ARMSTRONG FENTON ASSOCIATES

PROJECT: Large-scale Residential Development (LRD)

Environmental Impact Assessment Report - Volume I
Non - Technical Summary

Proposed Large-scale Residential Development (LRD) in the townlands of Bohernabreena, Oldcourt & Killininny, Dublin 24.

CLIENT: Capami Ltd

DATE: September 2024.

Planning & Development Consultants

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1.0. Introduction

1.1. Introduction

This Non-Technical Summary (hereafter 'NTS') has been prepared by Armstrong Fenton Associates, Planning & Development Consultants, on behalf of Capami Ltd. (the Applicant) who intends to apply to South Dublin County Council (hereafter "SDCC") for a Large-scale Residential Development on lands in the townlands of Bohernabreena, Oldcourt, and Killininny, Dublin 24.

The central purpose of the Environmental Impact Assessment Report (EIAR) is to undertake an appraisal of the likely and significant impacts on the environment of the proposed development in parallel with the project design process, and to document this process in the EIAR. This is then submitted to the competent / consent authority to enable it to assess the likely significant effects of the proposed development on the environment. This assessment will then inform the decision as to whether the proposed development should be permitted to proceed.

The application site comprises c. 20.4 hectares located on lands that are located in the townlands of Bohernabreena, Oldcourt and Killininny, Dublin 24. The subject site is located to the east of Bohernabreena Road (L7114) and north and east of Bohernabreena cemetery, south/south-east of St. Anne's GAA club, south of the Dodderbrook residential estate, west of the Ballycullen Gate residential development (currently under construction under Planning Ref.s SD17A/0468 & SD22A/0356) and west of Oldcourt Road (R113).

The proposed development is a residentially led development comprising the construction of 523 no. dwellings, comprised of 255 no. 2, 3 & 4 bed, 2 & 3 storey, detached, semi-detached and terraced houses, 206 no. 1, 2 & 3 bed duplex units in 20 no. 2 & 3 storey blocks, and 62 no. 1, 2 & 3 bed apartments in 4 no. 2-3 & 3-4 storey blocks, along with a 2 storey childcare facility of c. 457sq.m., and all associated site development works on a site measuring c. 20.4 hectares.

A full description of the proposed development site, together with a description of the proposed development, is provided in Chapter 3 of the accompanying Volume II of this EIAR.

The existing South Dublin County Development Plan 2022-20289 provides a development strategy for the proper planning and sustainable development of the subject site.

1.2. Proposed Development

1.2.1. The proposed development is described in full below, as per the statutory notices submitted for the subject planning application:

Capami Ltd. wishes to apply for a seven year planning permission for a Large-Scale Residential Development (LRD) on a site measuring c.20.4Ha, located in the townlands of Bohernabreena, Oldcourt, and Killininny, Dublin 24. The development site is located to the east of Bohernabreena Road, north and east of Bohernabreena cemetery, south and south-east of St. Anne's GAA club, south and south-west of the Dodderbrook residential estate, west of the Ballycullen Gate residential development (currently under construction) and west of Oldcourt Road (R113).

The proposed development consists of 523 no. residential units comprised of 255 no. 2, 3 & 4 bed, 2 & 3 storey, detached, semi-detached and terraced houses, 206 no. 1, 2 & 3 bed duplex units in 20 no. 2 & 3 storey blocks, and 62 no. 1, 2 & 3 bed apartments in 7 no. 2-3 & 3-4 storey blocks (i.e. Blocks A, B2 & D, and 2 no. Blocks B1 & 2 no. Blocks C), along with a 2 storey childcare facility of c. 457sq.m.

Private amenity space for the residential units is provided in the form of rear gardens for houses and ground floor terraces / upper floor balconies for apartments and duplex units. The proposed development provides for a total of c. 7.3Ha of public open space, and c. 5,505sq.m of communal open space associated with proposed residential units.

Vehicular access to the development will be via 4 no. access points, as follows: (i) from the west of the site, via 2 no. accesses, located off Bohernabreena Road, (ii) from the north of the site, via 1 no. access at Dodderbrook Place, and (iii) from the east of the site, via Oldcourt Road (R113) and via adjoining residential development at Ballycullen Gate. The proposed development includes for pedestrian and cyclist connections and accesses throughout the proposed development and to adjoining lands to the north at Dodderbrook Avenue and to the north-west into St. Anne's GAA club.

The proposed development includes the demolition of all existing structures on site, including 2 no. single storey dwellings and outbuildings/sheds (total demolition area: c. 4,152.06sq.m).

The proposed development provides for (i) all associated site development works above and below ground, including 2 no. underground foul sewerage pumping stations, (ii) public open spaces (c. 7.3Ha), (iii) communal open spaces (c. 5,505sq.m), (iv) hard and soft landscaping and boundary treatments, (v) surface car parking (746 no. car parking spaces, including EV parking), (vi) bicycle parking (1,268 no. bicycle parking spaces), (vii) bin & bicycle storage, (viii) public lighting, and (ix), plant / PV panels (M&E), utility services & 5 no. ESB sub-station/kiosks, all on an overall application site area of c.20.4Ha.

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1.3. Requirement for EIA (Screening)

Screening is the term used to describe the process for determining whether a proposed development requires an EIA by reference to mandatory legislative threshold requirements or by reference to the type and scale of the proposed development and the significance or the environmental sensitivity of the receiving baseline environment.

Annex I of the EIA Directive 85/337/EC requires as mandatory the preparation of an EIA for all development projects listed therein. Schedule 5 (Part 1) of the Planning & Development Regulations 2001 (as amended) transposes Annex 1 of the EIA Directive directly into Irish land use planning legislation. The Directive prescribes mandatory thresholds in respect to Annex 1 projects.

Annex II of the EIA Directive provides EU Member States discretion in determining the need for an EIA on a case-by-case basis for certain classes of project having regard to the overriding consideration that projects likely to have significant effects on the environment should be subject to EIA.

Schedule 5 (Part 2) of the Planning & Development Regulations 2001 (as amended) sets mandatory thresholds for each project class. Sub-section 10(b) (iii) and (iv) addresses *'Infrastructure Projects'* and requires that the following class of project be subject to EIA:

(b) (i) *Construction of more than 500 dwelling units.*

Category 10(b)(iv) refers to *'Urban development which would involve an area greater than 2 hectares in the case of business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.'*

This proposed development comprises of; *inter alia,* the provision of 523 no. residential units, creche, and all associated infrastructure on an overall site area of c. 20.4 hectares.

An EIA is therefore mandatory as the proposed development at Bohernabreena, Oldcourt, and Killininny, Dublin 24, includes provision of 523 no. dwellings, on a site area of c.20.4Ha, thus exceeding the threshold of 500

dwelling units and the site size of 10 hectares.

1.4. Purpose of this EIAR

The objective of the EIAR will also be to identify and predict the likely environmental impacts of the proposed development; to describe the means and extent by which they can be reduced or ameliorated; to interpret and communicate information about the likely impacts; and to provide an input into the decision making and planning process.

The EIAR is the primary element of the Environmental Impact Assessment (EIA) process and is recognised as a key mechanism in promoting sustainable development, identifying environmental issues, and in ensuring that such issues are properly addressed within the capacity of the planning system.

The intention of this EIAR document is to provide transparent and objective documentary evidence of the EIA evaluation and decision-making processes which led to the selection of the final project configuration. The EIAR documents the consideration of environmental effects that influenced the evaluation of alternatives. It also documents how the selected project design incorporates mitigation measures; including impact avoidance, reduction or amelioration; to explain how significant adverse effects will be avoided.

1.5. Information to be contained in a Non-Technical Summary

This Non-Technical Summary (hereafter "NTS") has been prepared in accordance with *inter alia* the requirements of the EU 2014 EIA Directive, Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended) (in particular by the European Union (Planning & Development) (Environmental Impact Assessment Regulations 2018).

EIA Process Overview

The main purpose of the EIA process is to identify the likely significant impacts on the human environment, the natural environment and on cultural heritage associated with the proposed development, and to determine how to eliminate or minimise these impacts. The EIAR summarises the environmental information collected during the impact assessment of the proposed development.

A new definition of environmental impact assessment is now contained in Section 170A of the Planning and Development Act, 2000, as amended which reflects to the process as described under Article 1(2)(g) 4 of Directive 2014/52/EU and goes on to say that it includes:

(i) an examination, analysis and evaluation, carried out by the planning authority or the Board, as the case may be, in accordance with this Part and regulations made thereunder, that identifies, describes and assesses, in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of the proposed development on the following:

(I) population and human health;

(II) biodiversity, with particular attention to species and habitats protected under the Habitats Directive and the Birds Directive;

(III) land, soil, water, air and climate;

(IV) material assets, cultural heritage and the landscape;

(V) the interaction between the factors mentioned in clauses (I) to (IV), and

(ii) as regards the factors mentioned in subparagraph (i)(I) to (V), such examination, analysis and

evaluation of the expected direct and indirect significant effects on the environment derived from the vulnerability of the proposed development to risks of major accidents or disasters, or both major accidents and disasters, that are relevant to that development;

Several interacting steps typify are involve in the various stages of the EIA process, which may be referred to in outline as including:

- Screening
- Scoping
- Preparation of EIA Report
- The examination by the Competent Authority (CA) of the information presented in the environmental impact assessment report

Screening: Screening is the term used to describe the process for determining whether a proposed development requires an EIA.

Scoping: This stage firstly identifies the extent of the proposed development and associated site, which will be assessed as part of the EIA process, and secondly, it identifies the environmental issues likely to be important during the course of completing the EIA process through consultation with statutory and non-statutory stakeholders. Where relevant, scoping requests were issued and the responses received have been considered as part of the compilation of the EIAR. The content of the EIAR has been informed by national guidelines, guidelines issued by the European Commission and other policy documents which are set out at Section 1.4 of the EIAR. In addition, pre-planning meetings with the various departments of South Dublin County Council all informed the EIAR.

Preparation of EIAR Report: The main elements in the preparation of an EIA Report relate to the consideration of alternatives, project description, description of the receiving environment, identification and assessment of impacts, monitoring and mitigation proposals.

The examination by the CA of the information presented in the environmental impact assessment report: The planning authority (and, if necessary An Bord Pleanála) must consider each application for development consent on its own merits, taking into account all material considerations, including the reasoned conclusion in respect of EIA, before making its decision to grant, with or without conditions, or to refuse consent.

1.6. Format and Structure of The EIAR

1.6.1. EIAR Structure

The structure of the EIAR is laid out in the preface of each part for clarity. It consists of three volumes as follows:

- Volume I: Non-Technical Summary (this document)
- Volume II: Environmental Impact Assessment Report.

Volume II is the main volume of the EIAR. It provides information on the location and scale of the proposed development, details on design and impacts on the environment (both positive and negative) as a result of the proposed development. Each of the environmental aspects as listed below are examined in terms of the existing or baseline environment, identification of potential construction and operational stage impacts and where necessary proposed mitigation measures are identified.

The preparation of an EIAR requires the assimilation, co-ordination and presentation of a wide range of relevant information in order to allow for the overall assessment of a proposed development. For clarity and to allow for

ease of presentation and consistency when considering the various elements of the proposed development, a systematic structure is used for the main body of the EIAR document. The structure used in the EIAR is a "*Grouped Format structure".* This structure examines each environmental topic in a separate chapter of the EIAR document. The structure of the EIAR Volume II document is set out in Table 1.1 below:

Chapter	Title
1	Introduction
2	Planning Policy Context
3	Description of Project and Alternatives
4	Population and Human Health
5	Biodiversity
6	Land, Soil and Geology
7	Water
8	Air Quality
9	Climate
10	Noise
11	Material Assets: Built Services
12	Material Assets: Transportation
13	Material Assets: Resource and Waste Management
14	Archaeology and Cultural Heritage
15	The Landscape
16	Identification of Significant Impacts / Interactions
17	Summary of EIA Mitigation and Monitoring Measures

Table 1. Structure of EIAR – Volume II.

1.7. Availability of EIAR Document

A copy of the EIAR document (Volume II) and the Non-Technical Summary of the EIAR document (Volume I) is available for purchase at the offices of South Dublin County Council (Planning Authority) at a fee not exceeding the reasonable cost of reproducing the document. It can also be viewed on the LRD website – www.oldcourtlrd.ie. set up by the applicant.

1.8. Statement of Difficulties Encountered

No particular difficulties, such as technical deficiencies or lack of knowledge, were encountered in compiling any of the specified information contained in this statement, such that the prediction of impacts has not been possible. Where any specific difficulties were encountered these are outlined in the relevant chapter of the EIAR.

1.9. Errors

While every effort has been made to ensure that the content of this EIAR document is error free and consistent there may be instances in this document where typographical errors and/or minor inconsistencies do occur. These typographical errors and/or minor inconsistencies are unlikely to have any material impact on the overall findings and assessment contained in this EIAR.

1.10. EIAR Study Team

The EIAR was prepared by a study team led by Armstrong Fenton Associates, Planning and Development Consultants, who were responsible for the overall management and co-ordination of the document. The EIAR team is set out in Chapter 1, Table 1.2., of Volume II of the EIAR.

2.0. Description of the Project and Alternatives

2.1. Information on the Subject Site / Project

2.1.1. Site Location & Context

The subject site measures c.20.4 hectares and is in the townlands of Bohernabreena, Oldcourt and Killininny, Dublin 24, and within the lands designated for the Ballycullen-Oldcourt Local Area Plan, 2014, (as extended).

The applicant is the owner of the majority of the application site, however, lands in the south-west part of the subject site, adjacent to Bohernabreena Road, occupied by 2 no. dwellings and outbuildings are in the ownership of Mr. Pat Grimes who has issued a letter of consent for the inclusion of his lands as part of this LRD Planning Application. In addition, the red line of application extends across lands in the control of both Dublin City Council and South Dublin County Council, through which it is proposed to provide a 225mm Ø Foul Sewer pipe to extend from the proposed LRD on the applicant's lands, eastwards via land in the control/ownership of both Dublin City Council and South Dublin County Council to connect into existing drainage infrastructure – both of the aforementioned Local Authorities have issued letters of consent to include their lands in this LRD application and we refer the reader to same, and the associated maps.

The subject site is located to the east of Bohernabreena Road (L7114) and east of Bohernabreena cemetery, south/south-east of St. Anne's GAA club, south of the Dodderbrook residential estate, west of the Ballycullen Gate residential development (currently under construction under Planning Ref.s SD17A/0468 & SD22A/0356) and west of Oldcourt Road (the R113).

The aforementioned Dodderbrook and Ballycullen Gate developments have been / are being successfully delivered respectively by the applicant. In addition, the applicant has permission for the development of 21 no. residential units located to the west of Dodderbrook (granted permission under South Dublin County Council Ref. SD19A/0104 / An Bord Pleanála Ref. ABP-305800-19) which has recently commenced construction. Permission has also been granted for the development of 71 no. units to the immediate west of the subject site under Ref. SD23A/0083. Further east of the subject site is the Ballycullen Green residential estate and the Gunny Hill playing pitches, which have also been delivered by the applicant in recent years.

The application site also lies within the boundary of the Ballycullen-Oldcourt Local Area Plan (2014, as extended) lands (hereafter "Plan lands") which stretch across the foothills of the Dublin mountains, forming a buffer between the mountains and the existing suburban areas of Tallaght, Firhouse and Knocklyon. The Plan lands are bounded to the west by Bohernabreena Road, to the east by the M50, to the north by existing suburban development, including for the Allerton, Ely, Beechdale, Hunters Wood, Woodstown, and Dalriada estates, and to the south by the foothills of the Dublin mountains. With their mountainous backdrop, the Plan lands are generally semi-rural in setting; however, they also benefit from views of the suburban and urban hinterland. The prevailing development in the immediate vicinity is generally comprised of two and three storey housing.

2.1.2. Site Description

In its existing state, the subject site is characterised by a sloped terrain, rising to the south, existing native hedgerows, and existing services infrastructure. The site is currently greenfield agricultural lands, dissected with mature hedgerow boundaries, with existing dwellings and buildings located in the south-western part of the site, all of which are proposed to be demolished. The site is at the urban edge of the County, with residential development to the north and open field agricultural lands to the south.

There is an existing ESB pylon corridor, with an associated wayleave, running across the site from west to east, and an existing Irish Water main, with an associated wayleave, also running across the site from west to east. The proposed development has been designed to allow for the accommodation of these existing

infrastructure and their wayleaves, including for all necessary set-backs / development restrictions, within the proposed layout.

The site has the presence of hedgerows, characterized by a thick growth of shrubs, bushes, and trees, which create natural boundaries. In addition, the site has the presence of some small streams. The proposed development has been carefully considered to accommodate the retention of existing hedgerows as much as feasibly possibly, with new planting proposed to supplement any loss, with existing streams also accommodated into the proposed landscaping features – as per the submitted landscaping proposals prepared by Gannon + Associates.

The site also has some existing buildings / structures located in the western part of the site (north of Bohernabreena cemetery) which are proposed to be demolished as part of the development. These existing buildings / structures are not protected structures nor are they of any particular historical or architectural interest. Plans of the buildings to be demolished are submitted as part of this application, including 2 no. habitable dwellings. The total floor area of the structures to be demolished is 4,152.06m².

The subject site generally falls from south to north, with a high point of the southern boundary of Approximately 119.78m OD Malin. The lowest point along the northern boundary is approximately 98.12m OD Malin where the site connects into an existing ditch.

The ground level rises steeply from north to south - there is a difference of approximately 21.0m in elevation between the north and south. The ground level continues this steep gradient south of the Site. The ground level falls away north of the Site but at a shallower gradient.

2.2. Proposed Development and Context

The project in question is a residential development consisting of 523 no. dwellings comprised of a mix of houses, duplex units and apartments, along with a crèche, and all associated site development and infrastructural works, open spaces, car parking, landscaping, etc.

The proposed development essentially seeks to develop the majority of the western side of the Ballycullen – Oldcourt Local Area Plan (LAP) lands, connecting Oldcourt Road (the R113) and Bohernabreena Road by delivering much need new housing, with appropriate regard having been given to the objectives of both the Ballycullen-Oldcourt LAP and the existing South Dublin County Development Plan 2022-2028 (hereafter "CDP"), as applicable.

This application seeks permission for the development of 523 no. dwellings, comprised of:

- 255 no. 2, 3 & 4 bed, 2 & 3 storey detached, semi-detached and terraced houses,
- 64 no. 1, 2 & 3 bed Urban Duplexes – "E1, E2, E3 & E4 types" in 9 no. 3 storey buildings,
- 142 no. 2 & 3 bed apartments/duplex units in Duplex Blocks A, B, C, D and E1, E2 & E3 in 11 no. 3 storey buildings,
- 62 no. 1, 2 & 3 bed apartments in Blocks A, B1, B2, C and D in 7 no. 3 and 3-4 storey buildings,
- A 2 storey creche of c.457m².

[Note: we are counting the proposed apartment Block C as 2 no. buildings].

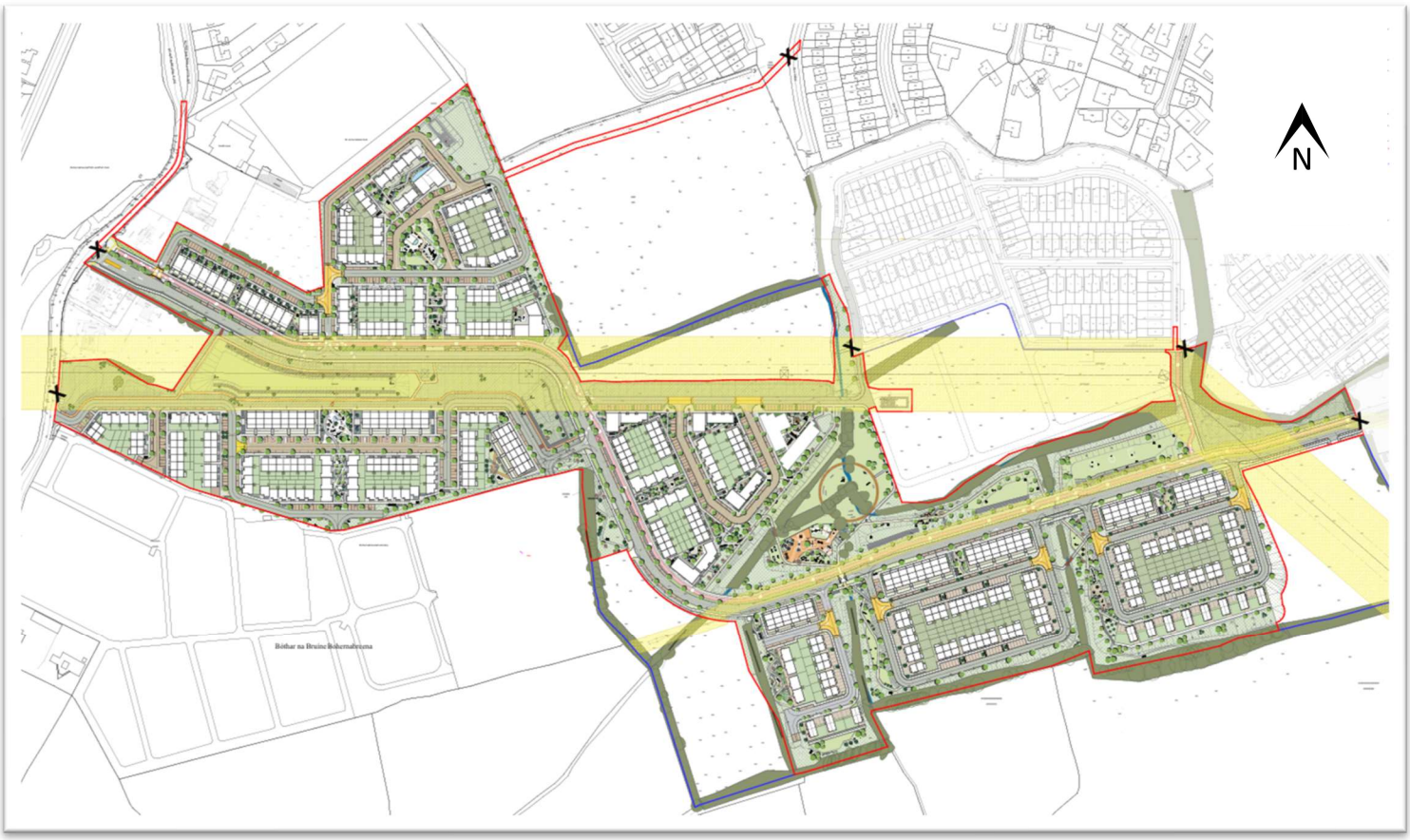


Figure 1 – Proposed Site Layout Plan

There is a wayleave traversing the subject site accommodating existing overhead 220kV ESB wires and associated pylons.

The Ballycullen – Oldcourt LAP takes into account the presence of the overhead wires and presents two development options, which differ in terms of the treatment of the existing overhead wires that traverse the western side of the Plan Lands.

The LAP asserts that *"Option A involves redirecting a 500 metre (approximate) section of the overhead lines further to the south into the path of an existing wayleave of underground watermains. This is the preferred development option given that it would free up the less elevated and more level areas of the Plan Lands for development and allow for a more coherent arrangement of streets and blocks while grouping wayleave requirements for utilities into one channel. Option B represents an arrangement of streets and blocks around the current route of the overhead transmission lines and is the less preferred development option".*

To date, the overhead lines remain in situ, however, any proposal to relocate them will be subject to permission via the Strategic Infrastructure Development (SID) planning process. The applicant has engaged with ESB Networks and the "plan" for same at present is as follows:

i. Options for re-routing the overhead wires southwards have been put forward by the applicant for agreement in principle with ESB,
ii. Upon agreement of the preferred route, the SID planning application process will commence,
iii. Upon planning consent being approved for the re-routing of the wires, the planning application process can commence for the remainder of the applicant's lands (outlined in blue on enclosed drawings).

The proposed site layout plan now put forward for permission takes into account the retention of the existing overhead ESB wires, with the adjoining land parcels in the applicant's control (as outlined in blue) that are currently affected by the overhead wires, being subject to future planning applications(s), and not forming part of this LRD application. To this end, we submit three no. drawings, prepared by Davey + Smith Architects, as follows:

- Drawing no. **MP15** which illustrates the proposed LRD now put forward for permission, and showing the existing wayleave accommodating the overhead wires, and illustrating how the wires can be relocated southwards through the applicant's adjoining lands, as outlined in blue, in a new wayleave.

- Drawing no. **MP16** which illustrates the proposed LRD as per the existing overhead wires, and illustrating an indicative housing layout on our client's adjoining, undeveloped lands, as outlined in blue, should the lines remain in their existing location, as per the existing wayleave.

- Drawing no. **MP17** which illustrates the proposed LRD, alongside potential future development on the applicant's adjoining lands (as outlined in blue) should the overhead wires be relocated southwards.

The above mentioned enclosed drawings are for information purposes only and demonstrate how the remainder of the western Plan lands, as per the Ballycullen – Oldcourt LAP, may be developed in the future, in either scenario of the overhead wires remaining in situ or being relocated. This will be dependent on the outcome of the future SID process to relocate same. It is therefore evident that in either scenario, the applicant's remaining lands (as outlined in blue) can be developed in a coherent manner that will successfully integrate with permitted and proposed adjoining residential developments, and the furthermore, the proposed LRD does not impact on the future relocation of the overhead wires.

Another key piece of infrastructure proposed is the delivery of "Oldcourt Park" which will be the primary piece of public open space proposed as part of this LRD and is located north of the east-west main ink street, directly opposite Neighbourhood Zone 1 and abutting Neighbourhood Zone 2. Please refer to the enclosed Davey+Smith drawing no. MP07 "Proposed Open Space" drawing which identifies the location, area and type of all proposed open spaces.

Oldcourt Park occupies an area of 23,587.7sq.m (c.2.36Ha). It will be directly accessible from the main link street, with various pedestrian/cyclist crossings provided for allowing ease of access. Abutting this park, on the northern side of the main link street are dedicated pedestrian and cycle paths. In addition, the proposed development provides for pedestrian and cyclist paths directly from Oldcourt Park (at its north-eastern corner) into Dodderbrook to the north, while its north-western corner also caters for access into Dodderbrook as well.

2.3. Site and Development Works

The project includes the following works:

- Residential development (523 no. dwellings);
- Creche (c.457m²)
- Public and private open spaces;
- Landscaping;
- Services infrastructure, utilities and public lighting;
- Car parking and bin storage;
- ESB Substations/Kiosks;
- Building and directional signage and
- All associated site and development works,
- Demolition of existing buildings/structures on site (c. 4,152.06m²).

Further details are provided in the plans and reports submitted with the planning application.

2.4. Project Life-Cycle

The proposed development is to be delivered over six phases and a seven year planning permission is being sought. Beyond the construction and operational phases, there are no further phases of development envisaged for this project.

2.5. Demolition

Permission is sought for the demolition of the existing, existing dwellings (2 no.)/buildings/structures on site (c. 4,152.06m²).

A full description of the development proposal can be found in Chapter 2 of Volume II of the EIAR.

2.6. Residential Development

In summary, the proposed development comprises the construction of 523 no. dwellings comprised of 255 no. 2, 3 & 4 bed, 2 & 3 storey detached, semi-detached and terraced houses, 64 no. 1, 2 & 3 bed Urban Duplexes – "E1, E2, E3 & E4 types" in 9 no. 3 storey buildings, 142 no. 2 & 3 bed apartments/duplex units in Duplex Blocks A, B, C, D and E1, E2 & E3 in 11 no. 3 storey buildings,62 no. 1, 2 & 3 bed apartments in Blocks A, B1, B2, C and D in 7 no. 3 and 3-4 storey buildings, and a 2 storey creche of c.457m².

[Note: we are counting the proposed apartment Block C as 2 no. buildings].

Dwelling Type	1 bed	2 bed	3 bed	4 bed	Total	Percentage %
Houses	0	61	160	34	255	49%
Apartments	24	31	7	0	62	12%
Duplex	0	71	71	0	142	27%
Urban Duplex (E types)	27	5	32	0	64	12%
Total	51	168	270	34	523	100%
Percentage %	10%	32%	52%	6%	100%	-

Table 2 – Overall Residential Development Mix

A wide variety of dwelling typologies are included in the proposal all dispersed throughout the proposed development. Details of same are set out in section 7.7 of the submitted Planning Statement and on the submitted architectural drawings – please refer to same.

There are four distinct "Neighbourhood Zones" dispersed throughout the entire site, each with its own distinct design. A variety of unit types and building heights are also dispersed throughout the entire layout to create variety and distinctiveness throughout. This is illustrated in more detail in the submitted Architectural Design Statement – please refer to same.

