



**ARMSTRONG  
FENTON**  
ASSOCIATES

**PROJECT:** Strategic Housing Development

**Environmental Impact Assessment Report - Volume I**

**Non-Technical Summary**

for proposed development at  
Boherboy, Saggart, Co. Dublin.

**CLIENTS:** Durkan Estates Ireland Ltd and Kelland Homes Ltd

**DATE:** March 2022

**Planning &  
Development  
Consultants**



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## **1.0. Introduction**

### **1.1 Introduction & Methodology**

**1.1.1.** This Non-Technical Summary (hereafter NTS) relates to a strategic housing development (SHD) planning application for a proposed residential development of 655 no. dwellings and a creche and all associated site development and infrastructural works, on a site of circa 18.3 hectares, located at Boherboy, Saggart, Co. Dublin.

**1.1.2** 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 assess the likely significant effects of the project on the environment. This assessment will then inform the decision as to whether the development should be permitted to proceed.

**1.1.3** A full description of the proposed development lands together with a description of the proposed development is provided in Chapter 2 of the accompanying EIAR document. The subject site, of 18.3 hectares, is located on lands that are north of the Boherboy Road, east of the Corbally and Verschoyle residential estate and south of the Carrigmore residential estate. To the west are agricultural lands and single dwellings.

**1.1.4** The project is located adjacent to the developing areas of Saggart, Citywest and Fortunestown in west County Dublin and is within the lands subject to the Fortunestown Local Area Plan 2012 (hereafter LAP). The background to the development is that a wide area of residentially zoned lands across Fortunestown, Saggart, Citywest and Boherboy were identified for the preparation of a LAP by South Dublin County Council (hereafter SDCC) to guide the development of the area. The Fortunestown LAP 2012 was prepared in 2012 for c. 144 hectares of land. The LAP was accompanied by an Environmental Report, a Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) Screening Report. The LAP was adopted by the Elected Members of SDCC in May 2012 and has been extended until May 2022.

### **1.2 Proposed Development**

The following sets out the proposed development, as described in the public notices:

Kelland Homes Ltd and Durkan Estates Ireland Ltd are applying to An Bord Pleanála for permission for a strategic housing development at a site at Boherboy, Saggart, County Dublin. To the immediate north of the site is the Carrigmore residential estate, to the west are agricultural lands and a single dwelling, to the east is the Corbally residential estate while to the south is the Boherboy Road. The proposed application represents the development of the entire Boherboy Neighbourhood as identified in the Fortunestown Local Area Plan (2012).

The development will consist of 655 no. dwellings, comprised of 257 no. 2, 3 & 4 bed, 2 & 3 storey detached, semi-detached & terraced houses, 152 no. 1, 2 & 3 bed duplex units in 17 no. 2-3, 3-4 & 4 storey blocks, and 246 no. 1, 2 & 3 bed apartments in 9 no. buildings ranging in height from 2, 2-5, 4-5 & 5 storeys, and a 2 storey crèche (693m<sup>2</sup>).

Access to the development will be via one no. vehicular access point from the Boherboy Road, along with proposed upgrade works to Boherboy Road to include the provision of a roadside footpath along the front of the site at the Boherboy Road, continuing eastwards to the junction with the N81 Blessington Road (for an overall distance of c.370m). The proposed development also provides for pedestrian and cyclist connectivity





to the adjoining Carrigmore Park to the north-east, and vehicular, pedestrian and cyclist connections to adjoining developments at Corbally Heath to the east and Carrigmore Green to the north.

The proposed development provides for (i) all associated site development works above and below ground, including surface water attenuation & an underground foul sewerage pumping station at the northern end of the site, (ii) public open spaces (c. 3Ha), including alongside the Corbally Stream, which will accommodate the provision of pedestrian / cyclist links to Carrigmore Park to the north-east, (iii) communal open spaces (c. 6,392m<sup>2</sup>), (iv) hard and soft landscaping and boundary treatments, (v) undercroft, basement & surface car parking (914 no. car parking spaces, including EV parking), (vi) bicycle parking (797 no. bicycle parking spaces), (vii) bin & bicycle storage, (viii) public lighting, and (ix), plant (M&E), utility services & 5 no. ESB sub-stations, all on an overall application site area of 18.3ha. In accordance with the Fortunestown Local Area Plan (2012) an area of approx. 1.42Ha within the site is reserved as a future school site.

### **1.3 Purpose of this EIAR**

The objective of this EIAR is 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.

### **1.4 Information to be contained in a non-technical summary**

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

### **EIA Process Overview**

One of the main purposes 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 and also with An Bord Pleanála (at SDH pre-application stage) 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 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.

## 1.5 Format and Structure of the EIAR

### 1.5.1 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 (EIAR)
- Volume III: EIAR Appendices

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 this EIAR document 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:

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

**Table 1.1: EIAR Methodology Outline**

## **1.6 Availability of EIAR Document**

A copy of the EIAR document and Non-Technical Summary of the EIAR document is available for purchase at the offices of An Bord Pleanála and 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 SHD website – [www.boherboy-shd.ie](http://www.boherboy-shd.ie). set up by the applicant.

## **1.7 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.

## **1.8 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.



## 1.9 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 1.3 of Volume II of the EIAR.

## 2.0 Description of Project and Alternatives

### 2.1. Information on the site location, design and size of the proposed development

The lands are situated in the south west corner of the Fortunestown LAP plan area, with the application site area measuring approximately 18.3Ha. The lands are located south of the existing Carrigmore estate, west of the existing Corbally / Verschoyle estate and north of the Boherboy Road. To the west of the site lies greenfield land zoned OS – *To preserve and provide for open space and recreational amenities* in the SDDC Development Plan 2016 -2022.

The subject site slopes from a south to north and is currently undeveloped, greenfield land, being used for agriculture. The lands have a long planning history, with the eastern portion (i.e. Kelland Homes Ltd lands) having been zoned for residential land use since the adoption of the 1998 South Dublin County Development Plan and the adjoining portion to the west (i.e. Durkan New Estates Ireland Ltd land) being zoned for residential land use in the subsequent 2004 Development Plan. While the lands were zoned for residential development in 1998 and 2004 respectively, the aforementioned Development Plans required the preparation of a Local Area Plan, however, this did not occur until the adoption of the 2012 Fortunestown Local Area Plan, which remains the relevant LAP in place.

The subject site represents the development of the entire Boherboy Neighbourhood within the Fortunestown Local Area Plan (2012) and is divided by a ditch running from north to south. The lands are in dual ownership with the western portion of the lands are owned by Durkan Estates Ireland Ltd. representing c. 8Ha of the site while to the east Kelland Homes Ltd. owns 9.6Hha of land. It the applicants' intention to provide for a coordinated approach to the development of these lands, in line with proper planning principles, hence the joint application for permission.

The main access roads to the lands is from the N81 Tallaght by-pass and then the Boherboy Road to Saggart which runs along the southern boundary of the site and from which the proposed development will be directly accessed. The subject site is also located close to the Red Luas line with the Fortunestown Luas Stop located to the north-east of the site.

The project in question is a residential development consisting of 655 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 consists of two adjoining sites to be developed by (a) Kelland Homes Ltd. for 369 no. dwellings and a crèche on the eastern side, bounded by the Corbally Stream and (b) by Durkan Estates Ireland Ltd. for 286 dwellings on the western side.

In accordance with the requirements for the Fortunestown LAP, a linear park (along with the eastern boundary of the site, abutting Corbally Stream) will be developed as part of the first phase of development in tandem with the permission. This linear park will accommodate pedestrian and cyclist access to the District Park to the north which connects to Fortunestown Centre, Citywest Shopping Centre and the Fortunestown Luas passenger stop. The site layout plan accommodates the central hedgerow, while open spaces are provided throughout, all of which contribute to the green infrastructure of the area. by being lined footpaths and cycle



routes. Approximately, 16% of the site area is being provided as open space.

There are existing wayleaves traversing the site which will not be impacted upon by the proposed development. The Fortunestown LAP identifies a school site in the north-western part of the site. To this end, approx. 1.4ha of land is reserved for the provision of a school in the future, should the Department of Education and Skills require same.



**Fig. 2.1 – Proposed Site Layout Plan**





## 2.2 Proposed Development

Permission is sought for the demolition of the existing agricultural outbuildings on site (996m<sup>2</sup>).

In summary, the proposed development comprises the construction of 655 no. dwellings comprised of 257 no. 2 & 3 storey houses, 152 no. 1, 2 & 3 bed duplex units in 17 no. 2-3, 3-4 & 4 storey blocks, and 246 no. 1, 2 & 3 bed apartments in 9 no. buildings ranging in height from 2, 2-5, 4-5 & 5 storeys.

Dwelling Type	1 bed	2 bed	3 bed	4 bed	Total	Percentage %
Houses	0	8	168	81	257	39%
Apartments	62	177	7	0	246	38%
Duplex	4	72	76	0	152	23%
Total	66	257	251	81	655	100%
Percentage %	10%	39%	39%	12%	100%	-

Table 2.1 – Overall Residential Development Mix

A wide variety of dwelling typologies are included in the proposal all dispersed throughout the proposed development.

There are nine character areas dispersed throughout the entire site, each with its own distinct design material palette. A variety of units types and building heights are also dispersed throughout the entire layout to create variety and distinctiveness throughout.

## 2.3 Non-Residential Development

The development proposal includes for a stand alone creche facility measuring c. 693m<sup>2</sup> located south of Street 07, north of Street 12, with associated external play area of 368m<sup>2</sup> and 16 no. dedicated car parking spaces.

## 2.4 Access

The proposed development provides for the necessary upgrades to the Boherboy Road whereby the applicants propose to provide for a new public footpath (with associated site development works, public lighting etc.) along the northern side of the Boherboy Road, eastwards to the junction with the N81, from Chainage 750 to Chainage 1120, i.e. for a length of c.370m, while to the west of the subject site, proposed works to the Boherboy Road will consist of the provision of public lighting only. South Dublin County Council and Kerasoun Ltd, as the relevant stakeholders with regard to the proposed upgrade works to the Boherboy Road, have consented to the applicants to propose as part of this SHD planning application, the aforementioned upgrade works to Boherboy Road.



It is also proposed to connect the subject development into the adjoining residential development at Carrigmore to the north. Significant consultation has been undertaken with the Planning Authority with regard to the delivery of these connections. South Dublin County Council (SDCC) has completed the Taking-In-Charge (TIC) process of Carrigmore to the north and as such, it is proposed to provide vehicular, pedestrian and cyclist connections from the subject site into Carrigmore.

To the immediate east, the internal road network at Corbally is in the charge of SDCC, however, at the western end of Corbally Heath, there is a parcel of land in the ownership of a third party i.e. Kerasoun Ltd, and we enclose a letter of consent from them, consenting to the applicants proposing a vehicular connection from the subject site into Corbally Heath via their lands.

The proposed vehicular connections to Carrigmore and Corbally will provide for bridges over the Corbally Stream that runs in a north-south direction along the entire eastern boundary of the site and moves westwards along the northern boundary of the site. Detailed designs of the proposed connections including bridging details are submitted as part of the application and the impacts of same in terms of ecology/biodiversity are set out in Chapter 4 of the EIAR. In addition, section 3.6.2 of the submitted Traffic and Transport Assessment (TTA) sets out details of proposed stream crossings with respect to flooding.

The submitted Site Specific Flood Risk Assessment (hereafter SSFRA) and (section 5.5 of same) also assesses the impacts of flooding on the proposed stream crossings. The proposed development includes four stream crossings at the locations shown on Fig.5.7 of the SSFRA. A preliminary design for each structure has been carried out in accordance with OPW requirements. Soffit levels are at least 500mm above the 1% AEP level at all crossings and so comfortably exceed OPW requirements. Two of the crossings are vehicular and crossing levels are constrained by the requirement to tie-in to existing road levels. OPW Section 50 consent have been obtained for these crossings; a copy of the consents is included in Appendix E of the submitted SSFRA.

It should be noted that the proposed vehicular connections to Carrigmore and Corbally respectively are in accordance with roads objectives set out in both the Fortunestown LAP 2012 and the South Dublin County Development Plan 2016-2022, as illustrated in Fig. 2.2:



Fig. 2.2 – Extract from Fig. 5.3 Accessibility & Movement Framework of the 2012 Fortunestown LAP







## 2.5 Construction Management

A Construction & Demolition Resource Waste Management Plan (CDRWMP) has been prepared for the proposed development and accompanies the planning application. Certain assumptions are made in the CDWMP based on the information available at this time and, for the avoidance of doubt, it is not proposed or intended that the applicant / contractor(s) are bound by these proposals which may change depending on the timing and circumstances pertaining at the time of construction.

On receipt of a grant of planning and prior to the commencement of works, a detailed final 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. An Outline CMP has been prepared for the proposed project and is included with the planning application documentation. In addition, a Residential Travel Plan (RTP) has also been prepared and is also included as part of this application. Certain assumptions are made in both the Outline CMP and RTP based on the information available at this time and, for the avoidance of doubt, it is not proposed or intended that the applicant / contractor(s) are bound by these proposals which may change depending on the timing and circumstances pertaining at the time of construction. It is likely that the applicants will set up a temporary site compound on the designated school site and upon completion of the proposed development, the site will be seeded and grassed until such time as the Department of Education and Skills confirms their position regarding the delivery of a school on the reserved site.

A Construction Traffic Management Plan has been prepared by Pinnacle Consulting Engineers which addresses traffic management, dust control, road cleaning, and staff parking associated with the construction works, and is submitted as part of this SHD planning application.

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

## 2.6 Construction Programme / Phasing

It is estimated that construction of the development will take approximately five years to complete. A phasing plan also accompanies the planning application – please refer to the submitted drawing PL07 “Site Layout Plan – Phasing” which illustrates the phasing of the overall development, and Fig. 2.3 over. 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.

**Phase 1:** will commence at the southern end of the site delivering:

- (i) the vehicular access from Boherboy Road & associated upgrade to Boherboy Road;
- (ii) the central square of public open space;
- (iii) pumping station and associated site development works, including north-south central avenue and associated flood relief works;
- (iv) the “Riverside Park” including connections to Carrigmore Park to the northwest, all along the eastern boundary of the site;
- (v) vehicular connection to Carrigmore to the north and
- (vi) approximately 281 no. dwellings.



The proposed 281 no. dwellings to be delivered in Phase 1 are comprised of:

- 151 no. 2, 3 and 4 bed houses;
- 110 no. 1, 2 and 3 bed duplex units;
- 20 no. 1 and 2 bed apartments.

**Phase 2:** will consist of the completion of the proposed residential accommodation north of Streets 2 and 10, moving northwards to and including Streets 3 and 7. This will provide for:

- (i) 173 no. dwellings,
- (ii) associated open spaces;
- (iii) vehicular connection to Corbally and
- (iv) the crèche.

The proposed 173 no. dwellings to be delivered in Phase 2 are comprised of:








- 25 no. apartments in Blocks B & Y6;
- 42 no. 2 & 3 bed duplex units in Blocks D, E, J, K, K1 & L;
- 106 no. 3 & 4 bed houses.

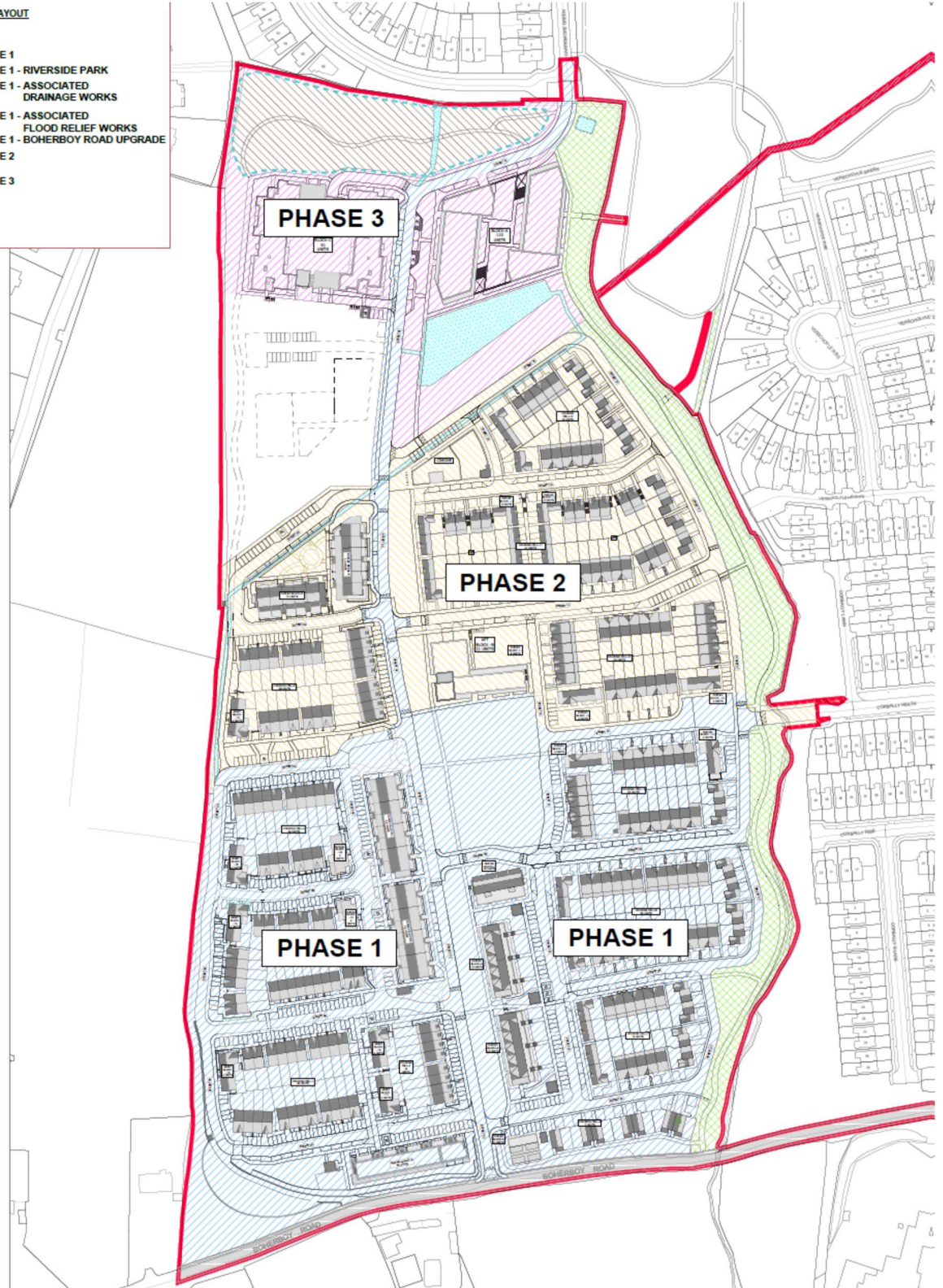
**Phase 3:** will be the final phase and will deliver:

- (i) the 201 no. apartments in Blocks A and C;
- (ii) adjoining open spaces.



**PHASING LAYOUT**

-  PHASE 1
-  PHASE 1 - RIVERSIDE PARK
-  PHASE 1 - ASSOCIATED DRAINAGE WORKS
-  PHASE 1 - ASSOCIATED FLOOD RELIEF WORKS
-  PHASE 1 - BOHERBOY ROAD UPGRADE
-  PHASE 2
-  PHASE 3



**Fig. 2.3 – Proposed Phasing**



## **2.7 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.

Typically, construction will commence at 07.00 to 19.00 Mondays to Fridays inclusive, between 09.00 to 13.00 on Saturdays and not at all 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 Construction & Demolition Waste Management Plan which accompanies the application with regard to re-use, recovery, recycle and disposal of waste produced during construction. Chapter 11 of the EIAR, Material Assets: Resource and Waste Management, also considered the re-use recovery, recycle and disposal of waste arising from the development.

## **2.8 Direct and Indirect Effects Resulting from Use of Natural Resources**

Details of significant direct and indirect effects arising from the proposed development are outlined in Chapters 4-13 which deal with '*Aspects of the Environment Considered*'. No significant adverse impact is predicted to arise from the use of natural resources.

## **2.9 Direct and Indirect Effects Resulting from Emission of Pollutants, Creation of Nuisances and Elimination of Waste**

Details of emissions arising from the development together with any direct and indirect effects resulting from same have been comprehensively assessed and are outlined, where relevant, in the relevant in Chapters 4-13 which deal with '*Aspects of the Environment Considered*'. There will be no significant direct or indirect effects arising from these sources.

## **2.10 Forecasting Methods Used for Environmental Effects**

The methods employed to forecast and the evidence used to identify the significant effects on the various aspects of the environment are standard techniques used by each of the particular individual disciplines. The general format followed was to identify the receiving environment, to add to that a projection of the "*loading*" placed on the various aspects of the environment by the development, to put forward amelioration measures, to lessen or remove an impact and thereby arrive at net predicted impact.

Where specific methodologies are employed for various sections they are referred to in the Receiving Environment (Baseline Scenario) sections in the EIAR. Some of the more detailed/specialised information sources and methodologies for a number of the environmental assessments are outlined hereunder.



## 2.11 Transboundary Impacts

Large-scale transboundary projects<sup>1</sup> are defined as projects which are implemented in at least two Member States or having at least two Parties of Origin, and which are likely to cause significant effects on the environment or significant adverse transboundary impact.

Having regard to the nature and extent of the proposed development, which comprises a residential development, located in the townland of Boherboy to the east of Saggart, within the administrative area of South Dublin County, transboundary impacts on the environment are not considered relevant, in this regard.

## 2.12 Alternatives Examined

Chapter 2 of the EIAR (Volume II) also 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.

## 2.13 Alternative Design & Layouts

The development proposal is put forward with the consent of the landowners (the Applicants) and as such, the development process has seen the applicants 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 development proposal has been guided by the pre-planning guidance from both the Planning Authority and the applicant's design team, as well as feedback received from An Bord Pleanála at the pre-application consultation stage, and taking cognisance of the Board's Opinion issued under Ref. ABP-308352-20.

The proposed residential development has been prepared in accordance with the requirements of the National Planning Framework, the Regional Spatial and Economic Strategy for the Eastern and Midland Region as well as the relevant Section 28 Guidelines including *inter alia* those relating to Urban Development and Urban Heights 2018, the Apartment Guidelines 2018 and the Sustainable Residential Development in Urban Areas (2009) as well as, where relevant, the South Dublin County Development Plan 2016-2022 and the Fortunestown Local Area Plan 2012 (hereafter LAP) and has been the subject of a number of pre-application meetings with the Planning Authority prior to lodgement of the SHD application with An Bord Pleanála.

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<sup>1</sup> The definition is based on Articles 2(1) and 4 of the EIA Directive and Article 2(3) and (5) of the Espoo Convention, respectively. <http://ec.europa.eu/environment/eia/pdf/Transboundry%20EIA%20Guide.pdf>



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 design process, having taken into consideration the discussions held with the Planning Authority, South Dublin County Council (hereafter SDCC), individual consultants who inform the chapters of the EIAR, and the feedback received from An Bord Pleanála at the Pre-Application Consultation, has resulted in the layout now put forward for permission, which is illustrated in Fig. 2.1 above. It is considered that this layout represents the best utilization of these zoned lands, complies with the objectives for the lands contained in the LAP and mitigates against significant environmental impacts.

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

- Comply with the land-use zoning designation for the subject site;
- Provide appropriate accommodation which can cater for different life stages by delivering houses, apartments and duplex units in a mix of 1, 2, 3 and 4 bedroom dwelling units;
- Provide an appropriate density of development, which varies across the site;
- Comply with the Planning Authority's quantitative standards for residential development as set out in the existing SDCC Development Plan and, where appropriate, Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (2018);
- Provide a level of social housing with equates to 20% of the overall quantum of proposed dwellings;
- Deliver the requisite vehicular connections to Corbally to the east and Carrigmore to the north, as well as the necessary upgrade to the Boherboy Road;
- Support sustainable transport modes via the creation of pedestrian and cycle connections to Carrigmore Park to the north-east, and beyond to the Luas stop at Fortunestown and the Citywest Shopping Centre;
- Deliver a childcare facility;
- Contributing to the green infrastructure network of the area through the creation of the "Riverside ark" along the entire eastern boundary of the site;
- Preserve, where feasible, the natural amenity characteristics of the site, and provide for new features where necessary in order 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.





### **2.13.1 Final Layout Alternative**

With regard to the layout put forward for permission, the iterative process included alternative site layouts that were considered with the objective of submitting an overall high-quality designed scheme which has undergone a robust consideration of relevant alternatives in reference to the comparison of environmental effects and meets the requirements of the EIA Directive, based on the multidisciplinary review across all environmental topics.

The final design now put forward for permission presents the most effective utilization of this significant site whilst also fulfilling the objectives of the Planning Authority and providing for long term, sustainable housing for which there is a considerable demand at present and providing for a use of material, architectural form and colour to create a high level of visual amenity.

### **An Bord Pleanála Opinion**

During the course of the pre-application tri-partite meeting with the Board, and within the Opinion of the Board, which was issued thereafter, details were set out regarding the specific information to be included as part of a SHD planning application, including details on density, a design report/rationale, details on the extent of works proposed to the Boherboy Road, cross sections, plans and details regarding connectivity and permeability within and through the site, details on the extent of cut and fill required to accommodate the proposed development, DMURS statement of compliance, housing quality assessment, building life cycle report, details on phasing, a draft Construction Management Plan, a draft Waste Management Plan and a Material Contravention Statement where necessary.

Following the receipt of detailed feedback from An Bord Pleanála during the course of the pre-application meeting, and receipt of the opinion of the Board, the applicants and design team undertook a number of revisions to the development proposal which is reflected within the final development proposal submitted for permission as part of a SHD planning application.

As noted within the development description sections of this chapter, the scheme now comprises a quantum of residential development consisting of 655 no. dwellings.

The key changes proposed related to:

- Increasing the density of residential development in the southern half of the site;
- Changes to the mix of dwelling types;
- Greater enclosure of streets through the location of buildings.

Responses to each of these items have been provided as part of the SHD planning application pack, and the scheme has been updated and improved where necessary as a result.

The overall development strategy is to divide the site up into a series of precincts determined by the natural topography and features of the site. Each precinct will have a distinctive character defined in some cases by the topography and open space network and in other cases by the density.

Based upon the feedback at pre-planning stages, as well as the planning history attached to the site, the layout now put forward for permission evolved from the earlier iterations and is based upon the need to achieve a net density of development that complied with the guidance set out in the 2009 Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas and to comply with the urban design guidance set out in its accompanying Urban Design Manual Best Practice. The need to provide connectivity to adjoining lands, provide variety in housing typology, create distinctives within the scheme,



have regard to the topography of the site and create definition and a sense of enclosure around the central park

Thorough consideration was given to how the proposed layout integrates with the existing boundary conditions and neighbouring context in terms of height, density and connectivity. In terms of density, it was decided to locate the greatest density in closest proximity to public transport infrastructure and as such, the apartments proposed in this development are predominantly situated to the north of the site, 600m from the Fortunestown Luas stop.

Density on the site is also stratified from predominantly duplex and apartment style development along the central link street and down to lower density housing at the eastern and western edges. The duplex and apartment accommodation located along the central link street and central park have been designed as higher density 3 and 4 storey elements reflecting the status of the connecting nature of this primary north south boulevard. The eastern and western boundaries are characterised by a lower density comprising of mostly 2 and 3 storey semi-detached and terraced houses responding to the character of the existing developments that surrounds the site.

The greatest scale proposed is situated to the extreme north of the site. This is the lowest point of the site, some 25m lower than the Boherboy Road to the south. It is considered appropriate that the tallest buildings be located here to avoid obscuring views of the Dublin mountains to the south of the site, and also on account of proximity to public transport infrastructure.

The layout and orientation of the scheme has respected topography, aspect and views to ensure dwellings, their private gardens and areas of public open space achieve excellent sunlight penetration throughout the day. Generally most of the homes have been orientated north-south ensuring they enjoy east-west light throughout the day.

The proposal incorporates objectives from the Fortunestown LAP 2012 into the design proposal, including the provision of essential pedestrian, cycle and vehicular links connecting the Boherboy Road with the existing Carrigmore residential estate to the north and Carrigmore Park to the north-east, via the proposed central avenue through the scheme and the proposed "Riverside Park" along the eastern boundary of the site. The layout provides for a straight forward, easily accessible and easily navigable network of places.

The open spaces and street networks are overlooked by surrounding buildings maximising passive surveillance of the public realm. Blank gables and long runs of screen wall have been avoided and the use of dual frontage units with gable entry on corners reinforce the active street frontage strategy employed throughout.

