublin Swift Conservation Group), who can help and advise as to the best set-up etc.

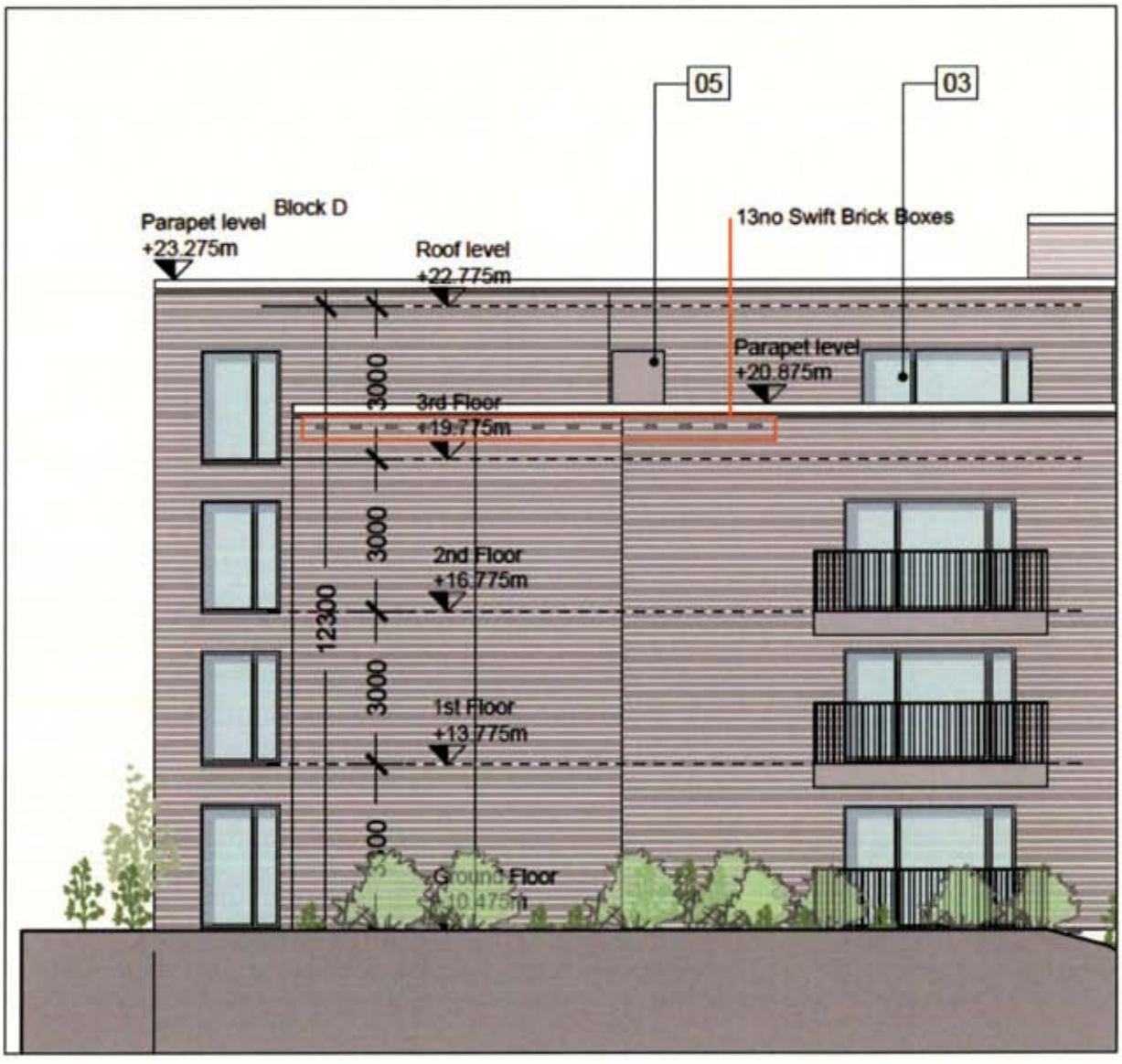


Figure 11.16 Image extracted from John Flemming Architect drawing no: DPK-CD-ZZ-DR-JFA-AR-P4002 showing one of the proposed locations of the swift bricks on Block D.

11.12.2 Enhancement 2: Bat Boxes

By way of enhancement a set of 8 bat boxes will be erected at the Site, on suitably mature trees located along the southern woodland belt, under the guidance of the Project Ecologist. The bat box type installed will be the 2F Schwegler Bat Box or a similar durable woodcrete make.

The bat boxes will be located in locations unlit by night-time lighting and *ca.*4m above the ground to prevent disturbance. The southern woodland belt was noted to support bat foraging activity in the past and so the provision of new roosting opportunities will act to enhance bat usage of the Site.

11.12.3 Enhancement 3: Biodiversity Hedgerow and Woodland Management

A **Hedgerow and Woodland Management Plan (HWMP)** will be prepared for the Site by a suitably qualified Ecologist and signed off by Fingal CoCo's Biodiversity Department. The HWMP will specify the management of the retained and newly planted hedgerows and woodland for the Management Company who will take charge of the operational landscape management of the Site.

The existing hedgerow proposed to be retained along the western boundary of the Site, along with the woodland belt in the south of the Site, will be managed using a low-intervention approach i.e., in a way that maximises the ecological value they provide, with habitat connectivity maintained along the western, southern and eastern margins of the Site; connecting it in with the wider woodland network within Deer Park Golf Course.

This connectivity is vital for wildlife such as birds, bats, mammals and insect pollinators in a human landscape such as that which will be provided by the Proposed Development. Additionally, by managing hedgerows and woodland in a more natural way, they will provide more in terms of biodiversity; through increased plant diversity, increase provision of food resources and higher quality shelter to wildlife inhabiting and commuting through the area.

A low-intervention management approach may not be appropriate for internal ornamental hedgerows planted within the main residential component of the Proposed Development, due to aesthetic or logistical reasons, however, it is best suited for the external hedgerows and woodland present along the margins of the Site.

The following measures will be adopted by the Management Company tasked with maintaining the Site's landscaping into the future:

- The hedgerow and woodland areas located along the outer boundaries of the Site will, as much as is practicable, be allowed to link up with each other. The provision of an almost continuous vegetative margin around the Site; through planted native hedgerows and trees, will maintain habitat connectivity with the surrounding environment.
- The understorey areas within the woodland belt that runs along the southern side of the Site will be maintained in as wild a state as possible, with minimal intervention, and with areas of dense, scrub habitat allowed to form. This will recreate the natural scrub habitat conditions present within the existing woodland.

- Hedgerows will be maintained with a minimum **natural meadow strip of 1-2m** at their base wherever possible. Hedges with plenty of naturally occurring flowers and grasses at the base support will provide higher quality habitat for local wildlife using the hedges.
- The 1-2m strip at the base of the hedgerow will be cut on a reduced mowing regime to encourage wildflower growth and maximise the value of the hedgerow for pollinators. A **two-cut management approach** is ideal for suppressing coarse grasses and encouraging wildflowers. Cut the hedgerow basal strip **once during February and March** (this is before most verge plants flower and it will not disturb ground-nesting birds). Cut the verge **once again during September and October** (this slightly later cutting date allows plants that were cut earlier in the year time to grow and set seed).
- N.B. Raising the cutter bar on the back cut will lower the risk to small mammals.
- Where hedgerow, scrub or woodland understorey trimming needs to occur, delay trimming as late as possible – until **January and February** as the surviving berry crop will provide valuable food for wildlife. The earlier this is cut; the less food will be available to help birds and other wildlife survive through the winter. Any hedgerow/scrub/woodland trimming will be done outside of the nesting season and due consideration of the Wildlife Act 1976 (as amended) must be taken.
- Where possible, cut these outer boundary hedgerows on a minimum **3-year cycle** (cutting annually stops the hedgerow flowering and fruiting), and cut in rotation rather than all at once - this will ensure some areas of hedgerow will always flower (Blackthorn in March, Hawthorn in May etc.).
- Where they occur naturally, Bramble and Ivy should be allowed grow in hedgerows and along woodland areas, as they provide key nectar and pollen sources in summer and autumn.

Methods to Avoid

Hedgerows and woodland understorey will not be over-managed. Tightly cut hedges and vegetation mean there are fewer flowers and berries, thus reducing available habitats, feeding sources and suitable nesting sites.

Hedgerows and woodland understorey will not be cut between March 1st and August 31st inclusive. It is both prohibited (except under certain exemptions) and very damaging for birds as this is the period they will have vulnerable nests containing eggs and young birds.

Pesticide/ herbicide sprays or fertilisers will not be used near hedgerows or woodland understorey as they can have an extremely negative effect on the variety of plants and animals they support.

11.13 Residual Impact Assessment

Residual impacts are impacts that remain once mitigation has been implemented or impacts that cannot be mitigated. Table 11.16 provides a summary of the impact assessment for the identified KERs and details the nature of the impacts identified, the mitigation measures proposed, and the classification of any residual impacts.

Both standard Construction Phase control measures, and specific mitigation measures, have been outlined to ensure that the Proposed Development does not impact on any species, habitats or designated sites of conservation importance. It is essential that these measures are complied with, in order to ensure that the Proposed Development complies with National conservation legislation.

Provided all recommended measures are implemented in full and remain effective throughout the lifetime of the Proposed Development, no significant negative residual impacts on the local ecology, or on any designated nature conservation sites, will occur as a result of the Proposed Development.

Table 11.16 Summary of potential impacts on KER(s), mitigation proposed and residual impacts.

Key Ecological Resource	Evaluation	Potential Impact	Impact Without Mitigation				Proposed Mitigation / Mitigating Factors	Proposed Enhancements	Residual Impact
			Quality	Magnitude / Extent	Duration	Significance			
DESIGNATED SITES									
No impacts to any designated sites will occur as a result of the Proposed Development and therefore no mitigation measures are recommended. See AA and NIS (Enviroguide, 2024a & 2024b) for further details.									
HABITATS									
Woodland and Hedgerow Habitats (WD1, WD2 & WL1)	Local Importance (Higher Value)	**Construction Phase:** Inadvertent damage/loss of habitat. Loss of trees to be removed to facilitate the Proposed Development **Operational Phase:** Increase in tree planting and diversity of habitats across the Site.	*Negative* *Negative* *Positive*	*Local scale* *Local scale* *Local scale*	*Short-term* *Short-term* *Long-term*	*Slight to Significant (depending on level/ extent of damage)* *Slight* *Slight*	**Mitigation 2:** Tree protection measures to be put in place and adhered to, to protect existing boundary vegetation as detailed in the Arborist Report for the Proposed Development.	Biodiversity Enhancement by Design through Landscape Plan (Increase in native tree cover at the Site) **Enhancement 3:** Biodiversity Hedgerow and Woodland Management.	**Imperceptible** (Damage/loss during construction) **Positive, Local scale, Long-term, Slight** (Increase in tree planting)

Key Ecological Resource	Evaluation	Potential Impact	Impact Without Mitigation				Proposed Mitigation / Mitigating Factors	Proposed Enhancements	Residual Impact
			Quality	Magnitude / Extent	Duration	Significance			
Invasive Plant Species (Butterfly bush, sycamore and Himalayan honeysuckle)	Local Importance (Higher Value)	**Construction Phase** The inadvertent spread of these species off Site could cause potential nuisances.	*Negative*	*Local scale*	*Short-term*	*Slight*	**Mitigation 1:** Pre-clearance invasive species survey by an Ecologist and appropriate removal/disposal off Site.	N/A	**Imperceptible**
FAUNA									
Bat Assemblage	Local Importance (Higher Value)	**Construction Phase:** Loss of habitat due to lighting disruption along boundary habitats. Harm to individual bats if present during tree felling. **Operational Phase:** None identified due to embedded mitigation in lighting design.	*Negative* *Negative*	*Local scale* *Local scale*	*Short-term* *Short-term*	*Significant* *Slight*	**Mitigation 3:** Bat friendly Construction Phase lighting measures to be included in Contractor's CEMP e.g., nighttime security lighting (No light-spill skyward or on boundary vegetation). **Mitigation 5:** Pre-felling checks of all trees to be felled by an Ecologist.	None	**Imperceptible** **Positive, Local scale, Long-term, Significant**

Key Ecological Resource	Evaluation	Potential Impact	Impact Without Mitigation				Proposed Mitigation / Mitigating Factors	Proposed Enhancements	Residual Impact
			Quality	Magnitude / Extent	Duration	Significance			
							Enhancement 2: The provision of 8x bat boxes at the Site.		(New roosting habitat for bats)
Potential Breeding Bird Assemblage	Local Importance (Higher Value)	**Construction Phase:** Risk of injury or death during vegetation clearance. Disturbance from noise. Loss of habitat. **Operational Phase:** None identified.	*Negative* *Negative* *Negative*	*Local scale* *Local scale* *Local scale*	*Short-term* *Short-term* *Short-term*	*Significant* *Slight* *Slight*	**Mitigation 4:** Vegetation Clearance outside of nesting bird season and supervision by an Ecologist as required. Best practice construction noise measures outlined in various sections of the CMP (DOBA, 2024b).	Biodiversity Enhancement by Design through Landscape Plan (Increase in native tree cover at the Site) **Enhancement 1:** Provision of 32no. swift bricks in the facades of Blocks B and D.	**Imperceptible** (Vegetation Clearance) **Negative, Local scale, Short-term, Slight (Not Significant)** (Construction Noise / loss of habitat) **Positive, Local scale, Long-term, Moderate** (Increase in tree cover)

Key Ecological Resource	Evaluation	Potential Impact	Impact Without Mitigation				Proposed Mitigation / Mitigating Factors	Proposed Enhancements	Residual Impact
			Quality	Magnitude / Extent	Duration	Significance			
									Positive, Local scale, Long-term, Significant (Habitat for endangered swifts)
Western European Hedgehog	Local Importance (Higher value)	**Construction Phase:** Risk of injury or death during vegetation clearance and / or entrapment in construction-related rubbish. **Operational Phase:** Loss of habitat connectivity with surrounding lands.	*Negative* *Negative*	*Local scale* *Local scale*	*Short-term* *Long-term*	*Significant* *Moderate*	**Mitigation 4:** Vegetation Clearance outside of hedgehog hibernation season and supervision by an Ecologist as required. **Mitigation 6:** Construction Site Management for Mammals **Mitigation 7:** Provision of Hedgehog Highways i.e., gaps within boundary fencing for hedgehogs to pass through.	None.	**Imperceptible**

Key Ecological Resource	Evaluation	Potential Impact	Impact Without Mitigation				Proposed Mitigation / Mitigating Factors	Proposed Enhancements	Residual Impact
			Quality	Magnitude / Extent	Duration	Significance			
European Badger	Local Importance (Higher value)	**Construction Phase:** Risk of disturbance during vegetation clearance and / or entrapment in construction-related rubbish. **Operational Phase:** Loss of habitat connectivity with surrounding lands.	*Negative* *Negative*	*Local scale* *Local scale*	*Short-term* *Long-term*	*Significant* *Moderate*	**Mitigation 6:** Pre-construction check for badger by an Ecologist and construction Site Management for Mammals. **Mitigation 7:** Provision of mammal holes if required i.e., gaps within boundary fencing for badgers to pass through.	None.	**Imperceptible**

11.13.1 Cumulative Residual Effects

There will be no significant cumulative residual effects as a result of the Proposed Development.

11.14 Risk of Major Accidents or Disasters

In terms of Biodiversity, there is no major source of risks or major accidents that could lead to significant effects to the surrounding ecological environment.

11.15 Worst Case Scenario

In a worst-case scenario, mitigation measures would not be followed during the clearance of vegetation at the Site. Vegetation clearance would be carried out during the nesting bird season leading to the death of nesting birds and destruction of their nests and eggs. Hibernating hedgehogs may similarly be harmed during scrub clearance if conducted during the winter months. Should adequate tree protection measures not be put in place as recommended, significant damage could be done to the hedgerows and woodland areas to be retained at the Site. Should lighting during the Construction Phase increase light-spill significantly, there would be a temporary loss of bat foraging commuting habitat across the Site for the duration of the construction.

11.16 Interactions

This chapter pertaining to the ecological and biodiversity aspects of the Proposed Development, has the potential to interact with aspects of the following chapters of this EIAR:

- Chapter 9: Land & Soils
- Chapter 10: Water & Hydrology
- Chapter 12: Noise & Vibration
- Chapter 13: Air Quality

11.16.1 Land & Soils

An assessment of the potential impact of the Proposed Development on the existing land, soils and geological environment; with emphasis on the impact of the Proposed Development on the receiving soils underlying the Site during the Proposed Development, is described in Chapter 9 - 'Land & Soils' of this EIAR. These impacts are considered to be relevant to the ecological sensitivities associated with the Site of the Proposed Development discussed in this Chapter, and mitigation measures addressing these potential impacts are described in full in Chapter 9.

11.16.2 Water & Hydrology

The key environmental interaction with biodiversity is water. An assessment of the potential impact of the Proposed Development on the hydrological and hydrogeological environment is described in Chapter 10 - 'Water & Hydrology' of this EIAR and the NIS (Enviroguide, 2024b), to ensure the quality (pollution and sedimentation) and quantity (surface water run-off) of water is of the appropriate

standard. Interactions between hydrology and biodiversity can occur through impacts to water quality, arising, for example from an accidental pollution event during the Construction and/or Operational Phase. This interaction if unmitigated has the potential to result in impacts on ecological receptors e.g., designated sites, that are hydrologically linked to the Site. However, mitigation measures are proposed in the NIS report to prevent this.

11.16.3 Noise & Vibrations

An assessment of the potential impact of the Proposed Development in the form of excess noise and vibrations associated with the Proposed Works are laid out in Chapter 12 - 'Noise & Vibrations'. These impacts are considered to be relevant to the ecological sensitivities associated with the Site of the Proposed Development discussed in this Chapter; and mitigation measures addressing these potential impacts are described in full in Chapter 12. There is potential for interactions between noise and sensitive fauna, e.g., birds, that occur in adjacent habitats from increased noise levels during the Construction Phase. However, as described, noise related impacts are not likely to be significant.

11.16.4 Air Quality

An assessment of the potential impact of the Proposed Development on air quality is included in Chapter 13 of this EIAR. Dust emissions arising from the Construction Phase of the Proposed Development can have potential impacts on local biodiversity. However, when standard dust minimisation measures are implemented, impacts to biodiversity are not likely to be significant and no likely significant effects are expected in this case.

11.17 Monitoring

11.17.1 Construction Phase Monitoring

11.17.1.1 Ecological Clerk of Works (ECoW)

A suitably qualified ECoW will be employed before commencement and for the duration of the Construction Phase; to provide ecological advice and input to the construction team. The ECoW will carry out the monitoring activities listed below for the duration of the Construction Phase of the Proposed Development.

NOTE: The ECoW will be employed several weeks before commencement of works on Site; to allow time for the scope of ECoW works to be reviewed by the ecologist and any necessary pre-construction surveys to be carried out.

- The ECoW will be required to work closely with the Site Manager and Arborist; to arrange to carry out **pre-clearance surveys** of any vegetation present on Site, especially if clearance during the period March 1st – August 1st (i.e., the breeding bird nesting season) is required. It is noted that clearance will be avoided during this period wherever possible through good management of the construction timeline. **Pre-felling checks of trees for bats** will also be conducted by the ECoW.

- This will include a **pre-commencement badger survey** of the Site for evidence of badger usage to ensure no badgers are impacted by the construction works.
- As part of the mitigation recommended in relation to mammals e.g., hedgehogs, the ECoW will liaise with the Site Manager to ensure that an adequate level of **site tidiness** is being maintained, i.e., that construction materials such as netting, plastic sheeting etc., are being stored securely and above ground.
- The ECoW will also liaise with the Site Manager to ensure that **mammal escape measures** are in place across the construction site in terms of excavations such as trenches, basements, foundations i.e., that planks or objects are being left in place at a suitable corner of any excavations each night.
- The ECoW will visit the Site and **assess the night-time lighting measures in place for the Construction Phase**; to ensure that they will not cause any impacts to local bats during the night time. The ECoW will consult this Biodiversity Chapter to understand the priority areas for bat commuting/foraging at the Site and make recommendations where required.

11.17.1.2 Project Arborist

The project Arborist will be instructed **prior to commencement on Site**; to ensure that appropriate tree protection measures are in place. The western boundary hedgerow and southern boundary woodland will be sufficiently protected for the duration of the Construction Phase to maximise their ecological value in the final landscape plan. The ECoW will report any issues relating to failure in the tree protection measures on Site to the project Arborist and the Site Manager throughout the Construction Phase to ensure these sections of hedgerow/woodland are protected for the duration of the works.

11.17.2 Operational Phase Monitoring

11.17.2.1 Ecologist

The ECoW will visit the Site post-construction to check the following are in place:

- **'Hedgehog highways'** – Gaps placed along southern and western boundary fencing to allow hedgehogs to continue to access the Site from the surrounding lands. A suitable qualified Ecologist will liaise with the Site Manager to ensure that these measures are in place.
- **Swift-Bricks** – A suitable qualified Ecologist will liaise with the Site Manager to ensure that these measures are in place.
- **Biodiversity Hedgerow and Woodland Management** - A suitable qualified Ecologist will review the Hedgerow and Woodland Management Plan (HWMP) once prepared for the Site and signed off by Fingal CoCo's Biodiversity Department. The Ecologist will visit the Site each summer for the first three years post completion to review the management of the hedgerows and woodland areas at the Site and confirm that the HWMP is being followed by the landscape maintenance company.

11.18 Summary of Mitigation and Monitoring

The following Table summarises the mitigation and monitoring measures recommended for the Proposed Development.

Table 11.17 Summary of Construction Phase Mitigation and Monitoring

Ecological Receptor	Relevant stage of the Proposed Development	Mitigation Measure	Monitoring Type	Details
Hedgerow and Woodland Areas	Construction Phase	**Mitigation 2:** Tree Protection Measures	ECoW & Arborist	The project Arborist will be instructed **prior to commencement on Site**; to ensure that appropriate tree protection measures are in place to protect the western and southern boundary hedgerow/woodland habitat being retained on Site. These measures will entail robust fencing around the root protection zones of all trees and hedgerows being retained on Site. An adequate level of signage will also be provided to highlight 'no work zones' and ensure that Site creep and damage to retained habitats does not occur. The western boundary hedgerow and southern boundary woodland will be sufficiently protected **for the duration of the Construction Phase** to maximise their ecological value in the final landscape plan. The project Arborist, the project Ecologist and the Site Manager will work together to ensure these sections of hedgerow/woodland are protected for the duration of the works.
Invasive Plant Species	Construction Phase	**Mitigation 1:** Pre-clearance invasive species survey by an Ecologist	ECoW	Pre-clearance survey for invasive species by a suitably qualified Ecologist and appropriate removal off Site as per TII (2020).
Birds & Hedgehogs	Construction Phase	**Mitigation 4:** Timing of Vegetation Clearance	ECoW	The ECoW will be required to work closely with the Site Manager; to arrange to carry out **pre-clearance surveys** of any vegetation present on Site, especially if clearance during the period March 1st – August 1st (i.e., the breeding bird nesting season) is required. It is noted that clearance will be avoided during this period wherever possible through good management of the construction timeline

Ecological Receptor	Relevant stage of the Proposed Development	Mitigation Measure	Monitoring Type	Details
Hedgehogs & Badgers	Construction Phase	**Mitigation 6:** Construction Site Management for Mammals	ECoW	Pre-clearance survey for badgers by a suitably qualified Ecologist. The ECoW will also liaise with the Site Manager to ensure that **mammal escape measures** are in place across the construction site in terms of excavations such as trenches, basements, foundations i.e., that planks or objects are being left in place at a suitable corner of any excavations each night
Bats	Construction Phase	**Mitigation 3:** Construction Phase Lighting **Mitigation 5:** Pre-felling checks for bats of trees.	ECoW	The ECoW will be required **to check all trees to be felled for bats prior to felling.** In the event that a roosting bat is found, no felling of the tree in question will take place and a derogation licence will be obtained from the NPWS to proceed. The Area around the tree will be protected with an appropriate buffer to prevent disturbance of the bat. The ECoW will **assess the lighting measures in place for the Construction Phase**; to ensure that they will not cause any impacts to local bats during the night time. The ECoW will consult this Biodiversity Chapter to understand the priority areas for bat commuting/foraging at the Site and make recommendations where required.
Hedgehogs & Badger	Operational Phase	**Mitigation 7:** Hedgehog Highways / Mammal Holes	Ecologist	**'Hedgehog highways'** – Gaps placed along southern and western boundary fencing to allow hedgehogs/ badger to continue to access the Site from the surrounding lands. A suitably qualified Ecologist will liaise with the Site Manager to ensure that these measures are in place.
Swifts	Operational Phase	**Enhancement 1:** Swift Bricks	Ecologist	**Swift-Bricks** – A suitably qualified Ecologist will oversee installation of swift calling system and liaise with the Site Manager to ensure that swift box enhancement measures are functional.
Bats	Operational Phase	**Enhancement 2:** Bat Boxes	Ecologist	**Bat Boxes** – A suitably qualified Ecologist will oversee installation of bat boxes and liaise with the Site Manager to ensure that these enhancement measures are functional.

Ecological Receptor	Relevant stage of the Proposed Development	Mitigation Measure	Monitoring Type	Details
Hedgerow and Woodland Areas	Operational Phase	**Enhancement 3:** Biodiversity Hedgerow and Woodland Management	Ecologist	**Biodiversity Hedgerow and Woodland Management** - A suitably qualified Ecologist will review the **Hedgerow and Woodland Management Plan (HWMP)** once prepared for the Site and signed off by Fingal CoCo's Biodiversity Department. The Ecologist will visit the Site each summer for the **first three years post completion** to review the management of the hedgerows and woodland areas at the Site and confirm that the HWMP is being followed by the landscape maintenance company.

11.19 Conclusion

It is considered that, provided the mitigation measures proposed are carried out in full, there will be no likely significant adverse effects on any valued habitats, designated sites or individual or group of species as a result of the Proposed Development. The Proposed Development is considered to result in an overall slight positive impact to the floral biodiversity of the site via the landscaping plan, which proposes the retention of the majority of existing hedgerows and woodland at the Site and a net increase in total native and non-native trees at the Site through supplementary planting. This will in turn provide additional suitable foraging, commuting and nesting habitat for local populations including birds, bats and small mammals in an otherwise relatively built and urban location and provide connectivity between the Site and the wider area. The inclusion of swift bricks in the design of the Proposed Development will also provide novel nesting habitat for swifts at the Site. As such, the Proposed Development will provide an overall slight net gain in biodiversity, in line with Fingal County Council Development Plan Policy GINHP14 – *Biodiversity Net Gain Guidance*.

11.20 References and Sources

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CHAPTER 12
NOISE & VIBRATION

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

12 Noise and Vibration

12.1 Introduction

This section of the EIAR has been prepared by AWN Consulting Ltd (AWN) to assess the potential noise and vibration impact of the proposed development in the context of current relevant standards and guidance.

This chapter includes a description of the receiving ambient noise climate in the vicinity of the subject site and an assessment of the potential noise and vibration impact associated with the proposed development during both the short-term construction phase and the long-term operational phase on its surrounding environment. The assessment of direct, indirect and cumulative noise and vibration impacts on the surrounding environment have been considered as part of the assessment. An assessment of noise from existing sources inward on the development has also been completed.

Mitigation measures are included, where relevant, so that noise and vibration associated with the construction and operation of the proposed development is within the guideline values.

This assessment has been prepared by Abe Scheele (Acoustic Consultant) holds a City and Guilds Level 1 and 2 in Sound Engineering and City and Guilds Music Technology and has completed the Institute of Acoustics (IOA) Diploma in Acoustics and Noise Control. Abe has been working in the field of acoustics since 2016. He is experienced in environmental, building and architectural acoustics, having completed a number of noise and vibration chapters for residential, commercial and mixed use EIAR's, such as Q3 Carrickmines, St Theresa's Blackrock and Cratloe Phase 3 and 4. He has knowledge of noise and vibration surveying, computer modelling, impact assessment of environmental noise and architectural acoustic assessments for various sectors including, industrial, commercial, and residential.

12.2 Assessment Methodology

The assessment has been undertaken with reference to the most appropriate guidance documents relating to environmental noise and vibration which are set out in the following sections. The following Environmental Protection Agency (EPA) guidelines and specific noise and vibration guidance documents were considered and consulted in the preparation of this Chapter:

- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports – (EPA, 2022); and
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018);
- BSI (1993). BS 7385: 1993 Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration;

- BS 4142: 2014: Methods for Rating and Assessing Industrial and Commercial Sound;
- BSI (2014). BS 5228-1:2009 +A1:2014 Code of Practice for noise and vibration control of construction and open sites - Part 1: Noise;
- BSI (2014). BS 5228-2:2009+A:2014 Code of Practice for noise and vibration control of construction and open sites - Part 2: Vibration;
- EPA (2020). EPA Maps [Online] Available from gis.epa.ie/EPAMaps;
- ISO (2016). ISO 1996-1:2016 Acoustics - Description, measurement and assessment of environmental noise. Part 1: Basic quantities and assessment procedures;
- UK Department of Transport (1998). Calculation of Road Traffic Noise;
- UKHA (2020). Design Manual for Roads and Bridges Sustainability & Environment Appraisal LA 111 Noise and Vibration Revision 2; and
- (IoA, 2017). Professional Practice Guidance on Planning & Noise (ProPG).
- Brink 2018 - Conversion_between_noise_exposure_indicators.
- British Standard BS EN 12354-3: 2000: Building acoustics

The noise and vibration effects associated with the proposed development have been considered within the study area as defined by the planning team. Within this area potential noise and vibration impacts associated with the construction and operational phases have been assessed. Each part of the assessment as set out in the following sections is informed by the location of the closest noise sensitive receptors, with respect to the proposed development site. As a principle, receptors at greater distances will experience lesser noise and vibration effects associated with this development. In this way predicted effects are variable across the study area.

The study has been undertaken using the following methodology:

- An environmental noise survey has been undertaken at the subject site in order to characterise the existing baseline noise environment;
- A review of the most applicable standards and guidelines has been conducted in order to set a range of acceptable noise and vibration criteria for the construction and operational phases of the proposed development;
- Predictive calculations have been performed during the construction phase of the project at the nearest sensitive locations to the development site;
- Predictive calculations have been performed to assess the potential impacts associated with the operation of the development at the most sensitive locations surrounding the development site;
- A schedule of mitigation measures has been proposed to reduce, where necessary, the identified potential outward impacts relating to noise and vibration from the proposed development; and
- An inward noise impact assessment from existing and future noise sources on the proposed development.

12.2.1 Construction Phase – Noise Impacts

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. Local Authorities typically control construction activities by imposing limits on the hours of operation and consider noise limits at their discretion. Construction noise sources include construction plant and machinery and construction related traffic on surrounding roads.

12.2.1.1 British Standard BS 5228 – 1: 2009+A1:2014

British Standard *BS 5228 – 1: 2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Noise* (hereinafter referred to as BS 5228-1:2009+A1:2014) is referenced here for the purposes of setting appropriate construction noise limits for the development. This is the most widely accepted standard for this purpose in Ireland. This document sets out a method whereby construction noise thresholds are determined based on ambient noise level.

Potential noise impacts during the construction stage of a project are often assessed in accordance with BS 5228-1:2009+A1:2014. Various mechanisms are presented as examples of determining if an impact is occurring, these are discussed in the following paragraphs.

ABC Method

The approach adopted here calls for the designation of a noise sensitive location into a specific category v(A, B or C) based on existing ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded at this location, indicates a significant noise impact is associated with the construction activities, depending on context.

BS 5228-1:2009+A1:2014 sets out guidance on permissible noise levels relative to the existing noise environment. Table 12.1 sets out the values which, when exceeded, signify a significant effect at the facades of residential receptors.

Table 12.1 Example Threshold of Significant Effect at Dwellings.

Assessment category and threshold value period (L_{Aeq})	Threshold value, in decibels (dB)		
	Category A [A]	Category B [B]	Category C [C]
Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)	65	70	75
Evenings and weekends D	55	60	65
Night-time (23:00 to 07:00hrs)	45	50	55

- Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.
- Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.
- Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.
- 19:00 – 23:00 weekdays, 13:00 – 23:00 Saturdays and 07:00 – 23:00 Sundays.

For the appropriate assessment period (i.e. daytime in this instance) the ambient noise level is determined and rounded to the nearest 5 dB. If the construction noise exceeds the appropriate category value, then a significant effect is deemed to occur.

The closest neighbouring noise sensitive properties are west and south of the development site including a number of dwellings, located west of the proposed site. A golf course borders the south of the proposed development.

It should be noted that this assessment method is only valid for residential properties and if applied to commercial premises without consideration of other factors, may result in an excessively onerous thresholds being set.

Fixed Limits

When considering non-residential receptors, reference is made to BS 5228-1:2009+A1:2014, which gives several examples of acceptable limits for construction noise, the most simplistic being based upon the exceedance of fixed noise limits. For example, paragraph E.2 states: -

> *"Noise from construction and demolition sites should not exceed the level at which conversation in the nearest building would be difficult with the windows shut."*

Paragraph E.2 goes on to state: -

> *"Noise levels, between say 07.00 and 19.00 hours, outside the nearest window of the occupied room closest to the site boundary should not exceed: -*
>
> *70 decibels (dBA) in rural, suburban areas away from main road traffic and industrial noise;*
>
> *75 decibels (dBA) in urban areas near main roads in heavy industrial areas".*

It is proposed to apply the 70 dBA criterion to the church located approximately 100m to the east of the subject site.

Proposed Threshold Noise Levels

Taking into account the proposed documents outlined above and making reference to the baseline noise environment monitored around the development site (see Section 12.3), BS 5228-1:2009+A1:2014 has been used to inform the assessment approach for construction noise.

The following Construction Noise Threshold (CNT) levels are proposed for the construction stage of this development:

- For residential NSLs it is considered appropriate to adopt 65 dB(A) CNT for residential receiver at NSL 2 and 75 dB(A) CNT for residential receivers at NSL 1.
- For non-residential NSLs it is considered appropriate to adopt the 75 dB(A) CNT, given the urban environment in which the closest commercial properties reside, in line with BS 5228-1:2009+A1.

Interpretation of the CNT

In order to assist with interpretation of CNTs, Table 12.2 includes guidance as to the likely magnitude of impact associated with construction activities, relative to the CNT. This guidance is derived from Table 3.16 of *DMRB: Noise and Vibration* and adapted to include the relevant significance effects from the *EPA Guidelines* (EPA 2022).

Table 12.2 Construction Noise Significance Ratings.

Guidelines for Noise Impact Assessment Significance (DMRB)	CNT per Period	EPA EIAR Significance Effects	Determination
Negligible	Below or equal to baseline noise level	Not Significant	Depending on CNT, duration & baseline noise level
Minor	Above baseline noise level and below or equal to CNT	Slight to Moderate	
Moderate	Above CNT and below or equal to CNT +5 dB	Moderate to Significant	
Major	Above CNT +5 to +15 dB	Significant, to Very Significant	
	Above CNT +15 dB	Very Significant to Profound	

The adapted DMRB guidance outlined will be used to assess the predicted construction noise levels at NSLs and comment on the likely impacts during the construction stages.

12.2.1.2 Construction Phase – Noise Impacts

In order to assist with the interpretation of construction traffic noise, Table 12.3 includes guidance as to the likely magnitude of impact associated with changes in traffic noise levels along an existing road. This is taken from Table 3.17 of the *DMRB Noise and Vibration* (UKHA 2020).

Table 12.3 Likely Effect Associated with Change in Traffic Noise Level – Construction Phase.

Magnitude of Impact	Increase in Traffic Noise Level (dB)
Negligible	Less than 1.0
Minor	Greater than or equal to 1.0 and less than 3.0
Moderate	Greater than or equal to 3.0 and less than 5.0
Major	Greater than or equal to 5.0

In accordance with the *DMRB Noise and Vibration*, construction noise and construction traffic noise impacts shall constitute a significant effect where it is determined that a major or moderate magnitude of impact will occur for a duration exceeding:

- Ten or more days or night in any 15 consecutive day or nights;
- A total number of days exceeding 40 in any six consecutive months.

12.2.2 Construction Phase – Vibration

Vibration standards address two aspects: those dealing with cosmetic or structural damage to buildings and those with human comfort. For the purpose of this scheme, the range of relevant criteria used for surface construction works for both building protection and human comfort are expressed in terms of Peak Particle Velocity (PPV) in mm/s.

12.2.2.1 Building Damage

With respect to vibration, British Standard BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Vibration recommends that, for soundly constructed residential property and similar structures that are generally in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak component particle velocity (in frequency range of predominant pulse) of 15mm/s at 4Hz increasing to 20mm/s at 15Hz and 50mm/s at 40Hz and above. The standard also notes that below 12.5 mm/s PPV the risk of damage tends to zero. It is therefore common, on a cautious basis to use this lower value.

There are several protected and vulnerable structures (including the Howth Castle gateway – a protected structure) located adjacent to the eastern site boundary, approximately 30m from areas of major construction. Therefore, on a precautionary basis, the guidance values for structurally sound buildings are reduced by 50% in line with the guidance documents referred to above. Taking the above into consideration, the vibration criteria in Table 12.4 are recommended. The following vibration limits are to be adhered to in order to prevent damage to all structures in proximity to works and will be included in the Construction and Environmental Management Plan for the proposed development.

Limits have been recommended above for protected structures. Where vibration-heavy works are proposed near protected structures the relevant engineer or conservation expert should be consulted in advance of works.

Table 12.4 Recommended Vibration Criteria During Construction Phase.

Building Category	Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of:		
	Less than 15Hz	15 to 40Hz	40Hz and above
Structurally sound and non-protected buildings	12 mm/s	20 mm/s	50 mm/s
Protected and /or potentially vulnerable buildings	6 mm/s	10 mm/s	25 mm/s

Expected vibration levels from the construction works will be discussed further in Section 12.5.

12.2.2.2 Human Perception

People are sensitive to vibration stimuli at levels orders of magnitude below those which have the potential to cause any cosmetic damage to buildings. There are no current standards which provide

guidance on typical ranges of human response to vibration in terms of PPV for continuous or intermittent vibration sources.

BS5228-2:2009+A1:2014, provides a useful guide relating to the assessment of human response to vibration in terms of the PPV. Whilst the guide values are used to compare typical human response to construction works, they tend to relate closely to general levels of vibration perception from other general sources.

Table 12.5 below summarises the range of vibration values and the associated potential effects on humans.

Table 12.5 Guidance on Effects of Human Response to PPV Magnitudes.

Vibration Level, PPV	Effect
0.140mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies. At lower frequencies people are less sensitive to vibration.
0.3mm/s	Vibration might be just perceptible in residential environments.
1mm/s	It is likely that a vibration level of this magnitude in residential environments will cause complaint.

Vibration typically becomes perceptible at around 0.15 to 0.3 mm/s and may become disturbing or annoying at higher magnitudes. However, higher levels of vibration are typically tolerated for single events or events of short-term duration, particularly during construction projects and when the origin and or the duration of vibration is known. For example, ground breaking can typically be tolerated at vibration levels up to 2.5 mm/s if adequate public relations are in place and timeframes are known. These values refer to the day-time periods only.

Interpretation of the Human Response to Vibration

In order to assist with interpretation of vibration thresholds, Table 12.6 presents the significance table relating to potential impacts to building occupants during construction based on guidance from BS5228-2:2009+A1:2014.

Table 12.6 Human Response Vibration Significance Ratings.

Criteria	Impact Magnitude	Significance Rating
≥10 mm/s PPV	Very High	Very Significant
≥1 mm/s PPV	High	Moderate to Significant
≥0.3 mm/s PPV	Medium	Slight to Moderate
≥0.14 mm/s PPV	Low	Not significant to Slight
Less than 0.14 mm/s PPV	Very Low	Imperceptible to Not significant

12.2.3 Operational Phase – Noise

12.2.3.1 Mechanical Plant

The most appropriate standard used to assess the impact of a new continuous source (i.e. plant items) to a residential environment is BS 4142 *Methods for rating and assessing industrial and commercial sound* (2014). This standard describes a method for assessing the impact of a specific noise source at a specific location with respect to the increase in "background" noise level that the specific noise source generates. The standard provides the following definitions that are pertinent to this application:

- *"Specific sound level,* $L_{Aeq,\ Tr}$" is equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, *T*. This level has been determined with reference to manufacturers information for specific plant items.
- *"Rating level"* $L_{Ar,Tr}$ is the specific noise level plus adjustments for the character features of the sound (if any), and;
- *"Background noise level"* is the A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, *T*. This level is expressed using the L_{A90} parameter. These levels were measured as part of the baseline survey.

The assessment procedure in BS4142: 2014 is outlined as follows:

1. Determine the specific noise level;
2. Determine the rating level as appropriate;
3. Determine the background noise level, and;
4. Subtract the background noise level from the specific noise level in order to calculate the assessment level.

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific source will have an adverse impact or a significant adverse impact. A difference of +10 dB or more is likely to be an indication of a significant adverse impact. A difference of around +5 dB is likely to be an indication of an adverse impact, dependent on the context. Where the rated plant noise level is equivalent to the background noise level, noise impacts are typically considered to be neutral.

12.2.3.2 Additional Vehicular Traffic on Surrounding Roads

There are no specific guidelines or limits relating to traffic related sources along the local or surrounding roads. Given that traffic from the development will make use of existing roads already carrying traffic volumes, it is appropriate to assess the calculated increase in traffic noise levels that will arise because of vehicular movements associated with the development. In order to assist with the interpretation of the noise associated with additional vehicular traffic on public roads, Table 12.7 is taken from DMRB Design Manual for Roads and Bridges (DMRB), Highways England Company Limited, Transport Scotland, The Welsh Government and The Department for Regional Development Northern Ireland, (2020).

Table 12.7 Significance in Change of Noise Level.

Change in Sound Level (dB)	Subjective Reaction	Magnitude of Impact	EPA Glossary of Effects[1]
10+	Over a doubling of loudness	Major	Significant
5 – 9.9	Up to a doubling of loudness	Moderate	Moderate
3 – 4.9	Perceptible	Minor	Slight
0.1 – 2.9	Imperceptible	Negligible	Imperceptible
0	None	No Change	Neutral

The guidance outlined in Table 12.7 will be used to assess the predicted increases in traffic levels on public roads associated with the proposed development and comment on the likely long-term impacts during the operational phase.

12.2.3.3 Vibration

The development is predominantly residential in nature, therefore it is not anticipated that there will be any impact associated with vibration during the operational phase.

12.2.3.4 Inward Noise

Fingal Development Plan Policy on Aircraft Noise

The Fingal Development Plan 2023 - 2029 outlines Noise Zones and policy objectives in relation to aircraft noise from Dublin Airport.

Objective DMS015 sets out the following relating to development within the Airport Noise Zones:

> *"Strictly control inappropriate development and require noise insulation where appropriate in accordance with Table 12.1 above within Noise Zone B and Noise Zone C and where necessary in Assessment Zone D, and actively resist new provision for residential development and other noise sensitive uses within Noise Zone A, as shown on the Development Plan maps, while recognising the housing needs of established families farming in the zone. To accept that time based operational restrictions on usage of the runways are not unreasonable to minimise the adverse impact of noise on existing housing within the inner and outer noise zone."*

Four noise zones (Zone A to D) are indicated representing potential site exposure to aircraft exposure. Table 12.8 below outlines the objectives to be adhered to by applicants for developments in each zone.

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1 EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports, (Draft August 2017)

Table 12.8 Aircraft Noise Zones Guidance.

Zone	Indication of Potential Noise Exposure during Airport Operations	Objective
D	≥ 50 dB and < 54 dB $L_{Aeq, 16hr}$ and ≥ 40 dB and < 48 dB L_{night}	To identify noise sensitive developments which could potentially be affected by aircraft noise and to identify any larger residential developments in the vicinity of the flight paths serving the Airport in order to promote appropriate land use and to identify encroachment. All noise sensitive development within this zone is likely to be acceptable from a noise perspective. An associated application would not normally be refused on noise grounds, however where the development is residential-led and comprises non-residential noise sensitive uses, or comprises 50 residential units or more, it may be necessary for the applicant to demonstrate that a good acoustic design has been followed. Applicants are **advised** to seek expert advice.
C	≥ 54 dB and < 63 dB $L_{Aeq, 16hr}$ and ≥ 48 dB and < 55 dB L_{night}	To manage noise sensitive development in areas where aircraft noise may give rise to annoyance and sleep disturbance, and to ensure, where appropriate, noise insulation is incorporated within the development Noise sensitive development in this zone is less suitable from a noise perspective than in Zone D. A noise assessment **must** be undertaken in order to demonstrate good acoustic design has been followed. The noise assessment must demonstrate that relevant internal noise guidelines will be met. This **may** require noise insulation measures. An external amenity area noise assessment **must** be undertaken where external amenity space is intrinsic to the development's design. This assessment should make specific consideration of the acoustic environment within those spaces as required so that they can be enjoyed as intended. Ideally, noise levels in external amenity spaces should be designed to achieve the lowest practicable noise levels. Applicants are **strongly advised** to seek expert advice.
B	≥ 54 dB and < 63 dB $L_{Aeq, 16hr}$ And ≥ 55 dB L_{night}	To manage noise sensitive development in areas where aircraft noise may give rise to annoyance and sleep disturbance, and to ensure noise insulation is incorporated within the development. Noise sensitive development in this zone is less suitable from a noise perspective than in Zone C. A noise assessment must be undertaken in order to demonstrate good acoustic design has been followed. Appropriate well-designed noise insulation measures **must** be incorporated into the development in order to meet relevant internal noise guidelines. An external amenity area noise assessment **must** be undertaken where external amenity space is intrinsic to the development's design. This assessment should make specific consideration of the acoustic environment within those spaces as required so that they can be enjoyed as intended. Ideally, noise levels in external amenity spaces should be designed to achieve the lowest practicable noise levels. Applicants **must** seek expert advice.

Zone	Indication of Potential Noise Exposure during Airport Operations	Objective
A	≥ 63 dB $L_{Aeq, 16hr}$ and/or ≥ 55 dB L_{night}	To resist new provision for residential development and other noise sensitive uses. All noise sensitive developments within this zone may potentially be exposed to high levels of aircraft noise, which may be harmful to health or otherwise unacceptable. The provision of new noise sensitive developments will be resisted.
Notes: 'Good Acoustic Design' means following the principles of assessment and design as described in ProPG: *Planning & Noise – New Residential Development*, May 2017; Internal and External Amenity and the design of noise insulation measures should follow the guidance provided in British Standard BS8233:2014 *'Guidance on sound insulation and noise reduction for buildings'*		

Noise Action Plan for Dublin Airport 2019 – 2023

The Noise Action Plan for Dublin Airport (2019 – 2023) was published by Fingal County Council on 19 December 2019. The plan outlines the following objective in relation to aircraft noise:

> "to avoid, prevent and reduce, where necessary, on a prioritised basis the effects due to long term exposure to aircraft noise, including health and quality of life through implementation of the International Civil Aviation Organisation's 'Balanced Approach' to the management of aircraft noise as set out under EU Regulation 598/2014"

Whilst the plan outlines a range of measures to achieve this objective, the document is focussed primarily on the outward impact of the airport and aircraft noise and consider planning only in the context of outward impact such as the encroachment of airport activities on existing uses.

Discussion on the consideration of the inward noise impacts on residential amenity is considered in more detail in the Dublin Agglomeration Noise Action Plan 2019 – 2023.

Dublin Agglomeration Noise Action Plan 2019 – 2023

The Dublin Agglomeration NAP states the following with respect to assessing the noise impact on new residential development:

> *"In the scenario where new residential development or other noise sensitive development is proposed in an area with an existing climate of environmental noise, there is currently no clear national guidance on appropriate noise exposure levels. The EPA has suggested in the interim, that Action Planning Authorities should examine planning policy guidance notes, such as ProPG (2017). Such guidance notes have been produced with a view to providing practitioners with guidance on a recommended approach to the management of noise within the planning system."*

In addition, the following is provided:

"In advance of any national guidance relating to noise in the planning process, the following actions relating to planning and development will be considered for implementation:

In accordance with this NAP policy, the following Acoustic Design Statement (ADS) has been prepared to comply with the requirements of this policy.

a. To integrate Noise Action Plans into the County Development Plans.

b. To develop guidelines relating to Noise and Planning for FCC. These guidelines should outline the considerations to be taken into account when determining planning applications for both noise-sensitive developments and for those activities which will generate noise. They should introduce the concept of a risk based approach to assessment of noise exposure, and for Good Acoustic Design to be encouraged as part of all new residential developments in FCC.

c. To require developers to produce a noise impact assessment and mitigation plans, where necessary, for any new development where the Planning Authority considers that any new development will impact negatively on pre-existing environmental noise levels within their Council area.

d. To ensure that future developments are designed and constructed in such a way as to minimise noise disturbances in accordance with Department of the Environment, Community and Local Government planning guidelines such as the Urban Design Manual. e.g. the position, direction and height of new buildings, along with their function, their distance from roads, and the position of noise barriers and buffer zones with low sensitivity to noise,

e. To ensure that new housing areas and in particular brown field developments will be planned from the outset in a way that ensures that at least the central area is quiet. This could mean designating the centre of new areas as pedestrian and cycling zones with future developments to provide road design layouts to achieve low speed areas where appropriate.

f. To incorporate street design in new developments, which recognise that residential streets have multi-function uses (e.g. movement, recreation) for pedestrians, cyclists and vehicles, in that priority order. The noise maps will be used to identify and classify the priority areas and streets. In the design of streets, cognisance should be given to the Irish Manual for Roads and Streets 2013.

g. To require sound proofing for all windows, in all new residential developments, where noise maps have indicated undesirable high noise levels. This may also lead to a requirement to install ducted ventilation.

h. To advise during pre-planning meetings regarding site specific design, the orientation of sensitive rooms and balconies away from noise, designing the layout and internal arrangement in apartments to ensure that similar rooms in individual units are located above each other or adjoin each other and that halls are used as buffer zones between sensitive rooms and staircases."

ProPG Planning & Noise

The Professional Practice Guidance on Planning & Noise (ProPG) document Awas published in May 2017. The document was prepared by a working group comprising members of the Association of Noise Consultants (ANC), the Institute of Acoustics (IOA) and the Chartered Institute of Environmental Health (CIEH). Although not a government document, since its adoption it has been generally considered as a best practice guidance and has been widely adopted in the absence of equivalent Irish guidance.

The ProPG outlines a systematic risk-based 2-stage approach for evaluating noise exposure on prospective sites for residential development. The two primary stages of the approach can be summarised as follows:

- Stage 1 - Comprises a high-level initial noise risk assessment of the proposed site considering either measured and or predicted noise levels; and,
- Stage 2 – Involves a full detailed appraisal of the proposed development covering "key elements" that include:
    - Element 1 - Good Acoustic Design Process;
    - Element 2 - Noise Level Guidelines;
    - Element 3 - External Amenity Area Noise Assessment

The initial noise risk assessment is intended to provide an early indication of any acoustic issues that may be encountered. It calls for the categorisation of the site as a negligible, low, medium or high risk based on the pre-existing noise environment. Figure 12.1 presents the basis of the initial noise risk assessment, it provides appropriate risk categories for a range of continuous noise levels either measured and/or predicted on site.

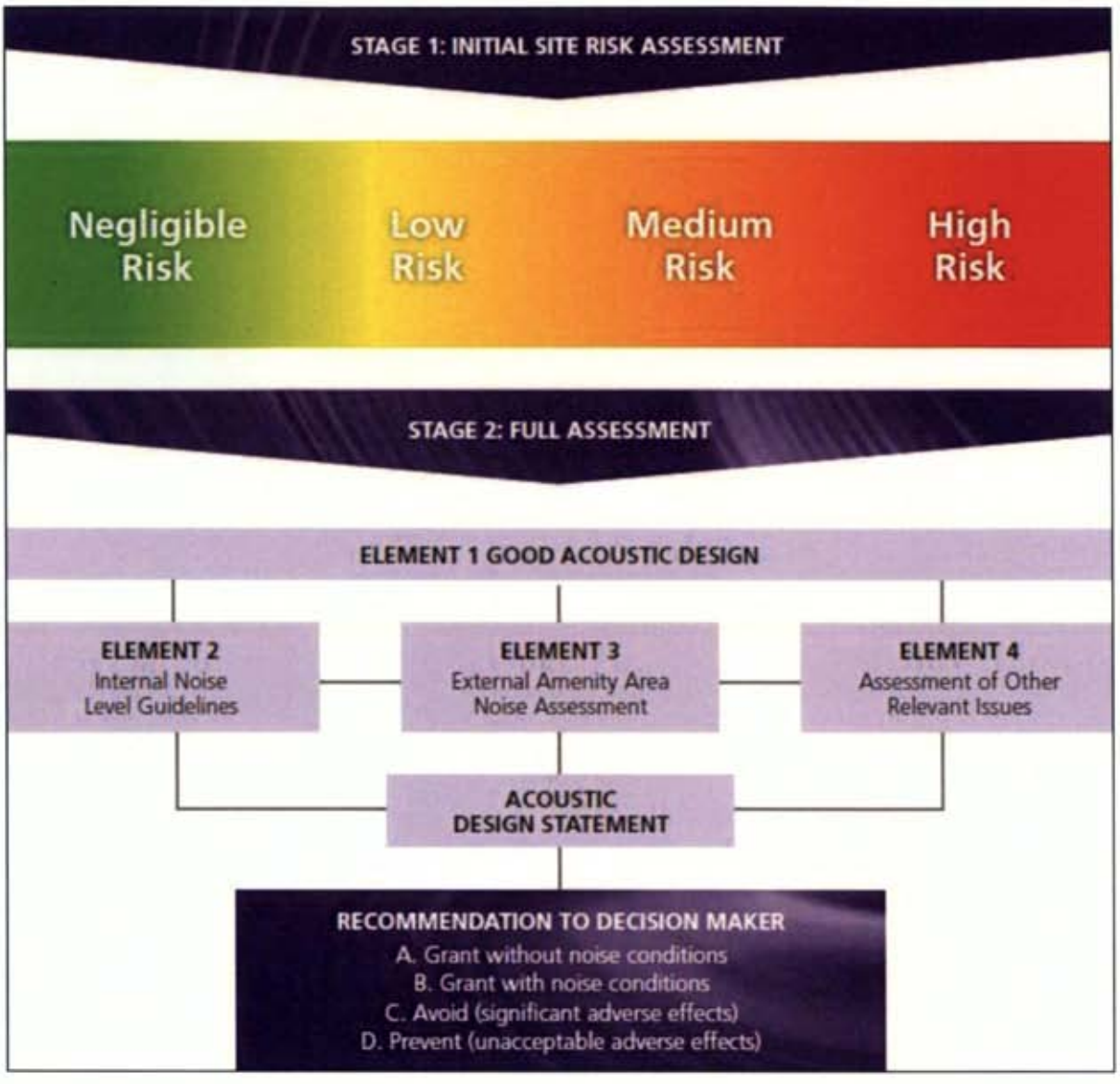


Figure 12.1 ProPG Approach.

Internal Noise (BS 8233)

Element 2 of the ProPG document sets out recommended internal noise targets derived from BS 8233 (2014) *Guidance on sound insulation and noise reduction for buildings. A*

BS 8233 sets out recommended internal noise levels for several different building types from external noise sources such as traffic. The recommended indoor ambient noise levels for residential dwellings are set out in Table 12.9 overleaf.

Table 12.9 ProPG Internal Noise Levels.

Activity	Location	Day (07:00 to 23:00hrs) dB $L_{Aeq,16hr}$	Night (23:00 to 07:00hrs) dB $L_{Aeq,8hr}$
Resting	Living room	35 dB $L_{Aeq,16hr}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hr}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$ 45 dB $L_{Amax,T}$*

*Note The document comments that the internal $L_{AFmax,T}$ noise level may be exceeded no more than 10 times per night without a significant impact occurring.

BS 8233 also provides some guidance on individual noise events, it states:

> *"Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or L_{AFmax}, depending on the character and number of events per night. Sporadic noise events could require separate values."*

Typically, a 45 dB L_{AFmax} criterion is applied to individual noise events within bedrooms at night. This criterion is generally considered a noise level that should not typically be exceeded.

In addition to these absolute internal noise levels ProPG provides guidance on flexibility of these internal noise level targets. For instance, in cases where the development is considered necessary or desirable, and noise levels exceed the external noise guidelines, then a relaxation of the internal L_{Aeq} values by up to 5 dB can still provide reasonable internal conditions.

External Noise (BS 8233 Amenity Areas)

ProPG provides the following advice with regards to external noise levels for amenity areas in the development:

> *"The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$."*

12.3 Receiving Environment

The subject site is located south of the Howth Road (R105) and Baltray Park, southwest of a construction site, west of St. Mary's Church and Howth Castle, southeast of a small existing residential estate and north of the Deer Park Golf Course.

12.3.1 Baseline Noise Environment

Baseline noise monitoring has been undertaken across the development site to determine the range of noise levels at varying locations across the site.

12.3.1.1 Environmental Noise Survey

An environmental noise survey has been conducted at the site in order to quantify the existing noise environment. The survey was conducted in general accordance with ISO 1996: 2017: *Acoustics – Description, measurement and assessment of environmental noise.* Specific details are set out below.

Choice of Measurement Locations

The measurement locations are described below and shown in Figure 12.2.

UN1 Unattended measurements located in the northwestern corner of the proposed site, approximately 22 m from Howth Road R105.

AT2 Attended measurements located in the northeastern corner of the proposed site, approximately 35 m south from Howth Road R105.

AT3 Attended measurements located west of the proposed site and southeast of an existing residential estate, approximately 15 m from the site boundary line near the residential estate.

Figure 12.2 Approximate Site Boundary and Noise Monitoring Locations.

Survey Periods

The noise survey was carried out over the following periods:

Table 12.10 Survey Periods

Aspect	Survey Position	Survey Period
Noise	UN1	11:00hrs, 5th January 2024 to 14:40hrs, 10th January 2024
	AT2	14:25hrs to 15:40hrs, 12th January 2024
	AT3	14:25hrs to 15:40hrs, 12th January 2024

Instrumentation

The noise measurements were carried out using the equipment listed below. The instrument was calibrated before and after the survey with no significant drift noted.

Table 12.11 Noise Monitoring Equipment Details

Measurement	Manufacturer	Equipment Model	Serial Number	Calibration date
Sound Level Meter	RION	NL-52	976162	September 2022
Sound Level Meter	RION	NL-52	575782	September 2023
Calibrator	Larson Davis	CAL-200	2371	May 2023

Measurement Parameters

The noise survey results are presented in terms of the following parameters.

L_{Aeq} is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period.

L_{AFmax} is the instantaneous maximum sound level measured during the sample period using the 'F' time weighting.

L_{A90} is the sound level that is exceeded for 90% of the sample period. It is typically used as a descriptor for background noise.

The "A" suffix denotes the fact that the sound levels have been "A-weighted" in order to account for the non-linear nature of human hearing. All sound levels in this report are expressed in terms of decibels (dB) relative to $2x10^{-5}$ Pa.

Survey Results and Discussion

The results of the noise survey at the four monitoring locations are summarised below.

Location UN1

Unattended monitor UN1 was located to the North West of the proposed development site, representative of NSL1. The time history of the logged noise data of the unattended meter at UN1 is displayed in Figure 12.3 below. Measured noise levels were typically averaging between 60 and 65 dB $L_{Aeq,5\text{-}mins}$ during the daytime. There is a steady decline towards the end of the day, with average levels dropping to a range of 35 to 60 dB $L_{Aeq,5\text{-}mins}$ during the night time. Ambient levels during the day

typically lie between 38 to 65 dB $L_{A90,5\text{-mins}}$, and at night, a range of 33 to 55 $L_{A90,5\text{-mins}}$ can be observed. Overall ambient levels appear to be louder in the night time periods of the 9th and 10th of January, which is likely due to windy conditions which were reported those nights.