2.7. Non-Residential Development

The development proposal includes for a stand alone creche facility measuring c. 457m^2 located located in Neighbourhood Zone 3, with associated external play area of c.63m^2 and 7 no. dedicated car parking spaces.

2.8. Car Parking and Cycle Parking Provision

Car parking for the proposed development is provided for in the form of surface level parking. In total, the proposed development caters for 746 no. car parking spaces.

For the houses, car parking will be provided in a mix of on-street and within the curtilage of each house. On street surface car parking will be provided for the apartments, duplexes, creches and visitor car parking spaces.

Cycle parking for the proposed development is also provided in the form of dedicated bike stands / stores, with the details of same set out on the enclosed Davey+Smith Architects drawing no. MP22. In total, the proposed development caters for 1,268 no. bicycle parking spaces.

Please refer to the enclosed Traffic & Transport Assessment (TTA) carried out by Pinnacle Consulting Engineers for full details of parking in the proposed scheme.

2.9. Adjoining Development

This is a location in which residential use is a long established use, with further residential development having been permitted to the north and east and within the Ballycullen - Oldcourt LAP area under numerous permissions. Lands to the north include housing and playing pitches. Lands to the south are unzoned, agricultural lands, and the Bohernabreena Cemetery. Lands to the east have been developed over the last decade or so, in accordance with the LAP.

2.10. Access

Vehicular access to the development will be via 4 no. access points, as follows: (i) from the west of the site via 2 no. accesses located off Bohernabreena Road, (ii) from the north of the site via 1 no. access at Dodderbrook Place, and (iii) from Oldcourt Road (the R113) to the east, via adjoining residential development, at Ballycullen Gate.

A key component of the proposed development is the provision and completion of the east-west main link street through the centre of the site, that will connect Oldcourt Road (R113) to the east with Bohernabreena Road (L7114) to the west. This main link street was identified in the Ballycullen – Oldcourt LAP under its Accessibility and Movement strategy (section 5.2 of the LAP) which required the provision of a new "Main Link Street" (a primary street) that will connect the Oldcourt Road with the Bohernabreena Road. The aim is to open up the Plan lands with a clear hierarchy of integrated streets for universal movement to include pedestrians, vehicles and cyclists. This will include the main link street which will then be fed by Local Link Streets

(secondary streets) and Local Streets (tertiary streets) that will open up the lands for residential development.

The proposed development includes for pedestrian and cyclist connections and accesses to adjoining lands to the north, east and west, and includes for cycling and pedestrian routes and infrastructure throughout.

As part of the proposed development, the entirety of the site will be opened up to pedestrian and cyclist permeability, inviting people into this new suburban neighbourhood, with the proposed design seeking to provide multiple pedestrian / cyclist access points to help to integrate the development with its surroundings. All site access and internal circulation arrangements ensure the development is a safe and pedestrian / cyclist friendly environment for future residents and visitors alike.

2.11. Open Space

The proposed development provides for approximately 73,754.8sq.m (c.7.37 hectares) of public open space which equates to c. 36% of the gross site area. The proposed development also includes hard & soft landscaping, play equipment & boundary treatments, children's play areas, and a multi-use games area, in compliance with the requirements of the existing CDP i.e., minimum 15% of the site area provided is as public open space. Please refer to section 7.15 of the submitted Planning Statement prepared by Armstrong Fenton Associates for further details of same.

The primary piece of public open space proposed as part of this LRD is "Oldcourt Park" which is located north of the east-west main ink street, directly opposite Neighbourhood Zone 1 and abutting Neighbourhood Zone 2. Please refer to the enclosed Davey+Smith drawing no. MP07 "Proposed Open Space" drawing which identifies the location, area and type of all proposed open spaces.

Oldcourt Park occupies an area of 23,587.7sq.m (c.2.36Ha). It will be directly accessible from the main link street, with various pedestrian/cyclist crossings provided for allowing ease of access. Abutting this park, on the northern side of the main link street are dedicated pedestrian and cycle paths. In addition, the proposed development provides for pedestrian and cyclist paths directly from Oldcourt Park (at its north-eastern corner) into Dodderbrook to the north, while its north-western corner also caters for access into Dodderbrook as well.

Gannon & Associates, Landscape Architects have prepared the submitted landscape design for the proposed development and have liaised with SDCC Parks Department prior to submitting this application for permission, and met their representatives on site to discuss the landscape strategy for the overall development, including Oldcourt Park. In addition, the proposed landscape design has been fully coordinated with the drainage proposals, particularly in the creation of SUDS proposals. For example, the proposed Oldcourt Park incorporates:

- Sensory play areas: Designing SUDS with sensory play elements aims to engage both children and adults. Resources such as stones and large logs are proposed. These elements stimulate the senses, encourage exploration and promote well-being.

- Biodiversity/ net gain: The SUDS strategies also focus on enhancing biodiversity. Measures include planting native species that support local wildlife, creating habitats such wildflower meadows, and incorporating green corridors to connect natural areas.

The proposed SUDS network utilises the contours of the land and adopts specific strategies to manage water runoff in a sustainable way. The aim is to mitigate environmental impacts and promote water management practices that would improve the quality of local water resources. It should be noted that there are no attenuation tanks proposed underground and that the proposed surface water design is based upon natural solutions and has been fully coordinated into the proposed landscape design.

The proposed development also caters for communal open space and private open space in compliance with the requirements of the guidelines for '*Sustainable Urban Housing: Design Standards for New Apartments*' (2023) and, where applicable, the existing CDP. Please refer to the submitted Planning Statement prepared by Armstrong Fenton Associates which accompanies the planning application for full details. In total the proposed development caters for 5,505sq.m of communal open space. For details of individual private amenity space please refer to the submitted Housing Quality Assessment prepared by Armstrong Fenton Associates.

2.12. Ancillary / Associated Development

The proposed development provides for (i) all associated site development works above and below ground, including 2 no. underground foul sewerage pumping stations, (ii) public open spaces (c. 7.3Ha), (iii) communal open spaces (c. 5,505sq.m), (iv) hard and soft landscaping and boundary treatments, (v) surface car parking (746 no. car parking spaces, including EV parking), (vi) bicycle parking (1,268 no. bicycle parking spaces), (vii) bin & bicycle storage, (viii) public lighting, and (ix), plant / PV panels (M&E), utility services & 5 no. ESB sub-station/kiosks, all on an overall application site area of c.20.4Ha**.**

2.13. Construction Management

A Construction and Environmental Management Plan (CEMP) has been prepared for the proposed development by Enviroguide Consulting, and is enclosed as a standalone document. The CEMP considers environmental factors associated will the construction of the proposed development. Prior to the commencement of works, a detailed finalised (CEMP) will be prepared. The contractor will be required to comply with, and implement, the requirements and mitigation measures as set out in this EIAR, and any conditions imposed as part of planning permission.

A Resource & Waste Management Plan (RWMP) has also been prepared for the proposed development and is submitted with the planning application (see Chapter 13 Appendices). Prior to the commencement of works, a detailed finalised RWMP will be prepared and incorporate all mitigation measures and construction methodologies outlined in this EIAR and provide the baseline requirements off which the contractor will work. The RWMP will remain a live document which will be updated by the contractor as construction progresses to take account of live requirements imposed by both the planning permission and the site conditions.

An Outline Construction Management Plan (CMP) is submitted with the planning application and on receipt of a grant of planning, and prior to the commencement of works, a detailed finalised Construction Management Plan (CMP) will be prepared. The contractor will be required to comply with, and implement, the requirements and mitigation measures as set out in this EIAR, and any conditions imposed as part of planning permission.

A Construction Traffic Management Plan (CTMP) will be prepared prior to commencement of development works. The CTMP addresses traffic management, dust control, road cleaning, and staff parking associated with the construction works.

Certain assumptions are made in the aforementioned documents based on the information available at this time of making the planning application and, for the avoidance of doubt, it is not proposed or intended that the Applicants / contractor(s) are bound by these proposals which may change depending on the timing and circumstances pertaining at the time of construction. Upon receipt of a grant of planning, and prior to the commencement of works, more detailed and finalised documents, taking into account any required amendments, will be prepared and agreed with the Local Authority. The contractor will be required to comply with and implement all mitigation measures and construction methodologies as set out in this EIAR.

All of the aforementioned plans include / will include further information on the construction programme and construction related activities. The plans also address / will address issues relating to site access, compounds, site security, waste management contractors' responsibilities etc.

2.14. Construction Programme / Phasing

It is estimated that construction of the project will take approximately seven years to complete. A phasing plan accompanies the planning application – please refer to the submitted Drawing No. MP12 "Proposed Phasing Plan" prepared by Davey + Smith Architects which illustrates the proposed phasing of the development.

The proposed phasing plan also illustrated / detailed in Chapter 3 of the EIAR (Section 3.13.2). The intended sequence of development may change post grant of planning permission as a detailed construction programme is dependent on contractor appointment, market and other considerations. Any amendments required to the phasing programme will be discussed and with Local Authority as required. The phasing proposal submitted with the planning application can be summarised as follows:

2.15. Site Preparation

Permission is sought for the demolition of all structures on site totalling c. 4,152.06m².

Excavated material on site will predominantly be re-used on site / within the developer's control.

The contractor(s) will require connections to the following services / utilities for the duration of the works:

- Water supply
- Foul sewer
- Surface water sewer
- Electricity
- Telecommunications

Existing services / utilities within and adjoining the site will be protected during construction.

2.16. Construction Activities

The construction works associated with the project will be contained within the application site boundary. These works will include excavation, earthworks, etc.

Some construction activity may take place off-site within the control of the developer. These activities may include access and haul routes, site compound(s), storage of materials and soil/excavated material, screening and processing of existing materials for re-use within the development works, construction parking, staff welfare facilities etc. These areas will be identified in the detailed CMP.

Subject to the agreement of the Planning Authority, the following site operation hours are proposed:

- 07.00 to 19.00 – Monday to Friday;
- 08.00 to 13.00 on Saturdays;
- Works not permitted on Sundays and public holidays.

During the construction period, due to exceptional circumstances, construction work may be necessary outside these standard hours. If necessary, this will be agreed in advance with SDCC.

The contractor will be guided by the Resource & Waste Management Plan which accompanies the application with regard to re-use, recovery, recycle and disposal of waste produced during construction. Chapter 13 of this EIAR, Material Assets: Resource and Waste Management, also considered the re-use recovery, recycle and disposal of waste arising from the development.

2.17. Construction Material

The proposed development will have a requirement for imported materials, primarily concrete, steel, stone and asphalt. The estimated quantities for the overall development are provided in the R & WMP. The majority of new materials brought to site will be used immediately. The remainder will be stored within the site boundary.

Material excavated on the site will be used in construction. The re-use of this material reduces the quantity of materials being imported to the site. Prior to use, this material will be subject to appropriate testing to ensure material is suitable for construction. Locations to stockpile this material will be identified by the contractor(s) in the CMP.

2.18. Construction Traffic

An Outline Construction Traffic Management Plan (OCTMP) has been prepared with a final CTMP to be prepared by the appointed contractor prior to commencement of development which will outline proposals for construction deliveries and staff accessing the compounds and construction sites.

During all phases of construction access to all existing properties adjoining the development lands will be maintained. Local traffic management procedures will be put in place where required.

Site access / egress routes and construction traffic generation are discussed in Chapter 11 and reflected in the enclosed Outline CTMP.

2.19. Alternatives Examined

Chapter 3 (Section 3.21) of the EIAR (Volume II) includes a summary of alternatives which were considered for the proposed development of the subject lands. These options were considered as the scheme progressed and the key considerations and amendments to the design having regard to the key environmental issues pertaining to the lands are summarised in this section of the EIAR. Alternative examined are summarised below and fully detailed in Volume II of the EIAR.

2.19.1. Alternative Locations

The location and proposed housing mix has been determined by the land use zoning objectives contained in the SDCC Development Plan 2022-2028. In addition, cognisance has been paid to SDCC's LRD Opinion (Case Reference LRDOP001/24) in relation to density and layout / design. The proposed development has also had regard to the following Section 28 Ministerial Guidelines: (i) Guidelines for Planning Authorities on Sustainable Residential Development and Compact Settlements (2024) which refer to minimum net densities of 40 dwellings per hectare for "City – Suburban/Urban Extension" sites such as the subject site and (ii) the Guidelines for Planning Authorities on Building Heights and Urban Development, 2018 and their SPPRs.

As noted above, the LAP was subjected to its own environmental assessment including consideration of alternative scenarios. Therefore, apart from localised interpretation of the LAP to suit conditions on the ground, no alternative sites were considered in this EIAR as the development of this site for the uses proposed has been identified as a strategic objective.

This is in line with EPA Guidelines (2002 and 2022 Guidelines) which recognises that it is not realistic to consider alternative options for projects which have been previously determined by a higher plan.

"Hierarchy

EIA is only concerned with projects. Many projects, especially in the area of public infrastructure, arise on account of plans, strategies and policies which have previously been decided upon. It is important to acknowledge that in some instances neither the applicant nor the competent authority can be realistically expected to examine options which have already been previously determined by a higher authority (such as a national plan or regional programme for infrastructure or a spatial plan)." (Source: EPA Guidelines on the information to be contained in Environmental Impact Statements, Section 2.4.3. Alternatives, page 12).

It is noted that the suitability of the subject site for the nature of development proposed was considered as part of the SEA process undertaken by SDCC in the making of the both the CDP and LAP.

Given the objectives for the subject site detailed in the existing CDP and its development management standards, no alternative sites were considered in this EIAR as the development of this site for the uses proposed has been identified as a strategic objective of the existing SDCC CDP.

This approach is compliant with the EPA Guidelines (2022) which recognises that it is not realistic to consider alternative options for projects which have been previously determined by a higher plan: *"Clearly, in some instances some of the alternatives described below will not be applicable – e.g. there may be no relevant 'alternative location' …..Higher level alternatives may already have been addressed during the strategic environmental assessment of relevant strategies or plans."* (EPA Guidelines, 2022, Section 3 pg 33)

Taking all of the aforementioned into consideration, it is put forward that the most logical and practical location solution to addressing the current housing shortage is through facilitating the development of zoned lands available for residential use. The subject site comes within this category and therefore it seems appropriate that the proposed development is sited here.

2.19.2. Alternative Uses

The subject lands are currently, in the majority, in greenfield, agricultural use and have no specific / relevant previous grant of permission for similar residential development attached to them.

The development proposal is located on lands zoned objective RES-N: *"To provide for new residential communities in accordance with approved area plans"* in the existing CDP, therefore; it is evident that the Local Authority supports the provision of residential development on the subject lands.

The design parameters for the development proposal are set down in the first instance in the CDP which has determined the land use objective for the site. The LAP sets out objectives in relation to density, building height and other physical characteristics. The development proposal is put forward having been guided by detailed discussions with the relevant SDCC departments, Planning, Roads & Traffic, Parks and Water and Drainage etc. prior to the proposed development being prepared. These detailed discussions highlighted the environmental issues to be addressed, which informed the design process.
Alternative site layouts and siting progressed throughout the design process in order to minimise the impact on the receiving environment at the earliest opportunity. The initial stage involved a constraints analysis of the land within the proposed development site to identify all high-level constraints and aggregate them against the site to allow a suitable layout to be developed.

The main alternative use for the subject lands would be to maintain its current agricultural use. In any event, it is envisaged that in the long term, these lands will be developed for residential purposes to accommodate much needed new housing in Dublin.

As such it was not considered necessary to consider alternative uses for the proposed development. This approach is in line with EPA Guidelines (2002 and 2022 Guidelines) which recognises that it is not realistic to consider alternative options for projects which have been previously determined by a higher plan as detailed below:

"Hierarchy EIA is only concerned with projects. Many projects, especially in the area of public infrastructure, arise on account of plans, strategies and policies which have previously been decided upon. It is important to acknowledge that ***in some instances neither the applicant nor the competent authority can be realistically expected to examine options which have already been previously determined by a higher authority*** *(such as a national plan or regional programme for infrastructure or a spatial plan)."* (Source: EPA Guidelines on the information to be contained in Environmental Impact Statements, Section 2.4.3 Alternatives, page 12).

2.19.3. Alternative Layouts

The proposed development has been prepared in accordance with the requirements of the National Planning Framework, the Eastern & Midlands Regional Spatial and Economic Strategy and the relevant Section 28 Guidelines including those relating to Urban Development and Urban Heights (2018), the Apartment Guidelines (2023) and the Sustainable Residential Development and Compact Settlements Guidelines (2024) as well as, where applicable, the South Dublin County Development Plan 2022-2028 and the Ballycullen – Oldcourt Local Area Plan (2014, as extended). Furthermore, the proposed development has been the subject of pre-application consultation meetings with South Dublin County Council (i.e. the Section 247 meeting and Stage 2 "LRD" meeting between the applicant and the Local Authority).

Insofar as the EIA is concerned, a number of iterations of the site layout and alternative designs were prepared and considered for the project. This involved taking into account the various technical and environmental considerations which are addressed in the EIA, and which informed the design of the proposed development.

The development proposal is put forward with the consent of the landowners (the Applicant and others) and as such, the development process has seen the applicant and the Local Authority work together to ensure that a number of design alternatives and layouts have been considered.

The design parameters for the development proposal are set down in the first instance in the CDP and LAP which have determined the land use mix, the building height, density and other physical characteristics. The development proposal has been guided by detailed discussions with the relevant SDCC departments, Planning, Roads & Traffic, Parks & Water and Drainage etc. prior to the proposed development being prepared. These detailed discussions highlighted the issues to be addressed, which informed the design process.

Alternative site layouts and siting progressed throughout the design process in order to minimise the impact on the receiving environment at the earliest opportunity. The initial stage involved a constraints analysis of the land within the proposed development site to identify all high-level constraints and aggregate them against the site to allow a suitable layout to be developed.

The final layout now put forward for assessment pays cognisance to SDCC's LRD Opinion (Ref. LRDOP001/24) in relation to density, transportation matters such as parking, and the design and layout of the housing and public open spaces. The proposed development has also had regard to the following Section 28 Ministerial Guidelines: (i) the Sustainable Residential Development and Compact Settlements Guidelines (2024) which refer to minimum net densities of 40 dwellings on greenfield sites and encourage development at a sufficiently high density to provide for an efficiency in serviceable land usage and (ii) the Guidelines for Planning Authorities on Building Heights and Urban Development, 2018 and their SPPRs.

The proposed layout represents the best utilization of these zoned lands with the development. In terms of design, the proposed layout constitutes the best option for housing, which accords with the zoning objectives attached to the site, while also protecting and replenishing the environment as necessary.

In summary, the proposed development will *inter alia* :

- Provide an appropriate and in demand mix of housing typologies which respect the existing pattern of development in the area

- Comply with SDCC's detailed quantitative standards for residential development as set out in the existing CDP and, where applicable, the Section 28 Ministerial Guidelines such as: the Sustainable Residential Development and Compact Settlements Guidelines (2024) and the Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2023).

- Preserve the natural amenity characteristics of the site, in particular to ensure that the visual impact of the development is minimised. This has been achieved by allocating areas of open space for recreation, all of which will be developed in accordance with the overall Landscape Masterplan for this proposed development. The design and layout of the proposed development also takes into consideration appropriate development densities along with the need for a variety of dwelling types and sizes so as to encourage social mix and choice whilst also ensuring that the design makes use of material, architectural form and colour to create a high level of visual amenity.

The final design now put forward for permission presents the most effective utilization of this significant site whilst also fulfilling the objectives of SDCC's CDP by providing for long term, sustainable housing for which there is a considerable demand at present.

It is put forward that the final layout for the proposed residential development optimizes development space within the overall site, facilitates ready access to all parts of the scheme, avoids significant visual and landscape impact, and provides for an appropriate level of ancillary facilities.

The proposed layout is also put forward with regard to feedback received from SDCC via the pre-planning consultation process and considers the existing CDP's objectives for the subject site. As such, while alternative layouts were considered the final layout now put forward for permission protects the existing amenity in the immediate environs, takes on board the comments of the Local Authority and will ensure the subject site is development in an efficient and appropriate manner.

2.19.4. Alternative Processes

This is a residential led / urban development and therefore there are no alternative processes to be considered.

2.20. Do Nothing / Maximum / Minimum Alternatives

2.20.1. The "Do Nothing" Scenario

The "Do Nothing" Scenario describes the impacts of the proposed development if it would not transpire. The positive benefits to the national, regional, and local community arising from implementing the proposed development of this site would not materialize in the "Do Nothing" scenario. This alternative is therefore not attractive.

In addition, the "Do Nothing" scenario would result in non-compliance with the National Planning Framework (NPF) (and other recent national planning policy documents / Section 28 Ministerial Guidelines) which contains the following relevant objectives amongst others:

- **National Policy Objective 3a** - Deliver at least 40% of all new homes nationally, within the built-up footprint of existing settlements;

- **National Policy Objective 32** - To target the delivery of 550,000 additional households to 2040.

2.20.2. The "Do Minimum" Scenario

The "Do Minimum" Scenario in the present instance could involve the construction of the subject site at a low density however, the current proposal is supported by national and regional planning policy to provide housing and intensify land use through increased densities in areas within walking distance of key transport routes.

Alternatively, the "Do Minimum" scenario could involve the construction of the site over a number of phases / planning permissions. While this alternative may reduce the level of construction activity in the short term, it is considered that it would have the effect of spreading construction over a longer period of time.

The "Do-Minimum" scenario would also result in reduced efficiencies in construction and delays in implementation of these residentially zoned lands.

2.20.3. The "Do Maximum" Scenario

The "Do Maximum" Scenario in the present instance could involve the construction of the entire site in one phase of development, i.e., 523 no. residential units and ancillary uses. This would involve a greater degree of disruption to the receiving environment in the short term. This alternative was discounted on the basis of practical considerations relating to phasing of development, funding and feasibility.

3.0. Non-Technical Summary of EIAR Chapters

3.1. Population and Human Health

This chapter of the EIAR has been prepared by Armstrong Fenton Associates Planning Consultants (Tracy Armstrong, BA, MRUP, MIPI, MRTPI) and provides an assessment of the potential impacts of the proposed development on human beings, population, and human health in the vicinity of the development site and an assessment of these issues.

One of the principal concerns in the development process is that people, as individuals or communities, should experience no diminution in their quality of life from the direct or indirect impacts arising from the construction and operation of a development. Ultimately, all the impacts of a development impinge on human beings, directly and indirectly, positively and negatively.

3.1.1. Potential Construction and Operational Phase Impacts

Construction Phase

In the absence of mitigation, potential impacts on population and human health as a result of the construction phase of the proposed development may be summarised as follows:

- Nuisance due to dust generating activities
- Nuisance and disturbance due to noisy activities and vibration
- Negative impacts on journey characteristics, parking availability and noise due to construction
- traffic
- Negative visual impacts due to presence of construction site
- Positive direct and indirect economic impacts due to construction employment and increased
- demand for local businesses, suppliers and other supporting services; and
- Negative impacts on site personnel and local community due to improper construction site waste
- management.

Overall, subject to adherence to best practice and implementation of appropriate mitigation measures detailed below and elsewhere in this EIAR, the overall temporary impacts associated with the construction phase (excluding employment, which will be positive) are considered to be negative and slight/moderate.

Operational Phase

The duration of the operational phase of the proposed development is assumed to be long-term in duration, as per the definitions in the EPA 2022 EIAR Guidelines.

The existing South Dublin CDP sets out the overall land use patterns for the county including the lands on which the project is proposed. The nature of the development is permanent and will act as a catalyst for the future development in the area, as provided for in the settlement plans.

The proposed development will comply with the statutory land use zoning policies and objectives of the South Dublin CDP and the Government's National Planning Framework (NPF). Development of the site will align with the NPF's high-level objective to achieve compact, sustainable growth and, in doing so, will realise the efficient use of currently vacant greenfield lands with medium density housing.

In the absence of mitigation, potential impacts on population and human health as a result of the operation of the proposed development may be summarised as follows:

- Nuisance and disturbance of residents due to noisy building services plant and vehicular deliveries / collections within the site
- Negative impacts on journey characteristics due to additional operational phase traffic generated by the proposed development
- Positive impacts on pedestrians and cyclists due to enhanced permeability and provision of public realm which prioritises these users
- Nuisance and disturbance due to increased traffic volumes arising from operation of proposed development
- Visual impacts due to completion of proposed development, establishing significant new residential development
- Direct and indirect positive socioeconomic impacts due to employment opportunities and increased demand for goods and services from local businesses
- Positive impacts on existing and new residents due to provision of new facilities i.e., creche as well as direct links to local services, facilities and amenities
- Positive socioeconomic impacts due to provision of significant additional housing; and
- Negative impacts on residents and local community due to improper waste management.

3.1.2. Mitigation

Construction Phase

- Restrict working hours from 07.00 to 19.00 Mondays to Fridays inclusive, between 08.00 to 13.00 on Saturdays. No general works are envisaged to be carried out on Sundays. Should there be a need to work Sundays/Bank Holidays, a written request will be made to MCC for permission to do so. Any conditions from MCC relating to out of hours working will be followed including any required notifications to relevant parties

- Maintain a Traffic Management Plan (TMP) in effect for duration of works

- A CEMP will be agreed with the Planning Authority upon receipt of planning permission. The construction of the proposed development shall adhere to the relevant provisions of this Plan; and;

- As part of the CEMP, maintain a Dust and Noise abatement plan in operation.

Operational Phase

Where relevant, mitigation measures to address the potential impacts of noise, air traffic etc. on people are included in the appropriate chapters of this EIAR. No likely significant impacts have been identified for population, or land use, accordingly no mitigation measures are required for the Operational Phase.

The proposed development has been designed to avoid significant impacts in relation to local amenities and recreational facilities by:

- Incorporating the provision of a new childcare facility within the design proposal;

- The provision of 73,754.8sq.m (c.7.37 hectares) of public open space which equates to c. 36% of the site area;

- Providing new pedestrian and cyclist links to local amenities and facilities,

- Providing a new east-west road connecting Oldcourt Road to Bohernabreena Road.

Accordingly, no further mitigation measures are required.

3.2. Biodiversity

Enviroguide Consulting prepared this Biodiversity Chapter (Chapter 5 of Volume II of this EIAR).
A separate stand-alone Appropriate Assessment (AA) Screening Report and a separate Natura Impact Statement are also included in the planning application documentation. Under Article 6(3) of the Habitats Directive a screening for '*appropriate assessment'* of projects must be carried out to determine if significant effects are likely to arise to 'European sites' or 'Natura 2000 sites'. This assessment is carried out by the competent authority, in this case South Dublin City County Council.

The Biodiversity Chapter details the Ecological Impact Assessment (EcIA) of the Proposed Development and assesses the potential effects of the Proposed Development 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 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.

3.2.1. Methodology

A range of field surveys have been carried out at the Site in preparation for this planning application. A summary of the surveys is provided in below.

Survey	Surveyor	Dates
Multidisciplinary walkover surveys (incl. habitat mapping, flora and fauna)	Enviroguide Consulting (SH, SA, WMC)	20.09.2022 07.10.2022 04.06.2024
Bird Scoping Survey	Enviroguide Consulting (BMcC, BT)	04.05.2023
Breeding Bird Surveys	Enviroguide Consulting (BMcC)	10.05.2023 19.06.2023 05.07.2023
PBRA	Enviroguide consulting (CBH, WMC)	04.07.2023 13.07.2023 04.06.2024
Bat Dusk Transect Surveys	Enviroguide Consulting (various)	01.09.2022 (Eastern half) 08.09.2022 (Western half) 16.05.2023 (full site) 21.06.2023 (full site) 09.08.2023 (full site)

Table 3 - Summary of field survey work carried out at the Site of the Proposed Development

3.2.2. Ecological Impact Assessment

The previous section identified the Key Ecological Receptors (KERs) on which the potential for impacts as a result of the Proposed Development will be assessed. These KERs are:

- Nationally designated sites
  - Dodder Valley pNHA

- Habitats
  - Scrub
  - Hedgerows
  - Treelines
  - Linked Habitats – Dodder River

- Fauna
  - Bat assemblage
  - Breeding bird assemblage
  - Badger
  - Small mammals (hedgehog, pygmy shrew, Irish stoat, pine marten)
  - Otter
  - Amphibians
  - Common lizard
  - Dodder fish assemblage

3.2.2.1 Potential Impact Sources

Taking the baseline ecological data, the extent, the scale and the characteristics of the Proposed Development into account, the following potential impact sources have been identified:

Construction Phase (*duration: c. 7 years***):**

- Hedgerow and treeline removal;
- Impacts on surface water;
- Earthworks – causing the mobilisation of particles to air (dust);
- Noise and vibration;
- Increased lighting;
- Increased human presence.

Operational Phase (*duration: Indefinite***):**

- Impacts on surface water;
- Lighting;
- Increased human presence and associated hazards to wildlife (e.g., traffic, litter, etc.).