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 design process, having taken into consideration the discussions held with SDCC, individual consultants who inform the chapter of this EIAR, and the feedback received from An Bord Pleanála at the Pre-Application Consultations, has resulted in the layout now put forward for permission. It is considered that this layout represents the best utilization of these zoned lands, complies with the objectives for the lands contained in the CDP and LAP and mitigates against significant environmental impacts.





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

- Comply with the land-use zoning designation for the subject site;
- Provide appropriate accommodation which can cater for different life stages by delivering a variety of 1, 2, 3 & 4 bedroom housing typologies;
- Provide an appropriate density of development;
- Comply with the Planning Authority's detailed quantitative standards for residential development as set out in the existing SDCC CDP and, where appropriate, Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (2020);
- Provide a level of social and affordable housing (133 no. units) with equates to 20% of the overall quantum of proposed dwellings;
- Support sustainable transport modes via the creation of pedestrian and cycle connections;
- The proposed development also provides a creche (693m<sup>2</sup>);
- Protect the existing residential amenity enjoyed by the residents of neighbouring developments;
- Preserve, where feasible, the natural amenity characteristics of the site, and provide for new features where necessary in order 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 Plan for this proposed development.

## 2.14 The “Do Nothing” Scenario

The “Do Nothing” Scenario describes the impacts of the proposed development, if it were not carried out. The positive benefits to the national, regional and local community arising from the development of this site would not materialise in the “Do Nothing” scenario. In addition, the “Do Nothing” scenario would result in non-compliance with the NPF which contains the following relevant objectives:

- **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.

This alternative is therefore not attractive with the site possibly remaining occupied by a tenant in the large industrial type building and associated yard on site.



## **3.0 Non-Technical Summary of EIAR Chapters**

### **3.1 Population and Human Health**

This chapter of the EIAR, prepared by Armstrong Fenton Associates, Planning Consultants, relates primarily to 'Human Beings' - the potential impacts of the development proposal on human beings, population, and human health within the vicinity of the application site and an assessment of these issues.

One of the principle 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**

The construction phase of the proposed development is likely to result in a positive net improvement in economic activity in the area of the proposed development site, particularly in the construction sector and in associated and secondary building services industries. The sector has grown strongly in recent years and this development will help to further enhance growth and reduce the increasing pressure on the housing market.

Construction of the proposed development will last for approximately five years. During this time, the proposed development will cause a certain amount of loss of amenity, disruption and inconvenience to local residents, particularly the residents close to the boundaries of the site at Corbally and Carrigmore and users of Carrigmore Park to the north-east.

These impacts will be related to construction traffic (particularly HGVs) and travel disruption and also to the generation of noise and dust which is generally associated with the construction of such infrastructural projects. These issues are considered elsewhere in the EIAR (Volume II) and mitigation measures identified. In particular, the access constraints arising in respect of receptors are considered in Chapter 10 - Materials Assets: Transportation and impacts arising from the generation of noise and dust are considered in Chapter 8 – Noise and Chapter 7 – Air and Climate respectively. The visual impacts of the development are considered in Chapter 13 – The Landscape.

The overall impacts associated with the construction phase are temporary/short term and moderate.

Impacts on the visual amenity of the surrounding area are fully addressed in Chapter 13 Landscape of the EIAR. During the Construction Phase, general construction, disturbance and site development has the potential to result in significant temporary and short-term negative landscape and visual impact on the surrounding areas.

The Construction Phase will result in an element of noise, mobility of heavy vehicles, dust and the arrival and departure of construction workers into the area. This impact will be negative, short-term, significant and localised.

During the Operational Phase of the proposed development, the demographic profile will change with additional people moving into the locality. The changing demographic profile during the Operational Phase of the proposed development is likely to ensure a balanced age profile within the local area. Projected residential population from the proposed development will be approximately 2,096 persons. This is based on the average number of persons per household 3.2 persons, which is the average household size in the Study Area in 2016.



The impact on population is considered to be permanent but slight, and appropriate to the land-use zoning designation for the site, and the Core Strategy of the Development Plan.

All of existing local amenities will remain in place during the Operational Phase of the proposed development. Furthermore, the potential viability of these amenities going forward will be strengthened from the increased population of the area. The population increase will result in a greater demand for community and outdoor facilities in the study area. The CDP's zoning of the subject site has made provision for the development of new community facilities and requires for a detailed land use and function strategy, which sees the Applicants providing for a purpose built childcare facility on the subject lands.

Therefore, the effects on community and amenities is deemed to be slightly positive or neutral in the long-term.

During the Operational Phase, the proposed development will have a slight, positive long-term impact. The proposed development will result in the creation of jobs associated with the proposed childcare facility, permanent apartment building management jobs. Other associated jobs such as gardening and window cleaning, with spin-off economic activity created for local retail and service providers.

The proposed development is designed to seamlessly integrate into the surrounding urban context. A Daylight & Sunlight Analysis, prepared by Digital Dimensions, demonstrates that the proposed heights will not negatively impact the amenity areas of the development. Therefore, during the Operational Phase, the landscape or visual impacts arising from the proposed development will be not significant from these areas. Chapter 13 of the EIAR examines the landscape visual impact of the proposed development in detail.

### **3.1.2 Mitigation**

The implementation of the range of remedial and mitigation measures included throughout this EIAR document is expected to have the impact of limiting any adverse significant and likely environmental impacts of the operational phase of the proposed development on population and human health.

Overall, subject to adherence to best practice and implementation of appropriate mitigation measures detailed in this EIAR, the overall temporary impacts associated with the construction phase (noise, dust, visual, traffic disruption) are considered to represent a slight / moderate negative impact for the population. In order to avoid and / or reduce impacts on the adjoining residents, a CMP will be put in place prior to the commencement of development.

## **3.2 Biodiversity**

This chapter was prepared by Síofra Quigley of Scott Cawley Ltd and provides an assessment of the potential ecological effects of the proposed development. A separate stand-alone Appropriate Assessment (AA) Screening Report is 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 Natura 2000 sites. This assessment is carried out by the competent authority, in this case An Bord Pleanála.

The aim of this chapter is to:

- Establish and evaluate the baseline ecological environment, as relevant to the proposed development;
- Identify, describe and assess all potentially significant ecological effects associated with the proposed development;



- Set out the mitigation measures required to address any potentially significant ecological effects and ensure compliance with relevant nature conservation legislation;
- Provide an assessment of the significance of any residual ecological effects;
- Identify any appropriate compensation, enhancement or post-construction monitoring requirements.

### 3.2.1 Methodology & Field Surveys

A desk study was undertaken in June 2021 to collate available information on the local ecological environment.

Ecological field surveys were carried out following the best practice professional guidelines in February, March, June and July 2020, and in February, March, May and June 2021.

Winter bird surveys were carried out on the 25<sup>th</sup> February 2020 by Caroline Kelly BSc (Hons) MSc, and on the 19<sup>th</sup> and 23<sup>rd</sup> March 2020, 17<sup>th</sup> February and 18<sup>th</sup> March 2021 by Shane Brien BSc (Hons), both of Scott Cawley Ltd. Habitat and flora surveys, terrestrial fauna surveys, and ground-level assessments of trees and structures for potential bat roost features were undertaken on the 29<sup>th</sup> June 2020 by Siofra Quigley BSc (Hons) MSc of Scott Cawley Ltd. Update mammal and habitat surveys were undertaken by Siofra Quigley and Shane Brien on the 1<sup>st</sup> March 2021. Breeding bird surveys were undertaken on the 15<sup>th</sup> and 26<sup>th</sup> June 2020 by Brian Porter, an independent ornithologist, and on the 27<sup>th</sup> May and 18<sup>th</sup> June 2021 by Siofra Quigley of Scott Cawley Ltd.

Bat surveys were undertaken on the 25<sup>th</sup> June 2020 by Niall McHugh BSc (Hons) MSc of Scott Cawley and on the 9<sup>th</sup> July 2020 by Kevin Delahunty BSc (Hons) MSc, an independent bat surveyor.

A habitat survey was undertaken of the proposed development site following the methodology described in *Best Practice Guidance for Habitat Survey and Mapping*<sup>2</sup> on the 29<sup>th</sup> June 2020 and the 1<sup>st</sup> March 2021. All habitat types were classified using the *Guide to Habitats in Ireland*<sup>3</sup>, recording the indicator species and abundance using the DAFOR scale<sup>4</sup> and recording any species of conservation interest.

#### Terrestrial Mammals (excl. Bats)

A terrestrial fauna survey (excluding bats) for the presence/absence of terrestrial fauna species were surveyed through the detection of field signs such as tracks, markings, feeding signs, and droppings, as well as by direct observation, was undertaken on the 29<sup>th</sup> June 2020 and 1<sup>st</sup> March 2021. The habitats on site were assessed for signs of usage by protected/red-listed fauna species, and their potential to support these species. Surveys to check for the presence of badger setts and otter holts within the study area, and to record any evidence of use.

Infra-red motion-activated camera was deployed along the central hedgerow to confirm usage of certain mammal species, specifically for badger. This camera was deployed for a period of 16 nights between 26<sup>th</sup> August – 12<sup>th</sup> September 2020.

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<sup>2</sup> Smith, G.F., O'Donoghue, P., O'Hora, K. & Delaney, E. (2011) *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council Church Lane, Kilkenny, Ireland.

<sup>3</sup> Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. Heritage Council, Kilkenny.

<sup>4</sup> The DAFOR scale is an ordinal or semi-quantitative scale for recording the relative abundance of plant species. The name DAFOR is an acronym for the abundance levels recorded: Dominant, Abundant, Frequent, Occasional and Rare.



## Breeding Birds

Breeding bird surveys were undertaken using a methodology adapted from the *Bird Monitoring Methods - A Manual of Techniques for Key UK Species*<sup>5</sup>. The study area covered the lands within the proposed development site, of which were slowly walked in a manner allowing the surveyor to come within 50m of all habitat features. Birds were identified by sight and song, and general location and activity were recorded using the British Trust for Ornithology (BTO) species and activity codes. Any buildings/structures within the lands were assessed for nesting bird species.

## Wintering Birds

Wintering bird surveys were undertaken using a methodology based on the Bird Monitoring Methods – A Manual of Techniques for Key UK Species. The study area covered the lands within the proposed development site. Surveys consisted on vantage point surveys, each of 3-hour duration. Vantage point surveys were carried out on the 25<sup>th</sup> February and 19<sup>th</sup> and 23<sup>rd</sup> March 2020 respectively. For health and safety reasons, owing to livestock being present in one of the fields on the 19<sup>th</sup> March, only one vantage point survey was carried out on the morning of the 19<sup>th</sup> March, with the other vantage point survey being carried out on the afternoon of the 23<sup>rd</sup> March. Update wintering bird surveys were carried out on the 17<sup>th</sup> February and 18<sup>th</sup> March 2021, and followed the same format.

## Bats

A ground-level assessment of trees and structures within the subject lands, to examine their suitability to support roosting bats and potential to act as important landscape features for commuting/foraging bats, was based on guidelines (see Table 4.1 in EIAR) in *Bat Surveys for Professional Ecologists: Good Practice Guidance* (Collins ed., 2016) and included inspections of trees and structures for potential roost features (PRFs), and for signs of bats (staining at roost entrances, droppings, carcasses, insect remains). This was undertaken on the 29<sup>th</sup> June 2020 and 18<sup>th</sup> June 2021.

Three separate bat activity surveys were undertaken within the lands by surveyors who are experienced in bat transect surveys. The surveys were designed with reference to methodologies in *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn.) (Collins, 2016), and survey details are provided in Table 5.2. Surveys involved completion of a walked transect within the proposed development site. Observations of bat activity were recorded, and where necessary, data collected in the field was analysed using specialist software (Elekon BatExplorer) to aid in the identification of bat species by their calls. Data generated from the transect surveys was analysed using Elekon BatExplorer software, whereby calls were identified to species level (where this was possible), through professional judgement and with reference *British Bat Calls: A Guide to Species Identification* (Russ, 2012).

## Amphibians and Reptiles

A survey for suitable habitat for amphibians and reptiles was undertaken on the 29<sup>th</sup> June 2020. Suitable habitat for amphibians, such as ponds and wet ditches, and reptiles, such as habitats with stone walls, rocks or logs suitable for basking, were noted and mapped. Any direct observations of individuals were noted.

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<sup>5</sup> Gilbert, G., Gibbons, D.W. & Evans, J. (1998) *Bird Monitoring Methods - A Manual of Techniques for Key UK Species*. RSPB: Sandy



## 3.2.2 Potential Impact of the Proposed Development

### 3.2.1 Construction Stage

#### European Sites

This section describes and assesses the potential for the proposed development to result in likely significant effects on European sites that lie within the Zol of the proposed development. In the context of European sites this is focussed on the habitats and species for which the sites are selected (QIs for SACs and SCIs for SPAs) and the conservation objectives supporting their conservation status in each site. This assessment is directly related to the assessment methodology for European sites required under the Habitats Directive, which is presented in the Appropriate Assessment Screening Report for the proposed development that accompanies this application.

The assessment presented in the Appropriate Assessment Screening Report concluded that the potential impacts associated with the proposed development do not have the potential to affect the receiving environment and, consequently, do not have the potential to affect the conservation objectives supporting the qualifying interests or special conservation interests of any European sites; either alone or in combination with any other plans or projects.

As the proposed development does not traverse any European sites there is no potential for habitat fragmentation to occur.

The proposed development site does not support populations of any fauna species linked with the QI/SCI populations of any European site(s).

The closest European site, Glenasmole Valley SAC is located 4.1km south east of the proposed development. Glenasmole Valley is designated for its Annex I Habitats, including Petrifying springs with tufa formation (Cratoneurion) [7220], Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410], and Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (\* important orchid sites) [6210]. This European site is located in the same groundwater body as the proposed development site, however there will be no large excavations as part of the construction of the development, or any interactions with the groundwater regime. There is no hydrological pathway between this European site and the proposed development.

A potential source-pathway-receptor link through hydrological means has identified connectivity via the surface water and foul water networks from the proposed development site and Dublin Bay European sites. There are no other European sites hydrologically connected to the proposed development. However, effects on European sites in Dublin Bay, which are North Dublin Bay SAC, North Bull Island SPA, South Dublin Bay SAC, and South Dublin Bay and River Tolka Estuary SPA located c. 23km downstream of the proposed development site, have been excluded for the following reasons, which are discussed in more detail in the AA Screening report (Scott Cawley, 2021):

- Results of the CSM carried out by AWN<sup>6</sup> and which inform the AA screening report, indicate that surface run-off from the proposed development, during both construction and operational phases respectively, will not result in any perceptible impact on water quality in downstream receiving waters in Dublin Bay (and thus in the European sites therein).
- The AWN report also concludes that the cumulative or in-combination effects of effluent arising from the proposed development with that of other developments discharging to Ringsend WWTP will not be significant having regard to the size of the calculated discharge from the proposal.
- Considering the above, particularly the current unpolluted status of Dublin Bay, and that foul water discharges from the proposed development would equate to a very small percentage of the overall

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<sup>6</sup> *Hydrological & Hydrogeological Qualitative Risk Assessment for Proposed Residential Development at Boherboy, Saggart, Co. Dublin.* Awn Consulting, September 2020.



discharge volumes sent to Ringsend WWTP for treatment, it is concluded that the proposed development will not impact on the overall water quality status of Dublin Bay.

Considering these, the following conclusions can be made:

- The effects of an accidental pollution event occurring the construction phase of the proposed development is considered not to be significant;
- Any accidental pollution event is likely to be short in duration (i.e. confined to storm events) and would only occur during the construction phase which is estimated to continue for five years, limiting the magnitude and extent of effects; and,
- The distance between the proposed development outfall of surface water runoff and the nearest European site in Dublin Bay (c. 23km), means that sediments or pollutants from the proposed development will not result in any discernible effects on European sites in Dublin Bay.
- Due to the reasons above and discussed by AWN in the Hydrological and Hydrogeological Qualitative Risk Assessment, there are no hydrological or hydrogeological risks associated with the construction stage of the proposed development, and therefore there are no European sites at risk of habitat degradation.

There are no species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 on the proposed development site. The proposed development site is hydrologically connected European sites in Dublin Bay, however, due to the absence of Third Schedule non-native invasive species within the proposed development site, there is no risk of non-native invasive species spreading from the proposed development site to any European site.

Construction-related disturbance and displacement of fauna species could potentially occur within the vicinity of the proposed development. For mammal species such as otter, disturbance effects would not be expected to extend beyond 150m. For birds, disturbance effects would not be expected to extend beyond a distance of c. 300m, as noise levels associated with general construction activities would attenuate to close to background levels at that distance. There are no European sites within the disturbance Zol; the next nearest European site to the proposed development is c. 4.1km away.

There are no habitat areas within the disturbance Zol of the proposed development that support populations of qualifying/special conservation interest species of any European site. The nearest SAC designated for otter is the Wicklow Mountains SAC, c. 5.3km south-east of the proposed development. The Corbally stream is a small order stream located in a different sub-catchment than the Wicklow Mountains SAC. Considering the size of otter territories in Ireland, and its location relative to the Wicklow Mountains SAC, any otters potentially using the Corbally stream do not form part of or support any SAC population. Therefore, as the proposed development will not result in the disturbance/displacement of the qualifying/special conservation interest species of any European site, there is no potential for any in combination effects to occur in that regard.

### National Sites

In the case of NHAs and pNHAs the assessment considers whether the integrity of any such site would be affected by the proposed development with reference to the ecological features for which the site is designated, or is proposed.

The proposed development does not overlap with any nationally designated sites and it is not located in their immediate vicinity. The nearest national site is Lugmore pNHA, located c. 1.4km south east of the proposed development. This national site is designated for its habitats, and is not hydrologically connected to the proposed development. Therefore it is outside the Zol of the proposed development and does not have the potential to affect the habitats within.



As the proposed development does not traverse any nationally designated sites there is no potential for habitat fragmentation or loss to occur.

A potential source-pathway-receptor link through hydrological means has identified connectivity via the surface water and foul water networks from the proposed development site and Dublin Bay national sites. There are no other national sites hydrologically connected to the proposed development. However, effects on national sites in Dublin Bay, which are North Dublin Bay pNHA, South Dublin Bay pNHA, and Booterstown Marsh pNHA located c. 23km downstream of the proposed development site, have been excluded for the following reasons, which are discussed in more detail in the AA Screening report in relation to European sites in Dublin Bay which overlap with national sites (Scott Cawley, 2021):

- Results of the CSM carried out by AWN<sup>6</sup> and which inform the AA screening report, indicate that surface run-off from the proposed development, during both construction and operational phases respectively, will not result in any perceptible impact on water quality in downstream receiving waters in Dublin Bay (and thus in the national sites therein).
- The AWN report also concludes that the cumulative or in-combination effects of effluent arising from the proposed development with that of other developments discharging to Ringsend WWTP will not be significant having regard to the size of the calculated discharge from the proposal.
- Considering the above, particularly the current unpolluted status of Dublin Bay, and that foul water discharges from the proposed development would equate to a very small percentage of the overall discharge volumes sent to Ringsend WWTP for treatment, it is concluded that the proposed development will not impact on the overall water quality status of Dublin Bay.

Considering these, the following conclusions can be made:

- The likelihood of an accidental pollution event occurring during the construction phase of the proposed development is considered to be very low;
- Any accidental pollution event is likely to be short in duration (i.e. confined to storm events) and would only occur during the construction phase which is estimated to continue for five years, limiting the magnitude and extent of effects; and,
- The distance between the proposed development outfall of surface water runoff and the nearest national site in Dublin Bay (c. 23km), means that sediments or pollutants from the proposed development will not result in any discernible effects on national sites in Dublin Bay.

Due to the above reasons, there are no hydrological or hydrogeological construction risks associated with the proposed development, and therefore there are no nationally designated sites at risk of habitat degradation.

There are no species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 on the proposed development site. The proposed development site is hydrologically connected nationally designated sites in Dublin Bay, however, due to the absence of Third Schedule non-native invasive species within the proposed development site, there is no risk of non-native invasive species spreading from the proposed development site to any nationally designated site.

Construction-related disturbance and displacement of fauna species could potentially occur within the vicinity of the proposed development. For mammal species such as otter, disturbance effects would not be expected to extend beyond 150m. For birds, disturbance effects would not be expected to extend beyond a distance of c. 300m, as noise levels associated with general construction activities would attenuate to close to background levels at that distance. There are no nationally designated sites within the disturbance Zol; the nearest national site to the proposed development designated for wildfowl species is Slade of Saggart and Crookslin Glen pNHA, located c. 1.5km south west of the proposed development, and therefore beyond the Zol for disturbance related impacted from the proposed development on bird species associated with this national site.





## Potential Impacts on Habitats and Flora during Construction Stage

### Habitat Loss

Construction of the proposed development will result in the loss of habitat area; totalling approximately 17ha. None of the habitats directly affected by the proposed development are considered to be any greater than of local biodiversity importance (higher value). The majority of the habitats within the proposed development boundary (c. 16.1ha) are of local biodiversity importance (lower value) and predominantly comprised of improved agricultural grassland and drainage ditches (c. 15.2ha), but also include buildings, artificial surfaces and recolonising bare ground (c. 0.14a), c. 0.5ha of species-poor wet grassland, and c. 0.2ha of scrub. As these habitats are of local biodiversity importance (lower value), their loss or modification will not result in a likely significant effect on biodiversity.

The habitat types within the proposed development boundary, and the area of each, that are considered to be of a higher local biodiversity value and will be lost are as follows:

- Dry meadows and grassy verges (GS2) – c. 1.2ha of this habitat will be lost
- Scattered trees and parkland (WD5) – c. 0.05ha of this habitat in a mosaic with scrub (WS1)
- Hedgerows (WL1), Treelines (WL2) - The linear length of hedgerow being lost is 575m, and 70 trees
- Lowland/Depositing Rivers (FW2) – c. 30m linear length of this riparian habitat along the Corbally Stream to facilitate four stream crossings (three located on the eastern boundary, and one on the northern boundary).

There will be a loss of dry meadows and grassy verges habitat, scattered trees and parkland, and treelines and hedgerows within the proposed development, as these habitats will be directly impacted by construction activities. The areas that will be lost are relatively small in the context of the site and the wider environs, with 23 'Category U' trees (Those trees in such a condition that any existing value would be lost within 10 years), 40+ 'Category C' trees (trees of low quality and value), and seven 'Category B' trees (trees of moderate quality and value) being removed<sup>7</sup>. Although 575m of hedgerow habitat will be removed, this encompasses c. 23.3% of the total hedgerow habitat within the site. The hedgerows on the peripheries of the site are largely being retained, whilst along the central hedgerow there will be some removal, this vegetation will be augmented and bulked up with new shrub and hedge planting which will compensate for the loss in this area.

Although a large number of trees are being removed, these are largely trees that are likely to succumb within 10 years, or are showing signs of infection by Ash dieback *Hymenoscyphus Fraxinus*. The existing mature trees located along the site boundaries will be largely retained and enhanced with additional native planting. Where any removal of these features has taken place, replacement planting throughout the site of native species will occur to compensate for this loss. The main habitat being lost within the site is improved agricultural grassland. This has limited ecological value, and is a common habitat found in the wider environment. The drainage ditches within the site, along the western and central boundaries, will largely be retained, managed and enhanced, and used as swales, with additional planting proposed that includes marginal and species suited to wetland/marsh habitat. All of the ditches drain to the Corbally Stream on the northern boundary of the site. A riparian margin of at least 10m will be in place to ensure minimal impact on the stream outside of the stream crossing areas. Ditches will accommodate overflow surface water when required and a portion of the north of the site will be used as compensatory flooding storage for the site. However, in the absence of any mitigation, there is potential for the construction of the temporary outfall and the addition of four stream crossings to have an impact on water quality within local watercourses, the Corbally Stream and the receiving aquatic environment downstream of the proposed works area. Some examples by which water quality in the receiving aquatic environment could be compromised include the following:

- Entry of construction personnel and/or vehicles into the drainage ditches on site;

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<sup>7</sup> An Arboricultural Assessment on Lands at 'Boherboy', Saggart, Co. Dublin. Arborists Associates Ltd.



- Clearance of vegetation and exposure of topsoil within the vicinity of the drainage ditches;
- Storage of unbundled construction materials in the vicinity of the drainage ditches;
- Refuelling of vehicles in the vicinity of the drainage ditches; and
- Washing of equipment, or release of wheel wash and other construction process waters to the drainage ditches and the downstream watercourses.

## Potential Impacts on Fauna During Construction Stage

### Badger

Badgers, and their breeding and resting places, are protected under the Wildlife Acts. Due to their stable Irish populations, they are considered to be of “Least concern” in terms of conservation (Nelson *et al.*, 2019). The proposed development site has the potential to be used by badger due to suitable habitat for foraging and sett building, however no evidence of this species was identified during field surveys carried out within the lands. During the construction stage of the development, badgers could be impacted by the removal of foraging areas and feeding resource available. However, the overall loss of habitat is small and not significant at any scale, considering the typical badger territory size of more than 60ha in Ireland (Hayden and Harrington, 2000), and the abundance of available suitable habitat surrounding the proposed development site. Although the actual effect of foraging habitat loss cannot be quantified in terms of any threshold value that could be predicted, any affected badger groups would be expected to adapt to the changed landscape. It is therefore predicted that, despite any temporary effects, the loss of foraging habitat associated with the proposed development is unlikely to affect the conservation status of the local badger population and will not result in a likely significant negative effect, at any geographic scale.

### Otter

No evidence of otter was noted on site, however the Corbally Stream is suitable for commuting and/or foraging otter. There are no otter holts or couch sites present within the proposed development boundary. Therefore, the proposed development will not result in the loss of any breeding or resting places and construction works will not disturb any such sites.

In the context of river systems, the Threat Response Plan Otter *Lutra lutra* 2009-2011 document (Department of the Environment, Heritage and the Gaeltacht, 2011) defines terrestrial otter habitat as a 10m zone of riparian habitat along the riverbanks. The proposed development will be a minimum of 15m set back from the banks of the Corbally Stream. The Corbally Stream contains c. 5.3km of suitable otter habitat, and as only c. 20-30m will be lost during construction, for the development of four stream crossings, this is not considered a likely significant effect on any geographic scale.

### Other mammals

The proposed development site has the potential to be used by hedgehogs, pygmy shrews, Irish hare, and Irish stoat due to suitable habitat for foraging and breeding and the presence of these species from the local area from the findings of the desktop review. The construction stage of the development will reduce the amount of semi-natural habitat available for foraging in this area for small mammals, however, the overall loss of habitat is small and not significant at any scale, considering that the peripheries of the site and the drainage ditches will largely be retained and still provide commuting and/or foraging habitat for these species, and the abundance of available suitable habitat surrounding the proposed development site for all of the aforementioned species.



Given the relatively low numbers of individuals of each species that are likely to be affected, and that they are highly mobile species, vegetation clearance is unlikely to result in a level of mortality that would affect the species' conservation status, and result in a significant negative effect, even at a local geographic scale

### Birds

In the absence of mitigation to protect birds and their nests, there is potential for direct impacts on breeding birds due to loss of suitable breeding bird habitat and/or the risk of direct mortality and injury to birds, which may arise from the clearance of vegetation within the proposed development site. This potential impact would be most likely to arise if clearance works are undertaken during the time of year when birds are likely to be nesting (*i.e.* 1<sup>st</sup> March to 31<sup>st</sup> August, inclusive).

With the exception of treelines, hedgerows and scrub, the habitats in the lands are of low suitability for nesting bird species. Species that commonly nest in grassland vegetation were not encountered during surveys of the lands in 2020 or 2021. The bird species recorded at the proposed development site during surveys include those that are commonly found in suburban and urban habitats (*e.g.* blackbird, hooded crow, robin and wren). These habitats include hedgerows, treelines and grasslands, which can be found in the wider surrounding area, such as to the west and south of the proposed development site.

The clearance of vegetation may result in a loss of breeding bird habitat, however considering the amount of suitable foraging habitat located within the wider environs, the habitat loss will result in a significant negative effect on the populations of bird species at a local scale only.

Under the Wildlife Acts, it is an offence to disturb birds while on their nests, or to wilfully take, remove, destroy, injure or mutilate their eggs or nests. Mitigation measures have been provided to ensure adherence to the Wildlife Acts.

### Bats

All bat species and their roost sites are strictly protected under both European and Irish legislation including:

- Wildlife Act 1976 and Wildlife (Amendment) Act, 2000 (S.I. No. 38 of 2000)
- Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna 1992 (Council Directive 92/43/EEC)
- European Communities (Birds and Natural Habitats) Regulations, 2011

It is an offence under Section 23 of the Wildlife Acts 1976-2017 and under Section 51 of the European Communities (Birds and Natural Habitats) Regulations, 2011 to kill a bat or to damage or destroy the breeding or resting place of any bat species. Under the European Communities (Birds and Natural Habitats) Regulations it is not necessary that the action should be deliberate for an offence to occur. This places an onus of due diligence on anyone proposing to carry out works that might result in such damage or destruction. Under Section 54 of S.I. 477 of 2011, a derogation may be granted by the Minister where there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range.