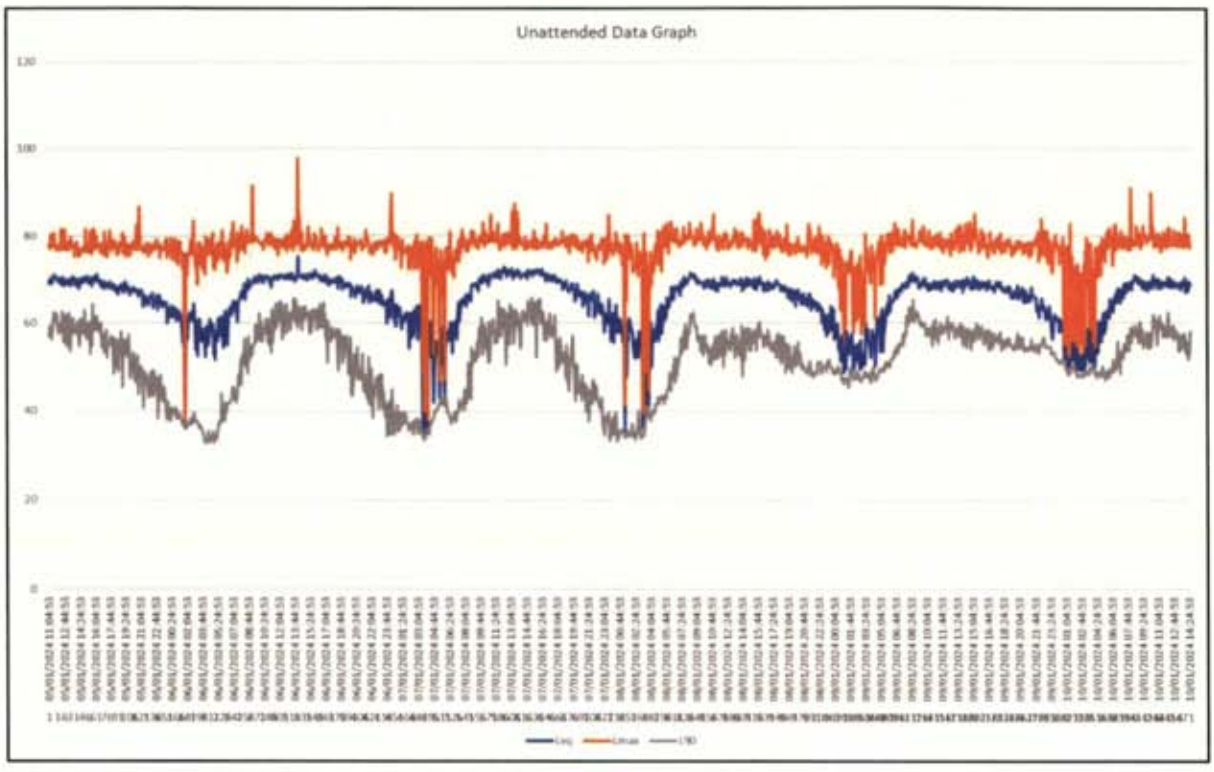


Figure 12.3 Graph showing measured noise levels at UN1.

Table 12.12 Measured Noise Levels at UN1.

Date	Period	Measured Noise Levels (dB re. $2x10^{-5}$ Pa)		
		L_{Aeq}	L_{Amax}	L_{A90}
5 January 2024	Day	69	78	55
	Night	57	78	38
6 January 2042	Day	69	80	55
	Night	55	77	39
7 January 2024	Day	68	79	53
	Night	55	78	39
8 January 2024	Day	68	79	54
	Night	55	77	49
9 January 2024	Day	68	80	57
	Night	57	76	50
Average	Day	69	79	55
	Night	61	77	43

Location AT2

Table 12.13 Measured Noise Levels at AT2.

Date	Time	Measured Noise Levels (dB re. $2x10^{-5}$Pa)		
		L_{Aeq}	L_{Amax}	L_{A90}
10 January 2024	15:39	59	75	55
10 January 2024	16:14	60	74	55
12 January 2024	14:29	57	72	53

Attended position AT2 was positioned to the north-east of the site, approximately 35m south from the R105 Howth road and west of the Howth Castle entrance road. During the survey periods at this location, it was noted that construction noise in relation to a nearby construction site was the dominant noise source. This construction related noise is considered to be unrepresentative of the prevailing ambient noise level and therefore further review of the noise environment is undertaken in the following sections. Other typical audible sources such as road traffic related noise as well as birdsong and light wind were also noted.

Location AT3

Table 12.14 Measured Noise Levels at AT3.

Date	Time	Measured Noise Levels (dB re. $2x10^{-5}$Pa)		
		L_{Aeq}	L_{Amax}	L_{A90}
10 January 2024	15:22	57	71	53
10 January 2024	16:14	56	71	52
12 January 2024	15:25	52	69	47

AT3 was located to the west of the proposed development, to the southeast of an existing small residential estate, around 16m from the closest property. While this was located at a greater distance from the construction site, construction noise was dominant at this location. Distant road traffic, dogs barking intermittently, birdsong and foliage related wind noise were also contributing to the noise environment. Further review of the noise environment is undertaken in the following sections.

12.3.1.2 Review of EPA Noise Mapping

Due to presence of construction noise during the noise survey, a desktop review of publicly available data has been undertaken to characterise the baseline noise environment. Reference has been made to the most recent Round 4 noise maps published by the Environmental Protection Agency (EPA) (https://gis.epa.ie/EPAMaps/) for road traffic noise within the Dublin Agglomeration. The published noise maps are provided for the overall day-evening-night period in terms of L_{den} and the 8-hour night-time period, L_{night}, defined as follows:

L_{den} is the 24hour noise rating level determined by the averaging of the L_{day} with the $L_{evening}$ (plus a 5dB penalty) and the L_{night} (plus a 10dB penalty). Lden is calculated using the following formula:

$$L_{den} = 10log\ \left(\frac{1}{24}\right)\left(12 * \left(10^{\frac{Lday}{10}}\right) + 4 * \left(10^{\frac{Levening+5}{10}}\right) + 8 * \left(10^{\frac{Lnight+10}{10}}\right)\right)$$

Where:

L_{day} is the A-weighted long-term average sound level as defined in ISO 1996-2, determined over all the day periods of a year. The 12hr daytime period is between 07:00 to 19:00hrs.

$L_{evening}$ is the A-weighted long-term average sound level as defined in ISO 1996-2, determined over all the evening periods of a year. The 4hr evening period is between 19:00 to 23:00hrs.

L_{night} is the A-weighted long-term average sound level as defined in ISO 1996-2, determined over all the night periods of a year. The 8hr night-time period is between 23:00 to 07:00hrs.

Rail Noise

Figure 12.4 presents the aircraft noise levels across the site as reported in the Noise Round 4 Rail Agglomeration maps in terms of the L_{den} parameter and sourced from the EPA noise maps.

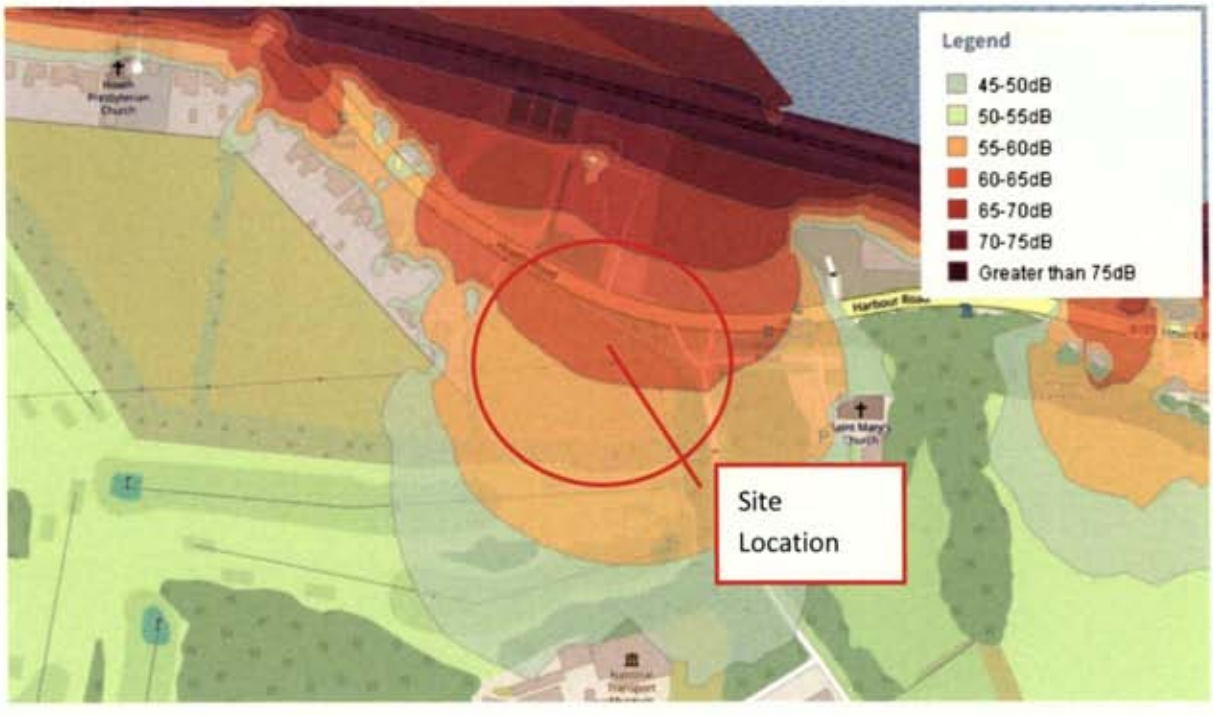


Figure 12.4 Existing L_{den} Rail Noise Level (Source: http://gis.epa.ie accessed March 2024)

The proposed development is located within the 55 to 60 dB and 60 to 65 dB L_{den} noise contours. The nearest noise sensitive locations to the proposed development, located west of the site, fall within the 55 to 60 dB and 60 to 65 dB L_{den} noise contour for rail noise.

Figure 12.5 presents the rail noise levels across the site as reported in the Noise Round 4 Rail Agglomeration maps in terms of the L_{night} parameter.

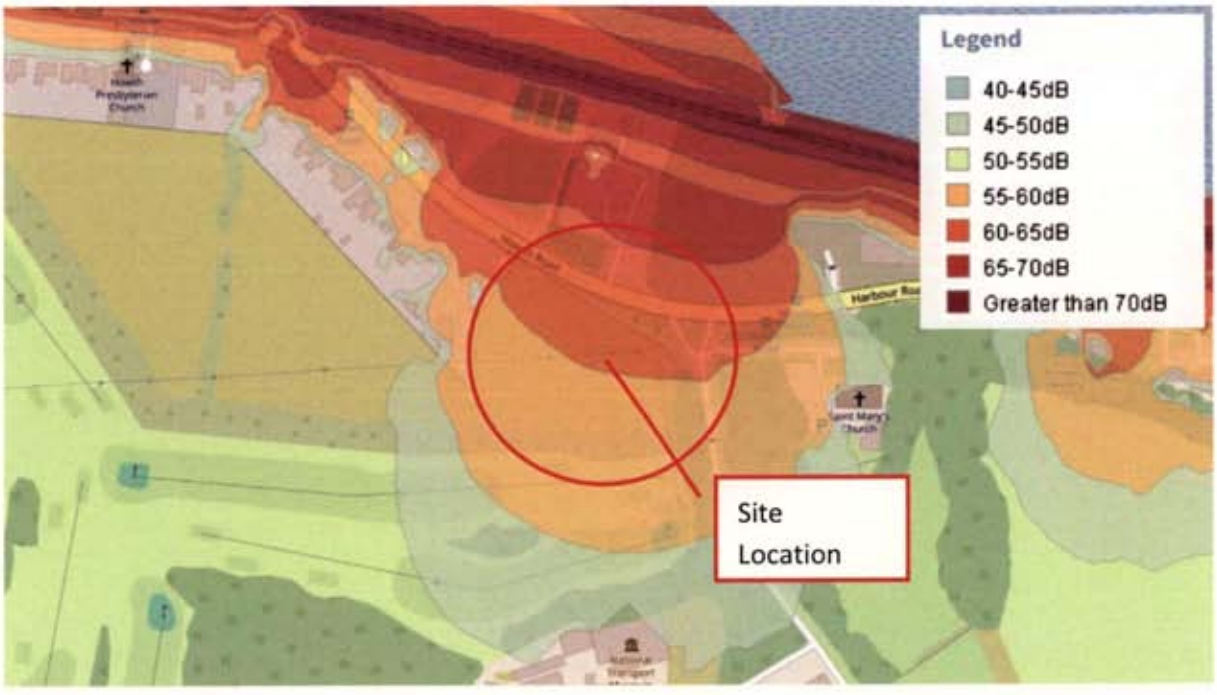


Figure 12.5 Existing L_{night} Rail Noise Level (Source: http://gis.epa.ie accessed March 2024)

The proposed development is located within the 55 to 60 dB and 60 to 65 dB L_{night} noise contours. The nearest noise sensitive locations to the proposed development, located west of the site, fall within the 55 to 60 dB and 60 to 65 dB L_{night} noise contour for rail noise.

Road Traffic Noise

Figure 12.6 presents the road traffic noise levels across the site in terms of the L_{den} parameter and sourced from the EPA Round 4 noise maps.

The northern portion of the proposed development is located within the 60 to 65 and 65 to 70 dB L_{den} noise contours along the road edge, reducing to within the 55 to 60 dB L_{den} further south. The southern portion of the proposed development is mapped below 55 dB L_{den}.

Figure 12.6 Existing L_{den} Road Traffic Noise Level (Source: http://gis.epa.ie accessed March 2024)

Figure 12.7 presents the night-time road traffic noise levels across the site in terms of the L_{night} parameter and sourced from the EPA noise maps.

The northern portion of the proposed development is located within the 55 to 60 dB, 60 to 65 and 65 to 70 dB L_{night} noise contours. The southern portion of the site is located outside of the 55 to 60 dB L_{night} noise contour. The nearest noise sensitive locations to the proposed development, located west of the site, are located outside the 55 to 60 L_{night} noise contours and within the 60 to 65 dB L_{night} noise contours for road traffic noise.

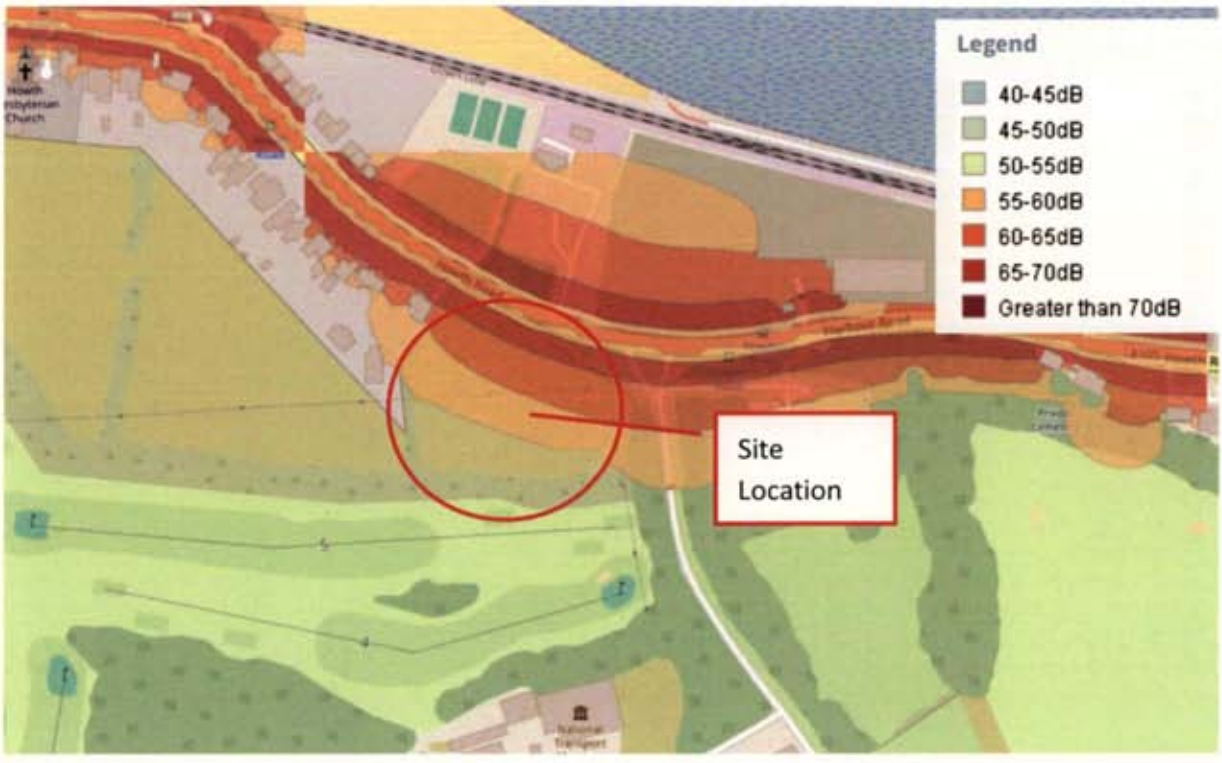


Figure 12.7 Existing L_{night} Road Traffic Noise Level (Source: http://gis.epa.ie accessed March 2024)

Dublin Airport Noise Contours

The proposed development is located in Zone D as identified in figure 12.8. Reference to Table 12.8 indicates an aircraft noise level of 50 dB to 54 dB L_{day} and 40 to 48 L_{night} is mapped in this zone.

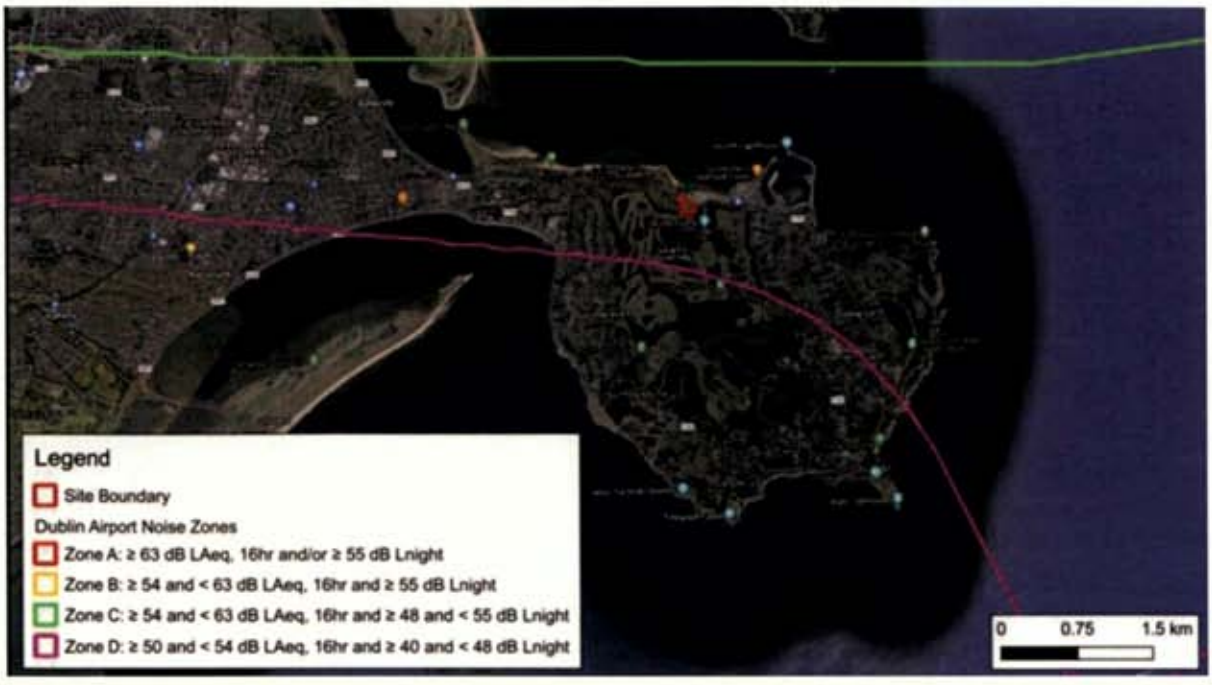


Figure 12.8 Dublin Airport Noise Zones (Source: fingalcoco.maps.arcgis.com accessed April 2024)

Cumulative Noise Levels

The contribution of road, rail and aircraft noise across the study area has been combined using the noise mapping information discussed in Sections 12.3.1. The results of the noise maps are presented in terms of the L_{den} and L_{night} parameters. Whilst the maps do not display the L_{day} parameter, an estimation of daytime noise levels has been determined by subtracting 2 dB from the L_{den} values. This is based on the recommended approach set out in the *Brink 2018 - Conversion_between_noise_exposure_indicators*, document[2]. Table 12.15 presents the resultant cumulative noise level from road and air traffic. The values are summed Logarithmically to obtain a combined dB value.

Table 12.15 Cumulative Existing Noise Levels Across Study Area

Noise Source	Proposed development Area			Nearest Residences (NSL 1)		
	L_{den}	L_{day}	L_{night}	L_{den}	L_{day}	L_{night}
Rail	55 – 65	53 – 63	55 – 65	60 – 65	58 – 63	60 – 65
Road	50 – 70	48 – 68	50 – 70	60 – 65	58 – 63	60 – 65
Air Traffic (Zone D)	50 - 54	48 - 52	40 - 48	50 - 54	48 - 52	40 - 48
Cumulative	**57 – 71**	**55 – 69**	**56 – 71**	**63 – 68**	**61 – 66**	**63 – 68**

Brink et al: "Conversion between noise exposure indicators Leq_{24h}, L_{Day}, $L_{Evening}$, L_{Night}, L_{dn} and L_{den}: Principles and practical guidance" 2018

Review of the noise maps indicates that existing noise levels across the study area are dominated by rail noise from Down Line and road traffic along the Howth Road.

The measured baseline noise levels at UN1 are in line with the upper end of the mapped contour noise levels during the daytime period and in the middle of the mapped contour noise levels during the night-time period.

Noise Risk Assessment Conclusion

Giving consideration to the noise levels presented in the previous sections the initial site noise risk assessment has concluded that the level of risk across the site lies within the **low** to **high** noise risk categories.

ProPG states the following with respect to low, medium and High risks areas:

> *"High Risk High noise levels indicate that there is an increased risk that development may be refused on noise grounds. This risk may be reduced by following a good acoustic design process that is demonstrated in a detailed ADS. Applicants are strongly advised to seek expert advice."*
>
> *"Medium Risk As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse noise impact will be avoided in the finished development."*
>
> *"Low Risk At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development."*

Given the above, it can be concluded that the development site may be categorised as **Low** to **High** Noise Risk and as such the Acoustic Design Statement (following here and also in Section 10.6.2.1) is required to demonstrate that suitable care and attention has been applied in mitigating and minimising noise impact to such an extent that an adverse noise impacts will be avoided in the final development.

It should be noted that ProPG states the following with regard to how the initial site noise risk is to be used:

> *"2.12 It is important that the assessment of noise risk at a proposed residential development site is not the basis for the eventual recommendation to the decision maker. The recommended approach is intended to give the developer, the noise practitioner, and the decision maker an early indication of the likely initial suitability of the site for new residential development from a noise perspective and the extent*

of the acoustic issues that would be faced. Thus, a site considered to be high risk will be recognised as presenting more acoustic challenges than a site considered as low risk. A site considered as negligible risk is likely to be acceptable from a noise perspective and need not normally be delayed on noise grounds. A potentially problematical site will be flagged at the earliest possible stage, with an increasing risk indicating the increasing importance of good acoustic design."

Following the guidance contained in ProPG, therefore, the development can be categorised as **Low** to **High** risk according to how it is defined in ProPG.

Do Nothing Scenario

In the absence of the proposed development being constructed, the noise environment at the nearest noise sensitive locations and within the development site will remain largely unchanged. However, the site is zoned for development, and it is likely that in the absence of this subject proposal that a development of a similar nature would be progressed on the site and so similar effects would occur.

12.4 Characteristics of the Proposed Development

12.4.1 General Characteristics

A detailed description of the proposed development is provided in **Chapter 2** of this Environmental Impact Assessment Report (EIAR).

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Partial demolition of 3 sections of the existing northern boundary wall, which fronts Howth Road, proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

12.5 Potential Impacts

The potential noise and vibration impacts associated with the construction and operational phases of the proposed development are discussed in the following sections.

12.5.1 Construction Phase

12.5.1.1 Noise

The highest potential noise and vibration impact of the proposed development will occur during the construction phase due to the operation of various plant machinery used to construct the various

phases in addition to Heavy Goods Vehicles (HGVs) movement to, from and around the site. However, impacts during this phase are short-term in duration.

BS 5228-1 contains noise level data for various construction machinery. The noise levels relating to site clearance, ground excavation, and loading lorries (dozers, tracked excavators and wheeled loaders) are typically in the range of 76 to 82 dB $L_{Aeq,T}$ at a distance of 10 m. For this assessment, a worst-case scenario is assumed of 3 no. such items with a sound pressure level (SPL) of 81 dB at 10 m operating simultaneously along the closest works boundary. This would result in a total noise level of 86 dB at 10 m and an equivalent combined sound power level of 114 dB L_w(A). This worst-case scenario is the typical assumption made for developments of this size, on the basis that it is unlikely that more than 3 no. items of such plant/equipment would be operating simultaneously in such close proximity to each other. A combined construction noise level of 86 dB at 10 m also allows for 5 items of plant with an operational noise level of 78 dB each operating simultaneously along the closest works boundary, which is associated with typical construction mobile plant items, cranes etc., all of which will occur on the site.

Guidance on the approximate attenuation achieved by barriers surrounding the site is also provided in BS 5228-1. It states that when the top of the plant is just visible to the receiver over the noise barrier, an approximate attenuation of 5 dB can be assumed, while a 10 dB attenuation can be assumed when the noise screen completely hides the sources from the receiver.

It is assumed that a standard site perimeter hoarding of 2.4m height will be installed around the site boundary for areas not enclosed by the demesne wall.

The former scenario will be assumed in this case as the nearest noise-sensitive locations first floor partially overlook the site. Table 12.16 shows the potential noise levels calculated at various distances based on the assumed sound power level and attenuation provided by the barrier of 5 dB.

The closest noise sensitive locations have been identified as shown in Figure 12.9 and described below.

NSL 1 Residential receptor, located approximately 5m from the north-western site boundary at Howth Road.

NSL 2 Residential receptor, located approximately 10m from the western site boundary.

NSL 3 Golf Course adjacent to the southern boundary of the proposed development site.

Review of the baseline noise survey and the Construction Noise Thresholds detailed in Section 12.2.1.1 indicates that the appropriate daytime CNTs for construction noise at residential properties are as follows:

- NSL 1: 75 dB(A) CNT
- NSL 2: 65 dB(A) CNT
- NSL 3: 70 dB(A) CNT

It is assumed that construction works will take place during normal daytime working hours only.

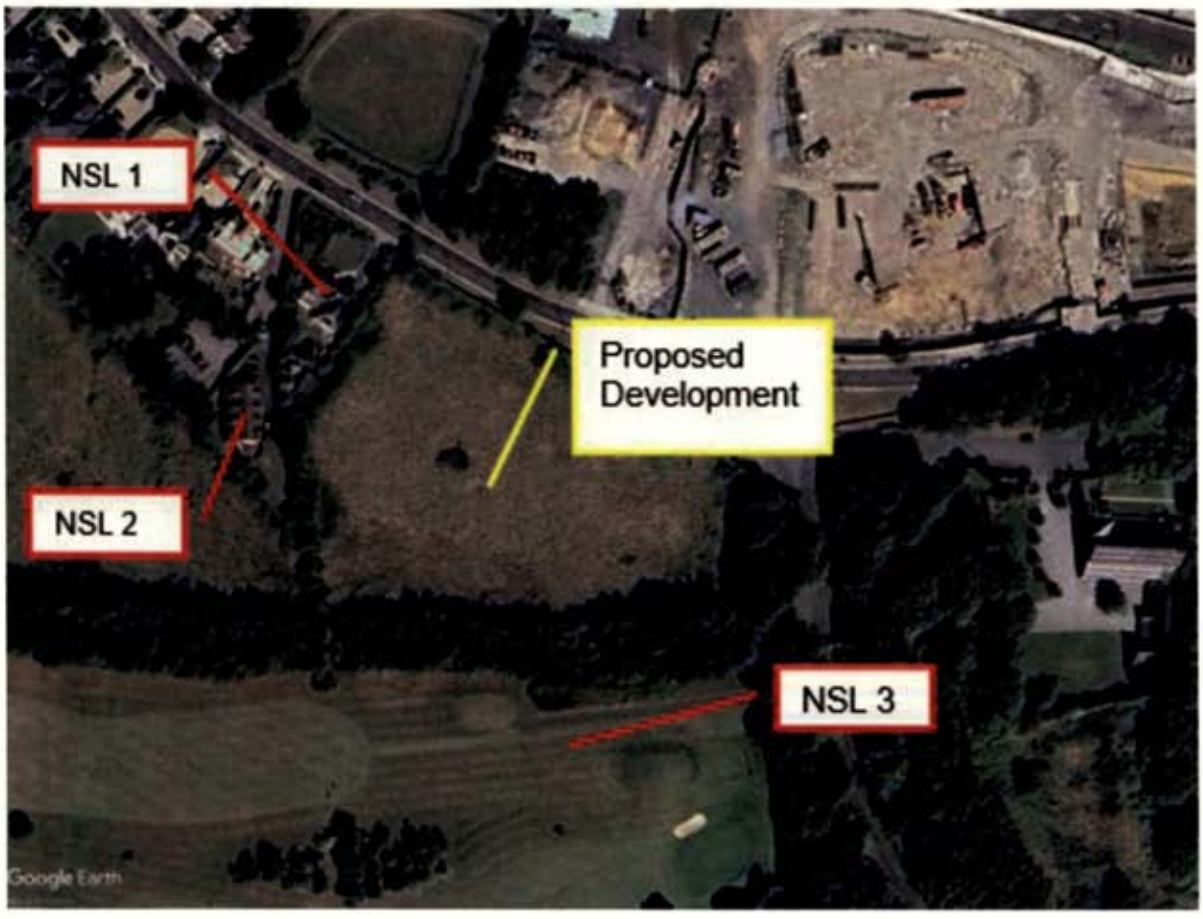


Figure 12.9 Site Context & Noise Assessment Locations (Image Source: Google Maps).

Table 12.16 below presents the predicted daytime noise levels from an indicative construction period at these noise sensitive locations (NSLs) during periods of general construction.

Table 12.16 Predicted daytime noise levels from an indicative construction period.

Description of Noise Source	Sound Power Level (dB $L_w(A)$)	Calculated noise levels at varying distances (dB $L_{Aeq,T}$)					
		20m	25m	30m	40m	60m	80m
3 no. items each with SPL of 81 dB at 10 m or 5 items each with SPL of 78 dB at 10m operating simultaneously.	114	71	69	67	64	60	58

Review of NSLs indicates that the majority of receptors are located at least 20m from areas of major construction works. There is one house along the Howth Road that is some 25m from areas of works, located outside the western site boundary.

The calculated noise levels in Table 12.16 show that the criteria for residential receptors at NSL 1 and NSL 2 in this instance the nearest houses are located some 25 - 40m from the site boundary and

therefore the contribution of construction noise is predicted to be below the recommended criteria outlined in Section 12.2.1, a significant effect is predicted, based on Table 12.2 a **negative, slight** to **moderate significance,** and **short-term,** effect of impact is expected at these nearest residential locations during the construction phase.

The predicted construction noise levels at non-residential NSL 3, at 20m from works is predicted to be below the recommended noise criteria and therefore in accordance with a significant effect is predicted based on Table 12.2 a **negative, moderate to significant** and **short-term,** effect of impact is predicted during the construction phase for periods where works occur at the nearest areas of construction to the nearest areas of Deer Park Golf Course.

Along the Howth Road, proposed works are to include stripping of topsoil and general construction of cycle pathways along the northern site boundary and north west along the road. These works will occur within 20 meters of residences, along the Howth Road.

Table 12.17 Predicted daytime noise levels from an indicative construction period.

Activity	Item of Plant *(BS5228 Ref)*	L_{Aeq} at 10m
Site Preparation	Tracked excavator (C2.21)	71
	Dump Truck (C2.30)	79
	Diesel Generator (C4.76)	61
Paving and Landscaping Work	Asphalt Paver & Tipping Lorry (C5.30)	75
	Electric Water Pump (C5.40)	68
	Vibratory Roller (C5.20)	75
	Telescopic Handler (C4.54)	79

Noise levels have been calculated at these distances assuming each plant item per phase are operating at these distances. Prediction calculations are presented in Table 12-18.

Table 12.18 Typical Noise Levels associated with Construction Plant Items

NSL Ref.	Distance, m	Activity	Predicted Construction Noise Level $L_{Aeq(1hour)}$ (dB)	Daytime CNT $L_{Aeq(1hour)}$ (dB)	Complies?
NSL 1	20m	Site Preparation	70	75	Yes
		Paving and Landscaping	72		Yes
NSL 2	60m	Site Preparation	59	65	Yes
		Paving and Landscaping	61		Yes
NSL 3	100m	Site Preparation	54	75	Yes
		Paving and Landscaping	56		Yes

It is noted the predicted construction noise levels are indicative only based on the assumed activity noise levels and distances noted above.

Predicted construction noise impact effects are a not significant effect is predicted based on table 12.2 a **negative, slight to moderate** and **short-term** for the nearest noise sensitive residential locations. At further distances from the NSL boundaries, construction noise levels will be lower than those in Table 12.18.

Along the Howth Road, extending outside of the north western site boundary utility connection works will occur.

The proposed works would involve breaking of the road surface and trenching. These works would occur within 20 metres of residences, along the Howth Road.

In order to assess potential impacts associated with such activity, reference is made to sound pressure levels presented in BS 5228 – 1:2009+A1 2014 *Code of practice for noise and vibration control on open sites: Part 1 Noise*. Published reference noise levels associated with breaking of road surfaces with pneumatic equipment range from 82 – 86 dB L_{Aeq} at 10m distance in the absence of mitigation, at distances of 20m in the absence of mitigation, noise levels associated with pneumatic breaking are predicted to be in the range of 76 – 80 dB L_{Aeq} while for distances of 60m in the absence of mitigation, noise levels associated with pneumatic breaking are predicted to be in the range of 65 – 69 dB L_{Aeq}. It is therefore recommended that noise mitigation measures such as the installation of acoustic screens between the works and the receptors is implemented. The potential impact of such works is further mitigated by the fact that these elevated noise levels would prevail for limited hours within a 12-hour work day and will be associated with breaking of top road surface which corresponds to only one element of the works, the remainder being expected to produce much less noise. Further, each phase of the pipeline would only occur for a few days in the immediate vicinity of individual noise sensitive receptors before moving to the next section of the route.

For residential NSL's at a distance of 20m from the predicted effect of impact of works associated with surface water upgrades at distances of 20m at NSL 1 and 60m at NSL 2 with the mitigation measures in place is predicted to be a significant effect, based on table 12.2 a **negative, moderate to significant** and **brief** effect of impact is predicted.

Construction Traffic

During the construction phase, traffic associated with the proposed development would consist of a mix of Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs) travelling to and from the site.

In terms of the additional traffic on local roads that will be generated as a result of this development the following comment is presented: Considering that in order to increase traffic noise levels by 1dB traffic volumes would need to increase by the order of 25% it is considered that additional traffic introduced onto the local road network due to this development will not result in a significant noise effect. The resultant noise impact not significant, **neutral**, **imperceptible** and **long-term**.

12.5.1.2 Vibration

During ground-breaking in the excavation phase, there is potential for vibration to propagate through the ground. Empirical data for this activity is not provided in the BS 5228- 2:2009+A1:2014 standard,

however the likely levels of vibration from this activity is expected to be below the vibration threshold for building damage on experience from other sites.

AWN have previously conducted vibration measurements under controlled conditions, during trial construction works, on a sample site where concrete slab breaking was carried out. The trial construction works consisted of the use of the following plant and equipment when measured at various distances:

- 3 tonne hydraulic breaker on small CAT tracked excavator
- 6 tonne hydraulic breaker on large Liebherr tracked excavator

Vibration measurements were conducted during various staged activities and at various distances. Peak vibration levels during staged activities using the 3 Tonne Breaker ranged from 0.48 to 0.25 PPV (mm/s) at distances of 10 to 50m respectively from the breaking activities. Using a 6 Tonne Breaker, measured vibration levels ranged between 1.49 to 0.24 PPV (mm/s) at distances of 10 to 50m respectively.

The range of values recorded provides some context in relation typical ranges of vibration generated by construction breaking activity likely required on the proposed site. This range of vibration magnitudes indicate vibration levels at the closest neighbouring buildings are likely to be below the limits set out in Table 12.4 to avoid any cosmetic damage to buildings.

In terms of disturbance to building occupants, works undertaken within close proximity to the residential receptors on the site perimeter have the potential to emit perceptible vibration levels.

Notwithstanding the above, with consideration to protected and vulnerable structures in the vicinity any construction activities undertaken on the site will be required to operate below the recommended vibration threshold set out in Table 12.4 during all activities. Further discussion on mitigation measures during this phase are discussed in Section 12.6.1.

It is anticipated that excavations will be made using standard excavation machinery, which typically do not generate appreciable levels of vibration close to the source. Taking this into account and considering the distance that these properties are from the works and the attenuation of vibration levels over distance, the resultant vibration levels are expected to be well below a level that would cause disturbance to building occupants or even be perceptible.

Works associated with utility connections are expected to include the pneumatic breaking of ground surfaces. Machinery used will be required to operate below the recommended vibration threshold set out in Section 12.2.3.1. Due to the potential for these works to create vibrations at nearby sensitive locations, the works will be monitored using vibration measurement devices so that the relevant vibration thresholds are not exceeded at the closest sensitive locations. The effect of impact will be **Negative, Not Significant and Long Term.**

12.5.2 Operational Phase

12.5.2.1 Mechanical Plant

Building and mechanical services plant items are proposed that will serve the apartments.

The selection of building services plant will ensure that noise levels comply with the criteria described in Section 12.2.3.1. It is acknowledged that the selection of the specific plant items is subject to change during the detailed design stage, and this is normal industry practice. However, noise from any new plant items will be designed and/or controlled so as not to give rise to any adverse effects at the nearest noise sensitive locations.

Once operational, if building services plant items are required to serve the development, the cumulative operational noise level at the nearest noise external sensitive location will be designed/attenuated to meet the relevant BS 4142 noise criteria for day and night-time periods. The criteria has been selected so that the noise from items of plant does not exceed background noise levels, and hence, as per BS4142 "this is an indication of the specific sound source having a low impact".

If the rated plant noise level is +10 dB or more above the pre-existing background noise level then this indicates that complaints are likely to occur and that there will be a significant adverse impact. A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.

The effect associated with building services plant, once designed to achieve the relevant noise criteria, is categorised **as not Significant, negative, imperceptible** and **long-term**.

Additional Traffic on Adjacent Roads

During the operational phase of the proposed development, there will be an increase in vehicular traffic associated with the site on some surrounding roads.

A traffic impact assessment relating to the proposed development has been prepared by Transport Insights, as part of this EIAR. Using this information, the related noise impacts along the relevant road links has been assessed.

Figure 12.10 below outlines the breakdown of sections of road and Tables 12.19 and 12.20 display the predicted change in noise level at different road links around the site for the year of opening and the design year using the Annual Average Daily Traffic (AADT) flows along the road links under consideration.

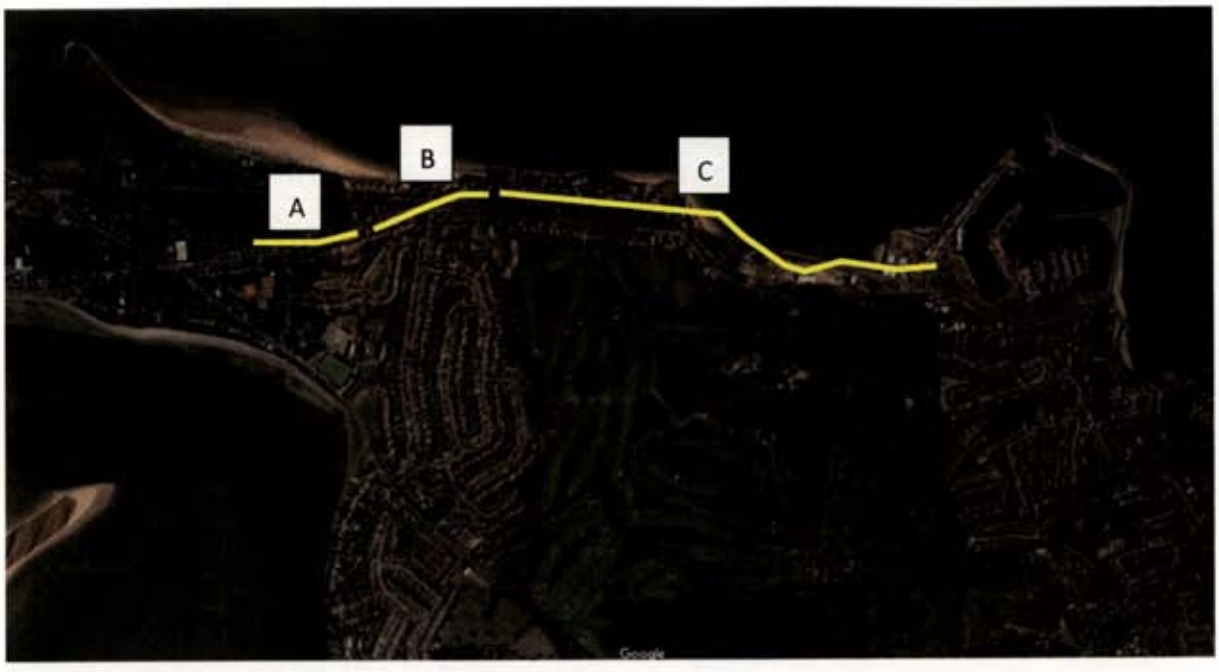


Figure 12.10 Traffic Assessment – Road Links.

Table 12.19 Predicted Change in Noise Level associated with Vehicular Traffic.

Road Link	Opening Year (2025)		
	AADT Without Development	AADT With Development	Change in Noise Level (dB)
A	11,289	12,386	+0.4
B	10,352	11,449	+0.4
C	10,519	11,616	+0.4

Table 12.20 Predicted Change in Noise Level associated with Vehicular Traffic.

Road Link	Design Year (2040)		
	AADT Without Development	AADT With Development	Change in Noise Level (dB)
A	12,932	14,029	+0.4
B	11,865	12,962	+0.4
C	12,056	13,153	+0.4

For the opening year (2025) traffic flows, the predicted changes in noise level along the of road links is +0.4 dB. For the design year (2040) traffic flows, the predicted changes in noise level along the road links +0.4 dB.

With reference to Table 12.7, the predicted change in noise level associated with additional traffic on the existing road network, is negligible in magnitude. The impact is therefore **not significant, imperceptible** and **long term**.

12.5.2.2 Inward Noise Assessment

Acoustic Design Statement – Part 1

Façade Noise Levels

Noise levels have been predicted across the proposed development site during day and night-time periods using the noise model developed to include the development buildings. Figure 12.11 and Figure 12.12 illustrate the predicted traffic noise levels for daytime and night-time at heights of 4m.

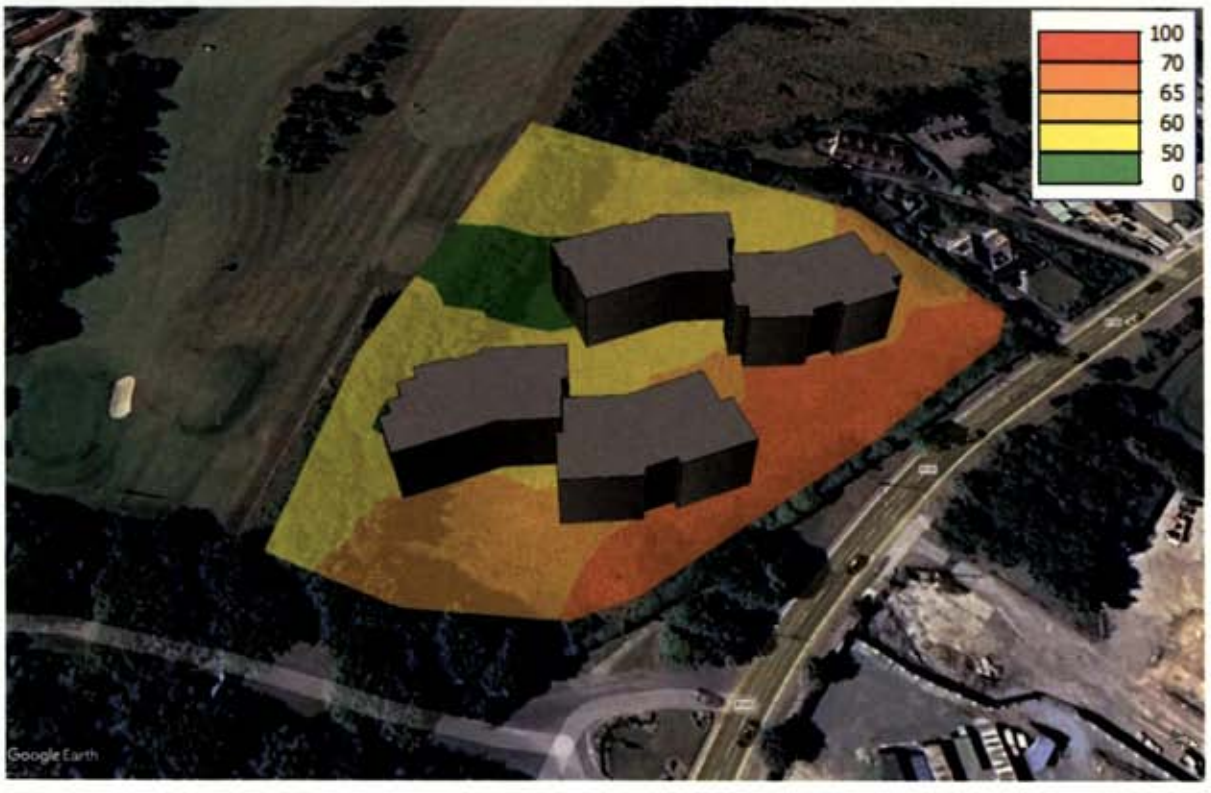


Figure 12.11 Predicted Noise Levels – Daytime (4m Height)

Predicted daytime noise levels for the majority of the site are below <65 dB as a result of sheltered areas due to screening provided by the demesne wall and buildings, the site is significantly screened and set back from sources of traffic noise, to the north of the site levels lie within the 60-70 dB contour ranges.

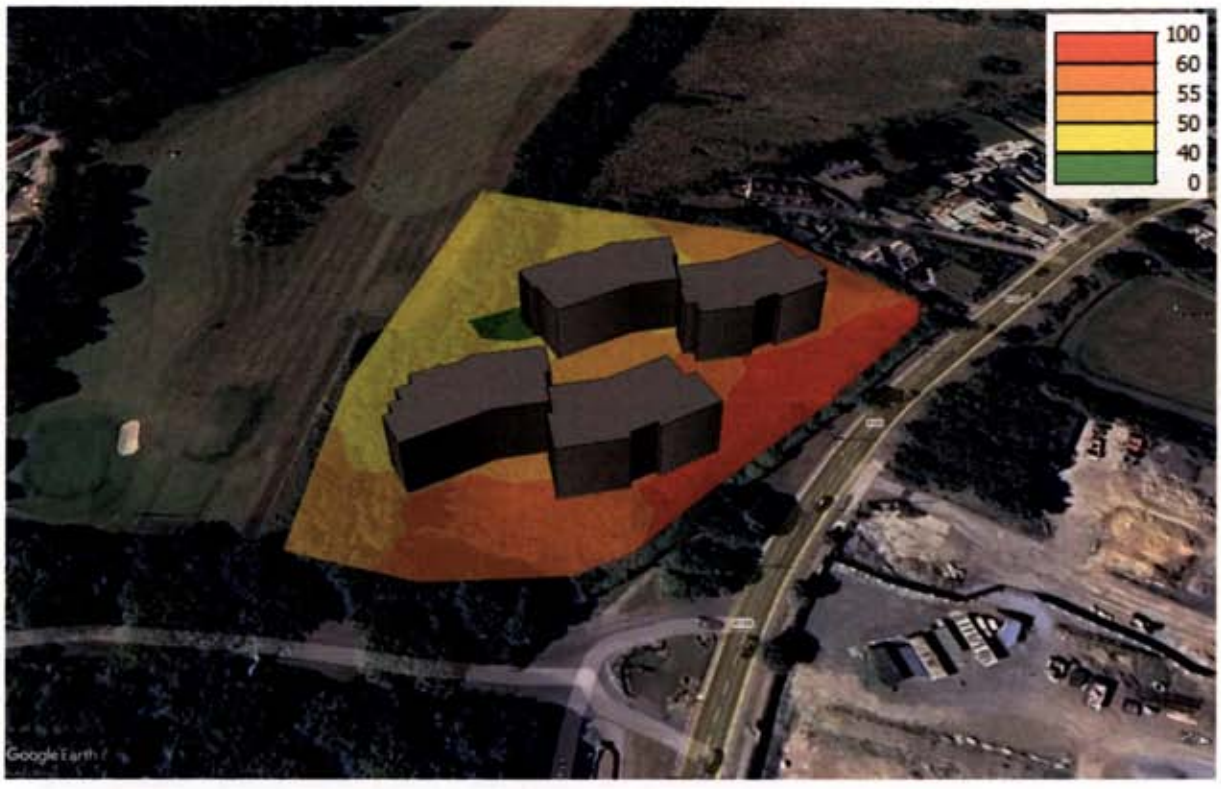


Figure 12.12 Predicted Noise Levels – Night-time (4m Height)

Predicted night-time noise levels to the east of the proposed development site range from 50 - 70 dB contour ranges as a result of noise generated at the Howth Road and nearby rail line. Moving south in the development site noise levels are attenuated due to distance from roads and screening provided by buildings and the demesne wall.

Where façade noise levels are less than 55 dB $L_{Aeq,16hr}$ during the day and 50 dB $L_{Aeq,8hr}$ at night it is possible to achieve reasonable internal noise levels while also allowing for supplementary ventilation of dwellings with open windows. Therefore, for those properties where the façade noise levels are less than 55 dB $L_{Aeq,16hr}$ during the day and 50 dB $L_{Aeq,8hr}$ at night, no further mitigation is required, typically for buildings removed from nearby roads.

With mitigation measures in place the impacts are categorised as follows: neutral, not significant and long-term.

Proposed Façade Treatment

Predicted noise levels on several facades are above a level whereby internal noise levels are achieved with standard double glazing and therefore mitigation in the form of enhanced glazing and ventilators will be required. The facades where mitigation is required are illustrated in Figure 12.13.

Figure 12.13 Facades requiring enhanced glazing and ventilation

The British Standard BS EN 12354-3: 2000: Building acoustics – Estimation of acoustic performance of buildings from the performance of elements – Part 3: Airborne sound insulation against outdoor sound provides a calculation methodology for determining the sound insulation performance of the external envelope of a building. The method is based on an elemental analysis of the building envelope and can take into account both the direct and flanking transmission paths.

The Standard allows the acoustic performance of the building to be assessed taking into account the following:

- Construction type of each element (i.e. windows, walls, etc.);
- Area of each element;
- Shape of the façade, and;
- Characteristics of the receiving room.

The principles outlined in BS EN 12354-3 are also referred to in BS8233 and Annex G of BS8233 provides a calculation method to determine the internal noise level within a building using the composite sound insulation performance calculated using the methods outlined in BS EN 12354-3. The methodology outlined in Annex G of BS8233 has been adopted here to determine the required performance of the building façade elements.

The specification of enhanced façade elements is discussed in Section 12.6.2.

External Noise Levels

Figure 12.14 presents the calculated day time noise levels across the site with the development buildings in place. The contours are calculated for a height of 1.5m.

Due to set back distance from Howth Road, local rail, the degree of screening provided by buildings and demesne wall, the external noise levels within the amenity areas in the southern portion of the development site, containing the majority of amenity areas, are within the recommended range of noise levels from ProPG of between 48 – 55 dB $L_{Aeq,16hr}$. The amenity spaces have been located as far from the primary source of noise in the area, i.e. the R105 Howth Road and are expected to benefit from acoustic screening provided development buildings. On this basis It is considered that the objectives of achieving suitable external amenity space is achieved within the overall site, therefore no further mitigation is required to control external noise levels across amenity areas.

On the basis of compliance with best practice guidance on external amenity areas the associated noise impacts are categorised as neutral, not significant and long term.

Figure 12.14 Predicted Daytime Noise Levels – External Amenity Areas – 1.5m height

12.6 Mitigation Measures

Mitigation measures for the construction phase are set out below in order to reduce potential impacts as far as practicable to within the adopted criteria for noise and vibration.

12.6.1 Incorporated Design Measures

External noise can enter rooms within dwellings through windows, ventilators, walls, roof and doors. In most cases, however, windows provide the main path and therefore, mitigation by design has focused on this building element to ensure that their insulation is adequate. Where identified as necessary, apartments that have external windows that have acoustically rated windows to prevent break-in of external noise.

The acoustic performance will meet the minimum requirements which shall apply to the overall glazing system when installed on site. In the context of the acoustic performance specification the 'glazing system' is understood to include any and all of the component parts that form part of the glazing element of the façade, i.e., glass, frames, seals openable elements etc. All exterior wall and door frames should be sealed tight to the exterior wall construction.

12.6.2 Construction Phase - Noise

With regard to construction activities, best practice control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2. Whilst construction noise and vibration impacts are expected to vary during the construction phase depending on the distance between the activities and noise sensitive buildings, the contractor will ensure that all best practice noise and vibration control methods will be used, as necessary in order to ensure impacts at off-site noise sensitive locations are minimised.

The best practice measures set out in BS 5228 (2009 +A1 2014) Parts 1 and 2 includes guidance on several aspects of construction site mitigation measures, including, but not limited to:

- selection of quiet plant;
- noise control at source;
- screening;
- liaison with the public, and;
- monitoring.

Detailed comment is offered below on these items. Noise control measures that will be considered include the selection of quiet plant, enclosures and screens around noise sources, limiting the hours of work and noise and vibration monitoring, where required.

Selection of Quiet Plant

This practice is recommended in relation to static plant such as compressors and generators. Units will be supplied with manufacturers' proprietary acoustic enclosures. The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item will be selected wherever possible. Should a particular item of plant already on the site be found to

generate high noise levels, the first action will be to identify whether or not said item can be replaced with a quieter alternative.

Noise Control at Source

If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact.

Referring to the potential noise generating sources for the works under consideration, the following best practice migration measures should be considered:

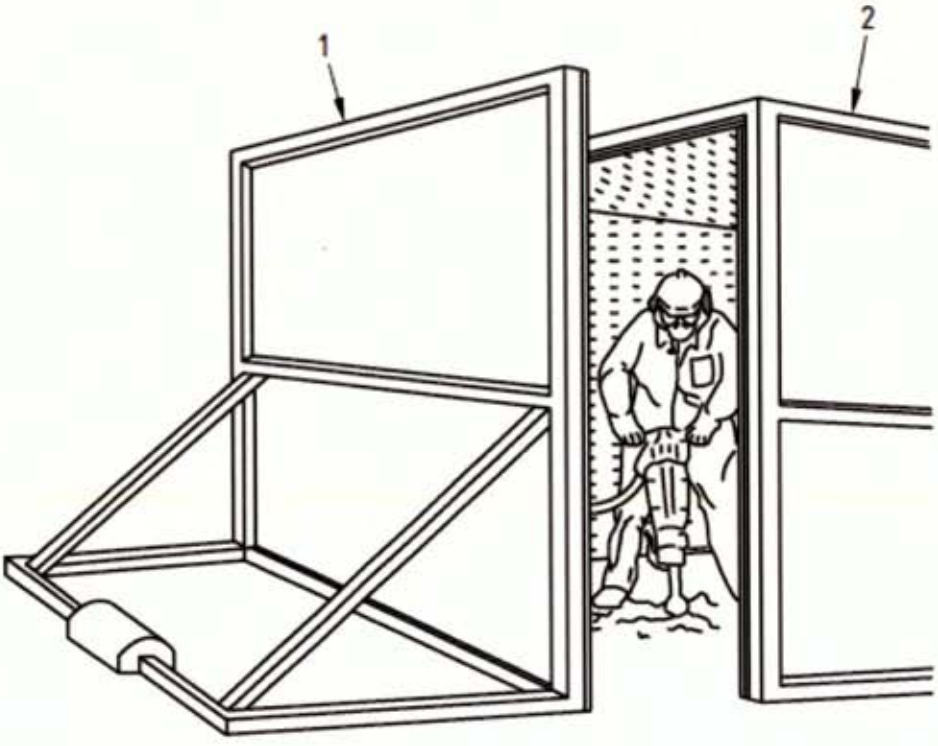
- Site compounds will be located in excess of 30m from noise sensitive receptors within the site constraints. The use lifting bulky items, dropping and loading of materials within these areas should be restricted to normal working hours.
- For mobile plant items such as dump trucks, excavators and loaders, the installation of an acoustic exhaust and or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB. Mobile plant should be switched off when not in use and not left idling.
- For concrete mixers, control measures should be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.
- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- For compressors, generators and pumps, these can be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- Demountable enclosures can also be used to screen operatives using hand tools and will be moved around site as necessary.
- All items of plant should be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.

Screening

Screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. Construction site hoarding will be constructed around the site boundaries as standard. The hoarding will be constructed of a material with a mass per unit of surface area greater than 7 kg/m^2 to provide adequate sound attenuation.

In addition, careful planning of the site layout will also be considered. The placement of site buildings such as offices and stores will be used, where feasible, to provide noise screening when placed between the source and the receiver.

With respect pipe installation works, Annex B of *BS 5228-1:2009+A1:2014* (Figures B1, B2 and B3) provide typical details for temporary and mobile acoustic screens, sheds and enclosures that can be constructed on site from standard materials.



Key
1 Acoustic screen 2 m wide and 2.7 m high
2 Acoustic shed 2 m square and 2.7 m high

Table B.4 **Measured sound reduction given by types of partial enclosure**

Type of enclosure (see Figure B.3)	Reduction dB(A)		
	Facing the opening(s)	Sideways	Facing rear of shed
Open-sided shed lined with absorbent material; no screen	1	9	14
Open-sided shed lined with absorbent material; with reflecting screen in front	10	6	8
Open-sided shed lined with absorbent material; with absorbent screen in front	10	10	10

Liaison with the Public

A designated environmental liaison officer will be appointed to site during construction works. Any noise complaints should be logged and followed up in a prompt fashion by the liaison officer. In addition, where a particularly noisy construction activity is planned or other works with the potential to generate high levels of noise, or where noisy works are expected to operate outside of normal

working hours etc., the liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

Project Programme

The phasing programme will be arranged so as to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest sensitivity. During periods when high noise generating works are in progress at the same time as other works of construction that themselves may generate significant noise and vibration, the working programme will be phased so as to prevent unacceptable disturbance at any time.

12.6.3 Construction Phase – Vibration

Review of the study area identifies vulnerable and protected structures in the vicinity such as Howth Castle and Howth Castle Gates.

The vibration from construction activities will be limited to the values set out in Section 12.2. Magnitudes of vibration slightly greater than those in table 12.4 are normally unlikely to cause cosmetic damage, but construction work creating such magnitudes should proceed with caution. Limit values have been provided for soundly constructed residential and commercial properties along with protected and vulnerable structures, and will be adhered to as follows:

Limits have been recommended above for protected structures. Where vibration-heavy works are proposed near protected structures the relevant engineer or conservation expert should be consulted in advance of works adjacent.