Note that the potential for impacts from discharges of treated foul water effluent into Dublin Bay (and any designated sites within) from the Ringsend WwTP has been effectively ruled out in the accompanying AA Screening.

3.2.2.2 Construction Phase

Impacts to Designated sites

The Dodder Valley pNHA is hydrologically connected to the Proposed Development via the tributaries to Dodder River that cross the Site. In the absence of appropriate mitigation and protection measures, there exists a risk of impacts on water quality via accidental releases of pollutants such as silt, sediments and/or hydrocarbons into the surface water network.

Water quality deterioration can lead to knock-on effects on fauna and flora along and within the river itself. For instance, pollutants may interfere with the aquatic life-stages of insects, which can reduce prey availability for bird species feeding on them such as sand martins (*Riparia riparia*), which are known to nest along the banks of the Dodder within this pNHA.

However, it is considered that any potential impacts on the water quality of this pNHA would be short-lived due to the temporary nature of construction works. Due to Site topography, it is also considered that unless materials are inappropriately stored near existing watercourses, any accidental spills would likely

run over and infiltrate into the ground prior to reaching the open watercourses. This infiltration into ground would provide a mitigative effect of filtering out majority of pollutants prior to flowing via groundwater into the open watercourses that lead to the Dodder River.

Thus, the potential impact on the Dodder Valley pNHA during Construction Phase of the Proposed Development is considered to be **negative, slight and short-term**.

Impacts to Habitats and Flora

The habitats listed as KERs are assessed for potential impacts in the below sections.

Habitat loss

The scrub, hedgerows and treelines currently provide continuous ecological corridors through the Site allowing for wildlife movement within the cover of dense vegetation. Approximately 850m of these linear habitats will be removed to facilitate the Proposed Development and associated road, while the landscaping plan identifies a total of 1333m of hedgerow to be retained. The loss of these linear habitats could impact on their function as ecological corridors through the Site. However, the road construction plan provides for mammal ledges at each crossing where a natural ditch or stream already exists, retaining the movement potential for terrestrial, non-volant wildlife through the Site following the linear features.

Additionally, the landscape plan design provides an increase in overall habitat diversity across the Site, as it incorporates a variety of different habitat types across the Proposed Development. The main park alone will include a wetland area with native species planting, an increase in overall tree cover in the form of street and park trees, and a variety of meadow and ornamental planting areas.

Considering the above, the impact from loss of linear habitats is notably alleviated by the diversity of planned planting and careful consideration of continuity of green spaces through the Proposed Development. Therefore, the potential impact from habitat loss is considered to be **negative, slight, permanent.**

Damage to Retained Habitats

The majority of linear features being retained consist of mature trees and hedges which may be subject to damage from construction activities in the absence of protection measures. The potential damage could include compression damage to the root zones of trees and hedges and physical damage to the overground growth. Additionally, construction and landscaping works may inadvertently introduce invasive species to the Site that were not previously present, or facilitate the spread of those already present. Thus, the overall potential impact to retained habitats is considered to be **negative, moderate, long-term**.

Linked Habitats –Dodder River

The Proposed Development is hydrologically linked to the Dodder River, and in the absence of proper surface water management and mitigation measures during the Construction Phase, accidental discharges of pollutants into the surface water network (drainage ditches and Dodder tributaries on and adjacent to the Site) could lead to **negative, slight, short-term** impact on the Dodder River.

Impacts on Fauna

The potential for impacts during the Construction Phase of the Development for each of the species or species groups considered as KERs is discussed in the below sections.

Bats

The loss of small sections of linear habitats at the Site has the potential to have a negative impact on bat foraging and commuting through the Site while the new hedgerows and woodland areas are not yet planted and established. Additionally, 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 within the Site and along the Site's boundaries. These vegetated 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, moderate, short-term** impact on the local bat assemblage, in the absence of mitigation.

No PRFs were identified within the treelines or hedgerows planned to be removed on the Site. However, adverse weather conditions may alter the status of trees at the Site that are due for removal. In this event, there exists potential risk of injury and/or death to bats potentially present in a tree being felled. This represents a **negative, significant, short-term** impact at a local scale in the absence of mitigation and precaution.

Breeding Birds

The Construction Phase of the Proposed Development will likely result in elevated noise levels associated with the construction works. As a result, there is a potential risk of noise disturbance to birds in the vicinity of the Site, representing a **negative, slight, short-term** impact in the absence of suitable mitigation.

The bird species recorded on Site were mostly associated with the treelines and hedgerow along the boundary of the Site. Should hedgerow vegetation be cleared from the Site during the breeding bird season (March 1st to August 31st) there is the potential for nesting birds to be harmed and nests to be destroyed. This would be in contravention of the Wildlife Acts and Amendments (2000) which provides protection to breeding bird species and their nests and young. Therefore, in the absence of any mitigation or precaution, this risk represents a potential **negative, significant, short-term** impact to breeding birds at the Site scale.

Badger

Badger was recorded utilising the linear habitats at the Site for commuting, and they may utilise the open fields for foraging. Badger could take up residence at the Site between the time of the surveys that informed this Chapter and the commencement of works on Site. Should an active 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 badgers at the local scale, in the absence of mitigation.

Small Mammals

Small mammals such as hedgehog, pygmy shrew, Irish stoat and pine marten may utilise the open fields and linear features of the Site for foraging, commuting and resting. Abrupt vegetation clearance may place these mammals at risk of injury and/or death in the absence of precaution. Additionally, should any hedgehogs use

the vegetation, particularly dense hedgerows or scrub, for hibernation during the winter, vegetation clearance carried out during the hibernation season may result in the injury/mortality of this species. Thus, the potential impact on these small mammals from injury/mortality during the Construction Phase is considered to be **negative, short-term, significant** at a local scale.

Additionally, 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.

Otter

There is potential for negative impacts on otter in the Dodder River during the Construction Phase of the Proposed Development due to potential surface water containing silt, sediments or pollutants entering local surface water drains and small streams and the downstream Dodder River. Although deemed unlikely to occur, this could potentially impact the prey population for otter utilising the waterbody. This constitutes a **negative, slight, short-term** impact in the absence of suitable mitigation.

Amphibians

Water quality impacts on the wet ditches and any pooling areas within the small streams at the Site may cause adverse effects on any potentially present amphibians and their spawn/young in these water features should they be present. Additionally, adult amphibians may also be present within the field margin habitats, and any vegetation removal/alteration is likely to place any potentially present amphibians at risk of injury or death. Therefore, in the absence of precaution and mitigation measures, the risk of harm, injury and/or death resulting from construction activities (incl. water quality impacts, construction traffic, and vegetation removal) represents a potential **negative, slight, short-term** impact on any locally occurring amphibians.

Common Lizard

During the Construction Phase, vegetation clearance may place lizards potentially present at risk of injury and mortality. Additionally, lizards can also get caught in inappropriately stored materials (e.g., plastic sheeting) which can cause injury or death. In the absence of any mitigation or precaution, this risk represents a potential **negative, slight, short-term** impact on the common lizard at a *local* scale.

Dodder Fish Assemblage

Watercourses are highly sensitive to contamination with excess sediment, fuel and cementitious materials during the Construction Phase of developments. There is a potential hydrological connection between the Site and the Dodder River via the drainage ditches and small streams traversing the Site and discharging into the Dodder. There is potential for negative impacts on fish in the Dodder river during the Construction Phase of the Proposed Development due to potential surface water containing silt, sediments or pollutants entering local surface water drains. This constitutes a **negative, slight, short-term** impact in the absence of suitable mitigation.

3.2.2.2 Operational Phase

Impacts to Designated Sites

The Dodder Valley pNHA is located within the 'Strategic Corridor 1: The Dodder River' identified within the Green Infrastructure chapter of the SDCDP 2022-2028. The objectives of the Dodder River corridor include the development of a greenway from Dublin City to Glenasmole, providing a cycling and walking route from city to the mountains. The pNHA is currently accessible to the public, and it is assumed that under the development of the greenway, increased accessibility and recreational pressures will be accounted for within the planning

process for the greenway, in line with expected increases in human population along the route as per the zonation provided in the SDCDP 2022-2028. In addition, the Proposed Development includes ample green open space with pathways for pedestrians and cyclists.

The pNHA is also linked to the Proposed Development via the drainage ditches and tributaries of the Dodder traversing the Site. The inclusion of a full suite of SUDS measures reduces the flow of surface water to greenfield rates, and provides an effective filtration and pollution intervention.

Therefore, it is considered that potential impacts from

- increases in human population and associated potential increase in recreational pressures on the pNHA; and
- surface water discharges from the Proposed Development

due to the Proposed Development are **neutral, long-term, imperceptible**.

Impacts to Habitats and Flora

It is not envisaged that there will be any significant impacts to habitats at the Site of the Proposed Development associated with the Operational Phase.

Impacts to Fauna

Bats

Operational Phase lighting could potentially have a negative impact on local bat populations, as most bat species avoid strongly lit areas when foraging and/or commuting. However, the lighting plan for the Proposed Development shows low levels (0 to 3 lux) of light spill at the various green spaces of the Site. The main park's wetland area will be relatively dark, with low light levels maintained along the hedgerow that connects the habitat to the southeast corner of the Site. The streetlights on the main road have been positioned to maintain a relatively dark corridor to allow bats to cross over the road from the main park to the southeast corner, in keeping with the hedgerows on either side. Furthermore, the southern boundary is largely backed by private gardens and buffered by a strip of native meadow and tree planting along the existing hedgerow and treeline, which will help in maintaining low light levels along this boundary habitat.

The treelines, hedgerows and wooded areas themselves, after a period of establishment, are likely to provide screening from light, thus contributing to the provision of dark corridors for commuting and foraging bats and other wildlife. Therefore, considering there is likely to be a slight increase in baseline lighting levels along existing and newly established ecological corridors within the Site, the potential impact from Operational Phase lighting is considered to be **negative, permanent, slight** on locally occurring bats.

Breeding Birds

The Proposed Development will see the planting of a variety of native tree and hedgerow species within the Proposed Development Site as part of the landscaping plan. In the absence of careful consideration of the species mix used, and the management approach, any new native hedgerows may prove less suitable for the current bird assemblage at the Site. However, as a large portion of the existing hedgerows is retained, it is considered that there is an overall increase in potential breeding bird habitats on the Site. This is considered to have a potential **positive, long-term, slight** impact on the local bird assemblage.

Lighting from the Proposed Development may impact on breeding bird success. The current baseline level of light is very low to completely dark along the existing hedgerows, and it is anticipated that some increase in lighting along the retained and newly planted hedgerows is unavoidable as a result of the Proposed Development. However, the lighting plan for the Proposed Development shows low levels (1.0 - 3.o lux) of light spill at the proposed hedgerows and wooded areas within the Site. The hedgerows themselves, after a period of establishment, are likely to provide screening from light to the far side of the hedgerows, thus providing a

relatively dark habitat on at least one side of the new hedgerows. As such, the overall impacts on breeding birds as a result of the Operational Phase lighting is considered to be **negative, long-term, slight** at a local scale.

The Proposed Development is residential in nature and entails low-rise housing and apartment blocks with max building heights of 3-storeys in height. No significant risk of bird-building collisions is therefore envisaged.

Badger

The Site of the Proposed Development currently contains suitable habitat for badgers commuting through along the linear habitats, and the planted landscaped areas will likely also do so into the future. The landscaping plan maintains ecological connectivity through the Site by enhancing and retaining majority of the existing linear habitats (e.g., hedgerows and treelines), however increased lighting together with increased human activity and associated risks from traffic is likely to somewhat disrupt typical commuting through the Site. This represents a **negative, moderate, long-term** impact at the local scale, in the absence of mitigation.

Small Mammals

The Site of the Proposed Development currently contains suitable habitat for small mammals commuting through along the linear habitats, and the planted landscaped areas will likely also do so into the future. The landscaping plan maintains ecological connectivity through the Site by enhancing and retaining majority of the existing linear habitats (e.g., hedgerows and treelines), however increased lighting together with increased human activity and associated risks from traffic is likely to somewhat disrupt typical commuting through the Site. This represents a **negative, moderate, long-term** impact at the local scale, in the absence of mitigation.

Otter

No potential significant impacts on otter along the Dodder River are envisaged as a result of the Operational Phase of the Proposed Development. As described above for designated sites (section 5.6.5.1), any potential increases of recreational pressures along the Dodder River should be addressed as part of the increased accessibility provided by future greenway plans. Therefore, the potential impacts from the Proposed Development on otter during its Operational Phase are considered to be **neutral, imperceptible, long-term**.

Amphibians

The associated wetland areas within the main park are likely to attract amphibians to breed at the Site once matured. This is considered to be a **positive, significant, long-term** impact at a local scale.

Common Lizard

No potential impacts on common lizard are envisioned as a result of the Operational Phase of the Proposed Development.

Dodder Fish Assemblage

No potential significant impacts on otter along the Dodder River are envisaged as a result of the Operational Phase of the Proposed Development. As described above for designated sites (section 5.6.5.1), any potential increases of recreational pressures along the Dodder River should be addressed as part of the increased accessibility provided by future greenway plans. Therefore, the potential impacts from the Proposed Development on otter during its Operational Phase are considered to be **neutral, long-term, imperceptible**.

Do Nothing Impact

Should the Proposed Development not go ahead, the fields would likely continue to be used as agricultural pastureland. The small stands of invasive species recorded at the Site may continue to spread within the Site,

eventually requiring intervention from the tenants at the industrial area and/or residential dwelling. No significant changes to the local ecology and biodiversity are envisaged if the land continues to be used as it is.

3.2.3 Construction Phase Mitigation

3.2.3.1 Protection of Habitats and Flora

Mitigation 1: Site-specific Surface Water Mitigation Measures

While best practice development standards have been included in a Construction and Environmental Management Plan (CEMP) (Enviroguide, 2024b), further details are outlined in this section to ensure the ecology of internal ditches and streams, as well as any downstream watercourses such as the Dodder River are not adversely impacted.

With regards to protecting the existing water features and the water quality of the Dodder, the following measures are recommended following the latest guidance on Construction works in or adjacent to

watercourses (Inland Fisheries Ireland, 2016):

- Silt traps/ponds will not be positioned directly adjacent to the ditches or streams within and adjacent to the Site.
- A buffer zone should remain between any silt trap and any water features (ditches and streams), with natural vegetation left intact. Where natural vegetation within the buffer zone is not an option, imported materials such as terram, straw bales, or coarse to fine gravel should be used either separately or in combination as appropriate.
- Silt fencing will be positioned where required to prevent overland surface water flows over sloped lands to the existing streams and ditches.
- Pre-cast concrete should be preferred over poured concrete to minimise risks for the construction of any headwall features and culverts.
- Any instream works should take place between July-September to avoid any potential risks to downstream fisheries habitats.
- Where temporary storage of imported materials or excavated soils is required on Site, these temporary storage areas will be surrounded with silt fencing to filter out any suspended solids from surface water arising from these materials.
- Under no circumstances will any untreated wastewater generated onsite (from equipment washing, road sweeping etc.) be released into nearby drains.

In addition, the following will be considered when designing fuel, oil and other chemical storage at the Site for the Construction Phase:

- The storage area for fuels, oils and other chemicals will be located as far away from the existing drainage ditches and stream as feasible. This is likely to be located at the northwest area of the Site to minimize potential for any overland flows to existing ditches and streams at the Site or immediately adjacent.

Once the above details are implemented in full together with the best practice measures detailed in the accompanying CEMP (Enviroguide, 2024b), it is considered that no significant adverse impacts on the water quality of the Dodder are likely to occur.

Mitigation 2: Biosecurity Measures

The following best practice site hygiene and biosecurity measures will be in place to avoid spread of the invasive flora identified at the Site into the surrounding areas during Construction Phase and to limit the potential for spread of invasive species at the Site:

- Fencing and signage will be erected to identify and cordon off the areas containing invasive species, until such a time that they are effectively removed.
- All soils/materials being introduced to the Site will be sourced from a certified invasive flora-free source site, to ensure no introduction of invasive plant materials to the Site occurs.
- Personnel working on or between sites will ensure their clothing and footwear are cleaned, ensuring they are visually free from soil and organic debris, in order to prevent inadvertent spread of invasive plant material.
- Where possible tracked vehicles should not be used within an area of infestation, such as within the current industrial area of the Site, until cleared from all invasive floral material as per the prepared ISMP.
- All vehicles containing invasive plant materials for transportation and disposal offsite will be suitably secured with tarpaulins etc., to ensure no inadvertent dissemination of invasive materials en-route.
- Works should be planned to avoid double handling of infected plants materials/soils as far as possible to reduce the risk of spread.
- All vehicles entering or leaving the Site will have been suitably checked and pressure-washed to ensure no introduction of invasive flora to and from the Site. Measures such as a drive through hygiene bath or footbaths will be considered where appropriate, such as for any works within the current industrial area prior to removal of all invasive floral material from the Site.
- Designated wash-down area to ideally be located in the northwestern area of the Site, away from sensitive receptors such as watercourses, ditches, drains etc.
- Material/water left after vehicles have been pressure-washed must be contained, collected and disposed of appropriately (These waters must not under any circumstances be discharged to drains, ditches or watercourses within the Site).
- All chemicals used for the control of non-native species should be stored and used in a responsible manner.

A comprehensive Invasive Species Management Plan shall be prepared prior to beginning of construction to limit the potential for spread of Japanese knotweed and butterfly bush within and outside of the Site. This will involve an updated botanical survey of the Site to ensure accurate mapping of the current extent of any invasive species at the Site.

Mitigation 3: 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 and hedgerows to be retained at the Site.

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.

Mitigation 4: 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 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.

Mitigation 5: Preparation of an Invasive Species Management Plan

A comprehensive Invasive Species Management Plan (ISMP) shall be prepared prior to beginning of construction to limit the potential for spread of Japanese knotweed and butterfly bush within and outside of the Site. Due to the dynamic nature and relatively fast spread of the invasive floral species found at the Site, this measure is included as a mitigation measure in this NIS in anticipation of any time delays between a grant of permission and commencement of works.

Should the commencement of works be delayed beyond 2025, the preparation of the ISMP will require an updated botanical survey of the Site during the botanical growing season, to ensure the current extent of any invasive species at the Site is accurately mapped to inform the ISMP. Should works commence prior to this, it is assumed that the extent of the invasive species would be accurate based on the existing survey data. The ISMP shall be prepared by suitably qualified ecologist/botanist, and signed off by SDCC prior to commencement of works.

The ISMP should at minimum contain the following features:

- Current extent of invasive species on Site;
- Suitable removal methods for each invasive species encountered on Site; and
- Appropriate management of each invasive species encountered on Site.

3.2.3.2 Protection of Fauna

Mitigation 6: 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 bats 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.

Mitigation 7: Vegetation Clearance

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 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.

Any demolition works or clearance of vegetation will be carried **out outside the main breeding season**, **i.e., outside of period: 1st March to 31st August,** in compliance with the Wildlife Act 2000. Should any demolition/ vegetation removal be required during this period, this areas to be affected will be checked for birds and nests

by a suitable qualified Ecologist, and if any are noted during this evaluation prior to removal, the nest will be protected until the young have fledged as confirmed by the Ecologist, after which time the inactive nest can be destroyed.

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 4 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.

<table>
<tr><th rowspan="2">Ecological Feature</th><th colspan="12">Month</th></tr>
<tr><th>January</th><th>February</th><th>March</th><th>April</th><th>May</th><th>June</th><th>July</th><th>August</th><th>September</th><th>October</th><th>November</th><th>December</th></tr>
<tr><td>Breeding Birds</td><td colspan="2">Vegetation clearance permissible (Sept - Feb)</td><td colspan="6">Nesting bird season.
No clearance of vegetation unless confirmed to be devoid of nesting birds by an ecologist. (Mar - Aug)</td><td colspan="4">Vegetation clearance permissible (Sept - Feb)</td></tr>
<tr><td>Bats</td><td colspan="8">Tree felling to be avoided unless confirmed to be devoid of bats by an ecologist (Jan – Aug)</td><td colspan="2">Preferred period for tree-felling (late Sept to Nov)</td><td colspan="2">Tree felling to be avoided unless confirmed to be devoid of bats by an ecologist (Nov- Dec)</td></tr>
<tr><td>Common Lizard</td><td colspan="3">Lizard Hibernation Season No habitat clearance permissible (Jan – Mar)</td><td colspan="7">Active period
Habitat (scrub, tall sward grass) clearance permissible (Apr – Oct)</td><td colspan="2">Lizard Hibernation Season
No habitat clearance permissible (Nov – Dec)</td></tr>
</table>

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)**

Table 4 - Seasonal restrictions on habitat/vegetation removal for relevant KER species. Red boxes indicate periods when clearance/works are not permissible

Mitigation 8: Construction Site Management for Fauna

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.

3.2.4 Operational Phase Mitigation

3.2.4.1 Protection of Habitats and Flora

Protection of Fauna

No specific mitigation measures for potential impacts on fauna were identified in addition to the embedded design features such as the Landscape Plan providing continuous green corridors through the Site and the public lighting plan.

3.2.4.2 Biodiversity Enhancement Measures

Enhancement 1: Landscape Management

Soft landscaping will be managed in such a way as to promote pollinators (e.g., pollinator friendly mowing regime, planting of native wildflower meadows and native tree species), please see Landscape Plan and Landscape Rationale Report (Gannon and Associates, 2024).

Enhancement 2: Bat Boxes

By way of enhancement, bat boxes will be erected at the Site, on suitably mature trees located along the main park and wetland area, 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. Additional bat boxes may also be installed along any linear vegetated features that have no night-time lighting.

The bat boxes will be located in locations unlit by night-time lighting and *ca.*4m above the ground to prevent disturbance. The linear features at the Site were noted to support bat foraging activity and so the provision of new roosting opportunities will act to enhance bat usage of the Site.

Enhancement 3: Swift Bricks

It is proposed to include swift bricks or external swift boxes on the facades of the 3 & 4 storey buildings. The Swift bricks/boxes will be installed side by side in sets of up to 10, as swifts are a social nesting species. The bricks/boxes will be installed a minimum of 5m off the ground, and care will be taken to ensure no obstacles or plate glass windows are located below the bricks/boxes.

Guidelines for the bird box scheme should also follow guidelines published by Swift Conservation Ireland, and those published by Birdwatch Ireland entitle "Saving Swifts" (2009/2010). The incorporation of swift bricks/boxes 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/boxes do not require any cleaning by the management company.

It is advised to install a swift calling system 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 should 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 possible.

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.

Enhancement 4: Bird Boxes

A minimum of 5 no. bird boxes are proposed to be installed within the main park area of the Site. Bird boxes should be installed prior to the breeding bird season to ensure their presence at the Site from February onwards, when birds begin seeking out new nest locations. Installation will be overseen by an Ecologist, and management will be taken in charge by the landscape management team of the Proposed Development during its Operational lifetime.

A range of different bird boxes are available that meet the specific need of the species of birds. The variety of options suitable for installation at the Site and information on the positioning of each type of box are outlined briefly below. A minimum of three boxes should be installed, with preference given to boxes suitable for amber- and red-listed species such as House Sparrow and Starling. Such boxes are described as follows:

- Sparrow Nest Box: For example, the Sparrow Nest Box System, which can be found at the following link: https://www.nhbs.com/sparrow-nest-box-system or the Sparrow Terrace, which can be found at the following link: https://www.nhbs.com/sparrow-terrace-nest-box .
- Starling Nest Box: This box type can be found at the following link: https://www.nhbs.com/woodpeckerstarling-nest-box

Sparrow nest boxes should be placed 2-4m off the ground with a clear flight path to the entrance. Starling nest boxes 3-4 metres above ground level where there is easy flight access and where it cannot be reached by cats or other potential predators.

Other appropriate bird box types are as follows:

- 'Hole type' bird boxes (28 mm hole): For example, the Eco Small Bird Box, which can be found at the following link: https://www.nhbs.com/eco-small-bird-box.
- Open fronted bird boxes for blackbirds: For example, the Blackbird FSC Nest Box, which can be found at the following link: https://www.nhbs.com/blackbird-fsc-nest-box.
- Open fronted bird boxes for wrens and robins: For example, the Eco Robin (Open-Fronted) Nest Box, which

can be found at the following link: https://www.nhbs.com/eco-robin-open-fronted-nest-box.

Hole type bird boxes should be positioned 2-4m off the ground, with good-visibility, a clear flight line, and away from the prevailing wind direction. The open-fronted boxes for robins, wrens and blackbirds should be installed lower than 2m but amongst dense vegetation, or newly planted vegetation that will grow to become dense upon establishment, and somewhere cats and other predators won't easily see or access them. Boxes will not be drilled or nailed to trees to avoid damage, but instead be attached via a wire strap wrapped around the tree. Boxes will be located in areas away from direct exposure to public lighting to increase chances of uptake.

Enhancement 5: Ground nesting pollinator habitat

To enhance the Site's value to pollinating species that inhabit nests on the ground, such as mining bees, bare earth banks will be included in suitable areas within the main park, where the potential for damage from humans is limited (i.e., away from main pathways, suitably fenced, etc). These banks will be maintained as bare ground with minimal vegetation to allow for mining bees and other ground nesting insects easy access. These banks should be formed by sandy soils, and faced south/southeast.

3.3. Lands, Soil & Geology

This chapter has been prepared by Shaun O'Reilly, Pr Tech Civ Eng, with 40 years civils experience and over 16 years with Pinnacle Engineering Consultants. This chapter of the EIAR comprises of an assessment of the likely impact of the proposed development on the surrounding land, soil and geology within the vicinity of the site, as well as identifying mitigation measures to minimise any impacts.

3.3.1. Receiving Environment

The Site Investigation Report undertaken by Causeway Geotech and is produced under a separate cover, has described the sequence of strata encountered on the LAP lands as generally comprising of topsoil, and glacial till.

The site, which has an overall area of c.20.4 ha, is currently predominantly greenfield. The site falls from South to North with a gradient of c. 1 in 16. There is a high point of 119.78m OD to the south and a low point of 98.12m OD to the north.

The Site Investigation Report undertaken by Causeway Geotech, has described the sequence of strata encountered on the masterplan lands as generally comprising of topsoil and glacial till.

The Site Investigation report further advises that any groundwater encountered consisted of localised seepages within the lenses of sands and gravels within the glacial till.

3.3.2. Predicated Impacts

3.3.2.1. Construction Stage

The removal of topsoil during earthworks and the construction of roads, services, and buildings, in particular roads and building foundations, will expose subsoil to weathering and may result in the erosion of soils during adverse weather conditions, which if unmitigated may have a temporary, negative, slight (non-significant) to moderate (significant) effect.

Construction traffic movements involved in the construction of the proposed development and access roads, may result in localised compaction of the subsoil along haulage routes, having a permanent, slight (non-significant), negative impact on subsoil materials.
Surface water runoff from the surface of the excavated areas, or rainfall on stockpiled material, may result in silt

discharges to the local surface water network via overland flow, with the potential to have a permanent, slight, negative impact.

Where feasible, excavated subsoil will be used as part of the construction works with suitable surplus subsoil will be used in areas requiring fill where appropriate. Unsuitable and / or surplus subsoil is required to be disposed of appropriately.

Dust from the site and from soil spillages on the existing road network around the site may be problematic, especially during dry conditions, which will have a short-term, slight negative impact on the geological environment on the site.

Accidental oil or diesel spillages from the construction plant and equipment, in particular at refuelling areas, may result in oil contamination of the soils and underlying geological structures, potentially having a negative, moderate (significant), permanent impact on the geological environment.

Accidental discharges from welfare facilities during the construction stage has the potential to contaminate surface and groundwater courses. with the potential to have a permanent, slight (not significant) to moderate (significant), negative impact.

3.3.2.2 Operational Stage

During the operational phase of the development, it is not envisaged that there will be any ongoing impacts on the underlying soil as a result of the proposed development. Any hydro-geological impacts are temporary and associated with the construction of the proposed development.

Surface water runoff is directed via SuDS and filtration devices proposed to be provided as part of the development. These will help to remove pollutants from rainwater runoff, ensuring the impact by run-off on the quality of the site soils and groundwater during the operational phase will be considered positive, slight, likely & permanent.

The increase in hardstanding area will result in a reduction in the infiltration potential across the site, which will be negative, slight (not significant) likely, and permanent.

3.3.3 Mitigation Measures

3.3.3.1 Construction Stage

The Site Investigation Report included as an Appendix, has shown that the lands are composed of varying sequences of strata generally comprised of topsoil and glacial till. Made ground has also been identified in a single trail pit, i.e. TP11 located at the south-east extremity of the lands and falls under the portion of development currently under construction, i.e. Ballycullen Gate. A total of 43 No. trial pits were carried out across the LAP lands.