The proposed development will not directly, or indirectly, affect any known bat roosts. There are trees and buildings on site with potential roost features, which could be occupied at the time of site clearance, and therefore could result in the potential for bats to be injured or killed. All the bats recorded using the site are common species in Ireland that are classified as being of "least concern" in the Ireland Red List No. 3: Terrestrial Mammals (Marnell et al., 2019). The trees and buildings within the proposed development site that have some potential for roosting bats, are not considered to be significant in size and are unlikely to hold enough space for them to be maternity or hibernation roosts. The effects of loss of these potential roost sites on bats are not considered to be significant at any geographic scale for these reasons. These trees and



buildings are deemed for removal however, and so mitigation measures are provided below should the roosting features become occupied by bats prior to the commencement of works.

The proposed development will include the removal of bat foraging habitat, *i.e.* the treelines, trees and hedgerows along the southern boundary and sections of the central hedgerow. With regards to the loss of foraging habitat, majority of the treelines along the boundaries are to be retained within the design of the scheme and will therefore continue to provide foraging opportunities for bats. The effects of loss of foraging habitats on bats are considered to be temporary until planted vegetation can be developed, and significant at a local geographic scale, due to the level of activity identified on site, and the commuting and/foraging corridors the habitats within the site provide to local bats.

### **3.2.2 Operational Stage**

#### European Sites

The assessment presented in the Appropriate Assessment Screening Report concluded that the potential impacts associated with the proposed development do not have the potential to affect the receiving environment and, consequently, do not have the potential to affect the conservation objectives supporting the qualifying interests or special conservation interests of any European sites; either alone or in combination with any other plans or projects.

Chapter 6 of this EIAR submitted with this application deals with the hydrology of the proposed development site, alongside a Hydrological and Hydrogeological Risk Assessment (AWN, 2020) for the site. The chapter and risk assessment assess the hydrological and hydrogeological risks associated with the proposed development. The assessments noted that based on the potential sources of pollution from the proposed development during construction and operation phases, there is no potential for impacts to occur on European sites in Dublin Bay. This conclusion is based on a good understanding of the hydrological and hydrogeological environment, plausible sources of impact and knowledge of receptor requirements. This allows possible source-pathway-receptor linkages to be identified. Potential sources of impacts during construction and operation were considered in the assessments and all potential sources of contamination were considered in relation to European sites without taking account of any measures intended to avoid or reduce harmful effects of the proposed development (mitigation measures) *i.e.* a worst-case scenario.

The results of the assessments carried out by AWN indicate that surface run-off from the proposed development, during both construction and operational phases respectively, will not result in any impact on water quality in downstream receiving waters in Dublin Bay (and thus in the European sites therein) due to the very low contaminant loading and distance to the Natura sites (c.18 km). It is concluded that there are no pollutant linkages as a result of the construction or operation of the Proposed Development which could result in a water quality impact which could alter the habitat requirements of the Natura sites within Dublin Bay (AWN, 2021).

Therefore, there is no possibility of the proposed development during operational stage undermining the conservation objectives of any of the qualifying interests or special conservation interests of the European sites in, or associated with, Dublin Bay as a result of surface water run-off or discharges.

#### National Sites

Nationally designated sites would be subjected to the same potential impacts from operational stage described above with respect to potential impacts on European sites. In absence of mitigation, such potential impacts may result in a likely significant effect at the national geographic scale.



There is an hydrological connection between the proposed development site and the nearest nationally designated site, South Dublin Bay pNHA, however, the Hydrological and Hydrogeological Risk Assessment (AWN, 2020) has concluded that there is no pathway for potential impacts to occur via this hydrological connection.

### **Potential Impacts on Habitats and Flora during Operational Stage**

All of the habitats within the proposed development will be either removed or replaced during the construction stage, prior to operation of the proposed development. The primary remaining sensitive habitats located within the proposed development site are the hedgerows and treelines that are to be retained along the boundaries of the site. No further impacts on these habitats and flora are expected during the operational stage of the proposed development, with the exception of a likely increase in footfall and human traffic within these habitats. Despite this, the proposed development in operation will not result in a significant negative effect on habitats within the proposed development site at any geographical scale.

#### Badger

The proposed development site has the potential to be used by badger due to suitable habitat for foraging and sett building, however no evidence of this species was identified during field surveys carried out within the lands. The conversion of the lands to buildings and artificial surfaces, with associated planting and other landscaping elements, will reduce the amount of semi-natural habitat available for foraging in this area for badgers, however, the overall loss of habitat is small and not significant at any scale, considering the typical badger territory size of more than 60ha in Ireland (Hayden and Harrington, 2000), and the abundance of available suitable habitat surrounding the proposed development site. Periphery commuting corridors will also be maintained and will be available to badger as wildlife corridors in the long-term.

#### Other mammals

The proposed development site has the potential to be used by hedgehogs, pygmy shrews, Irish hare, and Irish stoat due to suitable habitat for foraging and breeding and the presence of these species from the local area from the findings of the desktop review. The conversion of the lands to buildings and artificial surfaces, with associated planting and other landscaping elements, will reduce the amount of semi-natural habitat available for foraging in this area for small mammals, however, the overall loss of habitat is small and not significant at any scale, considering that the peripheries of the site and the drainage ditches will be retained and still provide commuting and/or foraging habitat for these species, and the abundance of available suitable habitat surrounding the proposed development site for all of the aforementioned species.

Given the relatively low numbers of individuals of each species that are likely to be affected, that they are highly mobile species and the suitability of the habitat in the surrounding lands in the south and west, the change in habitat is unlikely to result in a level that would affect the species' conservation status, and result in a significant negative effect, even at a local geographic scale.

#### Birds

With the exception of treelines, hedgerows and scrub, the habitats in the lands are of low suitability for nesting bird species. Species that commonly nest in grassland vegetation were not encountered during surveys of the lands in 2020 or 2021. The effects of habitat loss on bird species arising from the proposed development during operation will not be significant at any geographic scale for the following reasons:

- While the lands will be of lower suitability for foraging species for the duration of the construction phase of the development, the implementation of landscape planting will enhance the lands in terms of foraging opportunities for common garden bird species; and,



- Majority of the habitat with suitability for nesting bird species i.e. treelines, is being retained in the proposed development, and the implementation of landscape planting (incl. additional trees and treelines) will enhance the lands in terms of breeding opportunities.

Wintering birds will benefit of implementation of landscape planting similarly to breeding birds. Due to aforementioned factors, the effects of habitat loss on wintering bird species arising from the proposed development will not be significant at any geographic scale.

### Bats

Bats are considered to be light-sensitive species, and increased illumination of a site can affect how bats may utilise a site (ILP, 2018). For roosting bats, increased light levels can affect predation, as avian predators tend to rely on vision to catch their prey, and increased light levels at night-time may increase bats vulnerability to predation. Illumination of foraging and commuting habitat can result of abandonment of habitat. The response to lighting in Ireland by foraging bats varies by species, with Leisler's bat, a high-flying species, as well as common pipistrelle bat and soprano pipistrelle bat appearing to be least affected by lighting (Roche et al., 2014).

The habitat within the subject lands were mostly unlit during the surveys in 2020, however the eastern and northern boundaries were partially illuminated with streetlights. During its operation, and in the absence of any mitigation, it is anticipated that the proposed development will result in an increase in lighting of the site. Light spill will originate both from installation of public lighting in the residential areas, as well as from the residential properties themselves (e.g. incidental light pollution from house windows). The cumulative increase in light spill will be minor, as the development site suffers from some light spill from the adjacent public road and adjoining properties, and commuting and foraging areas and located away from any potential light spill areas. However, in the absence of mitigation this is likely to result in a likely significant effect, at a local scale.

## **3.2.3 Mitigation Measures**

### **3.2.3.1 Construction Stage**

#### Retention and Protection of Vegetation during Construction

Any vegetation (including trees, hedgerows or scrub adjacent to, or within, the proposed development boundary) which is to be retained shall be afforded adequate protection during the construction phase in accordance with the Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes (National Roads Authority, 2006b), as follows:

- All trees along the proposed development boundary that are to be retained, both within and adjacent to the proposed development boundary (where the root protection area of the tree extends into the proposed development boundary), will be fenced off at the outset of works and for the duration of construction to avoid structural damage to the trunk, branches or root systems of the trees. Temporary fencing will be erected at a sufficient distance from the tree so as to enclose the Root Protection Area (RPA) of the tree. The RPA will be defined based upon the recommendation of a qualified arborist;
- Where fencing is not feasible due to insufficient space, protection for the tree/hedgerow will be afforded by wrapping hessian sacking (or suitable equivalent) around the trunk of the tree and strapping stout buffer timbers around it;



- The area within the RPA will not be used for vehicle parking or the storage of materials (including soils, oils and chemicals). The storage of hazardous materials (e.g. hydrocarbons) or concrete washout areas will not be undertaken within 10 m of any retained trees, hedgerows and treelines;
- A qualified arborist shall assess the condition of, and advise on any repair works necessary to, any trees which are to be retained or that lie outside of the proposed development boundary but whose RPA is impacted by the works. Any remedial works required will be carried out by a qualified arborist;
- A buffer zone of at least 5m will be maintained between construction works and retained hedgerows to ensure that the root protection areas are not damaged.

#### Protection of Vegetation from Dust during Construction

To control dust emissions during construction works standard mitigation measures shall include: spraying of exposed earthwork activities and site haul roads during dry and/or windy conditions; provision of wheel washes at exit points; control of vehicle speeds with adequate signage and speed restrictions (20 km/h on any un-surfaced site road); covering of haulage vehicles; and, sweeping of hard surface roads. These procedures will be strictly monitored and assessed on a daily basis.

Dust screens will be implemented at locations where there is the potential for air quality impacts on sensitive ecological receptors (i.e. within 100m of the works) during the construction phase.

#### Protection of water quality

Mitigation measures to protect surface water in the receiving environment during construction will include the following:

- Entry to the stream channel by vehicles and/or personnel will not be permitted under normal circumstances. Works will be carried out from the bank side. In-stream works are proposed however, they will be restricted to the period 1st July through 30th September, inclusive to minimise the risks to any salmonids downstream
- There will be no direct discharges to surface waters
- Prior to any machinery working on site for any purpose, the working area will be marked out with wooden stakes and where deemed necessary, hazard tape will be erected to identify the working limits
- Working limits to be checked at the end of every day by the Site Manager
- Provision of measures to prevent the release of sediment during the construction work will be installed prior to any site clearance. In respect to works adjacent to the drainage ditches with flowing water, these measures may include but not be limited to the use of silt fences, sedimentation mats etc.
- Provision of exclusion zones and barriers (sediment fences) between earthworks, stockpiles and temporary surfaces to prevent sediment washing into the receiving water environment
- Temporary construction surface drainage and sediment control measures will be in place before earthworks commence
- If pouring of cementitious materials is required for the works adjacent to a pond, surface water drainage features, or drainage features connected to same, this will be carried out in the dry
- Discharge water generated during placement of concrete will be removed off site for treatment and disposal
- Where stockpiling is required, temporary stockpiles will be located >50 metres from any water features. Three sides will be surrounded with silt fences with access from the fourth (uphill) side. Sides will be smoothed and collection of run-off considered i.e. discharging to a settlement pond etc.



- The contractor will avoid work involving moving of soil during heavy rainfall to minimise potential for entrainment of silt. Where forecasts indicate heavy rainfall events, works should be rescheduled accordingly
- Pumped concrete will be monitored to ensure no accidental discharge. Mixer washings and excess concrete will not be discharged to surface water. Concrete washout areas will be located remote from any surface water drainage features to avoid accidental discharge to watercourses
- No storage of hydrocarbons or any polluting chemicals will occur within 50m of the surface water network. Fuel storage tanks will be bunded to a capacity at least 110% of the volume of the storage tank (plus an allowance of 30mm for rainwater ingress). Re-fuelling of plant will not occur within 50m of the surface water network and only in bunded refuelling areas
- Emergency procedures and spillage kits will be available and construction staff will be familiar with emergency procedures
- Implementation of measures to minimise waste and ensure correct handling, storage and disposal of waste
- If any heavily contaminated land is encountered during construction, it will be removed off-site and be disposed of at a licenced waste facility
- Contaminated groundwater, if encountered on site, could result in contaminated waters being discharged from the construction site. Any such contaminated waters will be treated using best practice, appropriate measures/controls dependent on the nature of the contamination prior to discharge to the surface water network
- There will be no direct pumping of contaminated water from the works to the surface water drainage/stream network at any time
- Foul drainage from site offices and compounds, where not directed to the existing wastewater network, will be contained and disposed of off-site in an appropriate manner and in accordance with the relevant statutory regulations, to prevent the pollution of watercourses
- An Emergency Response Plan detailing the procedures to be undertaken in the event of flooding, a spill of chemical, fuel or other hazardous wastes, a fire, or non-compliance incident will be prepared
- Ensure site staff are trained in the implementation of the Emergency Response Plan and the use of any spill control equipment as necessary
- The contractor will employ an environmental specialist who will monitor water quality upstream and downstream of the area of works. Data on pH, conductivity, and suspended solids will be collected as follows:
  - Twice weekly visits during general site works
  - Daily site visits during key construction activities (to be agreed between the environmental specialist and Dun Laoghaire-Rathdown County Council), e.g. during installation of the proposed outfall, during and immediately after clearance of on-site vegetation.
  - Event inspection e.g. following heavy rainfall events or during concreting works
- Monitoring will be undertaken for a period of at least two months prior to works commencing and one-month post construction. Trigger concentrations should be agreed at commencement and based on the baseline established in the two months prior to works commencing. Note: Additional measures will be implemented in the event that threshold concentrations are surpassed
- All monitoring data should be collated to show trends for indicator parameters pH, conductivity, suspended solids and hydrocarbons, and will be shared at regular intervals with South Dublin County Council.





## **Mitigation Measures for Fauna during Construction Stage**

### **Badgers**

The mitigation measures described below follow the recommendations set out in the Guidelines for the Treatment of badgers during the Construction of National Road Schemes (National Roads Authority, 2006). These guidelines set out the best practice approach in considering and mitigating impacts on badgers during construction works.

Whilst no badger setts were identified within the proposed development, badger could potentially establish new setts in the future within the Zol of the proposed development. Therefore, a pre-construction check of all suitable habitat within the proposed development boundary will be required within 12 months of any constructions works commencing. Any new badger setts present will be afforded protection in line with the requirements set out in the TII/NRA guidance document as follows:

- Badger setts will be clearly marked and the extent of bounds prohibited for vehicles clearly marked by fencing and signage
- No heavy machinery shall be used within 30m of badger setts; lighter machinery (generally wheeled vehicles) shall not be used within 20m of a sett entrance; light work, such as digging by hand or scrub clearance shall not take place within 10m of sett entrances
- During the breeding season (December to June inclusive), none of the above works shall be undertaken within 50m of active setts, nor blasting or pile driving within 150m of active setts
- Works can be undertaken within these zones following consultation with, the approval of and, if required, under the supervision of a badger ecologist
- During construction, the use of egress ramps in any pits or holes that have been dug on site is required. This will allow for any mammal species that have fallen in, to allow to escape and be unharmed by construction activities.

As the proposed development will not result in the permanent loss of any badger setts, there is no requirement to construct any artificial setts as part of the mitigation strategy.

### **Otter**

The mitigation measures as described above in Section 4.9.1.1 to protect water quality within the local receiving environment, will also mitigate for habitat degradation impacts on otter species.

Where feasible, vegetation (e.g. hedgerows, trees, scrub and grassland) will not be removed, between the 1st March and the 31st August, to avoid direct impacts on nesting birds. Where the construction programme does not allow this seasonal restriction to be observed, then these areas will be inspected by a suitably qualified ecologist for the presence of breeding birds prior to clearance. Areas found not to contain nests will be cleared within 3 days of the nest survey, otherwise repeat surveys will be required.

### **Amphibians**

#### **Disturbance and Mortality Risk**

If works to clear any of the habitat features suitable to support amphibian species are to begin during the season where frogspawn or tadpoles may be present (February – mid-summer), or where breeding adult newts, their eggs or larvae may be present (mid-March – September), a pre-construction survey will be undertaken to determine whether breeding amphibians are present.

In the case of common frog, any frog spawn, tadpoles, juvenile or adult frogs present will be captured and removed from affected habitat by hand net and translocated to the nearest area of available suitable habitat beyond the Zol of the proposed development.



In the case of smooth newt, individuals will be captured and removed from affected habitat either by hand net or by trapping and translocated to the nearest area of available suitable habitat, beyond the ZOI of the proposed development. If used, the type and design of traps shall be approved by the NPWS. This is a standard and proven method of catching and translocating smooth nest.

If the size or depth of the habitat feature is such that it cannot be determined whether all amphibians have been captured, it will be drained under the supervision of a suitably experienced ecologist to confirm that no amphibian species remain before it is destroyed or infilled. Any mechanical pumps used to drain the habitat feature will have a screen fitted, and be sited, such that no amphibian species can be sucked into the pump mechanism.

Any capture and translocation works shall be undertaken immediately in advance of site clearance/construction works commencing.

### Protection of Water Quality

The mitigation measures as described above in Section 4.9.1.1 to protect water quality within the local receiving environment, will also mitigate for habitat degradation impacts on amphibians.

### **White-clawed crayfish**

The mitigation measures as described above in Section 4.9.1.1 to protect water quality within the local receiving environment, will also mitigate for habitat degradation impacts on white-clawed crayfish.

### Mitigation Measures for Bats

#### Measures to Protect Bats during the Removal of Roosts

The following mitigation measures are proposed in relation to structures and trees considered to have the potential to support roosting bats:

- Prior to demolition, for structures which have not been confirmed as bat roosts but regarded to have potential for bats, a bat detector assessment of the property to be demolished will be carried out. If demolitions are proposed during the period May – August (note this time period will not be permitted in the case of the confirmed bat roosts to be demolished). This will be an all-night examination to determine if bats enter the building during the night or early morning. This will provide adequate information to proceed with demolition unless weather conditions were unsuitable for feeding bats. If bats are present, then they will require exclusion from the property over several nights or if possible physical removal by hand by a licenced bat specialist to be placed in a bat box or similar for release in the evening after capture.
- Once structures containing roosts are deemed to be clear of bats, the bat specialist will be on site to supervise the demolition procedure until the structure is no longer deemed able to support a bat roost. Bats may re-enter a partially demolished structure overnight so the bat specialist may be required to be present during demolition works until they are completed.
- Where possible, buildings or trees confirmed as bat roosts will not be demolished during the breeding period or hibernation period (April to mid-August and November-March) as the risk of accidental death or injury is higher at this time. Bats may use roosts in smaller numbers in winter but may nevertheless be present. Outside of these periods, the approach to demolition of bat roosts will be determined on a case-by-case basis and subject to relevant licence conditions.



- Buildings confirmed as bat roosts proposed for demolition will be marked on the ground with agreed paint marking to permit identification by Contractors.

#### Measures to Protect Bats during Vegetation Clearance

The following mitigation measures are proposed in relation to those trees identified as having potential to support roosting bats (Figure 5.5). Bats could occupy suitable roosting features at any time prior to the commencement of works. Therefore there is an inherent risk that bats could be affected by the proposed felling works. The following mitigation procedures will be followed:

- Felling of confirmed and potential tree roosts will be undertaken during the periods April – May or September – October as during this period bats are capable of flight and may avoid the risks from tree felling if proper measures are undertaken, but also are neither breeding nor in hibernation
- Use of detectors alone may not be sufficient to record bat emergence and re-entry in darkness. Therefore, prior to felling of confirmed and potential tree roosts, an emergence survey using infra-red illumination and video camera(s) and bat detectors will be carried out on the night immediately preceding the felling operation to determine if bats are present
- Where it is safe and appropriate to do so for both bats and humans, such trees may be felled using heavy plant to push over the tree. In order to ensure the optimum warning for any roosting bats that may still be present, the tree will be pushed lightly two to three times, with a pause of approximately 30 seconds between each nudge to allow bats to become active. The tree should then be pushed to the ground slowly and should remain in place until it is inspected by a bat specialist
- Trees should only be felled “in section” where the sections can be rigged to avoid sudden movements or jarring of the sections
- Where remedial works (e.g. pruning of limbs) is to be undertaken to trees deemed to be suitable for bats, the affected sections of the tree will be checked by a bat specialist (using endoscope under a separate derogation licence held by that individual) for potential roost features before removal. For limbs containing potential roost features high in the tree canopy, this will necessitate the rigging and lowering of the limb to the ground (with the potential roost feature intact) for inspection by the bat specialist before it is cut up or mulched. If bats are found to be present, they will be removed by a bat specialist licenced to handle bats and released in the area in the evening following capture
- If any bat tree roosts are confirmed, and will be removed by the proposed felling works, then a derogation licence will be required from the NPWS and appropriate alternative roosting sites will be provided in the form of bat boxes.

#### Measures to Control and Reduce Light Spill During Construction

During construction, any external lighting to be installed, including facilitating night-time working or security lighting, on the site shall be sensitive to the presence of bats in the area, downlighting, and time limited where possible. Lighting of sensitive wildlife areas and primary ecological corridors (e.g. along the central hedgerow/drainage ditch, boundaries of the site) and light pollution in general should be avoided.

Lighting of the site during construction is designed in accordance with the following guidance:

- Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2020)
- Bats & Lighting - Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, December 2010)
- Bats and Lighting in the UK – Bats and the Built Environment Series (Bat Conservation Trust UK, January 2008).



During construction, any external lighting to be installed, including facilitating night-time working or security lighting, on the site shall be sensitive to the presence of bats in the area, downlighting, and time limited. Lighting of sensitive wildlife areas and primary ecological corridors (e.g. along the central hedgerow/drainage ditch, boundaries of the site) and light pollution in general will be avoided. Light levels during construction in these areas will be maintained at baseline levels where possible.

Monitoring of light levels along the treelines and hedgerows will be undertaken pre-construction, during construction and post-construction to identify any areas where light spill is affecting background levels during construction. Where monitoring detects light spill is affecting these habitat areas, remedial measures, such as censored lighting or low column height lights, and will be implemented to ensure that background light levels are maintained.

### **3.2.3.2 Operational Stage**

#### **Mitigation Measures for Fauna during Operation Stage**

##### **Bats**

Any light spill affecting bat use of habitats outside of the proposed development boundary will be avoided, particularly along the boundaries of the site, and along the central boundary. Light levels during construction and operation in these areas will be maintained at baseline levels where possible.

This will be achieved through sensitive siting and design of the lighting elements. This will include careful consideration of light placement on buildings, column heights and luminaire design. Luminaires have been selected which do not emit UV light (e.g. metal halide and fluorescent light sources should be avoided), and luminaires are designed using full cut off to ensure there is no direct upward light. The threshold increment is included in the lighting calculations to that luminaires are not a glare source, with the lighting designed to dim by 25% from 00:00 to 06:00.

Monitoring of light levels along the treelines and hedgerows will be undertaken pre-construction, during-construction and post-construction to identify any areas where light spill is affecting background levels during construction or operation. Where monitoring detects light spill is affecting these habitat areas, remedial measures will be implemented to ensure that background light levels are maintained.

Reporting on the monitoring will be forwarded to the local authority for their review and any remediation required agreed between them and the applicant.

### **3.3 Land, Soil & Geology**

This section of the EIAR was prepared by Roger Mullarkey & Associates Consulting Engineers, and comprises of an assessment of the potential impact the proposed development will have on the land, soils and geology during both the construction and operational phases. This section also intends to identify the nature of any impacts and provide the necessary mitigation measures arising from the proposed development.

The area of the two subject fields is c.17.6Ha and is currently in greenfield condition with some remaining farm sheds/outbuildings.



### 3.3.1 Potential Construction and Operational Phase Impacts

The construction phase will require the removal of top soil and storing on site in mounds for reuse. It is estimated that approximately 41,000m<sup>3</sup> of top soil will be disturbed during the construction phase with c.30,000m<sup>3</sup> to be reused and the remainder to be removed to a licenced facility.

Sub-soil excavation will be required to allow the construction of the roads, building foundations, drainage and ancillary services. It is estimated that the sub-soil volume to be excavated and removed is approximately 60,000m<sup>3</sup>.

Underlying subsoil layers are expected to be generally suitable for reuse as non-structural fill.

The attenuation tanks and foul pumping station will require excavation of sub-soil and temporary storing of the removed top soil for reuse in the landscaping. It is estimated that approximately 5,100m<sup>3</sup> of sub-soil will be excavated and removed from the site for construction of the attenuation tanks.

There will be stockpiling for reuse of topsoil in gardens and landscape areas and surplus to be removed to a licenced facility.

Exposure of sub soil will be temporary. There is likely impact on subsoil exposed due to vehicle tracking, weathering and rainfall but the impact will be short term and slight in nature.

Due to the use of heavy construction machinery on site during the construction phase, there will be a requirement for the onsite storage of fuels for the machinery. There is a risk associated with storing fuel on site and the impact of spillages may be characterised as having a likely, short-term, local, moderate adverse impact on the sub-soil.

There will be an increase in traffic of construction machinery across the site which will impact the sub-soil layers and discourage infiltration of rainfall to the water table. There is also an increased risk of mud and debris getting transferred to the surrounding local road network.

There will be large quantities of materials brought to site to facilitate construction such as concrete blocks, timber, reinforcement, etc. These deliveries will traverse above the constructed road network within the development.

In the context of materials imported to site, these will be natural stones sourced from locally available quarries in accordance with the appropriate statutory guidelines, greenfield/inert soil imported under a Waste Permit issued by the local authority; or materials that have been approved as by-products by the EPA in accordance with the EPA's criteria for determining a material is a by-product, per the provisions of article 27(1) of the European Communities (Waste Directive) Regulations, 2011.

Imported materials will be granular in nature and used in the construction of road pavement foundations, drainage and utility bedding and surrounds. Imported fill may be required to raise the development to the required level for drainage.

Materials will be brought to site and placed in their final position in the shortest possible time. Any imported material will be kept separate from the indigenous arisings from the site. All excavation to accommodate imported material will be precisely co-ordinated to ensure no surplus material is brought to site beyond the engineering requirement.



The road levels have been designed to follow as closely as possible the existing contours of the site with the design principle of a balanced cut and fill earthworks landscaping of the development will restore the removed topsoil layer where not covered by development hard covering. The impacts of the removal of the soil are deemed to be short termed and moderate in the construction phase.

The removal of hedgerows to facilitate the development is minimised in this project due to the retention of the boundary conditions and most of the internal spine of hedgerow. There will be a moderate impact to the hedgerows to facilitate the construction of roads therefore the impact is deemed to be moderate and long term but localised. There will be a minimal impact on the groundwater as there is relatively little removal of hedgerows proposed in this development.

Once the construction stage is complete and the development is in-situ and operational, the geology beneath the proposed site will remain unchanged. Subsoil will either be covered by surface hardstanding, building footprint or landscaped areas.

The operational phase of the development will have little or no impact on the soils geology for the lands. The silt/clay cohesive sub soil across the site does not allow for easy infiltration of surface water to the water table. There are several aspects to the Sustainable Urban Drainage Systems (SuDS) design features included in the development that direct surface water runoff to filtration facilities but each of these elements has an overflow feature to direct flows into the main drainage system where infiltration is possible. The SuDS features are a method of site control that reduces harmful chemical pollutants and sediment reaching the piped network. These pollutants are trapped in the grassed areas leading to the filter strips and reduce the surface water runoff rate and attenuate flows locally, therefore reducing stress on downstream facilities.

There is a moderate risk of groundwater recharge but given the vulnerability classifications of Low and Moderate of the ground water noted on the GSI datasets, the risk is deemed to be moderate and short term in nature.

There will be no significant storage or use of hazardous materials during the operational phase that could adversely impact subsoil, groundwater or surface water in the vicinity of the site. Accidental losses of oil, petrol or diesel on roadways or in car parks could cause contamination if these elements entered the underlying soil and groundwater. However, the presence of surface hardstanding throughout these areas would render this unlikely. In addition, all surface water will be routed through a suitably sized petrol interceptor before entering the public surface water network.

It is not anticipated that there will be any impacts to soils during the operational phase of the proposed development.

### **3.3.2 Mitigation Measures**

As part of the SHD process, an Outline Construction Management Plan (OCMP) is submitted as part of the subject application, and sets out a range of mitigating measures. In addition, the following mitigation measures are also proposed:

- All fuel stored is to 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.
- The removal of the topsoil layer is to be carried out in a carefully managed process and in coordination with the construction phasing management of the development.
- Topsoil stockpiles are to be located in such a manner as to minimise the risk of washing away into local drainage or watercourses.
- Topsoil is to be reused in gardens and landscape areas as well as the attenuation detention basin areas.