12.6.4 Operational Phase – Noise

12.6.4.1 Mechanical Services Plant

Plant items will be designed and selected so that cumulative noise emissions are within the recommended noise criteria. Therefore no mitigation is required.

12.6.4.2 Additional Traffic on Adjacent Roads

During the operational phase of the development the change in noise level associated with development traffic is predicted to be **not significant, negligible** and therefore, noise mitigation measures with respect to the outward impact of traffic from the development are not deemed necessary.

12.6.4.3 Inward Noise – Design Statement Part 2

As is the case in most buildings, the glazed elements and ventilation paths of the building envelope are typically the weakest element from a sound insulation perspective. In general, all wall constructions (i.e. block work or concrete and spandrel elements) offer a high degree of sound insulation, much greater than that offered by the glazing systems. Therefore, noise intrusion via the wall construction will be minimal.

In this instance residential units on the facades highlighted in Figure 12.13 will be provided with glazing and ventilation that achieves the minimum sound insulation performances as set out in Table 12.21 and Table 12.22. Other facades in the development have no minimum requirement for sound insulation.

Table 12.21 Sound Insulation Performance Requirements for Glazing, SRI (dB)

Zone	Nominal R_w (dB)	SRI (dB) per Octave Band Centre Frequency (Hz)					
		125	250	500	1k	2k	4k
	35	30	25	31	40	36	36
	33	24	26	32	35	32	28

The overall R_w and $D_{ne,w}$ outlined in this section are provided for information purposes only. The over-riding requirement is the Octave Band sound insulation performance values which may also be achieved using alternative glazing and ventilation configurations.

Test data should be sought from the supplier of the glazing at detailed design stage to ensure that the acoustic specification is met.

The following performance requirements apply to all ventilation paths from outside the building. This can be achieved by passive acoustic wall or window vents or via mechanical ventilation systems.

Table 12.22 Acoustic Performance Requirements for Vents, Dn,e,w (dB)

Zone	Nominal $D_{n,e,w}$ (dB)	SRI (dB) per Octave Band Centre Frequency (Hz)					
		125	250	500	1k	2k	4k
	39	39	34	40	40	36	36
	34	29	28	34	35	32	28

It is important to note that the acoustic performance specifications detailed herein are minimum requirements which apply to the overall glazing and ventilation systems. In the context of the acoustic performance specification the 'glazing system' is understood to include any and all of the component parts that form part of the glazing element of the façade, i.e. glass, frames, seals, openable elements etc.

Predicted noise levels have demonstrated that the recommended internal noise criteria can be achieved through with standard façade elements at the design stage. The calculated glazing and ventilation specifications are preliminary and are intended to form the basis for noise mitigation at the detailed design stage. Consequently, these may be subject to change as the project progresses.

The proposed development is not anticipated to generate any appreciable level of vibration once operational and therefore no vibration mitigations measures are necessary. The effect of impact will therefore be **not significant, neutral, imperceptible and long term**.

12.6.5 Operational Phase – Vibration

There are no appreciable sources of vibration associated with the operation of the proposed development. The vibration impact is predicted to be **not significant, neutral**, **imperceptible** and **long-term**.

12.7 Residual Impacts

12.7.1 Construction Phase

The construction noise assessment has shown that predicted noise levels associated with construction activity during utility connection outside of the site at the nearest residential NSLs, at distances of 20m and 60m, are +5 dB above the recommended criteria in CNT and therefore for these works **a significant effect** which is **negative, moderate to significant** and **brief** effect is predicted.

12.7.2 Operational Phase

12.7.2.1 Mechanical Plant

Assuming the operational noise levels do not exceed the adopted design goals in line with the relevant noise criteria, the resultant residual noise impact from this source will be a **not significant, neutral**, **imperceptible**, **long term** effect of impact.

Additional Vehicular Traffic

In the context of the existing noise environment, the predicted change in noise levels associated with additional traffic is predicted to be **not significant, imperceptible and long term** effect along the existing road networks for nearby residential locations.

Inward Noise

With respect to inward noise impacts, the use of upgraded glazing and ventilation systems will ensure that the internal noise criterion are met. With mitigation measures in place the impacts are categorised as follows: **neutral, not significant and long term.**

12.8 Cumulative Impacts

In terms of construction noise, there is potential for construction works to occur concurrently. The following developments have been included in the assessment of cumulative impacts due to their proximity to the proposed development site. For developments at greater distances, the effect of cumulative impact will be neutral, not significant and long term.

- Dart+ Coastal North
- Replacement of Deer Park Hotel Building, Reg. No. F22A/0372
- Claremont Industrial Estate, West Pier, Howth, Reg. No.F22A/0558
- Refurbishment/redevelopment/change of use for part of the existing Howth Castle, Reg. No. F22A/0046

- Former Techrete Site, Howth Road (Claremont SHD), Reg. No. ABP-306102-19

In the scenario whereby construction on multiple activities is ongoing simultaneously there is potential for significant noise impact at nearby NSL's. Typically the construction process follows a sequence of various construction activities thereby reducing the risk of cumulative noise impacts. For the worst case scenario where both sites are equidistant from a noise sensitive location and producing the same level concurrently, a significant effect which based on Table 12.2 is slight to moderate - moderate to significant and short-term is predicted.

There is a potential for cumulative impacts associated with construction noise traffic, with an increase of +3 dB representing the worst case scenario of a doubling of construction traffic when compared to either site operating in isolation.

Cumulative impacts will need to be considered and managed during the construction phase. It is recommended that liaison between construction sites is on-going throughout the duration of the construction phase. Contractors should schedule work in a co-operative effort to limit the duration and magnitude of potential cumulative impacts on nearby sensitive receptors. Cumulative construction noise impacts are expected to be a significant effect which based on Table 12.2 is **slight to moderate - moderate to significant and short-term**.

At operational stage, cumulative noise impacts associated with the proposed development and other developments in the area are most likely to be associated with increase noise associated with traffic. An increase of +3 dB represents a worst case scenario of a doubling in volume of traffic, representing a perceptible change with a significant impact, based on Table 12.3 , **moderate impact, moderate significance and long-term**.

The noise limits set for off-site noise sensitive locations are designed to avoid any significant increase in the prevailing background noise environment. Operational noise limits included in this report refer to cumulative noise from all fixed installations on site. The design of plant and other fixed installations will be progressed during the design stage to ensure the noise limits at offsite noise sensitive locations are not exceeded.

12.9 Interactions

This chapter has used information from the Traffic chapter and the architectural drawings to inform the assessment of noise and vibration impacts. With increased traffic movements, the noise levels in the surrounding area increase. The impacts of the proposed development on the noise environment are assessed by reviewing the change in traffic flows on roads close to the site. In this assessment, the impact of the interactions between traffic and noise are considered to be **not significant, long term** and **imperceptible** due to the low-level changes in traffic flows associated with the proposed development.

12.10 Difficulties Encountered

No difficulties were encountered during the preparation of the EIAR chapter.

12.11 References

- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports – (EPA, 2022);
- BSI (1993). BS 7385: 1993 Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration;
- BS 4142: 2014: Methods for Rating and Assessing Industrial and Commercial Sound;
- BSI (2014). BS 5228-1:2009 +A1:2014 Code of Practice for noise and vibration control of construction and open sites - Part 1: Noise;
- BSI (2014). BS 5228-2:2009+A:2014 Code of Practice for noise and vibration control of construction and open sites - Part 2: Vibration;
- EPA (2020). EPA Maps [Online] Available from gis.epa.ie/EPAMaps;
- ISO (2016). ISO 1996-1:2016 Acoustics - Description, measurement and assessment of environmental noise. Part 1: Basic quantities and assessment procedures;
- UK Department of Transport (1998). Calculation of Road Traffic Noise;
- UKHA (2020). Design Manual for Roads and Bridges Sustainability & Environment Appraisal LA 111 Noise and Vibration Revision 2; and
- (IoA, 2017). Professional Practice Guidance on Planning & Noise (ProPG).

CHAPTER 13
AIR QUALITY

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

13 Air Quality

13.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on air quality associated with the proposed development at Deer Park, Howth, Co. Dublin.

It should be read in conjunction with Chapter 06 – Material Assets Traffic and Transport.

13.2 Expertise & Qualifications

This chapter was completed by Aisling Cashell, an Environmental Consultant in the air quality section of AWN Consulting Ltd. She holds a BA and an MAI in Civil, Structural and Environmental Engineering from Trinity College Dublin. She is a member of Engineers Ireland. She has been specialising in the area of air quality, climate and sustainability for 1 year and has prepared air quality and climate assessments for inclusion within EIARs for residential and commercial developments such as Twenties Lane (Planning Application Ref: 22713), Cherrywood T13 (Planning Application Ref: DZ23A/0028), Corballis Donabate LRD (Planning Application Ref: LRD0017/S3), The Paddocks (Planning Application Ref: 2360349), and Dublin Airport Authority.

This chapter was also prepared and reviewed Dr. Jovanna Arndt, a Senior Environmental Consultant in the Air Quality & Climate section of AWN Consulting. She has been specialising in the area of air quality and climate over 7 years and has prepared air quality and climate assessments for inclusion within EIARs for residential developments such as Twenties Lane (Planning Application Ref: 22713), Cherrywood T13 (Planning Application Ref: DZ23A/0028), Corballis Donabate LRD (Planning Application Ref: LRD0017/S3), commercial and industrial developments by Dublin Airport Authority, Zoetis, Ipsen, Merck Millipore, Greener Ideas Limited and Abbvie, as well as renewable energy developments such as Codling Wind Park and the Cúil Na Móna Anaerobic Digestion Facility. She also specialises in assessing air quality impacts using air dispersion modelling of transportation schemes such as BusConnects Dublin, major Highways England Road schemes and major rail infrastructure in the form of High Speed 2 (HS2 in the UK). She has prepared air dispersion modelling assessments of emissions from data centres, energy centres and the chemical industry as part of EPA Industrial Emissions Licences for Microsoft, Greener Ideas Limited, Merck Millipore, Lilly Limerick, Chemifloc, Takeda, Kingspan and Kilshane Energy. She has also provided Air Quality Action Plan (AQAP) and Air Quality Management Area (AQMA) support to several UK councils and assessed the air quality impacts of potential Clean Air Zones in the UK.

13.3 Proposed Development

A detailed description of the proposed development is provided in Chapter 2 of this Environmental Impact Assessment Report (EIAR).

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom

units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 510 bicycle spaces are proposed including the provision of secure bicycle stores. Partial demolition of 3 sections of the existing demesne northern boundary wall, which fronts Howth Road is proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

13.3.1 Aspects Relevant to this Assessment

During the construction phase construction dust emission have the potential to impact air quality. Dust emissions will primarily occur as a result of site preparation works, earthworks and the movement of trucks on site and exiting the site. There is also the potential for engine emissions from site vehicles and machinery to impact air quality. Construction phase impacts will be short-term in duration.

Engine emissions from vehicles accessing the site have the potential to impact air quality during the operational phase of the development through the release of NO_2, PM_{10} and $PM_{2.5}$. Operational phase impacts will be long-term in duration.

13.4 Methodology

13.4.1 Relevant Legislation & Guidance

The assessment of potential impacts on air quality has been prepared in accordance with the most relevant guidance and best practice documents:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018);
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the Environmental Protection Agency (EPA) Guidelines) (EPA, 2022);
- Guidance on the Assessment of Dust from Demolition and Construction Version 2.2 (Institute of Air Quality Management (IAQM), 2024);
- A Guide To The Assessment Of Air Quality Impacts On Designated Nature Conservation Sites (Version 1.1) (IAQM, 2020);
- TII Guidance Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106 (TII, 2022a) and TII Road Emissions Model (REM) online calculator tool (TII, 2022b);
- TII Road Emissions Model (REM): Model Development Report – GE-ENV-01107 (TII, 2022b).

13.4.1.1 Ambient Air Quality Standards

In order to reduce the risk to health from poor air quality, National and European statutory bodies, the Department of the Environment, Heritage and Local Government in Ireland and the European Parliament and Council of the European Union, have set limit values in ambient air for a range of air

pollutants. These limit values or "Air Quality Standards" are health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set.

Air quality significance criteria are assessed based on compliance with the appropriate standards or limit values. The applicable standards in Ireland include the Air Quality Standards Regulations 2022, which incorporate European Commission Directive 2008/50/EC, which has set limit values for numerous pollutants with the limit values for NO_2, PM_{10}, and $PM_{2.5}$ being relevant to this assessment. Council Directive 2008/50/EC combines the previous Air Quality Framework Directive (96/62/EC) and its subsequent daughter directives (including 1999/30/EC and 2000/69/EC) and includes ambient limit values relating to $PM_{2.5}$. The applicable limit values for NO_2, PM_{10}, and $PM_{2.5}$ are set out in Table 13.1.

Table 13.1 Ambient Air Quality Standards & TA Luft

Pollutant	Regulation Note1	Limit Type	Value
Dust Deposition	TA Luft (German VDI 2002)	Annual average limit for nuisance dust	350 $mg/m^2/day$
Nitrogen Dioxide	2008/50/EC	Hourly limit for protection of human health - not to be exceeded more than 18 times/year	200 $\mu g/m^3$
		Annual limit for protection of human health	40 $\mu g/m^3$
Particulate Matter (as PM_{10})	2008/50/EC	24-hour limit for protection of human health - not to be exceeded more than 35 times/year	50 $\mu g/m^3$ PM_{10}
		Annual limit for protection of human health	40 $\mu g/m^3$ PM_{10}
Particulate Matter (as $PM_{2.5}$) – Stage 1	2008/50/EC	Annual limit for protection of human health	25 $\mu g/m^3$ $PM_{2.5}$
Particulate Matter (as $PM_{2.5}$) – Stage 2 Note 2	2008/50/EC	Annual limit for protection of human health	20 $\mu g/m^3$ $PM_{2.5}$

Note 1 EU 2008/50/EC – Clean Air For Europe (CAFÉ) Directive replaces the previous Air Framework Directive (1996/30/EC) and daughter directives 1999/30/EC and 2000/69/EC

Note 2 Stage 2 indicative limit value for $PM_{2.5}$ to be applied from 1 January 2020 after review by the European Commission

In April 2023, the Government of Ireland published the Clean Air Strategy for Ireland (Government of Ireland, 2023), which provides a high-level strategic policy framework needed to reduce air pollution. The strategy commits Ireland to achieving the 2021 WHO Air Quality Guidelines Interim Target 3 (IT3) by 2026, the IT4 targets by 2030 and the final targets by 2040 (shown in Table 13.2). The strategy notes that a significant number of EPA monitoring stations observed air pollution levels in 2021 above the WHO targets; 80% of these stations would fail to meet the final $PM_{2.5}$ target of 5 $\mu g/m^3$. The strategy also acknowledges that *"meeting the WHO targets will be challenging and will require legislative and societal change, especially with regard to both $PM_{2.5}$ and NO_2"*. Ireland will revise its air quality legislation in line with the proposed EU revisions to the CAFE Directive, which will set interim 2030 air quality standards and align the EU more closely with the WHO targets.

At present, the applicable standards for assessing compliance in relation to air quality are those outlined in Table 13.1.

Table 13.2 WHO Air Quality Guidelines

Pollutant	Regulation	Limit Type	IT3 (2026)	IT4 (2030)	Final Target (2040)
NO_2	WHO Air Quality Guidelines	24-hour limit for protection of human health	50µg/m³ NO_2	50µg/m³ NO_2	25µg/m³ NO_2
		Annual limit for protection of human health	30µg/ m³ NO_2	20µg/ m³ NO_2	10µg/m³ NO_2
PM (as PM_{10})		24-hour limit for protection of human health	75µg/ m³ PM_{10}	50µg/m³ PM_{10}	45µg/m³ PM_{10}
		Annual limit for protection of human health	30µg/ m³ PM_{10}	20µg/ m³ PM_{10}	15µg/m³ PM_{10}
PM (as $PM_{2.5}$)		24-hour limit for protection of human health	37.5µg/m³ $PM_{2.5}$	25µg/m³ $PM_{2.5}$	15µg/m³ $PM_{2.5}$
		Annual limit for protection of human health	15µg/m³ $PM_{2.5}$	10µg/m³ $PM_{2.5}$	5µg/m³ $PM_{2.5}$

13.4.1.2 Dust Deposition Guidelines

The concern from a health perspective is focused on particles of dust, which are less than 10 microns, and the EU ambient air quality standards outlined in Section 13.4.1.1 have set ambient air quality limit values for PM_{10} and $PM_{2.5}$.

With regard to larger dust particles that can give rise to nuisance dust, there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction phase of a development in Ireland.

However, guidelines for dust deposition, the German TA-Luft standard for dust deposition (non-hazardous dust) (German VDI, 2002) sets a maximum permissible emission level for dust deposition of 350 mg/m²/day averaged over a one-year period at any receptors outside the site boundary. Recommendations from the Department of the Environment, Heritage & Local Government (DEHLG, 2004) apply the Bergerhoff limit of 350 mg/m²/day to the site boundary of quarries. This limit value can also be implemented with regard to dust impacts from construction of the proposed development.

13.4.1.3 Air Quality and Traffic Impact Significance Criteria

The TII document *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022a) details a methodology for determining air quality impact significance criteria for road schemes which can be applied to any project that causes a change in traffic. The degree of impact is determined based on the percentage change in pollutant concentrations relative to the Do Nothing scenario. The TII significance criteria are outlined in Table 4.9 of *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022a) and reproduced in Table 13.3 overleaf. These criteria have been

adopted for the proposed development to predict the impact of NO_2,PM_{10} and $PM_{2.5}$ emissions as a result of traffic associated with the proposed development.

Table 13.3 Air Quality Significance Criteria

Long Term Average Concentration at Receptor in Assessment Year	% Change in Concentration Relative to Air Quality Standard Value (AQLV)			
	1%	2-5%	6-10%	>10%
75% or less of AQLV	Neutral	Neutral	Slight	Moderate
76 – 94% of AQLV	Neutral	Slight	Moderate	Moderate
95 – 102% of AQLV	Slight	Moderate	Moderate	Substantial
103 – 109% of AQLV	Moderate	Moderate	Substantial	Substantial
110% or more of AQLV	Moderate	Substantial	Substantial	Substantial

Source: TII (2022a) Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106

13.4.2 Site Surveys/Investigations

No on-site surveys were required for the air quality assessment. The baseline air quality environment was established using available long-term EPA monitoring data for representative locations (see Section 13.6.2).

13.4.3 Consultation

A Section S32B meeting was held on 08/06/2023. Additional consultation with specific relevant bodies was not required as part of the air quality assessment.

13.4.4 Construction Phase Methodology

13.4.4.1 Construction Traffic Assessment

Construction phase traffic has the potential to impact air quality. The TII guidance *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022a), states that road links meeting one or more of the following criteria can be defined as being 'affected' by a proposed development and should be included in the local air quality assessment. While the guidance is specific to infrastructure projects the approach can be applied to any development that causes a change in traffic.

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- Daily average speed change by 10 kph or more;
- Peak hour speed change by 20 kph or more;
- A change in road alignment by 5m or greater.

The construction stage traffic will not increase by 1,000 AADT or 200 HDV AADT and therefore does not meet the above scoping criteria. In addition, there are no proposed changes to the traffic speeds or road alignment. As a result a detailed air assessment of construction stage traffic emissions has been scoped out from any further assessment as there is no potential for significant impacts to air quality.

13.4.4.2 Construction Dust Assessment

The Institute of Air Quality Management in the UK (IAQM) guidance document 'Guidance on the Assessment of Dust from Demolition and Construction' (2024) outlines an assessment method for predicting the impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. The IAQM methodology has been applied to the construction phase of this development in order to predict the likely risk of dust impacts in the absence of mitigation measures and to determine the level of site-specific mitigation required. The use of UK guidance is recommended by Transport Infrastructure Ireland in their guidance document *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022a).

The major dust generating activities are divided into four types within the IAQM guidance (2024) to reflect their different potential impacts. These are:

- Demolition;
- Earthworks;
- Construction; and
- Trackout (transport of dust and dirt from the construction site onto the public road network).

The magnitude of each of the four categories is divided into Large, Medium or Small scale depending on the nature of the activities involved. The magnitude of each activity is combined with the overall sensitivity of the area to determine the risk of dust impacts from site activities. This allows the level of site-specific mitigation to be determined.

13.4.5 Operational Phase Methodology

Operational phase traffic has the potential to impact local air quality as a result of increased vehicle movements associated with the proposed development. The TII scoping criteria detailed in Section 13.4.4 were used to determine if any road links are affected by the proposed development and require inclusion in a detailed air dispersion modelling assessment. The proposed development will not result in the operational phase traffic increasing by more than 1,000 AADT. In addition, there are no proposed changes to the traffic speeds or road alignment. Therefore, no road links impacted by the proposed development satisfy the screening criteria (see Section 13.4.4). A quantitative assessment of the impact of traffic emissions on ambient air quality is not necessary as there is no potential for significant impacts to local air quality.

13.5 Difficulties Encountered

There were no difficulties encountered in compiling this assessment.

13.6 Baseline Environment

13.6.1 Meteorological Data

A key factor in assessing temporal and spatial variations in air quality is the prevailing meteorological conditions. Depending on wind speed and direction, individual receptors may experience very

significant variations in pollutant levels under the same source strength (i.e. traffic levels) (WHO, 2006). Wind is of key importance in dispersing air pollutants and for ground level sources, such as traffic emissions, pollutant concentrations are generally inversely related to wind speed. Thus, concentrations of pollutants derived from traffic sources will generally be greatest under very calm conditions and low wind speeds when the movement of air is restricted. In relation to PM_{10}, the situation is more complex due to the range of sources of this pollutant. Smaller particles (less than $PM_{2.5}$) from traffic sources will be dispersed more rapidly at higher wind speeds. However, fugitive emissions of coarse particles ($PM_{2.5}$ - PM_{10}) will actually increase at higher wind speeds. Thus, measured levels of PM_{10} will be a non-linear function of wind speed.

The nearest representative weather station collating detailed weather records is Dublin Airport meteorological station, which is located approximately 12 km west of the site. Dublin Airport meteorological data has been examined to identify the prevailing wind direction and average wind speeds over a five-year period (see Figure 13.1). For data collated during five representative years (2019 – 2023), the predominant wind direction is westerly to south-westerly with a mean wind speed of 5.4 m/s over the 30-year period 1991 – 2020 (Met Éireann, 2024).

Figure 13.1 Windrose 2018-2022 (Source: Met Éireann, 2024)

13.6.2 Baseline Air Quality

Air quality monitoring programs have been undertaken in recent years by the EPA. The most recent annual report on air quality in Ireland is "Air Quality In Ireland 2022" (EPA, 2023). The EPA website

details the range and scope of monitoring undertaken throughout Ireland and provides both monitoring data and the results of previous air quality assessments (EPA, 2022).

As part of the implementation of the Framework Directive on Air Quality (1996/62/EC, four air quality zones have been defined in Ireland for air quality management and assessment purposes (EPA, 2022). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000, is defined as Zone D.

In terms of air monitoring and assessment, the proposed development site is within Zone A (EPA, 2022). The long-term monitoring data has been used to determine background concentrations for the key pollutants in the region of the proposed development. The background concentration accounts for all non-traffic derived emissions (e.g. natural sources, industry, home heating etc.). Data for 2020 has been included for indicative purposes only, it has not been used in determining background pollutant levels as the data is not considered representative due to the COVID-19 restrictions that were in place at the time.

13.6.2.1 NO_2

Long-term NO_2 monitoring was carried out at three Zone A locations for the period 2018 – 2022, Dún Laoghaire, Swords, Dublin Airport and Dublin Port (EPA, 2023). Annual mean concentrations of NO_2 range from 11 – 27 µg/m^3 over the 2018 – 2022 period (Table 13.4). Long term average concentrations are significantly below the annual average limit of 40 µg/m^3. Based on the above information, a conservative estimate of the current background NO_2 concentration in the region of the proposed development is 15 µg/m^3.

Table 13.4 Trends in Zone A Air Quality – Nitrogen Dioxide (NO_2)

Station	Averaging Period Note 1	Year				
		2018	2019	2020	2021	2022
Dún Laoghaire	Annual Mean NO_2 (µg/m^3)	19	15	13	16	16
	Max 1-hr NO_2 (µg/m^3)	135	104	92	93	89
Swords	Annual Mean NO_2 (µg/m^3)	16	15	11	11	12
	Max 1-hr NO_2 (µg/m^3)	112	108	84	79	103
Dublin Airport	Annual Mean NO_2 (µg/m^3)	-	-	23	19	20
	Max 1-hr NO_2 (µg/m^3)	-	-	89	96	114
Dublin Port	Annual Mean NO_2 (µg/m^3)	-	-	23	27	27
	Max 1-hr NO_2 (µg/m^3)	-	-	117	122	104

Note 1 Annual average limit value - 40 µg/m^3 (EU Council Directive 2008/50/EC & S.I. No. 739 of 2022). 1-hour limit value - 200 µg/m^3 (EU Council Directive 2008/50/EC & S.I. No. 739 of 2022).

13.6.2.2 PM_{10}

Continuous PM_{10} monitoring was carried out at four Zone A locations from 2018 – 2022, Dún Laoghaire, Marino, St. Annes Park and Dublin Airport. Concentrations range from 11 – 14 µg/m^3 over the period (Table 13.5). Average concentrations across the five years (2018 to 2022) was 12 µg/m^3 for Dún Laoghaire, 13 µg/m^3 for Marino, 12 µg/m^3 for St. Anne's and 12 µg/m^3 for Dublin Airport. Hence, long term concentrations are significantly below the annual limit value of 40 µg/m^3. In addition, there

were at most 4 exceedances (in Marino) of the 24-hour limit value of 50 µg/m³ in 2021, albeit 35 exceedances are permitted per year (EPA, 2023). Based on the EPA data, an estimate of the current background PM_{10} concentration in the region of the development is 12 µg/m³.

Table 13.5 Trends in Zone A Air Quality – PM_{10}

Station	Averaging Period Note 1	Year				
		2018	2019	2020	2021	2022
Dún Laoghaire	Annual Mean PM_{10} (µg/m³)	13	12	12	11	12
	24-hr Mean > 50 µg/m³ (days)	0	2	0	0	1
Marino	Annual Mean PM_{10} (µg/m³)	12	14	13	12	14
	24-hr Mean > 50 µg/m³ (days)	0	4	0	0	3
St. Anne's Park	Annual Mean PM_{10} (µg/m³)	11	12	11	11	13
	24-hr Mean > 50 µg/m³ (days)	0	1	0	0	1
Dublin Airport	Annual Mean PM_{10} (µg/m³)	-	-	13	11	12
	24-hr Mean > 50 µg/m³ (days)	-	-	0	0	1

Note1 Annual average limit value - 40 µg/m³ (EU Council Directive 2008/50/EC & S.I. No. 739 of 2022). Daily limit value - 50 µg/m³ (EU Council Directive 2008/50/EC & S.I. No. 739 of 2022).

13.6.2.3 $PM_{2.5}$

$PM_{2.5}$ levels in Dún Laoghaire, Marino, St. Anne's Park and Dublin Airport were monitored over the period 2018 – 2022 (Table 13.6). Average concentrations ranged from 6 – 10 µg/m³ (EPA, 2023). Based on the EPA data, the existing $PM_{2.5}$ concentration in the region of the proposed development was estimated at 7.5 µg/m³.

Table 13.6 Trends in Zone A Air Quality – $PM_{2.5}$

Station	Averaging Period Note 1	Year				
		2018	2019	2020	2021	2022
Dún Laoghaire	Annual Mean PM_{10} (µg/m³)	-	10.0	8.0	7.5	7.8
Marino	Annual Mean PM_{10} (µg/m³)	6.0	9.0	8.0	7.9	8.9
St. Anne's Park	Annual Mean PM_{10} (µg/m³)	7.0	8.0	7.0	6.9	7.8
Dublin Airport	Annual Mean PM_{10} (µg/m³)	-	-	6.0	6.4	6.7

Note1 Annual average limit value - 40 µg/m³ (EU Council Directive 2008/50/EC & S.I. No. 739 of 2022). Daily limit value - 50 µg/m³ (EU Council Directive 2008/50/EC & S.I. No. 739 of 2022).

13.6.2.4 Summary

Based on the above information the air quality in Zone A locations, such as the Howth area is generally good, with concentrations of the key pollutants generally well below the relevant limit values. However, the EPA have indicated that road transport emissions are contributing to increased levels of NO_2 with the potential for breaches in the annual NO_2 limit value in future years at locations within urban centres and roadside locations. In addition, burning of solid fuels for home heating is contributing to increased levels of particulate matter (PM_{10} and $PM_{2.5}$). The EPA predict that exceedances in the particulate matter limit values are likely in future years if burning of solid fuels for residential heating continues (EPA, 2023).

13.6.3 Sensitivity of the Receiving Environment

In line with the UK Institute of Air Quality Management (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (2024) prior to assessing the impact of dust from a proposed development the sensitivity of the area must first be assessed as outlined below. Both receptor sensitivity and proximity to proposed works areas are taken into consideration. For the purposes of this assessment, high sensitivity receptors are regarded as residential properties where people are likely to spend the majority of their time, schools and hospitals.

In terms of receptor sensitivity to dust soiling, there are a small number of high sensitivity residential properties and a protected structure (St Mary's Church, RPS ID 0594) within 100m of the site boundary (see Figure 13.2 13.2). There is a second protected structure (Howth Castle, RPS ID0556) within 250m of the site boundary.

There are 2 no. high sensitivity residential properties within 20m of the site boundary, which represents the highest sensitivity to dust soiling. Therefore, the overall sensitivity of the area to dust soiling impacts is considered **medium** based on the IAQM criteria outlined in Table 13.7.

Table 13.7 Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	**Medium**	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Source (IAQM, 2024) Guidance on the Assessment of Dust from Demolition and Construction

In addition to sensitivity to dust soiling, the IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to human health impacts. The criteria take into consideration the current annual mean PM_{10} concentration, receptor sensitivity based on type (residential receptors are classified as high sensitivity) and the number of receptors affected within various distance bands from the construction works. A conservative estimate of the current annual mean PM_{10} concentration in the vicinity of the proposed development is 12 $\mu g/m^3$ and there are 2 no. high sensitivity receptor within 20m of the proposed development boundary (see Figure 13.2). Based on the IAQM criteria outlined in Table 13.8, the worst-case sensitivity of the area to human health is considered **low**.

Table 13.8 Sensitivity of the Area to Dust Related Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number of Receptors	Distance from Source (m)			
			<20	<50	<100	<250
High	< 24 µg/m³	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	< 24 µg/m³	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	< 24 µg/m³	>1	Low	Low	Low	Low

Source (IAQM, 2024) Guidance on the Assessment of Dust from Demolition and Construction

The IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to dust-related ecological impacts. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability of the plant as well as other effects. The guidance states that dust impacts to vegetation can occur up to 50m from the site and 50m from site access roads, up to 250m for the site entrance. The sensitivity of the area is determined based on the distance to the source, the designation of the site, (European, National or local designation) and the potential dust sensitivity of the ecologically important species present.

The closest designated sites are Baldoyle Bay SAC, Baldoyle Bay pNHA and North-West Irish Sea SPA which are less than 200m to the north of the site. High sensitivity ecological receptors are sites with European or National designation with particularly dust sensitive species present. These designated areas will be unaffected by dust emissions due to the distance from the works. The designated sites are all more than 50m away from the proposed development which is the area of potential impact as per IAQM guidelines (IAQM, 2024).

Figure 13.2 Sensitive Receptors within 20m, 50m and 100m of Site Boundary

13.7 The 'Do Nothing' Scenario

Under the Do Nothing Scenario the proposed development will not be constructed, no construction works associated with the proposed development will take place and the previously identified impacts of fugitive dust and particulate matter emissions and emissions from equipment and machinery will not occur. As the site is zoned for development, in the absence of the proposed development it is likely that a development of a similar nature would be constructed in the future in line with national policy and the development plan objectives. Therefore, the construction and operational phase impacts outlined in this assessment are likely to occur in the future even in the absence of the proposed development.

13.8 Potential Significant Effects

13.8.1 Construction Phase

13.8.1.1 Construction Dust Assessment

The greatest potential impact on air quality during the construction phase of the Proposed Development is from construction dust emissions and the potential for nuisance dust. While

construction dust tends to be deposited within 250m of a construction site, the majority of the deposition occurs within the first 50 m. The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction. A review of Dublin Airport meteorological data indicates that the prevailing wind direction is south-westerly to southerly and wind speeds are generally moderate in nature (see Section 13.6.1). In addition, dust generation is considered negligible on days where rainfall is greater than 0.2 mm. A review of historical 30 year average data for Dublin Airport meteorological station indicates that on average 200 days per year have rainfall over 0.2 mm (Met Éireann, 2024) and therefore it can be determined that 54% of the time dust generation will be reduced.

In order to determine the level of dust mitigation required during the proposed works, the potential dust emission magnitude for each dust generating activity needs to be taken into account, in conjunction with the previously established sensitivity of the area (see Section 13.6.3). As per Section 13.4.4, the major dust generating activities are divided into four types within the IAQM guidance to reflect their different potential impacts. These are:

- Demolition;
- Earthworks;
- Construction; and
- Trackout (transport of dust and dirt from the construction site onto the public road network).

13.8.1.1.1 Demolition

There are no demolition activities associated with the proposed development. Therefore, there is no demolition impact predicted as a result of the works.

13.8.1.1.2 Earthworks

Earthworks primarily involve excavating material, loading and unloading of materials, tipping and stockpiling activities. Activities such as levelling the site and landscaping works are also considered under this category. The dust emission magnitude from earthworks can be classified as small, medium or large based on the definitions from the IAQM guidance as transcribed below:

- **Large** Total site area > 110,000m^2, potentially dusty soil type (e.g. clay which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds > 6m in height;
- **Medium** Total site area 18,000m^2 – 110,000m^2, moderately dusty soil type (e.g. silt), 5 - 10 heavy earth moving vehicles active at any one time, formation of bunds 3m – 6m in height;
- **Small** Total site area < 18,000m^2, soil type with large grain size (e.g. sand), < 5 heavy earth moving vehicles active at any one time, formation of bunds < 3m in height.

The dust emission magnitude for the proposed earthwork activities can be classified as **small** as the total site area is less than 18,000m^2.

The sensitivity of the area, as determined in Section 13.6.3, is combined with the dust emission magnitude for each dust generating activity to define the risk of dust impacts in the absence of mitigation. As outlined in Table 13.9and Table 13.10, combining the large dust emission magnitude

with a medium sensitivity to dust soiling and low sensitivity to human health impacts results in a low risk of dust soiling impacts and a negligible risk of dust-related human health impacts as a result of the proposed earthworks activities in the absence of mitigation.

Table 13.9 Criteria for Rating Risk of Dust Impacts – Earthworks (IAQM, 2024)

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 13.10 Risk of Dust Impacts – Earthworks

Receptor	Receptor Sensitivity	Dust Emission Magnitude – Earthworks	Risk of Dust-Related Impacts
Dust Soiling	Medium	Small	Low Risk
Human Health	Low		Negligible

13.8.1.1.3 Construction

Dust emission magnitude from construction can be classified as small, medium or large based on the definitions from the IAQM guidance as transcribed below:

- **Large** Total building volume > 75,000 m^3, on-site concrete batching, sandblasting;
- **Medium** Total building volume 12,000m^3 – 75,000 m^3, potentially dusty construction material (e.g. concrete), on-site concrete batching;
- **Small** Total building volume < 12,000m^3, construction material with low potential for dust release (e.g. metal cladding or timber).

The dust emission magnitude for the proposed construction activities can be classified as **medium** as the total building volume is likely between 12,000m^3 and 75,000 m^3. As outlined in Table 13.11 and Table 13.12 combining the small dust emission magnitude with a medium sensitivity to dust soiling and low sensitivity to human health impacts results in an overall medium risk of dust soiling impacts and a low risk of dust-related human health impacts as a result of the proposed construction activities in the absence of mitigation.

Table 13.11 Criteria for Rating of Risk of Dust Impacts – Construction (IAQM, 2024)

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 13.12 Risk of Dust Impacts – Construction

Receptor	Receptor Sensitivity	Dust Emission Magnitude – Construction	Risk of Dust-Related Impacts
Dust Soiling	Medium	Medium	Medium Risk
Human Health	Low		Low Risk

13.8.1.1.4 Trackout

Factors which determine the dust emission magnitude are vehicle size, vehicle speed, number of vehicles, road surface material and duration of movement. Dust emission magnitude from trackout can be classified as small, medium or large based on the definitions from the IAQM guidance as transcribed below:

- **Large** > 50 HGV (> 3.5 t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length > 100 m;
- **Medium** 20 - 50 HGV (> 3.5 t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 - 100 m;
- **Small** < 20 HGV (> 3.5 t) outward movements in any one day, surface material with low potential for dust release, unpaved road length < 50 m.

The dust emission magnitude for the proposed trackout can be classified as **medium**, as at worst-case peak periods there will be between 20 and 50 outward HGV movements per day. As outlined in Table 13.13 and Table 13.14, combining the large dust emission magnitude with a medium sensitivity to dust soiling and low sensitivity to human health impacts results in an overall medium risk of dust soiling impacts and a low risk of dust-related human health impacts as a result of the proposed trackout activities in the absence of mitigation.

Table 13.13 Criteria for Rating of Risk of Dust Impacts – Trackout (IAQM, 2024)

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 13.14 Risk of Dust Impacts – Trackout

Receptor	Receptor Sensitivity	Dust Emission Magnitude – Trackout	Risk of Dust-Related Impacts
Dust Soiling	Medium	Medium Risk	Medium Risk
Human Health	Low		Low Risk

13.8.1.1.5 Summary of Dust Emission Risks

The risk of dust impacts as a result of the proposed development are summarised in Table 13.5 for each activity. The magnitude of risk determined is used to prescribe the level of site-specific mitigation required for each activity in order to prevent significant impacts occurring.

There is at most a medium risk of dust soiling and human health impacts associated with the proposed works. Therefore best practice dust mitigation measures appropriate for sites with a medium risk of dust impacts will be implemented to ensure there are no significant impacts at nearby sensitive receptors. In the absence of mitigation, dust impacts are predicted to be ***direct, short-term, negative*** and ***slight,*** which is overall ***not significant*** in EIA terms.

Table 13.15 Summary of Dust Impact Risk used to Define Site-Specific Mitigation

Potential Impact	Dust Emission Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Emission Magnitude	N/A	Small	Medium	Medium
Dust Soiling Risk	N/A	Low Risk	Medium Risk	Medium Risk
Human Health Risk	N/A	Negligible	Low Risk	Low Risk

13.8.1.2 Construction Traffic Assessment

There is also the potential for traffic emissions to impact air quality in the short-term over the construction phase, particularly due to the increase in HGVs accessing the site. The construction stage traffic has been reviewed and a detailed air quality assessment has been scoped out as none of the road links impacted by the proposed development satisfy the TII scoping assessment criteria in Section 13.4.4.

It can therefore be determined that the construction stage traffic will have an ***imperceptible, direct, negative*** *and* ***short-term*** effect on air quality, which is overall ***not significant*** in EIA terms.

13.8.2 Operational Phase

There is the potential for vehicles accessing the site to result in emissions of NO_2, PM_{10} and $PM_{2.5}$. However, the proposed development will not increase traffic by 1,000 AADT or 200 HDV AADT. In addition, there are no proposed changes to the traffic speeds or road alignment. Therefore, no road links impacted by the proposed development satisfy the screening criteria (see Section 13.4.5). A detailed air quality assessment was scoped out for the operational stage of the development as per the TII screening criteria. Operational stage effects on air quality are predicted to be ***direct, long-term, negative*** and ***imperceptible,*** which is overall ***not significant*** in EIA terms.

13.8.3 Cumulative Effects

13.8.3.1 Construction Phase

According to the IAQM guidance (2024) should the construction phase of the proposed development coincide with the construction phase of any other development within 500m then there is the potential for cumulative construction dust impacts. A review of developments with the potential for cumulative construction dust impacts within 500m of the site was conducted, which included relevant planning applications. The following developments were identified with the potential for cumulative construction dust impacts, due to coinciding construction phases with that of the proposed development:

- Atlas GP Ltd. (SHD/009/20);
- GLL PRS Holdco Limited (SHD/009/19);
- Marine Engineering Division (F20A/0294);
- John O'Hanlon (F20A/0612);
- Greg Rickard (F21A/0228);
- Shane O'Hanlon (F22A/0142);
- Kitestown Ltd. (F22A/0558);
- WSHI Ltd. & The Michael J Wright Group (F22A/0046); and
- WSHI Unlimited Company (F22A/0372).

No other developments were identified within 500m of the proposed development with the potential for significant cumulative construction dust impacts.

The proposed development has been assessed as having a medium risk of dust soiling impacts during the construction phase. A number of mitigation measures will be implemented in order to ensure significant dust impacts do not occur. Provided these measures are in place for the duration of the construction phase significant cumulative construction dust impacts are not predicted. Cumulative effects on air quality will be ***direct, short-term, negative*** and ***not significant,*** which is overall ***not significant*** in EIA terms.

13.8.3.2 Operational Phase

The traffic data supplied for the operational phase assessment included data for cumulative development within the area. The traffic was reviewed and a detailed air quality assessment of vehicle exhaust emissions was scoped out due to the low-level changes in traffic as a result of the proposed development (see Section 13.8.2). The effect on air quality during the operational phase of the proposed development, including the cumulative effect, will be ***direct, long-term, negative*** and ***imperceptible,*** which is overall ***not significant*** in EIA terms.

13.9 Mitigation

13.9.1 Construction Phase Mitigation

The proposed development has been assessed as having a medium risk of dust soiling impacts and a low risk of dust related human health impacts during the construction phase as a result of earthworks,

construction and trackout activities (see Section 13.6.3). Therefore, the following dust mitigation measures shall be implemented during the construction phase of the proposed development. These measures are appropriate for sites with a medium risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DCC, 2018), the UK (IAQM (2024), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). These measures will be incorporated into the overall Construction Environmental Management Plan (CEMP) prepared for the site. The measures are divided into different categories for different activities.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before works commence on site. Community engagement includes explaining the nature and duration of the works to local residents and businesses.
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board will also include head/regional office contact details.

Site Management

- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. Dry and windy conditions are favourable to dust suspension therefore mitigations must be implemented if undertaking dust generating activities during these weather conditions.
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicles / Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 kph haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).

- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Avoid bonfires and burning of waste materials.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

Measures Specific to Construction

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

Measures Specific to Trackout

- A speed restriction of 15 kph will be applied as an effective control measure for dust for on-site vehicles.
- Avoid dry sweeping of large areas.

- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

Monitoring

- Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This will include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

13.9.2 Operational Phase Mitigation

There is no mitigation required for the operational phase of the development as effects on air quality are predicted to be ***direct, long-term, negative*** and ***imperceptible,*** which is overall ***not significant*** in EIA terms.

13.10 Residual Impact Assessment

13.10.1 Construction Phase

In order to minimise dust emissions during construction, a series of mitigation measures have been prepared. Once the dust minimisation measures outlined in Section 13.9.1 are implemented, the effect of the proposed development in terms of dust soiling will be ***direct, short-term, negative*** and ***not significant,*** which is overall ***not significant*** in EIA terms.

Best practice mitigation measures are proposed for the construction phase of the proposed development, which will focus on the proactive control of dust and other air pollutants, to minimise generation of emissions at source. The mitigation measures that will be put in place during construction will ensure that the impact complies with all EU ambient air quality legislative limit values, which are based on the protection of human health (see Table 13.1). Therefore, the predicted residual, dust-related, human health effect of the construction phase of the proposed development is ***direct, short-term, negative*** and ***not significant,*** which is overall ***not significant*** in EIA terms.

13.10.2 Operational Phase

The operational stage traffic has been reviewed and a detailed air quality assessment has been scoped out as none of the road links impacted by the proposed development satisfy the TII scoping assessment criteria in Section 13.4.4. Therefore, the operational phase effect on air quality and human health as a result of increased traffic is ***direct, long-term, negative*** and ***imperceptible,*** which is overall ***not significant*** in EIA terms.

13.10.3 Cumulative Residual Effects

13.10.3.1Construction Phase

According to the IAQM guidance (2024) should the construction phase of the proposed development coincide with the construction phase of any other developments within 500m then there is the potential for cumulative construction dust related impacts to nearby sensitive receptors. However, provided the mitigation measures outlined in Section 13.9, are implemented throughout the construction phase of the proposed development significant cumulative dust effects are not predicted. The effects are predicted to be ***direct, short-term, negative*** and ***not significant,*** which is overall ***not significant*** in EIA terms.

13.10.3.2 Operational Phase

The effect on air quality during the operational phase of the proposed development will ***direct, long-term, negative*** and ***imperceptible,*** which is overall ***not significant*** in EIA terms. Therefore, there is no potential for significant cumulative effects with other development and the effect is predicted to be ***direct, long-term, negative*** and ***imperceptible,*** which is overall ***not significant*** in EIA terms.

13.11 Risk to Human Health

Dust emissions from the construction phase of the proposed development have the potential to affect human health through the release of PM_{10} and $PM_{2.5}$ emissions. As per Section 13.6.3, the surrounding area is of low sensitivity to dust related human health impacts. It was determined that there is an overall low risk of dust related human health effects as a result of the construction phase of the proposed development.

Best practice mitigation measures are proposed for the construction phase of the proposed development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the effect of construction of the proposed development is likely to be ***direct, short-term, negative*** and ***not significant*** which is overall ***not significant*** with respect to human health.

Traffic related air emissions have the potential to affect air quality which can affect human health. As the operational phase assessment has predicted that emissions of air pollutants from vehicle exhausts are significantly below the ambient air quality standards which are based on the protection of human

health, effects on human health are ***direct, long-term, negative*** and ***not significant,*** which is overall ***not significant*** in EIA terms.

13.12 Risk of Major Accidents or Disasters

There are no likely risks of major accidents and disasters in relation to air quality associated with the proposed development due to the nature and scale of the development. The proposed development is residential in nature and will not require large scale quantities of hazardous materials or fuels.

13.13 Worst Case Scenario

Worst case estimates have been used as part of this assessment. As a result, Section 13.10 details the worst case impact for the proposed development.

13.14 Interactions

13.14.1 Population and Human Health

Air quality does not have a significant number of interactions with other topics. The most significant interactions are between population and human health (Ch.04. Population & Human Health) and air quality. An adverse impact due to air quality in either the construction or operational phase has the potential to cause health and dust nuisance issues. The mitigation measures that will be put in place at the proposed development will ensure that the impact of the proposed development complies with all ambient air quality legislative limits. Therefore, the predicted effect is direct, ***short-term, negative*** and ***not significant*** with respect to population and human health during construction, which is overall ***not significant*** in EIA terms, and ***direct, long-term, negative*** and ***imperceptible*** during operational phase, which is overall ***not significant*** in EIA terms.

13.14.2 Traffic and Transport

Interactions between air quality and traffic (Ch.06 Material Assets- Traffic & Transport) can be significant. With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles increase. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the effect of the interactions between traffic and air quality are considered to be ***direct, long-term, imperceptible*** and ***negative***, which is overall ***not significant*** in EIA terms.

13.14.3 Climate

Air quality and climate have interactions due to the emissions from the burning of fossil fuels during the construction and operational phases generating both air quality and climate impacts. Air quality modelling outputs are utilised within the Climate Change Chapter (Ch. 14 Climate). There is no impact on climate due to air quality however the sources of impacts on air quality and climate are strongly linked.

13.14.4 Land, Soils and Geology

Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and land and soils.

13.14.5 Biodiversity

As set out in Chapter 9 (Ch. 09 Land & Soils), dust generation can occur during extended dry weather periods as a result of construction traffic. Dust suppression measures (e.g. dampening down) will be implemented as necessary during dry periods and vehicle wheel washes will be installed, for example. The works involve stripping of topsoil and excavations, which will remove some vegetation such as trees and scrub. It will also generate dust and potentially impact on the air quality in the locality. However, the generation of dust will be temporary during construction phase and is not anticipated to have a significant impact on biodiversity.

The effect of the interactions between land, climate, soils and geology, biodiversity and air quality are considered to be ***direct, short-term, negative*** and ***not significant,*** which is overall ***not significant*** in EIA terms.

13.15 Monitoring

13.15.1 Construction Phase

During working hours, dust control methods will be monitored as appropriate depending on the prevailing meteorological conditions. Monitoring of emissions is not proposed for the construction phase of the proposed development as effects are predicted to be imperceptible. Once the dust mitigation measures outlined in the mitigation section are implemented, then the effect of construction dust emissions will be ***direct, short-term, negative*** and ***not significant,*** which is overall ***not significant*** in EIA terms.

13.15.2 Operational Phase

There is no proposed monitoring during the operational phase.

13.16 References

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CHAPTER 14
CLIMATE

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

14 Climate

14.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on climate as a result of the proposed development at Deer Park, Howth, Co. Dublin.

It should be read in conjunction with Ch. 13 Air Quality, Ch. 6 Material Assets Traffic and Transport and the Traffic and Transport Assessment, as well as the Energy Analysis Report, Building Life Cycle Assessment Report and Site Specific Flood Risk Assessment submitted with the planning application.

14.2 Expertise & Qualifications

This chapter was completed by Aisling Cashell, an Environmental Consultant in the air quality section of AWN Consulting Ltd. She holds a BA and an MAI in Civil, Structural and Environmental Engineering from Trinity College Dublin. She is a member of Engineers Ireland. She has been specialising in the area of air quality, climate and sustainability for 1 year and has prepared air quality and climate assessments for inclusion within EIARs for residential and commercial developments such as Twenties Lane (Planning Application Ref: 22713), Cherrywood T13 (Planning Application Ref: DZ23A/0028), Corballis Donabate LRD (Planning Application Ref: LRD0017/S3), The Paddocks (Planning Application Ref: 2360349), and Dublin Airport Authority.

This chapter was also prepared and reviewed Dr. Jovanna Arndt, a Senior Environmental Consultant in the Air Quality & Climate section of AWN Consulting. She has been specialising in the area of air quality and climate over 7 years and has prepared air quality and climate assessments for inclusion within EIARs for residential developments such as Twenties Lane (Planning Application Ref: 22713), Cherrywood T13 (Planning Application Ref: DZ23A/0028), Corballis Donabate LRD (Planning Application Ref: LRD0017/S3), commercial and industrial developments by Dublin Airport Authority, Zoetis, Ipsen, Merck Millipore, Greener Ideas Limited and Abbvie, as well as renewable energy developments such as Codling Wind Park and the Cúil Na Móna Anaerobic Digestion Facility. She also specialises in assessing air quality impacts using air dispersion modelling of transportation schemes such as BusConnects Dublin, major Highways England Road schemes and major rail infrastructure in the form of High Speed 2 (HS2 in the UK). She has prepared air dispersion modelling assessments of emissions from data centres, energy centres and the chemical industry as part of EPA Industrial Emissions Licences for Microsoft, Greener Ideas Limited, Merck Millipore, Lilly Limerick, Chemifloc, Takeda, Kingspan and Kilshane Energy. She has also provided Air Quality Action Plan (AQAP) and Air Quality Management Area (AQMA) support to several UK councils and assessed the air quality impacts of potential Clean Air Zones in the UK.

14.3 Proposed Development

A detailed description of the proposed development is provided in Chapter 2 of this Environmental Impact Assessment Report (EIAR).

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Partial demolition of 3 sections of the existing demesne northern boundary wall, which fronts Howth Road is proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

14.3.1 Aspects Relevant to this Assessment

During the construction phase engine emissions from site vehicles and machinery have the potential to impact climate through the release of CO_2 and to a lesser extent, other greenhouse gases (GHGs). Embodied carbon of materials used in the construction of the development along with site activities will impact climate. Impacts to climate are assessed against Ireland's obligations under the EU 2030 GHG targets and sectoral emissions ceilings.

Engine emissions from vehicles accessing the site have the potential to impact climate during the operational phase of the development through the release of CO_2. Operational phase impacts will be long-term in duration. In addition, the vulnerability of the proposed development in relation to future climate change must be considered during the operational phase. The proposed development has been designed to minimise the impact on climate where possible in line with the most recent development guidelines (Part L of the Building Regulations 2022) and in reference to measures within the Climate Action Plan 2024 (DECC, 2023a).

14.4 Legislation, Policy and Guidance

The assessment of potential impacts on climate has been prepared taking the relevant legislation, policy and guidance described in the following sections into consideration.

14.4.1 Legislation

In 2015, the Climate Action and Low Carbon Development Act 2015 (No. 46 of 2015) (Government of Ireland, 2015) was enacted (the 2015 Climate Act). The purpose of the Act was to enable Ireland *"to pursue, and achieve, the transition to a low carbon, climate resilient and environmentally sustainable economy by the end of the year 2050"* (3.(1) of No. 46 of 2015). This is referred to in the 2015 Climate Act as the *"National Transition Objective"*. The 2015 Climate Act made provision for a national low carbon transition and mitigation plan (now known as a Climate Action Plan), and a national adaptation framework. In addition, the 2015 Climate Act provided for the establishment of the Climate Change Advisory Council with the function to advise and make recommendations on the preparation of the national mitigation and adaptation plans and compliance with existing climate obligations.

The first Climate Action Plan (CAP) was published by the Irish Government in June 2019 (Government of Ireland, 2019). The Climate Action Plan 2019 (CAP19) outlined the current status across key sectors including Electricity, Transport, Built Environment, Industry and Agriculture and outlined the various

broadscale measures required for each sector to achieve ambitious decarbonisation targets. The 2019 CAP also detailed the required governance arrangements for implementation including carbon-proofing of policies, establishment of carbon budgets, a strengthened Climate Change Advisory Council and greater accountability to the Oireachtas. The current Climate Action Plan is CAP24, published in December 2022 (DECC, 2023a).

Following on from Ireland declaring a climate and biodiversity emergency in May 2019, and the European Parliament approving a resolution declaring a climate and environment emergency in Europe in November 2019, the Government published the Climate Action and Low Carbon Development (Amendment) Act 2021 (hereafter referred to as the 2021 Climate Act) in March 2021 (Government of Ireland, 2021). The Climate Act was signed into Law on the 23rd July 2021, giving statutory effect to the core objectives stated within the first Climate Action Plan.

The purpose of the 2021 Climate Act is to provide for the approval of plans *"to reduce the extent of further global warming, pursue and achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy"*. This is known as the *"national climate objective"*, which supersedes the 2015 Climate Act *"national transition objective"*. The 2021 Climate Act will also *"provide for carbon budgets and a decarbonisation target range for certain sectors of the economy"*. The 2021 Climate Act defines the carbon budget as *"the total amount of greenhouse gas emissions that are permitted during the budget period"*.

In relation to carbon budgets, the 2021 Climate Action and Low Carbon Development (Amendment) Act states *"A carbon budget, consistent with furthering the achievement of the national climate objective, shall be proposed by the Climate Change Advisory Council, finalised by the Minister and approved by the Government for the period of 5 years commencing on the 1 January 2021 and ending on 31 December 2025 and for each subsequent period of 5 years (in this Act referred to as a 'budget period')"*. The carbon budget is to be produced for 3 sequential budget periods, as shown in Table 14.1. The carbon budget can be revised where new obligations are imposed under the law of the European Union or international agreements or where there are significant developments in scientific knowledge in relation to climate change. In relation to the sectoral emissions ceiling, the Minister for the Environment, Climate and Communications (the Minister for the Environment) shall prepare and submit to government the maximum amount of Greenhouse Gas (GHG) emissions that are permitted in different sectors of the economy during a budget period and different ceilings may apply to different sectors. The sectorial emission ceilings for 2030 were published in the Climate Action Plan 2024 (CAP24) (DECC, 2023a) and are shown in Table 14.2. Industry and Buildings (Residential) have a 35% and 40% reduction requirement respectively and a 2030 emission ceiling of 4 Mt CO_2e.

Table 14.1 5-Year Carbon Budgets 2021-2025, 2026-2030 and 2031-2025

Budget Period	Carbon Budget	Reduction Required
2021-2025	295 Mt CO_2e	Reduction in emissions of 4.8% per annum for the first budget period.
2026-2030	200 Mt CO_2e	Reduction in emissions of 8.3% per annum for the second budget period.
2031-2035	151 Mt CO_2e	Reduction in emissions of 3.5% per annum for the third provisional budget.

Table 14.2 Sectoral Emission Ceilings 2030 (DECC, 2023a)

Sector	Baseline ($MtCO_2e$)	Carbon Budgets ($MtCO_2e$)		2030 Emissions ($MtCO_2e$)	Indicative Emissions % Reduction in Final Year of 2025- 2030 Period (Compared to 2018)
	2018	2021-2025	2026-2030		
Electricity	10	40	20	3	75
Transport	12	54	37	6	50
Built Environment - Residential	7	29	23	4	40
Built Environment - Commercial	2	7	5	1	45
Industry	7	30	24	4	35
Agriculture	23	106	96	17.25	25
Other (F-gases, waste, petroleum refining)	2	9	8	1	50
Land Use, Land-use Change and Forestry (LULUCF)	5	Reflecting the continued volatility for LULUCF baseline emissions to 2030 and beyond, CAP24 puts in place ambitious activity targets for the sector reflecting an EU-type approach.			
Total	68				
Unallocated Savings	-	-	26	-5.25	-
Legally Binding Carbon Budgets and 2030 Emission Reduction Targets	-	295	200	-	51

14.4.2 Policy

In December 2023, the current Climate Action Plan CAP24 was published (DECC, 2023a). This CAP builds on the progress of CAP23, which first published carbon budgets and sectoral emissions ceilings, and it aims to implement the required changes to achieve a 51% reduction in carbon emissions by 2030 and 2050 net zero goal. The CAP has six vital high impact sectors where the biggest savings can be made: renewable energy, energy efficiency of buildings, transport, sustainable farming, sustainable business and change of land-use. CAP24 states that the decarbonisation of Ireland's manufacturing industry is key for Ireland's economy and future competitiveness. There is a target to reduce the embodied carbon in construction materials by 10% for materials produced and used in Ireland by 2025 and by at least 30% for materials produced and used in Ireland by 2030. CAP24 states that these reductions can be brought about by product substitution for construction materials and reduction of clinker content in cement. Cement and other high embodied carbon construction elements can be reduced by the adoption of the methods set out in the Construction Industry Federation 2021 report Modern Methods of Construction. In order to ensure economic growth can continue alongside a reduction in emissions, the IDA Ireland will also seek to attract businesses to invest in decarbonisation technologies.

In April 2023 the Government published a draft Long-Term Strategy on Greenhouse Gas Emissions Reductions (DECC, 2023b). This strategy provides a long-term plan on how Ireland will transition towards net carbon zero by 2050, achieving the interim targets set out in the Climate Action Plan. The strategy will be updated on the basis of a second round of public consultation throughout 2023 with an updated strategy published after this is complete.

The Fingal County Council (FCC) Climate Action Plan 2024-2029 (FCC and Codema, 2024) outlines FCC's goals to mitigate GHG emissions and plans to prepare for and adapt to climate change. The FCC Climate Action Plan states that FCC aims to reduce car dependency by encouraging modal shifts from cars to active travel and more sustainable modes, including public transport and cycling. Similar to DCC, FCC states that it wishes to work with the relevant transportation bodies to introduce measures to achieve modal shifts.

The FCC Climate Action Plan highlights the risks that climate change poses to the transportation network, with risks mainly associated with extreme weather events. The FCC Climate Action Plan notes that cold spells and flooding (pluvial, fluvial, coastal, etc) and have the greatest future risk when both the likelihood and consequence are accounted for. Increases in flooding will an inundation of residential properties, damages to commercial buildings and premises, and disruption of transport networks.