Environmental Laboratory chemical analysis has indicated that the in-fill constituents are non-hazardous. Excavated material from this location will be continuously monitored/inspected for signs of hazardous material contamination during excavation. Should there be any indication of hazardous material contamination, it may be required to be further sampled and analysed to confirm its chemical properties and waste category classification as per the waste landfill facility requirements.

Practical measures have been implemented during the design process to ensure that cut and fill volumes generated have been kept to a minimum by ensuring proposed road and building levels match existing ground levels insofar as is possible. Surplus subsoil and rock may be relocated to approved areas of the subject site that may require in-fill, or if required to be removed from site, will be deposited in approved fill areas off-site (Article 27 notification to the EPA required), or to an approved waste disposal facility.

In the case of topsoil careful planning and on-site storage will ensure that this resource is reused on-site as much as possible. Any surplus of soil not reused on site can be sold. However, topsoil is quite sensitive and can be rendered useless if not stored and cared for properly.

- Topsoil will be kept completely separate from all other construction waste as any cross-contamination of the topsoil can render it useless for reuse.
- Topsoil will be protected from all kinds of vehicle damage and kept away from site-track, delivery vehicle turning areas, and site plant and vehicle storage areas.
- Careful separation of builder's rubble packaging and contaminated waste from re-usable material will result in the minimisation of the disposal of material to landfill.
- Spoil heap/stockpiles will not be located within 20m of the existing surface water networks.
- Spoil heaps/stockpiles will be considered for seeding if their storage is likely to be longer than a few seasons.
- Topsoil will be stored in stockpiles less than two metres in height as otherwise the soil matrix (internal structure) can be damaged beyond repair. It will also be kept as dry as possible and used as soon as possible to reduce any deterioration through lengthy storage and excess moving around the site.

In the unlikely case of a topsoil surplus the Contractor will carry out appropriate environmental chemistry testing in order to determine the waste classification of the soils that are to be excavated and that will include Waste Acceptance Criteria testing. The test regime will be agreed with the receiving landfill operator, if not suitable for an Article 27 transfer, and the testing will be carried out by an accredited laboratory.

Records of topsoil storage, movements and transfer from site will be kept by the C&D Waste Manager. It is projected that all the topsoil will be reused on-site for landscaping purposes in both private residential gardens and public green areas.

A Discharge Licence will need to be obtained from the local Authority by the Main Contractor. Untreated surface water will not be permitted to flow to any natural or piped surface water network.

Silt traps, silt fences and tailing ponds will be provided by the contractor where necessary to prevent silts and soils being washed away by heavy rains during the course of the construction phase. All surface water will be treated for silts and sediment prior to disposal to the surface water network. Any and all other conditions, restrictions, or limits associated with the discharge license shall be adhered to.

The provision of wheel wash areas at the exit/s to the development as necessary will minimise the amount of soil deposited on the surrounding road network. The adjoining road network will be cleaned on a regular basis. All trucks carrying soils on the public road will be covered and carry a maximum of 10 cubic metres of material to prevent spillage and damage to the surrounding road network.

Appropriate storage and bunding measures will be implemented throughout the construction stage to prevent contamination of the soil and groundwater from oil and petrol leakage from site plant. Refuelling will be restricted to allocated re-fuelling areas. This storage area is to be an impermeable, roofed, bunded area, designed to contain 110% of the volume of fuel stored. Emergency fuel spill kits are to be stored on-site with designated staff familiar with their usage. Spill kit facilities will be provided for across the site.

If groundwater is encountered during excavations, mechanical pumps will be required to remove that groundwater from sumps. Sumps should be carefully located and constructed to ensure that groundwater is efficiently removed from excavations and trenches.
Where feasible 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. Wash down and washout of

concrete transporting vehicles will take place at an appropriate facility offsite.

Nuisance dust emissions from construction activities are a common and well recognised problem. Fine particles from these sources are recognised as a potential significant cause of pollution.

The main contractor will be required to demonstrate that both nuisance dust and fine particle emissions from the site are adequately controlled and are within acceptable limits.

Dust and fine particle generation from construction and demolition activities on the site can be substantially reduced through carefully selected mitigation techniques and effective management. Once particles are airborne it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming airborne, since suppression is virtually impossible once it has become airborne.

The following are techniques and methods which are widely used currently throughout the construction industry, and which will be used in the development.

1. The roads around the site are all surfaced, and no dust is anticipated arising from unsealed surfaces.
2. A regime of 'wet' road sweeping will be set up to ensure the roads around the immediate site are as clean and free from dirt / dust arising from the site, as is reasonably practicable. This cleaning will be carried out by approved mechanical sweepers.
3. Footpaths immediately around the site will be cleaned by hand regularly, with damping, as necessary.
4. High level walkways and surfaces such as scaffolding will be cleaned regularly using safe 'wet' methods, as opposed to dry methods.
5. Vehicle waiting areas or hard standings will be regularly inspected and kept clean by brushing or vacuum sweeping and will be regularly sprayed to keep moist, if necessary.
6. Vehicle and wheel washing facilities will be provided at the site exit(s). If necessary, vehicles will be washed down before exiting the site.
7. Netting will be provided to enclose scaffolding in order to mitigate escape of airborne dust from the new buildings.
8. Vehicles and equipment will not emit black smoke from exhaust system, except during ignition at start up.
9. Engines and exhaust systems will be maintained so that exhaust emissions do not breach stationary emission limits set for the vehicle / equipment type and mode of operation.
10. Servicing of vehicles and plant will be carried out regularly, rather than just following breakdowns.
11. Internal combustion plant will not be left running unnecessarily.
12. Exhaust direction and heights will be such as not to disturb dust on the ground and to ensure adequate local dispersal of emissions.
13. Fixed plant such as generators will be located away from residential areas.
14. The number of handling operations for materials will be kept to a minimum in order to ensure that dusty material is not moved or handled unnecessarily.
15. The transport of dusty materials and aggregates will be carried out using covered / sheeted lorries.
16. Material handling areas will be clean, tidy, and free from dust.
17. Vehicle loading will be dampened down and drop heights for material to be kept to a minimum.
18. Drop heights for chutes / skips will be kept to a minimum.

19. Dust dispersal over the site boundary will be minimised using static sprinklers or other watering methods, as necessary.
20. Stockpiles of materials will be kept to a minimum and if necessary, they will be kept away from sensitive receptors such as residential areas etc.
21. Stockpiles where necessary, will be sheeted or watered down.
22. Methods and equipment will be in place for immediate clean-up of spillages of dusty material.
23. No burning of materials will be permitted on site.
24. Earthworks excavations will be kept damp where necessary and where reasonably practicable.
25. Cutting on site will be avoided where possible by using pre-fabrication methods.
26. Equipment and techniques for cutting / grinding / drilling / sawing / sanding etc, which minimise dust emissions and which have the best available dust suppression measures, will be employed.
27. Where scabbling is to be employed, tools will be fitted with dust bags, residual dust will be vacuumed up rather than swept away, and areas to be scabbled will be screened off.
28. Wet processes will be used to clean building facades if possible. If dry grit blasting is unavoidable, then areas of work will be sealed off and dust extraction systems used.
29. Where possible pre-mixed plasters and masonry compounds will be used to minimise dust arising from on-site mixing.
30. Prior to commencement, the main contractor will identify the construction operations which are likely to generate dust and to draw up action plans to minimise emissions. Furthermore, the main contractor will prepare environmental risk assessments for all dust generating processes, which are envisaged.
31. The main contractor will allocate suitably qualified personnel to be responsible for ensuring the generation of dust is minimised and effectively controlled.
32. Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced road, the limit shall be 20 kph, and on surfaced roads as site management dictates.

The construction of the proposed development has potential to cause a slight, adverse, temporary, residual impact on soils in the immediate vicinity of the site.

3.3.3.2 Operational Stage

On completion of the construction phase and following replacement of topsoil, a planting programme will commence to prevent soil erosion.

SuDS and filtration devices are proposed to be provided as part of the development. These will help to remove pollutants from rainwater runoff. They will require periodic inspection and maintenance as per their installation manuals. These have been designed in accordance with the Greater Dublin Regional Code of Practice for Drainage Works Volume 6.0 (GDRCPDW) and the SuDS Manual CIRIA C753.

Foul drainage and watermains have been designed in accordance with their respective Codes of Practice by Uisce Eireann. A Pre-Connection Enquiry was submitted to Uisce Éireann and a Confirmation of Feasibility has been received and is included as an appendix to the Engineering Assessment Report, submitted under a separate cover.

Therefore, the risk of accidental discharge has been adequately addressed and mitigated through design.

The operation of the proposed development is not considered to have an impact on soils in the immediate vicinity of the site.

3.4. Water & Hydrology

This chapter of the EIAR has been prepared Brendan Manning BEng (Hons) CEng MIEI, who has over 10 years' experience in civil engineering and the construction industry. This chapter of the EIAR comprises of an assessment of the likely impact of the proposed development on the surrounding surface water and hydrogeological environments, as well as identifying proposed mitigation measure to minimise any impacts.

This chapter should be read in conjunction with the submitted:

- Site Specific Flood Risk Assessment (SSFRA) by Kilgallen & Partners Consulting Engineers and forms part of the overall application under a separate document and reference should be made to the SSFRA for further detailed assessment.

▪ Hydrological and Hydrogeological Qualitative Risk Assessment, prepared by AWN, which assesses the potential for any likely significant impacts on receiving waters and protected areas during construction or post development, in the absence of taking account of any measures intended to avoid or reduce harmful effects of the proposed project (i.e. mitigation measures).

3.3.1 Construction Stage

The construction phase of the development will involve site stripping and excavation, exposing sub-soil layers to weathering and increasing the risk of soil erosion due to rainfall and runoff. This could result in sediments being washed into receiving watercourses or sewers, potentially causing slight to moderate negative impacts in the short to medium term if no mitigation measures are implemented.

There is also a risk during construction that contaminants from cement or concrete could be washed into the sewers, posing a similar level of potential impact on watercourses and groundwater. Additionally, accidental spills of oils or diesel from temporary storage or equipment maintenance could lead to pollution, further risking slight to moderate negative impacts.

Another concern is the possibility of foul water being incorrectly connected to the surface water drainage network or damage to foul pipes, which could result in contaminants seeping into groundwater. This could cause a moderate and permanent negative impact on watercourses and groundwater if not properly mitigated.

Overall, the construction activities have the potential to cause significant negative impacts on receiving watercourses and groundwater, ranging from short-term to permanent effects, if appropriate mitigation measures are not implemented.

3.3.2 Operational Stage

The proposed development will increase impermeable surfaces, potentially leading to higher rates of surface water runoff and increased downstream flooding. Without mitigation, this could result in a negative, slight to moderate, and short-term impact on receiving watercourses and groundwater.

The discharge of contaminants from the development, including particulates, oil, and soluble extracts from road surfaces, poses a potential risk to surrounding drainage systems. The quality of runoff is influenced by factors such as the time of year, weather conditions, and maintenance activities like gritting or salting. The first rains after a dry period, in particular, could wash accumulated pollutants into the drainage system, causing a negative, slight to moderate, and short to medium-term impact on receiving watercourses and groundwater if unmitigated.

Leaks in the foul network could lead to groundwater contamination, potentially causing a negative, slight to moderate, and short-term to permanent impact on watercourses and groundwater.

Accidental spills of fuels or hydrocarbons, along with their washdown into the drainage system, could adversely affect the receiving hydrogeology, with the potential for a negative, slight to moderate, and short to medium-term impact if not properly managed.

Watermain leaks could increase water infiltration into the underground soil strata, potentially causing a negative, slight, and short-term to permanent impact on receiving watercourses and groundwater.

Overall, the operation of the proposed development has the potential to cause a negative, slight to moderate, and short-term to permanent impact on receiving watercourses and groundwater if appropriate mitigation measures are not implemented.

3.3.3 Mitigation Measures

3.3.3.1 Construction Stage

The following mitigation measures are to address potential impacts to water quality and are required to protect the onsite and downstream receiving surface water networks and natural environment. All works will be undertaken with reference to the following guidelines:

- CIRIA C532: Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters-Williams et al., 2001);
- CIRIA C692: Environmental Good Practice on Site, (Audus et al., 2010)
- BPGCS005: Oil Storage Guidelines;
- CIRIA C648: Control of Water Pollution from Linear Construction Projects: Technical Guidance (Murnane et al., 2006a)
- CIRIA C648: Control of Water Pollution from Linear Construction Projects: Site Guide (Murnane et al., 2006a)
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI 2016)
- Guidelines for Planning Authorities – Architectural Heritage Protection – Guidance on Part IV of the Planning and Development Act 2000. (Part 2, Chapter 7) and ICOMOS Principles.
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005.
- 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; and
- UK pollution Prevention Guidelines (PPG) UK Environment Agency, 2004

The schedule of mitigation presented within the following table summarises measures that will be undertaken in order to reduce impacts on ecological receptors within the zone of influence of the proposed development.

The most significant potential sources of contamination to the local surface water network during construction are silt, suspended particles, and chemical compounds carried by surface water runoff. Silt and suspended particles may originate from runoff over stockpiled materials or from water pumped out of excavations. To mitigate these risks, sediment entrapment facilities are essential to reduce sediment discharge into downstream properties and receiving waters. All runoff from disturbed areas will pass through these facilities before leaving the site to prevent sedimentation in downstream areas. Site stripping will be minimized to reduce erosion.

Several methods will be employed to manage sediment and silt. Straw bales can be placed at the base of slopes as temporary sediment barriers, though they are not recommended for use in swales or channels. Proper installation and maintenance are crucial as their effectiveness typically lasts only a few weeks or months. Silt fencing, made from woven synthetic geotextile material, will act as a temporary barrier along disturbed areas' contours. These fences are durable, lasting more than one season with proper maintenance, but are unsuitable for areas of concentrated flow, where more robust filtration would be necessary. Silt barriers will also be temporarily installed in road gullies on partially constructed roads to prevent sediment from entering downstream drainage systems or SuDS components. Where larger catchment areas are involved, diversion drains—simple ditches often supported by earth bunds—will channel runoff to sediment basins, which can be lined with geotextiles or stones if erosion occurs.

Settlement tanks, commercially available for this purpose, will also be used to allow suspended solids like sand and silt to settle out before runoff is discharged. Spoil heaps and stockpiles will be kept at least 20 meters away from existing surface water networks, and drainage diversion ditches will be constructed between stockpile areas and surface water networks, directing runoff to sedimentation ponds. If gravity outfall is not feasible, modular settlement tanks will be used, or outfall volumes may be pumped. No untreated surface water will be allowed to flow into natural or piped surface water networks.

During construction, the site will include compounds for offices and welfare facilities, with sanitary connections arranged with Uisce Éireann via a Temporary Connection Application. The contractor will manage daily material deliveries and ensure secure storage on-site. Measures will also be taken to prevent chemical contamination from fuel or chemical spills, which could impact soil, groundwater, and surface water. Method statements and mitigation measures will be put in place to prevent leaks and spills, including the installation of bunded and roofed storage areas for oil and petrol, designated fueling points with interceptors, and spill kits.

No.	Risk	Possible Impact	Mitigation	Result of Mitigation
1	Hydrocarbons from carparking area entering the drainage network.	Water quality impacts.	Petrol interceptor to be installed on drainage network prior to outfall to public surface water network.	Prevents hydrocarbons from entering the public surface water network.
2	Pollutants from site compound areas entering the drainage network or contaminating soils.	Water quality impacts. Soil quality impacts. Groundwater impacts.	Materials to be stored appropriately in designated areas (discussed below). Temporary foul water connection to be obtained from Uisce Éireann to serve site compound welfare facilities.	Prevents contamination of public surface water network, soil, and groundwater.
3	Pollutants from material storage areas entering the watercourse or contaminating soils.	Water quality impacts. Soil quality impacts. Groundwater impacts.	Fuels, oils, greases, and other potentially polluting chemicals will be stored in roofed and bunded compounds at the Contractor's compound. Storage area to be located over 50m away to ensure no direct pathway to the surface water network. Bunds are to be provided with 110% capacity of storage container. Spill kits will be kept on site at all times and all staff trained in their appropriate use. Method statements for dealing with accidental spillages will be provided the Contractor for review by the Employer's Representative.	Prevents contamination of public surface water network, soil, and groundwater.
4	Concrete/ cementitious materials entering the drainage network.	Water quality impacts	A designated wash down area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water.	Prevents contamination of public surface water network. Ensures invasive species material is not transported off site as muck.
5	Leaching of contaminated soil into groundwater.	Groundwater quality impacts	Spill kits will contain 10 hr terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent leaching to ground water.	Prevents contamination of groundwater.
6	Pollutants from equipment storage/ refuelling area entering the drainage network.	Water quality impacts	Any refuelling and maintenance of equipment will be done at designated bunded areas with full attendance of plant operative(s) within contained areas. Discharge licence (where required) pollutant limits to be monitored and adhered to. The site is located at least 50m from any direct pathway to the surface water drainage network.	Prevents contamination of public surface water network.
7	Runoff from exposed work areas and excavated material storage areas entering the drainage network.	Water quality impacts due to silt entering the network.	Provision of silt entrapment facilities such as; straw bales, silt fencing, silt barriers, diversion drains, settlement tank(s), & settlement pond(s), as appropriate and as outlined below.	Prevents contamination of public surface water network.

Table 5 - Schedule of Surface Water Mitigation Measures

Where feasible, and subject to licensing, temporary connections to the public foul sewer will be used during construction for vehicle washdown water, treated via appropriate pollution control and attenuation measures. If this connection is not possible, wastewater will be stored and treated off-site at a licensed facility.

Surface water runoff from the site will be treated before discharge using settlement tanks or ponds in conjunction with proprietary treatment systems like full retention petrol interceptors and spill protection measures. Water

quality will be monitored at a sampling chamber downstream of the settlement pond or tank, with regular testing as required by the discharge license. The project ecologist and site foreman will establish trigger levels for halting works if water quality standards are not met, and alternative pollution control measures will be implemented if necessary.

The discharge of surface water, post-treatment, to the public surface water network will be confirmed with the Local Authority, along with the required levels of contamination and testing frequency as part of the discharge license application. All water pumped from excavations will be treated for silt and other contaminants, with regular monitoring for hydrocarbon sheen and suspended solids, and periodic laboratory testing as specified by the Local Authority.

In addition to daily visual inspections, a comprehensive surface water monitoring program will be implemented throughout construction to ensure the protection of water quality, following the guidelines from Transport Infrastructure Ireland (TII). The parameter limit values defined in the Fresh Water Quality Regulations (EU Directive 2006/44/EEC) will serve as trigger values for surface water monitoring.

Parameter	Limit		Frequency and Manner of Samplings
	Limit Value	Guide/Mandatory	
Temperature	1.5°C	Mandatory Limit	Weekly, and at appropriate intervals where the works activities associated with the scheme have the potential to alter the temperature of the waters.
Dissolved oxygen	50% of Samples ≥ 9 (mg/l O2) 100% of Samples ≥ 7 (mg/l O2)	Guide Limit	Weekly, minimum one sample representative of flow oxygen conditions of the day of sampling
pH	6 to 9	Mandatory Limit	Weekly
Nitrites	≤0.01 (mg/l N02)	Guide Limit	Monthly
Suspended Solids	≤25 (mg/l)	Guide Limit	Monthly
BOD5	≤3 (mg/l)	Guide Limit	Monthly
Phenolic Compounds	-	-	Monthly where the presence of phenolic compounds is presumed (An examination by test)
Petroleum Hydrocarbons	5 (mg/l)	Guide Limit	Monthly (visual)
Non-Ionized Ammonia	≤ 0.005 (mg/l NH3)	Guide Limit	Monthly
Total Ammonium	≤ 0.004 (mg/l NH4)	Guide Limit	Monthly
Total Residual Chlorine	≤ 0.005 (mg/l HOCl)	Mandatory Limit	At appropriate intervals where works activities associated with the scheme have the potential to alter the Total residual Chlorine of the waters
Electrical Conductivity	-	-	Weekly

Table 6 - Monitoring Guidelines (Fresh Water Quality Regulations)

The Main Contractor will hold overall responsibility for implementing the Construction Surface Water Management Plan (CSWMP) during the construction phase. A designated member of the Main Contractor's team, who is appropriately trained, will be assigned the authority to ensure all site personnel comply with the CSWMP. Additionally, each sub-contractor will designate a representative responsible for the ongoing execution of the CSWMP within their respective operations.

Copies of the CSWMP will be distributed to all relevant personnel on-site. Both site personnel and sub-contractors will be briefed on the CSWMP's objectives and their specific responsibilities under the plan.

The appointed person's responsibilities will include:

- Updating the CSWMP as needed to reflect on-site activities.
- Advising site management on environmental matters, including pre-construction checks for protected species.
- Reviewing sub-contractors' method statements to ensure they incorporate all aspects of the CSWMP.
- Providing training, including toolbox talks, to ensure all personnel understand and can implement mitigation measures.
- Assessing the effectiveness of mitigation measures and monitoring weather forecasts and site conditions where trigger levels are required.
- Ensuring adherence to specific measures outlined in the Planning Conditions.
- Advising on the production of method statements and site environmental rules, and ensuring these are communicated to the workforce.
- Investigating environmental incidents, ensuring corrective actions are taken, and recommending measures to prevent recurrence.
- Maintaining all environmental documentation and ensuring that the plant used is environmentally suited to the tasks.
- Coordinating environmental planning of construction activities to meet environmental authority requirements, while minimizing environmental risks.
- To minimize adverse effects, the timing of site stripping will consider prevailing weather conditions and the time of year. Precast concrete units will be used where possible to reduce on-site "wet" concrete mixing, and in-situ concrete pours will be managed according to best practices to prevent overspills. Wheel wash and washdown facilities will be provided in designated areas, with discharge directed into settlement ponds or silt traps.
- For any construction near existing watermains, the contractor will produce a detailed method statement outlining procedures. All watermains will be cleaned and tested according to Uisce Éireann guidelines before connection to the public watermain, with connections performed under Uisce Éireann's supervision.
- To mitigate the risk of defective or leaking foul and surface sewers, several measures will be implemented:
- New foul sewers will undergo air testing during construction, in line with Uisce Éireann's Code of Practice.
- Private drainage systems will be inspected and signed off by the Design Engineer, complying with Building Regulations Part H and BCAR requirements.
- Foul sewers will be surveyed by CCTV before connection to identify potential defects.
- Connections to the public sewer will be carried out under Uisce Éireann's supervision and checked before commissioning.
- Utilities and public services will be identified and protected before any excavation in public areas begins.
- Surface water networks will be constructed and tested according to Local Authority requirements for Taking in Charge.
- These measures will ensure that construction activities comply with environmental standards, minimizing the risk of water contamination and infrastructure defects.

3.3.3.2 Operational Stage

The implementation of the following operation stage mitigation measures will minimise the impact on the hydrology and hydrogeology aspects of the development lands:

The surface water drainage network has been designed in accordance with the CIRIA SUDS Manual and the Greater Dublin Strategic Drainage Scheme. The appropriate interception mechanisms and treatment train process has been incorporated into the design. A detailed SUDS maintenance manual has been provided under a sperate cover.

Surface water outflow will be restricted to or below the equivalent greenfield runoff rate from the proposed detention basin as per the drainage design, in accordance with South Dublin County Council requirements.

Sustainable urban drainage measures, including permeable paving, swales, and rain gardens will be provided to improve water quality.

A petrol interceptor will be installed to prevent hydrocarbons entering the local drainage system at the outfall.

A maintenance regime for the SuDS features will be incorporated to the Operation and Maintenance manual for the development. Surface SuDS features can typically be maintained as part of the regular maintenance of the landscape, incorporating litter picking, grass cutting, and inspections. Table Error! No text of specified style *in document.* **- Regular Maintenance Requirements for SuDS** is an extract from Section 12.3 of the SuDS Design & Evaluation Guide, and generally describes the regular maintenance aspect for the SuDS.

There will still be a remaining requirement for more intensive maintenance tasks to be undertaken however, the severity of these tasks can be reduced by regular inspections and proactive responses being incorporated as a part of the regular maintenance regime discussed above. Table 8 - Further Maintenance Requirements for **SuDS** shows the typical requirements for the occasional maintenance tasks and remedial works, extracted from the SuDS Design & Evaluation Guide.

Type	Activity	Normal site care (Site) or SuDS-specific maintenance (SuDS)	Suggested frequency
Regular Maintenance			
Litter	Pick up all litter in SUDS Landscape areas along with remainder of the site – remove from site	Site	1 visit monthly
Grass	Mow all grass verges, paths and amenity grass at 35-50mm with 75mm max. Leaving cuttings in situ	Site	As required or 1 visit monthly
Grass	Mow all dry swales, dry SUDS basins and margins to low flow channels and other SUDS features at 100mm with 150mm max. Cut wet swales or basins annually as wildflower areas – 1st and last cuts to be collected	Site	4-8 visits per year or as required
Grass	Wildflower areas strimmed to 100mm in Sept or at end of school holidays – all cuttings removed Or Wildflower areas strimmed to 100mm on 3 year rotation – 30% each year – all cuttings removed	Site	1 visit annually 1 visit annually
Inlets & outlets	Inspect monthly, remove silt from slab aprons and debris. Strim 1m round for access	SuDS	1 visit monthly
Permeable paving	Sweep all paving regularly to keep surface tidy	Site	1 visit annually or as required

Table *Error! No text of specified style in document.* **- Regular Maintenance Requirements for SuDS**

Occasional Tasks			
Permeable paving	Sweep and suction brush permeable paving when ponding occurs	SuDS	As required - estimate 10-15 year intervals
Flow controls	Annual inspection of control chambers - remove silt and check free flow	SuDS	1 visit annually
Wetland & pond	Wetland vegetation to be cut at 100mm on 3 – 5 year rotation or 30% each year. All cuttings to be removed to wildlife piles or from site.	Site	As required
Silt	Inspect swales, ponds, wetlands annually for silt accumulation	Site & SuDS	1 visit annually
Silt	Excavate silt, stack and dry within 10m of the SUDS feature, but outside the design profile where water flows. Spread, rake and overseed.	Site & SuDS	As required
Native planting	Remove lower branches where necessary to ensure good ground cover to protect soil profile from erosion.	SuDS	1 visit annually
Remedial Work			
General SuDS	Inspect SuDS system to check for damage or failure when carrying out other tasks. Undertake remedial work as required.	SuDS	Monthly As required

Table 8 - Further Maintenance Requirements for SuDS

Surface water sewers will generally consist of PVC (to IS 123) or concrete socket and spigot pipes (to IS 6) and laid strictly in accordance with Dublin City Council requirements for taking in charge. It is intended that all sewers within the public domain will be handed over to South Dublin County Council for taking in charge.

All private outfall manholes will be built in accordance with the Greater Dublin Regional Code of Practice for Drainage Works. No private drainage will be located within public areas.

Drains will be laid in accordance with the requirements of the Building Regulations, Technical Guidance Document H.

All SuDS and surface water drainage networks proposed in the public domain will be constructed to the standards required for Taking in Charge.

Water metering via district meters will be installed to Uisce Éireann requirements. Monitoring of the telemetry data will indicate any excessive water usage which may indicate the potential for a leak in the watermain network. Early identification of potential leaks will lead a faster response in determining the exact location of leaks and completion of remedial works.

It is not envisaged that any further remedial or reductive measures will be necessary upon completion.

3.5. Air Quality

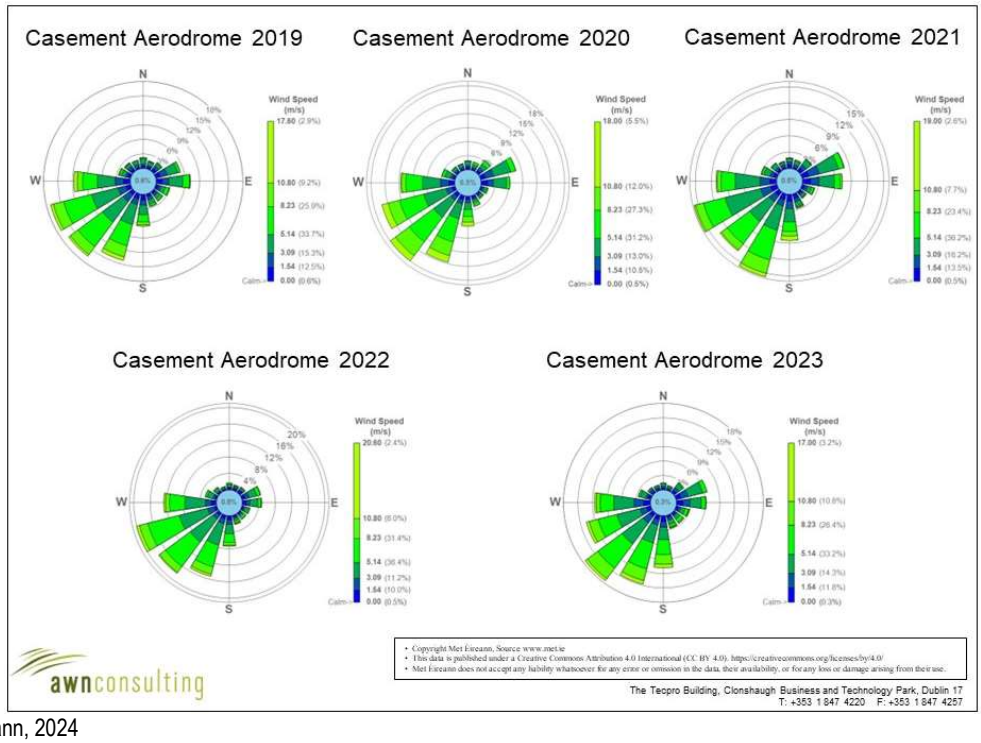
This chapter of the EIAR was completed by Ciara Nolan, a Senior Environmental Consultant in the air quality section of AWN Consulting Ltd. This chapter of the EIAR assesses the air quality impacts associated with the proposed development.