- The design of the road and block levels on the site has been carried out in such a way as to best balance the cut/fill aspects and to follow the natural site topography where possible.
- The contractor is to have a full time site foreman responsible for the site management and is to be made fully aware of the relevance of the works in relation to the Corbally Stream. A site noticeboard is to 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.
- Exposed subsoil in excavations is to be backfilled as soon as possible to minimise effects of weathering.
- Surface water flows from the site will be directed to temporary siltation beds and screening before discharge to the receiving watercourse during the construction phase.
- Wherever possible, excavated material will be re-used on the project in the construction of attenuation, bunding and landscape features.
- The design of the layout has minimised the impact on the hedgerows and therefore there is little mitigation works to be implemented regarding hedgerows. The remaining central spine hedgerow is to be kept free of site storage or access and is to be appropriately cordoned off to discourage access during the construction phase. The site foreman/management will manage the protection of the remaining hedgerows and trees on the site.
- Wheel wash facilities are to be provided and implemented by the site management to minimise the uncontrolled removal of sub-soil on wheels and deposited on the local road network.
- Earthworks machinery and deliveries are to be managed in a controlled fashion and cordoned onto specific haul roads.

### 3.4 Water

This section of the EIAR was prepared by Roger Mullarkey & Associates Consulting Engineers, and comprises of an assessment of and comprises of an assessment of the likely impact of the proposed development on the freshwater streams and ground water during both the construction and operational phases. Interaction between surface water, foul water and water supply have also been addressed.

This chapter also intends to identify the nature of any impacts and provide the necessary mitigation measures arising from the proposed development. A Site Specific Flood Risk Assessment (SSFRA) has been completed by Kilgallen & Partners Consulting Engineers and forms part of the overall application under a separate document.

There is an unnamed stream bounding the subject site along the east and northern boundaries, but is referred to locally as the Corbally Stream. This stream is a tributary of the Camac River. There are local field ditches on the subject site that drain into this stream along the northern boundary.

The Site Specific Flood Risk Assessment (SSFRA) carried out by Kilgallen & Partners Consulting Engineers identifies the Flood Zones A & B on the subject site and the mitigation measures of raising floor and road levels above the predicted 100year + climate change storm event flood levels. The conclusion of the SSFRA was that the application was subject to and passed the Development Management Justification Test as required under the OPW's *The Planning System and Flood Risk Management 2009* (the Guidelines). Reference can be made to the separate SSFRA document that forms part of the overall planning submission documentation.



In agreement with SDCC Drainage Department, it is proposed to outfall the surface water from the proposed development into this stream along the northern boundary of the subject site.

A topographical survey was carried out on the site and indicates that the lands slopes sharply downwards from the south end of the site towards the north. The existing ground level gradients range from 1/7 to 1/30 generally. There is an approximate drop in level of 38m from the highest portion (SW) of the site to the lowest point (NW). The site survey drawing is included in the application and can be viewed as background on the Road & Block Levels drawing RMA Dwg.No.1324B/301, 302 & 303 and is summarised in Fig. 3.1 below.

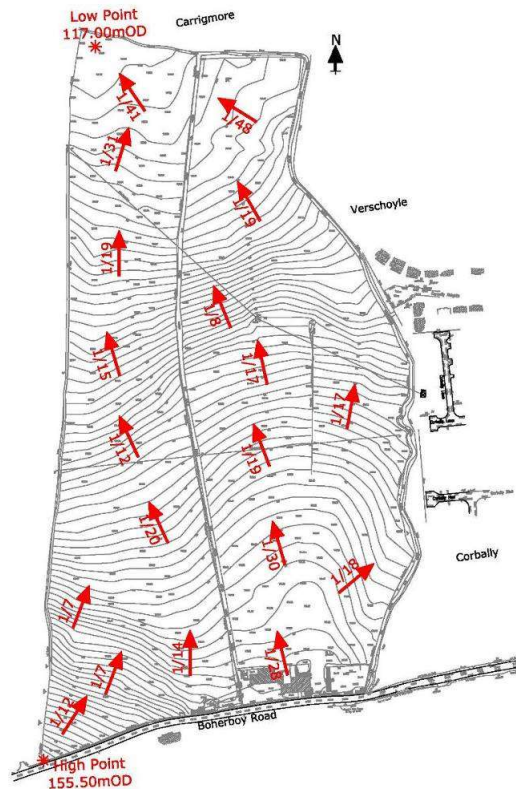


Fig.3.1 – Site Topography

### 3.4.1 Potential Impacts of the Proposed Development

#### 3.4.1.1 Construction Phase

The following paragraphs describe possible causes and impacts on the hydrogeology and water services as a result of the proposed development if the specific mitigation measures are not implemented. Refer to section 6.6 for the proposed necessary mitigation measures that form part of this application.

In order to construct the development, significant amounts of the top-soil will be removed and stored on the site for future use. When the topsoil has been removed the sub soil layers will be exposed to weathering and there is a potential for erosion of this layer from the inevitable rainfall and runoff. It has been estimated that c.40,700m<sup>3</sup> of topsoil will be disturbed during the construction phase.

Potential sources and impacts that may occur during the construction stage are as follows;

- Surface water runoff during the development's construction stage can cause silt from the exposed sub-soil be washed into the Corbally Stream causing excess siltation downstream;





- There is a risk that site contaminants from cement/concrete generated during wash down of concrete delivery trucks could enter the Corbally Stream causing pollution;
- There is a possibility that accidental fuel leaks/spills could be washed into the Corbally Stream or leak into the exposed sub-soil which could result in an increased risk of contamination to the receiving watercourses and groundwater;
- Over pumping of rainwater from foundation excavations could contain excess silt levels and could have a potential impact on the on the existing hydrology cause increased silt levels in the surrounding watercourse;
- Improper discharge of foul drainage from the contractors site compound could have an impact on the existing hydrology.

As a background identifier, the EPA online mapping tool presents the available water quality status for water bodies in Ireland. The proposed site lies within the Liffey and Dublin Bay Catchment (Hydrometric Area 09) and River Liffey sub-catchment (Water Framework Directive (WFD 2000/60/EC) Liffey\_SC\_090, ID09\_1.5)(EPA, 2021). The Corbally Stream is a tributary of the Camac River some 2.1km in a northerly direction from the site. The Camac River flows northeast for c.10.7km before discharging into the Liffey Estuary upper transitional waterbody which in turn discharges into Dublin Bay coastal waterbody which includes Special Area of Conservation (SAC)/proposed Natural Heritage Area (pNHA).

The Corbally Stream and the downstream Camac River have a Water Framework Directive (WFD) status of “Moderate” and a WFD risk score of “ At risk of not achieving good status” Chemical conditions have been classified as “good” or “high”. The most recent (2019) quality data for the Camac River indicate that it is “Slightly polluted” but there is no available data for the Corbally Stream local to the subject site.

There is no direct open-water pathway between the site and Dublin Bay. However, there is an indirect pathway through the stormwater drainage which directly discharges into the Corbally Stream. Should any silt-laden stormwater from construction or hydrocarbon-contaminated water from a construction vehicle leak or manage to enter the watercourse, the suspended solids will naturally settle withing the stream. However, in the event of a worst case hydrocarbon leak of 1000 litres this would be diluted to background levels (water quality objectives as outlined in S.I. No.272 or 2009, S.I. No.386 of 2015 and S.I. No.77 of 2019) by the time the stormwater reaches the nearest Natura 2000 site (18km downstream).

The potential for impact on the aquifer is low based on the absence of any bulk storage of chemicals on the site. 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 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.

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 Irish Water. As construction sites have managed toilet blocks there is a minimal risk of contamination by direct pathway to the Corbally Stream. 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.

In the absence of the proposed mitigation measures, construction activity could have a slight, adverse, temporary, residual impact on receiving watercourses.



### 3.4.1.2 Operational Phase

In the absence of the specified mitigation measures, the potential operational phase impacts to the hydrology are outlined below:

- Unless the surface water outflow is restricted to the current greenfield rates there will be an increase in the surface water run-off due to the increase of the impermeable surfacing and a reduction of the ground water recharge.
- Increase of the wastewater discharge to the receiving network is calculated to be peak 1,158m<sup>3</sup> per day.
- Increase of the potable water consumption to an Average daily Domestic Demand of 270m<sup>3</sup>.
- Accidental leak of hydrocarbon and subsequent discharge into piped surface water drainage network and downstream into the Corbally Stream.

During operation, the potential for a release is low as there is no bulk fuel/chemical storage and no silt laden run-off. Stormwater will be collected by the SuDS intercepting systems which includes interception measures to capture initial run-off. Furthermore, there are petrol interceptors located upstream of all discharge locations to the Corbally Stream. The potential for hydrocarbon discharge is minimal based on an individual vehicle (70l) leak being the only source for hydrocarbon release. However, even if the operation of the SuDS and interceptor systems are excluded from consideration, there is likely no impact above water quality objectives as outlined in S.I. Non 272 of 2009 and S.I. No.77 of 2019 in the worst case scenarios described above. The volume of contaminant release is low and combined with the significant attenuation within the Corbally Stream, hydrocarbons will dilute to background levels with no likely impact above water quality objectives as outlined in S.I. Non 272 of 2009, S.I. Non 3865 of 2015 and S.I. Non 77 of 2019 at any Natura 2000 sites.

The wastewater is to be discharged to the Irish Water infrastructure and ultimately treated downstream at the Ringsend Wastewater Treatment Plant (WWTP) prior to discharge to Dublin Bay. It is noted that an application for a new upgrade to this facility is currently in planning. The plant operates under an EPA licence (D0034-01) and is currently in the process of being upgraded to a PE of 2.4 million. The most recent Annual Environmental Report (AER 2020) shows it is currently operating for a peak loading of 2.27million PE while originally designed for 1.64million PE. However, the current maximum hydraulic load (832,269m<sup>3</sup>/day) is less than the Peak hydraulic capacity as constructed (959,040m<sup>3</sup>/day), i.e., prior to any upgrade works. These upgrade works have commenced and are expected to be fully complete by 2025. The upgrade works to Ringsend WWTP will result in a higher quality of effluent discharge to Dublin Bay and will comply with the Urban wastewater Treatment Directive towards the end of 2023. A detailed EIAR was carried out as part of the application to upgrade the Ringsend WWTP which included hydrodynamic and chemical modelling of water quality/dispersion in Dublin Bay. The most recent water quality assessment of Dublin Bay WFD waterbody undertaken by the EPA (Water Quality in 2020: An Indicator Report 2021) also shows that Dublin Bay on the whole, currently has an “Unpolluted” water quality status (refer to AWN report and to [www.catchments.ie](http://www.catchments.ie) for further detail).

Even without upgrade to the WWTP, the peak effluent discharge calculated (13.4l/s) for the proposed development (which equates to c.0.12% of the peak hydraulic capacity), would not impact on the overall water quality within Dublin Bay and therefore would not have an impact on the current Water Body Status (as defined in the Water Framework Directive).

It is concluded that the proposed development will have no impact on the water quality discharge at the Ringsend WWTP. Assessment was considered the effect of cumulative events such as release of sediment laden water combined with a hydrocarbon leak (1000l as worst case scenario during construction phase). As there is adequate assimilation and dilution between the site and the Natura 2000 18km downstream of Boherboy, it is concluded that there will be no perceptible impact on water quality would occur at the Natura



2000 site as a result of construction or operation arising from the proposed development or with that of other proposed developments or planned development pursuant to statutory plans in the Greater Dublin, Meath and Kildare areas discharging to Ringsend WWTP will not be significant having regard to the size of the calculated discharge from the proposed development (13.4l/s) which includes wastewater flows from domestic, commercial and the possible future school site.

In summary, recent water quality assessments show that Dublin Bay meets the criteria for “unpolluted” water quality status (EPA, data until July 2021).

The currently under construction upgrade works to the Ringsend WWTP will result in improved water quality by the end of 2023 to ensure compliance with Water Framework Directive requirements.

All new developments are required to comply with SuDS which ensures management of run-off rate within the catchment of Ringsend WWTP.

The natural characteristics of Dublin Bay result in enriched water rapidly mixing and degrading such that the plume has no appreciable effect on water quality at Natura sites.

The proposed development will have no additional surface water runoff during a storm event over and above the current greenfield run-off rate and will therefore have no impact on the current water quality in any overflow situation at Ringsend WWTP.

In a worst case scenario of an unmitigated leak and not considering the operation of the designed SuDS elements and petrol interceptors upstream of all outfall points, there will be no perceptible risk to any Natura 2000 sites given the distance from source to Dublin Bay (c.18km). Potential contaminant loading will be attenuated, diluted and dispersed near the source area.

Implementation of the mitigation measures described in section 6.6.2 will prevent and minimise the potential impacts of the above risk sources.

### **3.4.3 Mitigation Measures**

#### **Construction Phase**

An Outline Construction Management Plan has been prepared to include the following construction stage mitigation measures. These will be implemented in full.

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 construction phase:

- 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 be taken 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.
- A flood storage compensatory area is to be constructed along the northern boundary of the site to provide an area for the Corbally Stream to overflow into during the 1%AEP rainfall event. This area is specified in detail in the SSFRA and summarised in Section 6.4.2 of this chapter. In providing the flood storage compensatory area there will be a **2.48m** freeboard provided to the lowest finished floor level on the site which is significantly greater than the Guidelines recommended 0.5m. Fig.6.7 indicates the proposed flood storage compensatory area and illustrates the top water level of the 1%AEP event to be **118.02mOD**.
- The existing ground level along the western edge of the Corbally Stream in the north-eastern portion of the site will be raised to provide a minimum freeboard of 750mm above the calculated 1%AEP event. This will eliminate the risk of overland flow and keep the flow within the channel through this area. Fig.6.8 indicates the extent of the localised raising of the stream embankment.
- The SSFRA has calculated the top water level at all crossings of the Corbally Stream for the 1%AEP event and determined that the soffit levels of the proposed crossings are a more than 500mm above the 1%AEP top water level and therefore comfortably comply with the recommendations given in the Guidelines.
- Sand, gravel or other loose materials brought to the site shall be stored in locations a minimum of 10m from the Corbally Stream 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.

Use construction best practices and the implementation of the Construction Management Plan is to take place to avoid the risk of contamination of the receiving watercourses or ground water. Pre-construction 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 Plan (OCMP) has been 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.

## Operational Phase

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/house/apartment floor levels have been designed to provide a greater than minimum 500mm freeboard above the highest estimated flood levels. The top of water level for the Q100+10% event has been estimated in the SSFRA to be **118.02mOD** and the lowest floor slab level on the site is 120.50mOD which is **2.48m** above the highest flood event for that 1%AEP event.
- 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, bio-retention 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 10% increase in rainfall due to climate change in accordance with the GSDSDS.
- The surface water runoff from the site will be limited to the greenfield runoff rate (59.7l/s) and the attenuated flows are to be stored in below ground geocellular systems in accordance with the GSDSDS. Further detailed information relating to the site development drainage and water infrastructure is outlined in a separate document prepared by Roger Mullarkey & Associates entitled "Drainage and Water



Infrastructure Engineering Report”.

- All communal designated waste storage areas will have gullies connected to the foul drainage network to facilitate wash down as required.
- 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 Irish Water Code of Practice for Wastewater Infrastructure 2020 and has been approved by Irish Water (refer to IW Statement of Design Acceptance letter Ref.CDS20004359 in Appendix 6A).
- The pumping station at the north of the site has been 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 station has also been designed to incorporate a duty and stand-by duty pump in case of failure of any single pump. Furthermore, the pumping station can accommodate 24hrs overflow storage below ground in the chamber designed. Refer to Dwg.No.1324B/321 for further detail. Watermain supply to the site is to be monitored by Irish Water using the required and designed flow meters as have been approved under the IW SDC design review. Refer to the submitted engineering drawing no.s 1324B/310-312 for location of same.
- Watermain supply to the site is to be monitored by Irish Water using the required and designed bulk flow meters as have been approved under the IW CDS design review. Refer to the submitted engineering drawing no.s 1324B/310-312 for location of same.

### **3.5 Air Quality and Climate**

This chapter assesses the likely air quality and climate impacts associated with the proposed development at a site at Boherboy, Saggart, Co. Dublin, and was prepared by Ciara Nolan, an environmental consultant in the air quality section of AWN Consulting Ltd.

#### **3.5.1 Potential Construction and Operational Phase Impacts**

##### Air Quality

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and the potential for nuisance dust. While construction dust tends to be deposited within 350 m of a construction site, the majority of the deposition occurs within the first 50 m. The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction. A review of Casement Aerodrome meteorological data (see Section 7.3.1) indicates that the prevailing wind direction is westerly to south-westerly and wind speeds are generally moderate in nature. In addition, dust generation is considered negligible on days where rainfall is greater than 0.2 mm. A review of historical 30 year average data for Casement Aerodrome indicates that on average 183 days per year have rainfall over 0.2 mm (Met Eireann, 2021) and therefore it can be determined that approximately 50% of the time dust generation will be reduced.

The proposed development can be considered large in scale and therefore there is the potential for significant dust soiling 100 m from the source (TII, 2011) (Table 7.5). There are a number of high sensitivity residential receptors in high density housing estates to the direct north and east of the site. There are also residential properties to the direct east and south of the site boundary. In the absence of mitigation there is the potential



for significant, negative, short-term impacts to nearby sensitive receptors as a result of dust emissions from the proposed development.

There is also the potential for traffic emissions to impact air quality in the short-term over the construction phase. Particularly due to the increase in HGVs accessing the site. The construction stage traffic has been reviewed and a detailed air quality assessment has been scoped out as none of the road links impacted by the proposed development satisfy the DMRB assessment criteria in Section 7.2.2.1. It can therefore be determined that the construction stage traffic will have an imperceptible, neutral and short-term impact on air quality.

## Climate

There is the potential for a number of greenhouse gas emissions to atmosphere during the construction of the development. Construction vehicles, generators etc., may give rise to CO<sub>2</sub> and N<sub>2</sub>O emissions. The Institute of Air Quality Management document *Guidance on the Assessment of Dust from Demolition and Construction* (IAQM, 2014) states that site traffic and plant is unlikely to make a significant impact on climate. Therefore, the impact on climate is considered to be neutral, imperceptible and short term.

## Human Health

Dust emissions from the demolition and construction phase of the proposed development have the potential to impact human health through the release of PM<sub>10</sub> and PM<sub>2.5</sub> emissions. As per Table 7.5 significant PM<sub>10</sub> emissions can occur within 25 m of the site for a development of this scale. There are a number of high sensitivity residential receptors in high density housing estates to the direct north and east of the site. There are also residential properties to the direct east and south of the site boundary. A number of these properties are within 25m of the site boundary. Therefore, in the absence of mitigation there is the potential for slight, negative, short-term impacts to human health as a result of the proposed development.

For the operational stage, the potential impact of the proposed development has been assessed by modelling emissions from the traffic generated as a result of the development. The impact of NO<sub>2</sub> emissions for the opening and design years was predicted at the nearest sensitive receptors to the development. This assessment allows the significance of the development, with respect to both relative and absolute impacts, to be determined.

TII's document *Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes* (2011) detail a methodology for determining air quality impact significance criteria for road schemes and this can be applied to any development that causes a change in traffic. The results of the assessment of the impact of the proposed development on NO<sub>2</sub> in the opening year 2025 are shown in Table 7.6 and for design year 2040 are shown in Table 7.7. The annual average concentration is in compliance with the limit value at all worst-case receptors in 2025 and 2040. Concentrations of NO<sub>2</sub> are at most 57% of the annual limit value in 2025 and at most 55% in 2040. The decrease in concentrations between the opening and design years is due to decreasing background concentrations.

The impact of the proposed development on annual mean NO<sub>2</sub> concentrations can be assessed relative to "Do Nothing (DN)" levels. Relative to baseline levels, there are predicted to be some imperceptible increases in NO<sub>2</sub> concentrations at receptors R1 and R2. Concentrations will increase by at most 0.8% of the annual limit value in 2025 and by 1.0% in 2040 at worst-case receptor R1. Receptor R2 will experience a 0.1% increase in concentrations in 2025 and a 0.03% increase in 2040. Using the assessment criteria outlined in Appendix 8.2, Table A8.2.1 and Table A8.2.2 the impact of the proposed development in terms of NO<sub>2</sub> is



considered negligible. Therefore, the overall impact of NO<sub>2</sub> concentrations as a result of the proposed development is long-term, negative and imperceptible.

The potential impact of the proposed development on ambient air quality in the operational stage is considered long-term, localised, negative and imperceptible and therefore, no mitigation is required.

Climate change has the potential to alter weather patterns and increase the frequency of rainfall in future years. As a result of this there is the potential for flooding related impacts on site in future years. However, adequate attenuation and drainage have been provided for to account for increased rainfall in future years as part of the design of this development. Therefore, the impact will be long-term, localised, neutral and imperceptible.

There is also the potential for increased traffic volumes to impact climate. The predicted concentrations of CO<sub>2</sub> for the future years of 2025 and 2040 are detailed in Table 8.9. These are significantly less than the 2025 and 2030 targets set out under EU legislation. Targets past 2030 are not available, therefore, the 2040 impact is assessed against the 2030 target. It is predicted that in 2025 the proposed development will increase CO<sub>2</sub> emissions by 0.00009% of the EU 2025 target. Similarly low increases in CO<sub>2</sub> emissions are predicted to occur in 2040 with emissions increasing by 0.00006% of the EU 2030 target. Therefore, the potential climate impact of the proposed development is considered negative, long-term and imperceptible.

### Human Health

Traffic related air emissions have the potential to impact human health if they do not comply with the ambient Air Quality Standards detailed in Table 7.1. However, air dispersion modelling of traffic emissions has shown that levels of all pollutants are below the ambient air quality standards set for the protection of human health (see Table 7.1). It can be determined that the impact to human health during the operational stage is long-term, negative and imperceptible and therefore, no mitigation is required.

### **3.5.2 Mitigation Measures**

A detailed dust minimisation plan associated with a high level of dust control is outlined in Appendix 7.3 of Volume III of the EIAR. This plan draws on best practice mitigation measures from Ireland, the UK and the USA in order to ensure the highest level of mitigation possible.

In summary the measures which will be implemented will include:

- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.
- Any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions.
- Vehicles exiting the site shall make use of a wheel wash facility where appropriate, prior to entering onto public roads.
- Vehicles using site roads will have their speed restricted, and this speed restriction will be enforced rigidly. On any un-surfaced site road, this will be 20 kph, and on hard surfaced roads as site management dictates.
- Public roads and footpaths outside the site will be regularly inspected for cleanliness and cleaned as necessary. If sweeping using a road sweeper is not possible due to the nature of the surrounding area then a suitable smaller scale street cleaning vacuum will be used.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.





- During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.
- Hoarding or screens shall be erected around works areas to reduce visual impact. This will also have an added benefit of preventing larger particles of dust from travelling off-site and impacting receptors.

At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust would be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

No mitigation is proposed for the operation phase of the proposed development as it is predicted to have an imperceptible impact on air quality and climate.

### **3.6 Noise**

Chapter 8 of the EIAR has been prepared by AWN Consulting Ltd. (AWN) to assess the potential noise and vibration effects of the proposed development. This chapter includes a description of the receiving ambient noise climate in the vicinity of the subject site and an assessment of the potential noise and vibration impact on the surrounding environment associated with the proposed development, during both the short-term construction phase and the permanent operational phase. The assessment of direct, indirect and cumulative noise and vibration effects on the surrounding environment have also been considered in this chapter.

This assessment has been prepared by Dr. Aoife Kelly BSc PhD MIOA (Senior Acoustic Consultant) at AWN, and was undertaken using the following methodology:

- Detailed baseline noise monitoring has been undertaken across the development site to determine the range of noise levels at varying locations across the site;
- Typical ambient noise levels across the local area have been measured, and these are used to identify appropriate construction phase noise criteria at the closest noise sensitive locations (NSLs);
- 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 to estimate the likely noise emissions during the construction phase of the project at the NSLs to the development site;
- Predictive calculations have been performed to assess the potential impacts associated with the operational phase of the development at the most sensitive locations surrounding the development site;
- A schedule of mitigation measures has been proposed, where relevant, to control the noise and vibration emissions associated with both the construction and operational phases of the proposed development.

#### **3.6.1 Potential & Predicted Impacts of the Proposed Development**

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:

- Draft Advice Notes for Preparing Environmental Impact Statements (EPA 2015); and
- Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the EPA Guidelines) (EPA 2017).



There are no statutory standards in Ireland relating to noise and vibration limit values for construction works or for environmental noise relating to the operational phase of the proposed development. In the absence of specific statutory Irish guidelines, the assessment has made reference to non-statutory national guidelines, where available, in addition to international standards and guidelines relating to noise and / or vibration impact for environmental sources.

## **Vibration Criteria**

### **Construction Phase**

Vibration standards address two aspects: those dealing with cosmetic or structural damage to buildings and those with human comfort. For the purpose of this scheme, the range of relevant criteria used for surface construction works for both building protection and human comfort are expressed in terms of Peak Particle Velocity (PPV) in mm/s.

It is considered that the proposed development will not give rise to any significant levels of vibration in the receiving environment. Vibration criteria are therefore not deemed to be necessary for the operational phase of this development and therefore not been addressed further in this chapter.

### **Construction Phase Noise Impacts**

It is predicted that the construction programme will create typical construction activity related noise on site. During the construction phase of the proposed development, a variety of items of plant will be in use, such as excavators, rock breakers, lifting equipment, dumper trucks, compressors, and generators.

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 potential for vibration at neighbouring sensitive locations during construction is typically limited to excavation works and lorry movements on uneven road surfaces. Due to the nature of the construction works on site there is little likelihood of structural or even cosmetic damage to existing neighbouring dwellings as a result of vibration.

Construction predictions indicate that a significant impact may temporarily occur when works are on-going at the boundaries to the dwellings bounding the site, this is when works will be at 10m distance to the noise sensitive receptors. However, the vast majority of the construction works will take place at distances from the receptors where no significant impacts are predicted, for instance at distances of 25m and greater there are no significant impacts predicted with the exception of the rock breaking phase which will be limited to a temporary period.

It should be noted that where significant impacts are predicted, these are worst case scenarios that assume all plant for an activity will operate along the boundary line opposite a sensitive receptor, under real world conditions this is unlikely to occur. Construction noise levels will be lower than these levels for the majority of the time at the majority of properties in the vicinity of the proposed development. It should also be noted that blasting is not proposed at any stage of the project and rock will be extracted via mechanical means. Where necessary on the site, the duration of rock breaking activity will be measured in weeks rather than months with the exact duration dependant on ground conditions and the contractor's approach.

### **Construction Traffic**

No construction traffic information has been made available but it has been assumed that the haul route is most likely to use the already heavily trafficked N81. An increase of 25% in traffic is required to increase overall traffic noise levels by 1dB, which is insignificant in the overall context of the noise environment along the N81 and local roads in the vicinity of the site. Therefore, the medium-term noise environment assumed



for this project is expected to be within at least 1dB of the baseline scenario, which would give a magnitude of increase in traffic noise that is negligible and is not significant.

### **Operational Phase Noise Impacts**

Due consideration must be given to the nature of the primary noise sources when setting criteria. Potential noise impacts during the operational phase include the following:

- Vehicular traffic accessing and moving around the site;
- Building and mechanical services plant; and
- Creche playground noise breakout.

In summary, the predicted increase in noise levels associated with vehicles at road junctions in the vicinity of the proposed development is of long-term not significant impact.

In summary, the predicted increase in noise levels associated with vehicles at the internal road junctions in the vicinity of the proposed development is of long-term, not significant impact.

### **Building Services Plant**

Once operational, there will be building services plant items required to serve the commercial and residential aspect of the development. The specific requirements for mechanical and electrical plant items for each element of the residential buildings or creche buildings has not yet been progressed at this stage of the design. Most of this plant will be capable of generating noise to some degree and may operate 24 hours a day. It would therefore be most noticeable during quiet periods (i.e. overnight). Noisy plant with a direct line-of-sight to noise sensitive properties as well as louder plant areas on roof would potentially have the greatest impact.

Whilst general locations for residential plant (air source heat pumps and solar panels), and ESB substations have been established (ground level) particular details of items of plant are as yet unknown, therefore it is not possible to calculate noise levels to the surrounding environment. Depending on the operational plant requirements, if plant rooms are proposed, these will likely require ventilation to atmosphere via louvered areas and or wall ventilation. In this instance, it is best practice to set appropriate noise limits that will inform the detailed design during the selection and layout of building services for the development.

As the plant will be selected at a later stage, they will be designed and located so that there is no negative impact on sensitive receivers within the development itself. The cumulative operational noise level from building services plant at the nearest NSL within the development (e.g. houses / apartments, etc.) will be designed/attenuated to meet the relevant BS 4142 noise criteria for day and night-time periods as set out in this assessment.