14.4.3 Guidance

The assessment of potential impacts on climate has been prepared in accordance with the most relevant principal guidance and best practice documents:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022);
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Transport Infrastructure Ireland (TII) GE-GEN-01101: Guide to the Implementation of Sustainability for TII Projects (TII, 2023);
- PE-ENV-01104: Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document (Transport Infrastructure Ireland (TII), 2022a);
- Transport Infrastructure Ireland (TII) PE-ENV-01105: Climate Assessment Standard for Proposed National Roads (TII, 2022b);
- Transport Infrastructure Ireland (TII) GE-ENV-01106: TII Carbon Assessment Tool for Road and Light Rail Projects and User Guidance Document (TII, 2022c);
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (European Commission, 2013);
- 2030 Climate and Energy Policy Framework (European Commission, 2014);
- 2030 EU Climate Target Plan (European Commission, 2021b);
- Climate Action and Low Carbon Development (Amendment) Act 2021 (the 2021 Climate Act) (No. 32 of 2021) (Government of Ireland, 2021);
- Climate Action Plan 2024 (Government of Ireland, 2023);
- Assessing Greenhouse Gas Emissions and Evaluating their Significance (Institute of Environmental Management & Assessment (IEMA), 2022);
- IEMA Environmental Impact Assessment Guide to: Assessing GHG Emissions and Evaluating their Significance (hereafter referred to as the IEMA 2022 GHG Guidance) (IEMA, 2022);

- IEMA Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (hereafter referred to as the IEMA 2020 EIA Guide) (IEMA, 2020a);
- IEMA GHG Management Hierarchy (hereafter referred to as the IEMA 2020 GHG Management Hierarchy) (IEMA, 2020b);
- UK Design Manual for Roads and Bridges (DMRB) Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 14 LA 114 Climate (UK Highways Agency, 2019); and
- Technical guidance on the Climate Proofing of Infrastructure in the Period 2021-2027 (European Commission, 2021a).

14.5 Methodology

The climate assessment is divided into two distinct sections – a greenhouse gas assessment (GHGA) and a climate change risk assessment (CCRA).

- Greenhouse Gas Emissions Assessment (GHGA) – Quantifies the GHG emissions from a project over its lifetime. The assessment compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude; and
- Climate Change Risk Assessment (CCRA) – Identifies the impact of a changing climate on a project and receiving environment. The assessment considers a projects vulnerability to climate change and identifies adaptation measures to increase project resilience.

14.5.1 Greenhouse Gas Assessment

As per the EU guidance document *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment* (European Commission, 2013) the climate baseline is first established with reference to EPA data on annual GHG emissions (see Section 14.7).

14.5.1.1 Construction Phase

PE-ENV-01104 (TII, 2022a) recommends the calculation of the construction stage GHG emissions, including embodied carbon, using the TII Online Carbon Tool (TII, 2022c). Embodied carbon refers to the sum of the carbon needed to produce a good or service. It incorporates the energy needed in the mining or processing of raw materials, the manufacturing of products and the delivery of these products to site.

The TII Online Carbon Tool (TII, 2022c) has been commissioned by TII to assess GHG emissions associated with road or rail projects in Ireland. The TII Carbon Tool (TII, 2022c) uses emission factors from recognised sources including the Civil Engineering Standard Method of Measurement (CESSM) Carbon and Price Book database (CESSM, 2013), which can be applied to a variety of developments, not just road or rail. The use of the TII carbon tool is considered appropriate as the material types and construction activities employed by the proposed development are accounted for in the tool. The carbon emissions are calculated by multiplying the emission factor by the quantity of the material that will be used over the entire construction / maintenance phase. The outputs are expressed in terms of tCO_2e (tonnes of carbon dioxide equivalent).

The use of the TII Carbon Tool was not considered suitable for the building elements of the proposed development. As the TII Carbon Tool was developed for road and infrastructure projects, the material types within the tool are specific to these types of developments. These material types are not fully appropriate for assessing the embodied carbon associated with the construction of buildings. Therefore, the carbon impact of the buildings was carried out using an alternative tool; the Carbon Designer for Ireland tool.

The Irish Green Building Council in partnership with One Click LCA Ltd. have developed the Carbon Designer for Ireland tool (One Click LCA Ltd., 2023) for use on Irish specific building projects. The Carbon Designer tool is promoted by the EPA and the Land Development Agency. OneClickLCA is certified to EN 15978, EN 15978, ISO 21931–1 & ISO 21929, and data requirements of ISO 14040 & EN 15804, and is LEED, BREEAM and PAS 2080 aligned. It allows users to assess the carbon impact of buildings at an early stage using typical default materials and values. Inputs to the tool include the gross floor area and number of stories above ground level along with the building frame type. Once the baseline is established using generic data, the tool allows for optioneering and optimization of the carbon impact. It highlights the key areas within the building with the highest carbon impact and provides options for lower carbon intensive materials. The Carbon Designer for Ireland tool has been used to assess the embodied carbon impact of the proposed development.

Reasonable conservative estimates have been used in this assessment where necessary to provide an estimate of the GHGs associated with the proposed development.

Information on the site clearance activities, land clearance, excavations, fuel usage during construction, waste quantities and construction traffic (material, staff and waste transport) were provided by the design team for input into the TII carbon tool and are also discussed in Chapter 06 - Material Assets Traffic and Transport and Chapter 08 - Material Assets Waste. This information was used to determine an estimate of the GHG emissions associated with the development. Information on the building material quantities and schedule of areas for input into the OneClick tool was provide by the project architects. Estimates of the fuel quantities needed for the construction phase were provided by the Glenveagh sustainability team, and are based on the overall fuel usage by Glenveagh Properties PLC in 2023, as well as the fuel being used in the construction of Phase 1 of the Ballymastone residential development (Planning Application Ref. LRD0008/S3).

The GHG assessment accounts for various components relating to the project during different life stages to determine the total impact of the development on climate. The building life expectancy for the purposes of the assessment is 50 years, typical for this type of development. GHG emissions are attributed to four main categories, taken from BS EN 15978. The categories are:

- Product Stages (category A1 to A3): The carbon emissions generated at this stage arise from extracting the raw materials from the ground, their transport to a point of manufacture and then the primary energy used (and the associated carbon impacts that arise) from transforming the raw materials into construction products. These stages have been included within the scope of this assessment. Information for these stages was incorporated into the TII tool.

- Construction (category A4 to A5): These carbon impacts arise from transporting the construction products to site, and their subsequent processing and assembly into the building. This has been included within the scope of the assessment.
- Use Stages (category B1 to B7): This covers a wide range of sources from the GHG emissions associated with the operation of the building (B1), maintenance (B2), repair (B3), refurbishment (B4) and replacement (B5) of materials, and operational energy use (B6) and water use (B7). Categories B1-B3, B6 and B7 are not included in the assessment scope of this study, as these are highly variable and dependent on individual users of the buildings during operation. Material refurbishment and replacement throughout the lifetime of the development (category B4 – B5) has been included within this assessment.
- End of Life Stages (category C1 to C4): The eventual deconstruction and disposal of the existing building at the end of its life takes account of the on-site activities of the demolition contractors. No 'credit' is taken for any future carbon benefit associated with the reuse or recycling of a material into new products. This stage as not included within the scope of this study due to the variability and uncertainty in deconstruction methods which may be in place at the end of the development's lifespan.

14.5.1.2 Operational Phase

14.5.1.2.1 Climate and Traffic Emissions

Emissions from road traffic associated with the proposed development have the potential to emit carbon dioxide (CO_2) which will impact climate.

The UK Highways Agency DMRB guidance document in relation to climate impact assessments *LA 114 Climate* (UK Highways Agency, 2019) contains the following scoping criteria to determine whether a detailed climate assessment is required for a proposed project during the operational stage. If any of the road links impacted by the proposed development meet or exceed the below criteria, then further assessment is required.

- A change of more than 10% in AADT;
- A change of more than 10% to the number of heavy duty vehicles; and
- A change in daily average speed of more than 20 km/hr.

The above DMRB scoping criteria will be used to determine whether a detailed modelling assessment of traffic emissions is required as part of the EIAR assessment. The proposed development will not cause a change in traffic of more than any of the above scoping criteria. Therefore no detailed assessment was required as there is no potential for significant impacts.

14.5.1.2.2 Climate and Operational Energy Use

The EU guidance (European Commission, 2013) also states indirect GHG emissions as a result of a development must be considered, this includes emissions associated with energy usage. An Energy Analysis Statement and Building Life Cycle Assessment Report have been prepared in relation to the proposed development and are submitted separately with this planning application. The reports outline a number of measures which have been incorporated into the overall design of the development which will have the benefit of reducing the impact to climate where possible during

operation. Information on some of the measures in relation to operational energy usage and sustainability measures has been supplied to inform the climate assessment.

14.5.1.2.3 Significance Criteria for GHGA

The Transport Infrastructure Ireland (TII) guidance document entitled *PE-ENV-01104 Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document* (TII, 2022a) outlines a recommended approach for determining the significance of both the construction and operational phases of a development.

The significance of GHG effects set out in PE-ENV-01104 (TII, 2022a) is based on IEMA guidance (IEMA, 2022) which is broadly consistent with the terminology contained within Figure 3.4 of the EPA's *'Guidelines on the information to be contained in Environmental Impact Assessment Reports'* (EPA, 2022).

The 2022 IEMA Guidance (IEMA, 2022) sets out the following principles for significance:

- When evaluating significance, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a project's emissions should be based on its net impact over its lifetime, which may be positive, negative or negligible;
- Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages; and
- Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered.

The criteria for determining the significance of effects are a two-stage process that involves defining the magnitude of the impacts and the sensitivity of the receptors (i.e. Ireland's National GHG targets). In relation to climate, there is no project specific assessment criteria, but the project will be assessed against the recommended IEMA significance determination. This takes account of any embedded or committed mitigation measures that form part of the design which should be considered.

TII (TII, 2022a) states that professional judgement must be taken into account when contextualising and assessing the significance of a project's GHG impact. In line with IEMA Guidance (IEMA, 2022), TII state 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*[1] *by 2050*".

Significance is determined using the criteria outlined in Table 14.3 (derived from Table 6.7 of PE-ENV-01104 (TII, 2022a) along with consideration of the following two factors:

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050; and

[1] Net Zero: "*When anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period.*" Net zero is achieved where emissions are first educed in line with a 'science-based' trajectory with any residual emissions neutralised through offsets.

- The level of mitigation taking place.

Table 14.3 GHGA Significance Criteria

Effects	Significance Level	Description
Significant Adverse	Major Adverse	The project's GHG impacts are not mitigated. The project has not complied with do-minimum standards set through regulation, nor provided reductions required by local or national policies; and No meaningful absolute contribution to Ireland's trajectory towards net zero.
	Moderate Adverse	The project's GHG impacts are partially mitigated. The project has partially complied with do-minimum standards set through regulation, and have not fully complied with local or national policies; and Falls short of full contribution to Ireland's trajectory towards net zero.
Not Significant	Minor Adverse	The project's GHG impacts are mitigated through 'good practice' measures. The project has complied with existing and emerging policy requirements; and Fully in line to achieve Ireland's trajectory towards net zero.
	Negligible	The project's GHG impacts are mitigated beyond design standards. The project has gone well beyond existing and emerging policy requirements; and Well 'ahead of the curve' for Ireland's trajectory towards net zero.
Beneficial	Beneficial	The project's net GHG impacts are below zero and it causes a reduction in atmosphere GHG concentration. The project has gone well beyond existing and emerging policy requirements; and Well 'ahead of the curve' for Ireland's trajectory towards net zero, provides a positive climate impact.

Ireland's carbon budgets can also be used to contextualise the magnitude of GHG emissions from the proposed development (TII, 2022a). The approach is based on comparing the net proposed development GHG emissions to the relevant carbon budgets (DECC, 2023a). With the publication of the Climate Action Act in 2021 and the Climate Action Plan 2024, sectoral carbon budgets have been published for comparison with the net GHG emissions from the proposed development over its lifespan. The relevant sector budgets are for Transport and Industry. The Transport sector emitted approximately 12 $MtCO_2e$ in 2018 and has a ceiling of 6 Mt CO_2e in 2030 which is a 50% reduction over this period. The Industry sector emitted approximately 7 $MtCO_2e$ in 2018 and has a ceiling of 4 Mt CO_2e in 2030 which is a 35% reduction over this period (see Table 14.2).

14.5.2 Climate Change Risk Assessment

This assessment involves determining the vulnerability of the proposed development to climate change. This involves an analysis of the sensitivity and exposure of the development to climate hazards which together provide a measure of vulnerability.

PE-ENV-01104 (TII, 2022a) states that the CCRA is guided by the principles set out in the overarching best practice guidance documents:

- EU (2021) Technical Guidance on the Climate Proofing of Infrastructure in the Period 2021-2027 (European Commission, 2021a); and
- The Institute of Environmental Management and Assessment, Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (2nd Edition) (IEMA, 2020).

The baseline environment information provided in Section 14.7, future climate change modelling and input from other experts working on the proposed development (i.e. hydrologists) should be used in order to assess the likelihood of a climate risk.

First an initial screening CCRA based on the operational phase is carried out, according to the TII guidance PE-ENV-01104. This is carried out by determining the sensitivity of proposed development assets (i.e. receptors) and their exposure to climate change hazards.

The proposed development asset categories must be assigned a level of sensitivity to climate hazards. PE-ENV-01104 (TII, 2022a) provides the below list of asset categories and climate hazards to be considered. The asset categories will vary for development type and need to be determined on a development by development basis.

- **Asset Categories** Pavements; drainage; structures; utilities; landscaping; signs, light posts, buildings, and fences.
- **Climate Hazards** Flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; wildfire; drought; extreme wind; lightning and hail; landslides; fog.

The sensitivity is based on a High, Medium or Low rating with a score of 1 to 3 assigned as per the criteria below.

- **High Sensitivity** The climate hazard will or is likely to have a major impact on the asset category. This is a sensitivity score of 3.
- **Medium Sensitivity** It is possible or likely the climate hazard will have a moderate impact on the asset category. This is a sensitivity score of 2.
- **Low Sensitivity** It is possible the climate hazard will have a low or negligible impact on the asset category. This is a sensitivity score of 1.

Once the sensitivities have been identified the exposure analysis is undertaken. The exposure analysis involves determining the level of exposure of each climate hazard at the project location irrespective of the project type for example: flooding could be a risk if the project location is next to a river in a floodplain. Exposure is assigned a level of High, Medium or Low as per the below criteria.

- **High Exposure** It is almost certain or likely this climate hazard will occur at the project location i.e. might arise once to several times per year. This is an exposure score of 3.
- **Medium Exposure** It is possible this climate hazard will occur at the project location i.e. might arise a number of times in a decade. This is an exposure score of 2.
- **Low Exposure** It is unlikely or rare this climate hazard will occur at the project location i.e. might arise a number of times in a generation or in a lifetime. This is an exposure score of 1.

Once the sensitivity and exposure are categorised, a vulnerability analysis is conducted by multiplying the sensitivity and exposure to calculate the vulnerability.

14.5.2.1 Significance Criteria for CCRA

The CCRA involves an initial screening assessment to determine the vulnerability of the proposed development to various climate hazards. The vulnerability is determined by combining the sensitivity and the exposure of the proposed development to various climate hazards. The vulnerability assessment takes any proposed mitigation into account.

Vulnerability = Sensitivity x Exposure

Table 14.4 details the vulnerability matrix; vulnerabilities are scored on a high, medium and low scale. A risk that is low or medium is classed as non-significant, while a high or extreme risk is classed as a significant risk.

TII guidance (TII, 2022a) and the EU technical guidance (European Commission, 2021a) note that if all vulnerabilities are ranked as low in a justified manner, no detailed climate risk assessment may be needed. The impact from climate change on a development would therefore be considered not significant.

Where residual medium or high vulnerabilities exist the assessment may need to be progressed to a detailed climate change risk assessment and further mitigation implemented to reduce risks. An assessment of construction phase CCRA impacts is only required according to the TII guidance (TII, 2022a) if a detailed CCRA is required.

Table 14.4 Vulnerability Matrix

		Exposure		
		High (3)	Medium (2)	Low (1)
Sensitivity	High (3)	9 - High	6 – High	3 - Medium
	Medium (2)	6 - High	4 – Medium	2 - Low
	Low (1)	3 - Medium	2 – Low	1 - Low

The screening CCRA, detailed in Section 0, did not identify any residual medium or high risks to the proposed development as a result of climate change. Therefore, a detailed CCRA for the construction and operational phase were scoped out.

While a CCRA for the construction phase was not required, best practice mitigation against climate hazards is still recommended in Section 14.10.1.

14.6 Difficulties Encountered

There were no difficulties encountered in compiling this assessment.

14.7 Baseline Environment

14.7.1 Current GHGA Baseline

PE-ENV-01104 (TII, 2022a) states that a baseline climate scenario should identify, consistent with the study area for the project, GHG emissions without the project for both the current and future baseline.

Ireland declared a climate and biodiversity emergency in May 2019 and in November 2019 there was European Parliament approval of a resolution declaring a climate and environment emergency in Europe. This, in addition to Ireland's current failure to meet its EU binding targets under Regulation 2018/842 (European Union, 2018) results in changes in GHG emissions either beneficial or adverse being of more significance than previously considered prior to these declarations.

Climate impacts are assessed at a national level and in relation to national targets and sectoral emission ceilings. The study area for climate is the Republic of Ireland and the baseline is determined in relation to this study area.

Ireland's GHG emissions in 2022 are estimated to be 60.76 million tonnes carbon dioxide equivalent (Mt CO_2e), which is 1.9% lower (or 1.19 Mt CO_2e) than emissions in 2021 (61.95 Mt CO_2e) and follows a 5.1% increase in emissions reported for 2021 (EPA, 2023). In 2022 emissions in the stationary emissions trading scheme (ETS) sector decreased by 4.3% and emissions under the ESR (Effort Sharing Regulation) decreased by 1.1%. When LULUCF is included, total national emissions decreased by 1.8%. The sector with the highest emissions in 2022 (excluding LULUCF) was agriculture at 38.4% of the total, followed by transport at 19.1%. Decreased emissions in 2022 compared to 2021 were observed in the largest sectors except for transport, waste and commercial services. These 3 sectors showed increases in emissions (6.0%, 4.9% and 0.2% respectively). For 2022, the total national emissions (excluding LULUCF) were estimated to be 68,069 kt CO_2e as shown in Table 14.5 (EPA, 2023).

Table 14.5 Total National GHG Emissions in 2022 (EPA, 2023)

Sector	2021 Emissions (Mt CO_2e)	2022 Emissions (Mt CO_2e)	% Total 2022 (including LULUCF)	% Change from 2021 to 2022
Agriculture	23.626	23.337	34%	-2.1
Transport	10.978	11.634	17%	6.0
Energy Industries	10.262	10.076	15%	-1.8
Residential	6.992	6.105	9%	-12.7
Manufacturing Combustion	4.614	4.288	6%	-7.1
Industrial Processes	2.475	2.289	3%	-7.5
F-Gases	0.745	0.741	1%	-0.5
Commercial Services	0.765	0.767	1%	0.2
Public Services	0.672	0.659	1%	-1.9
Waste Note 1	0.726	0.867	1%	4.9
Land Use, Land-use Change and Forestry (LULUFC)	7.338	7.305	11%	-0.5

Sector	2021 Emissions (Mt CO_2e)	2022 Emissions (Mt CO_2e)	% Total 2022 (including LULUCF)	% Change from 2021 to 2022
National total excluding LULUFC	61.955	60.764	89%	-1.9
National total including LULUFC	62.293	68.069	100%	-1.8

Note 1 Waste includes emissions from solid waste disposal on land, solid waste treatment (composting and anaerobic digestion), wastewater treatment, waste incineration and open burning of waste

14.7.2 Future GHGA Baseline

The future baseline with respect to the GHGA can be considered in relation to the future climate targets which the assessment results will be compared against. In line with TII (TII, 2022c) and IEMA Guidance (IEMA, 2022) the future baseline is a trajectory towards net zero by 2050, *"whether it [the project] contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050"*.

The future baseline will be determined by Ireland meeting its targets set out in the CAP24, and future CAPs, alongside binding 2030 EU targets. In order to meet the commitments under the Paris Agreement, the European Union (EU) enacted *'Regulation (EU) 2018/842 on binding annual GHG emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No. 525/2013'* (hereafter referred to as the Regulation) (European Union, 2018). The Regulation aims to deliver, collectively by the EU in the most cost-effective manner possible, reductions in GHG emissions from the Emission Trading Scheme (ETS) and non-ETS sectors amounting to 43% and 30%, respectively, by 2030 compared to 2005. The Regulation was amended in April 2023 and Ireland must now limit its greenhouse gas emissions by at least 42% by 2030. The ETS is an EU-wide scheme which regulates the GHG emissions of larger industrial emitters Including electricity generation, cement manufacturing and heavy industry. The non-ETS sector includes all domestic GHG emitters which do not fall under the ETS scheme and thus includes GHG emissions from transport, residential and commercial buildings and agriculture.

14.7.3 Current CCRA Baseline

The region of the proposed development has a temperate, oceanic climate, resulting in mild winters and cool summers. The Met Éireann weather station at Dublin Airport is the nearest weather and climate monitoring station to the proposed development with meteorological data recorded for the 30-year period from 1991 to 2020. The historical regional weather data for Dublin Airport Metrological station is representative of the current climate in the region of the proposed development. The data for the 30-year period from 1991 to 2020 indicates that the wettest months at Dublin Airport Metrological Station were November and December, and the driest month on average was June. July was the warmest month with a mean temperature of 15.4 Celsius. January was the coldest month with a mean temperature of 5.2 Celsius.

Met Éireann's 2023 Climate Statement (Met Éireann, 2023) states 2023's average shaded air temperature in Ireland is provisionally 11.20 °C, which is 1.65°C above the 1961-1990 long-term

average. Previous to this 2022 was the warmest year on record, however 2023 was 0.38 °C warmer (see Figure 14.1).

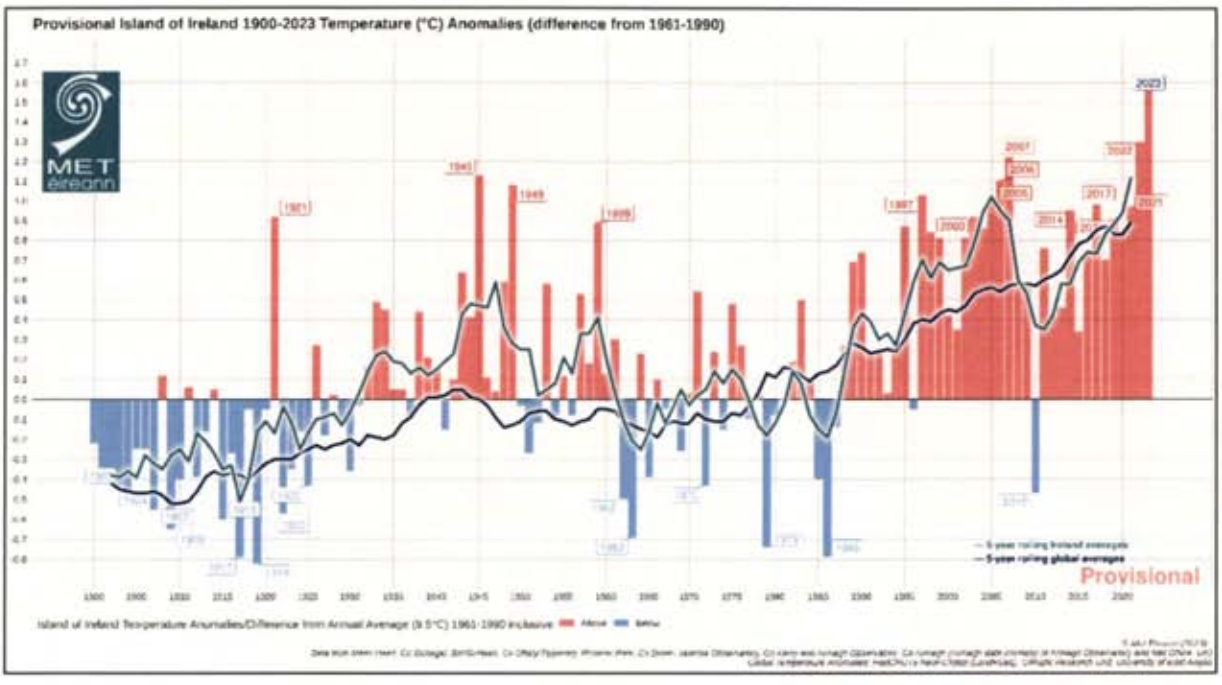

Figure 14.1 1900-2023 Temperature (°C) Temperature Anomalies (differences from 1961-1990)

The year 2023 also had above average rainfall, this included the warmest June on record and the wettest March and July on record. Record high sea surface temperatures (SST) were recorded since April 2023 which included a severe marine heatwave to the west of Ireland during the June 2023. This marine heatwave contributed to the record rainfall in July.

Recent weather patterns and records of extreme weather events recorded by Met Éireann have been reviewed. Considering the extraordinary 2023 data, Met Éireann states that the latest Irish climate change projections indicate further warming in the future, including warmer winters. The record temperatures means the likelihood of extreme weather events occurring has increased. This will result in longer dry periods and heavy rainfall events. Storm surges and coastal flooding due to sea level rise. Compound events, where coastal surges and extreme rainfall events occur simultaneously will also increase. Met Éireann has high confidence in maximum rainfall rates increasing but not in how the frequency or intensity of storms will change with climate change.

14.7.4 Future CCRA Baseline

Impacts as a result of climate change will evolve with a changing future baseline, changes have the potential to include increases in global temperatures and increases in the number of rainfall days per year. Therefore, it is expected that the baseline climate will evolve over time and consideration is needed with respect to this within the design of the proposed development.

Ireland has seen increases in the annual rainfall in the north and west of the country, with small increases or decreases in the south and east including in the region where the proposed development will be located (EPA, 2021). The EPA have compiled a list of potential adverse impacts as a result of

climate change including the following which may be of relevance to the proposed development (EPA, 2021):

- More intense storms and rainfall events;
- Increased likelihood and magnitude of river and coastal flooding;
- Water shortages in summer in the east;
- Adverse impacts on water quality; and
- Changes in distribution of plant and animal species.

The EPA's *State of the Irish Environment Report (Chapter 2: Climate Change)* (EPA, 2020c) notes that projections show that full implementation of additional policies and measures, outlined in the 2019 Climate Action Plan, will result in a reduction in Ireland's total GHG emissions by up to 25 per cent by 2030 compared with 2020 levels. Climate change is not only a future issue in Ireland, as a warming of approximately 0.8°C since 1900 has already occurred. The EPA state that it is critically important for the public sector to show leadership and decarbonise all public transport across bus and rail networks to the lowest carbon alternatives. The report (EPA, 2020c) underlines that the next decade needs to be one of major developments and advances in relation to Ireland's response to climate change in order to achieve these targets and that Ireland must accelerate the rate at which it implements GHG emission reductions. The report states that mid-century mean annual temperatures in Ireland are projected to increase by between 1.0°C and 1.6°C (subject to the emissions trajectory). In addition, heat events are expected to increase by mid-century (EPA, 2020c). While individual storms are predicted to have more severe winds, the average wind speed has the potential to decrease (EPA, 2020c).

TII's Guidance document PE-ENV-01104 (TII, 2022a) states that for future climate change a moderate to high Representative Concentration Pathways (RCP) should be adopted. RPC4.5 is considered moderate while RPC8.5 is considered high. Representative Concentration Pathways (RCPs) describe different 21st century pathways of GHG emissions depending on the level of climate mitigation action undertaken.

Future climate predictions undertaken by the EPA have been published in *'Research 339: High-resolution Climate Projections for Ireland – A Multi-model Ensemble Approach'* (EPA 2020d). The future climate was simulated under both Representative Concentration Pathway 4.5 (RCP4.5) (medium-low) and RCP8.5 (high) scenarios. This study indicates that by the middle of this century (2041–2060), mid-century mean annual temperatures are projected to increase by 1 to 1.2°C and 1.3 to 1.6°C for the RCP4.5 and RCP8.5 scenarios, respectively, with the largest increases in the east. Warming will be enhanced at the extremes (i.e. hot days and cold nights), with summer daytime and winter night-time temperatures projected to increase by 1 to 2.4°C. There is a projected substantial decrease of approximately 50%, for the number of frost and ice days. Summer heatwave events are expected to occur more frequently, with the largest increases in the south. In addition, precipitation is expected to become more variable, with substantial projected increases in the occurrence of both dry periods and heavy precipitation events. Climate change also has the potential to impact future energy supply which will rely on renewables such as wind and hydroelectric power. Wind turbines need a specific range of wind speeds to operate within and droughts or low ground water levels may impact

hydroelectric energy generating sites. More frequent storms have the potential to damage the communication networks requiring additional investment to create resilience within the network.

The EPA's *Critical Infrastructure Vulnerability to Climate Change* report (EPA, 2021) assesses the future performance of Irelands critical infrastructure when climate is considered. With respect to road infrastructure, fluvial flooding and coastal inundation/coastal flooding are considered the key climate change risks with snowstorm and landslides being medium risks. Extreme winds and heatwaves/droughts are considered low risk to road infrastructure. One of the key outputs of the research was a framework that will provide quantitative risk-based decision support for climate change impacts and climate change adaptation analysis for infrastructure.

National Framework for Climate Services (NFCS) was founded in June 2022 to streamline the provision of climate services in Ireland and will be led by Met Éireann. The aim of the NFCS is to enable the co-production, delivery and use of accurate, actionable and accessible climate information and tools to support climate resilience planning and decision making. In addition to the NFCS, further work has been ongoing into climate projects in Ireland through research under the TRANSLATE project. TRANSLATE (Met Éireann, 2023) has been led by climate researchers from University of Galway – Irish Centre for High End Computing (ICHEC), and University College Cork – SFI Research Centre for Energy, Climate and Marine (MaREI), supported by Met Éireann climatologists. TRANSLATE's outputs are produced using a selection of internationally reviewed and accepted models from both CORDEX and CMIP5. Representative Concentration Pathways (RCPs) provide a broad range of possible futures based on assumptions of human activity. The modelled scenarios include for "*least*" (RCP2.6), "*more*" (RCP4.5) or "*most*" (RCP8.5) climate change, see Figure 14.2.

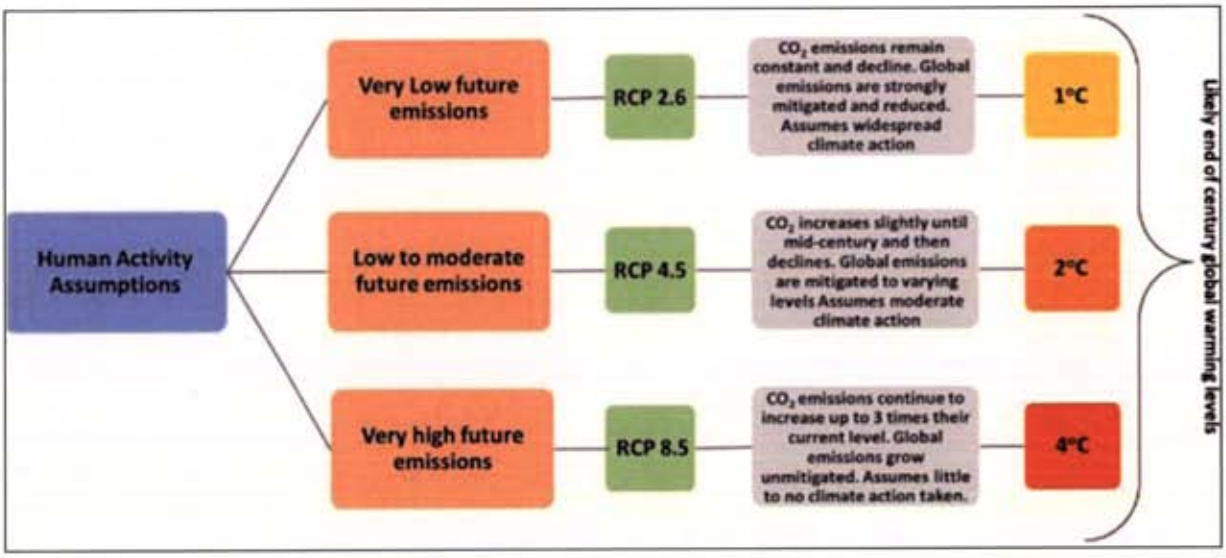

Figure 14.2 Representative Concentration Pathways Associated Emission Levels
Source: TRANSLATE Project Story Map (Met Éireann, 2023)

TRANSLATE (Met Éireann, 2023) provides the first standardised and bias-corrected national climate projections for Ireland to aid climate risk decision making across multiple sectors (for example, transport, energy, water), by providing information on how Ireland's climate could change as global temperatures increase to 1.5˚C ,2˚C, 2.5˚C, 3˚C or 4˚C (see Figure 14.3). Projections broadly agree with previous projections for Ireland. Ireland's climate is dominated by the Atlantic Meridional Overturning

Circulation (AMOC), a large system of ocean currents – including the Gulf Stream – characterised by a northward flow of warm water and a southward flow of cold water. Due to the AMOC, Ireland does not suffer from the extremes of temperature experienced by other countries at a similar latitude. Recent studies have projected that the AMOC could decline by 30 – 40 % by 2100, resulting in cooler North Atlantic Sea surface temperatures (SST)s (Met Éireann, 2023). Met Éireann projects that Ireland will nevertheless continue to warm, although the AMOC cooling influence may lead to reduced warming compared with continental Europe. AMOC weakening is also expected to lead to additional sea level rise around Ireland. With climate change Ireland's temperature and rainfall will undergo more and more significant changes e.g. on average summer temperature could increase by more than 2°C, summer rainfall could decrease by 9% while winter rainfall could increase by 24%. Future projects also include a 10-fold increase in the frequency of summer nights (values > 15°C) by the end of the century, a decrease in the frequency of cold winter nights and an increase in the number of heatwaves. A heatwave in Ireland is defined as a period of 5 consecutive days where the daily maximum temperature is greater than 25°C.

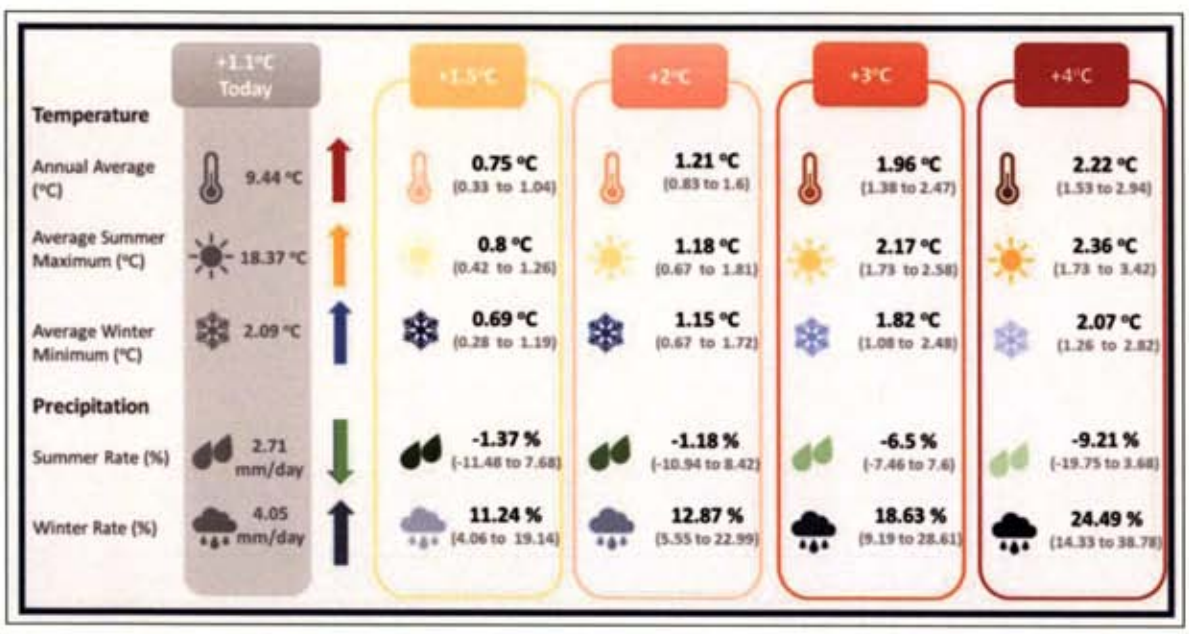

Figure 14.3 Change of Climate Variables for Ireland for Different Global Warming Thresholds

Source: TRANSLATE Project Story Map (Met Éireann, 2023)

14.8 The 'Do Nothing' Scenario

Under the Do Nothing Scenario construction works associated with the proposed development will not take place. Impacts from increased traffic volumes and associated emissions from the proposed development will also not occur. The climate baseline will continue to develop in line with the identified trends (see Section 14.7).

14.9 Potential Significant Effects

14.9.1 Greenhouse Gas Assessment

There is the potential for a number of greenhouse gas emissions to atmosphere during the construction and operational phases of the development. As per the TII guidance (TII, 2022a), the significance of the effect of GHG emissions on climate is assessed for the total GHG emissions across all proposed development stages.

14.9.1.1 Construction Phase

Embodied carbon is carbon dioxide emitted during the manufacture, transport and construction of building materials, together with site activities. The most significant proportion of carbon emissions tend to occur during the construction phase because of embodied carbon in construction materials and emissions from construction activities. Therefore, the assessment has included the construction phase embodied carbon for these purposes of the EIAR. The assessment is broken down into the following stages as per Section 14.5.1.1:

- Product stage (A1 – A3);
- Transportation to site (A4);
- Site operations (A5);
- Material replacement & refurbishment (B4 – B5).

The construction phase embodied carbon emissions comprise stages A1 – A5 include the construction materials, the transport of the materials to site and the construction activities or site operations. Ongoing material refurbishment and replacement throughout the lifetime of the development is included within category B4 – B5, these are default values based on the typical maintenance requirements for the chosen material types over the assumed 50 year lifetime. Figure 14.4 shows the embodied carbon for the proposed development per life-cycle stage with both the output from the OneClick tool and TII Carbon Tool assessments included.

The carbon assessment has highlighted the areas where the highest embodied carbon emissions occur, specifically as a result of building materials. The carbon emissions have been calculated based on standard default materials for the various building types within the OneClick tool as detailed material information was not available at this stage in the project. Additionally, the average material types within the TII Carbon Tool were used for the purposes of this assessment in the absence of more detailed information.

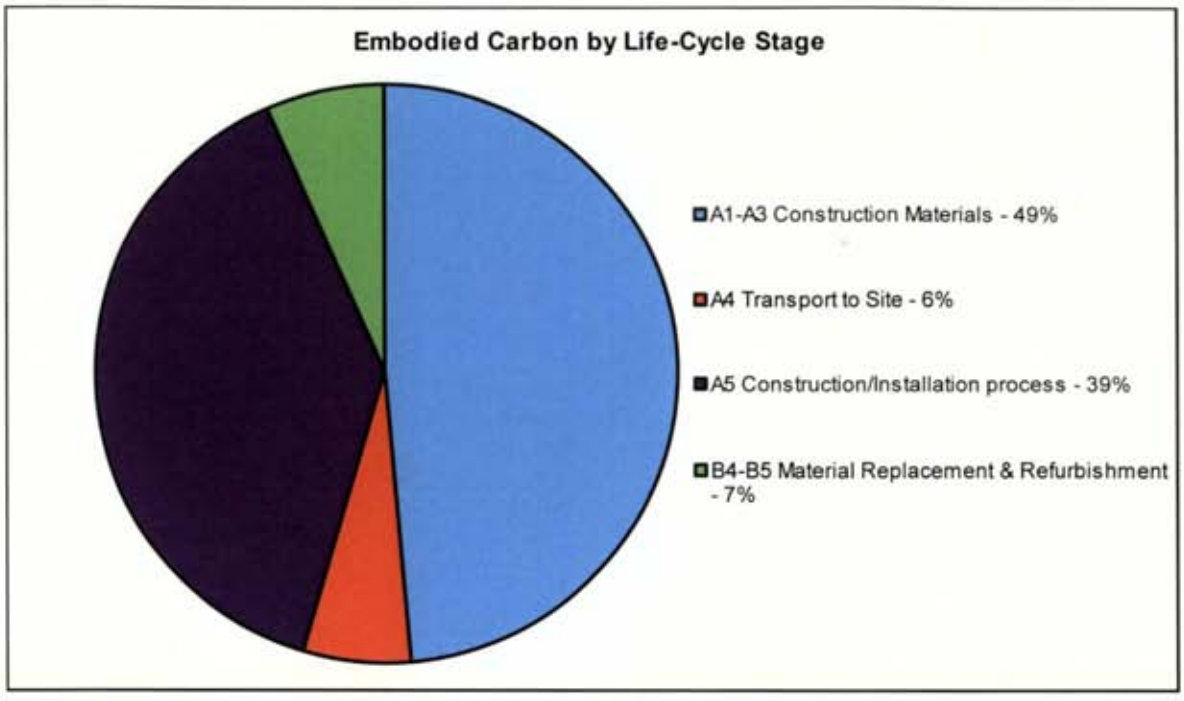

Figure 14.4 Embodied Carbon by Life-Cycle Stage

Construction materials make up the majority of carbon emissions for the proposed development making up c.49% of the total construction phase embodied carbon emissions across the different buildings. The external walls as well as the beams, floors and roofs are the areas with the highest carbon impact, based on the general default values and assumptions made for the carbon calculations. Transportation to site, site operations and material replacement make up the remainder of the construction embodied carbon emissions.

It has been calculated that the total construction phase embodied carbon (including maintenance and replacement of materials over the development lifetime) will be 9,811 tonnes CO_2e (Table 14.6). The GHG emissions from the development as a total cannot be compared against one specific sector 2030 carbon budget, the emissions are broken down into different assessment categories and these must be compared separately to the relevant sectoral emissions budget which are detailed in Table 14.6. The relevant sectoral emissions for the proposed development comparison include the Industry Buildings (Residential) sector, Transport sector and Waste sector. The predicted emissions for the proposed development are annualised over the assumed 50 year lifespan and then compared to the relevant sector 2030 carbon budgets. Annualising the full carbon emissions over the lifetime of the development allows for appropriate comparison with annual GHG targets.

Table 14.6 GHG Assessment Result

Stage	GHG Assessment Category	Predicted GHG Emissions (tCO_2e)	Relevant Sector for Cabron Budget Comparison	Annualised GHG Emissions as % of Relevant Cabron Budget
A1-A3	Materials	4,769	Industry	0.002%
A4	Material Transport	585	Transport	0.0002%

Stage	GHG Assessment Category	Predicted GHG Emissions (tCO_2e)	Relevant Sector for Cabron Budget Comparison	Annualised GHG Emissions as % of Relevant Cabron Budget
A5	Clearance and demolition	1	Industry	0.0000003%
A5	Excavation	17	Industry	0.0001%
A5	Construction Worker Travel to Site	197	Transport	0.00007%
A5	Construction Waste Disposal	44	Waste	0.0001%
A5	Construction Waste Transport	3,551	Transport	0.001%
B4-B5	Maintenance Material	647	Industry	0.0002%
Total		9,811 tCO_2e		

Note 1 Project lifespan assumed 50 years for calculation purposes in line with best practice

The predicted GHG emissions (as shown in Table 14.7) can be averaged over the full lifespan of the proposed development to give the predicted annual emissions to allow for direct comparison with national annual emissions and targets.

In Table 14.7, GHG emissions have been compared against the carbon budget for the transport, industry and waste sectors in 2030 (DECC, 2023a), against Ireland's total GHG emissions in 2022 and against Ireland's EU 2030 target of a 30% reduction in non-ETS sector emissions based on 2005 levels (33 Mt CO_2e) (set out in Regulation EU 2018/842 of the European Parliament and of the Council).

The estimated total GHG emissions, when annualised over the 50-year proposed development lifespan, are equivalent to 0.0003% of Ireland's total GHG emissions in 2022 and 0.0006% of Ireland's non-ETS 2030 emissions target. The total GHG emissions associated with transport-related activities are 0.0015% of the 2030 Transport budget, construction waste GHG emissions are 0.0001% of the Waste budget and industry-related activities are 0.002% of the 2030 Industry budget (DECC, 2023a).

Table 14.7 Estimated GHG Emissions relative to Sectoral Budgets and GHG Baseline

Target/Sectoral Budget (tCO_2e)		Sector Annualised Proposed Development GHG Emissions are Compared	Annualised Proposed Development GHG Emissions as % of Relevant Target/Budget
Ireland's 2022 Total GHG Emissions (existing baseline)	60,746,000	Total GHG Emissions	0.0003%
Non-ETS 2030 Target	33,000,000	Total GHG Emissions	0.0006%
2030 Sectoral Budget (Industry Sector)	4,000,000	Total Industry Emissions	0.002%
2030 Sectoral Budget (Transport Sector)	6,000,000	Total Transport Emissions	0.001%

Target/Sectoral Budget (tCO_2e)		Sector Annualised Proposed Development GHG Emissions are Compared	Annualised Proposed Development GHG Emissions as % of Relevant Target/Budget
2030 Sectoral Budget (Waste Sector)	1,000,000	Total Waste Emissions	0.0001%

A possible scenario for GHG emission reduction was investigated, which involved the use of recycled cement content in concrete. This scenario could reduce embodied carbon from 525 $kgCO_2e/m^2$ (Baseline Design) to 450 $kgCO_2e/m^2$ on a typical precast scheme supported on strip foundations (achieving an Embodied Carbon Benchmark B, based on the One Click LCA 'Carbon Heroes Benchmark Programme'), for a total saving of approximately 940 tCO_2e relative to the baseline design. The feasibility of employing this GHG emission reduction scenario, or similar, for construction will be further investigated during detailed design.

14.9.1.2 Operational Phase

Ongoing maintenance of the proposed development materials has been accounted for within Section 14.9.1.1 above. The following section outlines the impact of operational energy use on GHG emissions.

The proposed development has been designed to reduce the impact to climate where possible. A number of measures have been incorporated into the design to ensure the operational phase emissions are minimised. These are outlined fully within the Energy Analysis Report and Building Life Cycle Assessment Report prepared in relation to the development. The primary elements with respect to reducing climate impacts and optimising energy usage are summarised in Section 14.10.2.

14.9.1.3 GHGA Significance of Effects

The TII guidance states that the following two factors should be considered when determining significance:

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050; and
- The level of mitigation taking place.

The level of mitigation described in Section 14.10 has been taken into account when determining the significance of the proposed development's GHG emissions. According to the TII significance criteria described in Section 14.5.1.2.3 and Table 14.3, the significance of the GHG emissions during the construction and operational phase is minor adverse.

In accordance with the EPA guidelines (EPA, 2022), the above significance equates to a significance of effect of GHG emissions during the construction and operational phase which is ***direct, long-term, negative*** and ***slight***, which is overall ***not significant***.

14.9.2 Climate Change Risk Assessment

14.9.2.1 Construction Phase

A detailed CCRA of the construction phase has been scoped out, as discussed in Section 14.5.2.1, which state that there are no residual medium or high risk vulnerabilities to climate change hazards and therefore a detailed CCRA is not required (TII, 2022a). However, consideration has been given to the proposed development's vulnerability to the following climate change hazards with best practice mitigation measures proposed in Section 14.10:

- Flood risk due to increased precipitation, and intense periods of rainfall. This includes fluvial and pluvial flooding;
- Increased temperatures potentially causing drought, wildfires and prolonged periods of hot weather;
- Reduced temperatures resulting in ice or snow;
- Geotechnical impacts; and
- Major Storm Damage – including wind damage.

14.9.2.2 Operational Phase

In order to determine the vulnerability of the proposed development to climate change the sensitivity and exposure of the development to various climate hazards must first be determined. The following climate hazards have been considered in the context of the proposed development: flooding (coastal, pluvial, fluvial), extreme heat, extreme cold, wildfire, drought, extreme wind, lightning, hail, landslides and fog.

The sensitivity of the proposed development to the above climate hazards is assessed irrespective of the project location. Table 14.8 details the sensitivity of the proposed development on a scale of high (3), medium (2) and low (1). Once the sensitivity has been established the exposure of the proposed development to each of the climate hazards is determined, this is the likelihood of the climate hazard occurring at the project location and is also scored on a scale of high (3), medium (2) and low (1). The product of the sensitivity and exposure is then used to determine the overall vulnerability of the proposed development to each of the climate hazards as per Table 14.4. The results of the vulnerability assessment are detailed in Table 14.8.

Table 14.8 Climate Change Vulnerability Assessment

Climate Hazard	Sensitivity	Exposure	Vulnerability
Flooding (Coastal, Pluvial, Fluvial)	1 (Low)	2 (Medium)	2 (Low)
Extreme Heat	1 (Low)	1 (Low)	1 (Low)
Extreme Cold	1 (Low)	1 (Low)	1 (Low)
Wildfire	1 (Low)	1 (Low)	1 (Low)
Drought	1 (Low)	1 (Low)	1 (Low)
Extreme Wind	1 (Low)	1 (Low)	1 (Low)
Lightning & Hail	1 (Low)	1 (Low)	1 (Low)
Landslides	1 (Low)	1 (Low)	1 (Low)
Fog	1 (Low)	1 (Low)	1 (Low)

The sensitivity and exposure of the area was determined with reference to a number of online tools and with input from the various discipline specialists on the project team. It was concluded that proposed development does not have any significant vulnerabilities to the identified climate hazards as described below. All vulnerabilities are classified as low. There are no residual medium or high risk vulnerabilities to climate change hazards and therefore a detailed CCRA is not required (TII, 2022a).

The Site-Specific Flood Risk Assessment (SSFRA) completed by Donnachadh O'Brien & Associates Consulting Engineers Ltd. (DOBA) indicates that the site is contained within Flood Zone C. The main flooding risk for the proposed development is coastal/tidal flooding due to its proximity to the Irish Sea. Coastal flooding results from high sea levels or waves causing overflow onto land. However, the development is unlikely to be affected by coastal flooding. The Catchment Flood Risk Assessment and Management (CFRAM) flood maps for the site of the proposed development does not indicate the presence of Fluvial Flooding. The Office of Public Work's (OPW) Past Flood Events reports flooding of the adjacent Techrete lands and the Bloody Stream Pub located 250m and 500m north-east of the proposed development respectively which occurred in October and November 2002. The flood event occurred at a level of +5.00mOD and was as a result of system blockages rather that system capacity.

Provision of adequate storm water drainage systems will minimise the risk from pluvial flooding sources. The proposed drainage system has been designed in accordance with Greater Dublin Drainage Strategy (GDSDS) and best practise sustainable urban drainage systems (SUDS) to accommodate flows in peak rainfall events and the drainage system has sufficient capacity to accommodate a 1 in 100 Year plus 30% Climate Change event below ground without flooding any of the paved surfaces. During periods of prolonged rainfall there is a low possibility that the groundwater level may rise level due to the susceptibility of groundwater levels to diurnal, seasonal and climatic variations over an extended period. The Geological Society of Ireland (GSI) Groundwater Flooding Data has not identified the site of the proposed development as being at risk from ground water flooding.

In relation to wildfires, the *Think Hazard!* tool developed by the Global Facility for Disaster Reduction and Recovery (GFDRR) (GFDRR, 2023), indicates that the wildfire hazard is classified as low for the Dublin area. This means that there is between a 4% and 10% chance of experiencing weather that could support a problematic wildfire in your project area that may cause disruptions and low but tangible risk of life and property loss in any given year. Future climate modelling indicates that there could be an increase in the weather conditions which are favourable to fire conditions, these include increases in temperature and prolonged dry periods. However, due to the project location in a suburban area the risk of wildfire is significantly lessened and it can be concluded that the proposed development is of low vulnerability to wildfires.

The GSI landslide susceptibility mapping database (GSI, 2023) was reviewed in order to determine the risk from landslides at the proposed development. There have not been any historical landslide events in the vicinity of the proposed development and the area has a low susceptibility to future landslides. Therefore, landslides are not a risk for the proposed development site.

In relation to extreme temperatures, both extreme heat and extreme cold, these have the potential to impact the building materials and some related infrastructure. At the detailed design stage chosen building materials will be high quality, durable and hard-wearing and chosen to withstand increased variations in temperature in the future as a result of climate change. Overall, the proposed

development has at most low vulnerabilities to the identified climate hazards. Therefore no detailed risk assessment is required.

There is no additional vulnerability with respect to all climate hazards when design mitigation has been put in place in order to alleviate this known vulnerability to future climate change risk.

14.9.2.3 CCRA Significance of Effects

With design mitigation in place, there are no significant risks to the proposed development as a result of climate change. In accordance with the EPA Guidelines (EPA, 2022), the significance of effect of the impacts to the proposed development as a result of climate change are ***direct, long-term, negative*** and ***imperceptible,*** which is overall ***not significant*** in EIA terms.

14.9.3 Potential Cumulative Effects

With respect to the requirement for a cumulative assessment PE-ENV-01104 (TII, 2022a) states that *"for GHG Assessment is the global climate and impacts on the receptor from a project are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable."*

However, by presenting the GHG impact of a project in the context of its alignment to Ireland's trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland's ability to meet its national carbon reduction target. Therefore, the assessment approach is considered to be inherently cumulative. The cumulative impact of the proposed development in relation to GHG emissions is considered ***direct, long-term, negative*** and ***slight***, which is overall ***not significant*** in EIA terms.

14.10 Mitigation Measures

14.10.1 Construction Phase Mitigation

Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. During the construction phase the following best practice measures shall be implemented on site to prevent significant GHG emissions and reduce impacts to climate:

- Creating a demolition and construction program which allows for sufficient time to determine reuse and recycling opportunities for demolition wastes;
- Appointing a suitably competent demolition contractor who will undertake a pre-demolition audit detailing resource recovery best practice and identify materials/building components that can be reused/recycled;
- Materials will be reused on site where possible;
- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods;
- Ensure all plant and machinery are well maintained and inspected regularly;
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site;

- Material choices and quantities will be reviewed during detailed design, to identify and implement lower embodied carbon options where feasible.
- Sourcing materials locally where possible to reduce transport related CO_2 emissions; and
- The project shall review and determine compliance with the requirements set out in the EU Taxonomy Regulation (Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 (Text with EEA relevance)) in relation to circular economy. This is specific to reuse, recycling and material recovery of demolition and construction wastes.

These measures are supported by the most recent Glenveagh Properties PLC's Net Zero Transition Plan 2023, published in March 2023, which identifies the sources of Glenveagh Properties PLC's emissions and proposes measures to reduce these. A commitment to achieve a 55% reduction in Scope 3 (construction methods) emissions intensity (tCO_2e per 100 m^2 of complete floor area) by 2031 (using 2021 as the baseline year) will involve supplier engagement to make informed procurement decisions, engaging with subcontractors to support their transition to less carbon intensive fuels (diesel and gas oil is currently the norm) and investing in innovation of designing and building homes to reduce their associated embodied carbon. A reduction target of 46.2% by 2031 is also set in the plan for Scope 1 and 2 emissions (company operations). Scope 1, Scope 2 and Scope 3 emissions are terms defined by GHG protocol which applied the most widely used greenhouse gas accounting standards (GHG Protocol, 2004).

- Scope 1 emissions come from sources that an organisation owns or controls directly, e.g. fuel use by vehicles.
- Scope 2 emissions come indirectly from the company's energy use, e.g. electricity.
- Scope 3 emissions are not produced by the company itself and are not the result of activities from assets owned or controlled by them, but by those that the company is indirectly responsible for up and down its value chain e.g. buying, using and disposing of products. Scope 3 emissions include all those not within scope 1 and 2.

All targets have been validated by the Science Based Targets initiative (SBTi). The Science Based Targets initiative (SBTi) is a corporate climate action organisation, incorporated as a charity, which develops standards, tools and guidance enabling companies to set greenhouse gas (GHG) emissions reductions targets in line net-zero by 2050 at latest. Science-based targets show companies and financial institutions how much and how quickly they need to reduce their greenhouse gas (GHG) emissions to prevent the worst effects of climate change (SBTi, 2024a). Glenveagh Properties PLC was one of the over 4,000 companies and financial institutions who had their emission reduction targets validated by the SBTi (Glenveagh's targets can be searched in the SBTi's target dashboard (SBTi, 2024b)).

Glenveagh Properties PLC's Full Year 2023 Results, published in February 2024, identified that Scope 3 emissions decreased by 7% against the 2021 baseline, measured on an intensity basis (tCO2e per 100m2). This is primarily due to the focus on the energy efficiency of the residential unit, with the proportion of A1 rated homes in 2023 increasing from 55% to 85%. Scope 1 and 2 emissions decreased

by 11% compared to 2022, which can be attributed to the roll out of HVO (hydrotreated vegetable oil) to replace diesel across sites.

Specific measures will be implemented to reduce GHG emissions during the construction phase:

- It is expected that all excavated material generated during the construction phase can be reused on site. This material re-use represents GHG savings of 67 tCO_2e (if avoidance of worst-case landfill disposal is assumed);
- Other materials such as mixed construction and demolition waste, plastic, concrete, brick, tiles and ceramics and bituminous mixtures and will be diverted from waste processing by recycling or disposal in landfill, and will instead be reused on-site. This will reduce the associated CO_2 by approximately 7 tonnes; and
- Use of timber as a lower carbon option for frames for the house units.

In terms of impact on the proposed development due to climate change, during construction the Contractor will be required to mitigate against the effects of extreme rainfall/flooding through site risk assessments and method statements. The Contractor will also be required to mitigate against the effects of extreme wind/storms, temperature extremes through site risk assessments and method statements. All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures. Temperatures can affect the performance of some materials, and this will require consideration during construction. During construction, the Contractor will be required to mitigate against the effects of fog, lighting and hail through site risk assessments and method statements.

14.10.2 Operational Phase Mitigation

As per the Energy Analysis Statement, the development will be a Nearly Zero Energy Building (NZEB) in accordance with the Part L requirements. In relation to the apartment units, these will aim to achieve a Building Energy Ratio (BER) of A2. The units will have an energy performance coefficient (EPC) that complies with NZEB (maximum permitted under NZEB requirements is <0.3). The units will also have a carbon performance coefficient (CPC) and renewable energy ratio (RER) that comply with NZEB requirements (maximum permitted CPC under NZEB requirements is <0.35 and RER is 0.20). The following items will assist in achieving the NZEB compliance:

- Energy efficient LED lighting will be utilised;
- Exhaust air source heat pump technology will be installed; and
- A total of 28 PV solar panels will be installed on Blocks A to D to supplement renewable energy contribution provided by a decentralised heating system.

The Building Life Cycle Assessment Report also states that the following measures in addition to those outlined above are being considered for the proposed development, which will have the benefit of reducing energy related impacts to climate during operation. These measures include:

- Use of natural ventilation;
- Use of natural light to reduce the need for artificial lighting;
- Extensive green roof system, including insulation to apartment block roofs and intensive green roof system, including insulation to roof terraces and podium terraces over basement;

- Long-lasting and durable materials will be chosen, where feasible, to reduce ongoing maintenance and replacement requirements;
- Proximity to public transport to reduce private car journeys and promote more sustainable travel options;
- 13 Electric Vehicle (EV) charging points will be provided In line with both the building regulations (TGD Part L, since 2021) as well as the Dublin City Development Plan; and
- The provision of 510 bicycle parking spaces, including 342 secure bicycle spaces and 168 visitor spaces.

The above measures will assist in optimising the energy consumed by the development and will also have the benefit of reducing the impact to climate during the operational phase of the development.

The design of the development has taken the need to mitigate against the impacts of future climate change into account. For example, adequate attenuation and drainage has been incorporated into the design of the development to avoid potential flooding impacts as a result of increased rainfall events in future years. This mitigation has been considered when assessing the vulnerability of the proposed development to climate change (see Section 14.9.1.1).

14.11 Residual Impact Assessment

The impact to climate as a result of a proposed development must be assessed as a whole for all phases. The proposed development will result in some impacts to climate through the release of GHGs. TII state 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 proposed development has proposed some best practice mitigation measures and is committing to reducing climate impacts where feasible. As per the assessment criteria in Table 14.3 the impact of the proposed development in relation to GHG emissions is considered ***direct, long-term, negative*** and ***slight*** which is overall ***not significant*** in EIA terms.