3.5.1. Baseline Environment

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 Casement Aerodrome meteorological station, which is located approximately 7.3 km north-west of the site. Casement Aerodrome meteorological data has been examined to identify the prevailing wind direction and average wind speeds over a five-year period (see Source: Met Éireann, 2024
Figure 2). 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).



Source: Met Éireann, 2024

Figure 2 - Casement Aerodrome Windrose 2019-2023

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, 2023).

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, 2023). 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, 2023). 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.).

3.5.2. Mitigation Measures

3.5.2.1. 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 **Error! Reference source not found.**). 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 should 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.

- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.
- Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary where feasible, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

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

- No bonfires or 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 should 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.
- Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the construction phase of the proposed development is recommended to ensure mitigation measures are working satisfactorily. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m^2/day during the monitoring period of 30 days (+/- 2 days).

3.5.2.2. 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 ***not significant***.

3.6. Climate

This chapter of the EIAR was completed by Ciara Nolan, a Senior Environmental Consultant in the air quality section of AWN Consulting Ltd. This chapter of the EIAR assesses the air quality impacts associated with the proposed development.

3.6. 1 Climate Change Risk Assessment

3.6.1.1 Construction Phase

A detailed CCRA of the construction phase has been scoped out, as discussed in Section **Error! Reference source not found.** and Section 0, which state that there are no residual medium or high risk vulnerabilities to climate change hazards and 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 **Error! Reference source not found.**:

- 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; and
- Major storm damage – including wind damage.

3.6.1.2 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 Error! No text of specified style in document. 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 **Error! Reference source not found.**. The results of the vulnerability assessment are detailed in

Table Error! No text of specified style in document.

Table Error! No text of specified style in document. **- Climate Change Vulnerability Assessment**

Climate Hazard	Sensitivity	Exposure	Vulnerability
Flooding (Coastal)	1 (Low)	1 (Low)	1 (Low)
Flooding (Pluvial)	1 (Low)	1 (Low)	1 (Low)
Flooding (Fluvial)	1 (Low)	1 (Low)	1 (Low)
Extreme Heat	1 (Low)	2 (Medium)	2 (Low)
Extreme Cold	1 (Low)	2 (Medium)	2 (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)

Climate Hazard	Sensitivity	Exposure	Vulnerability
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 in the below sections. All vulnerabilities are classified as low. There are no residual medium or high risk vulnerabilities to climate change hazards and as such, a detailed CCRA is not required (TII, 2022a).

Flooding

A Site-Specific Flood Risk Assessment (SSFRA) for the proposed development was undertaken by Kilgallen & Partners Consulting Engineers, and is submitted with this planning application. In relation to coastal flooding, due to the location of the proposed development inland, coastal flooding is not a risk at the proposed development.

The SSFRA concluded that the site is not within an area at risk of fluvial flooding. In relation to pluvial flooding, the FRA has assessed the development with respect to the OPW recommended 30% High End Future Scenario (HEFS) which aligns with RCP8.5. The FRA states that the stream channels and culverts have sufficient capacity to convey peak flows plus a 30% climate change factor. Therefore, the SSFRA concludes that the proposed development was found to be not at risk of flooding even in the HEFS for climate change. Appropriate mitigation measures have been incorporated into the design of the development to ensure flood risk is minimised. The vulnerability of the development to coastal, fluvial and pluvial flooding is categorised as 'Low'.

Extreme Wind, Fog, Lightning and Hail

In relation to extreme winds, the buildings shall be designed to the appropriate standards to account for the relevant wind loadings. If required as part of the building design, lightning protection shall be provided for. Hail and fog are not predicted to significantly affect the buildings due to their design.

Wildfire

In relation to wildfires, the *Think Hazard!* tool developed by the Global Facility for Disaster Reduction and Recovery (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 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 further lessened and it can be concluded that the proposed development is of low vulnerability to wildfires.

Landslide

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.

Extreme Temperatures (Heat & Cold) & Drought

In relation to extreme temperatures, both extreme heat and extreme cold, these have the potential to impact the building materials and some related infrastructure. However, the building materials selected at the detailed design stage will be of high quality and durability. Therefore, extreme temperatures are not considered a significant risk.

Summary

Overall, the proposed development has at most low vulnerabilities to the identified climate hazards. Therefore, no detailed risk assessment is required.

3.5.1.3 Mitigation

3.5.1.3.1 Construction Phase Mitigation

Embodied carbon of materials and GHG emissions from 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 construction program which allows for sufficient time to determine reuse and recycling opportunities for construction wastes;
- 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.

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.

3.5.2.3.2 Operational Phase Mitigation

As per the Energy & Sustainability Report prepared by Renaissance Engineering (submitted under separate cover with this planning application) the development will be a Nearly Zero Energy Building (NZEB) in accordance with the Building Regulations Technical Guidance Document L 2021 and the relevant sustainability policies within the South Dublin County Council Development Plan 2022-2028. The report details a number of measures that have

been incorporated into the design of the development to reduce the impact on climate wherever possible. Such measures included in the proposed development to reduce the impact to climate from energy usage are:

- The units are targeting a Building Energy Ratio (BER) of A2.
- The development will be designed and constructed to limit heat loss, and where appropriate, limit heat gains through the fabric of the building. The thermal insulation for each of the plane elements will meet or exceed the U-Values requirements as specified in Part L.
- Reasonable care will be taken during the design and construction to limit the air permeability.
- Air-source heat pumps will be installed for the residential units to achieve the A2 BER.
- PV panels will be installed.
- A-rated, low-energy LED lamps will be utilised throughout the development.
- The development will achieve an Energy Performance Coefficient (EPC) < 0.30;
- The development will achieve a Carbon Performance Coefficient (CPC) < 0.35;
- The development will achieve a Renewable Energy Ratio (RER) > 0.20;

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.

Some measures have been incorporated into the design of the development to mitigate the impacts of future climate change. For example, adequate attenuation and drainage have been incorporated to avoid potential flooding impacts due to increased rainfall events in future years. These measures have been considered when assessing the vulnerability of the proposed development to climate.

3.7. Noise & Vibration

This chapter of the EIAR was prepared by Abe Scheele (Acoustic Consultant) of AWN Consulting. The chapter of the EIAR 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.

3.7.1 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. In addition to specific noise and vibration guidance documents, the following Environmental Protection Agency (EPA) guidelines 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 – (2022); and
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018);

The study has been undertaken using the following methodology:

- An environmental noise survey has been undertaken in the vicinity of 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 the existing noise sources on the proposed development.

3.7.2. Potential Impacts

3.7.2.1 Construction Phase - Noise

During the construction phase of the proposed development, a variety of items of plant will be in use, such as excavators, dumper trucks, compressors and generators. AWN has been advised that initial site investigations indicate that it is not anticipated that piling or rock breaking will be required during the construction of building foundations.

Due to the nature of daytime activities undertaken on a construction site of this nature, there is potential for generation of significant levels of noise. The flow of vehicular traffic to and from a construction site is also a potential source of relatively high noise levels.

Taking into account the outline construction programme, it is possible to predict typical noise levels using guidance set out in BS 5228-1:2009+A1:2014. Table 10 outlines typical plant items and associated noise levels that are anticipated for various phases of the construction programme.

Activity	Item of Plant *(BS5228 Ref)*	L_{Aeq} at 10m
Site Clearance/Demolition	Tracked excavator (C2.21)	71
	Dump Truck (C2.30)	79
	Tracked Mobile Crane (C4.50)	71
General Construction	Tracked excavator (C2.21)	71
	Compressor (D7.8)	70
	Hand Tools (C7.79)	75
	Diesel Generator (C4.76)	61
Road Works/Landscaping	Asphalt Paver & Tipping Lorry (C5.30)	75
	Electric Water Pump (C5.40)	68
	Vibratory Roller (C5.20)	75

Table 10 -Reference Plant Noise Emissions

The calculations also assume that the equipment will operate for 66% of the 12-hour working day (i.e. 8 hours) and that a standard site hoarding, typically 2.4m height will be erected around the perimeter of the construction site for the duration of works. It is assumed that construction works will take place during normal working hours only.

The closest noise sensitive locations have been identified as shown in Figure 10.6 and described below.

NSL1 Cemetry, some 5m from the nearest significant site works, located to the south of the proposed development site;

NSL 2 Residential houses at Bohernabreena Park some 50m from the nearest significant site works;

NSL 3 Residential dwellings at Dooderbrook Place located to the north of the proposed site some 80m from the nearest significant site works;

NSL4 Commercial and dwelling units, some 120m from the nearest significant site works, located to the east of the proposed development site. and,

NSL 5 Residential development to the north of the proposed development at Ely Cl some 150m from the nearest significant site works.

Review of the baseline noise survey and the Construction Noise Thresholds detailed in Section 10.2.1.2 indicates that the appropriate daytime CNTs for construction noise at residential and commercial properties are as follows:

65 dB $L_{Aeq,1hr}$

It is assumed that construction works will take place during normal working hours only.

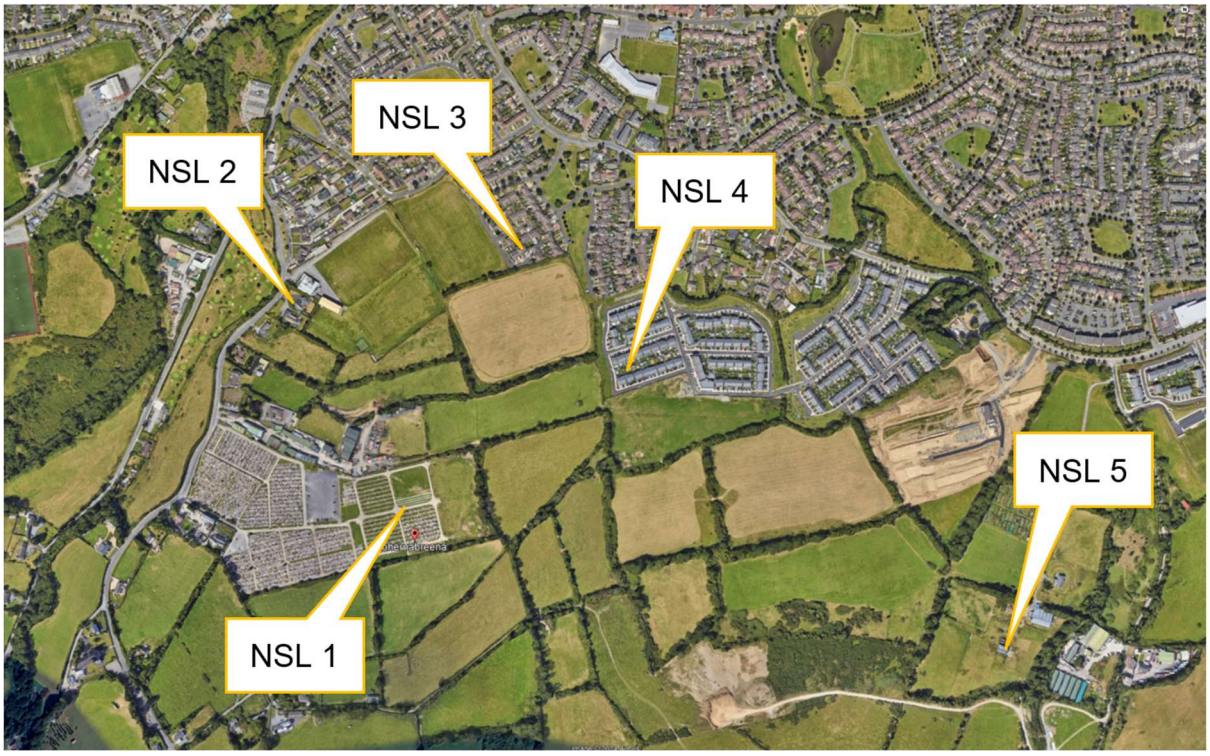


Figure 3 - Site Context & Noise Assessment Locations (Image Source: Google Maps July 2024)

At a distance of 10m from areas of major construction, representative of the closest graves of the nearby cemetery to the closest areas of construction works (NSL1), the predicted construction noise levels are above the 65 dB(A) CNT. In the absence of mitigation the effect of impact of this, is ***negative***, ***moderate*** to ***significant*** and ***temporary*** during the general construction phase and the road works/ landscaping stage. During the site clearance and demolition phase of construction there is the potential for ***negative***, ***significant*** to ***very significant*** and ***temporary*** effect of impact in the scenario where there are cemetery visitors at the closest graves while works are occurring at the closest areas of construction. As works move through the proposed site or at areas further into the cemetery noise levels will be reduced. A wall exists between the cemetery and the proposed development which will provide additional screening not accounted for in the predicted construction noise levels.

Construction Traffic

The noise levels associated with mobile plant items such as concrete mixer trucks, loaders etc. operational on site have been included as part of the construction noise assessment and calculated noise levels in Table 10.18.

Consideration should also be given to the addition of construction traffic along the site access routes. Access to the development site for construction traffic will be via the site entrance on Bohernabreena Park to the west of the proposed development site and The Rise to the east.

The predicted noise level associated with construction vehicle traffic numbers above is in the range 60-61 dB $L_{Aeq,1hr}$. This level is below the construction noise threshold and the prevailing noise levels along Bohernabreena Park and The Rise, and would result in a ***negative***, ***slight*** and ***short-term*** effect of impact.

Construction Phase - Vibration

During demolition and 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:

- tonne hydraulic breaker on small CAT tracked excavator
- 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.

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.

3.6.2.2 Operational Phase

Mechanical Plant

Building and mechanical services plant items are proposed that will serve the apartments and ground floor commercial/retail units.

The selection of building services plant will ensure that noise levels comply with the criteria described in Section 10.2.3.1. 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.

The effect associated with building services plant, once designed to achieve the relevant noise criteria, is categorised as ***negative***, ***imperceptible*** and ***permanent***.

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 Pinnacle Consulting

Engineers, as part of this EIAR. Using this information, the related noise impacts along the relevant road links has been assessed.

The predicted change in noise level associated with additional traffic on the existing road network, is negligible in magnitude. Therefore a ***negative***, ***not significant***, and ***long term*** effect of impact is predicted.

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 noise risk categories.

3.7.3. 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.

3.7.3.1. Construction Phase – Noise

The contract documents will clearly specify the construction noise criteria included in this chapter which the construction works must operate within. The Contractor undertaking the construction of the works will be obliged to take specific noise abatement measures and comply with the recommendations of BS 5228-1:2009+A1:2014 *Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise* and the *European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001*. These measures will ensure that:

- No plant used on site will be permitted to cause an ongoing public nuisance due to noise.
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use;
- Any plant, such as generators or pumps that is required to operate outside of normal permitted working hours will be surrounded by an acoustic enclosure or portable screen.

BS 5228 -1:2009+A1 2014 includes guidance on several aspects of construction site practices, which include, but are not limited to:

- selection of quiet plant;
- noise control at source;
- screening;
- liaison with the public, and;
- monitoring.

Detailed comment is offered on these items in the following paragraphs. 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. It is recommended that these units 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 should be selected wherever possible. Should a particular item of plant already on the site be found to generate high noise levels, the first action should 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:

- Where practical, 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/m2 to provide adequate sound insulation.

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.

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.

Monitoring

Where required, construction noise monitoring will be undertaken at periodic sample periods at the nearest noise sensitive locations to the development works to check compliance with the construction noise criterion.

Noise monitoring should be conducted in accordance with the International Standard ISO 1996: 2017: *Acoustics – Description, measurement and assessment of environmental noise*.

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 excavation/ demolition or other high noise generating works are in progress on a site 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.

Construction Phase – Vibration

The vibration from construction activities will be limited to the values set out in Section 10.2. Magnitudes of vibration slightly greater than those in the table 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.

3.7.1.2. Operational Phase

Noise

Additional Traffic on Adjacent Roads

During the operational phase of the development, noise mitigation measures with respect to the outward impact of traffic from the development are not deemed necessary.

Mechanical Services Plant

Taking into account that sensitive receivers within the development are much closer than off-site sensitive receivers, once the relevant noise criteria is achieved within the development it is expected that there will be no negative impact at sensitive receivers off site, and therefore no further mitigation required.

Inward Noise

The development site itself has been categorised as a ***Low*** Risk in accordance with ProPG. With regard to the criteria outlined in section 10.2.3.4, review of the location of residential buildings on site, the external noise levels and the internal noise levels with windows open, the assessment has determined that specific noise mitigation measures are not required to the site boundary or site buildings to control noise intrusion to internal spaces or to control noise in the external amenity spaces.

Vibration

No vibration mitigation measures are required applicable the operational phase.

3.8. Material Assets: Built Services

This chapter of the EIAR has been prepared Shaun O'Reilly, Pr Tech Civ Eng, with 40 years civils experience and over 16 years with Pinnacle Engineering Consultants. This chapter of the EIAR comprises of an assessment of the likely impacts of the proposed development on existing surface water, water supply, foul drainage, and utility services in the vicinity of the site, as well as identifying proposed mitigation measure to minimise any impacts.

3.8.1. Methodology

This section assesses the impacts of the proposed residential development site on the surrounding drainage / utility network in the area.

The assessment of the potential impact of the activity on material assets – site services was carried out according to the methodology specified in the following guidance documents:

- "Guidelines on Information to be contained in Environmental Impacts Statements, EPA (2022).
- EPA Advice Notes on Current Practice (in the Preparation of EIS) (2003).
- European Commission (2017) Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report; • Government of Ireland (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018);
- Department of Housing, Planning, Community and Local Government (2017) Key Issues Consultation Paper on the Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems;
- Department of Housing, Planning, Community and Local Government (2017) Circular PL 1/2017 - Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the Administrative Provisions in Advance of Transposition;
- Department of Housing, Planning and Local Government (2018) Circular PL 05/2018 -Transposition into Planning Law of Directive 2014/52/EU amending Directive 2011/92/EU on the effects of certain public and private projects on the environment (the EIA Directive) And Revised Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment;
- Environmental Protection Agency (2017) Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft August 2017);
- European Commission (2012) Interpretation suggested by the Commission as regards the application of the EIA Directive to ancillary/associated works;
- European Commission (1999) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions;
- IEMA (2020) guide to: Materials and Waste in Environmental Impact Assessment; and
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA 2003).

The following sources of information were consulted to establish the baseline environment:

- Public Foul Drainage (Uisce Éireann and SDCC Records).
- Public Water Main Networks (Uisce Éireann and SDCC Records).
- Public Surface Water Drainage (Uisce Éireann and SDCC Records).
- Office of Public Works flood mapping data (www.floodmaps.ie).
- 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).

- The Geological Survey of Ireland (GSI) well card and groundwater records
- Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (CIRIA 532, 2001).
- Base maps – Ordnance Survey of Ireland.
- Topographical Survey
- Building Regulations - Technical Guidance Document Part H (2016)
- Uisce Éireann Code of Practice for Water Infrastructure (July 2020)
- Uisce Éireann Code of Practice for Wastewater Infrastructure (July 2020)
- Uisce Éireann Infrastructure Standard Details (July 2020)
- Uisce Éireann Wastewater Infrastructure Standard Details (July 2020).
- CIRIA SuDS Manual C753 (2015).
- Greater Dublin Regional Code of Practice for Drainage Works (Version 6.0)
- The Greater Dublin Strategic Drainage Study (GDSDS)
- Recommendations for Site Development Works for Housing Areas
- The South Dublin County Council (SDCC) Development Management Plan
- The SDCC Sustainable Drainage Explanatory Design & Evaluation Guide 2022
- Electricity Supply Networks (ESB Networks)
- Telecommunications (Openeir).

The assessment of the effects of the proposed development was carried out according to the methodology specified by the EPA and the specific criteria set out in the 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (May, 2022), Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018), and Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017). All of the above information was reviewed, in order to gain an appreciation of how the development site is currently served and determine its adequacy in terms of the proposed overall mixed-use development.

3.8.2. Predicted Impacts

3.8.2.1. Construction Phase

Any potentially damaging fluids that spill on natural soils may have an impact on the natural hydrogeological environment. At construction phase, construction workers will require the short-term use of potable water and will create short term foul wastewater.

The contractor will be required to implement best practice measures in accordance with SDCC planning requirements during construction. Accidental spills and leaks are to be managed. Refer to the Land and Soils section of this report for further discussion regarding the management of accidental spills and leaks.

If the contractor implements best practice measures during construction, the hydrological effects will be limited.

<u>Water Supply Infrastructure</u>

A detailed Engineering assessment/planning report has been produced under a separate cover which would be read in conjunction with the below summary. The water supply chapter outlines the existing water infrastructure, proposed connections, network layout, water demand calculations, and necessary diversions for the development. The key points are as follows:

The site is served by two main watermains: a Ø160mm HPPE watermain along Oldcourt Road to the east and a Ø100mm uPVC watermain along Bohernabreena Road to the west. Additionally, two raw water mains (Ø375mm and Ø475mm cast iron pipes) cross the site in an east-west direction.

These two existing pipes are proposed to be diverted into a dedicated roadside servitude along the central spine

road of the development. Confirmation of feasibility for this diversion was received from Irish Water under application DIV23291, with preliminary discussions held with Irish Water and the DCC drainage department.

A Pre-Connection Enquiry (PCE) issued to Uisce Éireann (Irish Water) confirmed that water connection is feasible under reference CDS23009245, subject to specific conditions. The primary connection will be from the east, linked to a future 150mm watermain provided by an adjacent development, and a secondary connection from the west, linked to the existing 4'' uPVC distribution main, to be used in emergencies.

Once the Western connection becomes a primary source, the existing 100mm watermain on Bohernabreena Road will need to be upgraded to a 150mm pipe, a cost that will be borne by the developer.

The internal water supply network will consist of Ø100mm and Ø150mm HDPE pipes. Water meters, sluice valves, and hydrants will be installed according to Uisce Éireann (Irish Water) specifications and building regulations for fire safety.

Overall, the water supply for the proposed development has been carefully planned, ensuring adequate capacity and compliance with regulatory requirements, with necessary infrastructure upgrades and diversions referenced under COF CDS23009245 and diversion application DIV23291 to support the development.

The total daily water demand for the development is estimated at 223,155 litres/day, with a peak flow rate of 16.14 liters/second. This includes both residential and non-residential (creche) demand.

Additional water supply will be required to service the construction phase of the development. This is subject to the exact quantity of construction workers and their requirements. This water use will be short term in nature and will require a temporary connection from Uisce Éireann.

Please refer to Engineering Planning Report prepared by Pinnacle Consulting Engineers for further details regarding water supply use, which will be submitted as part of the planning application pack.

The assessed predicted effects at construction stage without mitigation measures on the Water Supply Infrastructure would be as follows:

- Negative, permeant and significant in EIAR terms on Water Supply Infrastructure

Wastewater Drainage Infrastructure

A detailed Engineering assessment/planning report has been produced under a separate cover which would be read in conjunction with the below summary. The foul water chapter details the existing foul sewer infrastructure, proposed drainage systems, required upgrades, and the design of temporary pumping stations for the development.

The site is currently served by an existing Ø225mm foul sewer on the west side, which drains northwards and connects to the broader network. This existing sewer will be integrated into the proposed foul network and will discharge into the public foul sewer system to the northeast, ultimately reaching the Ringsend Wastewater Treatment Works (WWTW).

A Pre-Connection Enquiry (PCE) was submitted to Uisce Éireann, resulting in a Confirmation of Feasibility (COF) under reference CDS23009245. The COF indicates that the wastewater connection is feasible but subject to upgrades:

- Initially, only Phase 1 (130 units) can connect directly to the existing network via gravity.
- The remaining units (393 units, creche, and 3 external units) will require temporary foul water pumping stations due to current capacity limitations in the downstream network.

- These temporary stations will include storage facilities and will be designed to pump effluent during off-peak times. They will be decommissioned once network upgrades by Uisce Éireann allow for a permanent gravity connection.

The development will have three main outfall connections:

- Connection 1: A gravity connection to the northeast, discharging into an existing Ø225mm public sewer.
- Connections 2 and 3: Temporarily pumped connections to the north, each discharging into existing Ø225mm sewers in adjacent residential developments.

The internal foul drainage network will consist of 150/225mm diameter pipes, with each residential unit connected via individual 100mm diameter pipes. All pipes will be uPVC Class SN8, designed to meet Uisce Éireann's standards for self-cleansing velocities and compliance with the Irish Water Code of Practice for Wastewater.

Two temporary pumping stations will be installed, designed with holding tanks to store effluent for off-peak pumping, minimizing pressure on the downstream network. These stations will be located at the lowest points of the catchments and will be designed to be taken offline once the downstream network capacity is increased.

The stations will adhere to Uisce Éireann's Code of Practice (Part 5), ensuring compliance with all relevant standards, including safe access, flood resistance, and minimizing the risk of odour, noise, and vibration.

All proposed foul water infrastructure, including manholes, pipes, and connections, will be constructed in line with Uisce Éireann's Code of Practice for Wastewater Infrastructure and Building Regulations. Strict separation between surface water and foul sewerage will be maintained to prevent inadvertent connections.

The foul water strategy for the proposed development has been carefully planned, ensuring compliance with all relevant regulations and standards, and includes necessary temporary measures to manage capacity constraints in the existing network as outlined in the COF CDS23009245.

The total foul water discharge for the development is estimated at 243,000 litres/day, with a peak flow rate of 18.28 litres/second. These calculations consider both residential and non-residential (creche) components.

Additional foul drainage will be required to service the construction phase of the development. This is subject to the exact quantity of construction workers and their requirements. This water use will be short term in nature. This supply will be short term in nature and will require a temporary connection from Uisce Éireann.

Please refer to Engineering Planning Report as prepared by Pinnacle Consulting Engineers for further details regarding foul water drainage which will be submitted as part of the planning application pack.

The assessed predicted effects at construction stage without mitigation measures on the Wastewater Drainage Infrastructure would be as follows:

- Negative, permeant and significant in EIAR terms on Wastewater Drainage Infrastructure

<u>Surface Water Drainage Infrastructure</u>

A detailed Engineering assessment/planning report has been produced under a separate cover which would be read in conjunction with the below summary. The surface water chapter provides a comprehensive overview of the existing drainage networks, the proposed surface water management systems, and the Sustainable Urban Drainage Systems (SuDS) designed to effectively manage runoff for the development.

The site currently features several agricultural ditches that direct surface water runoff from the south toward the north, ultimately discharging into the Dodder River. According to South Dublin County Council (SDCC) GIS records

and site-specific topographical surveys, a Ø450mm surface water sewer is located on the western edge of the site, conveying runoff from the Bohernabreena cemetery northward through the proposed development.

A provisional review of the SDCC Strategic Flood Risk Assessment (SFRA) indicated that the entire site is within Flood Zone C. A Site-Specific Flood Risk Assessment (SSFRA) by Kilgallen and Partners concluded that the proposed development is not at risk of flooding and will not increase flood risk elsewhere, making it appropriate from a flood risk perspective.
The topographical analysis of the site reveals that it slopes from south to north, with a high point at the southern boundary around 119.78m OD Malin. Surface water runoff currently drains freely across agricultural fields toward the north in sheet flow conditions, eventually entering a network of existing drainage ditches. These ditches capture and convey surface water from higher ground south of the site, preventing external runoff from entering the fields designated for development.

Infiltration testing conducted in July 2024 showed that the site's substrate has an adequate infiltration rate (1.4x10-5 m/s), which will be integrated into the SuDS design. The tests also noted groundwater presence at depths of 1.5 to 1.7 meters, and the proposed design accounts for this to avoid any impact on the groundwater table.