In summary, the predicted increase in noise levels associated with building services plant in the vicinity of the proposed development is of long-term, not significant impact.

### **Creche playground noise breakout**

Measurement of noise levels generated by children playing outdoors made at several crèches and kindergartens indicate typical noise levels are of the order of 56 dB  $L_{Aeq,1hr}$  at distance of 5m. The nearest off-site NSLs to the east are some 130m distance from the Crèche play area. Considering the distance and screening from proposed operational activities from the crèche are calculated to be below 30 dB  $L_{Aeq,1hr}$  at the nearest NSLs. The predicted values are also below the range of baseline noise levels recorded to the



east of the site (Location AN2). The resultant noise impact is therefore not significant.

In summary, the predicted increase in noise levels associated with creche playground noise breakout in the vicinity of the proposed development is of long-term, not significant impact.

### **3.6.2 Mitigation Measures**

#### **3.6.2.1 Construction Phase**

Mitigation measures for the construction phase are set out below in order to reduce potential impacts as far as practicable to within the adopted design goals for noise and vibration.

#### **Noise and Vibration**

Best practice noise and vibration control measures will be employed by the contractor during the construction phase in order to avoid significant impacts at the nearest sensitive NSLs. The best practice measures set out in BS 5228 (2009 +A1 2014) Parts 1 and 2 will be complied with. This includes guidance on several aspects of construction site mitigation measures, including, but not limited to:

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

Further 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 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.

The following best practice migration measures should be considered:

- Site compounds should be located away from noise sensitive boundaries within the site constraints. The lifting of bulky items, dropping and loading of materials within these areas should be restricted to normal working hours.



- For mobile plant items such as cranes, dump trucks, excavators and loaders, maintaining enclosure panels closed during operation can reduce noise levels over normal operation. Mobile plant should be switched off when not in use and not left idling.
- For steady continuous noise, such as that generated by diesel engines, it may be possible to reduce the noise emitted by fitting a more effective exhaust silencer system.
- For percussive tools such as pneumatic breakers, noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensure any leaks in the air lines are sealed. Localised screens should be erected around breaker or drill bits when in operation in close proximity to noise sensitive boundaries.
- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- Compressors, generators and pumps should be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- 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. Standard construction site hoarding (2.4m in height) with a mass per unit of surface area greater than 7 kg/m<sup>2</sup> can provide adequate sound insulation. This is recommended, as a minimum, around the site perimeter.

### **Liaison with the Public**

A designated noise 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, prior to particularly noisy construction activity, the liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

### **Project Programme**

The phasing programme will be arranged so as to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest sensitivity. If ground breaking 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 ensure noise limits are not exceeded due to cumulative activities. This will be reviewed in relation to other potential cumulative works occurring on adjacent construction sites in close proximity to noise sensitive properties, which have the potential to lead to significant construction noise impacts. To date no other construction sites nearby have been identified.

#### **3.6.2.2 Operational Phase Noise Mitigation**

##### **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.

##### **Building Services Plant**

The noise impact assessment outlined previously has demonstrated that once the mechanical plant is selected to have cumulative noise emissions lower than 45 dB L<sub>Aeq,15min</sub> during daytime periods and 40 dB L<sub>Aeq,15min</sub> at night at the facades of the nearest NSLs, specific mitigation measures are not required in order to avoid a significant noise impact at the nearest noise sensitive locations.



Notwithstanding this, the following practices are recommended for all plant items in order to minimise potential noise disturbance for neighbours:

- all mechanical plant items shall be regularly maintained to ensure that excessive noise generated by any worn or rattling components is minimised;
- any new or replacement mechanical plant items, including plant located inside new or existing buildings, shall be designed so that all noise emissions from site do not exceed the noise limits outlined in this document; and,
- Installed plant will have no tonal or impulsive characteristics when in operation.

### **Internal Roads**

During the operational phase of the development, noise mitigation measures with respect to the internal roads on site are not deemed necessary.

### **Creche playground noise breakout**

During the operational phase of the development, noise mitigation measures with respect to the creche playground on site are not deemed necessary.

### **Operational Phase Vibration Mitigation**

Operational vibration impacts are expected to be within acceptable levels, therefore no mitigation measures are required.

## **3.7 Material Assets: Built Services**

This chapter of the EIAR was prepared by Roger Mullarkey & Associates Consulting Engineers and Barry O'Neill of BBSC Consulting Mechanical & Electrical Engineers and assesses and evaluates the likely impact of the proposed development on existing surface water and foul drainage, and utility services in the vicinity of the site during both the construction and operational phases, as well as identifying the nature of any impacts and provide the necessary mitigation measures arising from the proposed development. The material assets considered in this chapter include Surface Water Drainage, Foul Drainage, Water Supply, Power, Gas and Telecommunications.

### **3.7.1 Potential Construction and Operational Phase Impacts**

Potential impacts of the proposed development during the construction phase include:

#### Surface Water

In order to construct the development, significant amounts of the top-soil will be removed and stored on the site for future use. When the topsoil has been removed the sub soil layers will be exposed to weathering and there is a potential for erosion of this layer from the inevitable rainfall and runoff. It has been estimated that c.40,700m<sup>3</sup> of topsoil will be disturbed during the construction phase.



Potential sources and impacts that may occur during the construction stage are as follows;

- Surface water runoff during the development's construction stage can cause silt from the exposed sub-soil be washed into the Corbally Stream causing excess siltation downstream;
- There is a risk that site contaminants from cement/concrete generated during wash down of concrete delivery trucks could enter the Corbally Stream causing pollution;
- There is a possibility that accidental fuel leaks/spills could be washed into the Corbally Stream or leak into the exposed sub-soil which could result in an increased risk of contamination to the receiving watercourses and groundwater;
- Over pumping of rainwater from foundation excavations could contain excess silt levels and could have a potential impact on the on the existing hydrology cause increased silt levels in the surrounding watercourse;
- Improper discharge of foul drainage from the contractors site compound could have an impact on the existing hydrology.

There is no direct open-water pathway between the site and Dublin Bay. However, there is an indirect pathway through the stormwater drainage which directly discharges into the Corbally Stream. Should any silt-laden stormwater from construction or hydrocarbon-contaminated water from a construction vehicle leak or manage to enter the watercourse, the suspended solids will naturally settle within the stream. However, in the event of a worst case hydrocarbon leak of 1000 litres this would be diluted to background levels (water quality objectives as outlined in S.I. No.272 of 2009, S.I. No.386 of 2015 and S.I. No.77 of 2019) by the time the stormwater reaches the nearest Natura 2000 site (18km downstream).

The potential for impact on the aquifer is low based on the absence of any bulk storage of chemicals on the site. 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 to ground at the site. As such there 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.

In the absence of the proposed mitigation measures, construction activity could have a slight, adverse, temporary, residual impact on receiving watercourses.

### Foul Water

The construction of the foul drainage system on the site will be carried out at the same time as the other drainage/services for the development. This will mainly involve construction of pipes and manholes using trench excavation. An underground foul pumping station is to be constructed at the lowest elevation point on the site in the north-east corner of the subject lands and is proposed to have only 2 no. above ground kiosks visible as per the Irish Water standard.

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 Irish Water. As construction sites have managed toilet blocks there is a minimal risk of contamination by direct pathway to the Corbally Stream. 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 there 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.



As there is no interface with the existing local foul drainage infrastructure, the potential impact of the proposed development on the local foul sewerage network during the construction phase of the development would be negligible.

### Watermain

Provision of a new water main distribution network will involve construction activities within the subject lands mainly involving trench excavations conducted in parallel with the other services. Water will be required during construction activities and servicing of the temporary site compound. The development site will be connected to the local mains water supply. Given the scale and transient nature of construction works, the water demand on the local mains water systems would not be considered significant and would not be anticipated to impact upon local power or water supply. The potential impact on the local public water supply network would be short term and imperceptible.

### Telecoms

Telecommunications requirements during the construction phase will be primarily provided by means of mobile phones and or fixed line broadband.

The site compound will require a power and telecommunications connection, which comprise of connecting to the existing network.

These connections shall be temporary and negligible in nature. Fixed telecoms will not be operational during the construction phase.

The construction phase is unlikely to give rise to the requirement to divert fixed telecom lines but extend the existing infrastructure to suit site temporary construction requirements.

The local telecom ducted service may require to be extended into the site to facilitate telecoms on very focused and limited manner.

These works are normally characterised as a temporary, regionally short term, with minimal impact to existing users.

### Natural Gas Supply

The supply of gas to the proposed development site will not be operational during the construction phase.

The proposed works will involve a live tap into the existing infrastructure carried out in accordance with standard rules relating to these works as outlined under Bord Gais requirements for same.

It is expected that there will be no potential loss of supply from the Gas Networks Ireland infrastructure while carrying out works to provide service connections.

These works are normally characterised as a temporary, regionally short term, with minimal impact to existing users.





## Electrical Supply

Construction related activities will require temporary connection to the local electrical supply network, for the servicing of the temporary site compound.

The development site will be connected to the local electricity network system but given the scale and transient nature of construction works, the power demand on the local electricity systems is not considered significant and is not anticipated to impact upon local power supply.

These works are normally characterised as a temporary, regionally short term, with minimal impact to existing users or to the local electrical grid.

The diversion of the overhead power lines to sub-terrain ducting will be carried out by ESB under planned outages conditions, as a result these works are normally characterised as a temporary, regionally short term, with minimal impact to existing users or to the local electrical grid.

There is a potential for the connecting to ESB cable routes which could result in the loss of connectivity to and / or interruption of the supply from the electrical grid to the surrounding areas.

Any loss of supply will be managed by Eirgrid/ ESN to minimise impact on neighbouring properties and as per the Commission for Regulation of Utilities and as per COMMISSION REGULATION (EU) 2017/1485, power loss may not exceed set time limits as outlined in national requirements imposed on Eirgrid by CRU. It is noted that planned outages and servicing of overhead lines typically occurs every 4 to 5 years and is normal practice within Eirgrid and ESN networks with no loss of power from the national grid to local sub systems.

Potential impacts during the operational stage are:

## Surface Water

In the absence of the specified mitigation measures identified in Chapter 6, Section 6.6.2, the potential operational phase impacts are outlined below:

Unless the surface water outflow is restricted to the current greenfield rates there will be an increase in the surface water run-off due to the increase of the impermeable surfacing and a reduction of the ground water recharge.

During operation, the potential for a release is low as there is no bulk fuel/chemical storage and no silt laden run-off. Stormwater will be collected by the SuDS intercepting systems which includes interception measures to capture initial run-off. Furthermore, there are petrol interceptors located upstream of all discharge locations to the Corbally Stream. The potential for hydrocarbon discharge is minimal based on an individual vehicle (70l) leak being the only source for hydrocarbon release. However, even if the operation of the SuDS and interceptor systems are excluded from consideration, there is likely no impact above water quality objectives as outlined in S.I. Non 272 of 2009 and S.I. No.77 of 2019 in the worst case scenarios described above. The volume of contaminant release is low and combined with the significant attenuation within the Corbally Stream, hydrocarbons will dilute to background levels with no likely impact above water quality objectives as outlined in S.I. Non 272 of 2009, S.I. Non 3865 of 2015 and S.I. Non 77 of 2019 at any Natura 2000 sites.



It is not anticipated that there will be any long-term impacts on the hydrology or water services during the operational phase of the development. Any residual risk will emanate from contamination of surface water infiltrating to the subsoil via the SuDS features incorporated within the scheme. The surface water drainage has been designed to maintain the flows from the site at the greenfield run-off rates. Refer also to Chapter 7 Water Services for more information.

Refer also to Chapter 6 “Water” of the EIAR (Volume II) for more information.

### Foul Water

Increase of the wastewater discharge to the receiving network is calculated to be peak 1,158m<sup>3</sup> per day.

The wastewater is to be discharged to the Irish Water infrastructure and ultimately treated downstream at the Ringsend Wastewater Treatment Plant (WWTP) prior to discharge to Dublin Bay. It is noted that the application for a new upgrade to this facility is currently in planning. The plant operates under an EPA licence (D0034-01) and is currently in the process of being upgraded to a PE of 2.4 million. The most recent Annual Environmental Report (AER 2020) shows it is currently operating for a peak loading of 2.27million PE while originally designed for 1.64million PE. However, the current maximum hydraulic load (832,269m<sup>3</sup>/day) is less than the Peak hydraulic capacity as constructed (959,040m<sup>3</sup>/day), i.e., prior to any upgrade works. These upgrade works have commenced and are expected to be fully complete by 2025. The upgrade works to Ringsend WWTP will result in a higher quality of effluent discharge to Dublin Bay and will comply with the Urban wastewater Treatment Directive towards the end of 2023. A detailed EIAR was carried out as part of the application to upgrade the Ringsend WWTP which included hydrodynamic and chemical modelling of water quality/dispersion in Dublin Bay. The most recent water quality assessment of Dublin Bay WFD waterbody undertaken by the EPA (Water Quality in 2020: An Indicator Report 2021) also shows that Dublin Bay on the whole, currently has an “Unpolluted” water quality status (refer to AWN report and to [www.catchments.ie](http://www.catchments.ie) for further detail).

Even without upgrade to the WWTP, the peak effluent discharge calculated (13.4l/s) for the proposed development (which equates to c.0.12% of the peak hydraulic capacity), would not impact on the overall water quality within Dublin Bay and therefore would not have an impact on the current Water Body Status (as defined in the Water Framework Directive).

It is concluded that the proposed development will have no impact on the water quality discharge at the Ringsend WWTP. Assessment was considered the effect of cumulative events such as release of sediment laden water combined with a hydrocarbon leak (1000l as worst case scenario during construction phase). As there is adequate assimilation and dilution between the site and the Natura 2000 18km downstream of Boherboy, it is concluded that there will be no perceptible impact on water quality would occur at the Natura 2000 site as a result of construction or operation arising from the proposed development or with that of other proposed developments or planned development pursuant to statutory plans in the Greater Dublin, Meath and Kildare areas discharging to Ringsend WWTP will not be significant having regard to the size of the calculated discharge from the proposed development (13.4l/s) which includes wastewater flows from domestic, commercial and the possible future school site.

In summary, recent water quality assessments show that Dublin Bay meets the criteria for “unpolluted” water quality status (EPA, data until July 2021).

The currently under construction upgrade works to the Ringsend WWTP will result in improved water quality by the end of 2023 to ensure compliance with Water Framework Directive requirements.



All new developments are required to comply with SuDS which ensures management of run-off rate within the catchment of Ringsend WWTP.

The natural characteristics of Dublin Bay result in enriched water rapidly mixing and degrading such that the plume has no appreciable effect on water quality at Natura sites.

The proposed development will have no additional surface water runoff during a storm event over and above the current greenfield run-off rate and will therefore have no impact on the current water quality in any overflow situation at Ringsend WWTP.

In a worst case scenario of an unmitigated leak and not considering the operation of the designed SuDS elements and petrol interceptors upstream of all outfall points, there will be no perceptible risk to any Natura 2000 sites given the distance from source to Dublin Bay (c.18km). Potential contaminant loading will be attenuated, diluted and dispersed near the source area.

Confirmation of the capacity feasibility was received from Irish Water as part of the preparation of this application and can be viewed in Appendix A of Volume III of this EIA and the Roger Mullarkey & Associates main report entitled "Drainage and Water Infrastructure Engineering Report".

The development will add to the environmental and financial costs associated with treatment and disposal before final discharge at the WWTP.

The potential impact from the operational phase of the development is therefore likely to be long term and negligible.

Refer also to Chapter 6 "Water" of the EIA (Volume II) for more information.

### Watermains

The impact of the operational phase of the proposed development on the water supply network will be the increased demand on the local system. That increase is estimated to be an Average daily Domestic Demand of 270m<sup>3</sup>.

A Pre-Connection enquiry was submitted to Irish Water (IW) and the following that a Confirmation of Feasibility (CoF) letter (25/08/20) was received from IW and concluded that a connection to the water network is "Feasible without infrastructure upgrade by Irish Water". Subsequently a full set of watermain design drawings (Dwg.'s 1324B/310-312) were submitted to Irish Water for their technical review and as a result they issued a Statement of Design Acceptance dated 19/08/21 (Ref.CDS20004359) noting that "Irish Water has no objection to your proposals". The CoF and Statement of Acceptance letters can be viewed in Appendix 6 of Volume III of this EIA.

As such additional water quantities will need to be treated and supplied through the existing network to the site. This will require extra cost as well as increasing abstraction volumes from the existing source. The potential impact of the proposed development on the public water supply network is likely to be long term and minimal given that Irish water have assessed and approved the water capacity for the development.

Refer to the submitted engineering drawing no.s 1324B/310-312 for the watermain layout and to drawing no.1324B/316 for sections across the existing trunk watermains which have been reviewed and approved by Irish Water.



## Telecoms

The impact of the operational phase of the proposed development will increase demand on the existing local systems, however by means of increasing bandwidth on the existing system there will be a minor impact on the existing telecoms network(s).

The potential impact from the operational phase on the telecoms network is likely minimal.

## Natural Gas Supply

The development will be connected to the Gas Networks Ireland national gas supply network. The impact of the operational phase of the proposed development on the gas supply network is not likely to increase the demand on the existing supply. The potential impact from the operational phase on the gas supply network is minimal due to policy changes expected and being enacted to reduce societies demand on fossil fuels.

Provision for a new c.200mm 4bar GNI mains pipe shall be extended into the proposed development. Details of possible district regulation installation (DRI) units will be determined by GNI in advance of construction commencing to allow for future hydrogen distribution and meet current demands as outlined under section 9.4.6 in the EIAR (Volume II).

## Electrical Supply

The impact of the operational phase of the proposed development on the electrical supply network is likely to increase the demand on the existing supply.

Electrical supply will be by means of a number of in ground 125mm red coloured ductwork which will be provided to allow for ESB services to be distributed across the proposed development based on engineering requirements to be agreed with ESB.

Up to approximately 7 no. ESB sub-stations is expected to be required to serve the development, with an additional sub-station expected to serve a future school, should it materialise.

Each unit sub will be centrally located to the surrounding areas to limit ESB runs. A 125mm ESB duct will be provided from the unit sub to the ESB mini-pillars to feed dwellings and public lighting.

Services to the home will be via a minipillar (1 no, minipillar serves up to 8 no. homes). Services shall terminate with the ESB meters positioned on the external walls of each house within recessed wall cabinets.

The necessary cabling infrastructure will be provided as part of the development and provision will be made within each dwelling for ducting from the distribution board to an external box; this will allow the homeowner the installation of an e-car charging point.

The potential impact from the operational phase on the electricity supply network is long term in nature and will require additional power from the national grid. The additional load falls within the expected simulation of future energy needs as per of CRU's "Tomorrow's Energy Scenarios (TES) publications" requirements up to the year 2040.

There are no predicted cumulative impacts arising from the construction or operational phase.



### 3.7.2 Mitigation Measures

#### Construction Phase

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

Prior to and during the construction, the contractor will liaise with each of the relevant utilities provider. The contractor will apply for the relevant permit/licence to and comply with each utility providers requirements.

Unless this has been agreed in advance with the relevant service provider, the Contractor will be obliged to put measures in place 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 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 impact on the Material Assets/Built Services in the area of the proposed development during the construction phase:

#### **Surface Water Infrastructure**

- 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 top soil 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 the Corbally Stream 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.
- Use construction best practices and the implementation of the Construction Management Plan is to take place to avoid the risk of contamination of the receiving watercourses or ground water. Pre-construction 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 Plan has been 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.

### **Foul/Wastewater 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 Irish Water.
- 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 the Corbally Stream.
- As such there 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.
- Construction of the proposed new foul outfall pipe across Carrigmore Park will be fully coordinated with Irish Water 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 Irish Water 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.
- The proposed foul pumping station to serve the northern located apartment Blocks A and C or the potential future school site is to be in accordance with the Irish Water Code of Practice for Wastewater Infrastructure 2017 – Part 5 – Pumping Stations. The details of which can be viewed on drawing No.1324B/321. Please note that the foul pumping station is below ground and is proposed to have only 2 No. above ground kiosks visible as per the IW standards as per the below extracts from IW STD-WW-30A and 31A.
- The pumping station has been located to provide c.40m separation distance to the nearest existing habitable building and c.22m to the nearest proposed building. The separation distances provided exceed the Irish Water recommended 15m and have been approved by Irish Water as part of the Statement of Design Acceptance dated 19/08/21 and agreed in principle with South Dublin County Councils Water Services Department as part of the pre-planning process.
- A Pre-Connection enquiry was submitted to Irish Water (IW) and the subsequent Confirmation of Feasibility (CoF) letter (25/08/20) from IW concluded that a connection to the network is “Feasible subject to upgrades” to existing pipelines and the cost of same is to be agreed at connection application stage. A copy of the CoF letter can be viewed in Appendix 6A of Volume III of this EIAR.
- Further to the CoF stage of the engagement with IW, comprehensive discussions were held between the Applicants and IW to agree the technical details of the proposed foul drainage infrastructure and connection. As a result of those engagements the relevant foul drainage drawings were submitted to Irish Water for technical review and subsequently, they issued a Statement of Design Acceptance dated 19/08/21 (Ref.CDS20004359) noting that “Irish Water has no objection to your proposals”. The Statement of Acceptance letter can be viewed in Appendix 6A of Volume III of this EIAR.
- Layout, levels, gradients, pipe sizes and details of the proposed foul drainage infrastructure can be viewed on the planning submission drawing no.s 1324B/307-309, 321-329.

### **Potable Water Infrastructure**

The proposed water supply for the development is to be made by connecting to an existing 400mm diameter main located in the Boherboy Road (L2008) to the south of the site.



The construction compound's potable water supply shall be protected from contamination by any construction activities or materials.

A single 200mm diameter connection has been approved by Irish Water and will supply the proposed development via a 200mm diameter spine watermain with interconnecting 150mm and 100mm diameter looped branch watermains connected to it. Individual houses are to be supplied with a 25mm connection. In reference to the Irish Water Code of Practice for Water Infrastructure (July 2020) document, each individual residential dwelling within the development is to be provided with a boundary box. Each dwelling will be fitted with a cold-water storage tank to provide 24 hours of supply. Apartments will be supplied via a centralised water tanks and system per apartment block.

All watermain layout, connections, hydrants, valves and details have been designed in accordance with the Irish Water Code of Practice for Water Infrastructure 2020 and the Water Infrastructure Standard Details 2020.

Refer to the submitted engineering drawing no.s 1324B/310-312 for the watermain layout and to drawing no. 1324B/316 for sections across the existing trunk watermains which have been reviewed and approved by Irish Water.

A Pre-Connection enquiry was submitted to Irish Water (IW) and the following that a Confirmation of Feasibility (CoF) letter (25/08/20) was received from IW and concluded that a connection to the water network is "Feasible without infrastructure upgrade by Irish Water". Subsequently a full set of watermain design drawings (Dwg.'s 1324B/310-312) were submitted to Irish Water for their technical review and as a result they issued a Statement of Design Acceptance dated 19/08/21 (Ref.CDS20004359) noting that "Irish Water has no objection to your proposals". The CoF and Statement of Acceptance letters can be viewed in Appendix 6A of Volume III of this EIAR.

Exclusion zones and setback requirements to the existing trunk watermains have been established in consultation and agreement with Irish Water 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 Irish Water Asset Management section and are shown on the submitted RMA Dwg.No.13214B/316 included in the application.

The construction compound's potable water supply will be protected from contamination by any construction activities or materials.

## **Operational Phase**

### **Electrical Supply**

In advance of construction commencing, the Contractor will prepare Method Statement detailing proposals for works in the vicinity of existing overhead electrical cables.

The contractor is to carry out scanning/GPR surveys in advance of site excavations.

Connections to the existing electrical networks will be coordinated with the relevant utility provider and carried out by approved contractors.

Contractor to comply with HSA Code of Practice for Avoiding Danger from Underground Services.





The Contractor will coordinate with ESB Networks Ireland regarding the relocation of the existing overhead power lines to ensure minimal interruption to the existing electricity network.

All ducting, cable installation and placement of new poles will be constructed in advance of decommissioning of existing overhead electricity lines.

As the time frames for planned outages is required to be planned the ESB will be engaged at an early stage to ensure any potential issues with utility connections are reviewed and mitigated as early in the process as possible. ESB will not engage with design process until such time as planning has been approved, and an application for power has been made with the scheme name and numbering has been approved by the local County Council.

### Utilities Infrastructure

All connections to the existing gas and telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.

The Site Manager will be responsible for establishing a protocol of communication with nearby residents in the event of unavoidable temporary disruption to material assets and be the single contact point. Leaflet drops, publicly visible signboard and advertisements in local news bulletins will form part of the communication strategy between the development and locality.

On completion of the construction phase of the development, there are no further mitigation measures required in relation to the telecoms, gas and electrical infrastructure.

### Operational Phase

As detailed in Chapter 6 “Water” of Volume II of the EIAR, 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. The road and block levels along the northern boundary of the site have been raised above the Flood Zone A & B levels as per the SSFRA recommendations.
- The house/apartment floor levels have been designed to provide a greater than minimum 500mm freeboard above the highest estimated flood levels. The top of water level for the Q100+10% event has been estimated in the SSFRA to be **118.02mOD** and the lowest floor slab level on the site is 120.50mOD which is **2.48m** above the highest flood event for that 1%AEP (1 in 100 year) event.
- 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, bio-retention 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 10% 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 (59.7l/s) and the attenuated flows are to be stored in below ground geocellular systems 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 Roger Mullarkey & Associates entitled “Drainage and Water Infrastructure Engineering Report”.
- All communal designated waste storage areas will have gullies connected to the foul drainage network to facilitate wash down as required.
- 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 Irish Water Code of Practice for Wastewater Infrastructure 2020 and has been approved by Irish Water (refer to IW Statement of Design Acceptance letter Ref.CDS20004359 in Appendix 6A of Volume III of this EIAR).
- The pumping station at the north of the site has been 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 station has also been designed to incorporate a duty and stand-by duty pump in case of failure of any single pump. Furthermore, the pumping station can accommodate 24hrs overflow storage below ground in the chamber designed. Refer to Dwg.No.1324B/321 for further detail. Watermain supply to the site is to be monitored by Irish Water using the required and designed flow meters as have been approved under the IW SDC design review. Refer to the submitted engineering drawing no.s 1324B/310-312 for location of same.
- Usage of low flush toilets in the residences and installation of rainwater butts as identified on the RMA drainage drawings will reduce the demand on the public water supply infrastructure and the wastewater infrastructure.
- Implementation of photovoltaic solar panels on the roofs of the buildings will reduce the potential demand on the electrical network.

On completion of the construction phase of the development, there are no further mitigation measures required in relation to the telecoms, gas and electrical infrastructure.

### **3.8 Material Assets: Transportation**

This chapter of the EIAR assesses the likely effects of the proposed development in terms of vehicular, pedestrian and cycle access during the construction and operational phases of the proposed development, and was prepared by Ronan Kearns, Chartered Engineer with Pinnacle Consulting Engineers.

The chapter describes: the methodology; the receiving environment at the application site and surroundings; the characteristics of the proposal in terms of physical infrastructure; the potential impact that proposals of this kind would be likely to produce; the predicted impact of the proposal examining the effects of the proposed development on the local road network; and the remedial or reductive measures required to prevent, reduce or offset any significant adverse effects.



### 3.8.1 Receiving Environment

The application site is located approximately c. 13.7 Km southwest of Dublin City Centre and is bounded to the north by Carrigmore Estate; Corbally Estate to the east; agricultural land to the west and Boherboy Road to the south.

The road network surrounding the site provides a variety of movement functions. Boherboy Road links Tallaght in the east with Saggart in the West. The N82 provides access to Dublin via the M7/N7 and to other inter urban motor ways via the M50. Boherboy Road, Corbally Estate and Carrickmore Estate will be the primary access points into the proposed development. These routes provide for pedestrians, cyclists and motorists alike and a general commentary on these facilities is presented below:

#### **Boherboy Road:**

Boherboy Road is a local country road forming a priority-controlled junction with the N81 to the east and a signal-controlled junction with Church Street/Castle Street to the west.

The carriageway width is approximately c6.0m along the site frontage with no footpaths along the site frontage

Boherboy Road has a country road character providing access to Saggart from the N81.

A speed limit of 60km/h was noted on Boherboy Road along the site frontage.

No cycle facilities were noted along Boherboy Road.

#### **N81:**

The N81 road is a national secondary road starting at the M50 motorway and ending Tullow, County Carlow.

The carriageway width is approximately 11.0m at the junction with the Boherboy Road.

As the N81 leaves Tallaght the speed limit increases to 80km/h.