In relation to climate change vulnerability, it has been assessed that there are no significant risks to the proposed development as a result of climate change. The residual effect of climate change on the proposed development is considered ***direct, long-term, negative*** and ***imperceptible***, which is overall ***not significant*** in EIA terms.

14.12 Risk of Major Accidents or Disasters

As detailed in Section 14.9.1.1, climate change has the potential to alter weather patterns and increase the frequency of rainfall in future years. However, the potential for flooding on site has been reviewed and adequate attenuation and drainage have been provided for to account for increased rainfall in future years. The proposed development has been assessed as having only low vulnerabilities to various climate change related hazards and there is no significant risk to the site as a result of climate change. Therefore, the impact will be ***direct, long-term, negative*** and ***imperceptible,*** which is overall not significant in EIA terms.

14.13 Worst Case Scenario

Worst case estimates have been used as part of this assessment. As a result, Section 14.11 details the worst case impact for the proposed development.

14.14 Interactions

Climate has the potential to interact with a number of other environmental attributes.

14.14.1 Air Quality

Air quality and climate have interactions due to the emissions from the burning of fossil fuels during the construction and operational phases generating both air quality and climate impacts. Air quality modelling outputs are utilised within the Climate Chapter. There is no impact on climate due to air quality however the sources of impacts on air quality and climate are strongly linked.

14.14.2 Waste Management

Interactions across many areas can be used to minimise the GHG emissions from both the construction and operational phases. For instances, waste management measures will be put in place to minimise the amount of waste entering landfill, which has higher associated embodied carbon emissions than other waste management such as recycling or incineration. The overall impact of this interaction is considered ***direct, short-term, negative*** and ***slight*** during the construction phase and ***direct, short-term, negative*** and ***slight*** during the operational phase, which is overall not significant in EIA terms.

14.14.3 Hydrology

Climate has the potential to interact with a number of other environmental attributes. The impact of flood risk has been assessed and the surface water drainage network will be designed to cater for run-off from the building and the surrounding hardscaped areas. The overall impact of this interaction is considered ***direct, long-term negative*** and ***imperceptible***, which is overall not significant in EIA terms.

14.14.4 Transport

During the construction and operational phase, there is the potential for interactions between climate and traffic. Vehicles accessing the site will result in emissions of CO_2, a greenhouse gas. However, the effect on climate due to change in traffic is predicted to be ***direct, long-term negative*** and ***imperceptible***. There are therefore no potentially significant interactions identified between climate and traffic.

14.15 Monitoring

There is no proposed monitoring during the construction phase and there is no proposed monitoring during the operational phase.

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CHAPTER 15
CULTURAL HERITAGE: ARCHAEOLOGY

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

15 Cultural Heritage: Archaeology

15.1 Introduction

This chapter of the EIAR was prepared to assess the likely significant effects of the proposed development on the Cultural Heritage of the site and its environs. The report includes a desktop study and a site inspection carried out in January 2021. The desktop section of the report was compiled using: The Records of Monuments and Places; buildings of Ireland, Excavations Bulletin; historic maps; aerial photographs; place names and historic books and journals.

Field walking was undertaken in January 2021. A geophysical survey was undertaken in February 2021 and archaeological testing was undertaken in March 2024. Field walking and archaeological testing was undertaken by John Purcell BA of John Purcell Archaeological Consultancy. The geophysical survey was undertaken by JML Surveys on behalf of John Purcell Archaeological Consultancy.

It should be read in conjunction with Chapter two and Appendix ?, which contains the results of a geophysical survey archaeological testing at the site.

15.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by John Purcel of John Purcell Archaeological Consultancy.

John Purcell holds a BA in archaeology and has been licence eligible since 2002. John Purcell is the director of the company since its establishment in 2003. Accordingly, John has 25 years' experience in archaeological and cultural heritage assessment. He has carried out numerous assessment in archaeology and been involved in the preparation of EIARs for the following projects:

- Blackpits, Athy, Co. Kildare
- Clonmageddan, Navan, Co. Meath
- Clonsilla, Co. Dublin

15.3 Proposed Development

The full description of the proposed development is outlined in Chapter 2 'Development Description' of this EIAR.

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom units and 72 no. 2-bedroom units across two offset buildings ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Partial demolition of 3 sections of

the existing northern boundary wall, which fronts Howth Road, proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

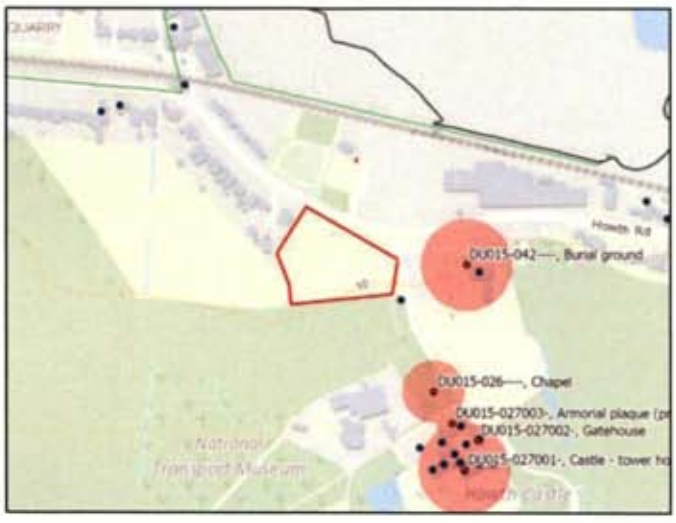

Figure 15.1 Site location in relation to recorded archaeological monuments

15.3.1 Aspects Relevant to this Assessment

The proposed development will involve changes to the existing green character of the site, in line with trends in the surrounding area. The main aspect of the development relevant to archaeological assessment are the excavation works required to facilitate development during the construction phase.

15.4 Methodology

This chapter has been prepared with regard to the best methodology and best practice. The chapter was compiled in line with the following guidelines:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)
- Frameworks and Principles for the protection of Archaeological Heritage 1999

Study Methodology

This assessment consists of a paper survey identifying all recorded sites within the vicinity of the proposed development and a site inspection. The methodology has been conducted based on the guidelines from the frameworks and principles of Archaeological Heritage 1991.

Desktop Survey

The desktop survey undertaken consisted of a document and cartographic search utilising a number of sources including the following:

- Record of Monuments and Places (RMP); The RMP records known upstanding archaeological monuments, the original location of destroyed monuments and the location of possible sites identified through, documentary, cartographic, photographic research and field inspections.
- The RMP consists of a list, organised by county and subdivided by 6" map sheets showing the location of each site. The RMP data is compiled from the files of the Archaeological Survey.
- National Inventory of Architectural Heritage; The inventory of architectural heritage lists all post 1700 structures and buildings in the country. This includes structures of architectural, historical, archaeological, artistic, cultural, social, scientific or technical importance.
- County Development Plans; The Development plan was consulted to ascertain if any structures listed in the Record of Protected Structures (RPS) and/or any Architectural Conservation Areas (ACAs). The Record of Protected Structures lists all protected structures and buildings in Fingal. This includes structures of architectural, historical, archaeological, artistic, cultural, social, scientific or technical importance.
- Cartographic Sources; The following maps were examined: Down Survey, 1st edition Ordnance Survey Maps (1836-1846) and 2nd edition Ordnance Survey Maps (1908), Rocque Map and the Cassini Map.
- Literary Sources; Various published sources, including local and national journals, were consulted to establish a historical background for the proposed development site. Literary sources are a valuable means of completing the written record of an area and gaining insight into the history of the environs of the proposed development. Principal archaeological sources include: The Excavations Bulletin; Local Journals; Published archaeological and architectural inventories; Peter Harbison, (1975). Guide to the National Monuments of Ireland; and O'Donovan's Ordnance Survey Letters.
- Topographical files of the National Museum of Ireland; These files list all stray finds relating to townland across Ireland. These files can be an important source of information on the discovery sites of archaeological remains across Ireland.

A comprehensive list of all literary sources consulted is given in the bibliography.

Site Inspection

An archaeological field inspection survey was undertaken in January 2021, this seeks to verify the location and extent of known archaeological features and to record the location and extent of any newly identified features. A field inspection should also identify any areas of archaeological potential with no above ground visibility. In certain cases archaeological test trenches can be excavated to examine the sub surface potential of a site. Many monument types do not leave surface markers. Wooden sites such as prehistoric house or burials may only be recorded through excavation works.

Assessment Criteria

The criteria used to assess the significance of the impact of a development on an archaeological landscape, site, feature, monument or complex are defined as follows:

- Profound Applies where mitigation would be unlikely to remove adverse effects. Reserved for adverse, negative effects only. These effects arise where an archaeological site is completely and irreversibly destroyed by a proposed development.
- Significant An impact which, by its magnitude, duration or intensity, alters an important aspect of the environment. An impact like this would be where part of a site would be permanently impacted upon, leading to a loss of character, integrity and data about the archaeological feature/site.
- Insignificant An impact which causes changes in the character of the environment which are not significant or profound and do not directly impact or affect an archaeological feature or monument.
- Imperceptible An impact capable of measurement but without noticeable consequences.

15.4.1 Relevant Legislation & Guidance

The proposed works have been undertaken in line with the following legislation:

- Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023.
- Frameworks and Principles for the protection of Archaeological Heritage 1999.
- Architectural Heritage (National Inventory) and Historic Monuments Act 1999 and
- Planning and Development Act 2000, as amended
- National Monuments Acts, 1930-2014
- Fingal Development Plan 2023-2029
- Heritage Act 1995 (as amended)

15.4.2 Site Surveys/Investigations

A series of site investigations were conducted across the site.

15.4.2.1 Field Inspection

A field inspection is used to determine the extent and nature of archaeological and historical remains and can lead to the identification of previously unrecorded or suspected sites. A walkover survey of the site was undertaken in January 2021.

15.4.2.2 Geophysical Survey

A Geophysical survey is a non-instructive survey conducted to aid the identification of previously unrecorded site and features that are not visible as a result of a field inspection. This survey was undertaken by JML Surveys in February 2021.

15.4.2.3 Test Trenching

Archaeological test trenching can be undertaken to assess the ground for sub surface remains. Features are often not visible at ground level and can only be identified due to ground disturbance. A programme of archaeological testing was undertaken across the site in March 2024 under Licence to the National Monuments Section at the Department of Housing, Local Government and Heritage. The testing was undertaken by John Purcell.

15.4.3 Consultation

During research for the assessment and the EIAR, a number of statutory bodies were consulted to gain information into the cultural heritage:

- National Museum of Ireland, Irish Antiquities Division: topographical files of Ireland;
- Department of Housing, Local Government, and Heritage – the Heritage Service and Policy Unit, National Monuments and Historic Properties Section: Record of Monuments and Places; Sites and Monuments Record; Monuments in State Care Database; Preservation Orders; Register of Historic Monuments;

15.5 Difficulties Encountered

No difficulties were encountered during site investigation works at the site.

15.6 Baseline Environment

15.6.1 Archaeological Background

The name Howth is derived from a modification of the Scandinavian word hoved, meaning 'head'. The Irish name for Howth, Ben Edair, translates as the 'Hill of Edar'. This is widely believed to refer to Edar a chieftain of the mythical Dé Dannan who was reputedly buried on the hill of Howth. There is evidence for constant habitation in Howth from prehistoric period onwards.

The Sites and Monuments Record (SMR) lists a number of prehistoric sites in and around Howth and along the entire east coast. The Mesolithic (c. 9000-4000BC) contains the earliest evidence for the human occupation of the north Co. Dublin. The closest site dating to this period is the large shell midden site DU015-024, located 1.2km west of the proposed development in Burrow townland. These sites are situated on or close to the shoreline and are typical of the evidence for hunter-gatherer society at this time.

By the Neolithic (4,200-2,500BC) communities became more stable with the introduction of agricultural practices. The more permanent settlement allowed communities to construct large ceremonial sites. The closest example of these to the site is a portal tomb located to the south.

The bronze age marks the introduction of metal working to Ireland. This allowed for more efficient farming and hunting techniques. It also allowed for small industry and trade to take place between communities. Barrows are a common form of monument across in this area from this period. These are associated with the Bronze/Iron Age burial tradition (c. 2400 BC - AD 400) and are defined by an artificial mound of earth or earth and stone, normally constructed to contain or conceal burials. These sites vary in shape and scale and can be variously described as bowl-barrow, ditch barrow, embanked barrow, mound barrow, pond barrow, ring-barrow and stepped barrow. Prehistoric settlements sites are generally not visible at ground level and can only be uncovered as a result of ground works.

Iron Age to Early Medieval Period

In late Bronze Age Ireland the use of the metal reached a high point with the production of high quality decorated weapons, ornament and instruments, often discovered from hoards or ritual deposits. The Iron Age however is known as a 'dark age' in Irish prehistory. Iron objects are found rarely, but there is no evidence for the warrior culture of the rest of Europe, although the distinctive La Tené style of art with animal motifs and spirals was adopted. Political life in the Iron Age seems to have been defined by continually warring petty kingdoms vying for power. These kingdoms, run on an extended clan system, had their economy rooted in mixed farming and, in particular cattle. Settlement was typically centred on a focal hillfort.

Another more domestic site common to the Bronze Age is the *fulachta fiadh*. These are located along the edges of streams or in damp areas. They consist of a mound of charcoal enriched soil with fragmented burnt rocks. They usually are accompanied by a wooden or stone lined trough. These were used seasonally possibly for cooking or may have been used for recreational purposes.

Settlement in the Early Medieval Period is defined by the ringfort. The country was a patchwork of competing kingdoms during this period numbering up to 150. Ringforts were a farmstead surrounded by one or more earthen banks. These are the commonest monument across Co. Dublin and have been frequently recorded in the area. These are generally located in areas with commanding views over the countryside to provide security.

The introduction of Christianity to Ireland in the fifth century had a profound impact on Gaelic society, not in the least in terms of land ownership and the development of churches and the development of a large number of religious houses. The earliest churches were constructed of wood and mortar and wattle walls. By the ninth and tenth centuries these were being replaced by stone structures. These settlements became very important around the country and became small towns. Many of these sites were surrounded large earthen enclosures.

Historic Period

The settlement at Howth was founded by the Vikings. Sitric built a church here in the early 11th century. Following Clontarf Battle the Norse troops regrouped at Howth and remainder in control of

the area with the local Irish until the arrival of the Anglo Norman. The village became an important Anglo Norma settlement with a castle to protect the harbour.

Howth Castle

Since 1180 the St. Lawrence family were the feudal lords of Howth. The castle was originally built in 1464. In the mid-16th century a gate house was added to the complex. The house includes in its southern range a massive three-storey tower house with corner towers. Attached to the east is a seventeenth century two storey hall. Classical style alterations to the central hall date from the early eighteenth century when the castle was enlarged and modernised by William St. Lawrence.

Post Medieval Ireland

Seventeenth century Ireland saw massive upheaval a result of the Confederate wars, the Cromwellian response and the Wars of the two kings. It is estimated that up to a third of the population was wiped out because of famine, disease and war. Soldiers were given land as payment resulting in further upheaval of the local population and the establishment of large estates. These came to dominate the landscape from this period onwards. Religious intolerance in other parts of Europe resulted in the expulsion of the Huguenot from France which were welcomed by the English Crown into Ireland.

Industrial Period

In 1766 the official census of Howth showed the population consisted of 29 protestant and 202 catholic families in Howth and Baldoyle.

The eighteenth century saw considerable industrial growth across the country. In Howth this was visible in the form of a series of quarries to support the expanding city to the south. Fishing was another mainstay of the local economy. The development of an industrial base led to increased urbanisation and population growth across the county.

Howth Park Racecourse

In 1829 a racecourse was established in the castle grounds by Thomas St Lawrence, 3rd Earl of Howth. The course was known as *Howth Park Racecourse* and ran from the backgate lodge of the castle on Carrickbrack Road down to the corner of the grounds of Seafield House until 1842. The location of the study area includes. The study area contains the eastern extent of this racecourse.

15.6.2 Archaeological Monuments in the Environs of the Study Area

The site does not include any monuments listed in the RMP for Co. Dublin. Howth Demesne has a number of archaeological remains, these are listed below (details taken from archaeology.ie).

Table 15.1 Archaeological Monuments in the vicinity of the study area

RMP	Classification	Townland	Distance
DU 015 026	Church	Howth Demesne	80m
DU 015 027/03	Armorial Plaque	Howth Demesne	130m
DU 015 027/02	Gatehouse	Howth Demesne	162m
DU 015 027/01	Castle	Howth Demesne	185m
DU 015 042	Graveyard	Howth Demesne	130m
DU015-032	Portal Tomb	Howth Demesne	800m

DU015-026----

Class: Chapel

Townland: HOWTH DEMESNE

Located on the grounds of Howth Castle north of the stableyard and west of the driveway, the church is surrounded by overgrowth and ivy covered. This large medieval chapel is rectangular in plan (int. dims. L 12.20m, Wth.4.50m) and built of randomly coursed sandstone masonry with dressed quoins. Originally entered through opposed doorways (blocked) which have almost flat segmental arches at W end of nave. The remains of a pointed arched opening in west end forms the entrance. The arch has been modified at the base, stone removed and brick inserted. Tufa has been used for one of the southern jambs. An impressive E window has a pointed arch with dressed sandstone hood and roll moulding internally. Draw bar holes are present. There are blocked up, flat, segmental arched windows at E end of N and S walls. Appears to be some dumping of material internally.

DU015-027001-

Class: Castle - tower house

Townland: HOWTH DEMESNE

Located in grounds on the N side of Howth Head overlooking Irelands Eye. A fine gatehouse *DU015-027002-) is attached by a battlemented wall to Howth Castle which incorporates in its southern range a massive three-storey tower house with corner towers. Attached to the E of this is a two storey hall of 17th century date. Classical style alterations to the central hall date from the early 18th-century when the castle was enlarged and modernised by William St. Lawrence (Bence-Jones 1988, 155-156; Dawson 1976, 122-132; Mc Cready 1893, 447). Re-rendered c.1990.

The ground floor of the tower house (L 677m, Wth 5.60m, T 1.55m) is entered off the central hall through an opening in a later partition wall that creates a corridor within the original ground floor chamber. There is a dual vault over the ground floor with an intervening wall (Wth 0.66m) that has an opening midway along (Wth 1.02m). Partial remains of a projecting angle tower with a corbelled roof survive in the NE. A spiral stairway (diam. 1.08m) in a square projecting tower off the NW angle provides access to the upper floors. The stairs have been replaced and cut across the window opes.

The first floor has been re-modelled with later window opes in the S and W. The SW angle has a tower which may have originally contained a garderobe. The second floor (L8.12m, Wth 6.40m) is entered through a pointed arch doorway (Wth 0.90m). There are window opes in the E and S walls of the main chamber which contain s a corbelled recess in the SW angle tower. This is lit by a single slit loop (L 1.81, Wth 1.52m). There is a squinch in the SE corner which would have been needed to carry a corner tower at battlement level. The spiral stairs provides access to the battlement level with a wall walk connecting four projecting angle towers. A double pitched slate roof is set behind a crow-stepped crenellated parapet.

Architectural fragments have been incorporated into the surrounding buildings including a carved dragon built into the wall at the entrance to the garden and an inscribed Sixteenth-century Tablet at the entrance to stable yard N of castle (Ball 1917, 7, 8, 70, 71 Mc Cready 1893, 447).

DU015-027002

Class: Gatehouse

Townland: HOWTH DEMESNE

The gate house is located on the north side of a courtyard attached to Howth Castle (DU015-027001-) by a rubble stone bawn wall, c.1525, with round headed integral carriageway, gun loops and crow stepped crenellated parapet (NIAH). It stands three storeys high with a battlemented parapet and a NE tower which projects above parapet level. Built of randomly coursed rubble with dressed quoins. A studded wooden gate is still present on the E side of the gateway below a round arch formed from sandstone and limestone which alternate to create a banding effect. The gateway has a segmental arched vault running E-W. There are buttresses to first floor level on the E and S sides. Two high vaulted chambers are entered off the N side of entrance passage through round-arched passages. Their interior is lit by single slit opes (L 6.40m, Wth 4.20m). The S side is defended by a musket hole. Entrance to upper floors is through the attached outbuildings in the W.

The NE tower contains a stone spiral staircase which is entered through a square-headed doorway of chamfered limestone. There is a fireplace with plain segmental arch on N side on the first floor. The east window is a double-light with a mullion and transom and cusped ogee-heads and a crack in the base of the window arch. A mural chamber off the first floor is lit by plain rectangular windows. Second floor is entered through a pointed arched doorway of chamfered limestone. The fireplace in the NW corner is a later insertion. There is an ogee-headed window on W side. Along the W side of the parapet there is a pointed arched window incorporated into battlements. Renovated 1738.

DU015-027003-

Class: Armorial plaque (present location)

Townland: HOWTH DEMESNE

An armorial plaque (DU019-001002-) was originally set into an external wall of Watermill cottage (DU019-001001-). The armorial plaque is now concreted into the northern façade of the stable block

above an entranceway at Howth Castle. It shows the arms of the St. Lawrence family, Howth, 20th Baron of Howth and wife Elizabeth (Plunkett), the initials C.S. and E.P. and a date 1572 (Bowen 1963, 75-76).

DU015-042----

Class: Burial ground

Townland: HOWTH DEMESNE

According to Fr. Shearman human remains were uncovered during the construction of the modern Protestant Church. St Mary's church (1866) was built on the site of an earlier church and is located west Evora Bridge, the site of a great battle. Finds included sword fragments and a jet ring (Shearman 1922, 65). Monitoring (Licence no. 03E0935) of the insertion of a new gas supply to the north of St Mary's church was undertaken. A 55m long slot trench on the higher ground within the church grounds, revealed at least three situ human burials and evidence for disarticulated remains (D 0.50m). No excavation of the human remains took place (Scally, G. 2003).

DU015-032----

Megalithic tomb - portal tomb

HOWTH DEMESNE

The tomb is situated by a pathway under tree cover at the edge of Deer Park golf course at the foot of Muck Rock on the north side of Howth Head. There is an entrance in SE to a single chamber (L 2.6m; Wth 1.1m). This is indicated by two portals (H 2.75m and 2.45m respectively). The doorstone has partially collapsed into the chamber. The large roofstone (L 5.2m; Wth 4.2m; D 1.9m) still rests on the upper edge of the portals above the collapsed chamber (Borlase 1897, 2, 376-9; Ó Nualláin 1983, 82, 96).

15.6.3 Previous Archaeological Works

No excavation are listed for Howth Demesne on the database of Irish excavations (excavations.ie). 30 excavations are listed for Howth, most of these are located within the town 800m to the east of the study area. Archaeological monitoring is listed for the Claremont development 50m to the north of the proposed development (Licence 20E612). No features were identified during these works.

15.6.4 Field Survey

A field survey was undertaken across the site in January 2021. The northern boundary of the site is the Howth Road. The Deer Park Golf Club forms the southern boundary. The study area was covered with grassland (Figures 15.2 to 15.7). Visibility on the ground was good. No potential archaeological features were noted.

Figure 15.2 Looking southeast over the study area

Figure 15.3 Looking south over the study area

Figure 15.4 Looking northeast over the study area

Figure 15.5 Looking east at boundary wall

Figure 15.6 Looking southeast over the study area

Figure 15.7 Looking west over the northern section of the study area

15.6.5 Geophysical Survey

A geophysical survey was undertaken by Joanna Leigh in February 2021 (Licence 20R0018, Appendix 15.2, Figure 15.8). This covered the study area. The geophysical survey data was dominated by modern magnetic disturbance and multiple modern services. Some possible isolated pit-type responses have been identified; however, an archaeological interpretation is highly tentative. Possible former agricultural activity is suggested by multiple linear trends.

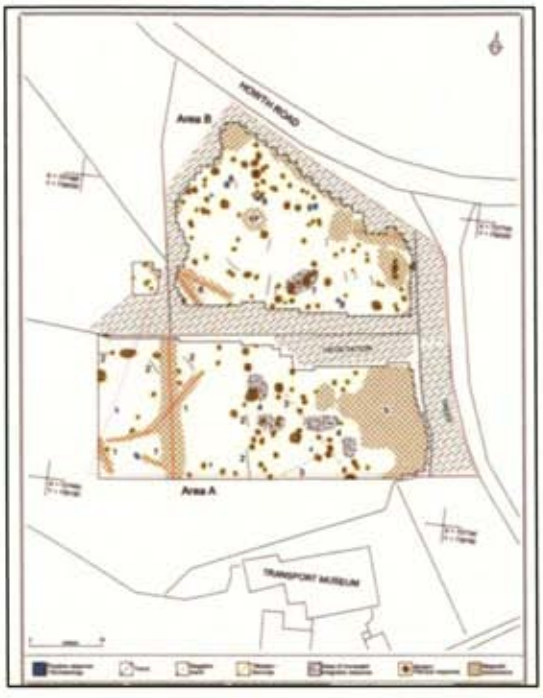

Figure 15.8 Results of Geophysical Surveys

15.6.6 Archaeological Testing

Archaeological testing was undertaken in March 2024 by the author (Licence 24E0310, Appendix 15.2). Ten test trenches were excavated across the site. A series of drainage channels were identified during the works. Modern disturbance was recorded at the north. No archaeological features were identified during the works.

15.6.7 Cartographic Evidence

Down Survey

The Down Survey of Ireland was undertaken in the years 1656-1658 (Figure 15.9). The survey sought to measure all the land to be forfeited by the Catholic Irish in order to facilitate its redistribution in what became known as the Cromwellian Plantation. The map shows the Howth castle and the town of Howth to the east.

Figure 15.9 Down Survey extract for the site

Roque Map

Rocque's 1757 map (Figure 15.10) provides more detail of the castle and its formal gardens. The area of the proposed development site is depicted as open farmland. A lime kiln is marked on the map but its exact location is not noted. It is likely to be associated with the quarry located to the north of the study area.

Figure 15.10 Rocque's map 1757, with approximate location of the study area

OS Maps

The first edition of the Ordnance Survey undertaken in 1838 (Figure 15.11) depicts Howth village as being similar to its present layout. The area to the north of Howth Castle is marked as Deer Park. The proposed development site is occupied by Howth Park Racecourse. The 25" map or second edition OS

map of the early 20th century shows the site as an enlarged field with no features or anomalies (Figure 14.06).

Figure 15.11 First edition OS map with the site marked

Aerial Photographs

Aerial photographs for the site did not reveal any anomalies or features indicative of archaeological remains.

15.6.8 Topographical Files

An examination of the topographical files housed in the National Museum of Ireland revealed a number of results for the townland of Howth Demesne. These include three bells from St. Marys Church, Slag from the site of the megalithic monument, a ring from Claremont strand and a sword from Howth Castle. None of these were from the proposed development.

15.7 The 'Do Nothing' Scenario

If the proposed development does not proceed there would be no predicted impact to the archaeological or cultural heritage resource.

15.8 Potential Significant Effects

15.8.1 Demolition Phase

The site is a green field site so no demolition works will occur within the site. Demolition works are limited to the three proposed access points in the boundary wall. There will be no significant impact from these works on the cultural heritage resource.

15.8.2 Construction Phase

The assessment has shown that there is a low potential for archaeological remains to survive within the proposed development area. Although no archaeological remains have been identified at the

study area there may be a negative direct impact on previously unrecorded archaeological features or deposits that may exist at the site. Depending on the nature of any features the impacts may range from moderate to significant.

15.8.3 Operational Phase

No potential impacts on archaeological cultural heritage expected as a result of the operational phase of the proposed development.

15.8.4 Cumulative Effects

The project has then been assessed in combination with other existing, consented or planned projects. The cumulative effect of the proposed development and the housing development (under construction) at Claremont, located to the north of the site, was examined. No cumulative impacts upon the archaeological resource were identified.

15.8.5 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 15.2 Summary of Construction Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Removal of previously unrecorded archaeology	Negative	Moderate-significant	Unknown	Unlikely	Permanent	Direct

No potential impacts on archaeological cultural heritage are expected as a result of the operational phase of the proposed development.

15.9 Mitigation

15.9.1 Incorporated Design Mitigation

Not applicable to the archaeological resource.

15.9.2 Demolition Phase Mitigation

No traditional demolition is required for this development. Three openings are proposed to the existing boundary wall of the site to facilitate access. Archaeological monitoring of these works should take place by a suitably qualified archaeologist.

15.9.3 Construction Phase Mitigation

All topsoil stripping carried out during the construction phase of the development is archaeologically monitored by a suitably qualified archaeologist under license to the NMS.

15.9.4 Operational Phase Mitigation

No operational phase mitigation measures are required.

15.10 Residual Impact Assessment

This section assesses potential significant environmental impacts that remain after mitigation measures are implemented.

15.10.1 Demolition Phase

No demolition works are proposed as part of the development with the exception of minor interventions in the existing boundary wall.

15.10.2 Construction Phase

If the above-described mitigation is implemented, any archaeological remains uncovered will be excavated, and as a result, there will be no significant residual impacts on the archaeological resource.

15.10.3 Operational Phase

There is no predicted residual impact on the archaeological landscape during the operational phase of the development.

15.10.4 Cumulative Residual Effects

There is no predicted cumulative impact on the archaeological landscape as a result of the development.

15.10.5 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 15.3 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Unlikely	Unknown	Unknown	Unknown	Low	Unknown	Unknown

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 15.4 Summary of Operational Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
NA	NA	NA	NA	NA	NA	NA

15.11 Risk of Major Accidents or Disasters

Not applicable to the archaeological resource.

15.12 Worst Case Scenario

Should the mitigation outlined above not be implemented unrecorded archaeological features may be destroyed without being recorded.

15.13 Interactions

The landscape and visual assessment, and associated photomontages, have been reviewed as part of this assessment in order to aid with the identification of potential impacts on the setting of recorded archaeology. This has not identified any adverse impact on the archaeological landscape.

15.14 Monitoring

The above-described mitigation will function as an ongoing monitoring measure during the construction phase. No operational phase monitoring is required.

15.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 15.5 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Quality	Significance
Low potential for removal of unrecorded archaeological remains	Archaeological monitoring of topsoil stripping during construction phase	The mitigation will function as a monitoring measure to assess ongoing effectiveness of mitigation

The following Table summarises the Operational Phase mitigation and monitoring measures.

Table 15.6 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Quality	Significance
None	NA	NA

15.16 Conclusion

This assessment was undertaken to study the impact, if any, on the archaeological heritage resource of a proposed development at Deer Park, Howth Demesne, Howth, Co. Dublin.

There are no archaeological or cultural heritage features within the site. The site is however within the demesne of Howth Castle which forms a cluster of monuments 185m to the south. Another cluster of archaeological monuments are centred on St. Marys Church 80m to the east of the site. These monuments will be unaffected by the proposed works at the study area.

Field walking followed by a geophysical survey and archaeological testing was undertaken at the site, no archaeological remains were identified during these works. There is still a low potential for small isolated archaeological features to exist at the site. If present, there may be a direct negative impact on previously unrecorded archaeological features or deposits at the site. Mitigation measures have been recommended to mitigate any impact on the archaeological resource.

15.17 References and Sources

Fingal Co. Co. Development Plan 2023-2029.

National Monuments Acts 1930-2004.

www.archaeology.ie
www.Buildingsofireland.ie
www.exacavations.ie
www.seanrua.ie www.osi.ie

Homepage of The Down Survey Project (tcd.ie)

Historic Maps of Dublin - Map Collections at UCD and on the Web - LibGuides at UCD Library

CHAPTER 16
CULTURAL HERITAGE: BUILT HERITAGE

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Figures

Table of Tables

16 Cultural Heritage: Built Heritage

16.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on the built heritage significance of the subject site at lands adjoining Howth Demesne, Deer Park, Howth, Co. Dublin, its setting and context including the Howth Castle Architectural Conservation Area (ACA), Protected Structures, NIAH structures and significant views in the receiving environment.

The subject site lies within the historic demesne of Howth Castle but is largely outside of the modern 'core estate area' defined in the Howth Castle ACA Statement of Character. Historic walls run along the northern and eastern boundaries of the site which formerly marked the demesne boundary. They are the only built feature within the application area which is in open fields to the road with a band of semi-mature trees separating this from a golf-course behind and to the south.

16.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Sinéad Flynn of FLYNN Architects. Sinéad holds a Masters in Urban and Building Conservation, a Professional Diploma in Architecture, a Bachelor of Architecture and a Bachelor of Science (Architectural Science). Sinead is a member of the Royal Institute of the Architects of Ireland (RIAI) and is an RIAI Accredited Grade 1 Conservation Architect.

Sinéad has over ten years proven experience working at the highest level of building conservation in Ireland.

Sinéad has carried out Architectural Heritage Impact Assessment Reports and been involved in the preparation of Cultural Heritage (Built) Chapters of EIARs on projects including: BusConnects, Dublin [Routes 1 Clongriffin, 2 Swords, 3 Finglas, 4 Ballymun, 5 Blanchardstown, 6 Lucan, and 16 Ringsend to City Centre] for the National Transport Authority (NTA); DART+ Coastal North for the NTA and Irish Rail; for the redevelopment of the derelict Bective House and demesne to a hotel for private clients; a Conservation Plan for Duckett's Grove, Co. Carlow for Carlow County Council; and for the development of 421 Residential Units at Dunshaughlin, Co. Meath for Castlethorn.

Relevant on-going projects in architecturally sensitive settings include residential and mixed use developments at Woodbrook, Shankill, Co. Dublin and the redevelopment and re-use of Knockdrin Castle, Mullingar, Co. Westmeath.

16.3 Proposed Development

A detailed description of the proposed development is provided in **Chapter 2** of this Environmental Impact Assessment Report (EIAR).

Planning permission is sought for a large-scale residential development on an overall site of approx. 1.5 hectares. The development comprises the delivery of 135 dwellings including 63 no. 1-bedroom

units and 72 no. 2-bedroom units across two offset blocks ranging in height from 3-5 storeys. 63 car parking spaces including 4 accessible spaces & 13 EV charging spaces and 6 motorcycle spaces proposed at surface level. A total of 410 bicycle spaces are proposed including the provision of secure bicycle stores. Demolition of 3 sections of the existing demesne northern boundary wall, which fronts Howth Road is proposed to facilitate vehicular and pedestrian access. Undergrounding and relocation of existing ESB overhead lines and diversion of existing distribution gas pipes around the site are also proposed.

16.3.1 Aspects Relevant to this Assessment

The proposed development is shown in detail on the Architect and Landscape Architect's drawings and documents. The development comprises of two cranked and stepped apartment blocks, sheltering a new garden. There is surface car and bicycle parking, The development will be accessed through three new openings in the existing boundary wall to the north of the site. Existing boundary planting which screens the site to the south and east will be retained and supplemented with new trees.

The design intention is for buildings of high-quality architectural design, coupled with precision detailing, using modern materials and a natural colour palette drawn out of the context. The proposed elevations will be finished in selected brick, which is an attractive, hard-wearing and robust solution appropriate to the maritime context. Railings will be painted metal with high-performing metal windows.

The proposed massing strategy balances the requirement to create a strong architectural presence at the gateway to the village of Howth, with the sensitivities of the surrounding landscape.

The buildings are set as far from the site boundaries as possible, allowing the retention of existing significant trees, supplemented with new planting, especially along the east boundary to add to the existing screening between the site and the entrance to Howth Castle, its gates and approach avenue.

The forms are cranked and stepped in plan and section to respond to the existing topography, breaking up the blocks, allowing a through view on approach to the site, creating visual interest and providing relief, especially along Howth Road.

Projecting balconies have been eliminated from the front of Blocks A and C which face onto Howth Road, and from the end elevations. The fifth storey is set back from the road, breaking up the mass and reducing the impact.

Green roofs are proposed for both blocks where they will be viewed from the above and to the south. Except for solar panels, plant will be housed inside the blocks and will not feature on views of the roof.

The proposal includes provision of three new openings in the north boundary wall to allow for safe pedestrian, bicycle and vehicularar access to the site.

The alterations to the wall require removal of sections of the existing masonry which will be recorded and carefully taken down for re-use in the repair of the remaining sections of the wall or in the landscaping proposals. The removal of existing fabric will be the minimum possible to accommodate the required access and the proposed openings shall be of high-quality material and design to announce and identify the development.

16.4 Methodology

The assessment was undertaken in accordance with the EPAs Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022).

The assessment examines the landscapes, buildings and structures on and in the vicinity of the proposed site, and assesses the significance of those structures with the anticipated effect of the proposed residential development on their character, special interest and setting.

16.4.1 Relevant Legislation & Guidance

The assessment has been undertaken with regard to the relevant legislation, standards and guidelines for Environmental Impact Assessments and the built heritage. They are listed in Section 16.17 and include:

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency (EPA), 2022);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DHPLG, 2018);
- EU Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the Environment, as amended by Directive 2014/92/EU of the European Parliament and of the Council (the "**EIA Directive**"). ;
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impacts Assessment Report (European Commission 2017); and
- Circular Letter: PL 05/2018 Transposition into Planning Law of Directive 2014/52/EU.

In light of the legislative protection afforded to the built and landscape heritage resource, this study considers the various categories of special interest and significance as defined by the statutory architectural heritage guidelines. The built heritage assessment is guided by the provisions of the relevant statutory instruments and relevant guidelines for the protection of the built heritage including:

- Fingal County Development Plan 2023-2029 (FCC, 2023);
- Howth Castle Architectural Conservation Area Statement of Character (FCC, 2006);
- Architectural Heritage Protection: Guidelines for Planning Authorities (DEHLG 2011);
- NIAH Handbook (DCHG, 2021);
- ICOMOS International Charters including:
    - Historic Gardens (Florence Charter) 1981;
    - ICOMOS Charter on Cultural Routes 2008;
    - ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites (also known as the 'Ename Charter') 2008;
    - ICOMOS Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas, 2005; and
    - International Cultural Tourism Charter – Managing Tourism at Places of Heritage Significance 1999 and the Document on historic urban public parks – 2017.
- The European Landscape Convention 2000 (as amended);
- Council of Europe 1985 (Granada) Convention for the protection of the Architectural Heritage of Europe (as amended);

- The Planning and Development Acts (as amended);
- The Architectural Heritage and Historic Properties Act, 1999 (as amended);
- The Planning and Development Regulations (as amended); and
- The National Monuments Acts (as amended).

16.4.2 Establishing the Baseline Environment

The evaluation of impacts upon the extant built heritage is based on research which enabled the significance and sensitivity of the built environment to be established. In order to facilitate the identification and assessment of the 'likely, significant' impacts of the proposed development, so that mitigation measures could be proposed as appropriate. Research was undertaken in two distinct phases:

16.4.2.1 Desk-Based Research

A desk-based paper study which included a review of all available relevant published and unpublished documentary architectural, historical and cartographic sources. The desk study involved detailed analysis of the historical background of the development area. This included analysis of information from the Record of Monuments and Places; the Fingal County Development Plan; the Record of Protected Structures; National Inventory of Architectural Heritage; cartographic, documentary records, journals and press cuttings including local historical sources and information from the National Library of Ireland and the Irish Architectural Archive. Of particular relevance were the following studies:

- Fingal County Council's Howth Castle Demesne Architectural Conservation Area Statement of Character,
- John Olley's Historic Landscape Character Assessment of Howth Demesne and the
- Architectural Heritage Impacts Assessments of the subject site prepared by Clare Hogan and Slattery Architects.

Aerial photographs of the study area, held by the Ordnance Survey of Ireland, Bing Maps, Apple Maps and Google Earth were also consulted.

16.4.2.2 Site Survey/Investigation

A field inspection and survey of the receiving environment was carried out in October 2023 in order to identify, record and assess the extent and condition of the known built and cultural heritage sites and to identify previously unrecorded features, landscapes or structures within the proposed development area. Views, including views identified in the Howth Castle ACA, and those identified in previous studies of the demesne and the subject site, from and towards the site were inspected and photographed on approach to and exit from Howth Village, and from within Howth Castle ACA

16.4.3 Assessment Methodology

The impact assessment was carried out by:

- Determining and rating the sensitivity of baseline features within the receiving environment;

- Attendance of design team and pre-planning meetings, and review of the proposed drawings and documents, in order to identify the locations of potential impacts both direct and indirect; and
- Determining the nature, magnitude, duration and extent of these impacts.

16.4.3.1 Methodology for the assessment of the Sensitivity of Features

The significance criteria used to evaluate an architectural heritage building, feature, streetscape or landscape takes into account the character and integrity of the asset, and any available data regarding it. This is ascertained by looking at the following: its existing status or legal protections applied to the feature; its condition or preservation; the presence of historical documentation, or its identified historical significance; its group value; its rarity; its visibility in the landscape; and its fragility or vulnerability. These criteria are indicators which contribute to a wider judgement based on the individual circumstances of the architectural heritage asset.

In assessing the significance of features, regard was also had to the criteria set out in the NIAH Handbook and the NIAH Garden Survey Project Methodology. The evaluation of the sensitivity of architectural heritage features was undertaken on a four-point scale of very-high, high, medium and low based on professional judgement and guided by the criteria presented in the table below.

Table 16.1 Criteria to Inform the Assessment of Sensitivity of Architectural Heritage Sites

Sensitivity	Criteria
Very-High Sensitivity	World Heritage Sites (including Nominated Sites) National Monuments in the State's ownership or guardianship or subject to preservation orders or temporary preservation orders Recorded Monuments, protected structures, architectural conservation areas, previously unrecorded architectural sites or designed landscapes assessed by the NIAH to be of international or national importance OR which while not assessed by the NIAH, based on their Architectural, Historical, Archaeological, Artistic, Cultural, Scientific, Social or Technical interest in the professional judgement of the architectural heritage specialist: are of sufficient architectural heritage importance to be to be considered in an international context, and are exceptional, and can be compared to and contrasted with the finest architectural heritage in other countries, OR make a significant contribution to the architectural heritage of Ireland and are considered to be of great architectural heritage significance in an Irish context Views and vistas prominently featuring very-high sensitivity built-heritage features, and including preserved views.
High Sensitivity	Recorded monuments, protected structures, architectural conservation areas, designed landscapes, or previously unrecorded features of architectural heritage interest, assessed by the NIAH to be of regional importance OR features which while not assessed by the NIAH based on their Architectural, Historical, Archaeological, Artistic, Cultural, Scientific, Social or Technical interest in the professional judgement of the architectural heritage specialist make a significant contribution to the architectural heritage to the region in which they are located Views prominently featuring high sensitivity built-heritage features
Medium Sensitivity	Recorded monuments, protected structures, architectural conservation areas, designed landscapes, or previously unrecorded features of architectural heritage interest, assessed by the NIAH to be of local importance OR features which while not assessed by the NIAH based on their Architectural, Historical, Archaeological, Artistic, Cultural, Scientific, Social or Technical interest in the professional judgement of the architectural heritage specialist make a significant contribution to the architectural heritage to the local area in which they are located Views prominently featuring medium sensitivity built-heritage features

Sensitivity	Criteria
Low Sensitivity	Architectural heritage sites assessed by the NIAH to be of 'record-only' importance Previously unrecorded architectural heritage sites or designed landscapes with limited Architectural, Historical, horticultural, Archaeological, Artistic, Cultural, Scientific, Social or Technical or scenic interest or where their heritage interest has been significantly compromised Views prominently featuring low sensitivity built-heritage features

16.4.3.2 Types of Impact

Potential impacts on the baseline architectural heritage environment can be classified in three categories:

- Direct physical impacts;
- Indirect physical impacts; and
- Visual impacts or impacts on setting or surroundings of the architectural heritage asset (i.e. the surroundings in which a heritage asset can be experienced (Historic England 2017).

Direct physical impacts are impacts, positive or negative, resulting from the design of the proposed development. Typically, they are related to construction work, and in this case, include landscaping and siteworks and the repair and alteration of the existing site boundary wall.

Indirect physical impacts describe processes, triggered by construction activity, that could lead to the degradation of architectural heritage assets, and include the potential for damage of sensitive fabric inside or on the proposed development boundary.

Visual impacts or impacts on the setting of architectural heritage sites are associated with changes to the character of the landscape that arise from the insertion of the proposed development into the existing context in such a way that it affects (positively or negatively) the heritage significance of the site. Such impacts may be encountered at all stages in the life cycle of a development, but they are only likely to be considered significant during the operational phase of the proposed development.

16.4.3.3 Quality of Impact

Impacts on the architectural heritage resource are assessed in terms of their quality (i.e. positive, negative, neutral):

- Negative Impact: A change that will detract from, reduces the quality of, diminishes the architectural or landscape character and amenities of, permanently alters or removes an architectural heritage feature from the landscape;
- Neutral Impact: A change that does not affect the architectural heritage, no effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error; and
- Positive Impact: A change which protects or enhances quality of the architectural heritage environment or improves the architectural heritage feature, its setting or the landscape character and amenities.

16.4.3.4 Magnitude of Impact

When assessing the impact magnitude, the following criteria are considered:

- Extent – size, scale and spatial distributions of the impact;
- Duration – period of time over which the impact will occur;
- Frequency – how often the impact will occur; and
- Context – how will the extent, duration and frequency contrast with the accepted baseline conditions.

Table 16.2 Magnitude of Impact on Architectural Heritage Sites

Negative	Description
High	Complete loss or damage to the characteristics or interests of an architectural heritage site or a designed landscape such that its sensitivity is completely obliterated. Such impacts are more than likely to be permanent
Medium	Loss or damage to the characteristics or interests of an architectural heritage site or a designed landscape such that its sensitivity is substantially altered. Such impacts are likely to be permanent.
Low	Minor loss or damage to the characteristics or interests of an architectural heritage site or a designed landscape such that its sensitivity is slightly altered. Such impacts may be permanent but may also be reversible and temporary or short term in duration.
Negligible	Very minor loss or damage to the characteristics or interests of an architectural heritage site or a designed landscape site such that its sensitivity is not noticeably altered. Such impacts may be permanent but are more than likely to be reversible and temporary or short term in duration
Positive	**Description**
High	Very Significant benefits or positive additions to the characteristics or interests of an architectural heritage site or a designed landscape (for example through improvements or restoration) such that its sensitivity is substantially altered. Such impacts are likely to be permanent
Medium	Significant benefits or positive additions to the characteristics or interests of an architectural heritage site or a designed landscape (for example through improvements or restoration) such that its sensitivity is substantially altered. Such impacts are likely to be permanent.
Low	Minor benefits or positive additions to the characteristics or interests of an architectural heritage site or a designed landscape (for example through improvements or restoration) such that its sensitivity is slightly altered. Such impacts may be permanent but may also be reversible and temporary or short term in duration.
Negligible	Very minor benefits or positive additions to the characteristics or interests of an architectural heritage site or a designed landscape (for example through improvements or restoration) such that its sensitivity is not noticeably altered. Such impacts may be permanent but are more than likely to be reversible and temporary or short term in duration.

16.4.3.5 Significance of Impact

The significance of impact without mitigation was determined as a combination of the sensitivity of an architectural heritage feature, and the magnitude of impact informed by the matrix illustrated in Figure 16.1.

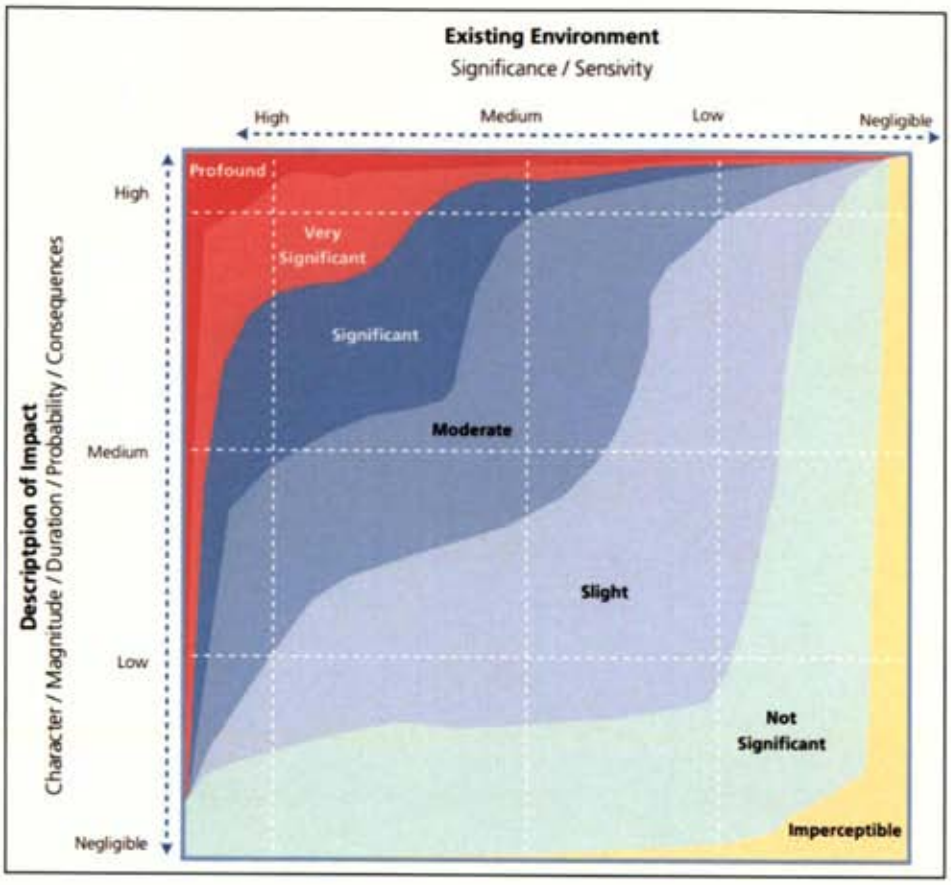

Figure 16.1 Matrix to inform the assessment of Impact Significance

The resulting seven-point scale of impacts: Profound, Very Significant, Significant, Moderate, Slight, Not Significant, and Imperceptible is defined as follows:

- A **profound** effect is defined as an effect which obliterates sensitive characteristics;
- A **very significant** effect is defined as an effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment;
- A **significant** effect is defined as an effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment;
- A **moderate** effect is defined as an effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends;
- A **slight** effect is defined as an effect which causes noticeable changes in the character of the environment without affecting its sensitivities;
- A **not-significant** effect is defined as an effect which causes noticeable changes in the character of the environment but without significant consequences; and
- An **imperceptible** effect is defined as an effect capable of measurement but without significant consequences

Where appropriate, mitigation in accordance with the principals of good conservation practice, outlined in the relevant guidelines for the protection of the built heritage, has been identified through design team consultations and meetings with Fingal County Council. The mitigation is described in Section 16.9 below. The residual magnitude of impact and residual significance of impact (i.e. the magnitude of impact and significance of impact with mitigation in place) were then assessed in accordance with the above methodology, and are presented below.

16.4.4 Consultation

A S247 Meeting took place between the applicants and Fingal County Council on 12 September 2023. It was attended by Helena Bergin, Senior Executive Conservation Officer and Laura Johnstone, Executive Conservation Officer. At the meeting the conservation department asserted the critical importance of the elevational treatment of the proposed buildings, especially the proposed end or west elevations which will feature prominently on views at the entrance to the village of Howth. Recessed balconies were requested, especially to the front of the blocks facing the road, and to the west elevation. The applicants were requested to look at the parapet heights, and ensure that the buildings would be broken into individual blocks. A strong tree belt was requested to help screen the development.

In response to the points raised by the Conservation Department, the architects revised the proposed scheme to eliminate projecting balconies to the front blocks and the proposed west elevation. The proposed top storey was set back and the material changed to break up the mass. The buildings were stepped to follow existing contours on the site and additional tree planting was proposed.

A Section 32C – LRD Meeting was held on 11 December 2023, attended by Helena Bergin, Senior Executive Conservation Officer and Laura Johnstone, Executive Conservation Officer and Christine Baker, Heritage Officer. The significance and sensitivity of the site were outlined by the conservation officers, with the development plan policies and objectives as they relate to built heritage and historic landscapes.

An Archaeological assessment was requested which is provided in Chapter 15. A comprehensive description of the significance and morphology of the historic landscape was requested with an expanded impact assessment. This is provided in Sections 16.6 and 16.8. Visualisations including additional viewpoints looking towards the development from Howth Road, and from the estate avenue were requested, including views showing thinned undergrowth along the avenue and winter views. These have been provided in a separate photomontage booklet, The heritage views are described in Section 16.6 and are assessed in Section 16.8.

The design changes subsequent to the S247 meeting were presented and the recessed balconies and revised elevational treatments were welcomed. The set-back of the fifth floor was considered an insufficient response to the specificity of the historic setting. The applicants were asked to reconsider the increase in the heights of the proposed blocks towards the back of the site, and especially in proximity to the entrance gates and approach avenue of Howth Castle. Section drawings and contiguous elevations were requested showing the development on the former Techcrete site, and the adjoining low-rise residential developments to the west. The applicants were again requested to look at the proposed parapet heights, and to ensure that the buildings will be broken into individual blocks along Howth Road.

The extent of the proposed planting within the development area was raised again, with further screening requested, especially along the east where the site bounds Howth Castle entrance gates and approach avenue. The applicants were requested to pull back Block D to preserve the tree line to the south of the proposed buildings.

In response to the comments from the Conservation Officers, the design has been further revised as follows:

Block D has been revised to reduce the impact on the existing treeline and on the Howth Castle Main Gates. The building has been pulled back away from the historic structure, and the height of the end-bay has been reduced to three storeys.

16.5 Difficulties Encountered

No significant difficulties were encountered during the course of the study which has been prepared on the best available information and in accordance with current best practice and guidelines published by the Environmental Protection Agency. The report is based on a desk-top review with no disturbance, opening up or excavations carried out on the site or to the fabric of the existing historic wall.

16.6 Baseline Environment

This section provides a summary description of the architectural heritage assets in the receiving environment.

The proposed site is located to the south of Howth Road, before the entrance to Howth Village on approach from the west on lands adjoining Howth Castle Demesne, Deer Park, Co. Dublin. The subject site historically was part of the demesne which is recognised as a designed landscape of National Importance. Features of Architectural Heritage Interest within the former demesne and in proximity to it, and that have the potential to be impacted by the proposed development include recorded monuments, protected structures, and the Howth Castle Architectural Conservation Area (ACA).

16.6.1 Historic Background

Howth Castle demesne describes the historic landscape associated with Howth Castle which was the family seat of the St. Lawrence family from the twelfth century. The early history of settlement of Howth and the establishment of Howth Castle Demesne is described in Chapter 15 Cultural Heritage: Archaeology.

Howth Castle was established in the thirteenth century to replace an earlier structure that provided security and defence to the harbour. At that time the castle was relocated to higher ground taking advantage of stunning sea and mountain views along the north Dublin coast, as well as an axis view across Dublin bay to Dublin Castle. The relocation provided an opportunity for the 'improving landlords' to extend the grounds into an expansive ornamental landscape, which included new tree plantations, farm and parkland. It was experienced through sequences of carefully curated avenues, walks and rides that connected to an array of natural and man-made features including existing ruins, defensive, ecclesiastic and archaeological sites, water features and new garden structures or follies. There were also formal, walled, wild and tropical gardens[1].

An architectural history of the demesne, outlining its development, setting it in its correct architectural context and identifying and appraising the built-heritage features, was prepared by Clare Hogan in

[1] Hogan, C. *Howth Road Development, Architectural Heritage Assessment Report*, October 2020, pp16-33

2020. This is provided in Appendix 16-1. Further descriptions and cartographic analysis, focused on the identification and context of the subject site is provided below.

16.6.1.1 Howth Castle

Howth castle itself presents as an *irregular, mid-eighteenth-century mansion flanked by square towers at each extremity... The building is a complex amalgam of phases of building and rebuilding*[2].

The front elevation is framed by a fifteenth-century gate tower to the north and a nineteenth century wing to the south, with medieval keep beyond. A hall was added to the keep towards the end of the fifteenth century along with enclosure walls and turrets. Later an additional floor was added above the hall and in the sixteenth century the keep was extended to the north to create the present entrance range. Between 1649 and 1671 the east wing was built.

In 1738 the castle was 're-built' by the William, Lord Baron of Howth, through the opening of the front courtyard and the erection of the north tower. Turrets and battlements were added to unify the composition. The farm complex behind the castle, now the National Transport Museum was added. In the early 1800s the round tower and turret at the corner of the stable yard were built. Edward Lutyens designed extensive alterations of the castle and the gardens from 1910. The works included the addition of a Tower to the rear of the Castle, the Chapel in the East Wing, a loggia and corridor in the Drawing Room Wing, and landscaping works, including a sunken Dutch garden[3].

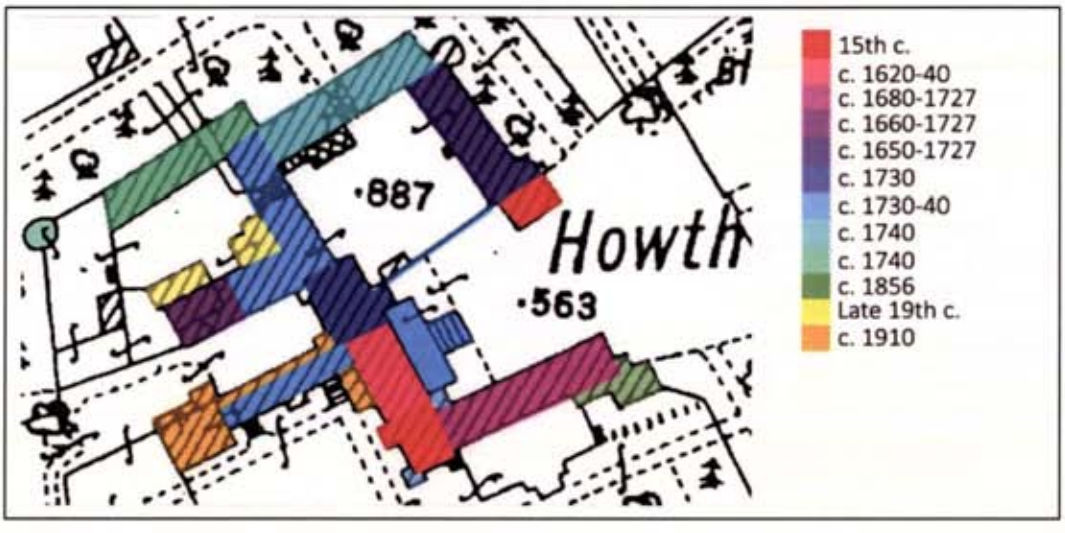

Figure 16.2 Plan showing the chronology of Howth Castle[4].

16.6.1.2 Howth Castle Demesne

An demesne landscape is defined as *'the land retained by the lord for his own use'*, and is distinguished from the land granted to tenants. Demesnes typically contained ornamental and productive gardens, parks, woods and farm building complexes associated with a 'big' house, and linked by drives and

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[2] Hogan, C. *Howth Road Development, Architectural Heritage Assessment Report*, October 2020, p8

[3] Slattery, J. *Cultural Heritage: Built Heritage, Environmental Impact Assessment Report, Proposed Strategic Housing Development, Kenelm, Deerpark, Howth, Co. Dublin*, 2021, p.15-22

[4] Slattery, J. *Cultural Heritage: Built Heritage, Environmental Impact Assessment Report, Proposed Strategic Housing Development, Kenelm, Deerpark, Howth, Co. Dublin*, 2021, p.15-22

walks which were curated, setting up sequences of 'intended events' to be experienced by the visitor[5]. The experience of Howth Castle demesne can be read on historic maps, drawings and paintings of the estate. It was augmented by spectacular views of a wild and rugged mountain landscape and dramatic coastline, and by the presence of ruined medieval churches and towers.