The existing Ø450mm surface water sewer on the site will be diverted along a new route within the proposed development. This diversion has been discussed and agreed in principle with SDCC's Water Services division to ensure it maintains the same capacity as the current system. The diversion will remain a piped system rather than an open ditch to prevent potential surface water flood risks associated with upstream discharge. The diverted pipeline will be setback a minimum of 5 meters from all proposed structures, ensuring that both the foul and surface water systems within the development remain completely isolated from this diversion.

Please refer to Engineering Planning Report prepared by Pinnacle Consulting Engineers for further details regarding surface water drainage which is submitted as part of the planning application pack.

The assessed predicted effects at construction stage without mitigation measures on the Surface Water Drainage Infrastructure would be as follows:

- Negative, permeant and significant in EIAR terms on Surface Water Infrastructure

Electricity Supply

The following are the likely direct effects of the proposed scheme during the construction stage:

- Electricity cable currently located around the development serving the surrounding areas could be damaged during excavation works. This would result in a loss of power to the wider area.
- The striking of an underground or over ground electricity cable during construction operations could potentially result in serious injury or death of site staff.
- Power will be required for the construction activities, for temporary lighting and temporary signals required during construction works.
- The power demands during the construction phase on the existing electricity network are considered to be slight, negative and of short-term impact.
- The following are the likely indirect effects of the proposed scheme during the construction stage:
- Due to a cable strike outside of the proposed site, the potential to disrupt electricity services inside the development site is a possibility causing moderate effects to the construction programme.

A 'worst-case' scenario resulting from the construction of the development would be a cable strike that could lead to serious injury or death to a worker. However, the mitigation measures outlined will ensure that this should not occur.

Telecommunications

The following are the likely direct likely effects of the proposed scheme during the construction stage:

- The striking of an underground/overhead telecommunications lines during construction operations could potentially result in serious downtime of the network in the development site leading to communication difficulties for the Construction Teams.
- The potential impact from the construction phase of the proposed development on the local telecoms network is likely to be imperceptible, short-term and low.
- The following are the likely indirect effects of the proposed scheme during the construction stage:
- The striking of an underground/overhead telecommunications lines outside of the site during the construction operations could potentially result in downtime of the network used on site causing construction delays but is likely to be not significant and neutral.

The striking of an underground/overhead telecommunications lines during construction operations could potentially result in serious downtime of the network in the development and the wider area in a worst case scenario.

3.8.2.2. Operational Phase

Water Supply Infrastructure

The proposed scheme and associated development will utilise additional potable water. If capacity is not available within the existing public networks, upgrades may be required.

The assessed predicted effects at operational stage without mitigation measures on the Water Supply Infrastructure would be as follows:

- Negative, permeant and significant in EIAR terms on Water Supply Infrastructure

Wastewater Drainage Infrastructure

The proposed scheme and associated development will generate additional wastewater. Arrangements have been made within the planning design in liaising with Irish Water on the capacity and the aforementioned pumping stations assist with capacity issues.

The assessed predicted effects at operational stage without mitigation measures on the Wastewater Drainage Infrastructure would be as follows:

- Negative, permeant and significant in EIAR terms on Wastewater Drainage Infrastructure

Surface Water Drainage Infrastructure

If surface waters are not managed appropriately, it could lead to flooding or surface water surcharging in the downstream pipework.

If flood waters are not managed appropriately, the displaced flood water from the site could lead to flooding of the development, or adjacent premises.

The impact of water supply and waste water is currently being assessed by Uisce Éireann , and it is anticipated that the development is feasible without upgrade to their networks (subject to confirmation by Uisce Éireann). Thus, no ameliorative, remedial or reductive measures are required.

Low flow fixtures are intended throughout the development, and these will serve to reduce the potable water consumption, and thus reduce any foul water discharge.

Surface water from the proposed development will be reduced from current levels to match a greenfield equivalent rate utilising a number of detention basins, swales & permeable paving. Surface water will be treated by infiltration into the ground below the detention basins.

Flood waters from the surrounding area have been assessed with allowance for the proposed development. The development is not subject to any forms of flooding. Appropriate protection has also been provided to adjacent areas to prevent flooding of habitable areas and other associated areas.

Anticipating that Uisce Éireann will advise that the development can be facilitated without upgrade to their potable water and wastewater networks, the predicted impact in this regard is considered to be managed.

Surface water from the development will be managed within the site, with flows reduced to minimise the effect on the adjacent surface water network.

Floodwaters resulting from the development will be facilitated within the existing areas without negatively affecting the surrounding buildings. Further information regarding flood risk is available in the 'Site Specific Flood Risk Assessment' as prepared by Kilgallen & Partners Consulting Engineers and which will be provided as part of the planning application pack.

The assessed predicted effects at operational stage without mitigation measures on the Surface Water Drainage Infrastructure would be as follows:

- Negative, permeant and significant in EIAR terms on Surface Water Infrastructure

Electricity

The proposed development will require electricity supplies during the operational phase of the scheme and these will be provided by the installation of a new sub-station within the development in agreement with ESB Networks. As the new cable services will be located underground, this will result in a permanent but imperceptible effect. The residential development will be NZEB compliant and with the incorporation of renewable technology, the demand on the electrical supply should be further reduced. The likely direct effect from the operational phase on the electricity supply network is likely to be long term and moderate.

The indirect effect will allow ESB Networks to provide additional resilience in their network through the provision of the new Sub-Station (Assuming agreement with ESB Networks) which in turn should impact positively on the wider area's electrical infrastructure.

A 'worst-case' scenario resulting from the operation of the development would be a breakage on the cable feeding the sub-station possibly caused by a third party leading to downtime of power supplies in the local network.

With the proposed installation of a new sub-station this should allow ESB Networks to cater for any secondary projects that may arise within the vicinity.
The cumulative effect from the operational phase of the development on the electricity supply network is likely to be long term, positive and moderate.

Gas

It is not envisaged the proposed development will use gas.

Telecommunications

The proposed development will require telecommunication connections during the operational phase of the scheme and given the number of telecommunication providers with infrastructure available within the area, this will provide the building users with a greater choice of service and will result in a positive effect for the users. As the new services will be located underground this will result in a permanent but imperceptible effect.

The additional demand on the telecoms network is not deemed to have any material effect 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 indirect effect from the operational phase on the telecoms network is likely to be long term and low.

The 'worst case scenario' would be an outage created by a third party on the telecoms supply to the development causing loss of service.

The cumulative effect from the operational phase on the telecoms network is likely to be long term and low.

3.8.3. Mitigation

An Outline Construction Management Plan is submitted with this application, which includes the following construction stage mitigation measures. These site specific mitigation measures are tried and tested and proven to be effective and will be implemented in full.

3.9.3.1 Construction Phase

Dust and Dirt Control

Nuisance dust emissions from construction activities are a common and well recognised problem. Fine particles from these sources are recognised as a potential significant cause of pollution.

The main contractor will be required to demonstrate that both nuisance dust and fine particle emissions from the site are adequately controlled and are within acceptable limits.

Dust and fine particle generation from construction and demolition activities on the site can be substantially reduced through carefully selected mitigation techniques and effective management. Once particles are airborne it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming air borne, since suppression is virtually impossible once it has become air borne.

The following are techniques and methods which are widely used currently throughout the construction industry, and which may be used in the proposed development.

- The roads around the site are all surfaced, and no dust is anticipated arising from unsealed surfaces.
- Vehicles travelling on any unsurfaced site roads should have their speed restricted to 20 kph.
- A regime of 'wet' road sweeping can be set up to ensure the roads around the immediate site are as clean and free from dirt / dust arising from the site, as is reasonably practicable. This cleaning will be carried out by approved mechanical sweepers.
- Footpaths immediately around the site can be cleaned by hand regularly, with damping as necessary.
- High level walkways and surfaces such as scaffolding can be cleaned regularly using safe 'wet' methods, as opposed to dry methods.

- Vehicle waiting areas or hard standings can be regularly inspected and kept clean by brushing or vacuum sweeping and will be regularly sprayed to keep moist, if necessary.
- Netting can be provided to enclose scaffolding in order to mitigate escape of air borne dust from the existing and new buildings.
- Vehicles and equipment shall not emit black smoke from exhaust system, except during ignition at start up.
- Engines and exhaust systems should be maintained so that exhaust emissions do not breach stationary emission limits set for the vehicle / equipment type and mode of operation.
- Servicing of vehicles and plant should be carried out regularly, rather than just following breakdowns.
- Internal combustion plant should not be left running unnecessarily.
- Exhaust direction and heights should be such as not to disturb dust on the ground and to ensure adequate local dispersal of emissions.
- Where possible fixed plant such as generators should be located away from residential areas.
- The number of handling operations for materials will be kept to a minimum in order to ensure that dusty material is not moved or handled unnecessarily.
- The transport of dusty materials and aggregates should be carried out using covered / sheeted lorries.
- Material handling areas should be clean, tidy and free from dust.
- Vehicle loading should be dampened down and drop heights for material to be kept to a minimum.
- Drop heights for chutes / skips should be kept to a minimum.
- Dust dispersal over the site boundary should be minimised using static sprinklers or other watering methods as necessary.
- Stockpiles of materials should be kept to a minimum and if necessary, they should be kept away from sensitive receptors such as residential areas etc.
- Stockpiles were necessary, should be sheeted or watered down.
- Methods and equipment should be in place for immediate clean-up of spillages of dusty material.
- No burning of materials will be permitted on site.
- Earthworks excavations should be kept damp where necessary and where reasonably practicable.
- Cutting on site should be avoided where possible by using pre-fabrication methods.
- Equipment and techniques for cutting / grinding / drilling / sawing / sanding etc, which minimise dust emissions and which have the best available dust suppression measures, should be employed.
- Where scabbling is to be employed, tools should be fitted with dust bags, residual dust should be vacuumed up rather than swept away, and areas to be scabbled should be screened off.
- Wet processes should be used to clean building facades if possible. If dry grit blasting is unavoidable then ensure areas of work are sealed off and dust extraction systems used.
- Where possible pre-mixed plasters and masonry compounds should be used to minimise dust arising from on site mixing.
- Prior to commencement, the main contractor should identify the construction operations which are likely to generate dust and to draw up action plans to minimise emissions, utilising the methods highlighted above. Furthermore, the main contractor should prepare environmental risk assessments for all dust generating processes, which are anticipated.
- The main contractor should allocate suitably qualified personnel to be responsible for ensuring the generation of dust is minimised and effectively controlled.
- The name and contact details of a person to contact regarding air quality and dust issues should be displayed on the site boundary, this notice board should also include head/regional office contact details.

The contractor will be obliged to implement the mitigation measures outlined in the EIAR in respect of dust / dirt control.

Protection of Surface Waters

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.

- Where required, settlement pond / silt trap will be installed. Straw bales will be placed at the outfall of the settlement ponds to the overflow. These measures will be implemented and maintained during the construction phase to prevent surface water runoff from discharging directly into the local water course.
- Settlement ponds / silt traps as outlined above will be provided to prevent silt runoff into the existing ditches / watercourses during the drainage works.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject lands. Trigger levels for halting works and re-examining protection measures will be: pH >9.0 or pH <6.0; and/or suspended solids
- >25 mg/l. These trigger levels are based on those outlined within 'Guidelines on Protection of Fisheries During Works in and Adjacent to Waters (IFI, 2016)'.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area.
- All fuels and chemicals will be bunded, and where applicable, stored within double skinned tanks / containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a minimum distance of 50 m from any watercourse or other water conducting features.
- All existing services will be located using service records, GPR surveys and slit pumps to ensure that their position accurately identified before excavation works commence.

Refuelling

Construction plant and equipment will only be parked over-night within the site compound. Construction plant and equipment will be checked daily for any visual signs of oil or fuel leakage, as well as wear and tear.

Fuel will not be stored on site for the duration of the construction phase. Fuel will only be brought to site via mobile fuel bowser. For any liquid other than water, this will include storage in suitable tanks and containers which will be housed in the designated area surrounded by bund wall of sufficient height and construction so as to contain 110 percent (110%) of the total contents of all containers and associated pipework. The floor and walls of the bunded areas will be impervious of all containers and associated pipework. The floor and walls of the bunded area will be impervious to both water and oil. The pipes will vent downwards into the bund.

Where Contractors are required to refuel vehicles, this will only be carried out at the designated refuelling location within the site storage compound, which must employ pollution control mechanisms to prevent escape of fluids to the river. No refuelling is permitted on site, i.e., within the river or adjacent due to risk of spillage.

The local authority will be informed immediately of any spillage or pollution incident that may occur on-site during the construction phase.

All small plant such as generators and pumps bunded and stood in drip trays capable of holding 110% of their tank contents.

All small plant will be positioned on the bridge itself (within the designated works area – refer to Preliminary Traffic Management Plan), on the secured scaffolding/work platforms, or within the dewatered, 'dry' sections of the dammed river during the works.

Waste oils, empty oil containers and other hazardous wastes will be disposed of in accordance with the requirements of the Waste Management Act, 1996.

Monitoring, Inspection and Record Keeping

The Main Contractor will supervise the sampling of suspended solids downstream prior to commencement of works, and weekly during remediation works. Samples will be analysed on site. Should results show a 10% increase in suspended solids downstream of the site, suitable contingency measures will be instigated.
Routine inspections of construction activities will be carried out on a daily basis by the contractor staff to ensure all

controls to prevent environmental impact, relevant to the construction activities taking place at the time, are in place. Environmental inspections will ensure that the works are undertaken in compliance with the Project CEMP and that the requirements of the Conditions of Planning, the NIS and associated documentation are being adhered to during construction.

The Contractor will develop their own site inspection programme, which will include an inspection procedure and relevant forms to record any issues.

Only suitably trained staff will undertake environmental site inspections.

The Main Contractor will keep records of works undertaken.

Prior to and during the construction, the contractor will liaise with the each of the relevant utilities' provider. The contractor will apply for the relevant permit/licence to and comply with each utility providers requirements.
Utility mapping will be carried out in advance of any excavations. Once identified, each utility owner will be notified in advance of any excavation. No excavation adjacent to any unities will be allowed to be carried out without the relevant licence from the utility owner. This is to ensure that there are no interruptions to existing services.

All works near any existing utilities will be carried out in ongoing consultation with the relevant utility company and/or Local Authority and will be in compliance with any requirements or guidelines they may have.

The implementation of the following measures will minimise the effect on the Material Assets/Built Services in the area of the proposed development during the construction phase:

Water Supply Infrastructure

Exclusion zones and setback requirements to the existing trunk watermains have been established in consultation and agreement with Uisce Éireann at pre-application design stage. Construction method statements are to be agreed with IW in advance of a connection agreement or commencement of works.

Specific and detailed cross sections of all built assets crossing the existing watermains have been agreed with Uisce Éireann Asset Management section and are shown on the submitted Pinnacle Engineering Consultants drawings included in the application.

The construction compound's potable water supply will be protected from contamination by any construction activities or materials through the adoption of Uisce Éireann Code of Practice for Water Infrastructure for all temporary installations.

Wastewater Drainage Infrastructure

The wastewater discharge from the site during construction stage is to be managed by a licenced waste disposal contractor in accordance with the agreement of Uisce Éireann.

As construction sites have managed toilet blocks, foul drainage from the construction compound will be removed off site to a licensed facility until the connection to the public foul drainage network has been established.

The overburden thickness, low permeability nature of the till sub-soil and lack of fracture connectivity within the limestone will minimise the rate of off-site migration for any indirect discharges of leaking toilet blocks to ground at the site.

There is a minimal risk of contamination by direct pathway to local watercourses due to the overburden thickness, low permeability nature of the till sub-soil and lack of fracture connectivity within the limestone will minimise the rate

of off-site migration for any indirect discharges of leaking toilet blocks to ground at the site.
As such the is no potential for a change in the ground water body status or significant source pathway linkage through the aquifer to any Natura 2000 site due to the overburden thickness, low permeability nature of the till sub-soil and lack of fracture connectivity within the limestone will minimise the rate of off-site migration for any indirect discharges of leaking toilet blocks to ground at the site. Construction of the proposed new foul rising main will be fully coordinated with Uisce Éireann in order to ensure there is no disruption to the users of the existing infrastructure.

All new wastewater pipes/manholes will be laid in accordance with the Uisce Éireann Code of Practice for Wastewater Infrastructure & Standard Details for Wastewater Infrastructure.

All foul drainage infrastructure will be pressure tested and CCTV surveyed in order to reduce the risk of defective or leaking sewers.

In addition to 1 No. gravity connection, it is proposed to drain the site to 2 No. centrally located foul pumping stations, as indicated on Pinnacle Engineering Consultants drawings included in the application. From the pumping stations, foul water will be pumped via 100mm Ø rising mains to the existing foul water line located in Ely View.

The proposed foul pumping stations are to be in accordance with the Uisce Éireann Code of Practice for Wastewater Infrastructure 2017 – Part 5 – Pumping Stations Note that the foul pumping stations are below ground and are proposed to have only 2No.above ground kiosks visible as per the IW standards as per the below extracts from IW STD-WW-30A and 31A.

The pumping stations have been located to provide the minimum separation distance of 15m to the nearest existing habitable building and the proposed building.

Layout, levels, gradients, pipe sizes and details of the proposed foul drainage infrastructure can be viewed on the Pinnacle Engineering Consultants drawings included in the application.

Surface Water Drainage Infrastructure

The following mitigation measures have been proposed to ensure that no potential adverse effects will arise from construction-related surface water discharges from the Proposed Development. The construction contractor will be required to implement the following specific mitigation measures, for release of hydrocarbons, polluting chemicals, sediment/silt and contaminated waters control:

- Specific measures to prevent the release of sediment over baseline conditions to local water courses and Dublin Bay during the construction work, which will be implemented as the need arises. These measures include, but are not limited to, the use of silt traps, silt fences, silt curtains, settlement ponds and filter materials. This is particularly important when undertaking any works/upgrading to the surface and foul water drainage networks at the Proposed Development site;
- Provision of exclusion zones and barriers (e.g. silt fences) between earthworks, stockpiles and temporary surfaces to prevent sediment washing into the Local water courses and/or existing drainage systems and hence the downstream receiving water environment;
- Silt traps shall not be constructed immediately adjacent to the Local water courses, i.e. a buffer zone between the trap and the watercourse with natural vegetation must be left intact. Imported materials such as terrain, straw bales, coarse to fine gravel should be used either separately or in-combination as appropriate to remove suspended matter from discharges;
- Monitoring shall be carried out on surface water discharge (if necessary and as specified in any Discharge Licence associated with the construction phase of the project);
- Provision of temporary construction surface drainage and sediment control measures to be in place before the construction of the pipeline and/or earthworks commence;

- Weather conditions will be taken into account when planning construction activities to minimise risk of run-off from the site;
- Prevailing weather and environmental conditions will be taken into account prior to the pouring of cementitious materials for the works adjacent to the Local water courses and/or surface water drainage features, or drainage features connected to same.
- Pumped concrete will be monitored to ensure no accidental discharge. Mixer washings and excess concrete will not be discharged to surface water drainage systems.
- Concrete washout areas will be located remote from the Local water courses or any surface water drainage features, where feasible, to avoid accidental discharge to watercourses;
- Any fuels of chemicals (including hydrocarbons or any polluting chemicals) will be stored in a bunded area to prevent any seepage of into the Local water courses, local surface water network or groundwater, and care and attention taken during refuelling and maintenance operations;
- Temporary oil interceptor facilities shall be installed and maintained where site works involve the discharge of drainage water to receiving waters;
- All containment and treatment facilities will be regularly inspected and maintained;
- All mobile fuel bowsers shall carry a spill kit and operatives must have spill response training. All fuel containing equipment such as portable generators shall be placed on drip trays. All fuels and chemicals required to be stored on-site will be clearly marked;
- Implementation of response measures to potential pollution incidents;
- Emergency procedures and spillage kits will be available and construction staff will be familiar with emergency procedures in the event of accidental fuel spillages;
- All trucks will have a built-on tarpaulin that will cover excavated material as it is being hauled off-site and wheel wash facilities will be provided at all site egress points;
- Water supplies shall be recycled for use in the wheel wash. All waters shall be drained through appropriate filter material prior to discharge from the construction sites;
- The removal of any made ground material, which may be contaminated, from the construction site and transportation to an appropriate licenced facility shall be carried out in accordance with the Waste Management Act, best practice and guidelines for same;
- A discovery procedure for contaminated material will be prepared and adopted by the appointed contractor prior to excavation works commencing on site. These documents will detail how potentially contaminated material will be dealt with during the excavation phase; and
- Implementation of measures to minimise waste and ensure correct handling, storage and disposal of waste (most notably wet concrete, pile arisings and asphalt).

Surface water runoff from topsoil stripped areas is to be directed towards on-site settlement ponds. Upstream of the piped surface water outfalls, temporary settlement ponds/filter trench are to be constructed consisting of a geotextile lined stone filled trench with a further inclusion of baled straw filter at the inlet – all to catch any site washed silt during the construction process and before the development is completed. This filter trench is to be inspected and maintained regularly by the contractor throughout the construction stage. Such measures are to be taken to capture, remove and treat sediment prior to discharge of the filtered runoff to the receiving watercourses.

To minimise the adverse effects, the prevailing weather conditions and time of year is to take into account when the site development manager is planning the stripping back of the topsoil. For example, by avoiding excavation and movement of topsoil ahead of any known upcoming heavy rainfall event.

The removal of the topsoil layer will be carried out in a carefully managed process and in coordination with the construction phasing management of the development.

Sand, gravel or other loose materials brought to the site shall be stored in locations a minimum of 10m from any local water course and are not to be positioned where rainfall run-off could wash silt towards the watercourse. Any cement is to be stored in bags under cover from the elements at a location remote from the watercourse.

The site layout shall be such that it includes a dedicated set down area for deliveries to the site and temporary

storage of construction materials. The area is to be clearly demarcated and managed to avoid haphazard placement of materials throughout the site.

The set down location shall be managed to ensure it is well ordered and tidy in line with good site management practice.

A Construction Management Plan will be prepared by the appointed Main Contractor. The use of construction best practices is to take place to avoid the risk of contamination of the receiving watercourses or ground water.

Preconstruction meetings to be held with all sub-contractors to explain works method statements and site management practices. Periodic, documented inspections of the site and subcontractor activities are to be carried out to improve overall site safety, efficiency and mitigate the risk of pollution of the stream or groundwater. Subcontractor method statements will be formally reviewed to ensure that comply with the requirements of the Construction Regulations 2006 and the Construction Management Plan.

The site supervisor will conduct documented site inspections, using a Site Inspection Checklist on a weekly basis, or greater to ensure compliance. Potential spillages from storage tanks must not be allowed to seep into the ground and Spill kits are to be made available.
An Outline Construction Management will be developed and will be implemented during the construction phase. This will include Site personnel inductions to ensure all site personnel are made aware of the procedures and best practice with regards to the management of surface water runoff and ground water protection.

Concrete batching will take place off site and wash out of concrete trucks will take place off site (at authorized concrete batching plant in full compliance with relevant planning and environmental consents).

Wheel wash down facilities will be provided in specifically designated areas and managed in accordance with the OCMP. Discharge from these areas will be directed into settlement/treatment areas and this will prevent uncontrolled runoff site.

All fuel stored will be bunded within a secure hardstanding area with strict management control and access to same. Bunding is to be 100% + 10% of the volume stored.

Fuel spill clean-up kits will be kept in the designated re-fuelling areas.

Topsoil stockpiles will be located in such a manner as to minimise the risk of washing away into local drainage or watercourses.

The contractor will have a full time Site Manager responsible for the site management. The Manager will be fully aware of the relevance of the works in relation to the watercourse and will ensure all staff on site are made aware. A site noticeboard will be positioned in a suitably located prominent location on the site with the contact details of the person responsible for ensuring the pollution prevention methodology.

The construction management of this project will incorporate protection measures to minimise as far as possible the risk of spillage that could lead to surface and ground contamination.

Dewatering of trenches should be used where deemed necessary and cannot be avoided and all run off from dewatering areas is to be directed to the designated settlement/treatment areas.

Electrical Supply

The locations of the electricity network infrastructure relative to the proposed works will be confirmed as part of the Detailed Design Phase.

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with ESB Networks.

Prior to excavation the Contractor will carry out additional site investigation, including slit trenches, in order to determine the exact location of the electricity network in close proximity to the works area. This will ensure that the underground electricity network will not be damaged during the construction phase.

All works in the vicinity of ESB Networks infrastructure will be carried out in ongoing consultation with ESB Networks and will be in compliance with any requirements or guidelines they may have including procedures to ensure safe working practices are implemented when working near live overhead/underground electrical lines.

Telecommunications

The locations of the telecommunications network infrastructure relative to the proposed works will be confirmed as part of the Detailed Design Phase.

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with the relevant telecommunication provider.

Prior to excavation the Contractor will carry out additional site investigation, including slit trenches, in order to determine the exact location of the telecommunications network in close proximity to the works area. This will ensure that the underground telecommunications network will not be damaged during the construction phase.

All works in the vicinity of the telecommunications provider's infrastructure will be carried out in ongoing consultation with the relevant provider and will be in compliance with any requirements or guidelines they may have.

- Where new services are required, the Contractor will apply to the relevant provider for a connection permit where appropriate and will adhere to their requirements.
- It is considered that any likely impacts to overhead cables in the vicinity will be mitigated by applying standard construction practices.

Operational Phase

Water Supply Infrastructure

Usage of low flush toilets will reduce the demand on the public water supply infrastructure and the wastewater infrastructure.

Wastewater Drainage Infrastructure

Operational waste will be removed from the completed development using only licenced contractors to appropriately licensed facilities.

The wastewater drainage infrastructure has been designed in accordance with the Uisce Éireann Code of Practice for Wastewater Infrastructure.

The foul pump stations will be located as indicated in the Pinnacle Engineering Consultants drawings included in the application, fitted with a pump system complete as per the Uisce Éireann Standard Detail, STD-WW- 28A-Rev2. The pumping stations will be designed in accordance with the IW COP and includes real time remote monitoring, alarms and telemetry connected to the SDCC pumping station control centre using a "SCADA" system.

The pumping stations have also been designed to incorporate a duty and stand-by duty pump in case of failure of any single pump. Furthermore, the pumping stations can accommodate 24hrs overflow storage below ground in the chamber designed. Refer to Pinnacle Engineering Consultants drawings included in the application for further detail. Watermain supply to the site is to be monitored by Uisce Éireann using the required and designed flow meters as have been approved under the IW SDC design review. Refer to the submitted Pinnacle Engineering Consultants drawings included in the application for location of same.

Surface Water Drainage Infrastructure

As detailed in Chapter 7 "Water", the implementation of the following measures will minimise the impact on the Hydrology and Water Services in the area of the proposed development during the operational phase of the development.

The surface water collected from the project has been designed in accordance with the CIRIA SuDS Manual and the Greater Dublin Strategic Drainage Study and the appropriate treatment train process has been applied in the design.

Regular maintenance of all SuDS features by the development management team will be carried out until such a stage that the Local Authority take in charge the project.

The road and block levels design has been carried out following the existing natural site contours and replicating where possible the natural flow paths.

In accordance with best practice, appropriate SuDS features included in this development include filter drains, roadside filter swales, permeable paving in parking bays, green roofs, tree pits, bioretention area, buildings, silt-trap/catchpit manholes, permeable geocellular attenuation storage, vortex flow control limiting devices and petrol interceptors.

The surface water drainage infrastructure has been designed to allow for a 20% increase in rainfall due to climate change in accordance with the GDSDS.

The surface water runoff from the site will be limited to the greenfield runoff rate and the attenuated flows are to be stored in detention basins in accordance with the GDSDS. Further detailed information relating to the site development drainage and water infrastructure is outlined in a separate document prepared by Pinnacle Engineering Consultants entitled "Engineering Planning Report".

All designated waste storage areas will have gullies connected to the foul drainage network to facilitate wash down as required.

Electrical Supply

The power demands during the operational phase on the existing electricity network are considered to be imperceptible due to the energy efficient design including LED lighting, high performance heating equipment.
The design and construction of the required electrical services infrastructure in accordance with the relevant guidelines and codes of practice is likely to mitigate any potential effects during the operational phase of the development, with the exception of any routine maintenance of the site services.

Telecommunications

The telecommunications demand during the operational phase on the existing telecommunications network are

considered to be imperceptible due to the resilience built into the networks by the relevant providers.

The design and construction of the required Telecommunication services infrastructure in accordance with the relevant guidelines and codes of practice is likely to mitigate any potential effects during the operational phase of the development, with the exception of any routine maintenance of the site services.

3.9. Material Assets: Transportation

This chapter of the EIAR has been prepared by Ronan Kearns, BA, BAI, MSc, MBA, CEng MIEI of Pinnacle Consulting Engineers. This chapter of the EIAR reports on the likely significant transport and accessibility effects to arise from the construction phase, operational and maintenance stage, and decommissioning phase of the Proposed Development.