There is limited pedestrian infrastructure adjacent to the junction with the Boherboy Road. No cycle facilities were noted along the R147 Dublin Road.

#### **Potential/Proposed/Committed Infrastructure Works**

There are several potential new infrastructure schemes in the vicinity of the proposed development site. Consideration has been given to the impact that these infrastructure schemes may have on the development. This will ensure that provision is allowed for these schemes to be delivered in the future.

A summary of the potential road infrastructure schemes is outlined below.

#### **Bus Connects**

The emerging Bus Connects Dublin plan (Ref: Core Bus Corridors Project Report June 2018) proposes revisions to Dublin's bus system through:

- building a network of new bus corridors on the busiest bus routes to make bus journeys faster, predictable and reliable;
- completely redesigning the network of bus routes to provide a more efficient network, connecting more places and carrying more passengers;



- developing a state-of-the-art ticketing system using credit and debit cards or mobile phones to link with payment accounts and making payment much more convenient;
- implementing a cashless payment system to vastly speed up passenger boarding times;
- revamping the fare system to provide a simpler fare structure, allowing seamless movement between different transport services without financial penalty;
- implementing a new bus livery providing a modern look and feel to the new bus system;
- rolling out new bus stops with better signage and information and increasing the provision of additional bus shelters; and
- transitioning - starting now - to a new bus fleet using low emission vehicle technologies.

The Dublin Area Bus Network Redesign (which is currently under review following the public consultation stage) aims “to provide a network designed around the needs of Dublin today and tomorrow, rather than based on the past”.

Figure 3.2 over presents the proposed public transport provision in the vicinity of the subject site compared to the existing provision. The main difference between the existing and proposed is the inclusion of a new bus interchange within the Citywest Shopping Centre located in the immediate vicinity of the subject development site. The details of this potential future bus stop will be decided on a tri-party negotiation between the landowner, the NTA and the bus operator. As the bus stop is a terminus, in addition to operating as an interchange, a layover demand will be placed on it where a driver can rest and take a break. The location / layout of the terminus is yet to be confirmed but it is not expected to be at the expense of car parking.

As part of the Dublin Area Bus Network Redesign Dublin Bus routes 65B and 77a will be replaced by a new Route W8 between Citywest and Tallaght which is also proposed to provide a direct service to Maynooth / Celbridge. Improved service frequencies are proposed to destinations to the east via several proposed new routes.

The existing 77x bus route will be replaced by new orbital routes (S6 / S7) which will provide direct Dublin Bus route 69 is proposed to be replaced by a new route 63 which does not result in a change to the existing service between Citywest and the City Centre.

Go-Ahead Bus route 175 is not proposed to be subject to change as part of the Bus Connects scheme.

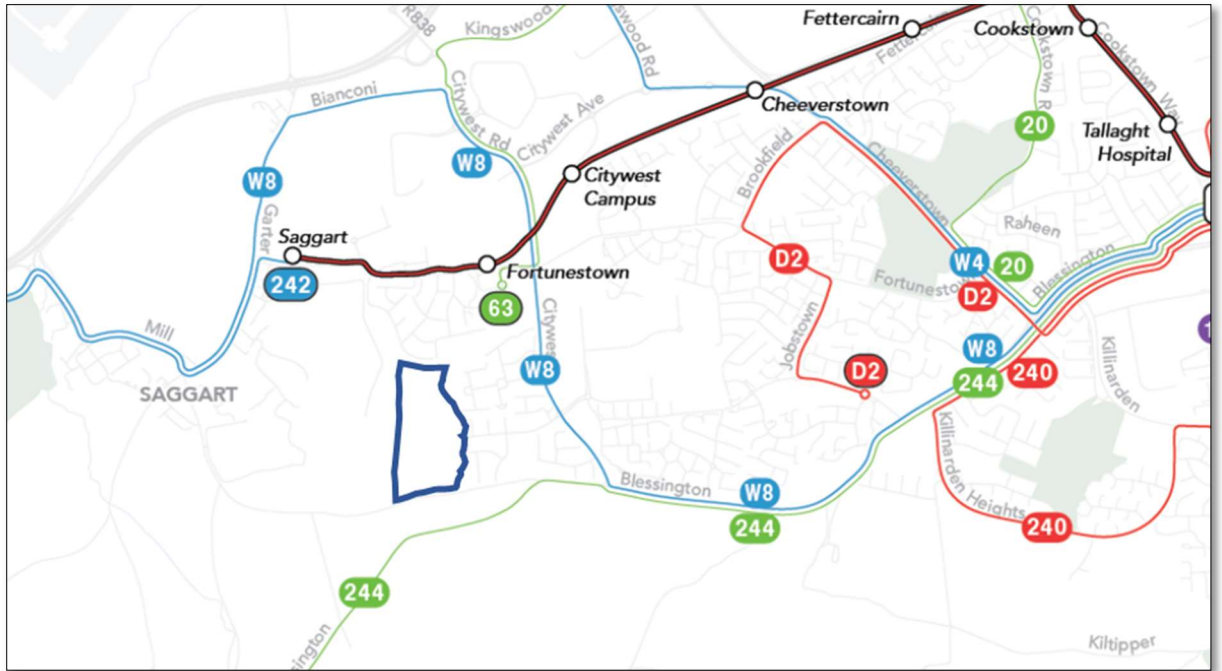


Fig. 3.2 - Bus Connects (Source: Map 2 of Bus Connects)

## Road Improvement Schemes

### Citywest Avenue Extension

Primary Road which will run in an east-west direction from Fortunestown Way to Citywest Road. This is illustrated in Fig. 3.3 below.

Objective AM10 states:

“That Citywest Avenue (and its extension when constructed) will act as a primary movement corridor that bypasses the District Centre and allows the junction between Fortunestown Way/Lane and Citywest Road to be upgraded to a pedestrian and cyclist friendly junction.”

A significant section of the Citywest Avenue Road was completed as part of a previous planning application (Ref. SD/04A/0099). The remaining section is proposed to be completed as part of the approved Cooldown Commons Strategic Housing Development scheme (PI. Ref. SHD3ABP-302398-18).

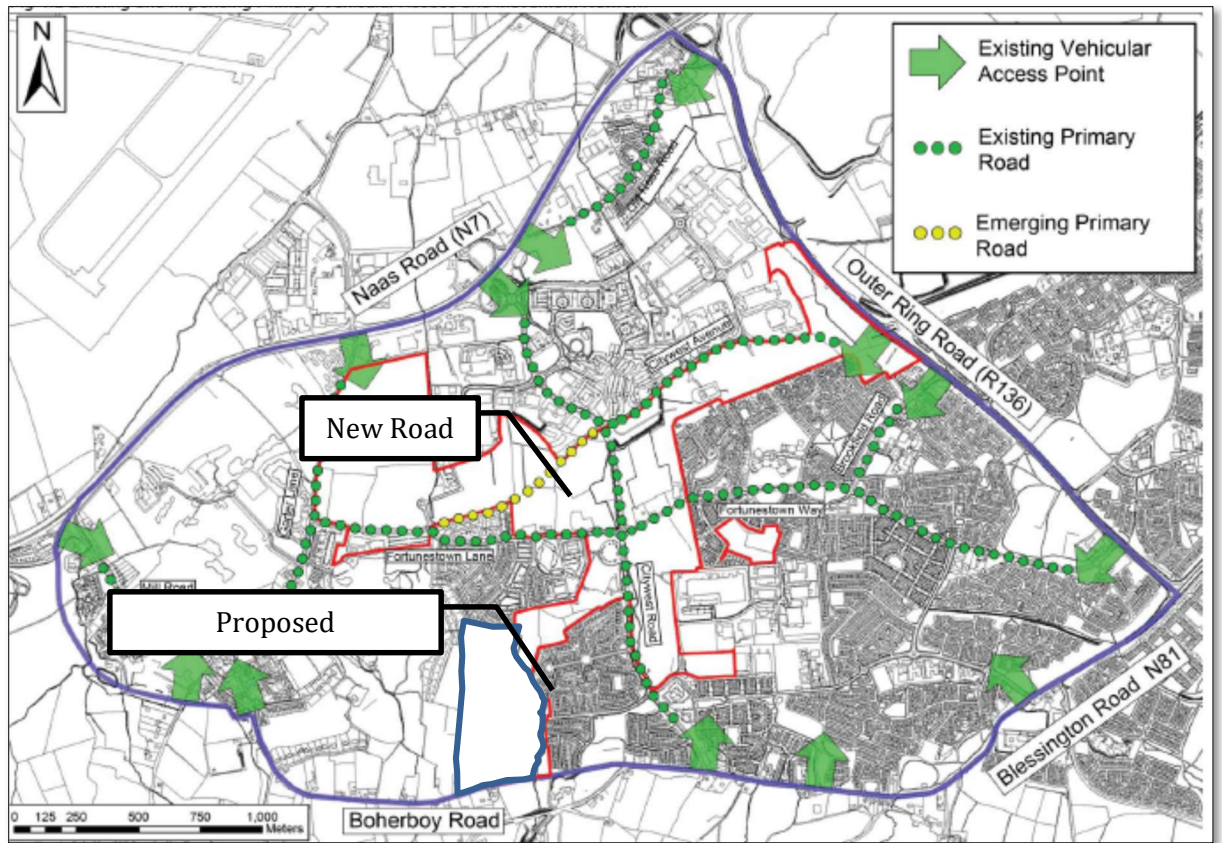


Fig. 3.3 - Proposed Road Infrastructure (Extract of Fig 4.2 Fortunestown LAP)

### N81 Upgrade

Kildare NRDO recently published a route corridor option for the N81 Hollywood Cross to Tallaght Road Improvement Scheme. The road improvement scheme was not included in the Government's Capital Investment Plan (CIP), which provides the financial and strategic framework for TII's activities until 2021.

During the route selection process, the Applicant met with Kildare NRDO to discuss options and how it may affect either project. The Applicant is not proposing any changes to the carriageways of the N81 or Boherboy Road. Therefore, there is the potential to connect into the proposed roundabout on Boherboy Road as part of the Kildare NRDO scheme in the future.

### **3.8.2 Proposed Development**

The proposed site access points are illustrated in the Fig. 3.4 over:





**Fig. 3.4 - Proposed Access (Source: Davey Smith & MCORM Architects)**

Primary vehicular access to the development will be via Boherboy Road (Access No. 1), via Corbally Estate (Access No. 2) and via Carrigmore (Access No. 3).

Permeability will be provided to adjoining developments at various locations. Refer to architects' drawings for more details.



### 3.8.3 Potential Construction and Operational Phase Impacts

#### Construction Phase

The likely impact of the construction works will be short-term in nature. The number of staff on site will fluctuate over the implementation of the subject scheme.

It should be noted that the majority of such vehicle movements would be undertaken outside of the traditional peak hours, and it is not considered this level of traffic would result in any operational problems on the local road network.

Care will be taken to ensure existing pedestrian and cycling routes are suitably maintained or appropriately diverted as necessary during the construction period, and temporary car parking is provided within the site for contractor's vehicles. It is likely that construction will have a negligible impact on pedestrian and cycle infrastructure.

The envisaged traffic generated during the construction period will depend the phasing of the construction which will be determined by the Client. It is anticipated there will not be any likely significant effects as a result of the construction of the development when compared to the operational traffic volumes.

The majority of traffic generated by delivering materials during the project are envisaged to occur during the following construction elements:

- Site clearance
- Laying of internal road
- Concrete, steel, and other material deliveries to site during the construction of structures

For the construction of the proposed development it will be necessary to transport the construction materials, equipment, and personnel to and from the work sites.

This includes (but is not limited to):

- Establishing the construction site compounds;
- The removal of surplus soil material, suitable surplus excavated material for reuse and unsuitable excavated material, which will be taken offsite to a site permitted for deposition;
- The importation of suitable soil material where required;
- The importation of relevant construction materials and equipment;
- The exportation of C&D Waste and C&D Waste Demolition;
- Transportation of workers to and from the site;

Several construction traffic movements will be undertaken by heavy goods vehicles, though there will also be vehicle movements associated with the appointed contractors and their staff.

It is expected that the site will generate c. 101,000 cu. m of topsoil that, subject to the suitability for it to be used elsewhere, will be used in the construction of berms on site and other landscaping features.

In addition to the removal of topsoil, a 3d terrain model has been generated to optimise the site levels. Where possible, the model seeks to balance the amount of cut and fill required on site to create a plateau. It is anticipated in the worst-case scenario that up to 60,000 cu. m of soil will be exported off site.

This would be done over a phased basis. For the purpose of this application, it is assumed that on average, 5 soil removal related trips per day/10 two-way trips .

This spoil will be mounded to create a berm and in turn will allow for the material to be deposited onto the HGVs by excavator. The HGVs will only reverse onto site to a hard standing area, receive the load and leave site. This negates the need for vehicles to drive into site to the dig site and receive the load from the point of excavation and in turn reduce unnecessary spoil being brought onto the public road. The haulage contractor





will be required to organise the HGVs in an efficient manner to prevent the build-up of vehicles waiting outside the curtilage of the site.

The road marshal appointed will be responsible to ensure that there is no disruption to traffic or pedestrians and that roadways and paths are kept clean and free of debris.

Whilst it is not possible at this stage to accurately identify the day to day traffic movements associated with the construction activities, based on experience of similar sites it is considered that the number of construction related heavy goods vehicle movements to and from the application site will be approximately 10 arrivals and departures during the first 2-3 months of works and decreasing to 3 to 5 thereafter.

It is anticipated that the development will create c. 200 cu. m of demolition and construction waste.

A large builder's skip has an estimated capacity of eight cubic yards/8tonnes. Therefore, over the lifetime of the development there will be c. 25 trips related to the removal of demolition waste.

Whilst it is not possible at this stage to accurately identify the day to day traffic movements associated with the construction waste, based on experience of similar sites it is considered that the number of construction related heavy goods vehicle movements to and from the application site will be on average 2 arrivals/departures per day over a 2 year construction period.

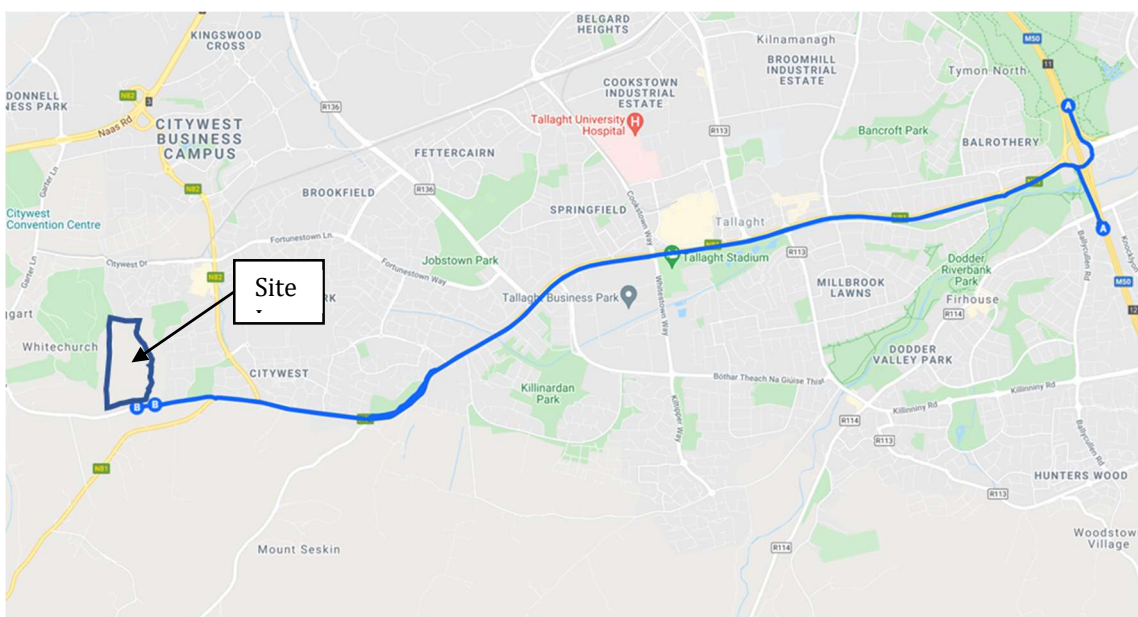
At the peak of construction, it is anticipated that there will be a requirement for approximately c.100-120 construction workers, which with an allowance for shared journeys could equate to a maximum of around 60-80 arrivals and departures per day. This will vary over the lifetime of the project.

The development will be served by crange, given the construction method and site confines. Lifting capacities will be predicated on the maximum loading requirements. A material and plant loading schedule will be undertaken to evaluate these needs.

A description of the haulage routes are offered below:

#### **From M50 to Development ~ 7 km, 11 minutes**

Take Exit 11 of M50, Redcow -> Head southeast -> Keep right at the fork, follow signs for N81/Tallaght/Blessington -> At the roundabout, take the 3rd exit onto Tallaght Rd/N81 -> Slight right -> Turn right onto Blessington Rd/N81 Continue to follow N81 -> Turn right and enter site.



**Fig. 3.5 - Haul Route to Site**



## From Development to M50 ~ 8 km, 11 minutes

Starting on Boherboy Road -> Slight left onto N81 -> Keep right to continue on Tallaght Rd/N81 -> At the roundabout, take the 3rd exit onto the M50 ramp to Southbound -> Merge onto M50

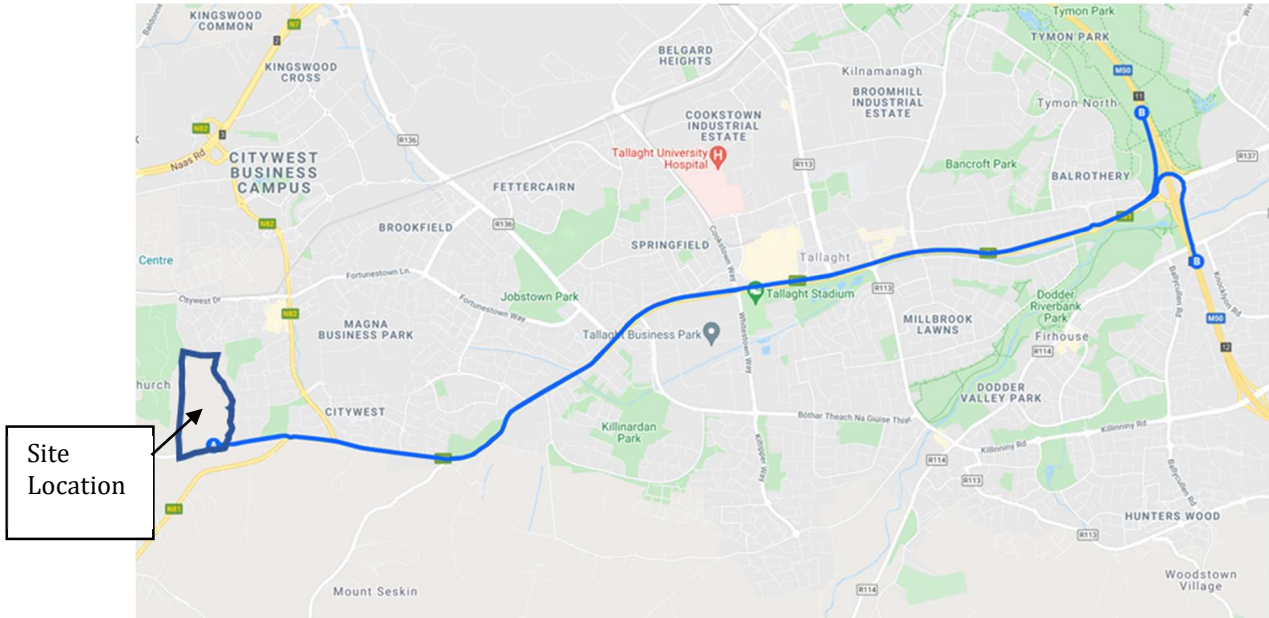


Fig. 3.6 - Haul Route from Site

Arrivals and departures to the site compound are to be carried out in as few vehicle movements as possible in order to minimise potential impacts on the road network.

### Operational Phase

This section considers the possible types of effects a development proposal of this kind is likely to produce. The potential traffic and transport impacts of the development are considered below.

### **Trip generation**

The proposed development will generate a number of trips by various modes of travel including vehicular, pedestrian, cycle and public transport. These trips may have an impact on the surrounding road network. Specific impacts are identified below.

### **School Site**

Part of the wider Boherboy lands include a future school site.

Typically, the Department of Education has a requirement for schools with between 6 to 24 classrooms. It is understood, through the negotiations pertaining to the design of the site, that the site has been earmarked for a 16-classroom primary school.

According to the Department of Education, the Average Class Size in Primary Schools (2014/15 - 2018/19) ranges from 24.9 to 24.3 with an overall downward trend. Based on an average of 24 pupils per classroom there is a potential pupil population of 384.

According to the Census 2016 Summary Results - Part 1 published by the CSO, the average household size is 2.75. Census 2016 shows the population of the primary school age group (5-12) stood at 548,693. Census 2016 results show that Ireland's population stood at 4,761,865. Therefore, the primary school age group (5-12) equates to 11.5% of the overall population.



Based on 655 total units, it is estimated that up to 198 children from within the development will be of primary school going age.

Anticipated Number of Local Students			
Number of Units	Persons per dwelling	Total Population	Primary School Children Age
628	2.75	1,727	194

**Table 3.1 - Student Population**

Based on a 16 classroom primary school, up to 384 students could be accommodated. There is the potential for up to 194 local students to cycle/walk to the school site from within the proposed development. Therefore, the total external school population would be up to 194 pupils.

It is reasonable to assume that not all local children from the proposed development will attend the local school. These trips will be included in the overall trip rate generated by the development and will be classed as link trip. These trips will have no additional impact on the external network.

The remainder of the students will have their origin outside the development. Accordingly, school site will be tested for an external pupil population of 190.

These assumptions will attract higher trips to the proposed development as the external population is bigger and therefore offers a robust assessment of the potential trip rates to/from the school site via the external road network.

Using the TRICS database, the trip rates for a primary school was calculated. These trip rates are illustrated in the table below.

Peak Hour Trip Rates					
Trip Generation from TRICS	Units	Weekday AM 08:00-09:00		Weekday PM 17:00-18:00	
		Arrivals	Departures	Arrivals	Departures
Primary School	Per Pupil	0.176	0.094	0.022	0.019

**Table 3.2 - School Trip Rates**

### Traffic impact

The traffic impact of the development is dependent upon the background traffic on the local road network, the capacity of the existing road network, and the amount of additional traffic generated as a result of the proposed development.

### Traffic Generation - Including Cumulative Assessment

The trip rates outlined above in conjunction with the proposed schedule of accommodation to determine the resultant total trips generated by the proposed development.

For the proposed development, these figures can be seen in Table 3.3 over.



Peak Hour Trips					
Trip Generation from TRICS	Units	Weekday AM 08:00-09:00		Weekday PM 17:00-18:00	
		Arrivals	Departures	Arrivals	Departures
House <sup>1</sup>	257	52	152	122	64
Apartments/Duplex <sup>1</sup>	398	24	66	44	22
<b>Peak Total</b>		77	251	196	86
<b>Two Way Total</b>		327		282	
School <sup>2</sup>	190	34	18	4	4

**Table 3.3 – Peak Hour Trips**

<sup>1</sup> To be used in development flows.

<sup>2</sup> To be used in baseline flows only.

It can be seen from the above that the total vehicle movements generated by the proposed development will be 77 arrivals and 251 departures in the AM peak (two-way total of 327). The total number of vehicle movements in the PM peak hour will be 196 arrivals and 86 departures (two-way total of 282).

### Traffic distribution

It is expected that the origins and destinations of traffic to/from the proposed development will be similar to the distribution of the current traffic patterns on the local roads.

### Car parking

One of the key principles of a residential development such as this, is the sufficient provision of car parking spaces within the development so as to avoid the need for excessive on-street parking in the vicinity of the site. A balanced approach is required which provides a compromise between a sufficient number of spaces and the need to promote greater usage of public transport and to encourage walking and cycling trips. This is covered in more detail later in the chapter.

The above trip rates assume no restriction in car parking numbers and will produce a higher number of trips compared when parking is restricted. Restricting parking numbers is a well-known demand management tool.

The above trip rates were used in the junction modelling so as to offer a robust assessment of the development impact

### Walking and cycling infrastructure

It is also necessary to ensure that the proposal incorporates appropriate access facilities for pedestrians, cyclists and public transport users in order to facilitate trips by these modes.

It is a necessary part of the design framework for a residential development such as this to ensure that there is good permeability for those residents and visitors to the development who choose not to travel by car. The development has been designed to ensure that there is good permeability for pedestrians and cyclists.



Connections between the internal layout and the external pedestrian and cycle networks form part of the overall access strategy for the site. With this development pedestrian movement is suitably catered for by footpath connections within and adjacent to the development up to the relevant boundaries i.e. through Carrigmore Estate, Carrigmore District Park and Corbally Estate. These provide good linkage to the surrounding urban areas.

The internal layout demands that all visitors to the site are catered for and so pedestrian routes between dwelling areas and key nodes within the layout are well designed and clearly delineated. This applicant is very experienced in creating safe environments that satisfy resident's requirements and convenience. Accordingly, every effort has been made to ensure that vehicular access will be restricted in areas where there are likely to be the highest concentrations of pedestrian/cycle movements.

The internal site layout will include several crossing facilities that are located along key desire lines and which coordinate well with the proposed car parking layouts to enhance the safety, visibility and convenience of those people on foot. These facilities will include features such as tactile paving and surface treatments that will benefit all users and assist those with impaired mobility.

Pedestrian linkage will be provided to the boundary of the local estates such as Corbally and Carrickmore residential developments and other future developments as part of the development. Pedestrian linkage to the lands that form part of the South Dublin County Council's Development Plan 2016-2022 (and subsequent Local Area Plans) will be provided as part of subsequent stages of development.

Given the desire in current planning guidance to improve accessibility for non-car modes of travel, access by cycle is increasingly important. Since the weather and topography inevitably have an influence on cycle use, the key to cycle accessibility is the existence of convenient and safe links associated with secure and carefully sited cycle parking.

## **Baseline**

These baseline conditions need to be established accurately to understand fully the context of this development proposal and other developments that are built but not yet occupied or those likely to be built during the lifetime of this development.

To determine the baseline transport data reference has been made to the following:

- The quantification of the vehicular trips generated from adjoining developments and their modal distribution, or, where the site is vacant or partially vacant, the vehicular trips which might realistically be generated by any extant planning permission or permitted uses;
- Current traffic flows on links and at junctions within the study area; and
- Zoned lands such as the school site

To that end, the baseline data for the development is based on the combined flows identified in the traffic surveys, the flows predicted in Table 3.3 and the flows estimated for the lands reserved for the school site.



### 3.8.4 Mitigation Measures

#### Construction Phase

The Outline Construction Management Plan incorporates a range of integrated control measures and associated management initiatives with the objective of mitigating the impact of the proposed developments on-site construction activities.

To minimise disruption to the surrounding environment, the following mitigation measures will be implemented:

- During the pre-construction phase, the site will be securely fenced off from adjacent properties, public footpaths and roads.
- All road works will be adequately signposted and enclosed to ensure the safety of all road users and construction personnel.
- A dedicated 'construction' site access / egress junction will be provided during all construction phases.
- Provision of sufficient on-site parking and compounding to ensure no potential overflow of construction generated traffic onto the local network.
- Site offices and compound will be located within the site boundary. The site will be able to accommodate employee and visitor parking throughout the construction period through the construction of temporary hardstanding areas.
- A material storage zone will also be provided in the compound area. This storage zone will include material recycling areas and facilities.
- A series of 'way finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas.
- Dedicated construction haul routes will be identified and agreed with the local authority prior to the commencement of constructions activities on-site.
- Truck wheel washes will be installed at construction entrances if deemed necessary and any specific recommendations with regard to construction traffic management made by the Local Authority will be adhered to.
- On completion of the works all construction materials, debris, temporary hardstands etc. from the site compound will be removed off site and the site compound area reinstated in full on completion of the works.

All construction related parking will be provided on site. Construction traffic will consist of the following two principal categories:

- Private vehicles owned and driven by site construction staff and by full time supervisory staff;
- Excavation plant and dumper trucks involved in site development works and material delivery vehicles for the following: granular fill materials, concrete pipes, manholes, reinforcement steel, ready mix concrete and mortar, concrete blocks, miscellaneous building materials, etc.

It is anticipated that the generation of HGV's during the construction period will be evenly spread throughout the day and as such will not impact significantly during the peak traffic periods.