Figure 16.3 Extract from The Kingdome of Irland Devided into Severall Provinces, and thē againe devided into Counties. John Speed, engraved 1610

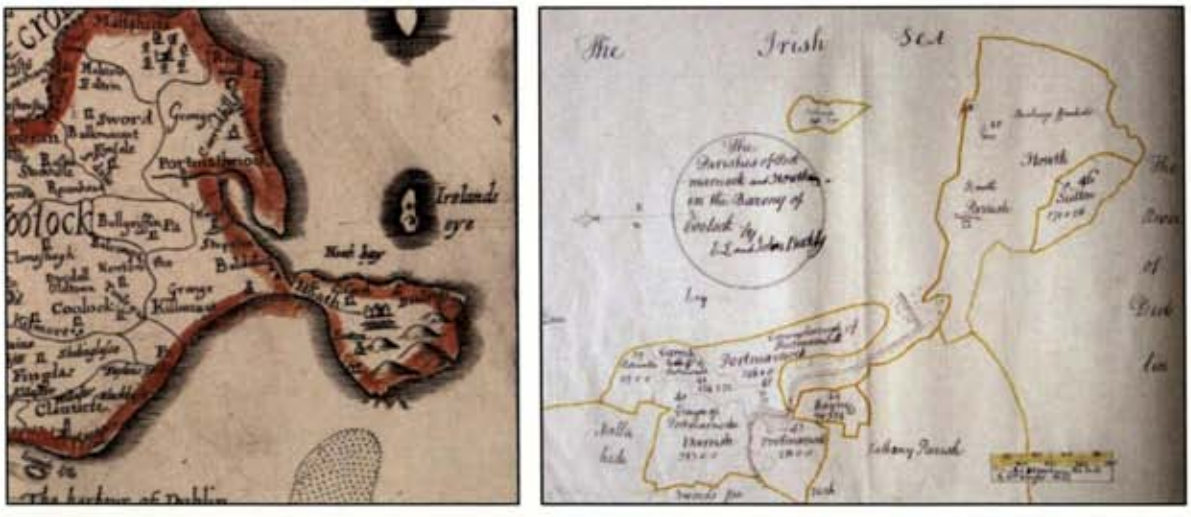


Figure 16.4 Extract from *The Down Survey of Ireland (top left – Map of County Dublin, top right – Map of the parishes of Howth and Portmarnock*, 1655-8

[5] Hogan, C. *Howth Road Development, Architectural Heritage Assessment Report*, October 2020, p16

Taken in the years 1656-1658, the Down Survey of Ireland is the first ever detailed land survey on a national scale anywhere in the world. The survey sought to measure all the land to be forfeited by the Catholic Irish in order to facilitate its redistribution to Merchant Adventurers and English soldiers. Both Howth Castle, a tower house with wings and Corr Castle are indicted[6].

Figure 16.5 Extract from *A Drawn Map of the bay and harbour of Dublin* by Thos Philips, 1685

Philip's map features Howth Castle (labelled Howth Seat and showing what looks like a tower house), with a walled enclosure around and fields enclosed in front. Corr Castle is also shown, within enclosing walls. A road runs to the north of Howth Castle (the map is rotated) between Corr Castle and 'Hoath Towne', which is shown with a castle on a motte, and bailey with peer stretching to the north.

The motte and bailey are thought to be the site of the first castle of the St. Lawrence family which commanded the harbour. The castle was moved to the lands of the present Howth Demesne some time on the fifteenth century. Its position on higher ground allowed it to continue to dominate the harbour, *without the topography of security and defence*. It still commanded views towards the harbour of Howth, the site of the earlier castle and out to sea along north county Dublin. The positioning also allowed a panoramic view from the immediate vicinity of the house, of Dublin Bay with an axis view identified which appears to focus on Dublin Castle[7].

[6] Hogan, C. *Howth Road Development, Architectural Heritage Assessment Report,* October 2020

[7] Olley, J. Howth Castle and Demesne, Historic Landscape Assessment , 2023, p.10.

Figure 16.6 View across Dublin Bay, 1746/7, William James (National Library of Ireland)

The visual connection between Howth Castle and the city of Dublin is confirmed by the representation of Howth Castle on the skyline in the centre of the image.

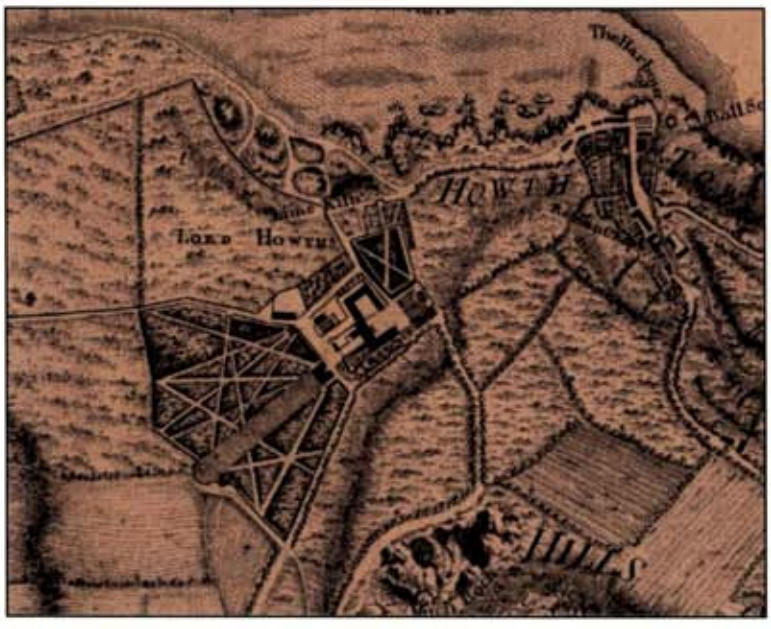


Figure 16.7 Extract from A Survey of the *City Harbour Bay and Environs of Dublin on the same scale as those of London Paris & Rome* by John Rocque, 1773

'The early historic maps show how the grounds of Howth Castle were laid out with formal gardens, ponds, tree-lined entrance avenue, and views framed by dense copses of trees which were intersected by pathways. The aerial photograph shows that many of these designed features have survived from at least the 18th century to the present day, although not in their full glory. The walled garden remains, which once housed a Beech Hedge Garden set out in the 17th century. The moat in front of Black Jack's Well is an artificial pool formed in the early 18th century, while the approach to the castle was planted with Irish yews in the late 19th century. Further south are the Rhododendron Gardens, and close to these a portal tomb.[8]'

[8] Fingal County Council, *Howth Castle Architectural Conservation Area Statement of Character*

In 1728 ' The Geographical Description of the Kingdom of Ireland' survey found that of the 600 acre demesne in Howth – 300 were arable, 200 pasture, 20 meadow and 80 rock. *'one fair mansion, two castles – the keep and gateway tower- one stable, one barn, one dove house and several other office-houses of stone slated, together with the walls of a decayed chapel'*

Figure 16.8 A Bird's Eye View of Howth Castle c 1740[9].

The complex and formal circulation through the estate landscape, with views framed by woodland and formal gardens is illustrated on John Rocque's Map of 1757. On the map the subject site, which is to the northwest of the castle building complex, is shown in open pasture with Corr Castle standing to the west. A significant view of the castle is suggested by a long straight avenue running from the entrance to the woodland at the formal lawn (3), in the direction of Corr Castle. There is only one view suggested in the direction of the subject site (4), which is from far end of the lawn which would be across or over the site towards the sea and on to Ireland's Eye. To the east of the castle the walled garden is also formally planted with geometric paths. These walks would have been enclosed by high stone and brick walls still extant, it may be assumed that views across the proposed site were not intended.

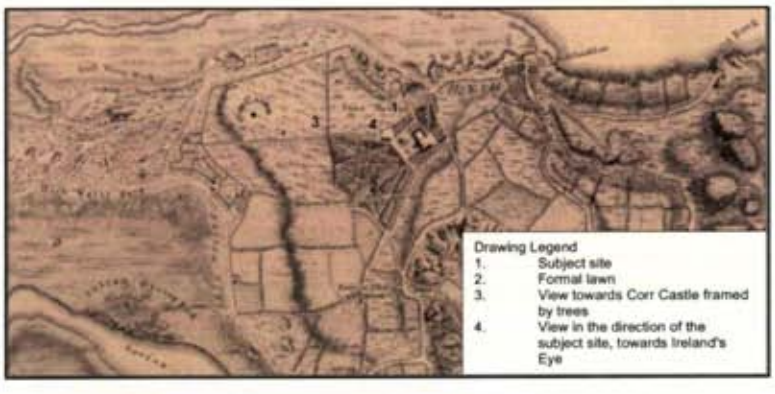


Figure 16.9 Extract from John Rocque's A Survey of the City, Harbour and Bay of Dublin, 1757[10].

[9] The painting is attributed to William Van Der Hagen or Joseph Tudor and hung above the fireplace in the drawing room at Howth Castle until the castle was sold in 2019.

[10] Held by the Bibliotheque Nationale de France, accessed at https://gallica.bnf.fr/ark:/12148/btv1b53057253b/f1.item.zoom

The first edition Ordnance Survey map, published in 1843, provides a record of the demesne in the mid-nineteenth century. By this time Morrison's entrance gate with lodge was completed on Howth Road with the drive established as the principal access to the castle.

Figure 16.10 Detail from the first edition Ordnance Survey map of Howth, published in 1843, showing the Deer Park

Comparison of the first OS maps with earlier maps and drawings of the demesne provides insight into the way in which the natural and built features of the landscape have been manipulated over time. Significant alterations include the making of new roads, and the blocking of others, including the blocking of the high road to Howth Village, from the grounds of St. Mary's Church, and the blocking of original approach to the castle from Sutton. The road passed Corr Castle also appears to have been re-routed. It is shown passing the castle to the south on Philips map, but this is changed to a route to the north of the castle on Rocque's map.

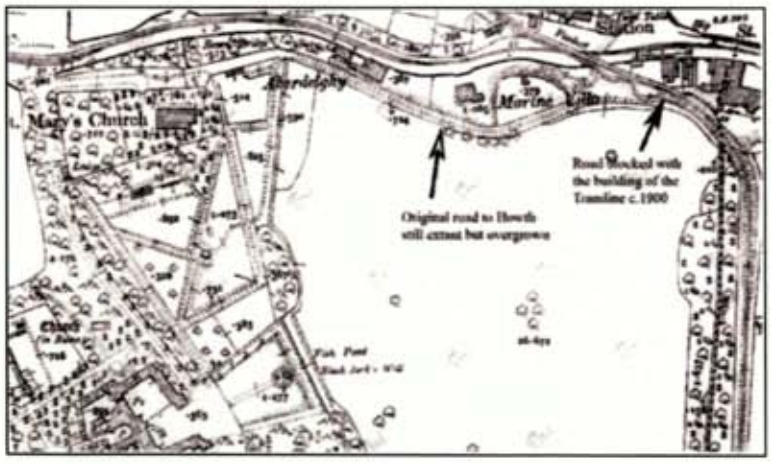


Figure 16.11 Detail from the 25inch Ordnance Survey map of Howth, published in 1907,

The map shows the original road to Howth Village, running alongside the coastal road. The high road was blocked c.1900 following the construction of the Tramway.

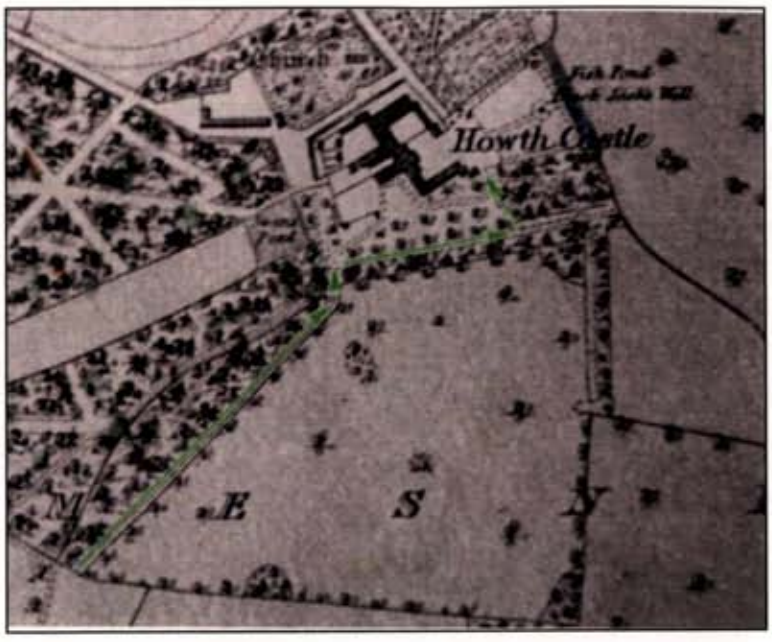


Figure 16.12 First edition Ordnance Survey map of Howth Castle on which the approach from Sutton has been marked in green by Prof. J. Olley 2023.

Around this time, the approach drive from Howth Road was established as the principal access to the demesne. It was secured by gates and a lodge designed by Richard Morrison. Later a south entrance was added utilising the former entrance to Killester House.

Figure 16.13 McFarland's view of the gates and lodge to the Howth Castle Demesne, 1853 (National Library of Ireland)

Demesnes came to symbolise the overt economic and social power of the landowning class. They dominated developments in the Irish landscape for centuries until, following the collapse of the estate system, they lost their social and economic role and in due course the dwindling fortunes of the St Lawrence family led to the necessity to sell off lands piecemeal at the perimeter of the estate. A combination of the first world war and the Easter Rising accelerated the decline of many estates and land was divided or sold off piecemeal, frequently around the boundary of the demesne.

Figure 16.14 Detail from the last edition Ordnance Survey map of Howth, published in 1936, showing developments within the Deer Park

Subsequent maps document the fragmentation of the estate which began with piecemeal residential developments and was compounded by the construction of Deer Park Hotel and the associated Golf Course. The golf course had a profound impact on the historic landscape carving it into a sequence of fairways separated by planting, that fail to respond to the demesne's features or views. Thus historic visual connections have been lost, historic woodland broken up and, dislocated from the castle, and the ruined churches, towers, walls and follies which defined the experience of the estate landscape have been lost in planting, and/or consumed by modern developments.

Despite the attrition, the castle, with its demesne and its relationship to the wider landscape remains a *remarkable survival of great heritage importance for Ireland*[11]. The spectacular natural landscape and views remain. The rhododendron gardens under the shelter of Muck Rock and the rugged scenery and marine location are still the setting of a unique and significant castle.

16.6.1.3 The Subject Site

The site itself is on part of the castle grounds that were once a deer park. A deer park is an enclosure associated with a castle, that had tall, strong boundaries intended to contain a herd. There are accounts of a deer park at Howth Castle from the seventeenth century[12].

The earliest identified view of the subject site is in the overmantel painting from c.1740. The painting suggests historic architectural relationships between the built features of the demesne which were present in the early eighteenth century. These relationships remain relevant to the landscape surrounding Howth Castle today.

The site is in the background of the painting, to the extreme right of the frame. High enclosing walls are shown around a paddock filled with hay stacks. There are regularly spaced trees along the boundary to the coast, suggesting that they were part of a recent plantation. A high wall divides the

[11] Olley, J. *Howth Castle and Demesne, Historic Landscape Assessment*, June 2023, p3

[12] Hogan, C. *Howth Road Development, Architectural Heritage Assessment Report*, October 2020, p27

deer park in two parts. Corr Castle stands alone towards the back of the rear enclosure while the subject site forms part of the near enclosure. Mixed trees are shown lining the entrance avenue. The entrance to Howth Road, where the gates and lodge were unbuilt and obscured by mixed and dense planting. The site of St. Mary's Church are just out of the frame while an ancient church, now in ruins, is painted (or imagined?) in good condition, complete with roof and bell tower, in a walled enclosure surrounded by trees.

Figure 16.15 Detail from *A Bird's Eye View of Howth Castle*, c 1738.

The first Ordnance Survey map of Howth confirms that the Howth Castle deer park was also in use as a racecourse during the nineteenth century. The track followed the deer park boundary and spectators were housed in a stand at Corr Castle. Trees were planted along the eastern boundary of the racecourse to screen it from view of the entrance gates and the approach avenue to Howth Castle which are directly to the east of the site.

Figure 16.16 Detail from the first edition Ordnance Survey map of Howth, published in 1843, showing the Deer Park

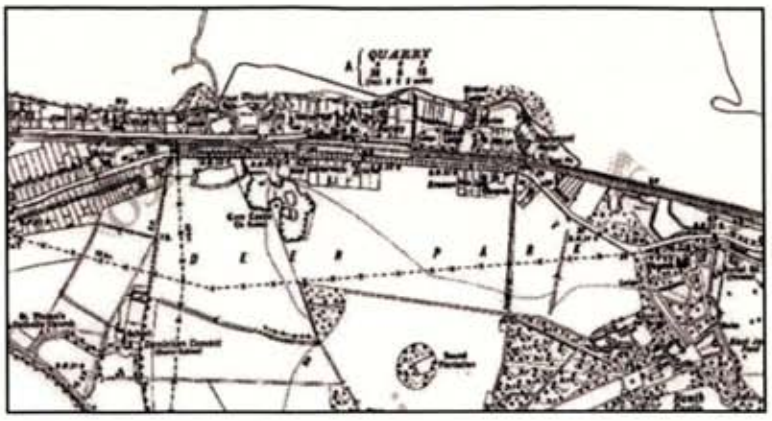


Figure 16.17 Detail from the last edition Ordnance Survey map of Howth, published in 1936, showing developments within the Deer Park

The deer park was encroached upon through the late-nineteenth and twentieth centuries by linear residential developments along Howth Road, by the establishment of the Deer Park Golf Course in 1974, and by the construction of apartments around Corr Castle. Much of the historic boundary wall of the deer park has been removed or altered to facilitate entry to these developments. No trace of the racecourse remains.

16.6.2 Features of Cultural Interest (Architectural)

16.6.2.1 Features of Architectural and Archaeological Interest

Although archaeological heritage is dealt with in Chapter 15, four sites are identified in the receiving environment, which are included the Record of Monuments and Places (RMP) and are also of architectural interest. These are Howth Castle (DU015-027001-3), Church in Ruins Howth Castle (DU015-026), St. Mary's Burial Ground (DU015-042) and Corr Castle (DU015-025). All four of the sites have upstanding remains or built heritage features and are also included in Fingal County Council's Record of Protected Structures. An architectural description of the sites is provided below with a description of the relationship between the features and the subject site as experienced at the time of the site inspection.

Architectural heritage sites which are of archaeological significance are protected under the National Monuments Acts of 1930 to 2014. Archaeological sites which are also protected structures are further subject to statutory protection under the Planning and Development Acts, as amended.

Fingal County Council's (FCC) policies relating to Recorded and National Monuments can be found in Volume 1, Chapter 10 of the Fingal County Development Plan states that it is the Policy of FCC:

Policy HCAP3 states:

> *Safeguard archaeological sites, monuments, objects and their settings listed in the Record of Monuments and Places (RMP), Sites and Monuments Record (SMR), underwater cultural heritage including protected wrecks and any additional newly discovered archaeological remains.*

Policy HCAO7 states:

Ensure archaeological remains are identified and fully considered at the very earliest stages of the development process, that schemes are designed to avoid impacting on the archaeological heritage.

Policy HCAO9 states:

Ensure that in general development will not be permitted which would result in the removal of archaeological monuments with above ground features, protected wrecks and that this will be especially the case in relation to archaeological monuments which form significant features in the landscape.

Policy HCAO10 states:

Ensure that development within the vicinity of a Recorded Monument or Zone of Archaeological Notification does not seriously detract from the setting of the feature and is sited and designed appropriately.

16.6.2.1.1 Howth Castle

Legal Status	A Recorded Monument; a Protected Structure; included in the NIAH
Identifiers	DU015-027001; DU015-027002; DU015-027003 FCC RPS 0556 NIAH 11358050-62
Date of Construction	c.1525
Original Use	Castle / fortified House
Description	Three-bay three-storey rubble stone medieval tower house, c.1400 (DU015-027001), attached to a six-bay two-storey wing added c.1825. Four-bay three-storey medieval tower house with dormer attic, c.1525 (DU015-027002) with attached six-bay two-storey over basement late-medieval house, c.1650. Renovated 1738, with openings remodelled and terrace added. Renovated, 1910, with interior remodelled. Eighteen-bay single-storey rubble stone stable range on an L-shaped plan, c.1840 with armorial plaque over the north entrance (DU015-027003), single storey wing behind with walled garden and dovecot c.1750
Significance Rating	National
Categories of Special Interest	Archaeological, Architectural, Artistic
Sensitivity	Very-High

Comments	The subject site is screened from view from Howth Castle by existing historic planting and by planting later established as part of the golf course. There are prominent views of the castle from Muck Rock in which the subject site features in the back ground to the left of the castle, visually separated from the castle by the aforementioned planting.

16.6.2.1.2 Chapel in Ruins – Howth Castle

Legal Status	A Recorded Monument; a Protected Structure
Identifiers	DU015-026; FCC RPS 0557
Date of Construction	Medieval
Original Use	Church (in ruins)
Description	Ruins of a medieval chapel in grounds of Howth Castle, rectangular in plan and built of randomly coursed sandstone masonry with dressed quoins.
Significance Rating	Regional
Categories of Special Interest	Archaeological, Architectural, Artistic, Social
Sensitivity	High
Comments	The chapel is overgrown and almost hidden in woodlands. There are high walls between it and the subject site which sever any visual connection. Any historical connection has been lost following the construction of the golf-course.

16.6.2.1.3 Corr Castle

Legal Status	A Recorded Monument; a Protected Structure

Identifiers	DU015-025; FCC RPS 0551
Date of Construction	C16th
Original Use	Tower House (in ruins)
Description	Remains of 16th century coursed masonry castle with dressed quoins, of the St. Lawrence or White families now set in open space at centre of apartment development Three storey, oblong plan with a north-east turret and part bawn wall surviving.
Significance Rating	Regional
Categories of Special Interest	Archaeological, Architectural
Sensitivity	High
Comments	Corr Castle is in the deer park as defined by the nineteenth century maps. It was marked as a stand for the racecourse on the first Ordnance Survey map which suggests a visual connection that was lost with the construction of housing around the castle c.2000. There is no longer any relationship between the tower house and the subject site save that they are both within what was once the deer park enclosure.

16.6.2.2 Protected Structures

In addition to the sites of archaeological interest above, there are six protected structures in the receiving environment. These are the main entrance gates to Howth Castle (FCC RPS 0556 - the gate has not been individually designated in Fingal's RPS but is specifically referenced in the listing for the castle and is described here as it is not of archaeological interest, but is of architectural interest and is in close proximity to the east boundary of the subject site); Howth Presbyterian Church (FCC RPS 0555) and the associated Manse (FCC RPS 0554); Howth Railway Station (FCC RPS 0559) and the Station Master's House (FCC RPS 0558) and a milestone on Howth Road (FCC RPS 0553).

An architectural description of the sites is provided below with a description of the relationship between the features and the subject site as experienced at the time of the site inspection.

The importance of the built heritage is enshrined in Part II, Section 10 of the Planning and Development Act as amended, which places a statutory obligation on local authorities to include in their development plan objectives for the protection of structures, or parts of structures, which are of special interest. The principal mechanism for the protection of these structures is through their inclusion on the Record of Protected Structures (RPS).

Fingal County Council's (FCC) policies relating to Protected Structures can be found in Volume 1, Chapter 10 of the Fingal County Development Plan 2023 to 2029.

Policy HCAP12 states:

> *Require proposals for any development, modification, alteration, extension or energy retrofitting affecting a Protected Structure and/or its setting or a building that contributes to the character of an ACA are sensitively sited and designed, are compatible with the special character, and are appropriate in terms of the proposed scale, mass, height, density, architectural treatment, layout, materials, impact on architectural or historic features.*

Policy HCAO25 states:

Require an Architectural Heritage Impact Statement as part of the planning documentation for development that has the potential to affect the relationship between the Protected Structure and any complex of adjoining associated buildings, designed landscape features, or designed views or vistas from or to the structure. This particularly relates to large landholdings such as country estates, institutional complexes, and industrial sites where groups of structures have a functional connection or historical relationship with the principal building.

An architectural heritage impact assessment for the proposed development, prepared by FLYNN Architects accompanies the planning application under separate cover and should be read in conjunction with this EIAR.

16.6.2.2.1 St. Mary's Church and graveyard

Legal Status	A Protected Structure; included in the NIAH
Identifiers	FCC RPS 0594; NIAH 11358026
Date of Construction	1866
Original Use	Church and Burial Ground
Description	Burial Ground and detached Gothic style gable-fronted Church of Ireland church, built 1866 on the site of an earlier church. Five-bay side elevations to nave, with projecting side aisles. Four-stage tower with spire to north-west corner, and single-bay chancel to east. Human remains found during construction of the church, close to the site of a battle at Evora Bridge (DU015-042---).
Significance Rating	Regional
Categories of Special Interest	Architectural, Artistic, Social, Technical
Sensitivity	High
Comments	St. Mary's is an imposing Gothic-Style gable fronted church which sits on a sharp rise, above the road at entrance to the village of Howth. Its prominence is heightened by the 80m bell tower on the entrance elevation. The subject site is to the west of the church. It forms part of the views towards the church from the west, which is identified in the Statement of Character for the Howth Castle ACA. It is also prominent in the views leaving the churchyard.

16.6.2.2.2 Main Entrance Gates and Gate House (in ruins)

Legal Status	A structure specified in the Howth Castle ACA SoC and protected within the curtilage of Howth Castle (FCC RPS 0556); included in the NIAH
Identifiers	FCC RPS 0556; NIAH 11358027
Date of Construction	1835
Original Use	Demesne Gate
Description	Entrance gateway, c.1835, designed by Richard Morrison comprising four Hindu Gothic style limestone ashlar piers with friezes and moulded cappings, flanked by pedestrian gateways. Cast-iron gates and railings. The associated single-storey gate lodge which was designed by Joseph Maguire in in 1872 is now in ruins
Significance Rating	High
Categories of Special Interest	Architectural, Artistic
Sensitivity	Medium
Comments	A tree lined avenue leads from the gates to the castle. The subject site is in close proximity to the entrance gates but is screened from view by existing mature woodland planting lining the avenue.

Howth Presbyterian Church

Legal Status	A Protected Structure; included in the NIAH
Identifiers	FCC RPS 0555; NIAH 11358025
Date of Construction	1898
Original Use	Church

Description	Detached Gothic style Presbyterian church, built 1898, with castellated three-stage tower to north. Transepts to southern end and Tudor style entrance porch to east elevation (NIAH 2000)
Significance Rating	Regional
Categories of Special Interest	Architectural, Artistic, Social, Technical
Sensitivity	High
Comments	Impressive Tudor Gothic style structure, the earliest buildings which encroached into the deerpark. The buildings do not have any specific relationship, historic or current, to the subject site. They face onto Howth Road.

16.6.2.2.3 The Manse

Legal Status	A Protected Structure; included in the NIAH
Identifiers	FCC RPS 0554; NIAH 11358024
Date of Construction	1910
Original Use	Manse (minister's house)
Description	Detached three-bay two storey Tudor Gothic style manse, c.1910. Single-storey projecting porch, flanked by chimney breast to left-hand-side, and bay window with pair of gabled dormers above to right-hand side. Two-bay two-storey return to rear (NIAH 2000)
Significance Rating	Regional
Categories of Special Interest	Architectural, Artistic
Sensitivity	High
Comments	Impressive Tudor Gothic style structure, part of the earliest phase of buildings which encroached into the deerpark. The house does not have any specific relationship, historic or current, to the subject site, facing onto Howth Road.

16.6.2.2.4 Howth Station Master's House

Legal Status	A Protected Structure; included in the NIAH
Identifiers	FCC RPS 0558; NIAH 11359001
Date of Construction	1910
Original Use	Station Master's House
Description	Detached three-bay two-storey red brick railway station master's house, c.1870 (NIAH 2000)
Significance Rating	High
Categories of Special Interest	Architectural
Sensitivity	Medium
Comments	the Stationmaster's House is in proximity to the subject site but its historic association is to the railway line. No architectural association is identified between this structure and the subject site. There is no visual connection as the site is screened from view by topography and planting

16.6.2.2.5 Howth Railway Station

Legal Status	A Protected Structure; included in the NIAH
Identifiers	FCC RPS 0559; NIAH 11359004
Date of Construction	1855
Original Use	Railway Station
Description	Detached three-bay two-storey red brick railway station master's house, c.1870 (NIAH 2000)
Significance Rating	High
Categories of Special Interest	Architectural

Sensitivity	Medium
Comments	As above, the Railway Station is in proximity to the subject site but its historic association is to the village of Howth and the railway line. No architectural association is identified between this structure and the subject site. There is no visual connection as the site is screened from view of the station by topography and planting

16.6.2.2.6 Milestone on Howth Road

Legal Status	A Protected Structure
Identifiers	FCC RPS 0553
Date of Construction	c.1850
Original Use	Milestone
Description	Freestanding cut granite pillar milestone, erected c. 1850, having rectangular plan, pedimented top, inset cast-iron plaque to front face with raised inscription
Significance Rating	Regional
Categories of Special Interest	Artistic, Social, Technical
Sensitivity	High
Comments	The milestone is in proximity to the subject site but its historic association is to the road. No architectural association is identified between this structure and the subject site. There is no visual connection as the site is screened from view by topography and planting

16.6.2.3 Architectural Conservation Areas

The designed landscape associated with Howth Castle is identified as an ACA in Fingal County Council's Development Plan. It is defined in the Howth Castle ACA Statement of Character (SoC). The ACA boundary includes a core area of the demesne surrounding the castle buildings. Except for a small part of the land (102sq.m) outside of the existing site boundary wall, the ACA does not include the subject site, which is directly to the east of it, beside the main castle gate.

An ACA is a place, area, group of structures or townscape that is of special architectural, historical, archaeological, technical, social, cultural, or scientific, interest, or that contributes to the appreciation of a protected structure or group of protected structures.

Fingal County Council's (FCC) policies relating to ACAs can be found in Volume 1, Chapter 10 of the Fingal County Development Plan 2023 to 2029.

Policy HCAP8 states:

> *Ensure the conservation, management, protection and enhancement of the architectural heritage of Fingal through the designation of Protected Structures and Architectural Conservation Areas, the safeguarding of designed landscapes and historic gardens, and the recognition of structures and elements with no specific statutory designation that contribute positively to the vernacular, industrial, maritime or 20th century heritage of the County*

Policy HCAP14 states:

> *Protect the special interest and character of all areas which have been designated as an Architectural Conservation Area (ACA). Development within or affecting an ACA must contribute positively to its character and distinctiveness and take opportunities to protect and enhance the character and appearance of the area and its setting wherever possible. Development shall not harm buildings, spaces, original street patterns, archaeological sites, historic boundaries or features, which contribute positively to the ACA.*

Policy HCAP15 states:

> *Support and encourage the sympathetic and appropriate adaptive reuse, refurbishment, and upgrading of protected structures and buildings or structures that contribute to the character of an Architectural Conservation Area ensuring that their special interest, character and setting is retained. Prohibit development that seeks the demolition of a Protected Structure or buildings that contribute to the character of an ACA in almost all circumstances.*

Policy HCAP18 – Designed Landscape Features, Settings and Views

> *Protect the setting, significant views, and built features of historic designed landscapes and promote the conservation of their essential character, both built and natural.*

Policy HCAP19 – Development and Historic Demesnes

> *Resist proposals or developments that would lead to the loss, or cause harm to the character, principal components or setting of historic designed landscapes and demesnes of significance in the County.*

Objective HCAO31 – Protection of Designed Landscapes

> *Identify the historic designed landscapes of significance in the County and determine the appropriate mechanism to ensure their future protection. Several of the most significant are already designated, as Architectural Conservation Areas.*

Objective HCAO32 – Designed Landscape Appraisal

> *Require that proposals for development within historic designed landscapes include a Designed Landscape Appraisal (including an ecological assessment) as part of the planning documentation to fully consider the potential impacts of the proposal. The appraisal should be carried out prior to the initial design of any development, in order that this evaluation to*

inform the design which must be sensitive to and respect the built heritage elements and green space values of the site.

Objective DMSO189 – Designed Landscape Appraisal

A Designed Landscape Appraisal should accompany any development proposal for an historic demesne and/or designed landscape, to include:

Identification and description of the original development, history, structures, features and boundaries of the designed landscape.

Ecological assessment, including identification of any protected habitats or species.

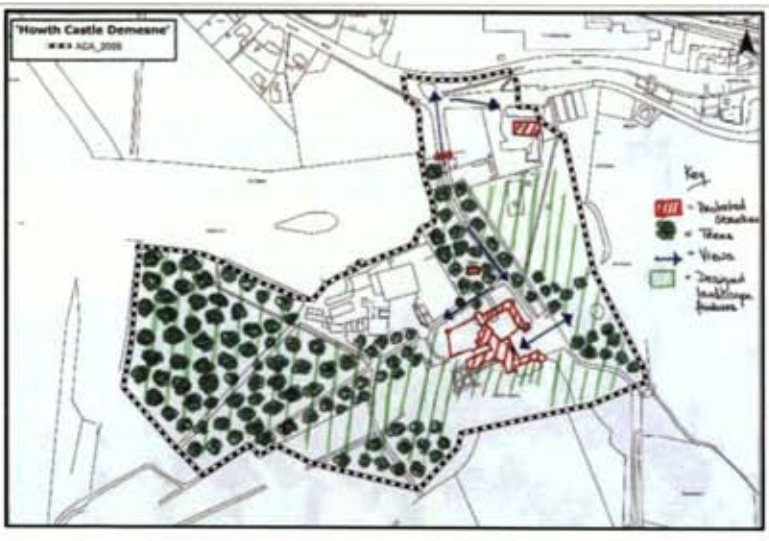
Evaluation of the significance of the historical landscape, including the identification of significant built and landscape features within the site that must be retained.

Determination of the carrying capacity of the lands which should not be exceeded, to be agreed with the Council.

Assessment of the development proposal and its impact on the designed landscape."
Recommendations for mitigation and management of the built and natural heritage.

A designed landscape appraisal, prepared by FLYNN Architects accompanies the planning application under separate cover and should be read in conjunction with this EIAR.

16.6.2.3.1 Howth Castle Architectural Conservation Area



Legal Status	Architectural Conservation Area Setting Recorded Monuments: DU015-027001-3, DU015-042; DU015-026; Curtilage Protected structures: FCC RPS 0556; RPS 0554; RPS 0557;
Date of Construction	Medieval
Original Use	Demesne
Description	The ACA protects what remains of the designed landscape associated with Howth Castle. Several of the castle buildings have been assessed of National

	Importance for reasons of archaeological, architectural, artistic and historical reasons. The core demesne landscape is of National Importance. *The boundary of the Howth Castle ACA extends from the Howth Road to just south of Howth Castle and includes St. Mary's Church, the formal gardens and old orchard to the castle, the ruins of an ancient church, the Howth Transport Museum complex, a large copse of trees to the west of the castle, as well as Howth Castle itself and adjoining outbuildings*[13]. The ACA Statement of Character identifies surviving views within the core landscape setting. Additional views and visual connections have been identified through the study of historic drawings and maps between built features inside and outside the demesne stretching as far away as Dublin Castle. The development of Deer Park golf-course reimagined the estate, and subsequently a reduced core landscape was identified by the Howth Castle Architectural Conservation Area (ACA) boundary in 2006.
Significance Rating	National
Categories of Special Interest	Archaeological, Architectural, Artistic, Social
Sensitivity	Very-High
Comments	The connection between the subject site and Howth Castle is established through historic maps and visual representations, due to its former uses as deer park and racecourse. The high boundary walls to the north and east are legacy features of the deer park, the wall of which ran along Howth Road for its full length, and also defined the demesne boundary, signalling the presence and grandeur of the estate to the public. In modern times the relationship between the castle and the subject site has been eroded by the construction of the golf course between the castle and the site, which included new planting belts that completely block the boundary wall from view of the castle buildings. The deer park has been encroached by linear developments along Howth Road, starting with the Presbyterian Church and the Manse in 1895, and continuing throughout the twentieth century. The piecemeal nature of these developments has impacted on the deer park boundary wall which has been removed in sections, replaced or altered. What remains of the wall is outside of the curtilage of Howth Castle as defined by the ACA boundary but is within its attendant grounds.

16.6.2.4 NIAH Structures

In considering additions to the RPS local authorities have recourse to the NIAH which provides a source of guidance on the significance of buildings in their respective areas. Inclusion within the NIAH in of itself does not confer statutory protection.

Fingal County Council's (FCC) policies relating to the NIAH can be found in Volume 1, Chapter 10 of the Fingal County Development Plan 2023 to 2029.

Policy HCAO23 states:

[13] Fingal County Council, *Howth Castle Demesne Architectural Conservation Area Statement of Character*, Fingal County Council, 2006

Expand the RPS to include structures of industrial, maritime, vernacular and twentieth century heritage where they are of sufficient significance and complete the assessment of the few remaining Ministerial Recommendations from the National Inventory of Architectural Heritage (NIAH) Survey of Fingal.

In addition to the sites of archaeological interest and the protected structures described above, there are two NIAH structures in the receiving environment. These are a crossing guard's house on Howth Road (NIAH 11358022) and the Howth Lodge Hotel (NIAH 11358021). Both structures are rated of Regional Importance by the NIAH. Neither has an historic connection to the proposed site and there is no visual connection as the structures are screened from view by the topography, and existing planting.

16.6.2.4.1 Worker's House, Howth Road

Legal Status	Included in the NIAH
Identifiers	NIAH 11358022
Date of Construction	c.1860
Original Use	House
Description	Detached three-bay single-storey level crossing guard's house, c.1860
Significance Rating	Regional
Categories of Special Interest	Architectural
Sensitivity	High
Comments	The house is in proximity to the subject site but there is no historic association or visual connection

16.6.2.4.2 Howth Lodge Hotel

Legal Status	Included in the NIAH
Identifiers	NIAH 11358021
Date of Construction	c.1850
Original Use	Hotel
Description	Detached multiple-bay two-storey hotel, c.1850, with three-stage tower having dormer attic. Extended several times to north (NIAH 2000)
Significance Rating	Regional
Categories of Special Interest	Architectural
Sensitivity	High
Comments	The hotel is in proximity to the subject site but there is no historic association or visual connection

16.6.2.5 Other Structures of Architectural Heritage Interest

One other structure or features of architectural heritage interest was identified on the proposed site during the historic research phase. This is the existing site boundary wall along Howth Road which is the former demesne or deer park wall. The wall is not included as a structure in the record for Howth Castle, and is not otherwise included in Fingal County Council's Record of Protected Structures. It is outside of the boundary of the Howth Castle ACA, and is not identified or described in the Howth Castle ACA Statement of Character. It is not included in the NIAH.

As described in Section 16.3 above, there is a clear and documented relationship between the wall and Howth Castle, to which it historically provided a boundary. It is an historic built feature of Howth Castle's attendant grounds.

Fingal County Council's (FCC) policies relating to other buildings or structures of architectural heritage interest can be found in Volume 1, Chapter 10 of the Fingal County Development Plan 2023 to 2029.

Objective CH19 states it is an Objective of the Council to:

> *'Review the Record of Protected Structures on an on-going basis and add structures of special interest as appropriate, including significant elements of industrial, maritime or vernacular heritage and any twentieth century structures of merit.'*

Objective CH33

'Promote the sympathetic maintenance, adaptation and re-use of the historic building stock and encourage the retention of the original fabric such as wall renders, roof... and other significant features of historic buildings, whether protected or not'.

Objective CH34 states:

'Seek the retention of surviving historic plot sizes and street patterns in the villages and towns of Fingal and incorporate ancient boundaries or layouts, such as burgage plots and townland boundaries, into re-developments'.

Objective CH37 states:

'Seek the retention, appreciation and appropriate revitalisation of the historic building stock and vernacular heritage of Fingal in both the towns and rural areas of the County by deterring the replacement of good quality older buildings with modern structures and by protecting (through the use of Architectural Conservation Areas and the Record of Public Structures and in the normal course of Development Management) these buildings where they contribute to the character of an area or town and/or where they are rare examples of a structure type'.

16.6.2.5.1 Former Demesne / Deer Park Wall

Legal Status	Not protected or included in any existing inventories. Outside of the Howth Castle ACA Within the attendant grounds of Howth Castle (DU015-027001; DU015-027002; DU015-027003; FCC RPS 0556; NIAH 11358050-62)
Date of Construction	c.1650
Original Use	Deer Park / Demesne Wall
Description	Random rubble, locally sourced limestone wall of varied height on a supporting bank over Howth Road, overgrown in sections. The mortar varies between soft lime mortar and cement, strap pointed in places. The oldest mortars have course aggregate. There are the remains of lime render on the inside and outside faces of the wall. The east section of the wall has historic limestone to the base with poured concrete over. To the west of the subject site the historic enclosing wall has been altered in places to accommodate piecemeal developments along Howth Road.
Significance Rating	Regional
Categories of Special Interest	Architectural, Archaeological
Sensitivity	High

Comments	Various phases of rebuilding and repairs are identified where different mortars have been used The wall is subject to threats of deterioration and to denudation by plant growth and piecemeal development of the former estate grounds.

16.6.2.6 Views and Vistas

Historically significant views and vistas are a features of designed landscapes and are identified through representation in historic drawings, sketches, paintings, maps and photographs of the landscape. Significant historic vantage points in which the proposed development may feature are identified, and photomontages provided to provide a visualisation of the impact.

Key heritage viewpoints of the proposed development have been prepared by 3D Design Bureau. These can be found in the separate photomontage book at Appendix 5.2 (Volume III of this EIAR). The locations of the viewpoints were selected so as to illustrate the impact on the identified built heritage features in the receiving environment, on the ACA and the wider context of the subject site. The views were selected with reference to views identified in: the Fingal County Development Plan 2023-2029; the Howth Castle ACA Statement of Character; and in response to consultation with Fingal County Council's Architectural Conservation Officers.

The visual impact of the proposed development on the selected views and vistas within the adjoining Howth Castle ACA and the Fingal County Council Development Plan is assessed in Section 16.8 below.

16.6.3 Site Inspection

The proposed site is largely outside of the Howth Castle ACA, with the exception of a small piece of land which is outside of the boundary wall, but inside the red-line boundary. The desk based review of architectural inventories, and the available cartographic sources indicate that there is one feature of architectural interest on the site, namely the former deer park boundary wall which forms the boundary between the subject site and Howth Road, and the boundary to entrance avenue to Howth Castle.

The historic land-use was a deer park, characterised by open pasture with strong boundaries. The extant boundary wall is a legacy feature of this use. Later a race-course was established with the track following the boundary wall along Howth Road. No trace of the race track survives on the site. A golf course was established in the mid-twentieth century to the south of the proposed site. A belt of semi-mature trees running west to south-east across the site, divides it into open pasture in the northern section, and golf-course to the south.

Direct impacts are anticipated on the demesne wall as a result of the proposed development, and this feature was examined and photographed at the site inspection from inside and outside of the proposed site. A photographic record of the wall in its current condition is provided in Appendix 16.2.

Direct impacts are also anticipated on the Howth Castle ACA where site works, which are limited to the provision of a wider concrete footpath and a new stepped pedestrian access, are proposed in the small area of the proposed site which is inside the ACA boundary. The nature of these works is minor,

including widening the public footpath and provision of steps approaching a proposed secondary pedestrian entrance to the site.

Indirect visual impacts are anticipated on the receiving environment, and the field inspection was also concerned with identifying the features of architectural interest in the vicinity of the proposed site, and their relationship to it, both historic and existing. Photographs and notes were taken to describe the features, and to identify potential visual impacts, and facilitate their assessment.

There is an enclosed feeling inside the site. From the ground, the views to the north are restricted by the high boundary wall. To the east the views are restricted by the boundary wall, and by the mature and mixed planting along the entrance avenue to Howth Castle. To the south the views are of the trees along the golf-course boundary. The west boundary has a more open character, across a lower modern block boundary wall to the neighbouring garden and modern houses beyond. No significant architectural relationships to any features outside the site, were discernible from inside the site at the site inspection.

Sensitive views, which include the proposed site were also sought, including the identified vistas from within the Howth Castle ACA. Other views of the proposed site from within the castle grounds, including views from the castle, from the southern boundary of the National Transport Museum, from the ruined medieval church in the grounds of the castle and along the entrance avenue. Wide angle views towards the site from higher ground at the Deer Park Hotel, looking towards and across the castle building complex were examined with views of the site along Howth Road, on approach to and exit from Howth Village, on approach to and exit from the castle entrance and from St. Mary's church yard.

16.6.3.1 Architectural Description

Figure 16.18 Photograph of the subject site taken from the east boundary looking west, Oct 2023

The subject site has a parkland or pastoral character. There is a belt of semi-mature trees dividing it in a north-west to south-east direction, with a golf course character to the south of the trees and open meadow to the north.

There are the remains of the historic deer park wall to the northern boundary of the proposed site. An updated photographic record of the wall, taken in November 2023 provided in Appendix 16.2.

Outside of the boundary wall there is a modern roadside character with a concrete footpath abutting it, semi-mature trees and grass verges. Towards the castle entrance the wall is raised above the path on a steep grass bank.

Figure 16.19 Photograph of the subject site taken from outside the boundary wall, Oct 2023

A precise date of construction for this wall has not been established as the materials and construction methods changed little over the centuries. The wall is built of simple random rubble, locally sourced limestone. Its height varies and is increased to Howth Road by the supporting bank. It is overgrown in sections. Various phases of rebuilding and repairs are identified where different mortars have been used. The mortar varies between soft lime mortar and a modern dense cement-based mix which are strap pointed in places. The oldest mortars have course aggregate. There are the remains of lime render on the inside and outside faces of the wall.

Figure 16.20 Photograph of the existing north site boundary wall from inside the subject site, Oct 2023

The eastern boundary also has a high wall. There is historic limestone to the base with poured concrete above. This boundary is characterised by the mature mixed trees just outside the site, screening it from the entrance gates to Howth Castle.

Figure 16.21 Photograph of the existing east site boundary wall from inside the subject site, Oct 2023

The western boundary is an exposed modern blockwork wall where the site bounds a neighbouring bungalow.

Figure 16.22 Photograph of the existing west site boundary wall from inside the site, Oct 2023

16.6.4 Summary of the Identified Built Heritage Features

Table 16.3 Architectural Heritage Features with the potential to be impacted by the Proposed Development

Feature	Legal Status	Classification	Significance and Sensitivity	Distance to Site (m)
Boundary Wall		Former Deer Park and/or Demesne Wall	Regional High Sensitivity	n/a within the red-line boundary
Howth Castle ACA	Architectural Conservation Area	Designed Landscape	National (NIAH) Very-High Sensitivity	0m Shared boundary
Main Entrance Gates, Howth Castle	Protected within the curtilage of Howth Castle (FCC RPS 0556); included in the NIAH	Demesne Gate	Regional High Sensitivity	12m
Howth Castle	RMP DU015-027001 RMP DU015-027002 RMP DU015-027003 FCC RPS 0556 NIAH 11358050-62	Castle, fortified house	National (NIAH) Very-High Sensitivity	232m
St. Mary's Church and Burial Ground	RMP DU015-042 FCC RPS 0594 NIAH 11358026	Church and Burial Ground	Regional (NIAH) High Sensitivity	100m
Chapel (in ruins) Howth Castle	RMP DU015-026 FCC RPS 0557	Chapel (in ruins)	Regional High Sensitivity	150m
Corr Castle	RMP DU015-025 FCC RPS 0551	Fortified house (in ruins)	Regional High Sensitivity	773m
The Manse	FCC RPS 0554 NIAH 11358024	Presbyterian Church Manse	Regional (NIAH) High Sensitivity	275m
Howth Presbyterian Church	FCC RPS 0555 NIAH 11358025	Church	Regional (NIAH) High Sensitivity	291m
Station Master's House	FCC RPS 0558 NIAH 11359001	Station Master's House,	Regional (NIAH) High Sensitivity	370m
Howth Station	FCC RPS 0559 NIAH 11359004	Railway Station	Regional (NIAH) High Sensitivity	435m
Milestone, Howth Road	FCC RPS 0553	Milestone	Regional High Sensitivity	576m
Worker's House, Howth Road	NIAH 11358022	Crossing Guard's House	Regional (NIAH) High Sensitivity	229m
Howth Lodge Hotel	NIAH 11358021	Hotel	Regional (NIAH) High Sensitivity	288m

16.7 The 'Do Nothing' Scenario

In the 'do nothing' scenario, the proposed development would not be implemented and there would be no effect the on architectural heritage resource. Most of the features identified in this study are outside the site of the proposed development, and their future condition would not be affected by a decision to do nothing. One feature of architectural heritage interest is identified within the proposed site boundary. This is the former deer park wall, which is in some disrepair associated with plant growth. In the 'do nothing' scenario the wall would remain in place and would likely to continue to deteriorate.

The proposed development area is zoned *RS Residential - to provide for residential development and protect and improve residential amenity* (Fingal County Development Plan 2023-2029). Given the zoning, and the location of the site, close to Howth Village and the public transport network, it is likely that the site will be developed.

The existing low density, linear developments to the west of the subject site have led to a series of piecemeal entrances created in the previously unbroken deer park wall, with sections altered and replaced over time. The continuation of this development approach would result in a continued degradation of the demesne wall, and a loss of fabric and character.

16.8 Potential Significant Effects

The following sections refer to potential significant effects in the absence of mitigation and without consideration of the specific features and design of the proposed development which will reduce these potential effects.

16.8.1 Construction Phase

The identified Construction Phase effects are described and assessed below and summarised in Table 16.4. No Very-Significant or Profound effects are predicted as a result of the Proposed Scheme. Where negative impacts are identified, mitigation is proposed in Section 16.9

16.8.1.1 Direct Physical Impacts

Direct construction phase impacts are anticipated where the proposed development requires alteration of sensitive fabric.

One feature of architectural interest was identified on the subject site, which has the potential to be directly impacted during the construction phase. This is the boundary wall to the north and east of the site, which formed part of the historic deer park, and demesne boundary along Howth Road, beside the main entrance gates to Howth Castle. The wall is in varied condition and has been subject to repairs of varying quality over time. It is threatened by continued deterioration due to plant growth, and by piecemeal development along Howth Road which has led to large sections of it being altered and removed. It is of high sensitivity. The proposed development includes alterations to three sections of the boundary wall to provide access to the development during the construction and operational phases, which requires some removal of historic fabric. The proposal also includes for repair and maintenance of the wall. The magnitude of this impact is medium. In the absence of mitigation, the predicted impact on the historic fabric and character of the site is negative, significant and permanent.

16.8.1.2 Indirect Physical Impacts

Indirect physical Construction Phase impacts are anticipated where sensitive buildings, boundaries or features provide a physical boundary to the Proposed Scheme, or where they are located within the Proposed Scheme boundary and there is potential for damage of sensitive fabric during construction.

One feature of architectural heritage interest was identified on the subject site, which has the potential to be indirectly impacted during the construction phase. As above, this is the site boundary wall to the north and east of the proposed site. The anticipated magnitude of impact is negligible. In the absence of mitigation, the predicted impact on the historic fabric and character of the site is negative, slight and temporary.

16.8.1.3 Indirect Visual Impacts

Indirect visual impacts are anticipated where construction activities will adversely impact on the setting of identified sites, buildings and features. These include The Howth Castle ACA, the identified features of archaeological and architectural interest, the protected structures, the NIAH structures and the other structures of built heritage interest in the vicinity of the proposed development. The anticipated magnitude of impact is Low. The predicted construction phase impacts are negative, slight and temporary.

16.8.2 Operational Phase

> *Many buildings and places are located within the setting of a heritage asset and there are few settings that will not be subject to some degree of change over time. While setting can be mapped in the context of an individual application or proposal, it cannot be definitive and permanently described for all time as a spatially bounded area or as lying within a set distance of a heritage asset. This is because the surroundings of a heritage asset will change over time, as can be clearly seen at Howth castle where the original setting greatly differs from the present environs*

16.8.2.1 Direct Operational Phase Impacts

Direct operational phase impacts are anticipated where alterations are proposed to identified features of built-heritage interest. Two features were identified which have the potential to be directly impacted during the operational phase of the proposed development. These are the demesne wall, the proposed alterations of which are described above, and the Howth Castle ACA.

The proposed openings in the demesne wall have been sensitively designed and detailed to a high standard. They will read as modern interventions into the historic wall, identifying the development and facilitating access to and permeability of the proposed site. They will have a positive impact during the operational phase the magnitude of which is low. The demesne wall is a feature of high sensitivity. The predicted operational phase impact on the wall is positive, moderate and long-term.

The proposed site works which are inside the Howth Castle ACA boundary include the widening of the existing footpath, and the provision of a stepped approach to the proposed pedestrian entrance. While these works are proposed to be located within the ACA boundary, they are minor in nature and do not involve removal or alteration of any existing or sensitive fabric. They will have a neutral impact during the operational phase the magnitude of which is low. The ACA feature of very-high sensitivity. The predicted operational phase impact on the wall is neutral, moderate and long-term.

16.8.2.2 Operational Phase Visual Impacts

In the absence of mitigation, the proposed development has the potential to adversely affect the settings of sensitive architectural heritage features identified in Table 16.3. Verified Views have been prepared to demonstrate where the proposed development will have a visual impact on approach to Howth Village, on approach to Howth Castle, from within St. Mary's church yard and from within the Howth Castle ACA. They are described and assessed here.

Figure 16.23 Location of Heritage Viewpoints

16.8.2.2.1 Verified View 6

Existing View 6

Description	View looking towards the proposed site with the main gates of Howth Castle to the left of the frame
Built – Heritage Features	Howth Castle Main Gate: A structure identified in the Howth Castle ACA SoC and protected within the curtilage of Howth Castle (FCC RPS 0556); included in the NIAH 11358027 rated of Regional importance Howth Castle Demesne, an ACA and included in the NIAH Garden Survey 2564.

	Boundary Wall, former Deer Park and/or Demesne Wall : within the attendant grounds of Howth Castle but outside of the ACA boundary and not included in any existing inventories Just out of shot to the left – St. Mary's Church: A Protected Structure FCC RPS 0594; included in the NIAH 11358026 where it is rated of Regional Importance
Historic representations	McFarland 1853

Legislative Context	The view on approach to the Castle Gate is not identified in the Howth Castle ACA Statement of Character. The opposite view (V12), on approach to the gate from the castle is identified. This is appraised below.
Context	View features strongly on approach to the Howth Castle Demesne In modern times it has been negatively impacted by visual clutter associated with the road, signage, overhead wired services etc.

Proposed View 6

Impact Description	The proposed development will have a visual impact on the views on approach to the Howth Castle Gates where the proposed new buildings will be viewed behind the historic wall, and the existing and proposed planting. The proposed pedestrian entrance will also have a visual impact.
Incorporated Design Mitigation	the set-back between the proposed buildings and the proposed site boundary, the step-down to three storeys at the southeast end of the proposed Block D the existing planting along the entrance avenue to Howth Castle, which will be supplemented with new trees on the subject site the repair and retention of the historic demesne boundary wall

	high quality buildings which will make a positive contribution to the contemporary characteristics of the streetscape to the west
Impact Quality	Neutral
Impact Magnitude	Medium
Feature Sensitivity Rating	High
Impact Significance	Neutral, Significant, Long-Term

16.8.2.2.2 Verified View 7

Existing View 7

Description	View looking towards Howth Village from Howth Road
Built – Heritage Features	Boundary Wall, former Deer Park and/or Demesne Wall : within the attendant grounds of Howth Castle but outside of the ACA boundary and not included in any existing inventories St. Mary's Church: A Protected Structure FCC RPS 0594; included in the NIAH 11358026where it is rated of Regional Importance
Legislative Context	The view along Howth Road, on approach to Howth Village is not identified in the Howth Castle ACA Statement of Character.
Context	View features strongly on approach to the Howth Village, the spire of St Mary's Church appears in the centre of the frame. The view has been negatively impacted by a clutter of overhead services and signage. The Claremont SHD (under construction) has changed the character of this view.

Proposed View 7

Impact Description	The proposed development will have a visual impact on the views on approach to Howth Village where the proposed new buildings will be viewed behind the historic wall, and the existing and proposed planting. The proposed pedestrian entrance will also have a visual impact.

Incorporated Design Mitigation	the set-back between the proposed buildings and the existing boundary wall, the landscaping proposal for the open spaces inside the demesne wall the repair and retention of the historic demesne boundary wall high quality buildings which will make a positive contribution to the contemporary characteristics of the streetscape to the west
Impact Quality	Neutral
Impact Magnitude	Medium
Feature Sensitivity Rating	High
Impact Significance	Neutral, Significant, Long-Term

16.8.2.2.3 Verified View 11

Existing View 11

Description	View looking towards the proposed site from the front of St. Mary's Church
Built – Heritage Features	Boundary and curtilage of St. Mary's Church: A Protected Structure FCC RPS 0594; included in the NIAH 11358026 where it is rated of Regional Importance Planting along the entrance avenue of Howth Castle viewed behind – Howth Castle Demesne, an ACA and included in the NIAH Garden Survey 2564.
Legislative Context	The view from St. Mary's Church Yard is not identified in the Howth Castle ACA Statement of Character.
Context	View on exiting St. Mary's Church. The existing planting, which is attractive and in good condition, screens the proposed site from view. Note the crane in the left of the frame is on the Claremont SHD site under construction

Proposed View 11

Impact Description	The proposed development will be screened from view of the churchyard by existing and proposed planting, by existing boundary walls, and by the topography. As demonstrated in the Verified View, there will be no impact.
Impact Quality	Neutral
Impact Magnitude	Negligible
Feature Sensitivity Rating	High
Impact Significance	Neutral, Imperceptible, Long-Term

16.8.2.2.4 Verified View 12

Existing View 12

Description	View looking towards the entrance gates from the approach avenue to Howth Castle
Built – Heritage Features	Howth Castle Main Gate: A structure identified in the Howth Castle ACA SoC and protected within the curtilage of Howth Castle (FCC RPS 0556); included in the NIAH 11358027 rated of Regional importance Howth Castle Demesne, an ACA and included in the NIAH Garden Survey 2564. Out of shot to the right – St. Mary's Church: A Protected Structure FCC RPS 0594; included in the NIAH 11358026where it is rated of Regional Importance
Historic representations	McFarland 1853
Legislative Context	The view towards the gates from the avenue is identified in the Howth Castle ACA Statement of Character.

Context	The boundary between the avenue is delineated by a wall comprising an historic limestone base and poured concrete over. This is obscured by the mixed planting along the avenue which also screens the proposed site. The gatehouse is in ruins to the right of the gate (out of the shot).