The chapter describes the transport and accessibility policy context; the methods used to assess the potential impacts and likely effects; the baseline conditions at and surrounding the site; the likely transport and accessibility effects taking into consideration embedded mitigation; the need for additional mitigation and enhancement; the significance of residual effects; and inter-project cumulative effects.

NOTE: In addition to this EIAR, this LRD is accompanied by two separate, standalone documents that have also been prepared by Pinnacle Consulting Engineers ,and should be read in conjunction with this EIAR:

- Traffic & Transport Assessment
- Construction Traffic Management Plan

3.9.1 Summary of Assessment

This chapter has detailed the potential transport and accessibility effects due to the construction, operational (including maintenance), and decommissioning phases of the Proposed Development. The assessment takes into account the relevant national and local guidance and regulations.

Along the haulage routes, there are various standards of pedestrian and cycle infrastructure. Each node has various road widths and footpath widths with differing levels of public lighting.

There is limited public transport located in proximity to the development site with the nearest existing node located at the junctions of the Link Street and Oldcourt Road.

Therefore, it will be possible for future residents and visitors of the development to walk, cycle or use public transport and complete their journeys.

Construction Effects

The construction of the proposed development is likely to last up to 5 years as the development is built in phases. This results in a maximum uplift in traffic volumes as a result of construction activities of c. 23%.

There is a maximum increase of c. 23% as a result of the up lift in development traffic. As this is sess than a 30% increase, it is considered to result in imperceptible changes in the environmental effects of traffic.

A CTMP would require construction traffic including both construction plant and material deliveries to be programmed to avoid peak traffic periods on the surrounding local and strategic road network and minimise any effect on the local highway network, pedestrian and cycle users. No additional mitigation would be required for the construction stage.

Therefore, it is considered that residual effects to transport and access during construction would be temporary, imperceptible, adverse and not significant in EIA terms.

Operational Effects

The Proposed Development would be fully operational in 2032 and is anticipated to generate up to 47 arrivals and 143 departures in the AM peak (two-way total of 189). The total number of vehicle movements in the PM peak hour will be 157 arrivals and 91 departures (two-way total of 248).

In accordance with IEMA Guidelines, projected changes in traffic flows of less than 10% create no discernible environmental effect.

Overall, it is considered that residual effects on transport and access during operation are imperceptible, adverse and not significant in EIA terms.

No additional mitigation would be required for the operation stage.

Cumulative Effects

The cumulative effects of the Proposed Development, and neighbouring schemes has been considered within the traffic assessment.

Whilst there would be an increase in traffic resulting from the cumulative schemes during both the construction and operation phases, overall, there are no significant effects anticipated as a result of the cumulative impacts and therefore no additional mitigation measures, other than what has been previously outlined, is proposed.

3.9.2. Mitigation Measures

Construction Phase

The successful completion of the Proposed Development will require significant coordination and planning, and a comprehensive set of mitigation measures will be put in place before and during the construction phase to minimise the effects of the additional traffic generated by the Proposed Development. The range of measures will include the following which are also set out in the submitted Construction Traffic Management Plan, which is enclosed with this LRD planning application as a separate document.

- A detailed **Construction Traffic Management Plan (CTMP),** incorporating all the mitigation measures set out in the TMP submitted as part of the CTMP, will be finalised and agreed with the relevant road authorities and An Garda Síochána prior to construction works commencing on site. The detailed TMP will include the following:
- **Traffic Management Coordinator** – a competent Traffic Management Co-ordinator will be appointed for the duration of the project and this person will be the main point of contact for all matters relating to traffic management.
- **Communications**: Local residents in the area will be informed of any upcoming traffic related matters e.g., temporary lane/road closures (if required), via letter drops and door knocks. Information will include the contact details of the Contract Project Co-ordinator, who will be the main point of contact for all queries from the public or Local Authority during normal working hours. An "out of hours" emergency number will also be provided.
- **Travel Plans** – Given the site location, the assessment above has assumed the worst case i.e., that construction workers will drive to the site. The Main Contractor will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the site and identification of an area for parking.

Site Access and Egress

Site access will be provided via the new Link Street on to Oldcourt Road and Bohernabreena Road. These will coincide with the future development access.

An access gate will be provided during the construction phase off the Link Street from Oldcourt Road and Bohernabreena Road.

The contractor shall provide advanced warning signs, in accordance with Chapter 8 of the Department of the Environment's Traffic Signs Manual 2019, on the approach to proposed site access locations a minimum of one week prior to construction works commencing at the site.

There will be heras fencing secured to a minimum height of 2 metres alongside the construction compound areas or solid panel hoarding in areas with high/low viewing panels to help reduce unauthorised access to the construction compound.

This fence will be checked daily and maintained as necessary, and it will be the responsibility of the Site Manager to open and lock the gates each working day to ensure the site is not left open and unattended at any time.

Access to the construction site will be limited to authorised persons. The site will be secured at all times with security being employed by the main contractors to ensure no unauthorised access.

Where possible, construction traffic and non-construction traffic will be separated for all modes of transport. Where the construction programme requires mixing of traffic, additional temporary traffic management measures will be put in place.

National Road Network

Access to the site along the National Road Network will be via the M50. It is anticipated that the majority of construction related traffic will travel along the M50 at which point construction traffic will enter the regional/local road network i.e., R113

Regional & Local Road Network

The majority of access / egress to proposed sites shall be facilitated from the local road networks. To mitigate against possible restrictions in visibility requirements, it is proposed that the contractor shall use a safe system of permanent flag men for the control of traffic during all access / egress operations at each site location, if required. The site marshal, referred to above, will be responsible for this.

The site will be accessed via 2 No. access points via the Oldcourt Road and an Bohernabreena Road. These roads will be accessed via the Link Street.

The contractor shall utilise a safe system of permanent flag men for the control of traffic during all access / egress operations at each site location outlined above. The site marshal, referred to above, will be responsible for this.

The proposed Access from Link Street will be used for works traveling via public transport.

Access

Access to the site will be in the location of the proposed development accesses each of which will be accessed via the Link Street. The contractor will ensure a visibility splay that is appropriate for the local speed limit.

Local Schools.

Haulage routes will avoid passing local schools at the start and end of the school day.

Signage

The contractor shall undertake consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements. Such signage shall be installed prior to works commencing on site.

Proposed signage may include warning signs to provide warning to road users of the works access / egress locations and the presence of construction traffic. All signage shall be provided in accordance with the Department of Transport's Traffic Signs Manual, Chapter 8 – Temporary Traffic Measures and Signs for Roadworks.

In summary, the contractor will be required to ensure that the following elements are implemented:

- Consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements.
- Provision of temporary signage indicating site access route and locations for contractors and associated suppliers; and
- Provision of general information signage to inform road users and local communities of the nature and locations of the works, including project contact details.

Traffic management for road works

The Applicant is currently reviewing the positions of any incoming services that maybe affect as a result of the proposed development. This will be done in conjunction with the relevant service providers.

If work must be done in the Public Highway the Main Contractor will ensure that the Main Contractor obtains the necessary licences and permits in time for the works to proceed on time.

The Main Contractor will procure street works accredited and approved contractors to carry out the utility works. In accordance with plans and drawings submitted to the planning authority, and subject to the necessary approval of Uisce Éireann and in agreement with the Roads and Transport Department of the Local Authority (SDCC).
A specific Traffic Management Plan (TMP) will be required by the Local Authority in conjunction with the application for a road opening licence, in advance of carrying out these road works. The TMP design and service will be provided by an independent specialist and will deal with the efficient management of traffic and pedestrians, mitigating all potential safety risks to users, whilst maintaining effective operation of the carriageway.

Pedestrians

Hoarding will be checked daily with a weekly thorough inspection. Any defects will be attended to immediately.

The Main Contractor will ensure that there is adequate protection in place to prevent concrete splashing beyond the site boundary when the concrete slabs are being poured. The Main Contractor will carry out a task specific briefing prior to every pour above ground level.

The gateman and traffic marshals will ensure public safety when vehicles are entering and exiting the site. The public will not be allowed to access the site unless they follow the dedicated pedestrian access route on to site. They will be fully protected with appropriate PPE until they reach the security cabin. There is no unauthorised access beyond

this point.

Programming

In order to reduce impacts on local communities and residents adjacent to the proposed sites, it is proposed that:

- The contractor will be required to liaise with the management of other construction projects and the Local Authorities to co-ordinate deliveries.
- The contractor will be required to schedule deliveries in such a way that construction activities and deliveries activities do not run concurrently e.g., avoiding pouring of concrete on the same day as material deliveries in order to reduce the possibility of numbers of construction delivery vehicles arriving on site simultaneously, resulting in build-up of traffic on the road network.
- The contractor will be required to schedule deliveries to and from the proposed site such that traffic volumes on the surrounding road network are kept to a minimum.
- HGV deliveries to the Proposed Development site will be suspended on the days of any major event in the area that have the potential to cause larger than normal traffic volumes.
- The contractor will be required to interact with members of the local community to ensure that deliveries will not conflict with sensitive events such as funerals.
- HGV deliveries will avoid passing schools at opening and closing times where it is reasonably practicable.
- Deliveries of materials to site will generally be between the hours of 08:00 and 19:00 Monday to Friday, and 08:00 to 14:00 on Saturdays. No deliveries will be scheduled for Sundays or Bank Holidays. There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times.

The construction period for the Proposed Development is anticipated to be approximately 18 months from the commencement of the site works. This is subject to change and dependent on market conditions.

Recommended Traffic Management Speed Limits

Adherence to posted/legal speed limits will be emphasised to all staff/suppliers and contractors during induction training.

Drivers of construction vehicles/HGVs will be advised that vehicular movements in locations, such as local community areas, shall be restricted to 50km/h. Special speed limits of 30km/h shall be implemented for construction traffic in sensitive areas such as school locations. Such recommended speed limits will only apply to construction traffic and shall not apply to general traffic. It is not proposed to signpost such speed limits in the interest of clarity for local road users.

Spoil

Spoil will be removed from site using 8-wheeler muck away lorries. The lorries will arrive at site and will be marshalled onto the site by the traffic marshals. The lorries will be loaded with an excavator. The lorries will be covered prior to leaving site. The traffic marshal will escort the vehicle off site and once the vehicle is on its way, the next vehicle will be called in.

Road Cleaning

It shall be a requirement of the works contract that the contractor will be required to carry out road sweeping operations to remove any project related dirt and material deposited on the road network by construction/delivery vehicles. All material collected will be disposed to a licensed waste facility.

Road Condition

The extent of the heavy vehicle traffic movements and the nature of the payload may create problems of:

- Fugitive losses from wheels, trailers or tailgates; and
- Localised areas of subgrade and wearing surface failure.

The contractors shall ensure that:

- Loads of materials leaving each site will be evaluated and covered if considered necessary to minimise potential dust impacts during transportation.
- The transportation contractor shall take all reasonable measures while transporting waste or any other materials likely to cause fugitive losses from a vehicle during transportation to and from site, including but not limited to:
    - Covering of all waste or material with suitably secured tarpaulin/ covers to prevent loss.
    - Utilisation of enclosed units to prevent loss; and
    - The roads forming part of the haul routes will be monitored visually throughout the construction period and a truck mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.

In addition, the contractor shall, in conjunction with the Local Authority:

- Undertake additional inspections and reviews of the roads forming the haul routes one month prior to the construction phase to record the condition of these roads at that particular time.
- Such surveys shall comprise, as a minimum, a review of video footage taken at that time, which shall confirm the condition of the road corridor immediately prior to commencement of construction. This shall include video footage of the road wearing course, the appearance and condition of boundary treatments and the condition of any overhead services that will be crossed. Visual inspections and photographic surveys will be undertaken of bridges and culverts that are along the haul roads.
- Where requested by the Local Authority prior to the commencement of construction operations, pavement condition surveys will also be carried out along roads forming part of the haul route. These will record the baseline structural condition of the road being surveyed immediately prior to construction.
- Throughout the course of the construction of the Proposed Development, on-going visual inspections and monitoring of the haul roads will be undertaken to ensure any damage caused by construction traffic is recorded and that the relevant Local Authority is notified. Arrangements will be made to repair any such damage to an appropriate standard in a timely manner such that any disruption is minimised.

Upon completion of the construction of the Proposed Development, the surveys carried out at preconstruction phase shall be repeated and a comparison of the pre and post construction surveys carried out. Where such comparative assessments identify a section of road as having been damaged or as having deteriorated as a result of construction traffic, the construction related damage will be repaired.

Vehicles

The following is a non-exhaustive list of possible vehicles that will be used:

- Abnormal Load HGV.
- HGV.
- Rigid Truck.
- Box Van.

- Panel Van.
- Concrete Truck.
- Concrete Pump Truck.
- Mobile Crane (various sizes).
- JCB (various sizes).
- Excavators (various sizes).
- Dump Truck.
- Specialist vehicles maybe required on occasion; and
- Details of size and weights of vehicles will be confirmed on appointment of a Main Contractor.

Dust and Dirt Control

The contractor will be obliged to implement the mitigation measures outlined in the EIAR Chapter 8: Air Quality Chapter in respect of dust / dirt control.

Noise Control

The contractor will be obliged to implement the mitigation measures outlined in the EIAR Chapter 10: Noise and Vibration in respect of noise control.

Protection of Surface Waters

The contractor will be obliged to implement the mitigation measures outlined in the Hydrology Chapter of EIAR in respect of the protection of the surface water.

Co Ordination

The Main Contractor will establish a holding area on the site that could accommodate up to 2 concrete trucks, the Main Contractor will also provide a traffic marshal at the site. The holding area will be utilised to prevent congestion of the Link Street from construction traffic.

All vehicles will be tracked by the traffic marshals who will report back to the logistics manager. The logistics manager will control the deliveries with help from the traffic marshals and the gateman. Unscheduled vehicles will be turned away. If deliveries are taking longer to offload, then the following deliveries will be notified of any timing issues.

A copy of the delivery schedule will be issued to the traffic marshals, gateman and contractors' supervisors every morning so that everyone is aware and can make provision for when their delivery arrives.

The traffic marshals will be trained and competent and they will undergo ongoing assessments by the logistics manager to ensure that they are carrying out their duties with due care diligence.

Refuelling

Construction plant and equipment will only be parked over-night within the site compound. Construction plant and equipment will be checked daily for any visual signs of oil or fuel leakage, as well as wear and tear.

Fuel will not be stored on site for the duration of the construction phase. Fuel will only be brought to site via mobile fuel bowser. For any liquid other than water, this will be stored in suitable tanks and containers which will be housed in the designated area surrounded by bund wall of sufficient height and construction so as to contain 110 percent (110%) of the total contents of all containers and associated pipework. The floor and walls of the bunded area will be impervious to both water and oil. The pipes will vent downwards into the bund.

Where Contractors require to refuel vehicles, this will only be carried out at the designated refuelling location within the site storage compound, which must employ pollution control mechanisms to prevent escape of fluids to the river. No refuelling is permitted on site, i.e., within the river or adjacent due to risk of spillage.
The Local Authority will be informed immediately of any spillage or pollution incident that may occur on-site during the construction phase. Spill kits will be maintained on site at all times.

All small plant such as generators and pumps bunded and stood in drip trays capable of holding 110% of their tank contents.

Waste oils, empty oil containers and other hazardous wastes will be disposed of in accordance with the requirements of the Waste Management Act, 1996.

Site Tidiness and Housekeeping

Construction works will be carried out according to a defined schedule agreed with the client and the relevant contractors, with regard to the hours of work outlined above. Any delays or extensions required will be notified at the earliest opportunity to the client and Contractors.

Contractors will ensure that road edges and footpaths are swept on a regular basis.

Any and all waste materials arising during the works will either be immediately taken to a location from which discharge to local water courses cannot take place, or temporarily stored/covered to prevent washout.

All Contractors will be responsible for the clearance of their plant, equipment and any temporary buildings upon completion of construction. The site will be left in a safe condition.

Monitoring, Inspection and Record Keeping

The contractor will be obliged to implement the mitigation measures outlined in the Construction and Environmental Management Plan and the Construction Traffic Management Plan with respect to monitoring, inspections and record keeping.

Road Closures

During the course of the works, it is not anticipated that road closures will be required for any extended period of time. Temporary or partial road closures may be required to facilitate utility connections such as watermain, foul water, surface water, etc.

Should works be required on the external road network, road opening licences will be sought from the Local Authority via the Road Management Office.

In areas where existing carriageways are narrow, it is anticipated that Temporary Traffic Management measures such as temporary traffic lights will be utilised to facilitate traffic.

Enforcement of Construction Traffic Management Plan

All project staff and material suppliers will be required to adhere to the CTMP (which is a live document). As outlined

above, the contractor shall agree and implement monitoring measures to confirm the effectiveness of the CTMP.

Details of Working Hours and Days

All deliveries will be notified to the Contractor's Project Manager/Traffic Management Co-ordinator in advance with specific times identified. These will be collated and held in a diary by the Co-ordinator who will manage the deliveries daily. The Co-ordinator will highlight any clashes and anticipated busy periods to streamline the processing of deliveries.
On arrival at the agreed locations, drivers must wait and ring for attention in accordance with the relevant site signage. They will then be escorted to the appropriate location for unloading by the contractor's Banksmen.

Unloading will be carried out at one of the material storage areas. All deliveries, where possible, must be able to be unloaded by forklift or mechanical means.

Site development and building works shall be carried out only between the hours of 0700 to 1900 Mondays to Fridays inclusive, between 0800 to 1400 hours on Saturdays and not at all on Sundays and public holidays.
There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times. Where possible, advance warning will be given to South Dublin County Council in writing if construction activities occur outside of these hours. These will be kept to a minimum.

All access roads used by contractors will be monitored for mud and any construction materials and cleared using a shovel and broom and if required a mechanical road sweeper.

Emergency Procedures During Construction

The contractor shall ensure that unobstructed access is provided to all emergency vehicles along all routes and site accesses. The contractor shall provide to the local authorities and emergency services, contact details of the contractor's personnel responsible for construction traffic management. In the case of an emergency the following procedure shall be followed:

- Emergency Services will be contacted immediately by dialling 112.
- Exact details of the emergency / incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner.
- The emergency will then be reported to the Site Team Supervisors and the Safety Officer. All construction traffic shall be notified of the incident (where such occurs off site).
- Where required, appointed site first aiders will attend the emergency immediately; and
- The Safety Officer will ensure that the emergency services are en-route.

Complaints Handling

The Main Contactor will maintain a log of site complaints detailing:

- Name and address of complainant
- Time and date complaint was made.
- Likely cause or source of nuisance
- Weather conditions, such as wind speed and direction
- Investigative and follow -up actions.

The Main Contractor will appointment a Liaison Officer as a single point of contact to engage with the local community and respond to concerns. It will be the role of the Liaison Officer to keep local residents and businesses informed of progress and timing of particular construction activities that may impact on them.

Communication

The contractor shall ensure that close communication with the relevant local authorities and the emergency services shall be maintained throughout the construction phase. Such communications shall include:

- Submissions of proposed traffic management measures for comment and approval.
- On-going reporting relating to the condition of the road network and updates to construction programming; and
- Information relating to local and community events that could conflict with proposed traffic management measures and construction traffic in order to implement alternative measures to avoid such conflicts.

The contractor shall also ensure that the local community is informed of proposed traffic management measures in advance of their implementation. Such information shall be disseminated by posting advertisements in local newspapers and delivering leaflets to houses in the affected areas. Such information shall contain contact information for members of the public to obtain additional information and to provide additional knowledge such as local events, sports fixtures, etc., which may conflict with proposed traffic management measures.

Operational Phase

Vehicular access to the development will be via 4 no. access points, as follows: (i) from the west of the site via 2 no. accesses located off Bohernabreena Road, (ii) from the north of the site via 1 no. access at Dodderbrook Place, and (iii) from Oldcourt Road (the R113) to the east, via adjoining residential development. The proposed development includes for pedestrian and cyclist connections and accesses to adjoining lands to the north, east and west, and includes for cycling and pedestrian routes and infrastructure throughout the development.

The normal function of traffic lights requires more than sight control and coordination to ensure that traffic and pedestrians move as smoothly, and safely as possible.

For signal-controlled junctions all arms are controlled by traffic lights that indicate which approach has the right of way at any given time. This ensures that side road traffic is given the opportunity to cross/join the main road flow. It also allows pedestrians and cyclists to cross along the desire lines in a safe and controlled manner.

Dedicated infrastructure will be provided for pedestrians, cyclists and other vulnerable road users. Were possible, this infrastructure will separate vehicles from pedestrians, cyclists and other vulnerable road users reducing the possibility of a road traffic collision occurring.

Where vehicles interact with pedestrians, cyclists and other vulnerable road users it will be done in a controlled manner. To that end, the proposed development includes a number of controlled crossings such as the signal-controlled junction from the Link Street to Oldcourt Road and Bohernabreena Road. Along the Link Street, a signal-controlled crossing has also been provided, linking the southern side of the development to the northern side.

Dedicated separated cycle infrastructure is provided along the Link Street with controlled crossings provided to accommodate cycling desire lines including to adjoining developments. Cyclist will share road space in areas of low traffic volume and low speed.

A number of uncontrolled crossings are provided throughout the development for pedestrians. These uncontrolled crossings have been designed to accommodate persons with visual impairments and mobility impairments. Pedestrians are given priority across junctions from the Link Street along the cycle track.

3.10. Material Assets: Resource and Waste Management

This chapter of the EIAR was completed by Niamh Kelly and Chonaill Bradley of AWN Consulting Ltd. An assessment of the potential impacts associated with waste management during the construction and operational phases of the proposed development was carried out.

3.10.1. Introduction

AWN Consulting undertook a waste management assessment. The receiving environment is largely defined by South Dublin County Council (SDCC) as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

There will be waste materials generated from site clearance works, demolition, excavations, construction of the new proposed development and from the operation of the new proposed development.

3.10.2. Potential Impacts and Mitigation Measures of the Proposed Development

Construction Phase

During the construction (inc demolition and excavations) phase the mismanagement of waste, including the inadequate storage of waste, inadequate handling of hazardous waste, the use of inappropriate or insufficient segregation techniques, and the use of non-permitted waste contractors, would likely lead to negative impacts such as waste unnecessarily being diverted to landfill, litter pollution which may lead to vermin, runoff pollution from waste, fly tipping and illegal dumping of waste. In the absence of mitigation, the effect on the local and regional environment is likely to be long-term, significant and negative.

Operational Phase

The potential impacts on the environment during the operational phase of the proposed development would be caused by improper, or lack of waste management. In the absence of mitigation, the effect on the local and regional environment is likely to be long-term, significant and negative.

3.10.3. Residual Effect of the Proposed Development

Construction Phase

During the construction phase, typical construction waste materials will be generated which will be source segregated on-site into appropriate skips/containers, within designated waste storage areas and removed from site by suitably permitted waste contractors as required, to authorised waste facilities, by appropriately licensed waste contractors. While the accurate keeping of waste records will be undertaken. All waste leaving the site will be recorded and copies of relevant documentation maintained.

This will all be overseen by the main contractor, who will appoint a construction phase Resource Manager to ensure effective management of waste during the excavation and construction works. All construction staff will be provided

with training regarding the waste management procedures on site.

A carefully planned approach to waste management and adherence to the site-specific Resource and Waste Management Plan (Appendix 13.1) and chapter 13 during the construction phase, this will ensure that the effect on the environment will be short-term, imperceptible and neutral.

Operational Phase

During the operational phase, waste will be generated by the residents, commercial tenants and facilities management. Dedicated waste storage areas (WSAs) have been allocated throughout the development for the use of residents and tenants. The WSAs have been appropriately sized to accommodate the estimated waste arisings from the development. The WSAs have been allocated to ensure a convenient and efficient management strategy with source segregation a priority. Waste will be collected from the designated waste collection areas by permitted waste contractors and removed off-site for re-use, recycling, recovery and/or disposal.

An Operational Waste Management Plan has been prepared and included as part of this submission as Appendix 13.2, This OWMP provides a strategy for segregation (at source), storage and collection of wastes generated within the development during the operational phase including dry mixed recyclables, organic waste, glass, mixed non-recyclables, garden/green waste, batteries, waste electrical equipment, printer cartridges, chemicals, lightbulbs, textiles, cooking oil, furniture and abandoned bicycles. This Plan/Strategy will be supplemented, as required, by facilities management with any new information on waste segregation, storage, reuse and recycling initiatives that are subsequently introduced.

Provided the mitigation measures outlined in chapter 13 are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be long-term, imperceptible and neutral.

3.10.4. Cumulative Impact of the Proposed Development

Construction Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase. Due to the high number of waste contractors in the SDCC region, as provided from the National Waste Collection Permit Office and the EPA, there would be sufficient contractors available to handle waste generated from a large number of these sites simultaneously, if required. Similar waste materials would be generated by all of the developments.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the cumulative effect will be short-term, not significant and neutral.

Operational Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place. All of the current and potential developments will generate similar waste types during their operational phases. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste and non-recyclables. An increased density of development in the area is likely improve the efficiencies of waste collections in the area.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate any potential cumulative impacts associated with waste generation and waste management. As such the cumulative effect will be a *long-term, imperceptible* and *neutral.*

3.11. Cultural Heritage (Archaeological & Architectural)

This chapter of the EIAR has been prepared by Antoine Giacometti, BA, MA of Archaeology Plan and assesses the potential environmental effects on cultural heritage resulting from the proposed Large-scale Residential Development in Ashbourne, Co. Meath.

Two programmes of geophysical survey have been conducted within the site by JML Surveys. The first survey programme under licence 17R0112 in 2017 and the second under licence 24R0030 in 2024. A copy of the Geophysical Survey is included as an Appendix to Chapter 14 of Volume II of this EIAR.

3.11.1. Impact Assessment

Summary of archaeological and cultural heritage background

Potential archaeological features have been identified during geophysical survey within the study area. Given the fact that this area has remained undeveloped in the recent past and has retained the current layout of field boundaries since the early nineteenth century, as demonstrated by the Ordnance Survey maps, the potential for subsurface archaeological remains is moderate.

Prehistoric

The study area lies within an area of South Dublin that has been continuously inhabited since prehistoric times. An examination of archaeological excavations that have taken place in the surrounding area in advance of housing development in the last thirty years have uncovered evidence for Early and Middle Bronze Age settlement and industrial activity in the form of structures and fulacht fia sites. In addition, the discovery of a Cist burial with an accompanying cremation in Glassamucky townland c. 500m to the south of the study area demonstrates that the Bronze Age population of the area were burying their dead locally. Given this evidence, there is a moderate potential for prehistoric archaeological features within the study area.

Early Medieval

During the Early Medieval period this area of South Dublin formed part of the broader Dodder region characterised as 'a hive of monasteries and hermitages' (Ronan 1942-3, 74), with a number of ecclesiastical sites established in the wider area. While the exact location of the ecclesiastical site at Killininny is unknown, it may lie at the present site of Allenton House (DU022-025001). A further Early Medieval ecclesiastical site is theorised to lie to the east of the study area, given the placename-evidence from the former name for Oldcourt, 'Tachhonicde/Tagoney/Stagoney'.

While the local density of such religious sites does not necessarily imply a large secular population in the area, the ringfort (DU022-027), c. 200m to the south of the study area, demonstrates at least some secular settlement in close proximity to the study area in this period. As such, there is a low to moderate potential for archaeological remains dating to this period within the study area.

Medieval

During the later part of the medieval period the southern slopes of the Dublin mountains became the outer edge of the area of Anglo-Norman settlement surrounding the city of Dublin – The Pale. The region became characterised by manorial farming settlements. While the land in which the study area lies changed hands a number of times during this period, it most likely formed an area of farmland with the main medieval settlements located at modern Oldbawn and Oldcourt, with a potential ecclesiastical settlement to the north in Kilininny townland. This evidence indicates that there is a moderate potential for post-twelfth century medieval remains within the study area.

Modern Period.

Early modern maps show no indication of a significant settlement within the study area. While the study area lay within lands owned by the prominent Loftus family, it appears that it was not developed and remained in use as farmland, with maps from as early as the mid seventeenth century showing no structures of note. Successive maps in the eighteenth and nineteenth century imply that the study area remained as enclosed farmland with field boundaries remaining static until the present day throughout most of the study area, with exception of lands at the western edge, which were developed with individual dwellings in the twentieth century. There is low potential for early modern archaeological features within the study area.

3.11.2. Potential archaeological features identified during analysis

The geophysical surveys carried out in the study area identified a number of features that may be archaeological in nature. These features can be grouped into three areas of archaeological potential. While there is low confidence in the data, these areas all have elevated archaeological potential.

Area of Archaeological potential 1

A cluster of potential archaeological features were identified in Field 8. While these features do not represent a clear pattern, they may be archaeological features damaged by later ploughing.