## Operational Phase

- The local area provides suitable infrastructure and transport services for travel by sustainable modes. A key barrier to modal shift towards sustainable modes of travel is often a lack of information about potential alternatives to the car. As such, it is proposed that residents and visitors of the proposed development are made aware of potential alternatives including information on walking, cycle routes and public transport.
- A number of walking and cycling connection points are proposed within the development. These connection points will provide access for pedestrians and cyclists on to the Boherboy Road and towards the Corbally and Carrigmore Residential Development.
- These facilities will provide attractive, convenient and safe routes for residents. Therefore, there are good links proposed for residents to travel by more sustainable modes i.e. towards Luas services north of the development and bus services to the east of the site.
- As part of the remedial or reductive measures for the site, it is proposed to upgrade the Boherboy Road from the development and east towards its junction with the N81 to include a footpath. Providing a footpath in this direction provide the maximum degree of safety and convenience pedestrians and further progresses the desired modal shift. No footpath provision will be provided from the development west towards Saggart but additional public lighting will be retro fitted. Alternative routes towards Saggart via Citywest will be communicated to the residents.
- A Travel Plan has been prepared for both residents and visitors to the site in order to guide the delivery and management of coordinated initiatives post construction. The Travel Plan ultimately seeks to encourage sustainable travel practices for all journeys to and from the proposed development.
- It is proposed to provide car parking in accordance with the recommendations of the 'Sustainable Urban Housing – Design Standards for New Apartments' published by the Department of Housing, Planning and Local Government (2018). Therefore, the recommended car parking will be less than that required under the South Dublin Development Plan. Car sharing and car clubs will be provided under the details of the Travel Plan to offset the impact of reduced car parking numbers.
- The number of trips to/from a development is linked to the number of car parking spaces. The restriction of car parking spaces acts as a demand management tool and will reduce the impact on the surrounding road network. It will also encourage a shift away from non-sustainable car ownership models where people who only occasionally use one no longer keep one.
- For occasional car use, it is proposed to advertise the location of local car clubs via the Travel Plan. Car Clubs gives you a 'car on call', whenever you need it. Car clubs have developed as a modern service in many European cities and are a good alternative to high levels of private car use and 'driver only' occupancy rates. The principal of a car club is to ensure that the optimal use of a small number of vehicles to meet the needs of a wide group of people.
- The introduction of new pedestrian routes i.e. north via Carrigmore towards Citywest/Luas services and east via Corbally towards bus services, reduced car parking numbers and Car Clubs will further reinforce the efforts been made towards a modal shift away from car-based trips
- Residents will be encouraged to avail of these facilities for travel to and from work. Provision of this information would be made upon opening of the proposed development , as this represents the best opportunity to secure travel behaviour change. It is anticipated that this measure may help to reduce the level of traffic at the proposed development, thus providing mitigation against the already minimal traffic and transport effects of the development.



## 3.9 Material Assets: Resource and Waste Management

### 3.9.1 Introduction

This Chapter of the EIAR comprises an assessment of the likely impact of the proposed development on the waste generated from the development as well as identifying proposed mitigation measures to minimise any associated impacts, and was prepared by Chonaill Bradley of AWN Consulting.

A site-specific Construction and Demolition Resource Waste Management Plan (C&D RWMP) has been prepared by AWN Consulting Ltd to deal with waste generation during the demolition, excavation and construction phases of the proposed Development and has been included as Appendix 11.1 (Volume III of the EIAR). The C&D WMP was prepared in accordance with the 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects' document produced by the National Construction and Demolition Waste Council (NCDWC) in conjunction with the Department of the Environment, Heritage and Local Government in July 2006.

A separate Operational Waste Management Plan (OWMP) has also been prepared for the operational phase of the proposed Development and is included as Appendix 11.2 (Volume III of the EIAR).

The Chapter has been prepared in accordance with EPA Guidelines on the Information to be contained in EIAR (2017, Draft). These documents will ensure the sustainable management of wastes arising at the Development Site in accordance with legislative requirements and best practice standards.

### 3.9.2 Predicted Impacts of the Proposed Development

#### 3.9.2.1 Construction Phase

The proposed Development will generate a range of non-hazardous and hazardous waste materials during site demolition, excavation and construction. General housekeeping and packaging will also generate waste materials, as well as typical municipal wastes generated by construction employees, including food waste. Waste materials will be required to be temporarily stored on-site pending collection by a waste contractor. If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the Development Site and in adjacent areas. The indirect effect of litter issues is the presence of vermin in areas affected. In the absence of mitigation, the effect on the local environment is likely to be **short-term, significant** and **negative**.

The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste, resulting in indirect negative environmental impacts, including pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. In the absence of mitigation, the effect on the local and regional environment is likely to be **Long-term, significant** and **negative**.

Wastes arising will need to be taken to suitably registered / permitted / licenced waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate. There are numerous licensed waste facilities in the EMR which can accept hazardous and non-hazardous waste materials, and acceptance of waste from the Development Site would be in line with daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the likely C&D waste arisings at facilities in the region. The majority of construction materials are either recyclable or recoverable. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant** and **negative**.





There is a quantity of excavated material which will need to be excavated to facilitate the proposed Development. A detailed review of the existing ground conditions on a regional, local site-specific scale are presented in Chapter 6. It is anticipated that c. 60,000m<sup>3</sup> of excavated material will need to be removed off-site, however it is envisaged that c. 41,000 m<sup>3</sup> tonnes of excavated material will be reused on-site. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant** and **negative**.

### 3.9.2.2 Operational Phase

The potential impacts on the environment of improper, or a lack of, waste management during the operational phase would be a diversion from the priorities of the waste hierarchy which would lead to small volumes of waste being sent unnecessarily to landfill. In the absence of mitigation, the effect on the local and regional environment is likely to be **Long-term, significant** and **negative**.

The nature of the development means the generation of waste materials during the operational phase is unavoidable. Networks of waste collection, treatment, recovery and disposal infrastructure are in place in the region to manage waste efficiently from this type of development. Waste which is not suitable for recycling is typically sent for energy recovery. There are also facilities in the region for segregation of municipal recyclables which is typically exported for conversion in recycled products (e.g. paper mills and glass recycling).

If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the Development Site and in adjacent areas. The knock-on effect of litter issues is the presence of vermin in affected areas. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant** and **negative**.

Waste contractors will be required to service the proposed Development on a regular basis to remove waste. The use of non-permitted waste contractors or unauthorised facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **Long-term, significant** and **negative**.

### 3.9.3 Mitigation Measures

This section outlines the measures that will be employed in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle the waste in such a manner as to minimise the effects on the environment.

#### 3.9.3.1 Construction Phase

The following mitigation measures will be implemented during the construction phase of the proposed development:

A project specific C&D RWMP has been prepared in line with the requirements of the requirements of the *Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects* (DoEHLG, 2006), and is included as Appendix 11.1 (refer to Volume III of the EIA). Adherence to the high-level strategy presented in this C&D WMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the demolition,



excavation and construction phases of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the C&D WMP (Appendix 11.1 of Volume III of the EIAR) in agreement with SDCC, or submit an addendum to the C&D WMP to SDCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will be required to fully implement the C&D WMP throughout the duration of the proposed construction and demolition phases.

A quantity of topsoil, sub soil, clay and made ground which will need to be excavated to facilitate the proposed Development. Project Engineers have estimated that c.60,000 m<sup>3</sup> of excavated material will need to be removed off-site, however it is envisaged that c. 41,000 m<sup>3</sup> excavated material will be reused on-site. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

In addition, the following mitigation measures will be implemented:

- Building materials will be chosen with an aim to 'design out waste';
- On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:
  - Concrete rubble (including ceramics, tiles and bricks);
  - Plasterboard;
  - Metals;
  - Glass; and
  - Timber.
- Left over materials (e.g. timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible;
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);
- A Waste Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the demolition, excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.
- Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Article 27 of the EC (Waste Directive) Regulations (2011). EPA approval will be obtained prior to moving material as a by-product. However, it is not currently anticipated that Article 27 will be used.

These mitigation measures will ensure that the waste arising from the construction phase of the proposed Development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, and the *EMR Waste Management Plan 2015 – 2021*. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.



### 3.9.3.2 Operational Phase

As previously stated, a project specific OWMP has been prepared and is included as Appendix 11.2 of Volume III of this EIAR.

- The Operator / Buildings Manager of the Site during the operational phase will be responsible for ensuring – allocating personnel and resources, as needed – the ongoing implementation of this OWMP, ensuring a high level of recycling, reuse and recovery at the Site of the proposed development.

In addition, the following mitigation measures will be implemented:

- The Operator / Buildings Manager will ensure on-Site segregation of all waste materials into appropriate categories, including (but not limited to):
  - Organic waste;
  - Dry Mixed Recyclables;
  - Mixed Non-Recyclable Waste;
  - Glass;
  - Waste electrical and electronic equipment (WEEE);
  - Batteries (non-hazardous and hazardous);
  - Cooking oil;
  - Light bulbs;
  - Cleaning chemicals (pesticides, paints, adhesives, resins, detergents, etc.);
  - Furniture (and from time to time other bulky waste); and
  - Abandoned bicycles.
- The Operator / Buildings Manager will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials;
- The Operator / Buildings Manager will ensure that all waste collected from the Site of the proposed Development will be reused, recycled or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available; and
- The Operator / Buildings Manager will ensure that all waste leaving the Site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities.

These mitigation measures will ensure the waste arising from the proposed development during the operational phase is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations, *the Litter Pollution Act 1997*, the *EMR Waste Management Plan 2015 – 2021* and the SDCC, County of South Dublin (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws 2018. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

### 3.10 Archaeology and Cultural Heritage

This chapter of the EIAR was undertaken by John Purcell Archaeological Consultancy and assesses the impact of the proposed development on the Cultural Heritage of the site and its environs. The report includes a desktop study and a site inspection. The desktop section of the report was compiled using: The Records of Monuments and Places; buildings of Ireland, Excavations Bulletin; historic maps; aerial photographs; place names and historic books and journals. Archaeological testing was undertaken in 2018 to supplement this report.



Field walking was undertaken in March 2018. The works recorded two ruined farmhouses and farmyards at the south of the study area along the Boherboy Road. The farmyard at the southeast is on the site of a dwelling marked on Taylors Map of 1816 and on the first edition OS Map at the north of the site (Figures 1-9 - refer to Appendix 12.1 of Volume III of EIAR). This farmyard was not marked on the Rocque map of 1760. The remains consist of two 20<sup>th</sup> century corrugated iron sheds and the remains of a 20<sup>th</sup> century stone structure at the southeast (Plates 1-9 - refer to Appendix 12.2 of Volume III of EIAR). At the southwest one shed remains of an earlier farmyard and dwelling marked on the first edition OS map. This is in a state of disrepair and heavily overgrown. It was visible as a single storey structure of random rubble walling with a corrugated iron roof.

Archaeological testing was undertaken in May 2018 (refer to Appendix 12.2 of Volume III of EIAR). The archaeological test trenches were excavated using a mechanical excavator fitted with a grading bucket. The trenches were located across the site to maximise the area tested, the trenches measured between 75 and 350m in length and 2m in width. The trenches were excavated to subsoil level. The trenches have shown that extensive land improvements have taken place across the site in the form of hedgerow removal. A series of watermains cross the site to provide Dublin City with water. These were visible in the form of differential grass growth. The field are delineated by mature hedgerows and drainage channels. The fields are currently in use as pasture. The Vershoyles Stream at the east and the drains surrounding the fields have recently been cleaned, these were assessed for archaeological remains such as fulachta fiadh. None were in evidence.

No archaeological finds, features, architectural fragments or artefacts were uncovered as a result of the testing.

### **3.10.1 Potential Construction and Operational Phase Impacts**

#### **3.10.1.1 Construction Phase**

No recorded archaeological features will be impacted on by the proposed development. The proposed development is at a remove from any recorded cultural heritage monuments and construction will have no negative impact on them. No subsurface remains were identified during archaeological testing undertaken at the site. It is unlikely that construction works will uncover remains.

#### **3.10.1.2 Operational Phase**

There are no potential impacts on archaeological cultural heritage expected as a result of the operational phase of the proposed development.

### **3.10.2 Mitigation Measures**

#### **3.10.2.1 Construction Phase Mitigation**

Archaeological testing did not uncover any remain at the proposed development. It is unlikely that further remains will be uncovered during excavation works at the site. However should any remains be uncovered the National Monuments Service at the Department of Housing, Heritage and Local Government should be contacted.



### 3.10.2.2 Operational Phase Mitigation

A series of site visits and archaeological testing did not reveal any archaeological remains. As a result of this it is unlikely that archaeological deposits exist at the site. As a result of this there is no archaeological mitigation required at operational phase.

## 3.11 The Landscape

The Landscape and Visual Impact Assessment (hereafter LVIA), prepared by Ronan MacDiarmada & Associates Ltd (hereafter RMDA), and was informed by a desktop study, and a survey of the site and receiving environment in June 2021. The assessment is in accordance with the methodology prescribed in the Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA) published by the UK Landscape Institute and the Institute for Environmental Management and Assessment.

This report identifies and discusses the landscape and visual constraints effects in relation to the proposed development at Boherboy, Saggart, Co. Dublin. RMDA has been commissioned by the applicants, Kelland Homes Ltd & Durkan Estates Ireland Ltd. to prepare a Landscape and Visual Impact Assessment to accompany a Strategic Housing Development (SHD) planning application on a site measuring circa 18.3Ha hectares, on lands that are subject to the Fortunestown Local Area Plan 2012 and the South Dublin County Development Plan 2016-2022. Boherboy is in the Electoral Division of Saggart, in Civil Parish of Saggart, in the Barony of Newcastle, in the County of Dublin. The Irish name for Boherboy is An Bóthar Buí. This name translates as yellow road and reflects the colour of the sub soil here which is marshy and boggy.

### 3.11.1 Nature of Impacts

Impact on landscape arising from development has two distinct but closely related aspects. The first is impact in the form of change to character of the landscape that arises from the excavation of the existing landform and the insertion of the proposed development into the existing context. The second aspect is the visual impact; which depends on the degree and nature of change in the visual environment. It is recognised that the combined impact on character and views will draw responses, the significance of which will be partly informed by an individual's subjective perception of how much the changes matter.

The assessment of landscape/Landscape and visual impacts include:

- Direct impacts upon specific landscape elements and buildings within and adjacent to the site.
- Effects on the overall pattern of the landscape elements that give rise to the character of the site and its surroundings;
- Impacts upon any special features or interests in or around the site;
- Direct impacts of the scheme upon views in the landscape;
- Overall impact on landscape character and visual amenity.

In determining the Visual Impacts, the following definitions were used to assess the significance of the impacts:

#### **Impact Significance Criteria – Table 1**

**No Impact:** There are no changes to views in the visual landscape.

**Imperceptible Impact:** An impact capable of measurement but without noticeable consequences.

**Slight Impact:** An impact which causes noticeable changes in the character of the environment without affecting its sensitivities.



**Moderate Impact:** An impact that alters the character of the environment in a manner that is consistent with existing and emerging trends.

**Significant Impact:** An impact which, by its character, magnitude, duration, or intensity alters a sensitive aspect of the environment.

**Profound Impact:** An impact which obliterates sensitive characteristics.

Terms used to describe quality of visual impact:

- **Neutral Impact:** A change which does not affect the quality of the landscape.
- **Positive Impact:** A change which improves the quality of the environment or landscape.
- **Negative Impact:** A change which reduces the quality of the environment or landscape.

**Terms used to describe the Duration of visual impact**

- |                        |  |
|------------------------|--|
| ▪ Momentary Effects    | Seconds to Minutes                       |
| ▪ Brief Effects        | Less than a day                          |
| ▪ Temporary Effects    | Less than a year                         |
| ▪ Short-term Effects   | Lasting 1 to 7 years                     |
| ▪ Medium-term Effects  | Lasting 7 to 15 years                    |
| ▪ Long-term Effects    | Lasting 15 to 60 years                   |
| ▪ Permanent Effects    | Lasting over 60 years                    |
| ▪ Reversible Effects   | Effects that can be undone               |
| ▪ Frequency of Effects | Describe how often the effect will occur |

The area of the red line of application equates to 18.3Ha which includes the proposed connections to adjoining lands to the north and east as well as proposed upgrades to the Boherboy Road. The area of the subject two fields, that will accommodate the proposed housing, creche, associated open spaces and site development works etc., is approximately 17.6Ha hectares, which are located south and west of two large housing developments, Carrigmore and Corbally respectively. The proposed site lies north of the Boherboy Road which connects to the N81, an important arterial road to Blessington in County Wicklow. To the west of the development site, lies existing field patterns that remain agricultural in appearance but are no longer functioning as such, as well as individual houses. Just beyond the fields, to the west, lies the expanding village of Saggart, a number of small developments and a golf course.

Currently there a number of old farm outbuildings which have been abandoned for some time on the subject site, that are proposed to be demolished. The lands have rented to a local farmer to keep the land managed and in good order.

This is an area characterised by the expanding village of Saggart to the west, consisting primarily of suburban housing, a number of shops, public house, church and a large hotel complex i.e. Citywest hotel. There are a number of amenities in the area, St Mary’s GAA club and golf courses. The County town of Tallaght is expanding to the east, along the N81 Blessington Road.

To the north-east of the subject site is the Carrigmore (District) Park which adjoins the District Centre that accommodates the Citywest Shopping Centre, McDonalds and the Luas Red Line. Further north-east is Citywest Business Campus is a large business park, with international and national businesses residing there. It is located north-east of the Boherboy lands, and is well served by road networks and the local rail network LUAS. Overall, the lands to the north and north-east have undergone large scale development in terms of office,



commercial, retail, industrial and residential uses.

The subject site is situated on the foothills of the Dublin Mountains, and as such the land falls away quickly from the Boherboy Road. With a contour of 155m OD at its south-west corner, falling quickly to a contour of 146m OD, a fall of 9m. From here, the fall becomes more gradual towards the middle of the site and falling to the 117m OD contour on the site's northern boundary adjoining Carrigmore. There is a considerable fall in lands, which is visually screened by existing hedgerows and trees.

The proposed development site has an open character combined with large field patterns with tree belts and hedges. It is long in length with three lengths of native hedgerow and trees, with a remnant of a fourth, all running north-south along the site boundaries.

To the north-east of the site, a newly constructed park that serves the local area has been constructed and finished, it is the district park for the local area and is known as Carrigmore Park, serving the amenity needs of the local population. Further north-east, is the district centre for the local area, including the Citywest shopping centre that be accessed by pedestrians from Carrigmore Park.

A stream flows along the eastern boundary of the subject site, with that of Corbally housing estate, it remains rural in nature, with an existing hedgerow and habitat. It shall be retained in the long term for the amenity of residents and the public. The creation of a walkway alongside the stream shall provide a linear park along the Eastern boundary and this shall connect with Carrigmore Park. The stream turns westwards along the northern boundary of the site where it is ultimately culverted.



**Fig. 3.7 Location of Stream and Existing Hedgerows in Boherboy.**



### 3.11.2 Potential Visual Impact of the Proposed Development

The visual impacts of the proposed development on the landscape are considered in the context of the construction and operational stages. Generally, the development shall reduce the amount of green space, replacing it with the proposed units, and associated walls, roads and driveways. The space that is being removed is a number, or part of fields with hedgerows and trees as boundaries.

The main visual changes shall be the height and the extent of the proposed residential development and associated building works to the landscape. The development shall be located on rising contours which shall increase its visual impact, notably from the visual receptors directly north and south of the site.



**Fig. 3.8 – Visual Impact of building minimised by level change and mature planting.**

The design and organisation of the open space shall ameliorate the impact of this development and of the decrease in spatial area. This shall be aided through provision of extensive semi - mature tree planting, native hedge planting and mounding. The hedge and tree planting shall position the housing into the landscape as per the proposed landscape design.

The lines and the height of the buildings shall be visually reduced through the retention of existing trees and hedgerows, the proposed use of more soft landscape materials shall further reduce the impact of the development. Semi - mature trees and shrub planting shall give an immediate effect tying in with the surrounding landscape. The visual impact of the landscape intervention on the existing development shall be positive and long term, the impact on the agricultural nature of the surrounding landscape shall be moderate in the long term.

#### 3.11.2.1 Assessment of Construction Impacts

During the construction of the development, the area shall be changed from agricultural fields to a residential development. The introduction of the built structures, driveways boundaries and landscape will be developed while maintaining the existing hedge and trees along the centre and the perimeter of the site.





Tree protection shall be provided to retain the character of the existing trees and hedge.

The development shall be carried out in an organised basis, thus reducing the visual impact upon the environment: however, the impact on the initial area of construction shall be moderate to significant.



Fig. 3.9 –Tree & Hedgerow Retention

The retention of the hedgerows, surrounding the site, combined with the maintaining of much of the hedgerow in the centre of the site shall reduce the visual impact of the proposal during construction. The requirement to remove the front boundary hedge shall be significant visually in the short to medium term. This is a requirement from SDCC with respect to sight lines and road widening on the Boherboy Road.

As the development increases and phasing continues, the improvement, growth and maturity, in terms of the landscape elements, trees, hedges and shrubs, shall reduce the visual impact. In the long term, it will be moderate to neutral, as other existing housing developments and Saggart village and Fortunestown grow to meet this area.

The greatest impact shall be the views through the site as they will become determined by the proposed units, walls, and landscape elements of trees and hedges.



Due to the removal of the site vegetation



Fig. 3.10 – Tree & Hedgerow Removal

During the construction stages traffic movement, excavation operations and construction works shall have a significant visual impact on the site. There may be some moderate - significant visual impacts during the construction stage.

Grass forms the groundcover over a portion of the site with native hedges and trees providing screening and boundary treatment.

The removal of the grass will be necessary for the development to commence.

The existing native hedge and tree line to the Boherboy Road shall be removed due to the requirement from South Dublin County Council to upgrade this road through the provision of a path along the road. The visual impact upon the area shall be moderate – significant to the short to medium term.

The majority of the hedgerows shall be retained:

Total outer hedgerow 1776 lin/m  
Retain 1481 lin/m (83.4%)  
Lose 295 lin/m (16.6%)

Total centre Hedgerow 601 lin/m  
Retain 364 lin/m (60.5%)  
Lose 237 lin/m (39.5%)  
Total Hedgerow for whole site = 2467 lin/m  
Retain 1892 lin/m (76.6%)  
Lose 575 lin/m (23.4%)



Although the portion of 'Green' land will be reduced, no loss of botanical significance shall be incurred, however, some of the native hedge line and some mature trees shall be removed, as may be seen, above. The majority of the hedgerows, 77.7% overall shall be retained.

As existing hedges and trees are being retained and augmented by the introduction of new trees and planting, the predicted impact during construction shall be moderate in the short-term depending on the length of time on site.

### 3.11.2.2 Assessment of Operational Impacts

Initially, on completion of the development, the introduced shrubs will be at early stages of establishment and the trees shall be semi-mature at planting. As time progresses, the plants and trees will grow and stabilise in their new environment creating better defined avenues and spaces.

The number and quality of landscape elements shall be an addition to the built environment of Boherboy / Fortunestown providing quality amenity for the residents. The extensive development of the external spaces shall provide an improvement on the existing landscape. The ordered design shall be visually positive and long term. The visual impact on the surrounding landscape shall be moderate – significant in the short term and with maturity of the trees, hedges and plants it shall be neutral to positive in the long term.



Fig. 3.11 – Riparian Zone – Wildflower meadows & shared greenway set along the existing stream

The proposed development respects the natural attributes of the site, retaining the existing hedgerows, notably the hedgerows to the eastern boundary leading from the road to the open space, to Carrigmore Park to the north of the proposed development area. The central hedgerow, although limited in quality in places, shall be respected and retained in the most part and shall be augmented with native hedging and trees. It shall form an important walking route linking open spaces throughout the development. The hedgerows shall form an important link that shall be open to the public, to access the Boherboy Road from the south, with the LUAS rail line, Carrigmore and the Citywest shopping centre and park, to the north.





Internally, the boundaries the existing trees and hedgerows shall be retained as much as possible, they shall be augmented with new hedges and trees.

There shall be new homes with a landscape scheme, both hard and soft, accompanying them to provide a highly developed and coherent design. The proposed house, driveway, parking and planting shall be clearly identified and developed in an organised manner.



**Fig. 3.12 – Proposed “Local” Streetscape**

### **Due to introduction of new structures & buildings**

The introduction of the proposed buildings shall form the vertical elements of the proposal. However, existing trees and hedgerows shall reduce the visual impact as it has established vertical elements, i.e. trees. The main visual impact shall be the mass of the proposed structures.

The new structures and associated works will reduce the amount of current open space and remove several trees and hedgerows internally.



**Fig. 3.13 – Proposed Retention of Hedgerow**

The proposed development will require regrading of the site, which will generate impacts to the existing topography. In the short term and long term, the visual impact of the development will be moderate to significant, due to the level topography of the site. The proposed extensive landscape development, utilising existing vegetation and proposed new trees and planting shall ameliorate this impact and over the medium to long term it shall form part of a new landscape.

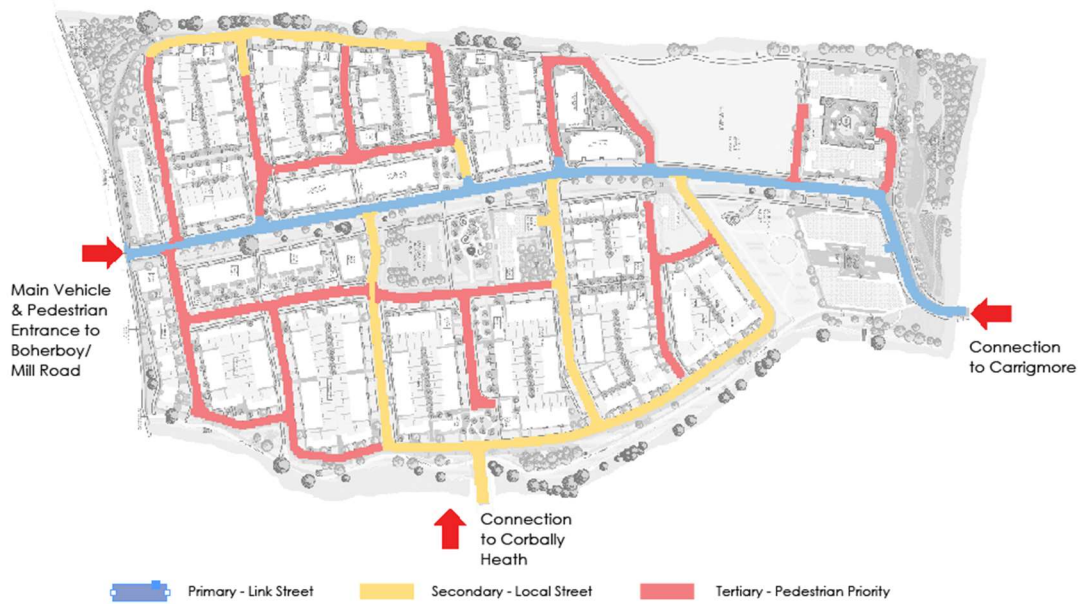


**Fig. 3.14 –Development proposed across existing topography with retained hedgerow planting**

The potential visual impact shall be negative in the short term and shall change to neutral /positive development in the long term, as new housing is developed. The southern receptor view locations are the most negative as the existing hedgerow and trees are to be removed. The road is to be widened along the Boherboy road with footpath and boundary proposed. The visual impact shall change over time as the new native hedge and trees shall grow and mature, reconnecting with existing hedgerows along the boundaries.

The development shall therefore be a maturing site, becoming increasingly knitted to the fabric of the landscape in this area, which in isolation has a suburban and isolated rural feel but increasingly urban to the north, east and further west.





**Fig. 3.15 – Road Network**

The entrance and access road shall be from existing roads and shall follow the contours of the land. The access road from the Boherboy Road shall be guided by the significant fall in height from the Boherboy Road. The southeaster corner is notable in its fall of 9m in a short distance. The cut and fill required shall have a significant visual impact, however, the planting and landform grading shall ameliorate this impact to a moderate visual impact.

The positive outcome of rising contours is the need to organise the roads into shorter lengths contributing to the reduction of long visual lines to the houses internally. Internally there shall be a hierarchy of roads with associated details. The roads shall be heavily planted with semi mature trees and hedges, reducing the impact of the road on the environment.



**Fig. 3.16 – Public facing streetscape proposed with high quality boundary finishes & buffer planting**



## **Due to Landscape Proposals**

The landscape proposals shall consist of retention of much of the existing hedgerow & trees, new planting of a variety of tree species, including native trees, being introduced along with shrubs in specified areas. These proposals shall enhance the landscape character of the development. The site will change from an agricultural use to a completed residential development with an associated landscape scheme.

The landscape scheme shall impact on the development in a positive way, working with the landscape through the use of and retention of trees and hedging to create an environment maintaining desirable aspects of the existing landscape and accentuating them through the introduction of new elements.