Proposed View 12

Impact Description	The proposed development will be screened from view of the avenue by the existing wall, and by existing and proposed planting. The existing undergrowth is thick and in the 'worst case scenario' where it was cleared, the visual impact of the proposed buildings would be increased. The proposed additional planting at the east site boundary reduces the 'worst case' impact
Incorporated Design Mitigation	the set-back between the proposed buildings and the proposed site boundary, the step-down to three storeys at the southeast end of the proposed Block D the existing planting along the entrance avenue to Howth Castle, which will be supplemented with new planting and trees on the subject site high quality buildings which will make a positive contribution to the contemporary characteristics of the streetscape to the west
Impact Quality	Neutral
Impact Magnitude	Low
Feature Sensitivity Rating	High
Impact Significance (worst case scenario)	Neutral, Moderate, Long-Term

16.8.2.2.5 Verified View 13

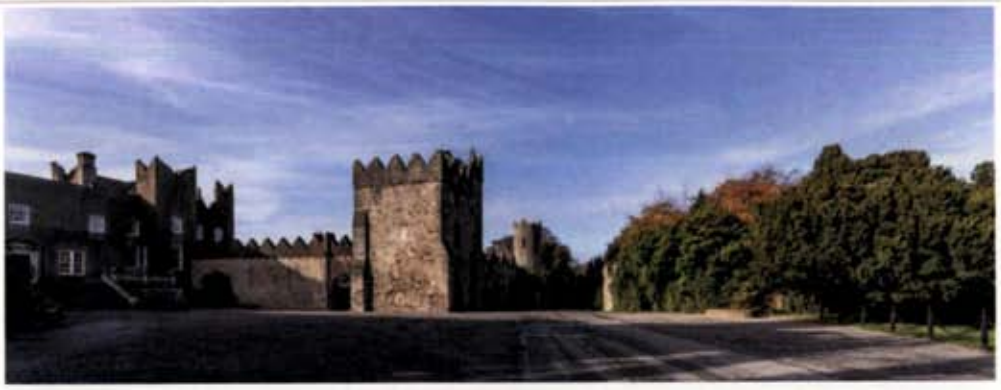
Description	View looking towards the proposed site from the lawn in front of Howth Castle
Built – Heritage Features	Howth Castle - A Recorded Monument: RMP DU015-027001-3, a protected structure: FCC RPS 0556, Included in the NIAH 11358050-62 where it is rated of Regional and National Importance

	Howth Castle Demesne, an ACA and included in the NIAH Garden Survey 2564.
Historic representations	Numerous drawings, paintings and photographs including the over-mantle painting c.1740 
Legislative Context	The view towards the castle from the front lawn is identified in the Howth Castle ACA Statement of Character.
Context	The golf course, established in the 1970s, changed the character of the historic landscape, adversely effecting views to and from the castle buildings

Proposed View 12

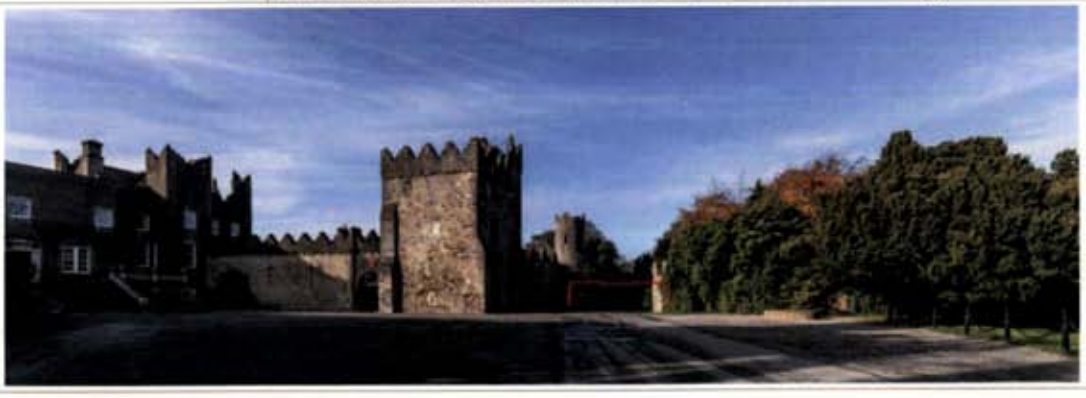
Impact Description	The proposed development will be completely screened from view by the topography, and by existing and proposed planting.
Impact Quality	Neutral
Impact Magnitude	Negligible
Feature Sensitivity Rating	Very-High
Impact Significance	Neutral, Imperceptible, Long-Term

16.8.2.2.6 Verified View 14



Existing View 14

Description	View looking towards the proposed site from in front of Howth Castle
Built – Heritage Features	Howth Castle - A Recorded Monument: RMP DU015-027001-3, a protected structure: FCC RPS 0556, Included in the NIAH 11358050-62 where it is rated of Regional and National Importance Howth Castle Demesne, an ACA and included in the NIAH Garden Survey 2564.
Historic representations	Numerous drawings, paintings and photographs including Thomas Milton, 1780 (pictured) and George Petrie 1820 
Legislative Context	The view towards the castle from the front lawn is identified in the Howth Castle ACA Statement of Character.
Context	The golf course, established in the 1970s, changed the character of the historic landscape, adversely effecting views to and from the castle buildings



Proposed View 14	
Impact Description	The proposed development will be completely screened from view by existing walls and buildings, by the topography, and by existing and proposed planting.
Impact Quality	Neutral
Impact Magnitude	Negligible
Feature Sensitivity Rating	Very-High
Impact Significance	Neutral, Imperceptible, Long-Term

16.8.2.2.7 Verified View 15

Existing View 15

Description	View looking towards the proposed site from Howth Castle
Built – Heritage Features	Howth Castle - A Recorded Monument: RMP DU015-027001-3, a protected structure: FCC RPS 0556, Included in the NIAH 11358050-62 where it is rated of Regional and National Importance Howth Castle Demesne, an ACA and included in the NIAH Garden Survey 2564.
Legislative Context	The view from the castle towards and across the proposed site is not identified in the Howth Castle ACA Statement of Character.
Context	The golf course, established in the 1970s, changed the character of the historic landscape, adversely effecting views to and from the castle buildings.

Proposed View 15

Impact Description	The proposed development will be screened from view by existing walls and buildings, and by existing and proposed planting. The existing planting is dense, in the 'worst case scenario' where the existing trees are lost, the impact would be increased. The retention of the semi-mature trees on the proposed site, reduces the 'worst case' impact

Incorporated Design Mitigation	the set-back between the proposed buildings and the existing site boundary, the retention of the existing semi-mature trees within the proposed site and to the south of the proposed buildings the step-down to three storeys at the southeast end of the proposed Block D high quality buildings which will make a positive contribution to the contemporary characteristics of the streetscape to the west
Impact Quality	Neutral
Impact Magnitude	Medium
Feature Sensitivity Rating	High
Impact Significance (worst case scenario)	Neutral, Moderate, Long-Term

16.8.2.2.8 Verified View 16

Existing View 16

Description	View looking towards the proposed site at the entrance to the former farm building complex which is now the National Transport Museum
Built – Heritage Features	None of the buildings in the farm complex are specifically included in the RPS or NIAH though some are historic and all are in the curtilage of Howth Castle, within the Howth Castle ACA boundary.
Legislative Context	The view on entry to the National Transport Museum is not identified in the Howth Castle ACA Statement of Character.
Context	The farm complex is a mixture of modern and historic buildings in varied condition

Proposed View 16

Impact Description	The proposed development will be screened from view by existing walls and buildings, by the topography and by existing and proposed planting.

Impact Quality	Neutral
Impact Magnitude	Negligible
Feature Sensitivity Rating	Medium
Impact Significance	Neutral, Imperceptible, Long-Term

16.8.2.2.9 Verified View 17

Existing View 17

Description	View looking towards the National Transport Museum with the proposed site behind
Built – Heritage Features	None of the buildings in the farm complex are specifically included in the RPS or NIAH though some are historic and all are in the curtilage of Howth Castle, within the Howth Castle ACA boundary.
Legislative Context	The view looking towards the National Transport Museum is not identified in the Howth Castle ACA Statement of Character.
Context	The farm complex is a mixture of modern and historic buildings in varied condition.

Proposed View 17

Impact Description	The proposed development will be screened from view by existing walls and buildings, by the topography and by existing and proposed planting.
Impact Quality	Neutral
Impact Magnitude	Negligible
Feature Sensitivity Rating	Medium
Impact Significance	Neutral, Imperceptible, Long-Term

16.8.2.2.10 Verified View 18

Existing View 18

Description	View looking from the National Transport Museum, across the golf course and towards the proposed site
Built – Heritage Features	Curtilage of Howth Castle, within the Howth Castle ACA boundary.
Legislative Context	The view looking from the National Transport Museum is not identified in the Howth Castle ACA Statement of Character.
Context	The golf course has changed the character of the historic landscape and had a negative effect. The semi-mature trees in the centre-ground of the image, which partly screen the proposed site from view, are a feature of the golf-course. The cranes in the background are for the construction of the Claremont SHD

Proposed View 18

Impact Description	The proposed development will be screened from view by existing walls and buildings, by the topography and by existing and proposed planting.
Incorporated Design Mitigation	the set-back between the proposed buildings and the existing site boundary, the retention of the existing semi-mature trees within the proposed site and to the south of the proposed buildings the set-back of the fourth floor and the change in material high quality buildings which will make a positive contribution to the contemporary characteristics of the streetscape to the west
Impact Quality	Neutral
Impact Magnitude	Medium
Feature Sensitivity Rating	Medium
Impact Significance	Neutral, Moderate, Long-Term

16.8.2.2.11 Verified View 19

Existing View 19

Description	View looking across the Howth Castle ACA, towards the proposed site from Muck Rock. Howth Castle is in the centre of the frame with St. Mary's Spire behind
Built – Heritage Features	Howth Castle - A Recorded Monument: RMP DU015-027001-3, a protected structure: FCC RPS 0556, Included in the NIAH 11358050-62 where it is rated of Regional and National Importance Howth Castle Demesne, an ACA and included in the NIAH Garden Survey 2564. St. Mary's Church: A Protected Structure FCC RPS 0594; included in the NIAH 11358026 where it is rated of Regional Importance
Historic representations	Numerous including the Scenery and Antiquities of Ireland 1841 
Legislative Context	The view looking towards the castle from Muck Rock is not identified in the Howth Castle ACA Statement of Character.
Context	The golf course has changed the character of the historic landscape and had a negative impact. The cranes in the background are for the construction of the Claremont LRD

Proposed View 19

Impact Description	The proposed development will be screened by existing and proposed planting both on and around the proposed site The proposed buildings are visually separated from the castle buildings by the existing planting including the band of semi-mature trees within the proposed site boundary, which are proposed for retention. In the 'worst case scenario' where the existing trees are lost, the impact would be increased. The retention of the semi-mature trees on the proposed site, reduces the 'worst case' impact
Incorporated Design Mitigation	the set-back between the proposed buildings and the existing site boundary, the retention of the existing semi-mature trees within the proposed site and to the south of the proposed buildings The setback of the proposed fourth floor and the change of material of the top level Green roofs, with services (except PV panels) to be housed inside the buildings. high quality buildings, materials and details
Impact Quality	Neutral
Impact Magnitude	Low
Feature Sensitivity Rating	High
Impact Significance (worst case scenario)	Neutral, Significant, Long-Term

16.8.3 Cumulative Effects

A list of projects and plans within the zone of influence of the proposed development is provided in Appendix 1.1. The projects and plans have been reviewed to identify where there is potential for impacts associated with the proposed development to cumulatively impact in combination with other existing, consented or proposed projects. Three projects were identified where there is potential for cumulative impact on the built heritage of the receiving environment. These are:

F22A/0046 (ABP-316113-23 Permission Granted, Decision on Appeal Pending) which is an application for refurbishment and redevelopment of Howth Castle buildings;

F22A/0372 (ABP-317883-23 Permission Granted, Decision on Appeal Pending) which is an application for the replacement of Deer Park Hotel; and

ABP-306102-19 (Granted and under construction) which is a strategic housing development comprising 512 units.

16.8.3.1 F22A/0046 – Refurbishment and redevelopment of Howth Castle buildings

Howth Castle was sold in 2019 and is subject to planning applications (under appeal at the time of writing) for the repair and redevelopment of the castle buildings. It is anticipated that the repair and re-use of the castle will have a positive impact on the built heritage character of the receiving environment.

The application for redevelopment of the castle buildings includes changes to the National Transport Museum buildings including a new carpark, which is proposed to be located to the south of the subject site. The carpark requires the removal of existing trees which are between the subject site and the castle which will open up views from the National Transport Museum to the golf course, and the subject site beyond. It will also slightly reduce the planting belt which visually separates the proposed site from the immediate castle grounds when viewed from the south. Existing planting on the golf course, and the trees on the proposed site which will be retained, will continue to provide visual separation between the castle building complex and the subject site.

The architectural impact assessment submitted with the application for the proposed re-development of the castle buildings identified a potential adverse effect on the historic landscape character as a result of the proposed car-park. Proposed mitigation includes the protection and retention of existing mature trees, the use of the grass-crete surfaces for the parking spaces and the provision of new trees dispersed between the bays.

Taking account of the mitigation included in the redevelopment application, and the incorporated design mitigation for the proposed development, the predicted cumulative effect of the redevelopment of castle buildings and the proposed development is neutral, moderate and long-term.

16.8.3.2 F22A/0372 Deer Park Hotel Redevelopment

Planning permission is sought to replace the Deer Park Hotel in the grounds of Howth Castle. It is anticipated that the redevelopment of Deer Park Hotel will have a positive impact on the receiving environment. The Deer Park Hotel application includes a new access road to the hotel, which would extend from the existing entrance to St Mary's Church, and avoid Howth Castle and the existing Castle Gate. Fingal County Council required that the road be omitted from the proposed development. This condition is under appeal.

The historic landscape impact assessment submitted with the proposed deer park hotel redevelopment application identified that the proposed replacement hotel would have a positive impact on the historic landscape character. Taking account of the distance of the proposed hotel from the subject site, it is anticipated that the cumulative effect of the redevelopment of Deer Park Hotel and the Proposed Development is neutral, moderate and long-term.

The impact assessment for the Deer Park Hotel replacement also identified that the proposed access road was carefully designed and appropriately sited, and would have a positive impact on Howth Castle ACA, helping to alleviate traffic pressure on the existing avenue and the Castle Gate. If permitted, the proposed new road would pass through part of the churchyard of St. Mary's Church

and would have a significant impact on the setting of the Castle Gate, and on the curtilage and setting of St. Mary's Church. The impact on the Castle Gate is likely to be positive, while the impact on St. Mary's Church is likely to be negative.

Neutral, moderate, long-term impacts are anticipated on the setting of the Castle Gate and St Mary's Church as a result of the proposed development. The neutral quality of these impacts, means that the proposed development will not significantly add to any adverse effects resulting from the Deer Park Hotel reconstruction.

16.8.3.3 ABP-306102-19 Claremont SHD

The most notable development in the vicinity of the proposed site is the Claremont mixed use and SHD which is currently under construction to the north of the subject site, and between it and Howth Village. This development consists of over 500 apartments in buildings of up to four storeys on the street front and 7-8 storeys behind.

The Claremont development represents a significant change in the townscape of Howth, and in the site's immediate setting. It will extend Howth town centre along the Howth Road as far as the site, and it will change the character along this corridor, so that Howth will in future be approached along a street of contemporary urban character. The proposed development site is at the point of transition between this evolving urban area to the east and the suburban strip to the west.

The cumulative effect of the Claremont SHD and the proposed development, will urbanise the streetscape to an extent. This is largely as a result of the development under construction, and will be reduced by the positioning of the proposed buildings which are set-back from the road, with proposed and existing planting screening the new buildings from view, by the repair and retention of the demesne wall which will conserve the historic and architectural character of the streetscape, and by the quality of the design of the proposed buildings.

The Built Heritage Impact Assessment in the EIAR for the Claremont development identified moderate effects impacts on the setting of St. Mary's Church and the setting of the Howth Castle ACA as a result of the Claremont SHD. A slight effect was anticipated on the setting of the main entrance gate to Howth Castle.

Proposed View 7 (Claremont SHD outlined in Blue)

Impact Description	The Claremont Scheme has a significant visual impact on the setting of St. Mary's Church on approach from Howth Road. The anticipated impact of the proposed development is Neutral, Significant, Long-Term. The predicted cumulative effect is Neutral, Significant, Long-Term

Impact Type	Residual

Proposed View 19 (Claremont SHD outlined in Blue)

Impact Description	The Claremont Scheme has a significant visual impact on View 19. The anticipated impact of the proposed development is Neutral, Significant, Long-Term. The predicted cumulative effect is Neutral, Significant, Long-Term
Impact Type	Residual

Impacts were also anticipated on the Howth Railway Station Master's House and on the Signal Box as a result of the Claremont development. No impact is predicted on these features as a result of the development now proposed and therefore no cumulative effect is anticipated.

Neutral, moderate, long-term impacts are anticipated on the setting of Howth Castle ACA and St Mary's Church as a result of the proposed development. The neutral quality of these impacts, means that the proposed development will not significantly add to any adverse effects resulting from the Claremont Development. The predicted cumulative effect of the proposed development with the Claremont SHD development under construction is neutral, moderate and long-term.

16.8.4 Summary

The following Table summarises the identified likely effects during the construction phase of the proposed development before mitigation measures are applied.

Table 16.4 Summary of Construction Phase Likely Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Alteration of Former Deer Park/ Demesne Wall	Negative	Significant	Local	Likely	Permanent	Direct Physical
Potential Damage Former Deer Park/ Demesne Wall	Negative	Slight	Local	Likely	Temporary	Indirect Physical

The following Table summarises the identified likely effects during the operational phase of the proposed development before mitigation measures are applied.

Table 16.5 Summary of Operational Phase Likely Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Howth Castle ACA	Neutral	Moderate	Local	Likely	Long-Term	Direct
	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual
Alteration of Former Deer Park/ Demesne Wall	Positive	Moderate	Local	Likely	Long-Term	Direct
Howth Castle Main Entrance Gates	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual
St Mary's Church and Graveyard	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual
View 6	Neutral	Significant	Local	Likely	Long-Term	Direct (Demesne Wall) Indirect Visual
View 7	Neutral	Significant	Local	Likely	Long-Term	Direct (Demesne Wall) Indirect Visual
View 12	Neutral	Significant	Local	Likely	Long-Term	Indirect Visual
View 18	Neutral	Slight	Local	Likely	Long-Term	Indirect Visual
View 19	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual
Cumulative, Howth Castle Redevelopment	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual
Cumulative, Deer Park Hotel Redevelopment	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual
Cumulative, Claremont SHD	Neutral	Significant	Local	Likely	Long-Term	Indirect Visual

16.9 Mitigation

16.9.1 Incorporated Design Mitigation

As described in Section 16.8 above, the design of the site, and the layout of the proposed buildings has been carefully considered with regard to the visual impact of the development on the sensitive setting of neighbouring protected structures, the Howth Castle ACA and other significant views and vistas within the receiving environment.

The massing strategy balances the requirement to create a strong architectural presence at the gateway to the village of Howth, with the sensitivities of the demesne landscape. The buildings are set as far from the site boundaries as possible while retaining the existing significant trees, supplemented with new planting, especially along the east boundary, and to the south of the proposed buildings, to add to the existing screening between the site and the castle entrance, gates and avenue.

The forms are cranked and stepped in plan and section to respond to the existing topography, breaking up the blocks, allowing a through view on approach to the site, creating visual interest and providing relief, especially along Howth Road.

Projecting balconies have been eliminated from the front of Blocks A and C and from the end elevations. The fifth storey is set back from the road, breaking up the mass and reducing the impact. Green roofs are proposed for both blocks where they will be viewed from the above and to the south, significantly from Muck Rock. Except for solar panels, plant will be housed inside the blocks and will not feature on views of the roof.

The design intention is for buildings of high-quality architectural design, coupled with precision detailing, using modern materials and a natural colour palette drawn out of the context. Elevations will be finished in selected brick, which is an attractive, hard-wearing and robust solution appropriate to the maritime context. Railings will be painted metal with high-performing metal windows.

The proposed openings in the demesne wall are minimal, and required to allow for safe pedestrian, bicycle and vehicular access to the site. They will read as minimal, modern interventions into the historic fabric to distinguish between new and old.

16.9.2 Construction Phase Mitigation

One feature of built heritage interest was identified, which will be directly impacted during the construction phase of the proposed development. This is the demesne wall which is to be altered to facilitate new pedestrian and vehicular entrances. The predicted pre-mitigation construction phase impact is negative, significant and permanent.

Mitigation has been incorporated into the design which represents a minimal intervention to achieve the necessary access to the proposed development and successfully connect the new community to Howth Village. The alterations require removal of sections of the existing masonry which will be recorded and carefully taken down for re-use elsewhere in the repair of the walls, or in the landscaping proposals. The proposed openings shall be detailed to a high standard using high-quality material and contemporary design, to announce and identify the new development. They will read as minimal, attractive, and modern interventions into the historic fabric to distinguish between new and old. With

mitigation the magnitude of impact is reduced from medium to low. The predicted residual construction phase impact is negative, moderate and permanent.

Indirect physical impacts are also anticipated to the demesne wall, which will be vulnerable to accidental damage as a result of the scale of the proposed construction works in its vicinity. The predicted pre-mitigation construction phase impact is negative, slight and temporary.

The proposed mitigation is record, protect and repair the historic fabric of the wall in adherence to best conservation practice; to the *Architectural Heritage Protection Guidelines for Planning Authorities;* and to the Advice Series issued by the Department's Built Heritage Advisory Unit. A methodology outlining the required protection, recording, and monitoring of the historic fabric during construction, and specifying the proposed alterations and repairs of the wall is provided in Appendix 16-3. With these protections, the potential negative impact is eliminated, and a positive impact is predicted for the fabric of the demesne wall. The magnitude of impact is medium. The predicted residual construction phase impact is positive, significant and long-term.

16.24 Photograph of the twentieth century alterations to the deer park boundary (left side of the frame) to the west of the site on Howth Road, Oct 2023

16.9.3 Operational Phase Mitigation

There are no mitigation proposals for the operational phase of the proposed development, since the likely negative, significant effects arising as a result of the proposed development have been incorporated into the design mitigations.

16.10 Residual Impact Assessment

This section identifies and assesses the potential significant effects which remain after mitigation measures are implemented.

16.10.1 Construction Phase

With mitigation, no significant residual construction phase effects are predicted as a result of the proposed development.

The proposed alterations to the demesne wall are acceptable and necessary interventions. The new openings will be detailed as modern interventions, ensuring historical legibility and clarity. The removal of fabric is minimal, and the former demesne wall will be largely retained in situ and in-tact along the boundary to Howth Road, in contrast to how it has been treated along the boundaries to the houses to the west of the proposed site. With mitigation, the predicted residual effect is negative, slight and permanent.

The proposed repairs to the retained sections of wall will be carried out in accordance with the outline specification provided in Appendix 16.3. The predicted residual effect is positive, significant and long-term.

16.10.2 Operational Phase

The residual impacts would be unchanged in the absence of avoidance, remedial or mitigation measures.

16.10.3 Features of Architectural and Archaeological Interest

16.10.3.1Howth Castle (including Howth Castle ACA)

The proposed development will have a direct impact on Howth Castle ACA where alterations are proposed within a small area (102sq.m) of the site which is included in the ACA boundary. The nature of the proposed works inside the ACA is minor and the anticipated residual effect on the ACA is neutral, moderate and long-term.

An indirect visual impact on the setting of Howth Castle ACA is also anticipated. This includes views on approach to the main entrance gates which is demonstrated in Views 6 and 7. Incorporated design mitigation includes existing and proposed buffer planting, the repair and sensitive alteration of the existing boundary wall, the positioning and massing of the buildings including the step-down of Block D and the set-back of the top floor and the high-quality materials and architectural detailing. Taking account of the design mitigation, the anticipated effect on the setting of Howth Castle ACA is neutral, moderate and long-term.

The proposed development may be visible from the entrance avenue, looking north towards the main gate, which is a view identified in the Howth Castle ACA Statement of Character. This is described in View 12. Incorporated design mitigation includes existing and proposed buffer planting, and the set back and step down of the proposed Block D. The anticipated effect on View 12 is neutral, moderate and long-term.

The proposed development will not impact on any of the other views identified in the Howth Castle ACA Statement of Character: views in the immediate vicinity of Howth Castle, views towards the castle from the east lawn, views from the castle entrance or views along the north side of the castle building complex.

One view of Howth Castle was identified on which the proposed development will impact. This is View 19, the view looking across the Howth Castle ACA from Muck Rock. The proposed development does not break the existing tree-line, and will be visually separated from the castle by existing and proposed planting. The proposed buildings, including the proposed balconies and roofs will be finished in high-quality materials. Because of the sensitivity of this view, even taking account of the incorporated design mitigation, the predicted effect of the proposed development on View 19 is neutral, significant and long-term.

Two further views were identified from inside the Howth Castle ACA towards the subject site, which the proposed buildings may impact. These are View 15 which is a view taken from the upper floors of Howth Castle, looking north towards the proposed site, and View 18 which is taken from the National Transport Museum at the ACA boundary, looking across Deer Park golf course and towards the proposed site.

The proposed development will largely be screened from view by existing planting resulting in a neutral, moderate and long-term impact on View 15.

The historic character and sensitivity of View 18 was adversely impacted by the development of the Deer Park Golf Course in the 1970s. Taking account of the incorporated design mitigation, including buffer planting and high-quality materials and detailing of the proposed buildings, the anticipated effect on View 18 is neutral, moderate and long-term.

No significant adverse residual effects are anticipated on the setting of Howth Castle ACA as a result of the proposed development.

Corr Castle

Any visual connection between the subject site and Corr Castle was disrupted by the construction of the golf course and lost with the development of the apartments that now surround the tower house. No impact is anticipated on the setting of Corr Castle as a result of the proposed development.

16.10.3.2 Church in Ruins, grounds of Howth Castle

Any historic relationship between the proposed site and the church (in ruins) in the grounds of Howth Castle was disrupted by the construction of the golf course. The ruins are separated from the proposed site by the high walls that surround the chapel and the dense trees around it. No impact is anticipated on the setting of the church in ruins in the grounds of Howth Castle as a result of the proposed development.

16.10.4 Protected Structures

16.10.4.1 St. Mary's Church and Graveyard

The proposed development will not impact on the close-up views on approach to the church identified in Howth Castle ACA Statement of Character, and will be screened from view from within the churchyard and graveyard by existing planting, walls and by the fall of the terrain (View 11).

The proposed development will impact on wider views on approach to the church from Howth Road (Views 6 and 7) and will be viewed when leaving the church grounds, behind the repaired historic boundary wall and the proposed planting. Incorporated design mitigation includes existing and

proposed buffer planting, and the set back and step down of the proposed Block D, the set-back of the top floor and the high-quality materials and architectural detailing. Taking account of the design mitigation, the anticipated effect on the setting of St. Mary's Church and Graveyard is neutral, moderate and long-term.

16.10.4.2 Howth Castle Main Entrance Gates (A Structure identified in the Howth Castle ACA Statement of Character and protected within the Curtilage of Howth Castle)

The proposed development will impact on the setting of the gate, and on views towards the castle gates from Howth Road. This is demonstrated in View 6. The gates themselves are set back from the road and have a limited presence on the approach to the village of Howth where the roadside character is modern. The proposed development will be set back from the gates and the road behind the repaired historic wall and visually separated from the castle gates by the existing trees, which will be supplemented with proposed planting on the site. Incorporated design mitigation also includes the set back and step down of the proposed Block D, and the high-quality materials and architectural detailing. Taking account of the design mitigation, the anticipated effect on the setting of the castle main gate is neutral, significant and long-term.

16.10.4.3 Other Protected Structures

Taking account of the distance to the proposed scheme, existing buildings, boundary features and planting, no impacts are anticipated on the settings of The Manse, Howth Presbyterian Church, Howth Station Master's House, Howth Railway Station or the milestone on Howth Road as a result of the proposed development.

16.10.5 NIAH Structures

Taking account of the distance to the proposed scheme, existing buildings, boundary features and planting, no impacts are anticipated on the settings of the worker's house on Howth Road or Howth Lodge Hotel as a result of the proposed development.

16.10.6 Summary of Post-mitigation Effects

The following table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

No significant adverse effects are anticipated during the construction phase of the proposed development, following the application of mitigation measures.

Table 16.6 Summary of Residual Construction Phase Effects

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Alteration of Former Deer Park/ Demesne Wall	Negative	Slight	Local	Likely	Permanent	Direct Physical
Repair of Former Deer	Positive	Significant	Local	Likely	Long-Term	Direct Physical

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Park/ Demesne Wall						

The following table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

With the incorporated design mitigation, no significant adverse effects are anticipated during the operational phase of the proposed development.

Table 16.7 Summary of Residual Operational Phase Effects

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Howth Castle ACA	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual
	Neutral	Moderate	Local	Likely	Long-Term	Direct
Alteration of Former Deer Park/ Demesne Wall	Positive	Moderate	Local	Likely	Long-Term	Direct
Howth Castle Entrance Gates	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual
St Mary's Church and Graveyard	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual
View 6	Neutral	Significant	Local	Likely	Long-Term	Direct (Demesne Wall) Indirect Visual
View 7	Neutral	Significant	Local	Likely	Long-Term	Direct (Demesne Wall) Indirect Visual
View 12	Neutral	Significant	Local	Likely	Long-Term	Indirect Visual
View 18	Neutral	Slight	Local	Likely	Long-Term	Indirect Visual
View 19	Neutral	Significant	Local	Likely	Long-Term	Indirect Visual
Cumulative, Howth Castle Redevelopment	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Cumulative, Deer Park Hotel Redevelopment	Neutral	Moderate	Local	Likely	Long-Term	Indirect Visual
Cumulative, Claremont SHD	Neutral	Significant	Local	Likely	Long-Term	Indirect Visual

16.11 Worst Case Scenario

The worst-case scenario for the subject site would see the loss of existing planting outside of the proposed site boundary, which would result in the impact of the proposed development on the setting of Howth Castle Demesne Gates, St. Mary's Church and the Howth Castle ACA being increased.

The worst case scenarios will be mitigated by the repair and retention of the historic demesne wall, the retention of existing trees within the proposed site boundary and the provision of new supplementary planting (approx. 270 trees), and the positioning and massing of the proposed buildings, which are set-back from the site boundaries, broken into two distinct volumes which also step back and down to reduce to respond to specific site sensitivities.

16.12 Interactions

This chapter, pertaining to Cultural Heritage: Built Heritage has the potential to interact with aspects of the following chapters of this EIAR:

- Chapter 4 - Population and Human Health
- Chapter 5 - Landscape and Visual Impact and
- Chapter 15 – Cultural Heritage: Archaeology

16.12.1 Population and Human Health

The proposed development will result in an increased population during its operational phase, including increased foot-fall in and around the architectural heritage assets. This will result in increased awareness of the recorded monuments, protected structures, NIAH structures and heritage features which is positive. There is an associated potential for inadvertent damage to features. The predicted operational phase impact is neutral, slight and long-term.

16.12.2 Landscape and Visual Impact

Indirect construction phase visual impacts are anticipated on the setting of the Howth Castle ACA including the setting of the Castle Gates, and the setting of St. Mary's Church. The predicted construction phase impact is negative, slight and temporary.

The impact is reduced by the proposed and retained buffer planting, by the repair, retention and sensitive alteration of the boundary wall, by the positioning and massing of the buildings, and by the

design, materiality and detailing of the proposed buildings. The predicted operational phase impact is neutral, moderate and long-term.

16.12.3 Cultural Heritage: Archaeology

No archaeological features are identified on the proposed site, therefore, no construction phase interaction is identified.

No significant construction or operational phase impacts have been identified on the setting of the archaeological features in the vicinity of the site, and no operational phase interaction is anticipated.

16.13 Monitoring

16.13.1 Construction Phase

Monitoring of the proposed alteration and repair of the historic demesne wall is recommended in accordance with the methodology provided in Appendix 16.3

16.14 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 16.8 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring	Residual Impact
Alteration of the Demesne Wall Adverse, significant and permanent	Recording and careful taking down of the fabric to be removed, for re-use in the repair of the adjacent structure, or the proposed landscaping	Conservation Architect	Adverse, Slight, Permanent
Repair of the Demesne Wall	Repair of the retained historic fabric in accordance with the methodology provided in Appendix 16.4	Conservation Architect	Positive, Significant, Long-Term

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CHAPTER 17
INTERACTIONS OF THE FOREGOING

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Tables

17 Interactions of the Foregoing

17.1 Introduction

The construction, operational and cumulative impacts of the proposed development have been assessed within each chapter of the EIAR. This chapter considers the significant interactions of impacts between each of the separate disciplines.

In practice, many impacts have slight or subtle interactions with other disciplines. This chapter highlights in **Table 17.1** (located at the end of this chapter) those interactions whether there will be likely significant effects. Discussions of the nature and effect of the impact are primarily undertaken within each of the relevant chapters, while this chapter identifies the most important potential interactions.

Rachel has practised as a planning consultant for over 10 years and has directed the preparation of Environmental Impact Assessment Report (EIARs) for a range of development types including residential, commercial and industrial. Directly relevant experience to this proposed development is that Rachel has been involved in the direction and preparation of EIARs to accompany residential led applications that received permission for development including:

- Connolly Quarter Reg. Ref: 3054/22 - The construction of 187 build to rent apartments and 4 office blocks with heights ranging from 5 to 16 storeys. The proposed development included works to a Protected Structure (RPS Ref. No. 130).
- Bailey Gibson (PL29S.307221) - Demolition of all structures, construction of 416 residential units (incl. 4 houses, 412 apartments) and associated site works.
- Southwest Gate (Reg. Ref. 3228/20) – Demolition of 4 no. existing buildings and surface car parking, and construction of a mixed use scheme across 13 no. blocks comprising 1,123 no. residential units with supporting amenities, retail units, office accommodation, a primary healthcare centre, gym, cultural centre, childcare facility, hotel and a series of public open spaces.

17.2 Population and Human Health

During the construction phase, the following aspects have the potential to interact with population and human health:

- **Landscape and Visual** - Construction processes and plant such as cranes used during the construction phase may give rise to visual impacts.
- **Material Assets – Traffic and Transport:** Increased construction traffic movements on the local road network during the construction phase may give rise to noise, dust, and road safety impacts.
- **Material Assets – Built Services:** Excavation during the construction phase may give rise to risks to human health from contact with live electricity lines or damage to live gas pipelines.
- **Noise and Vibration:** There is potential for effects on human health associated with noise during the construction phase which may impact upon amenity.

- **Air Quality:** There is potential for impact on human health from dust associated with construction activities and thus impacting air quality.

During the operational phase, the following aspects have the potential to interact with population and human health:

- **Landscape and Visual -** The landscape plan will impact the quality of the private, communal and public open spaces, which could impact people's health and well-being.
- **Material Assets – Traffic and Transport:** The proposed development's proximity to services, amenities, and high-quality public transport would interact with patterns of traffic and transport locally during the operational phase. Traffic flows within the site have the potential to create safety risks for pedestrians and cyclists.
- **Air Quality:** Energy efficient design within the proposed development may give rise to reduced electricity consumption by future residents, potentially decreasing dependence on fossil fuels for energy generation, resulting in improved air quality. There is potential for impact on human health from a deterioration in air quality associated with emissions from vehicles.
- **Climate:** Energy efficient design within the proposed development may give rise to reduced electricity consumption by future residents, potentially decreasing dependence on fossil fuels for energy generation, resulting in significant CO_2 savings.

The potential significant effects on population and human health arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative effects will occur.

17.3 Landscape and Visual

During the construction phase, the following aspects have potential to interact with landscape and visual:

- **Population & Human Health:** The emergence of plant to facilitate the development resulting in short-term, slight to not-significant, neutral visual effects for the existing resident population and users of the surrounding road network.

During the operational phase, the following aspects have potential to interact with landscape and visual:

- **Population and Human Health** - The provision of new housing opportunities set within a high quality development with landscape and visual amenities and recreational opportunities, in close proximity to Howth town centre and harbour, with access to bus, dart, cycling and pedestrian infrastructure as well as a host of local amenities has been considered. The interaction of the future potential landscape and visuals effects of the proposed scheme with existing and future population and human health has the potential to have a significant positive effect in the long term.

- **Biodiversity** - The retention of the majority of trees and hedgerows within the site is part of the overall green infrastructure strategy of the overall landscape site plan and is essential for

the retention of the 'historical demesne' aesthetic of the proposed development, providing instant visual and landscape amenity value. The proposed landscape and green infrastructure strategies that are proposed for the Deer Park site along with designed in mitigation measures for the flora and fauna on the site, biodiversity have the potential to have an interaction that can be described as a significant positive effect in the long term.

- **Cultural Heritage: Built Heritage** - The considered architectural design approach which includes the layout, massing, tiering and stepping of the roof line and facades of the proposed development, along with the subtle material palette of colours and materials en façade are enhanced by a considered landscape and green infrastructure strategy that addresses the existing and future green infrastructure of the site and its surrounds, as well as retaining the existing historic aesthetic of the adjacent Architectural Conservation Area of Howth Castle and Demesne and protected structures. The interaction of the future potential landscape and visuals effects of the proposed scheme with existing cultural heritage of the site and it's surrounds has the potential to have a significant positive effect in the long term.

- **Cultural Heritage: Archaeology -** There are no archaeological or cultural features recorded or identified within the site itself. It is recommended that archaeological monitoring of topsoil stripping takes place during the construction phase of the project as there is a low potential for small archaeological features or deposits to exist below ground. The potential effects of the interaction between the archaeological cultural heritage of the Deer Park site and the landscape and visual effects of the proposed development are considered to be imperceptible and neutral. It is likely that there will be no significant adverse effects on interactions in this instance.

The potential significant effects on landscape and visual arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative impacts will occur.

17.4 Material Assets: Traffic and Transport

During the construction phase, the following aspects have the potential to interact with traffic and transport:

- **Noise and Vibration:** Construction traffic movements during the construction phase may give rise to localised noise and vibration effects.
- **Air Quality:** Construction traffic movements during the construction phase may give rise to increased vehicular emissions.
- **Climate:** Construction traffic movements during the construction phase may give rise to increased greenhouse gas emissions.
- **Population and Human Health:** Increased construction traffic movements on the local road network during the construction phase may give rise to noise, dust, and traffic disruption impacts, resulting in a negative impact on residential amenity.

During the operational phase, the following aspects have the potential to interact with traffic and transport:

- **Noise and Vibration:** Additional traffic movements during the operational phase may give rise to localised noise and vibration effects.
- **Air Quality:** Possible increases in traffic movements and reduced engine efficiency (due to congestion) during the operational phase may give rise to increased vehicular emissions. Increasing population at this location, close to high-quality public transport and with convenient access to services and amenities would interact with air quality in terms of the opportunity to reduce greenhouse gas emissions associated with car usage.
- **Climate:** Additional traffic movements associated with future occupants may give rise to increased greenhouse gas emissions; however, the overall impact of this interaction is not considered to be significant in EIA terms. The increasing population at this location, close to high-quality public transport and with convenient access to services and amenities would interact with climate in terms of the opportunity to reduce greenhouse gas emissions associated with car usage.
- **Population and Human Health:** The proposed development's proximity to services, amenities, and high-quality public transport would interact with patterns of traffic and transport locally during the operational phase.

The potential significant effects on traffic and transport arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative effects will occur.

17.5 Material Assets: Built Services

During the construction phase, the following aspects have the potential to interact with built services:

- **Population and Human Health:** Excavation during the construction phase may give rise to risks to human health as a result of any excavation work in areas where built services exist through coming into contact with live electricity lines or damaging live gas or watermains.
- **Land and Soil:** Trench excavations to facilitate site service installation may give rise to the erosion of subsoils and subsequent sediment generation. Additionally, the installation of road and infrastructure services and storage systems during the construction phase will require removal of topsoil and earthworks.

During the operational phase, the following aspects have potential to interact with built services:

- **Water and Hydrology:** The proposed development may give rise to changes to surface water run-off, with impacts to water and hydrology. There will be an increased demand on potable water supply.
- **Climate:** The built services have an interaction with climate in the availability and use of non-greenhouse gas reliant power and heat sources.

The potential significant impacts on built services arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative impacts will occur.

17.6 Material Assets: Waste

During the construction phase, the following aspects have the potential to interact with waste:

- **Population and Human Health:** management of waste during the construction phase may give rise to increased levels of vermin, litter, and dust.
- **Land and Soils:** Excavation will require the removal of soils.
- **Material Assets - Traffic and Transport:** The movement of construction waste during the construction phase may give rise to impacts on traffic and transport.

During the operational phase, the following potential interact with waste is:

- **Population and Human Health:** increased domestic waste, if not managed appropriately may give rise to nuisance locally.

The potential significant effects on waste arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative effects will occur.

17.7 Land and Soils

During the construction phase, the following aspects have the potential to interact with land and soils:

- **Water and Hydrology:** The introduction of impermeable surfaces and the compaction of soils during the construction phase may give rise to an increase in direct surface run-off and sediment loading which could potentially impact local drainage.
- **Material Assets – Built Services:** The installation of road and infrastructure services and storage systems during the construction phase will require removal of topsoil and earthworks.
- **Biodiversity:** the preparatory works have the potential to cause impact on the biodiversity of the site, through removal and disturbance of habitats and species.
- **Air Quality:** Land clearing, excavation, stockpiling of materials, and other activities during the construction phase may give rise to dust emissions; however, the overall impact of this interaction is not considered to be significant in EIA terms once the proposed mitigation measures are in place.
- **Cultural Heritage – Archaeological:** Site clearance works may impact on sub-surface archaeology.

No potential operational interactions are identified.

The potential significant effects on land and soils arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative effects will occur.

17.8 Water and Hydrology

During the construction phase, the following aspects have the potential to interact with water & hydrology:

- **Material Assets Built Services**: The construction of the proposed services (water supply, drainage and IT etc.) may affect the local hydrological and hydrogeological environment as there is a risk of suspended solids run off.
- **Land and Soils:** Site preparatory works (i.e. site clearance, re-profiling etc.) during the construction stage have the potential to impact on the hydrology and hydrogeology due to the risk of solids becoming entrained in surface water runoff and accidental spills etc.
- **Biodiversity:** Impacts to water quality during the construction phase, such as accidental pollution/spillage events, may give rise to impacts on sensitive aquatic receptors, such as habitats and fauna, that are hydrologically linked to the site.

During the operational phase, the following aspects have the potential to interact with water & hydrology:

- **Material Assets Built Services:** There will be an increased demand on potable water supply and on the municipal drainage system.

The potential significant effects on water and hydrology arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative effects will occur.

17.9 Biodiversity

During the construction phase, the following aspects have the potential to interact with biodiversity:

- **Land and Soils:** Bulk removal of soils, sands, and gravel during the construction phase may give rise to biodiversity impacts.
- **Water and Hydrology:** Impacts to water quality during the construction phase, such as accidental pollution events, may give rise to impacts on sensitive aquatic receptors, such as habitats and fauna, that are hydrologically linked to the site.
- **Air Quality:** The stripping of topsoil and excavation during the construction phase will remove some vegetation such as trees and scrub, and may give rise to dust emissions.
- **Noise and Vibration:** Increased noise levels during the construction phase may give rise to impacts on sensitive fauna such as birds within adjacent habitats.

During the operational phase, the following aspects have the potential to interact with biodiversity:

- **Water and Hydrology:** Impacts to water quality during the operational phase, such as accidental pollution events, which may give rise to impacts on habitats and fauna that are hydrologically linked to the site.

The potential significant impacts on biodiversity arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative impacts will occur.

17.10 Noise and Vibration

During the construction phase, the following aspects have the potential to interact with noise and vibration:

- **Material Assets – Traffic and Transport:** Construction traffic movements during the construction phase may give rise to localised noise and vibration effects.
- **Biodiversity:** Increased noise levels during the construction phase may give rise to impacts on sensitive fauna such as birds within adjacent habitats.
- **Population & Human Health -** There is potential for interaction with population and human health associated with noise generated during the construction phase.

During the operation phase, the following aspects have potential to interact with noise and vibration:

- **Material Assets – Traffic and Transport:** Additional traffic movements during the operational phase may give rise to localised noise.

The potential significant impacts on noise and vibration arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative effects will occur.

17.11 Air Quality

During the construction phase, the following aspects have the potential to interact with air quality:

- **Population and Human Health:** Activities during the construction phase may impact air quality and give rise to health and dust nuisance issues.
- **Material Assets - Traffic and Transport:** Increased traffic movements during the construction phase may give rise to increased vehicular emissions.
- **Climate:** Air quality and climate are strongly linked, as the burning of fossil fuels during the construction phase may give rise to air quality effects.
- **Land and Soils**: Land clearing, excavation, stockpiling of materials, and other activities during the construction phase have the potential to give rise to dust emissions.
- **Biodiversity**: Stripping of topsoil and excavation during the construction phase will remove some vegetation such as trees and scrub, and may give rise to dust emissions.

During the operational phase, the following aspects have the potential to interact with air quality:

- **Population and Human Health:** There is potential for impact on human health from a deterioration in air quality associated with emissions from vehicles.
- **Traffic and Transport:** Possible increases in traffic movements and reduced engine efficiency (due to congestion) during the operational phase may give rise to increased vehicular emissions.
- **Climate:** Air quality and climate are strongly linked, as the burning of fossil fuels during the operational phase may give rise to both air quality and climate impacts.

The potential significant impacts on air quality arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative effects will occur.

17.12 Climate

During the construction phase, the following aspects have the potential to interact with climate:

- **Air Quality:** Air quality and climate are strongly linked, as the burning of fossil fuels during the construction phase may give rise to both air quality and climate impacts.
- **Material Assets – Waste:** Waste management measures will be put in place to minimise the amount of waste entering landfill, which has higher associated embodied carbon emissions than other waste management measures.
- **Water and Hydrology:** Climate has the potential to interact with flood risk.
- **Traffic and Transport:** Construction traffic movements during the construction phase may give rise to increased greenhouse gas emission from vehicles.

During the operational phase, the following aspects have the potential to interact with climate:

- **Population and Human Health:** Energy efficient design within the proposed development may give rise to reduced electricity consumption by future residents, potentially decreasing dependence on fossil fuels for energy generation, resulting in significant CO_2 savings.
- **Air Quality:** Air quality and climate are strongly linked, as the burning of fossil fuels during the operational phase may give rise to both air quality and climate impacts.
- **Material Assets – Waste:** Waste entering landfill during the operational phase may give rise to increased embodied carbon emissions when compared to other waste management measures.
- **Water and Hydrology:** Climate has the potential to interact with flood risk.
- **Traffic and Transport:** Construction traffic movements during the operational phase may give rise to increased greenhouse gas emissions.

The potential significant impacts on climate arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative effects will occur.

17.13 Cultural Heritage: Archaeological

During the construction phase, the following aspects have the potential to interact with archaeological heritage:

- **Land and Soils:** Site clearance works may impact on sub-surface archaeology.

No potential operational interactions were identified.

The potential significant impacts on archaeological heritage arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative effects will occur.

17.14 Cultural Heritage: Built Heritage

During the construction phase, the following aspects have the potential to interact with cultural built heritage:

- **Landscape and Visual:** The proposed openings in the northern demesne wall will result in the removal of historic fabric. However, it is intended to reuse this fabric to carry out remediation works to the remainder of the wall. The emergence of construction plant and hoarding to secure the development site would interact with the landscape and visual environment in the short term.
- **Population and Human Health:** The proposed development will result in an increased population during its operational phase, including increased footfall in and around the architectural heritage assets. This will result in increased awareness of the recorded monuments, protected structures, NIAH structures and heritage features which is positive. There is an associated potential for inadvertent damage to features.

During the operational phase, the following aspects have the potential to interact with cultural built heritage:

- **Landscape and Visual:** Indirect operational phase visual impacts are anticipated on the setting of Howth Castle ACA including the setting of the Castle Gates, and the setting of St. Mary's Church.

The impact is reduced by the proposed and retained buffer planting, by the repair, retention and sensitive alteration of the boundary wall, by the positioning and massing of the buildings particularly the setbacks between Blocks C and D to the entrance to Howth Castle, and by the design, materiality and detailing of the proposed buildings. The potential significant effects on built heritage arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. The predicted operational phase impact is neutral, moderate and long-term. With mitigation measures in place, no significant permanent residual negative effects will occur.

17.15 Conclusion

As outlined above, the proposed development has the potential to impact various environmental aspects, with interactions and inter-relationships between these aspects as described above. The EIAR has considered these interactions and inter-relationships throughout the appraisal, firstly through the design and layout of the proposed developments, to avoid impacts where possible, and also in the definition of suitable mitigation measures to minimise the impacts.

Table 17.1 Interactions with Potential for Significant Impacts Before the Implementation of Mitigation Measures

	Pop. & H. Health		Landscape & Visual		MA: Traffic & Transport		MA: Built Services		MA: Waste		Land & Soils		Water & Hydrology		Biodiversity		Noise & Vibration		Air Quality		Climate		CH: Arch-aeological		CH: Built Heritage	
	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op
Pop. & Human Health			✓	✓	✓	✓	✓		✓	✓	×	×	×	×	×	×	✓	×	✓	✓	×	✓	×	×	×	×
Landscape & Visual	✓	✓			×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	✓
MA: Traffic & Transport	✓	✓	×	×			×	×	✓	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×
MA: Built Services	✓	×	×	×	×	×			×	×	✓	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×
MA: Waste	×	×	×	×	×	×	×	×			×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×
Land & Soils	×	×	×	×	×	×	✓	×	✓	×			✓	×	✓	×	×	×	✓	×	×	×	✓	×	×	×
Water & Hydrology	×	×	×	×	×	×	×	✓	×	×	✓	×			✓	✓	×	×	×	×	✓	✓	×	×	×	×
Biodiversity	×	×	×	✓	×	×	×	×	×	×	✓	×	✓	×			✓	×	✓	×	×	×	×	×	×	×
Noise & Vibration	✓	×	×	×	✓	✓	×	×	×	×	×	×	×	×	✓	×			×	×	×	×	×	×	×	×
Air Quality	✓	✓	×	×	✓	✓	×	×	×	×	✓	×	✓	×	✓	×	×	×			✓	✓	×	×	×	×
Climate	×	✓	×	×	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	✓	✓			×	×	×	×
CH: Archaeo-logical	×	×	×	✓	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×			×	×
CH: Built Heritage	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×		

Con. - Construction Phase | Op. - Operational Phase | ✓ - Potential Significant Interaction | × - No Significant Interaction

CHAPTER 18
SUMMARY OF MITIGATION MEASURES

VOLUME II
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MAY 2024

Table of Contents

Table of Tables

18 Summary of Proposed Mitigation Measures

18.1 Introduction

A key objective of the Environmental Impact Assessment process is to identify likely significant environmental impacts at the pre-consent stage and where necessary to propose measures to mitigate or ameliorate such impacts. This chapter of the EIAR summarises the proposed mitigation measures set out in Chapters 4 to 16.

All the mitigation measures proposed within the individual specialists' assessments will be incorporated into the Construction and Environmental Management Plan (CEMP) prior to works commencing on-site.

18.2 Mitigation

Table 18-1 Incorporated Design Mitigation Measures

Aspect	Mitigation
Population & Human Health	▪ The proposed development complies with the Building Regulations, to safeguard users of the buildings and the health of occupants. ▪ The proposed development complies with the requirements of Part M of the Building Regulations and incorporates the principles of universal design so that the development will be readily accessible to all, regardless of age, ability, or disability. ▪ Provision of segregated pedestrian entrance and separation of vehicular traffic. ▪ Energy efficient measures are incorporated into the design to provide for healthier living standards for future occupants, reduced dependence on fossil fuels and associated improved air quality. ▪ The availability of on the doorstep public open space, amenity spaces, bicycle facilities and a highly accessible layout across the scheme will encourage sustainable modes of outdoor access for a wide age group.
Landscape and Visual Impact	<u>Site Layout, Height, and Massing</u> The various elements of the development on site have been positioned in order to enhance the appearance of the scheme as a whole through the design of the site layout and built form. ▪ The proposed layout of the LRD presents as a 3-5 storey high density residential development, that has through several design iterations and consultation with the local authority been sensitively considered to take account of the significance of the sites' location adjacent to the adjacent Howth Castle and Demesne & ACA, in particular the gated access to Howth Castle, as well as to the entrance to Howth town and harbour. ▪ The breakdown of the two buildings (Block A with Block B, Block C with Block D) create three distinct areas of public realm, with public open space located to the east, communal open space in the centre and the surface car park and high amenity space located to the west. ▪ The retention of the boundary wall as well the majority of the existing trees within the site are considered as positive measures that will enhance the overall quality and aesthetic of the proposed development generally.

Table 18-1 Incorporated Design Mitigation Measures

Aspect	Mitigation
	▪ The site layout, height and massing is also cognisant of local preserved views, the High Amenity area to the south of the site as well the buffer zone to the Howth Head SAAO. ▪ The height of the proposals are of a considered scale that will not impact on the sensitive historical buildings within the Howth Castle and Demesne ACA, (St. Marys Church, Howth Castle) and will generally not break the canopy of existing trees within the wider demesne landscape setting. <u>Architectural Materials and Treatments</u> ▪ The proposed development has incorporated a number of design interventions that respond to the coastal and historic setting, that combined, assist in reducing the apparent massing of the built environment. ▪ These architectural interventions include setbacks and step downs of the blocks, with recessed balconies, recessed punctuations to the façade which assist in reducing the apparent length of the elevations. ▪ Earth and sand colour tones in the materially of the finishes soften the overall appearance of the built form, and include warm and neutral brick, warm browns to the metal claddings to the top floor setbacks, brown/green metal railings to the balconies. These earth and sand tones finishes are reflective of the colours in the immediate historical landscape setting and also in the local coastal setting. <u>Landscape Masterplan Proposals</u> ▪ Connectivity is an important consideration within the overall design as well as the objective to create a sense of place by designing an attractive residential area set within and adjacent to a historical landscape setting. In conjunction with the architectural design above, the landscape proposals are a sensitive response to the visual and historic landscape setting. ▪ The landscape proposals are a response to utilising the new connectivity through the proposed pedestrian, cyclist and vehicular access to the site through the proposed openings in the boundary wall into the site itself. ▪ The proposed development is highly permeable to residents with looping pathways linking the public open space, communal gardens, amenity and recreational spaces within the scheme and to the wooded amenity landscape of the Howth Golf Course lands which forms a backdrop to the proposed development. ▪ An area in the southwest of the site zoned for High Amenity will be re-wilded. ▪ Bicycle parking is provided across the site and has have been carefully considered in terms of accessibility and security for bike users. ▪ Bin stores are centrally located and can be accessed from either side for greater accessibility. ▪ The landscape design has considered the historical landscape setting, existing and future green infrastructure, biodiversity and sustainable urban drainage systems and materials. ▪ The future viability and management of the existing tree and hedgerows of the site are considered vital for the retention of the historic landscape aesthetic and for the future benefit of residents of the scheme and the wider community.

Table 18-1 Incorporated Design Mitigation Measures

Aspect	Mitigation
Material Assets: Traffic & Transport	▪ Reduced car parking provision to manage car ownership, and associated traffic and environmental impact to promote sustainable mobility choices. ▪ Ample cycle parking provision has been provided per apartment to promote sustainable mobility choices. ▪ Resident cycle parking located in secure, weather protected, and easily accessible enclosures, to promote sustainable mobility choices. ▪ Cargo bike parking is proposed to facilitate sustainable movement of larger packages or groceries by residents. ▪ The proposed development's mobility features are compliant with the Design Manual for Urban Roads and Streets (DMURS), minimising risks associated with vehicle and people movements.
Material Assets: Built Services	▪ The design has been prepared based on relevant codes of practice, design guidance and in consultation with relevant local and statutory authorities to ensure best practice design, considering the effect on local and wider network for water supply, foul and surface water drainage, gas supply, electrical network and the telecommunication network. ▪ The development will be constructed to the Part L Near Zero Energy Building (NZEB) standard which will result in an improved thermal performance along with the incorporation of renewable technology, accordingly, the demand on energy infrastructure will be reduced.
Material Assets: Waste	▪ All apartment units will contain a 3-bin domestic waste segregation at source system, in compliance with which will comply with *"Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities"* (DHPLG, 2022). This will encourage waste segregation at source. ▪ Appropriately sized communal waste storage areas will be provided to accommodate segregated domestic waste, glass generated by the development. These areas will have provision for extra capacity to store additional waste for contingency purposes. This will allow for separate Organic, Recyclable, Mixed Waste, Glass and WEEE waste streams.
Land & Soils	▪ The proposed development will be designed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and will maintain run-off rates at the existing greenfield condition and improve storm water quality discharging to the public storm water system. The SuDS will be addressed by the provision of the following elements: o Interception storage: Green-Blue roofs, permeable paving, bio-retention areas, bio-retention tree pits, and oil/petrol interceptors, o Attenuation storage: It is proposed to provide an attenuation tank within the site. This will be designed for the 1 in 100 year storm + 30% climate change, and will form the last part of the SuDS management train. A Hydrobrake will be fitted downstream the tank in order to restrict the flow to the greenfield equivalent runoff for the catchment area. ▪ Rainwater harvesting is proposed - the surface water stored on the roof in the form of the blue roof can be re-used by the management company for irrigation of the landscaped areas and as such rainwater harvesting is provided on the scheme

Table 18-1 Incorporated Design Mitigation Measures

Aspect	Mitigation
Water & Hydrology	▪ The proposed development will be designed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and will maintain run-off rates at the existing greenfield condition and improve storm water quality discharging to the public storm water system. The SuDS will be addressed by the provision of the following elements: o Interception storage: Green roofs, blue roofs, tree pits, rain gardens, lined permeable paving, bioretention areas and rainwater harvesting. o Attenuation storage: It is proposed to provide a lined underground attenuation tank within the site. This will be designed for all storms up to and including a 1 in 100 year storm + 30% climate change, and will form the last part of the SuDS management train. A Hydrobrake will be fitted downstream of the attenuation tank in delay the time of entry into the surface water system. ▪ These elements will intercept any potential leakage of fuel from car park areas. The main source of pollutant is potentially from surface water run-off from the surface car park & access roads.
Biodiversity	<u>SuDS</u> The SuDS features included in the Project Design will ensure the surface water generated by the Proposed Development once operational is reduced to greenfield runoff rates and has been filtered prior to discharge to the local storm sewer network. ▪ Bioretention Areas will be utilised throughout the Proposed Development ▪ The road design shall utilise cross falls allowing run off to flow over dropped kerbs into linear bioswales to be located parallel to roadways throughout the proposed development. ▪ Rain Gardens will be adopted within the proposed development with surface water discharge from roofs conveyed to same. ▪ Green Roofs and Blue roofs with extensive Green Roof coverings will be provided on buildings with flat roofs. ▪ Tree Pits will be provided in combination with the bioretention swales and bioretention areas. ▪ Filtration system SuDS will be incorporated into the development due to the lack of infiltration capacity identified during ground investigations. As such, lined permeable paving and filter drains will be utilised. ▪ A lined underground attenuation tank will be required prior to the controlled discharge of surface water from the Proposed Development to the existing surface water drainage to the west of the Site. The attenuation tank will be proceeded by all of the nature-based SuDS features noted above. The size of the underground tanks shall be limited through the provision of hydro-brake flow restricting devices in each of the sub-catchments upstream and on the blue roofs; to delay the time of entry into the surface water system. ▪ A bypass petrol interceptor will be provided prior to discharge of surface water from the site. <u>Bat-Friendly Public Lighting</u> The lighting scheme has been designed to allow for minimal levels of light-spill on to the western hedgerow, southern woodland belt and eastern wooded boundary of the Site, which will be used by bats and other wildlife to forage and commute around the site.