Area of Archaeological Potential 2

A potential circular archaeological feature (labelled feature 10) was identified in Field 10. This may represent a shallow or heavily ploughed out ring-ditch type feature c 18m in diameter.

Area of Archaeological Potential 3

A single potential archaeological feature was identified in Field 12, this may represent a small pit or similar feature. This feature falls outside of the planning boundary. However, the close proximity of this feature to an archaeological excavation which uncovered charcoal production pits (see section 14.5.4), means that this area is also considered an area of elevated archaeological potential, as further features may lie in the vicinity of the feature identified by geophysics.

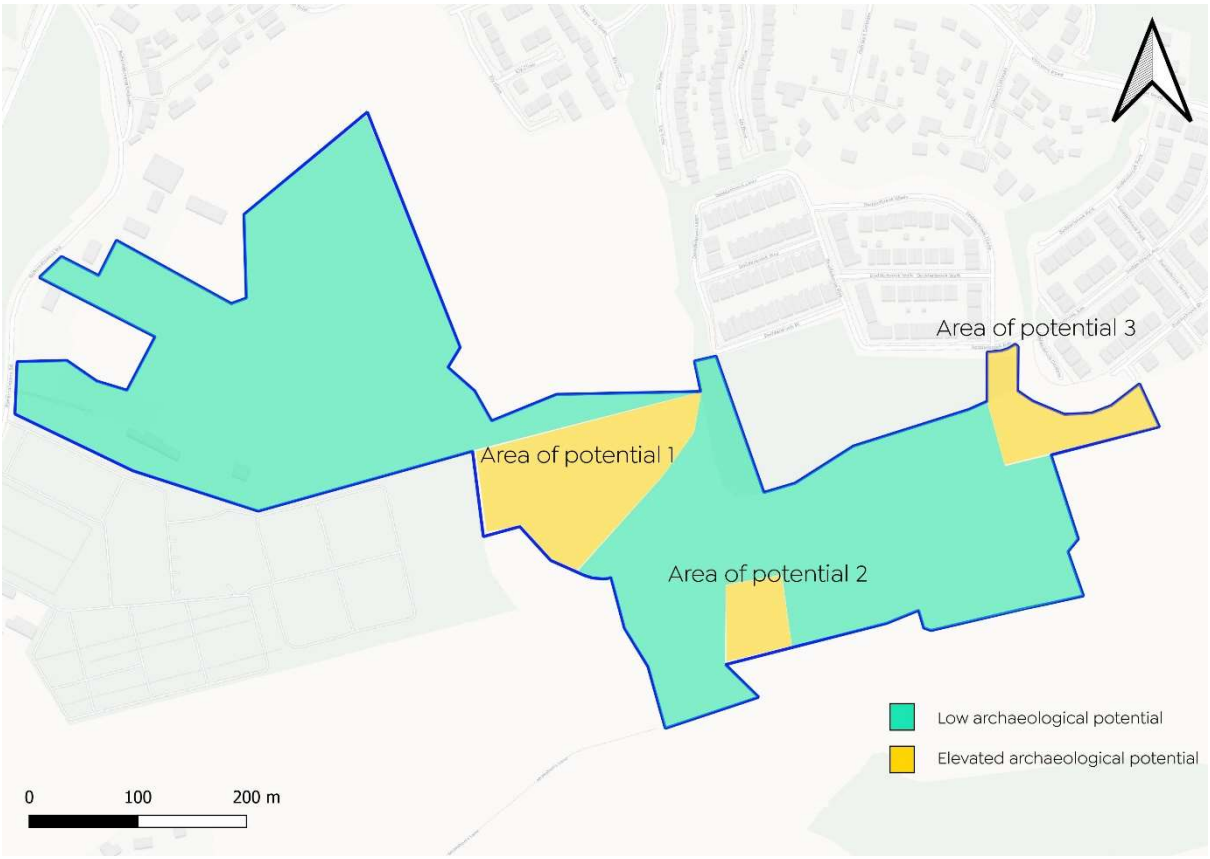


Figure 4 - Areas of archaeological potential with the study area

3.11.3. Potential Impact

This section provides a description of the specific, direct and indirect, impacts that the proposed development may have during both the construction and operational phases of the infrastructural elements of the proposed project. This is provided with reference to the characteristics of the receiving baseline environment and characteristics of the proposed development sections.

Impacts on Recorded Monuments and Protected Structures

The proposed development will not impact directly or indirectly upon any previously recorded site or monument listed in the RMP or the RPS. The closest Recorded Monument, a Ringfort (DU022-027), is c. 200m away.

Impacts on unknown/potential archaeological sites

The proposed development will have a profound, negative, and permanent impact on any previously unidentified subsurface archaeological features within the study area.

Construction Phase

The removal of topsoil, the digging of foundation trenches for proposed dwellings, the insertion of services and the movement of construction machinery across the proposed development area will have a profound, permanent, negative effect on potential subsurface archaeological features and/or deposits without the correct mitigation measures. With the correct mitigation measures, the proposed development can have a significant, positive effect for any potential archaeological features and/or deposits.

Operational Stage

As there are no known archaeological features within the proposed development, the Operational Stage of the residential development would have no impact on known archaeology. It is envisaged that any unknown potential archaeological features within the proposed development would not survive the Construction Stage, without appropriate mitigation measures.

3.11.4. Mitigation measures

This assessment has demonstrated that the study area is located in a rich archaeological landscape, with nearby archaeological monuments dating to prehistoric, Medieval, and Early Modern periods. Additionally, nearby excavations have discovered archaeological features which demonstrate continuous inhabitation of this area of the South Dublin uplands since the Neolithic period. Geophysical survey has identified three areas with potential archaeological features, however, there is low confidence in these interpretations. These features include one possible pit-type feature, as well as two areas of possible plough-damaged linear and curvilinear features. The features identified by geophysical survey do not substantial archaeological sites such as Early Medieval ringforts, ecclesiastical sites, or significant burial grounds. As such, pre-development testing of these features is not necessary.

As such, a programme of archaeological testing should be carried out targeting those area which have been identified by geophysical survey. This programme should aim to identify any subsurface archaeological remains and the horizontal extent of any such remains.

A report on the results of the testing programme should be submitted to the City Archaeologist and the National Monuments Service following the completion of the works. This recommendation is subject to the approval of the City Archaeologist and the National Monuments Service.

3.12. The Landscape

This LVIA was prepared by Mark Salisbury (Ba Hons, Dip LA, CMLI), Associate Director at Macro Works Ltd, a consultancy firm specialising in Landscape / Townscape and Visual Assessment and associated maps and graphics. Mark is a Chartered Landscape Architect with the Landscape Institute (UK) and has over 15 years of experience preparing TVIA reports for a broad range of development types including large-scale residential schemes.

This chapter presents the Landscape and Visual Impact Assessment (LVIA) in relation to the proposed Large-Scale Residential Development (LRD) (proposed development), on land at Oldcourt Road, Co. Dublin. It describes the landscape and visual context of the proposed development and outlines the landscape and visual effects of the proposals.

The purpose of an LVIA when written as part of an Environmental Impact Assessment Report (EIAR) is to identify the likely significant effects of the proposed development on physical elements of the landscape; landscape character; areas that have been designated for their scenic or landscape-related qualities; and views from various sensitive locations.

The assessment adopts a methodology that has been used in relation to numerous other similar schemes, and which is founded in the following best practice guidance documents:

- Landscape Institute and the Institute of Environmental Management and Assessment (IEMA) publication entitled Guidelines for Landscape and Visual Impact Assessment, 2013 (GLVIA3)[1];

[1] Landscape Institute and IEMA (2013). Guidelines for Landscape and Visual Impact Assessment: Third Edition. Routledge

- Environmental Protection Agency (EPA) publication 'Guidelines on the Information to be contained in Environmental Impact Statements[2]; and

- 'Photography and Photomontage in Landscape and Visual Impact Assessment', Landscape Institute Technical Guidance Note 06/2019[3].

NOTE: The LVIA should be read in conjunction with the Visually Verified Montages (VVM) submitted separately as part of the planning application, which illustrates how the proposed development would appear from a variety of locations in the surrounding landscape.

It is noted that Landscape and visual considerations have helped inform decisions on site layout, architectural design, and landscape design, to reduce the potential for significant effects, and so that the proposed development responds positively to its landscape and visual context.

The landscape and visual receptors identified in this study have been identified through extensive desk-based research, computer-generated visibility modelling, multiple site visits.

It is not warranted to include each and every location that provides a view towards the proposed development as this would result in an unwieldy report and make it extremely difficult to draw out the key impacts arising from the proposed development. Instead, the assessment of visual impacts is structured around a series of representative assessment viewpoint locations.

Viewpoints are illustrated in Figure 4 and detailed in Table 11. Descriptions of each viewpoint are provided later in the LVIA alongside a description of the visual receptors they represent.

Representative assessment viewpoints seek to reflect a range of different receptor types, distances and orientations, to help to inform the conclusions being made. Where views are precluded by built form and vegetation, they seek to demonstrate the absence of visibility. For this assessment, the viewpoints reflect and represent the relatively close proximity views that would be experienced from locations in the surrounding urban area, and then more elevated distant locations which help to demonstrate the influence of distance.

[2] Environmental Protection Agency (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports. EPA
[3] Landscape Institute (2019). Technical Guidance Note 06/19 'Visual representation of development proposals. Landscape Institute

VP No.	Location	View
1	View from footpath south of Ballycullen Green	East
2	View from Ballycullen Gate	East
3	View from Dodderbrook Drive	South
4	View from Dodderbrook Glade	South
5	View from corner of Dodderbrook Rise and Dodderbrook	South
6	View from Dodderbrook Lawn	South
7	View from Ely Close	South
8	View from Allenton Drive	South
9	View from junction of Allenton Avenue and Allenton Park	South
10	View from junction of Ellensborough Rise and Kiltipper	East
11	View from Ballymana Lane	North East
12	View from Bohernabreena Road at the entrance to the	North East
13	View from Bohernabreena Cemetery	North East
14	View from McMahon's Lane	North East
15	View from Conroy's lane	North
16	View from 'Forest Loop' trail, Hell Fire Club & Massy's Estate	North West

Table 11 - Outline Description of Selected Viewpoints

Figure 5 - Viewpoint Location Map

For each of the viewpoints, an existing (baseline) view is presented, together with an outline view, that shows the extent of the proposals that are potentially visible in the view, relative to any intervening screening elements. The Photomontages provide a 'photo-real' depiction of the scheme within the view.

3.12.1. Potential Landscape Impacts of the Proposed Development

The first aspect of assessing the impacts of the proposed development is determining the sensitivity of the landscape.

Receptor Sensitivity – Landscape

The site and study area comprise an extensively modified landscape setting influenced by the contrasts between the expansive urban townscape to the north, the intensive agricultural use of the land to the south, and the mountainous landscapes of the Dublin Mountains.

Although the descriptions of character outline the broader area of landscape to the south as having medium-high and high sensitivity, the site is located in a less elevated and more gently sloping part of this landscape adjacent to the existing urban edge and is influenced by development and activity associated with it.

By merit of its undeveloped state, the site currently forms a physical part of the wider agricultural foothill landscape, this foothill landscape being noted in terms of its contribution to the scenic values of the landscape. However, when compared to more elevated parts of the agricultural landscape, the site is strongly influenced by its proximity to the urban edge, and its contribution to the scenic value of the landscape is comparatively modest due to its comparative degree of visibility and close physical association with the wider urban context.

It is noted that the majority of the site is zoned 'RES-N', which establishes a strategic ambition for the development of the site for residential purposes. Whilst this zoning objective is not a specific reflection on the value or quality of the landscape, to some degree it is a reflection on the comparative capacity that this part of the landscape has to accommodate change of the type proposed.

On the balance of these factors and in accordance with the criteria outlined in the methodology, the landscape sensitivity of the site and its immediate landscape context is deemed to be Medium-Low.

3.12.2. Magnitude and Significance of Landscape Effects

3.12.2.1. Construction Stage

During the construction stage, there will be construction-related activity within and around the site, and nearby approach roads. This will include, but is not limited to:

- Site preparation works and groundwork operations;
- Intrusive foundation work including the installation of foundations and services;
- HGVs transporting materials to and from the site;
- Movement of heavy machinery on-site;
- Temporary storage of demolition debris/construction materials on-site;
- Security fencing/hoarding and site lighting.

During the construction phase, there will be a higher intensity of activity at the site than during the operational phase, and the most notable influence will be as a result of the intensity of movement, and clutter of temporary structures associated with the construction works. Whilst the physical impacts to the site's land cover will be permanent, and not readily reversible, the site forms part of the urban fringe of the wider Dublin urban area, which has been subject to ongoing construction projects and urban expansion.

Although there will be impacts on the character of the study area as a result of the intensity of movement and clutter of temporary structures associated with the construction works, these are 'short-term' in duration (i.e. lasting 1-7 years), consistent with adjacent sites, and of a familiar scale and nature within an expanding townscape setting such as this.

When considered in relation to the immediate landscape of the site and its nearby landscape context, the magnitude of change is deemed to be **High-Medium**. When combined with the Medium-Low sensitivity of the receiving landscape, the effects on landscape character at this localised level are considered to be **Moderate**.

The magnitude of change quickly reduces to Medium-Low with distance, where the influence of construction activity forms a small part of an expansive urban context. When considered at this scale, the magnitude of change is deemed to be **Medium-low**, resulting in effects that are no greater than **Moderate-Slight**.

Construction phase landscape effects are an inevitable consequence of a development proposal being brought forward and would be consistent with those that have occurred on nearby sites.

3.12.2.2. Operational Stage

In terms of physical landscape effects, the proposed development will inevitably require changes to the topography of the site, albeit changes would generally be consistent with the gradual rise in levels to the south, and would not exert any notable wider influence on landscape character.

The proposals will result in the disturbance of areas of existing grassland, and the loss/disturbance to areas of existing vegetation within and around the boundaries of the site. This loss/disturbance of existing vegetation is largely related to the need (through thinning and management works) to improve the character and quality of existing tree stock in relation to residential development, and to contribute to both the character of new residential areas and associated areas of open space. All losses should be considered alongside the improved character of existing vegetation and the extensive planting works proposed, which would reinforce the boundaries of the site, and provide characteristic vegetated linkages with vegetation in the wider landscape, that will ensure long-term successional character enhancement.

Following the completion of the proposed works, landscape impacts will relate entirely to the development's impact on the character of the receiving landscape and whether this is positive or negative.

The most notable impacts will result from the permanent presence of new dwelling houses and associated infrastructure and landscaping. This will add intensity of built development to this area of urban fringe when considered against its former agricultural use. However, the intensity of built development is moderated by the open space interspersed through the development and is consistent with the residential development along the existing urban edge. The scale and form of the building proposals are considered appropriate to both its adjoining urban setting and the underlying zoning objectives and have been considered in relation to the rising topography. The proposals are of high quality of design and finish and are integrated into its landscape setting through a considered landscape design. Existing vegetation within and bounding the site has been afforded substantive retention and would be enhanced by plentiful new planting which would generate a treed character to the urban edge, important in terms of its urban edge location and relationship with the rising agricultural slopes.

These considered measures will have a positive influence in terms of assimilating the development into its wider context.

The proposals represent a nature and scale of development that is appropriate to the urban edge location and is planned for through zoning objectives. On the basis of the factors discussed, when considered in relation to the immediate landscape of the site and its nearby landscape context, the magnitude of change is deemed to be **High-Medium**. When combined with the Medium-Low sensitivity of the receiving landscape, the effects on landscape character at this localised level are considered to be **Moderate**.

Effects of this order are an inevitable consequence at an immediate site level and are considered positive, by merit of the high-quality nature of the proposals, and the treatment of open space throughout the development. With increasing distance, the magnitude of impact will reduce, as the proposed development becomes a proportionally smaller component of the overall landscape, and presents as part of the wider urban area. When considered at this scale, the magnitude of change is deemed to be **Medium-low**, resulting in effects that are **Moderate-Slight**.

Whilst the development naturally contrasts the agrarian qualities of the wider landscape, it is consistent with the wider urban area and represents a planned extension of it. As vegetation becomes mature, it will assimilate the built form into the receiving landscape, and generate a more natural and gentle interface with the wider rising agricultural slopes more successfully. The quality of the operational stage effects is considered on balance to be **Positive**.

3.12.3. Potential Visual Impacts of the Proposed Development

The first aspect of assessing the impacts of the proposed development is determining the sensitivity of visual receptors.

Receptor Sensitivity – Visual

Visual receptor sensitivity considers factors such as the perceived quality and values associated with views, the landscape context of the viewer, the likely activity the viewer is engaged in and whether this heightens their awareness of the surrounding environment. It also considers the susceptibility of receptors to change and the value placed on views. In terms of visual receptor sensitivity, a distinction is made between those visual receptors in the urban parts of the study area and those in the more elevated and comparatively 'rural' parts of the study area.

In relation to the urban parts of the study area, key differentials in visual receptor sensitivity relate to whether the visual receptors are residential receptors, people travelling along the local road network, or those located within other parts of the surrounding townscape such as parks and open spaces. Irrespective of the visual receptor, views from these parts of the study area are heavily influenced by the extensive urban context associated with the wider Dublin suburbs, as well as associated urban infrastructure and large-scale overhead electrical infrastructure, that traverse the site and through the wider landscape. In these locations, visual receptors are also influenced by the visual (and audible) influence of traffic on the network of roads that pass through the urban area. In many locations, views are influenced by the pronounced upland areas to the south, where they form the backdrop to views of the urban area. When compared to more elevated parts of the landscape, the site (as part of the lower slopes at the urban fringe) is not readily visible or noticeable as a result of the combination of the site's elevation and the successional layers of vegetation. There are no important panoramic views present, and the townscape does not appear to be valued for its scenic qualities. Visual sensitivity is generally considered to range between **Medium-Low** and **Low**.

With regard to residential receptors along the boundaries of the site, to whom the development on the site will be visible, the site is not readily visible at present, and views are not informed by any particular quality or feature within the site or surrounding townscape. As such the value attached to views in the direction of the site is considered to relate primarily to views towards the upland landscape. Whilst residential receptors are considered to be more susceptible to changes in their views and visual amenity, and are located within close proximity, views and visual amenity are influenced by a wider varied townscape context. For these reasons, visual sensitivity is considered on balance to be **Medium**.

In relation to the more elevated locations to the south of the site, it is noted that these offer expansive panoramic views over the dynamic city context, and are influenced by a contrasting foreground of agricultural fields and comparatively rural land cover. Despite visual sensitivity being moderated by the expansive and varied urban context, the scenic value placed on these elevated views relates to the overwhelming sense of scale of the wider urban context and the striking nature of the view where longer-range views are limited in less elevated locations. Considering these factors, visual sensitivity is considered to be **Medium**.

Given the comparative elevation, and the presence of built form in the wider urban area to the north of the site, views from the urban area are generally limited to those available from edge locations. In this context, layers of vegetation and other elements in the intervening landscape act to restrict visibility such that it would generally only be seen partially and as part of a wider urban edge residential context. Whilst winter conditions may act to marginally increase visibility, given the density of the vegetation, any views would remain heavily filtered.

It is recognised that an important aspect of views from the urban area, is the backdrop of the Dublin Mountains and that the site forms part of the lower slopes in that regard. From the existing urban edge, whilst the proposed development would be visible (to varying degrees), it would not obscure views of the more elevated parts of the landscape, nor notably alter the character and composition of views which would remain strongly influenced by

them.

It is also acknowledged that the site would be visible from more remote and elevated parts of the landscape where it would be seen as part of the urban fringe in expansive views over the wider Dublin cityscape. Whilst the development would be visible it would not notably alter the character or composition of the views, which would remain strongly influenced by the foreground agricultural slopes, and expansive long-range views.

The nature of the change brought about by the proposed development is deemed to be modest, and consistent with the immediate urban context. Whilst the influence of urban development in views over a comparatively undeveloped part of the landscape is considered adverse, the development is considered to be consistent with the immediate urban context and would maintain a visual relationship with the elevated landscape. With maturity, planting would improve the density and character of the belt of intervening vegetation.

The most notable visual impacts occur in relation to visual receptors (residents) in the immediate urban area to whom the proposals will invariably result in an intensification of urban development in views. However, although potentially noticeable, the proposed development will only influence a small part of the view, and will not significantly influence the character or composition of views, or visual amenity in the context of this heavily modified urban edge environment in which many other comparable built features are present.

As a result, the proposed development is considered to have the potential to generate visual effects that are Moderate-slight only. These effects relate to the immediate locality of the site, beyond which effects would be no greater than Slight. Effects were generally identified as being of neutral quality. These tended towards negative in relation to adjoining residential receptors where the development would influence the immediate pastoral foothill context but tended towards positive in other locations where the development would contribute to a more rounded and less fragmented settlement edge, with a treed character that ties in more sympathetically with the remaining agricultural slopes.

3.12.4. Mitigation Measures

The proposed development forms an extension of the existing urban area and is considered to be comparable with other recently developed (and under construction) residential schemes in the locality. Given this context, beyond good residential development design, it is not considered that there are any notable design changes that would moderate effects further.

All mitigation relating to the layout and architectural character of the proposals have been embedded within the proposals as part of an iterative and consultative design approach, ensuring that careful consideration has been given to the receiving landscape. In this regard, the 'residual' effects will be no different to those described in the main body of the assessment.

3.12.4.1. Construction Phase

It is not considered that there are any additional mitigation measures required to reduce the anticipated construction phase landscape / visual effects over those that would be considered standard best practice construction management measures. It is anticipated that this may include aspects such as the timing of construction activities, which will be restricted in accordance with local authority guidance, and will likely be consistent with those enforced on nearby sites.

Effects during construction are an inevitable consequence of the development and are likely to be consistent with those enforced on nearby sites.

3.12.4.2. Operational Phase

Landscape and urban design measures are integral to the development proposals being assessed and will help to assimilate built form within its surrounding context in a general sense whilst contributing to the character and quality of the development.

Particular consideration has been made to the sloping nature of the site, with the development typology responding to more elevated parts of the site. The layout of the development has also sought to work with the framework of existing vegetation as far as practicable, augmenting this with additional planting. Whilst new planting is important to the character of the development, and will enhance the quality of the effects, it is not a case that its establishment will result in materially different impact judgements before and after landscape planting becomes established.

In this regard, other than those features and characteristics of the development proposals that have been embedded into the design of the scheme, there are no additional landscape and visual mitigation measures considered necessary in this instance.

4.0. Identification of Significant Impacts / Interactions

Chapter 16 of the EIAR (Volume II) provides detail on the interaction and interdependencies in the existing environment. Armstrong Fenton Associates Planning and Development Consultants, in preparing and co-ordinating this EIAR, ensured that each of the specialist consultants liaised with each other and dealt with the likely interactions between effects predicted as a result of the proposed development during the preparation of the proposals for the subject site and this ensures that mitigation measures are incorporated into the design process.

This approach is considered to meet with the requirements of Part X of the Planning and Development Act 2000, as amended, and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001 (as amended). The detail in relation to interactions between environmental factors is covered in each chapter of the EIAR.

All environmental factors are interlinked to a degree such that interrelationships exist on numerous levels. Interactions within the study area can be one-way interactions, two-way interactions and multiple-phase interactions which can be influenced by the proposed development. As this EIAR document has been prepared by a number of specialist consultants, an important aspect of the EIA process is to ensure that interactions between the various disciplines have been taken into consideration. This chapter of the EIAR was prepared by Tracy Armstrong BA, MRUP, MIPI, MRTPI, Managing Director of Armstrong Fenton Associates Planning and Development Consultants.

All of the potential significant effects of the proposed development and the measures proposed to mitigate them have been outlined in the preceding chapters of this EIAR. However, for any development with the potential for significant environmental effects, there is also the potential for interaction amongst these potential significant effects. The result of interactive effects may exacerbate the magnitude of the effects or ameliorate them, or have a neutral effect.

The purpose of this requirement of an EIAR is to draw attention to significant interaction and interrelationships in the existing environment. Armstrong Fenton Associates Planning and Development Consultants, in preparing and co-ordinating this EIAR ensured that each of the specialist consultants liaised with each other and dealt with the likely interactions between effects predicted as a result of the proposed development during the preparation of the proposals for the subject and ensuring that appropriate mitigation measures are incorporated into the design process.

Having regard to the approach taken, the aspects of the environment likely to be significantly affected by the proposed development, during both the construction and operational phases, have been considered in detail in the relevant Chapters of this EIAR document. In addition, likely interactions between one topic and another have been discussed, where relevant, by the relevant specialist consultant(s).

The primary interactions can be summarised as follows:

- Noise, air, waste, water and traffic with population and human health;
- Land and soils with traffic, water, resource management, noise, air and biodiversity;
- Water with biodiversity;
- Waste with biodiversity;
- Cultural heritage and the landscape and
- Air quality and climate and traffic.

The relevant consultants liaised with each other and the project architects, engineers and landscape architects where necessary to review the proposed scheme and incorporate suitable mitigation measures where necessary. As demonstrated throughout this EIAR, most inter-relationships are neutral in impact when the mitigation measures proposed are incorporated into the design, construction or operation of the proposed

development.

4.1. Other Impacts

4.1.1. Direct and Indirect Effects Resulting from the Use of Natural Resources

Schedule 6 Item 2 (c) of the Planning and Development Regulations, 2001(as amended) requires that an EIAR contains a description of the likely significant effects (including direct, indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative) of the proposed development on the environment resulting from the use of natural resources. No likely significant effects (including direct, indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative) of the proposed development on the environment are expected to arise from the use of natural resources.

4.1.2. Direct and Indirect Effects Resulting from Emission of Pollutants, Creation of Nuisances and Elimination of Waste

Schedule 6 Item 2 (c) of the Planning and Development Regulations, 2001 (as amended) requires that an EIAR contains a description of the likely significant effects (including direct, indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative) of the proposed development on the environment resulting from the emission of pollutants, the creation of nuisances and the elimination of waste. No likely significant effects on the environment are expected to arise from the emission of pollutants, the creation of nuisances or the elimination of waste.

4.2. Residual Impacts and Cumulative Impacts

Residual impacts can be defined as the final impacts that occur after proposed mitigation measures have taken effect. Many of the findings of the EIA have been incorporated into the design of the development and have contributed to the reduction or amelioration of potential impacts. Where residual impacts arise, they are detailed in the relevant chapters and further mitigation measures detailed where necessary.

Cumulative impacts are defined as: *"The addition of many small impacts to create one larger, more significant, impact"* (EPA 2002). Cumulatively, these impacts may be significant if they occur close together in terms of location and time. The cumulative impact of the proposed development is categorised as neutral and moderate.

As outlined in Chapter 3 of the EIAR, where relevant, the EIAR also takes account of other development(s) within the area. The proposed development has the potential for cumulative, secondary and indirect impacts particularly with respect to such topics as traffic which in many instances are often difficult to quantify due to complex inter-relationships. However, all cumulative, secondary and indirect impacts are unlikely to be significant and, where appropriate, have been fully addressed in the relevant specialist chapters of this EIAR.

To determine traffic impacts in Chapter 12, the traffic generated by the proposed development is combined with the baseline traffic generated by the traffic on the road network in the area. The potential traffic impacts from other developments were also considered in the assessment (e.g. residential developments - adjacent to the site to the south and east).

Each of the relevant specialists has considered the potential for cumulative impact in preparing their assessments. While there is the potential for negative impacts to occur during the construction stage of the scheme, with the implementation of the appropriate mitigation outlined in the EIAR, the residual cumulative impact is not considered to be significant.

4.3. Environmental Commitments and Mitigation Measures

Mitigation measures to be adopted during the construction and operational phases of the proposed development are detailed within each chapter. These measures should be implemented through planning conditions imposed by the Planning Authority / An Bord Pleanála, as appropriate/necessary.

Mitigation measures will be managed by the contractor(s) as part of the Construction Management Plan and by the developer/ landowners thereafter.

4.4. Conclusion

The EIAR (Volume II) has regard to and builds on the Strategic Environmental Assessment prepared during the preparation and adoption of the South Dublin County Development Plan 2022-2028.

The EIAR has considered the likely, significant, adverse effects of the proposed project on the receiving environment.

Mitigation measures are included, to avoid and / or reduce impacts on the environment where considered necessary. This includes mitigation measures incorporated into the design of the proposed development.

The EIAR concludes that there are no material or significant environmental issues arising which were not anticipated by the South Dublin County Development Plan 2022-2028 and considered in its Strategic Environmental Assessments.

5.0. Summary of EIA Mitigation and Monitoring Measures

Chapter 17 of the EIAR (Volume II) provides a summary of all the mitigation and monitoring measures proposed throughout the EIAR document for ease of reference for the Planning Authority and all other interested parties.