Table 18-1 Incorporated Design Mitigation Measures

Aspect	Mitigation
	▪ The lighting scheme for the Proposed Development has been designed to ensure it is sensitive to local wildlife usage of the Site and the areas around the Site. ▪ The scheme has been designed so that lux levels along the vegetated boundaries of the Site have been minimised. ▪ There will be no public lighting within the public open space to the east of the Site to allow for minimal levels of light-spill on to the woodland belt to the south and existing trees to the east. <u>Landscape Design</u> The retention of the majority of the existing boundary vegetation, coupled with the proposed planting of trees and shrubs throughout the site, planting of native hedgerow and provision of meadow and woodland planting in the south-western and south-eastern corners of the Site, will more than offset the loss of existing grassland, scrub and lesser section of the southern woodland belt on the site. • Retention of the majority of boundary vegetation at the Site. • Widespread tree and shrub planting throughout the Proposed Development to result in a net increase in the number of trees.
Noise & Vibration	• External noise can enter rooms within dwellings through windows, ventilators, walls, roof and doors. In most cases, however, windows provide the main path and therefore, mitigation by design has focused on this building element to ensure that their insulation is adequate. All apartments shall have external windows shall have acoustically rated windows to prevent breakthrough of external noise. • The acoustic performance will meet the minimum requirements which shall apply to the overall glazing system when installed on site. In the context of the acoustic performance specification the 'glazing system' is understood to include any and all of the component parts that form part of the glazing element of the façade, i.e., glass, frames, seals openable elements etc. All exterior wall and door frames should be sealed tight to the exterior wall construction.
Air Quality	• Energy Efficiency – The development will be designed to Technical Guidance document (TGD) Part L 2022 of the Building Regulations. The design intent is to achieve at least an A3 Building Energy Rating. • The proposed apartments will comply with Part L Regulations (NZEB). • Energy Consumption - The following key design features have been integrated into the design and construction of the residential units to reduce energy consumption: o U-values for floor and roof will exceed the building regulation backstops; o Using a specified Glazing U-Value target; o Better performance air permeability than the backstop, adding to building air tightness; o High performance thermal bridging; o Mechanical Extract Ventilation with Heat Recovery via heat pump; and, o Exhaust Air Source Heat Pump to provide Space Heating (via radiators) and Domestic Hot Water

Table 18-1 Incorporated Design Mitigation Measures

Aspect	Mitigation
	• Proximity of Public Transport including the bus and DART services will reduce dependence on private vehicles. • Provision of open landscaped areas, to encourage residents to avail of active lifestyle options and which will contribute albeit in a minor way to the adsorption of carbon dioxide from the atmosphere and the release of oxygen into the atmosphere
Climate	<u>Nearly Zero Energy Building</u> As per the Energy Analysis Statement, the development will be a Nearly Zero Energy Building (NZEB) in accordance with the Part L requirements. In relation to the apartment units, these will aim to achieve a Building Energy Ratio (BER) of at least A3. The units will have an energy performance coefficient (EPC) that complies with NZEB (maximum permitted under NZEB requirements is <0.3). The units will also have a carbon performance coefficient (CPC) and renewable energy ratio (RER) that comply with NZEB requirements (maximum permitted CPC under NZEB requirements is <0.35 and RER is 0.20). The following items will assist in achieving the NZEB compliance: ▪ Energy efficient LED lighting will be utilised. ▪ Exhaust air source heat pump technology will be installed. ▪ A total of 28 PV solar panels will be installed on Blocks A to D to supplement renewable energy contribution provided by a decentralised heating system. The Building Life Cycle Assessment Report also states that the following measures in addition to those outlined above are being considered for the proposed development, which will have the benefit of reducing energy related impacts to climate during operation. These measures include: ▪ Use of natural ventilation. ▪ Use of natural light to reduce the need for artificial lighting. ▪ Long-lasting and durable materials will be chosen, where feasible, to reduce ongoing maintenance and replacement requirements. ▪ Proximity to public transport to reduce private car journeys and promote more sustainable travel options. ▪ 13 Electric Vehicle (EV) charging points will be provided In line with both the building regulations (TGD Part L, since 2021) as well as the Fingal Council Development Plan. ▪ The provision of 410 bicycle parking spaces. The above measures will assist in optimising the energy consumed by the development and will also have the benefit of reducing the impact to climate during the operational phase of the development. <u>Impacts from Climate Change</u> A number of measures have been incorporated into the design of the development in order to mitigate against the impacts of future climate change. For example: ▪ Adequate attenuation and drainage have been incorporated into the design of the development to avoid potential flooding impacts as a result of increased rainfall events in future years.
Cultural Heritage: Archaeology	▪ No mitigation proposed.
Cultural Heritage: Built Heritage	▪ The design of the site and the layout of the proposed buildings have been carefully considered with regard to the visual impact of the development on the

Table 18-1 Incorporated Design Mitigation Measures

Aspect	Mitigation
	sensitive setting of neighbouring protected structures, the Howth Castle ACA, and other significant views and vistas within the receiving environment. ▪ The massing strategy balances the requirement to create a strong architectural presence at the gateway to the village of Howth, with the sensitivities of the demesne landscape. The buildings are set as far from the site boundaries as possible while retaining the existing significant trees, supplemented with new planting, especially along the east boundary, and to the south of the proposed buildings, to add to the existing screening between the site and the castle entrance, gates and avenue. ▪ The forms are cranked and stepped in plan and section to respond to the existing topography, breaking up the blocks, allowing a through view on approach to the site, creating visual interest and providing relief, especially along Howth Road. ▪ Projecting balconies have been eliminated from the front of Blocks A and C and from the end elevations. The fifth storey is set back from the road, breaking up the mass and reducing the impact. Green roofs are proposed for both blocks where they will be viewed from the above and to the south, significantly from Muck Rock. All plant (other than solar panels) will be housed inside the blocks and will not feature on views of the roof. ▪ The design intention is for buildings of high-quality architectural design, coupled with precision detailing, using modern materials and a natural colour palette drawn out of the context. Elevations will be finished in selected brick, which is an attractive, hard-wearing and robust solution appropriate to the maritime context. Railings will be painted metal with high-performing metal windows. ▪ The proposed openings in the demesne wall are minimal, and required to allow for safe pedestrian, bicycle and vehicular access to the site. They will read as minimal, modern interventions into the historic fabric to distinguish between new and old.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
Population & Human Health	▪ A final Construction and Environmental Management Plan (CEMP), and Resource Waste Management Plan (RWMP) will be agreed with Fingal County Council prior to commencement, and implemented by the selected contractor after any consent is received. All construction personnel will be required to understand and implement the requirements of the CEMP and RWMP and shall be required to comply with all legal requirements and best practice guidance for construction sites. ▪ The CEMP provides for a construction phase management structure to ensure that environmental protection and mitigation measures are put in place. The CEMP requires that these measures will be checked, maintained to ensure adequate environmental protection. The CEMP also requires that records will be kept and reviewed as required to by the project team and that the records will be available on site for review by the planning authority.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	▪ All construction personnel will attend induction and training classes as required to ensure that the CEMP is effectively implemented. The CEMP will comply with all appropriate legal and best practice guidance for construction sites. ▪ Project supervisors for the construction phase will be appointed in accordance with the Health, Safety and Welfare at Work (Construction Regulations) 2013 (as amended), and a Preliminary Health and Safety Plan will be formulated during the detailed design stage which will address health and safety issues from the design stages, through to the completion of the construction phases.
Landscape and Visual Impact	▪ Height of temporary stockpiles to be restricted to a practicable minimum to avoid impact on local sensitive receptors. ▪ Hoarding will be erected around site boundaries to reduce visual impact of construction works – this will screen the minor demolition works proposed to the boundary wall to facilitate the proposed access. ▪ Plant will be held in designated compound on site. ▪ Protective fencing will be installed around the existing boundary trees. ▪ Appropriate site management measures and work practices will be implemented to ensure the site is kept tidy, dust is kept to a minimum, and that public areas are kept free from building material and site rubbish. ▪ Appropriate site hoardings will be put in place around the perimeter of the site where required to minimise the landscape and visual impact.
Material Assets: Traffic & Transport	▪ Road cleaning to be implemented on site during the earliest construction phase to mitigate against material such as dust, earth, debris etc. from entering the local road network, as required. ▪ Parking of all construction vehicles, including staff vehicles, to take place within the bounds of the subject site. ▪ Haul route outlined within Chapter 12 will be strictly adhered to by construction vehicles so as not to have an undue impact on the local road network.
Material Assets: Built Services	<u>Surface Water Drainage</u> ▪ The Contractor shall prepare and implement a Construction Phase Surface Water Management Plan that ensures avoidance and minimisation of effects. ▪ Surface Water storage in excavations shall be directed to on-site settlement ponds, where silt removal will be facilitated prior to discharge off site at a controlled and agreed rate in accordance with the greenfield runoff rates for the site. ▪ All oils, solvents and paints used during construction will be stored within temporary bunded areas or chemical storage containers, to reduce and minimise the risk on impacting the existing water environment from material spillages. <u>Wastewater Drainage</u> ▪ The construction phase discharge of Wastewater to the existing 400mm wastewater sewer to the north of the subject site shall comply with the conditions of a temporary connection from Uisce Éireann. ▪ During construction, all new sewers shall be pressure tested and CCTV surveyed in accordance with the Uisce Éireann Standards to identify potential defects and such defects, should they arise, shall be repaired prior to the connection. <u>Water Supply</u>

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	▪ During construction, the temporary connection off the existing 160mm dia. MOPVC shall comply with the conditions of a temporary connection from Uisce Éireann. ▪ The watermains shall be tested in accordance with the requirements of Uisce Éireann prior to connection. <u>Electricity</u> ▪ The ESB shall install the new incoming supply to the proposed development. ▪ The ESB shall liaise with residents and keep existing customers fully informed of any brief outages which may be required due to the diversion and undergrounding of the existing overhead 10kV/ 20kV line or connections to the proposed development. ▪ The Contractor shall ensure that construction works on site adhere to the ESB Networks / HSA *"Code of Practice for Avoiding Danger from Overhead Electricity Lines"*. <u>Telecommunications</u> ▪ The relevant utility provider shall install the new incoming supplies to the proposed development and shall liaise with existing customers to advise of possible outages in order to facilitate the connections. ▪ The works shall be carried out such that they minimise disruption to surrounding areas. <u>Gas</u> ▪ GNI shall liaise with residents and keep existing customers fully informed of any brief outages which may be required due to the diversion of the existing 90mm dia. 4 bar gas main which traverses the site. ▪ It is not proposed to provide gas as a utility within the proposed development.
Material Assets: Waste	<u>Construction Waste Management</u> ▪ A dedicated and secure compound containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established from the outset of construction activities, within the active construction phase of the development site. ▪ Spill kits shall be located within the site compound with clearly labelled instructions on how they shall be used to clean up fuel/oil spills to minimise the potential for ground contamination. ▪ All vehicle and plant oils and liquid construction materials shall be stored in secure impermeable storage units. ▪ All diesel-powered generators shall be inspected on at least a weekly basis by a delegate of the project manager to ensure it is not leaking diesel or oils. ▪ All empty containers containing residual quantities of oils, greases and hydrocarbon-based liquids shall be stored in a dedicated, clearly labelled impermeable container. ▪ To ensure that the construction contractor correctly segregates waste materials, the site construction manager will be responsible for ensuring all staff are informed (by means of clear signage and verbal instruction) and made responsible for ensuring site housekeeping and the proper segregation of construction waste materials.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	▪ The Resource and Waste Manager (RWM) will be responsible for ensuring that a written record of all quantities and natures of wastes exported off-site are maintained on-site in a Waste File at the Project office. ▪ The RWM will be responsible for ensuring that all contracted waste haulage drivers hold an appropriate Waste Collection Permit for the transport of waste loads, and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the relevant regulations. ▪ Prior to the commencement of the Project, the Resource and Waste Manager (RWM) shall identify a permitted Waste Contractor(s) who shall be engaged to collect and dispose of all inert and hazardous wastes arising from the project works. ▪ The RWM shall maintain copies of all Waste Collection Permits and copies of the Waste Facility Permit or Waste Licence to which waste materials are exported to. The RWM shall ensure that all Permits/Licences are within date. ▪ All waste soils prior to being exported off-site, shall be classified as inert, non-hazardous or hazardous, in accordance with *"Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous"* (EPA, 2018) to ensure that the waste material is transferred by an appropriately permitted waste collection permit holder and brought to an appropriately permitted or licensed waste facility. <u>Resource Management</u> ▪ Materials shall be ordered on an "as needed" basis to prevent over supply and to prevent damage to bulk orders stored on-site. ▪ Materials shall be stored and handled in a manner that minimises the generation of damaged materials. ▪ Materials shall be ordered in appropriate sequence to minimise materials stored on site. ▪ All staff and subcontractors shall be advised through inductions and toolbox talks on how to dispose of their waste correctly on-site. ▪ Broken concrete blocks and excess aggregate materials shall be segregated and stored off-site for use as hard standing material on future projects. This will result in the following positive impacts: o Reduction in the requirement for virgin aggregate materials from quarries. o Reduction in energy required to extract, process and transport virgin aggregates. o Reduced HGV movements associated with the delivery of imported aggregates to the site. o Reduction in the amount of landfill space required to accept C&D waste. ▪ Excess wood will be segregated in separate skips and sent for recycling. ▪ Plastic arising from general waste or packaging will be segregated and stored in separate skips. ▪ Metals waste shall be stored in dedicated skips. ▪ Topsoil that is stripped shall be retained for landscaping purposes.
Land & Soils	Albeit a traditional demolition stage is not proposed given no existing buildings or structures are located on the site, partial demolition of the existing boundary wall is

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	proposed to facilitate access. Excavation will require soil excavation and infill. The re-use of topsoil for completion of the main site works and landscaping will be evaluated. If it is adequate, topsoil will be stored and protected in an appropriate manner on site for the duration of the construction works. Previous uses of the site and site testing has not indicated any evidence of soil contamination at the site. <u>Excavations</u> ▪ Excavation will require soil excavation and infill. The re-use of topsoil for completion of the main site works and landscaping will be evaluated. If it is adequate, topsoil will be stored and protected in an appropriate manner on site for the duration of the construction works. ▪ Previous uses of the site and site testing has not indicated any evidence of soil contamination at the site. However, where any excavated material is found to be contaminated, an appropriate disposal method shall be selected depending on the type of contaminant found. Testing will be carried out in pre-construction works by the contractor to determine the soil classification; i.e. inert, non-hazardous or hazardous (WAC testing). ▪ Excess material arising from excavations shall be treated as a by-product in accordance with Article 27 of the Waste Directive Regulations (2011). ▪ During the construction phase, all excavations and exposed sub-soils in open cuts will be blinded and protected with clean broken stone as soon as possible after exposing the subsoil in order to prevent erosion. ▪ Silt and sediment barriers will be installed at the perimeter of earthworks construction areas to limit transport of erodible soils outside of the site. ▪ An appropriate dewatering system and groundwater management system specific to the site conditions will be designed and maintained. These will include measures to minimise any surface water inflow into the excavation, where possible, and the prolonged exposure of groundwater to the atmosphere will be avoided. ▪ The pumping of water will be carried out under the conditions of a Trade Effluent Discharge License issued to the construction contractor by Uisce Éireann. ▪ Qualitative and quantitative monitoring will be adopted to ensure that the water is of sufficient quality to discharge. The use of silt traps will be adopted if the monitoring indicates the requirement for same with no silt or contaminated water permitted to discharge to the receiving water environment. ▪ Any discharge of construction surface water or groundwater from excavations shall pass through appropriate filtration and sedimentation system, designed in accordance with *"Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors"* (CIRIA C532). During the construction phase, all excavations and exposed sub-soils in open cuts will be blinded and protected with clean broken stone as soon as possible after exposing the subsoil in order to prevent erosion. Silt and sediment barriers will be installed at the perimeter of earthworks construction areas to limit transport of erodible soils outside of the site. An appropriate dewatering system and groundwater management system specific to the site conditions will be designed and maintained. These will include

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	measures to minimise any surface water inflow into the excavation, where possible, and the prolonged exposure of groundwater to the atmosphere will be avoided. A Construction Management Plan (CEMP) is included with this application under separate cover. It will be adopted by the construction contractor prior to commencement of construction. The CEMP will incorporate the mitigation measures outlined below as they relate to the construction phase. The CMP will include emergency response procedures in the event of a spill, leak, fire or other environmental incident related to construction. This is an active document which is continuously updated to manage risk during the construction programme. All relevant personnel working on the site will be trained in the implementation of the procedures. As a minimum, the manual will be formulated in consideration of the standard best international practice including but not limited to: ▪ CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors. ▪ Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005. ▪ BPGCS005, Oil Storage Guidelines. ▪ Eastern Regional Fisheries Board, (2006), Fisheries Protection Guidelines: Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites.. ▪ CIRIA 697, The SUDS Manual, 2007. ▪ UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004. <u>Accidental Spills and Leaks</u> ▪ To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas. ▪ Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil. ▪ In the case of drummed fuel or other chemical which may be used during construction containers will be stored in a dedicated internally bunded chemical storage cabinet and labelled clearly to allow appropriate remedial action in the event of a spillage ▪ Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. ▪ Drainage from the bunded area(s) shall be diverted for collection and safe disposal. ▪ Refuelling of construction machinery and vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated refuelling areas using a prescribed re-fuelling procedure. Plant nappies or absorbent mats to be place under refuelling point during all refuelling to absorb drips. ▪ All relevant personnel will be fully trained in the use of this equipment. ▪ Guidelines such as *"Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors"* (CIRIA 532, 2001) will be complied with. ▪ Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility. Concrete and Cement ▪ All ready-mixed concrete will be brought to site by truck. ▪ A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil. ▪ The pouring of concrete will take place within a designated area using a geosynthetic material to prevent concrete runoff into the soil/groundwater media. Pours will not take place during forecasted heavy rainfall. ▪ Washout of concrete transporting vehicles will not take place on site. Concrete trucks will be washed out off site at the source quarry. To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The location of the chute washdown area will be appropriately located. The system is sealed with no overflow discharge to the drainage system. ▪ In the event of a spillage on site, the dirty water drains in the immediate area will temporarily be blocked and the pH levels of the water in the associated settlement ponds will be monitored and if necessary will adjust the pH levels using CO_2 entrainment. Any spillage will be cleared immediately and deposited in the Chute wash down area.
Water & Hydrology	A Construction Management Plan (CEMP) is included under separate cover and will be adopted by the construction contractor prior to commencement of construction. The CEMP incorporates the mitigation measures outlined below as they relate to the construction phase. The CEMP will include emergency response procedures in the event of a spill, leak, fire or other environmental incident related to construction. This is an active document which is continuously updated to manage risk during the construction programme. All relevant personnel working on the site will be trained in the implementation of the procedures. As a minimum, the manual will be formulated in consideration of the standard best international practice including but not limited to: ▪ CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors. ▪ Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site Guide (C811), 2023. ▪ BPGCS005, Oil Storage Guidelines. ▪ Inland Fisheries Ireland (IFI) Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters, 2016. ▪ CIRIA 697, The SUDS Manual, 2015. Management of Sediment Loading and Water Quality ▪ During the construction phase, specific measures to prevent the release of sediment over baseline conditions in the downstream receiving water environment. These measures include, but are not limited to, the use of silt fences, silt curtains, settlement lagoons and filter materials. These measures will be maintained by the contractor to the satisfaction of Inland Fisheries Ireland for the entire construction period.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	▪ Provision of exclusion zones and barriers (e.g. silt fences) between earthworks, stockpiles and temporary surfaces to prevent sediment washing into the existing drainage systems and hence the downstream receiving water environment. ▪ Compounds and internal access road will be graded so that all runoff is directed to the dirty water drains. A low mound will be constructed between the compounds / road and the clean water drain to ensure that runoff from the compound / road cannot flow into the clean water system. ▪ A wheel wash will be provided for heavy vehicles exiting the site to ensure that roads outside of the site boundary are clean. These can take the form of dry or wet wheel wash facilities. In the case of a wet wheel wash it is recommended that a designated bunded and impermeable wheel wash area is provided and that the resultant waste water is diverted to a settlement pond for settling out of suspended solids. ▪ The area of exposed ground will be kept to a minimum by maintaining where possible existing vegetation that would otherwise be subject to erosion in the vicinity of the development. The clearing of topsoil will be delayed until just before construction begins rather than stripping the entire site months in advance. ▪ Temporary drainage measures such as the underground rainwater harvesting tank, oil bypass separator and storm water settlement tank will be installed within the compound. Piped and channel drainage systems incorporating roadside gullies will be installed to collect storm water from the finished compound areas and internal access road. Collected storm water runoff will pass through the oil bypass separator before discharging to the storm water settlement tank. ▪ Excavation and stockpiling activities will be minimised during wet weather periods. Stockpiles of excavated soil and/or subsoil will be graded so as to shed water. Stockpiles of soil/subsoil will be restricted to less than 3m in height. Interception and channelling of surface water runoff over exposed soil/subsoil surfaces to sumps, silt traps or settlement ponds, will occur prior to discharge to existing drains or outfalls. ▪ Interception and diversion of surface water runoff away from open excavations will occur. ▪ Repeated handling of soil will be avoided and ideally all soil stockpiles will remain undisturbed pending later re-use for landscaping. ▪ Any discharge of construction surface water or groundwater from excavations shall pass through appropriate filtration and sedimentation system, designed in accordance with *"Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors"* (CIRIA C532). <u>Fuel and Chemical Handling</u> ▪ To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas. Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	▪ In the case of drummed fuel or other chemical which may be used during construction containers will be stored in a dedicated internally bunded chemical storage cabinet and labelled clearly to allow appropriate remedial action in the event of a spillage. ▪ Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. ▪ Drainage from the bunded area(s) shall be diverted for collection and safe disposal. ▪ Refuelling of construction machinery and vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated refuelling areas using a prescribed re-fuelling procedure. Plant nappies or absorbent mats to be place under refuelling point during all refuelling to absorb drips. ▪ All relevant personnel will be fully trained in the use of this equipment. ▪ Guidelines such as *"Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors"* (CIRIA 532, 2001) will be complied with. ▪ Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility.
Biodiversity	<u>Pre-clearance Invasive Species Survey and Management</u> ▪ A pre-clearance survey of the site will be conducted by a suitable qualified Ecologist before any clearance of vegetation or soil strip takes place. This survey will identify any locations of invasive plant species e.g., butterfly-bush and Himalayan honey-suckle, which are recorded along the northern Site boundary wall. ▪ These plants will be removed as per the species-specific guidance for each species included in "*The Management of Invasive Alien Plant Species on National Roads – Technical Guidance - GE-ENV-01105*" (TII, 2020). <u>Tree Protection Measures</u> ▪ Prior to any construction works being undertaken, protective tree fencing in compliance with BS 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*' will be erected to prevent damage to the canopy and root protection areas of existing trees to be retained at the Site, particularly within the western hedgerow and southern woodland belt. ▪ This fencing will be signed off by a qualified arborist prior to construction to ensure it has been properly erected. ▪ No ground clearance, earthworks, stock-piling or machinery movement will be undertaken within these areas. ▪ The project Arborist will be instructed prior to commencement on Site to ensure that appropriate tree protection measures are in place. These measures will entail robust fencing around the root protection zones of all trees and hedgerows being retained on Site. ▪ An adequate level of signage will be provided to highlight 'no work zones' and ensure that Site creep and damage to retained habitats does not occur.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	▪ The western boundary hedgerow and southern boundary woodland must be sufficiently protected for the duration of the Construction Phase to maximise their ecological value in the final landscape plan. ▪ The project Arborist, the project Ecologist and the Site Manager will work together to ensure these sections of hedgerow/woodland are protected for the duration of the works. <u>Construction-Phase Lighting</u> ▪ Any night-time lighting required during the Construction Phase for security etc., will be directed away from the boundary vegetation at the Site (i.e., away from hedgerows and woodland areas), and will not be directed skyward. ▪ Lighting will be focused into the centre of the Site and only on equipment and machinery that needs to be illuminated. ▪ The Project Ecologist acting as Ecological Clerk of Works (ECoW) for the project will review the Construction Phase lighting with the Contractor regularly during their site visits and make recommendations as required to ensure the lighting is maintained as bat friendly for the duration of the works. <u>Timing of Vegetation Clearance</u> ▪ To ensure compliance with the Wildlife Act 1976 as amended, the removal of areas of vegetation will not take place within the nesting bird season (March 1st to August 31st inclusive) to ensure that no significant impacts (i.e., nest/egg destruction, harm to juvenile birds) occur as a result of the Proposed Development. ▪ Should nesting birds be found, then the area of habitat in question will be noted and suitably protected until the ecologist confirms the young have fledged. ▪ The preferred period for vegetation clearance is within the months of September and October. Chapter 11 Biodiversity provides further guidance for when vegetation clearance is permissible. Information sources include British Hedgehog Preservation Society's "*Hedgehogs and Development*", and the *Wildlife Act 1976 as amended.* ▪ Where this seasonal restriction cannot be observed, a check will be carried out immediately prior to any Site clearance by an appropriately qualified ecologist, and repeated as required to ensure compliance with legislative requirements. ▪ Vegetation will be removed in sections, working in a consistent direction, to prevent entrapment of protected fauna potentially present (e.g., hedgehog). <u>Bat Precautions when Felling Trees</u> ▪ All trees on Site set for felling have undergone a preliminary bat roost assessment (PBRA) and are confirmed to be of low-negligible bat roost suitability. ▪ However, harm to individual bats is possible should they be present during the felling process, and it is possible that trees can become damaged in the time between the original PBRA survey and the tree felling taking place, which may increase the bat roost suitability of a tree. ▪ A pre-felling check will be conducted by a suitably qualified Ecologist of all trees to be felled at the Site prior to felling taking place to ensure that no changes have occurred and that no individual bats will be harmed.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	▪ In the unlikely event that a roosting bat is found, no felling of the tree in question will take place and a derogation licence will be obtained from the NPWS to proceed. The Area around the tree will be protected with an appropriate buffer to prevent disturbance of the bat. <u>Construction Site Management for Mammals</u> ▪ Prior to any clearance of scrub or cutting back of hedgerows/woodland taking place a pre-construction badger survey of the Site will be conducted by a suitably qualified Ecologist to confirm whether badger have occupied the Site between the time of the mammal survey that informed this Chapter and the commencement of works on Site. ▪ Following best practices, all construction-related rubbish on site (e.g., plastic sheeting, netting etc.) will be kept in a designated area and kept off ground level to prevent the entrapment and/or death of small mammals such as hedgehogs. ▪ Trenches/pits must be either covered at the end of each working day or else must include a means of escape (e.g., a plank or objects placed in the corner of an excavation) for any animal which falls in, as species such as badgers will continue to use established paths across a site even when construction work has started. ▪ Any temporarily exposed open pipe system will be capped in such a way as to prevent animals gaining access while contractors are off site.
Noise & Vibration	**<u>Noise</u>** The contractor will ensure that all best practice noise and vibration control methods will be used, as necessary in order to ensure impacts at off-site noise sensitive locations are minimised. The best practice measures set out in BS 5228 (2009 +A1 2014) Parts 1 and 2 includes guidance on several aspects of construction site mitigation measures, including, but not limited to: selection of quiet plant, noise control at source, screening, liaison with the public, and monitoring. Noise control measures that will be considered include the selection of quiet plant, enclosures and screens around noise sources, limiting the hours of work and noise and vibration monitoring, where required. <u>Selection of Quiet Plant</u> This practice is recommended in relation to static plant such as compressors and generators. ▪ Units will be supplied with manufacturers' proprietary acoustic enclosures. ▪ The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. ▪ The least noisy item will be selected wherever possible. ▪ Should a particular item of plant already on the site be found to generate high noise levels, the first action will be to identify whether or not said item can be replaced with a quieter alternative. <u>Noise Control at Source</u> If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source" (the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier). For example, resonance effects in panel work or cover plates can be reduced through stiffening or

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact. Referring to the potential noise generating sources for the works under consideration, the following best practice migration measures should be considered: ▪ Site compounds will be located in excess of 30m from noise sensitive receptors within the site constraints. The use lifting bulky items, dropping and loading of materials within these areas should be restricted to normal working hours. ▪ For mobile plant items such as dump trucks, excavators and loaders, the installation of an acoustic exhaust and or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB. Mobile plant should be switched off when not in use and not left idling. ▪ For concrete mixers, control measures should be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum. ▪ For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials. ▪ For compressors, generators and pumps, these can be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation. ▪ Demountable enclosures can also be used to screen operatives using hand tools and will be moved around site as necessary. ▪ All items of plant should be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures. <u>Screening</u> Screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. ▪ Construction site hoarding will be constructed around the site boundaries as standard. The hoarding will be constructed of a material with a mass per unit of surface area greater than 7 kg/m2 to provide adequate sound attenuation. ▪ In addition, careful planning of the site layout will also be considered. The placement of site buildings such as offices and stores will be used, where feasible, to provide noise screening when placed between the source and the receiver. ▪ With respect pipe installation works, Annex B of BS 5228-1:2009+A1:2014 provide typical details for temporary and mobile acoustic screens, sheds and enclosures that can be constructed on site from standard materials. <u>Liaison with the Public</u> ▪ A designated environmental liaison officer will be appointed to site during construction works. Any noise complaints should be logged and followed up in a prompt fashion by the liaison officer. ▪ Where a particularly noisy construction activity is planned or other works with the potential to generate high levels of noise, or where noisy works are expected to operate outside of normal working hours etc., the liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works. <u>Project Programme</u>

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	▪ The phasing programme will be arranged so as to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest sensitivity. ▪ During periods when high noise generating works such as demolition are in progress at the same time as other works of construction that themselves may generate significant noise and vibration, the working programme will be phased so as to prevent unacceptable disturbance at any time. <u>Vibration</u> ▪ Review of the study area identifies vulnerable and protected structures in the vicinity such as Howth Castle and Howth Castle Gates. ▪ The vibration from construction activities will be limited, with detailed values set out in Chapter 12: Noise and Vibration. ▪ Magnitudes of vibration slightly greater than these are normally unlikely to cause cosmetic damage, but construction work creating such magnitudes should proceed with caution. Limit values have been provided for soundly constructed residential and commercial properties along with protected and vulnerable structures, and will be adhered to as follows: ▪ Limits have been recommended above for protected structures. Where vibration-heavy works are proposed near protected structures the relevant engineer or conservation expert should be consulted in advance of works adjacent.
Air Quality	The following dust mitigation measures shall be implemented during the construction phase of the proposed development. These measures are appropriate for sites with a medium risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DCC, 2018), the UK (IAQM (2024), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). These measures will be incorporated into the overall Construction Environmental Management Plan (CEMP) prepared for the site. <u>Communications</u> ▪ Develop and implement a stakeholder communications plan that includes community engagement before works commence on site. Community engagement includes explaining the nature and duration of the works to local residents and businesses. ▪ The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details. <u>Site Management</u> ▪ During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. Dry and windy conditions are favourable to dust suspension therefore mitigations must be implemented if undertaking dust generating activities during these weather conditions. ▪ A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	Preparing and Maintaining the Site ▪ Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. ▪ Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. ▪ Avoid site runoff of water or mud. ▪ Keep site fencing, barriers and scaffolding clean using wet methods. ▪ Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. ▪ Cover, seed or fence stockpiles to prevent wind whipping. Operating Vehicles / Machinery and Sustainable Travel ▪ Ensure all vehicles switch off engines when stationary - no idling vehicles. ▪ Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable. ▪ Impose and signpost a maximum-speed-limit of 15 kph haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate). ▪ Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. ▪ Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing) Operations ▪ Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems. ▪ Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. ▪ Use enclosed chutes and conveyors and covered skips. ▪ Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. ▪ Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. Waste Management ▪ Avoid bonfires and burning of waste materials. Measures Specific to Earthworks ▪ Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. ▪ Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. ▪ Only remove the cover in small areas during work and not all at once.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	▪ During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust. <u>Measures Specific to Construction</u> ▪ Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. ▪ Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. ▪ For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust. <u>Measures Specific to Trackout</u> ▪ A speed restriction of 15 kph will be applied as an effective control measure for dust for on-site vehicles. ▪ Avoid dry sweeping of large areas. ▪ Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. ▪ Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. ▪ Record all inspections of haul routes and any subsequent action in a site log book. ▪ Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. ▪ Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). ▪ Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. ▪ Access gates to be located at least 10 m from receptors where possible. <u>Monitoring</u> ▪ Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of the site boundary, with cleaning to be provided if necessary. ▪ Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Climate	Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. During the construction phase the following best practice measures shall be implemented on site to prevent significant GHG emissions and reduce impacts to climate: ▪ Creating a demolition and construction program which allows for sufficient time to determine reuse and recycling opportunities for demolition wastes; ▪ Appointing a suitably competent demolition contractor who will undertake a pre-demolition audit detailing resource recovery best practice and identify materials/building components that can be reused/recycled.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
	▪ Materials will be reused on site where possible. ▪ Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods. ▪ Ensure all plant and machinery are well maintained and inspected regularly. ▪ Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. ▪ Sourcing materials locally where possible to reduce transport related CO2 emissions. ▪ The project shall review and determine compliance with the requirements set out in the EU taxonomy in relation to circular economy. This is specific to reuse, recycling and material recovery of demolition and construction wastes. These measures are supported by Glenveagh Properties PLC's Net Zero Transition Plan 2023, published in March 2023, which identifies the sources of Glenveagh Properties PLC's emissions and proposes measures to reduce these. Specific measures are proposed to reduce GHG emissions during the construction phase: ▪ It is expected that all excavated material generated during the construction phase can be reused on site. This material re-use represents GHG savings of 67 tCO2e (if avoidance of worst-case landfill disposal is assumed); ▪ Other materials such as mixed construction and demolition waste, plastic, concrete, brick, tiles and ceramics and bituminous mixtures and will be diverted from waste processing by recycling or disposal in landfill, and will instead be reused on-site. This will reduce the associated CO2 by approximately 7 tonnes; ▪ Specific measures are proposed to reduce GHG emissions during the construction phase with the adoption of one of the two scenarios as described in Section 14.9.1.1.1 and Section 14.9.1.1.2. which involve using recycled cement content in concrete products; and ▪ Use of timber as a lower carbon option for frames for the house units. In terms of impact on the proposed development due to climate change: ▪ During construction the Contractor will be required to mitigate against the effects of extreme rainfall/flooding through site risk assessments and method statements. ▪ The Contractor will be required to mitigate against the effects of extreme wind/storms, temperature extremes through site risk assessments and method statements. ▪ All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures. Temperatures can affect the performance of some materials, and this will require consideration during construction. ▪ During construction, the Contractor will be required to mitigate against the effects of fog, lighting and hail through site risk assessments and method statements.
Cultural Heritage: Archaeology	▪ Three openings are proposed for the boundary wall of the site. It is recommended that archaeological monitoring of these works take place by a suitable qualified archaeologist. ▪ All topsoil stripping carried out during the construction phase of the development should be archaeologically monitored by a suitable qualified archaeologist under licence to the NMS.

Table 18-2 Demolition & Construction Phase Mitigation Measures

Aspect	Mitigation
Cultural Heritage: Built Heritage	Direct Impacts ▪ One feature of built heritage interest was identified, the boundary wall, which will be directly impacted during the construction phase of the proposed development. This wall is to be altered to facilitate new pedestrian and vehicular entrances (3). ▪ Mitigation has been incorporated into the design which represents a minimal intervention to achieve the necessary access to the proposed development and successfully connect the new community to Howth Village. ▪ The alterations require removal of sections of the existing masonry which will be recorded and carefully taken down for re-use elsewhere in the repair of the walls, or in the landscaping proposals. ▪ The proposed openings shall be detailed to a high standard using high-quality material and contemporary design, to announce and identify the new development. They will read as minimal, attractive, and modern interventions into the historic fabric to distinguish between new and old. Indirect Impacts ▪ Indirect physical impacts are also anticipated to the demesne wall, which will be vulnerable to accidental damage as a result of the scale of the proposed construction works in its vicinity. ▪ The proposed mitigation is record, protect and repair the historic fabric of the wall in adherence to best conservation practice; to the *"Architectural Heritage Protection Guidelines for Planning Authorities"*; and to the *"Advice Series"* issued by the Department's Built Heritage Advisory Unit. ▪ A methodology outlining the required protection, recording, and monitoring of the historic fabric during construction, and specifying the proposed alterations and repairs of the wall is provided in Chapter 16: Cultural Heritage – Built Heritage.

Table 18-3 Operational Phase Mitigation Measures

Aspect	Mitigation
Population & Human Health	No operational phase mitigation proposed.
Landscape and Visual Impact	No operational phase mitigation proposed.
Material Assets: Traffic & Transport	▪ As detailed within the Mobility Management Plan (MMP), a Mobility Management Plan Coordinator (MMPC) is to be appointed following planning approval to manage and proactively coordinate all subsequent mobility management measures and undertake related data collection and reporting to measure their effectiveness. ▪ Residents to be informed about sustainable travel options available to them by means of new resident information packs, travel information on residents' noticeboard, and resident website (if applicable). ▪ TaxSaver and Cycle to Work schemes will be promoted among residents. ▪ Tours of cycling facilities available on site for new residents will be organised.

Table 18-3 Operational Phase Mitigation Measures

Aspect	Mitigation
	▪ A cycle repair station including a pump will be installed in or at each resident cycle compound and in one location within the site adjacent to visitor cycle parking spaces. ▪ A resident and visitor travel survey will be undertaken within 3 months of first occupation of the site to enable updating and expanding the MMP. ▪ Resident and visitor travel surveys will be repeated every year, with the MMP provisions updated subsequently. ▪ The MMPC will review the actions carried out or due to be carried out every six months and document the actions and any feedback received in a written memo to the apartment scheme's management company.
Material Assets: Built Services	<u>Surface Water Drainage</u> ▪ Surface Water runoff from the proposed development will be managed in accordance with the requirements of the Greater Dublin Strategic Drainage Study (GDSDS), CIRIA SuDS and the requirements of the Fingal County Council Water Services Department. ▪ The Surface Water management proposals shall serve to reduce the overall impact of the proposed development on the existing environment. ▪ All SuDS features to be maintained. <u>Wastewater Drainage</u> ▪ Uisce Éireann shall implement an operational inspection and maintenance regime to ensure the system keeps operating within the design specifications. <u>Water Supply</u> ▪ The proposed Water Supply system shall be commissioned and subject to a monthly operational inspection and maintenance regime (as a minimum) to ensure the system keeps operating within the design specifications. <u>Electricity</u> ▪ The proposed electricity supply system shall be commissioned and subject to a regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications. <u>Telecommunications</u> ▪ The proposed telecommunications system shall be commissioned and subject to a regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications. <u>Gas</u> ▪ It is not proposed to provide gas as a utility within the proposed development. ▪ GNI shall commission the diverted gas main and be subject to regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications.
Material Assets: Waste	▪ An Operational Waste Management Plan (OWMP) has been prepared by Byrne Environmental as a stand-alone report to accompany this application. The OWMP is defined by the following stages of waste management with regard to the Circular Economy and the Waste Hierarchy

Table 18-3 Operational Phase Mitigation Measures

Aspect	Mitigation
	○ Stage 1 Occupier Source Segregation ○ Stage 2 Occupier Deposit and Storage ○ Stage 3 Bulk Storage and On-Site Management ○ Stage 4 Off-Site Removal ○ Stage 5 End Destination of wastes ▪ The Facilities Management Company shall maintain a weekly register detailing the quantities and breakdown of general mixed domestic waste, recyclable waste and organic waste wastes removed from the apartment aspect of the development. Supporting documentation shall be provided by the Waste Collection Contractor on a monthly basis. ▪ The Facilities Management Company shall prepare an annual information report for all apartment residents detailing the quantities and waste types generated by the development for the previous year. The report shall include reminder information on the correct segregation at source procedures and the correct placement of wastes in the waste storage area. Other aspects of ongoing waste management continuous improvement shall also be stated
Land & Soils	No operational phase mitigation proposed.
Water & Hydrology	No operational phase mitigation proposed.
Biodiversity	<u>Biodiversity Hedgerow</u> The existing hedgerow proposed to be retained along the western boundary of the Site, along with the woodland belt in the south of the Site, will be managed using a low-intervention approach (i.e., in a way that maximises the ecological value they provide), with habitat connectivity maintained along the western, southern and eastern margins of the Site; connecting it in with the wider woodland network within Deer Park Golf Course. This connectivity is vital for wildlife such as birds, bats, mammals and insect pollinators in a human landscape such as that which will be provided by the Proposed Development. Additionally, by managing hedgerows and woodland in a more natural way, they will provide more in terms of biodiversity; through increased plant diversity, increase provision of food resources and higher quality shelter to wildlife inhabiting and commuting through the area. A low-intervention management approach is best suited for the external hedgerows and woodland present along the margins of the Site, this approach may not be appropriate for internal ornamental hedgerows planted within the main residential component of the Proposed Development for aesthetic or logistical reasons. The following measures will be adopted by the Management Company tasked with maintaining the Site's landscaping into the future: ▪ The hedgerow and woodland areas located along the outer boundaries of the Site will, as much as is practicable, be allowed to link up with each other. The provision of an almost continuous vegetative margin around the site through planted native hedgerows and trees will maintain habitat connectivity with the surrounding environment. ▪ The understorey areas within the woodland belt that runs along the southern side of the Site will be maintained in as wild a state as possible, with minimal intervention, and with areas of dense, scrub habitat allowed to form. This will recreate the natural scrub habitat conditions present within the existing woodland.

Table 18-3 Operational Phase Mitigation Measures

Aspect	Mitigation
	▪ Hedgerows will be maintained with a minimum natural meadow strip of 1-2m at their base wherever possible. Hedges with plenty of naturally occurring flowers and grasses at the base support will provide higher quality habitat for local wildlife using the hedges. ▪ The 1-2m strip at the base of the hedgerow will be cut on a reduced mowing regime to encourage wildflower growth and maximise the value of the hedgerow for pollinators. **Chapter 11: Biodiversity** provides further details of a two-cut management approach. ▪ Where hedgerow, scrub or woodland understorey trimming needs to occur, delay trimming as late as possible – until January and February as the surviving berry crop will provide valuable food for wildlife. The earlier this is cut; the less food will be available to help birds and other wildlife survive through the winter. Any hedgerow/scrub/woodland trimming will be done outside of the nesting season and due consideration of the Wildlife Act 1976 (as amended) must be taken. ▪ Where possible, cut these outer boundary hedgerows on a minimum 3-year cycle (cutting annually stops the hedgerow flowering and fruiting), and cut in rotation rather than all at once - this will ensure some areas of hedgerow will always flower (Blackthorn in March, Hawthorn in May etc.). ▪ Where they occur naturally, Bramble and Ivy should be allowed grow in hedgerows and along woodland areas, as they provide key nectar and pollen sources in summer and autumn. ▪ Methods to avoid: o Hedgerows and woodland understorey will not be over-managed. Tightly cut hedges and vegetation mean there are fewer flowers and berries, thus reducing available habitats, feeding sources and suitable nesting sites. o Hedgerows and woodland understorey will not be cut between March 1st and August 31st inclusive. It is both prohibited (except under certain exemptions) and very damaging for birds as this is the period they will have vulnerable nests containing eggs and young birds. o Pesticide/ herbicide sprays or fertilisers will not be used near hedgerows or woodland understorey as they can have an extremely negative effect on the variety of plants and animals they support. <u>Mammal Habitat Connectivity</u> ▪ The boundaries and barriers within and surrounding the site shall be permeable for species such as hedgehog, allowing these species to move between the golf course lands and the Site's woodlands and hedgerows and within the site. This will be achieved by: o Providing 13 x 13 cm holes at ground level at various locations along the external mesh fencing (Hedgehog holes). o Leaving a sufficient gap beneath gates. o Leaving brick spaces at the base of brick walls. ▪ Should badger activity be recorded at the Site during the pre-commencement check carried out by the Ecologist, provision will be made for larger mammal holes to allow badger to continue to utilise the Site. These measures will be agreed between the Ecologist and the Site Contractor.

Table 18-3 Operational Phase Mitigation Measures

Aspect	Mitigation
	▪ The inclusion of "hedgehog highways" will be considered as part of the landscape design of the site, specifically the external mesh fencing proposed. A variety of fence suppliers stock specific hedgehog-friendly fencing options, which can be easily incorporated at little or no additional cost. The 13 x 13cm holes can also be cut into mesh fencing on site quite easily. These simple measures will provide habitat connectivity at the Site for hedgehogs and reduce the impact of the land-use change on this species
Noise & Vibration	**Noise** Mechanical Services Plant ▪ None required. Additional Traffic on Adjacent Roads ▪ None required. Inward Noise ▪ None required. Vibration ▪ None required.
Air Quality	None required.
Climate	None required.
Cultural Heritage: Archaeology	None required.
Cultural Heritage: Built Heritage	None required.

18.3 Monitoring

Table 18-4 Construction Phase Monitoring

Aspect	Mitigation
Population & Human Health	▪ Measures to avoid negative impacts on Population and Human Health are largely integrated into the design and layout of the proposed development. Compliance with the design and layout will be a condition of any permitted development. ▪ No specific monitoring is proposed in relation to this section. Monitoring of standard construction mitigation measures as outlined in this EIAR will be undertaken by the appointed contractor.
Landscape and Visual Impact	▪ A suitably qualified arboricultural consultant / Arboricultural Clerk of Works (ACoW) will be employed prior to commencement of demolition and constructions works to monitor and supervise any tree removal and ensure tree protection measures are in place and maintained. ▪ A suitably qualified Ecological Clerk of Works (ECoW) will be employed prior to commencement of demolition and construction works to provide ecological consultancy to the construction team. The ECoW will carry out monitoring

Aspect	Mitigation
	activities as listed in section 11.17.1 of Chapter 11 : Biodiversity. Summary of Mitigation and Monitoring. ▪ Both the ACow and ECow will liaise with each other as there will be interactions between both professions. Both will also liaise with the conservation consultant on inspections and supervision of any works and protection measures to the Deerpark Wall
Material Assets: Traffic & Transport	The following monitoring actions are expanded upon in the CMP. ▪ Compliance with construction vehicle routing plan. ▪ Compliance with construction vehicle internal circulation, loading/ unloading, and parking plan. ▪ Monitoring of internal and external road conditions (including surface cleaning). ▪ Compliance with restrictions on construction activities' timing.
Material Assets: Built Services	<u>Surface Water Drainage</u> ▪ During the construction of the Surface Water drainage, the system shall be inspected and monitored for compliance with the design and relevant Fingal Count Council and GDSDS standards in accordance with the Preliminary Inspection Plan. ▪ The requisite air and pressure testing shall be carried out on all sewer installations during construction while exfiltration testing shall be carried out on all manholes. Records of these tests shall be maintained by the Contractor. ▪ The connection to the existing surface water sewer will not be made until all the works are complete and temporary surface water management will remain in place until this time to ensure only clean uncontaminated surface water is discharged to the existing surface water sewer to the west. <u>Wastewater Drainage</u> ▪ During the construction of the Wastewater drainage, the system shall be inspected, tested and monitored in accordance with the requirements of the relevant Uisce Éireann Code of Practice. ▪ Records of these tests shall be maintained by the Contractor as required and shall be witnessed by Uisce Éireann in accordance with the relevant Quality Procedures. ▪ The connection to the existing Wastewater network will not be made until all the works are complete and temporary Wastewater management associated with the Contractor's compound will remain in place until this time. <u>Water Supply</u> ▪ During the construction of the water supply network, the system shall be inspected, tested and monitored in accordance with the requirements of the relevant Uisce Éireann Code of Practice. ▪ Records of these tests shall be maintained by the Contractor as required and shall be witnessed by Uisce Éireann in accordance with the relevant Quality Procedures. ▪ The connection to the existing water supply network will not be made until all the works are complete and temporary water connection associated with the Contractor's compound will remain in place until this time. Electricity ▪ The ESB shall monitor the existing and proposed networks during the diversion and undergrounding of the existing over-head 10kV/ 20kV powerlines. ▪ The ESB shall carry out ongoing testing and commissioning of the installed infrastructure during construction.

Aspect	Mitigation
	Telecommunications ▪ The incoming telecommunications provider shall monitor the existing and proposed networks during the installation of the proposed telecommunications network throughout the site during construction. ▪ The incoming telecommunications provider shall carry out ongoing testing and commissioning of the installed infrastructure during construction. Gas ▪ It is not proposed to provide gas as a utility within the proposed development. Therefore, monitoring of this utility is not required. ▪ GNI shall carry out ongoing testing and commissioning of the diverted gas main.
Material Assets: Waste	<u>Construction Phase Waste Monitoring</u> The Resource and Waste Manager will maintain a written record of all quantities and types of construction wastes generated, reused / recycled and exported off-site during the construction phase. The following information shall be recorded for each load of waste exported off-site: ▪ Waste Type EWC Code and description. ▪ Volume of waste collected. ▪ Waste collection contractor's Waste Collection Permit Number and collection receipt including vehicle registration number. ▪ Destination of waste load including Waste Permit / Licence number of facility. ▪ Description of how waste at facility shall be treated i.e. disposal / recovery / export <u>Construction Phase Waste Auditing</u> In order to ensure that construction wastes generated during the course of the development are being effectively managed and recorded, a waste management audit shall be conducted on a routine basis to determine compliance with the RWMP. The effectiveness of a Resource and Waste Management Plan (RWMP) and its implementation, will be subject to quarterly audits by the RWM throughout the duration of the construction phase. Audits will focus on materials inputs to the project and the waste outputs identifying: ▪ <u>Resources:</u> o How resource management was integrated into the design of project buildings and areas o Re-use, recycling of existing on-site materials prior to development including soils, buildings, structures. o Re-using surplus materials from previous development projects eg office cabins, fencing, aggregates, concrete products. o Additional opportunities for future resource management. ▪ <u>Waste:</u> o The audits will also investigate the operational factors and management policies that contribute to the generation of waste and identify appropriate corrective actions, where necessary. o Performance targets will be developed, e.g. an 85% overall recycling target, successes and failures will be recorded and Action Plans will be developed to address any issue which arise. o Inspections of the waste storage areas will be undertaken and recorded on a weekly basis, issues relating to housekeeping, inappropriate storage and segregation of wastes.

Aspect	Mitigation
	○ The RWM will record the findings of the audits, including types and quantities of waste arising, final treatments and costs, in a quarterly audit report. ○ The Final Waste Audit will examine the manner of how resources were managed and how and where the waste was produced and how waste generation can be reduced in future projects.
Land & Soils	During construction phase the following monitoring measures will be considered: ▪ Regular inspection of surface water run-off and sediments controls e.g. silt traps will be carried during the construction phase. ▪ Soil sampling to confirm disposal options for excavated soils. ▪ Regular inspection of construction/mitigation measures will be undertaken e.g. concrete pouring, refuelling, etc.
Water & Hydrology	During the construction phase the following monitoring measures will be considered: ▪ Regular inspection of surface water run-off and sediments controls e.g. silt traps will be carried during the construction phase. ▪ Regular inspection of construction/mitigation measures will be undertaken e.g. concrete pouring, refuelling, etc.
Biodiversity	<u>Ecological Clerk of Works (ECoW)</u> A suitably qualified ECoW will be employed before commencement and for the duration of the Construction Phase; to provide ecological advice and input to the construction team. The ECoW will carry out the monitoring activities listed below for the duration of the Construction Phase of the Proposed Development. The ECoW will be employed several weeks before commencement of works on Site; to allow time for the scope of ECoW works to be reviewed by the ecologist and any necessary pre-construction surveys to be carried out. ▪ The ECoW will be required to work closely with the Site Manager and Arborist; to arrange to carry out pre-clearance surveys of any vegetation present on Site, especially if clearance during the period March 1st – August 1st (i.e., the breeding bird nesting season) is required. It is noted that clearance will be avoided during this period wherever possible through good management of the construction timeline. Pre-felling checks of trees for bats will also be conducted by the ECoW. ▪ This will include a pre-commencement badger survey of the Site for evidence of badger usage to ensure no badgers are impacted by the construction works. ▪ As part of the mitigation recommended in relation to mammals e.g., hedgehogs, the ECoW will liaise with the Site Manager to ensure that an adequate level of site tidiness is being maintained, i.e., that construction materials such as netting, plastic sheeting etc., are being stored securely and above ground. ▪ The ECoW will also liaise with the Site Manager to ensure that mammal escape measures are in place across the construction site in terms of excavations such as trenches, basements, foundations i.e., that planks or objects are being left in place at a suitable corner of any excavations each night. ▪ The ECoW will visit the Site and assess the night-time lighting measures in place for the Construction Phase; to ensure that they will not cause any impacts to local bats during the night time. The ECoW will consult this Biodiversity Chapter to understand the priority areas for bat commuting/foraging at the Site and make recommendations where required.

Aspect	Mitigation
	Project Arborist The project Arborist will be instructed prior to commencement on Site; to ensure that appropriate tree protection measures are in place. ▪ The western boundary hedgerow and southern boundary woodland will be sufficiently protected for the duration of the Construction Phase to maximise their ecological value in the final landscape plan. ▪ The ECoW will report any issues relating to failure in the tree protection measures on Site to the project Arborist and the Site Manager throughout the Construction Phase to ensure these sections of hedgerow/woodland are protected for the duration of the works.
Noise & Vibration	Vibration ▪ Works associated with utility connections are expected to include the pneumatic breaking of ground surfaces. Machinery used will be required to operate below the recommended vibration threshold as set out in Chapter 12. ▪ Due to the potential for these works to create vibrations at nearby sensitive locations, the works will be monitored using vibration measurement devices so that the relevant vibration thresholds are not exceeded at the closest sensitive locations. Noise ▪ The contractor will ensure that all best practice noise and vibration control methods will be used, as necessary in order to ensure impacts at off-site noise sensitive locations are minimised. ▪ The best practice measures set out in BS 5228 (2009 +A1 2014) Parts 1 and 2 includes guidance on several aspects of construction site mitigation measures. ▪ Noise control measures that will be considered include vibration monitoring, where required
Air Quality	▪ During working hours, dust control methods will be monitored as appropriate depending on the prevailing meteorological conditions. ▪ Monitoring of emissions is not proposed for the construction phase of the proposed development as effects are predicted to be imperceptible. Once the dust mitigation measures outlined in the mitigation section are implemented, then construction dust emissions will be imperceptible
Climate	Not required.
Cultural Heritage: Archaeology	▪ It is recommended that archaeological monitoring of demolition works take place by a suitable qualified archaeologist. ▪ All topsoil stripping, carried out during the construction phase of the development should be archaeologically monitored by a suitable qualified archaeologist under licence to the NMS.
Cultural Heritage: Built Heritage	▪ During the construction phase, monitoring of the proposed alteration and repair of the historic demesne wall is recommended in accordance with the methodology provided in Appendix 16.3.

Table 18-5 Operational Phase Monitoring

Aspect	Mitigation
Population & Human Health	Not required.
Landscape and Visual Impact	A suitably qualified arboricultural consultant / Arboricultural Clerk of Works (ACoW) will be employed prior to commencement of demolition and constructions works to monitor

Aspect	Mitigation
	and supervise any tree removal and ensure tree protection measures are in place and maintained. A suitably qualified Ecological Clerk of Works (ECoW) will be employed prior to commencement of demolition and construction works to provide ecological consultancy to the construction team. The ECoW will carry out monitoring activities as listed in section 11.17.1 of Chapter 11 : Biodiversity. Summary of Mitigation and Monitoring. Both the ACow and ECow will liaise with each other as there will be interactions between both professions. Both will also liaise with the conservation consultant on inspections and supervision of any works and protection measures to the northern boundary wall.
Material Assets: Traffic & Transport	As part of the MMP process, the following actions will be undertaken during the proposed development's operational phase: ▪ Informed by a residents and visitors travel survey, the MMP should be updated within 3 months of site occupation; and the Action Plan tailored to meet the specific requirements of its residents and visitors. ▪ A resident and visitor travel survey should be carried out annually thereafter, forming the baseline from which the MMP's future performance is measured and additional/ amended interventions identified. ▪ A review of the actions carried out or due should be carried out by the MMP Coordinator every six months. This should take the form of a memo to the apartment scheme's management company, documenting actions implemented, residents' feedback etc.
Material Assets: Built Services	<u>Surface Water Drainage</u> ▪ Following construction of the proposed Surface Water drainage network, pressure tests shall be carried out to assess the potential for leaks to occur in the newly laid sewers. In addition, the Contractor shall carry out periodic testing of the Surface Water discharge to ensure compliance in accordance with the requirements of the Fingal County Council Water Services Department. ▪ Following completion of the proposed drainage systems, a short-term flow and rainfall survey including the use of flow monitors and rain gauges shall be carried out to identify misconnections and allow for comparison with watermain meter readings to facilitate assessment and identification of any potential leakages. ▪ Following commissioning of the proposed Surface Water network, the management company shall implement a maintenance regime, as a minimum, monthly inspections to ensure that it operates in accordance with the design specification. The features to be maintained include the piped Surface Water network and all SuDS features. <u>Wastewater Drainage</u> ▪ Following construction of the proposed Wastewater drainage network, pressure tests shall be carried out in accordance with the Uisce Éireann Standards to assess the potential for leaks to occur in the newly laid sewers. ▪ Following completion of the proposed drainage systems, a short-term flow and rainfall survey including the use of flow monitors and rain gauges shall be carried out to identify misconnections and allow for comparison with watermain meter readings to facilitate assessment and identification of any potential leakages. <u>Water Supply</u>

Aspect	Mitigation
	▪ Following construction of the prosed watermain infrastructure, pressure tests will be carried out in accordance with the Uisce Éireann Standards to assess the potential for leaks to occur in the newly laid watermains. ▪ The proposed watermain system will incorporate water meters at all points of connection to the public watermain network which facilitates ongoing monitoring of demand and assessment for potential leakage. <u>Electricity</u> ▪ ESB shall test and commission all of the work they carry out and shall monitor and maintain the ESB kiosks and network cabling post installation. ▪ All supplies shall be metered to allow the new loads on the network to be monitored in use. <u>Telecommunications</u> ▪ The providers of incoming telecommunications supplies will test and commission all of their cabling/ work and will monitor and maintain their network cabling post installation. <u>Gas</u> ▪ GNI shall test and commission all of the work they carry out and shall monitor and maintain the diverted gas main post installation.
Material Assets: Waste	▪ The Facility Management Company shall prepare an annual report for the Local Authority and residents of the development on the quantities of waste generated within the development to demonstrate how waste reduction and recycling targets are being achieved with regard to the targets defined in the *Waste Management Plan for a Circular Economy 2024-2030*
Land & Soils	▪ There will be no requirement for soil or groundwater monitoring as there is no likely discharge to ground. ▪ Maintenance of the surface water drainage system and foul sewers as per normal urban developments is recommended to minimise any accidental discharges to ground.
Water & Hydrology	<u>Surface Water Drainage</u> ▪ Following construction of the proposed Surface Water drainage network, pressure tests shall be carried out to assess the potential for leaks to occur in the newly laid sewers. ▪ In addition, the Contractor shall carry out periodic testing of the Surface Water discharge to ensure compliance in accordance with the requirements of the Fingal County Council Water Services Department. ▪ Following completion of the proposed drainage systems, a short-term flow and rainfall survey including the use of flow monitors and rain gauges shall be carried out to identify misconnections and allow for comparison with watermain meter readings to facilitate assessment and identification of any potential leakages. ▪ Following commissioning of the proposed Surface Water network, the management company shall implement a maintenance regime, as a minimum, monthly inspections to ensure that it operates in accordance with the design specification. The features to be maintained include the piped Surface Water network and all SuDS features. <u>Wastewater Drainage</u> ▪ Following construction of the proposed Wastewater drainage network, pressure tests shall be carried out in accordance with the Uisce Éireann Standards to assess the potential for leaks to occur in the newly laid sewers.

Aspect	Mitigation
	▪ Following completion of the proposed drainage systems, a short-term flow and rainfall survey including the use of flow monitors and rain gauges shall be carried out to identify misconnections and allow for comparison with watermain meter readings to facilitate assessment and identification of any potential leakages. <u>Water Supply</u> ▪ Following construction of the prosed watermain infrastructure, pressure tests will be carried out in accordance with the Uisce Éireann Standards to assess the potential for leaks to occur in the newly laid watermains. ▪ The proposed watermain system will incorporate water meters at all points of connection to the public watermain network which facilitates ongoing monitoring of demand and assessment for potential leakage.
Biodiversity	<u>Ecologist</u> The ECoW will visit the Site post-construction to check the following are in place: ▪ 'Hedgehog highways' – Gaps placed along southern and western boundary fencing to allow hedgehogs to continue to access the Site from the surrounding lands. A suitable qualified Ecologist will liaise with the Site Manager to ensure that these measures are in place. ▪ Swift-Bricks – A suitable qualified Ecologist will liaise with the Site Manager to ensure that these measures are in place. <u>Biodiversity Hedgerow and Woodland Management</u> ▪ A suitable qualified Ecologist will review the Hedgerow and Woodland Management Plan (HWMP) prepared for the Site and signed off by Fingal CoCo's Biodiversity Department. ▪ The Ecologist will visit the Site each summer for the first three years post completion to review the management of the hedgerows and woodland areas at the Site and confirm that the HWMP is being followed by the landscape maintenance company.
Noise & Vibration	Not required.
Air Quality	Not required.
Climate	Not required.
Cultural Heritage: Archaeology	Not required. The mitigation measures will function as an ongoing monitoring measure during the construction phase. No operational phase monitoring is required.
Cultural Heritage: Built Heritage	Not required.