The current street frontage of the existing hedgerow shall be replaced by a native hedge and stone wall. & railing. The development of a new native hedgerow set back from the road as per direction from South Dublin County Council shall provide an ordered and a boundary that is in keeping with the landscape.

There shall be an increase in the species and varieties of plants, wildflower grass meadows, bulbs and notably trees on the existing landscape which was primarily a monoculture of grass.

The landscape proposals shall include for a range of pollinator plants, trees, hedges, flowering bulbs and wildflowers and shrub planting. The flowering of these plants shall enable bees to flourish but also increase the texture and colour in the landscape. This shall be a positive and long-term visual impact.

## **Parking**

The entrance roadway has been designed not to have a visual link from the road to the proposed houses, in part due to the topography. The parking areas shall be screened by new hedges and existing trees. The visual effect shall be moderate to significant in the short to medium term. As the planting matures, the organised layout with the associated tree planting will create their own character, creating an organised new landscape. Visually therefore the proposal shall become a new urban landscape, part of the current and emerging trend in the locality. In the short term the impact shall be significant to moderate and shall be positive, moderate to slight impact over the medium to long term.

## **Waste handling areas**

The bin storage of an individual house shall be to the rear as this shall be typical of a housing development. The apartments/duplex units shall have their waste handled by a management company and shall be centralised in designed bin stores and shall be screened from view.

## **Due to Telecommunications/Power Lines**

On this site, the development shall be served from existing services, telecommunications, and power lines. The proposed services, telecommunications and power lines on site shall be all underground. The opportunity to organise and reduce the telecommunication and services to current standards shall be utilised to reduce the visual impact on the development. Therefore the only items that may be seen shall be lamp standards, ESB mini box, and substation. The lamp standards shall be designed to fit into the streetscape in an organised manner, (as per below). The telecommunications shall be all underground and shall serve the houses individually and shall not impact visually upon the new landscape.

## **Due to Lighting**

The lighting of the new development shall be limited and shall be typical of a similar scheme with roads, footpaths, carparking and the main open spaces lit up by the overspill of street lighting.



Internally the roads and streets shall be lit by individual columns, which shall visually change the character of the landscape. Therefore the impact of lighting on the existing landscape shall be moderate in the medium term, negative for the short term and shall become neutral in the medium term to long term.

The lighting of the new houses shall be limited and shall be typical of a housing development. The proposed lighting shall form an extension of the existing roads and developments which are established. In the short term it will be a moderate to significant impact, however as the development establishes, it shall form part of the extended housing neighbourhood in the area and shall be neutral in the long term.

### **3.11.4 Mitigation Measures**

#### **3.11.4.1 Monitoring**

##### **Construction Phase**

A Landscape Architect shall be appointed to oversee and monitor the project at construction and operational stage. They shall liaise with other project members in relation to any existing and proposed trees.

The landscape architect shall overview all hard and soft landscape works and liaise with resident engineer, project team and contractor. The landscape architect shall also inspect the trees; however, most of the monitoring works shall be during and post-civil construction stage. The landscape architect shall review and instruct on details of soft planting, trees, shrubs and of paving materials, walls and railings.

During the operational stage, the Landscape Architect and Arborist shall review the state of all planting and trees. The landscape architect shall review for period of 18 months, from practical completion of each stage the standard and quality of the materials and workmanship. A final certificate of completion shall be issued by the landscape architect in respect of this.

#### **3.11.4.2 Mitigation Measures - Construction Phase**

During the construction of the development, the area shall be changed from agricultural use lands to a residential development with a crèche. The introduction of the built structures, roads, carparking and landscaped open spaces will be carried out while maintaining most of the existing hedges and trees of the site. During construction, there will be a change to the landscape and there will be negative visual impacts for residents and visitors to the areas adjacent to the site associated with construction activity.





**Fig. 3.17 – Tree Protection Plan**

Tree protection shall be provided to retain the character of the existing trees and hedgerows.

Although the existing hedgerow along the Boherboy road shall be removed due to a request from South Dublin County Council, in order to provide a public path and associated upgrades to the Boherboy Road, it is proposed to retain the existing mature trees and shrubs along the perimeter of the site and the main internal hedge.

The development shall be carried out in an organised basis, thus reducing the visual impact upon the environment; however, the impact on the initial area of construction shall be moderate to significant. The remedial measures proposed include the implementation of appropriate site management procedures – such as the control of site lighting, storage of materials, placement of compounds, delivery of materials, car parking, etc. Visual impact during the construction phase will be mitigated somewhat through appropriate site management measures and work practices to ensure the site is kept tidy, dust is kept to a minimum, and that public areas are kept free from building material and site rubbish.

Site hoarding will be appropriately scaled, finished and maintained for the period of construction of each section of the works as appropriate. To reduce the potential negative impacts during the construction phase, good site management and housekeeping practices will be adhered to. The visual impact of the site compound and scaffolding visible during the construction phase are of a temporary to short term nature only and therefore it is expected that this will require no remedial action other than as already stated.

The retention of the hedgerows on and surrounding the site combined shall reduce the visual impact of the proposal during construction. This shall include the use of Tree protection fences to BS standard BS5837.

The stream shall be protected by the tree protection measures employed for the existing hedgerow and shall be aided by the use of bales of straw to capture, in the unlikely event, any possible debris from the site.

All building material shall be stored within the site compound, the compound shall be enclosed by a stout fence, and shall be accessed only by a gate manned by a security guard.



The stripped soil shall be stored in berms, until required for use in gardens and open spaces. The balance of the material, that is not required, sod shall be removed to an approved tipping waste management facility.

As the development increases and phasing continues, the improvement in terms of landscape elements, trees etc., growth of the new vegetation and management of the existing hedgerows shall reduce the visual impact and in the long term be positive.

The greatest impact shall be the views through the site as they will become determined by the existing buildings, walls and boundaries, landscape elements of trees and hedges shall also affect these views. However the views are currently screened by existing hedgerows, these are being retained and augmented by the introduction of new trees and planting, the predicted impact during construction shall be moderate in the short-term depending on the length of time on site, as views are restricted by the existing vegetated boundaries.

### **3.11.4.3 Mitigation Measures – Operational Phase**

In landscape terms the design proposal seeks to complement the existing landscape, implementing new landscape features that integrate with and enhance the character of the area and wider environment. The design rationale seeks to mitigate negative effects on the visual amenity and landscape of the area with the following objectives:

- The retention of the existing landscape structure of field boundaries, where possible, as well as boundary trees and an area of wet woodland to the north-west corner. A large, cohesive area of open space has been provided consistent with that set out in the Fortunestown LAP;
- Once the development has been lived in for a significant period, the upgrade and improvement of the external spaces shall have a positive impact on the landscape and reduce the visual impact upon nature of the location;
- Follow a multidisciplinary approach to align landscape planting with service elements, maximising the opportunity for public realm trees and buffer planting;
- Use of appropriate materials and boundary treatments to provide high quality public facing finishes that are harmonious with the buildings' facades and provide a legible, safe, and comfortable physical environment;
- The extensive planting of additional trees and shrubs throughout the site and on the site boundaries in keeping with the wider landscape character, will over time, provide visual relief, add to the amenity of the current landscape, reduce the visual mass of the buildings, soften the development over time from various viewpoints and assist in integrating the development into the landscape.



**Fig. 3.18 – CGI – Provision of public open space planted with natural grassland and native tree species**

- Native and pollinator species (as per The All-Ireland Pollinator Plan 2015 – 2020, 2021 - 2025) planting for biodiversity has been incorporated into the scheme and this includes a native tree belt / woodland wetland area, wildflower meadows and semi natural grassland.
- Several connected public open spaces have been designed as part of an overall design strategy that focuses on creating a distinctive 'sense of place' and individual character for the development area. The design of public open space that forms part of a network of spaces that includes areas for passive and active recreation, social / community interaction and play facilities catering for all ages. This area of open space corresponds to that as indicated in the Fortunestown LAP.
- A number of pocket parks shall be developed throughout the development to add to the amenity for the residents and provide additional opportunities for biodiversity. The pocket parks shall be natural and organic in form, using plants from the All-Ireland Pollinator plan for the new and emerging communities. The provision of significant parkland areas/open spaces will facilitate permeability and access to nature.
- Retention of the existing watercourse and the integration into a linear park.
- Enhancement of the wetland area through provision for Sustainable Drainage Systems (GNU-2)
- The hedgerows that are to be removed shall and reinstated with additional native tree planting and a replacement stone wall re-using existing stone will be provided, to the front of the site.
- Connections to the Greenway to the south of the proposed development forms an integral part of the landscape proposals, with formal links and piers to announce the access points. (GNU-6)
- The proposed Planting Plan shall use trees and wildflower meadow mixes, taken from the All-Ireland pollinator Plan 2015 – 2020, 2021 – 2025 & the RHS Plants for pollinators. Therefore there shall be an increase in the range and area of pollinator planting.
- Shrubs and hedges to be used in the private spaces shall be taken from the All-Ireland pollinator Plan 2015 – 2020, 2021 – 2025 & the RHS Plants for pollinators. This shall help encourage insects and bees and provide interconnected routes for birds and biodiversity.
- Greenway routes as per the Fortunestown LAP have been respected and shall be integrated into the overall design.
- Augmentation of the hedgerows and trees to provide continuous sustainable biodiversity green links for flora and fauna.
- Application of best practice horticultural methods to ensure that mitigation measures establish and grow appropriately.



**Fig. 3.19 – Proposed Tree Planting**

Landscape works are proposed to reduce and offset any adverse impacts generated due to the proposed development, where possible. The planting of substantial numbers of new trees and other planting in the open spaces, at the site boundaries and internal roads, both native and ornamental varieties. This will enhance the overall appearance of the new development and compensate for any removal of hedgerows and trees, where needed, for the construction works, and increase the overall landscape capacity of the site to accommodate development. Thus offsetting the effect upon the landscape in visual and physical terms, to short to medium term.



#### 4.0 Identification of Significant Impacts / Interactions

Chapter 14 of the EIAR (Volume II) provides detail on the interaction and interdependencies in the existing environment. Armstrong Fenton Associates, 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 2001-2018. 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, Planning Consultant of Armstrong Fenton Associates, who is a Corporate member of the Irish Planning Institute and has 17 no. years post-qualification experience. Tracy has experience in preparing and coordinating EIARs for a variety of projects and has also been involved in the coordination of a wide range of developments including residential and commercial developments.

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 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.

Where there are identified associated and inter-related potential likely and significant impacts which are more comprehensively addressed elsewhere in this EIAR document, these are referred to.



However, the reader is directed to the relevant environmental topic chapter of this EIAR document for a more detailed assessment.

During the Operational Phase, it is anticipated that water and traffic will be the key environmental factors impacting upon population and human health as a new residential landscape will be created. The increase in population will result in increased traffic and increased demands on water supply and increased requirements for wastewater treatment. These are addressed in the appropriate sections of this EIAR.

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.

A full description of the significant interactions are set out under section 14.2 of the EIAR (Volume II).

## **4.1 Description of Significant Interactions**

### **4.1.1 Interactions between Population/Human Health and Air Quality/Climate**

Interactions between population/human health and air quality/climate are discussed in Chapters 3 and 7. The main interactions are predicted to arise during construction stage as there will be dust emissions associated with the construction of the proposed development. Mitigation measures such as the implementation of a Dust Management Plan (outlined in Appendix 11.2) will minimise dust emissions during construction stage and ensure that no adverse impacts will occur on population and human health. The mitigation measures that will be put in place at the proposed development will ensure that the impact of the proposed development complies with all ambient air quality legislative limits and therefore the predicted impact is short-term, imperceptible and neutral with respect to population and human health during construction and long-term, imperceptible and neutral during operation phase.

### **4.1.2 Interactions between Population/Human Health and Transportation**

The scheme will be developed in line with the Transportation Chapter (Chapter 10 of this EIAR) and the separately enclosed Outline Construction Management Plan (OCMP) and Construction Traffic Management Plan to ensure any impacts on local traffic is minimised during the construction stage. Chapter 10 notes that a large proportion of the construction employees are anticipated to arrive in shared transport therefore reducing the potential for associated temporary negative impacts on the surrounding road network. Appropriate on-site parking and compounding will be provided on this large site to prevent overflow onto the local network. Deliveries will be actively controlled and subsequently arrive at a dispersed rate during the course of the working day. Provided that mitigation measures and management procedures detailed in Chapter 10 are implemented, the residual impact on the local receiving environment during the construction stage will be short-term, imperceptible and neutral.

As the development proposes some 655 no. residential units and associated car parking, there will be additional traffic movements at the site and in the vicinity. The implementation of mitigation measures such as the implementation of the Mobility Management Plan will ensure that the residual effect on the local receiving environment is both managed and minimised. The promotion of sustainable modes of transport from the site, the large quantum of bicycle parking provided and the incorporation of permeable links through the site will contribute towards modal shift in travel patterns and increased physical activity, which will have a positive, significant and long-term effect on the area.





If the development does not proceed at the subject lands, there would be a potential negative impact for pedestrians and cyclists in the local area as the significantly enhanced pedestrian and cyclist permeability through the site would not be provided to shorten journeys to public transport, services and facilities.

#### **4.1.3 Interactions between Air Quality and Climate, Transportation and Population/Human Health**

Chapters 7 and 10 outline interactions between air quality and traffic/transportation respectively. Interactions between air quality and traffic can be significant. Chapter 7 states that interactions between air quality and traffic can be significant. With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles increase. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between traffic and air quality are considered to be imperceptible.

The traffic impacts, which would also be temporary in duration are not considered to be significant due to the implementation of the mitigation measures identified. During the construction stage, the risk of accidents associated with the proposed development are not predicted to cause unusual, significant or adverse effects to the existing public road network. The vast majority of the works are away from the public road in a controlled environment. It is expected that the risk of accidents would be low during the construction of the proposed development considering the standard construction practices which are to be used and no unusual substance or underground tunnelling works required or predicted.

As set out above in Sections 14.2.1 and 14.2.2, the interaction between air quality/climate and transportation with population and human health is not expected to generate any significant impacts.

#### **4.1.4 Interactions between Population/Human Health and Noise/Vibration**

Interactions between population/human health and noise/vibration are discussed in Chapters 3 and 8. The potential impacts on human beings in relation to the generation of noise and vibration during the construction phases are that high levels of noise and vibration could cause nuisance to people in nearby sensitive locations. Best practice noise and vibration control measures will be employed by the contractor during the construction phase in order to avoid significant impacts at the nearest sensitive buildings. Implementation of the mitigation measures set out and adherence to good practice noise reducing measures will ensure that the short-term, slight to significant, negative impacts on human health will be lessened.

Similarly, during the operational phase, plant selections designed to achieve the relevant noise criteria will result in a residual impact that is long-term, imperceptible and neutral to people in nearby noise sensitive locations. External noise sources have been assessed and mitigation to ensure internal noise levels achieve the relevant noise criteria have been provided.

#### **4.1.5 Interactions between Population/Human Health and Waste Management**

The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and adherence to the project specific C&D WMP and OWMP (Appendices 11.1 and 11.2, respectively), will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be **long-term, imperceptible and neutral**.



#### **4.1.6 Interactions between Population/Human Health and Biodiversity**

The open space within the site will provide amenity areas, including play areas, planting and benches. There will be a loss of dry meadows and grassy verges habitat, scattered trees and parkland, and treelines and hedgerows within the proposed development, as these habitats will be directly impacted by construction activities. The areas that will be lost are relatively small in the context of the site and the wider environs, with 23 'Category U' trees (Those trees in such a condition that any existing value would be lost within 10 years), 40+ 'Category C' trees (trees of low quality and value), and seven 'Category B' trees (trees of moderate quality and value) being removed<sup>8</sup>. Although 575m of hedgerow habitat will be removed, this encompasses c. 23.3% of the total hedgerow habitat within the site. The hedgerows on the peripheries of the site are largely being retained, whilst along the central hedgerow there will be some removal, this vegetation will be augmented and bulked up with new shrub and hedge planting which will compensate for the loss in this area. Mitigation measures involve planting of native shrubs in the understory which will enhance the woodland structure and planting of 692 no. new trees/large shrubs across the site. These measures will provide habitat for wildlife to safely commute and nesting opportunity for birds.

Interaction with population and human health involves the provision of lighting to provide a safe outdoor realm for residents which, without mitigation, could impact on nocturnal species, such as bats. Any light spill affecting bat use of habitats outside of the proposed development boundary will be avoided, particularly along the boundaries of the site, and along the central boundary. Light levels during construction and operation in these areas will be maintained at baseline levels where possible. This will be achieved through sensitive siting and design of the lighting elements. This will include careful consideration of light placement on buildings, column heights and luminaire design. Luminaires have been selected which do not emit UV light.

With the implementation of the outlined mitigation measures, the interaction between population/human health and biodiversity will be long-term, not significant and neutral.

#### **4.1.7 Interactions between Population/Human Health and Water**

Potential impacts on human health have been considered in the Water chapter (Chapter 6). The chapter sets out that the implementation of the measures outlined within the chapter will ensure that the potential impacts do not occur on water and hydrology and ultimately there is anticipated to be no impact on population and human health in this regard.

As set out in Chapter 6, surface water drainage has been carried out in accordance with Greater Dublin Strategic Drainage Study (GSDSDS) and SuDS methodologies will be implemented, therefore no predicted impacts on water and hydrology will arise during the operational stage. Therefore, the interaction between population/human health and water-hydrology are considered to be long-term, imperceptible and neutral.

#### **4.1.8 Interactions between Biodiversity and Landscape**

The scheme has been developed to minimise the removal of existing hedgerows and trees on the Boherboy site. Open spaces have been selected to retain the trees and hedgerows. However, some parts of hedgerows and scrub vegetation will be removed in the construction – generally for access roads. This shall have a negative effect on landscape quality visual amenity and biodiversity.

Landscape mitigation proposals have been developed to be complementary with the ecological requirements. These include planting of native, naturalised and indigenous species to augment existing hedgerows. The hierarchy of street tree planting shall help in reconnecting ecological networks resulting in a positive effect on biodiversity and a positive long-term impact for the subject site at Boherboy.

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<sup>8</sup> *An Arboricultural Assessment on Lands at 'Boherboy', Saggart, Co. Dublin.* Arborists Associates Ltd.





It is also proposed as part of the development to plant c.692 no. new trees and large shrubs. Given that these specimens would all be in better condition than the majority of the 150 no. trees to be removed, there would be a similar quantity and a net improvement in the quality of shrub and tree cover on the site as a result of the proposed development, which will ensure the site's function to provide habitat for a range of species and providing a wildlife corridor at the site. Therefore, the interactions between biodiversity and landscape is considered to be long-term, slight and neutral.

#### **4.1.9 Interactions between Land, Soils and Geology, Biodiversity and Air Quality**

The Air Quality and Climate Chapter (Chapter 7) notes that construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and land and soils. As set out in Chapter 5 (Land, Soils and Geology), dust generation can occur during extended dry weather periods as a result of construction traffic. Dust suppression measures (e.g. dampening down) will be implemented as necessary during dry periods and vehicle wheel washes will be installed for example.

The works involve stripping of topsoil and excavations, which will remove some vegetation such as trees and scrub. It will also generate dust and potentially impact on the air quality in the locality. However, the generation of dust will be temporary during construction phase and is not anticipated to have a significant impact on biodiversity.

The impact of the interactions between land, soils and geology, biodiversity and air quality are considered to be short-term, imperceptible and neutral.

#### **4.1.10 Interactions between Land, Soils and Geology, Transportation and Noise/Vibration**

Delivery of materials to site (e.g. aggregates for road construction, concrete for foundations, delivery of construction plant to site) will lead to potential impact on the surrounding road network. There will be a level of construction related noise and vibration during the construction of the development on the lands.

However, mitigation works outlined in Chapter 5 (Land, Soils and Geology) such as the provision of vehicle wheel wash facilities will be installed in the vicinity of site entrances and road sweeping will be implemented as necessary in order to maintain the road network in the vicinity of the site.

Mitigation measures proposed will ensure that the potential impacts of the proposed development on land, soils and the geological environment do not occur during the construction phase and that any residual impacts will be short term, imperceptible and neutral. On completion of the construction phase no further mitigation measures are proposed as there will be no further impact on soils and the geological environment.

In relation to the interaction between transportation and noise/vibration, with the implementation of mitigation measures the interaction between construction noise and vibration and transportation will be short-term, slight to significant and neutral. In the operation stage, the interaction will be permanent, imperceptible and neutral.

#### **4.1.11 Interactions between Land, Soils and Geology and Water**

Stripping of topsoil will result in exposure of the underlying subsoil layers to the effects of weather and construction traffic and may result in subsoil erosion and generation of sediment laden surface water runoff. Chapter 10 (Land, Soils and Geology) sets out that the stripping of topsoil will be carried out in a controlled



and carefully managed way and coordinated with the proposed staging for the development. Topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains. Topsoil stockpiles will also be located so as not to necessitate double handling.

Mitigation measures proposed such as the above will ensure that the potential impacts of the proposed development on soils and the geological environment do not occur during the construction phase and that any residual impacts will be short term, imperceptible and neutral.

#### **4.1.12 Interactions between Land, Soils and Geology and Waste Management**

During the construction phase, excavated soil, stone, clay and made ground (c. 101,000 m<sup>3</sup>) will be generated from the excavations required to facilitate site levelling, construction of the basements and construction of new foundations. It is estimated that c. 60,000 m<sup>3</sup> of excavated material will need to be removed off-site. However, it is envisaged that c. 41,000 m<sup>3</sup> material will be reused on-site for landscaping and fill. These estimates will be refined prior to commencement of construction. Where material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. Adherence to the mitigation measures in Chapter 5 and the requirements of the C&D RWMP (Appendix 11.1), will ensure the effect is **long-term, imperceptible** and **neutral**.

Where material has to be taken off site it will be taken for reuse or recovery, where practical, with disposal as last resort. Oil, fuel etc. storage areas are to be decommissioned on completion of the construction phase. Any remaining liquids are to be removed from site and disposed of at an appropriate licenced facility.

The management of waste during the construction phase in accordance with the submitted Construction and Demolition Waste Management Plan will meet the requirements of regional and national waste legislation and promote the management of waste in line with the priorities of the waste hierarchy. Adherence to the mitigation measures in Chapter 11 (Material Assets: Waste Management) such as on-site segregation of waste and contacting nearby sites to investigate reuse opportunities for clean and inert materials, and the requirements of the submitted Construction and Demolition Waste Management Plan will ensure the effect is long-term, imperceptible and neutral.

#### **4.1.13 Interactions between Water and Transportation**

Construction and operation stage traffic have the potential to impact water quality via hydrocarbon spills and leaks and via increased sediment / particle loading on trafficked surfaces. Measures to mitigate against impacts are detailed in Chapter 11 (Water), and the impact of the interaction is considered to be short-term, imperceptible and neutral.

#### **4.1.14 Interactions between Transportation and Material Assets – Waste Management**

Construction and operational stage traffic have the potential to be impacted by waste generation and resource management on site. Local traffic and transportation will be impacted by the additional vehicle movements generated by removal of waste from the site during the construction and operational phases of the development. The increase in vehicle movements as a result of waste generated during the construction phase will be temporary in duration. There will be an increase in vehicle movements in the area as a result of waste collections during the operational phase but these movement will be imperceptible in the context of the overall traffic and transportation increase and has been addressed in Chapter 10 (Material Assets: Transportation).



Provided the mitigation measures detailed in Chapter 11 (Material Assets: Transportation) and the requirements of the submitted Operational Waste Management Plan are adhered to, the interaction should be short to long-term, imperceptible and neutral.

Local traffic and transportation will be impacted by the additional vehicle movements generated by removal of waste from the Site during the construction and operational phases of the proposed Development. The increase in vehicle movements as a result of waste generated during the construction phase will be *temporary* in duration. There will be an increase in vehicle movements in the area as a result of waste collections during the operational phase but these movement will be imperceptible in the context of the overall traffic and transportation increase. Traffic-related impacts during the construction and operational phases are addressed in Chapter 10 (Material Assets - Transportation). Provided the mitigation measures detailed in Chapter 10 and the requirements of the OWMP (included as Appendix 11.2) are adhered to, the predicted effects are **short to long-term, imperceptible and neutral**.

#### 4.1.15 Summary of Interaction of Impacts

Schedule 6 Item 2 (b) of the Planning and Development Regulations, 2001 (as amended) requires that proposed developments are examined with regard to the inter-relationship of aspects referred to in Item 2 (b) of Schedule 6. The matrix incorporated in Table 14.1 over inter-relates the various Chapters of this EIAR to the various impact headings referred to in Schedule 6 Item 2 (b) of the Planning and Development Regulations, 2001 (as amended). The matrix also indicates where these statutory information requirements have been incorporated in this EIAR. It should be emphasised that this matrix does not represent a form of relative assessment of impacts, but merely identifies and amalgamates areas of principal interaction and significance.

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.

Any potential cumulative impacts have been considered in the preparation of this EIAR and are detailed where relevant in the various EIAR Chapters e.g. construction stage impacts, surface water drainage infrastructure, foul drainage, water supply, landscape and visual impact and traffic etc. We confirm that this EIAR has assessed environmental impacts from existing developments as part of the baseline assessments.

At the time of writing this Environmental Impact Assessment Report, we note the following relevant applications, which have been reviewed and considered by the authors of each EIAR Chapter and included in the cumulative assessment where deemed appropriate.



## 4.2 Residual Impacts and Cumulative Impacts

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At the time of writing this Environmental Impact Assessment Report, we note the following relevant applications, which have been reviewed and considered by the authors of each EIAR Chapter and included in the cumulative assessment where deemed appropriate.

### Permitted Developments:

Table 4.1 – Permitted developments to date under the 2012 Fortunestown LAP

Location	Reg. Ref.s	Total Residential Units
Fortunestown Centre	SD16A/0210	111
	SD16A/0078	128
	SD18A/0014	78
	SD18A/0015	52
	ABP-306602-20	463
	ABP-305556-19	290
Fortunestown Centre/Cheeverstown	SD15A/0127	384
Cheeverstown	SD168/0002	85
Cheeverstown	SD20A/0219	98
Citywest Road	SD17A/0458 & SD17A/0030	12
Saggart Cooldown Commons	SD14A/0121 & SD15A/0095	224
	SD16A/0297	12
	ABP-300555-18	524
	ABP-302398-18	459
	ABP-305563-19	488
	ABP-308088-20	224
	ABP-310570-21*	260
<b>Total</b>		<b>3,892</b>



In relation to Ref. ABP-310570-21\* above, permission was granted on 6<sup>th</sup> October 2021 for a development that sought to replace the 32 no. duplex units previously permitted under Ref. ABP-302398-19, and replacing the entirety of the permitted 129 no. dwellings under Ref. SD16A/0078 and replacing both with 421 no. new residential units, which equates to an overall net increase of 260 no. units for the two aforementioned combined sites, north of the Fortunestown Luas stop and the Citywest Shopping Centre (to the north-west of the subject site), located within the Saggart–Cooldown Commons and Fortunestown Neighbourhoods of the LAP. Taking the quantum of permitted development into consideration (i.e. 3,892 no. dwellings), and should permission be granted for the current proposal of 655 no. dwellings, the LAP lands would be catering for 4,547 no. dwellings.

#### **Pending / Proposed:**

**Ref. ABP-312501-22** - Demolition of an existing dwelling, construction of 274 no. residential units (51 no. houses, 223 no. apartments), creche and associated site works, at Mill Road, Saggart, Co. Dublin

Therefore, it is clear that the potential for any cumulative impacts to occur have been comprehensively considered in the preparation of this EIAR, as detailed where relevant throughout the various chapters.

To determine traffic impacts in Chapter 11, 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.

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**

This EIAR has regard to and builds on the Strategic Environmental Assessment prepared with the South Dublin County Development Plan 2016-2022 and the Fortunestown Local Area Plan, 2012. 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.

It is considered that there are no material or significant environmental issues arising which were not anticipated by either the South Dublin County Development Plan 2016-2022 and the Fortunestown Local Area Plan, 2012, and considered in their Strategic Environmental Assessments.



In summary, it is concluded that the proposed development will not result in any significant synergistic interactions or cumulative adverse impacts on the environment. The assessment of cumulative impact assessment considers the impacts associated with the proposed development in combination with those of other plans and projects within the study area of the proposed development.

The most notable interaction occurs between Human Health and Population, and Noise and Vibration, which arises from construction noise experienced by residents when construction activities occur within close proximity of shared site boundaries. This predicted negative impact occurs in the worst case scenario, when the assessed construction machinery is operating simultaneously. The implementation of mitigation measures will ensure that this interaction is not significant.

Accordingly, and as the comprehensive assessments undertaken as part of this EIAR has revealed, with proposed mitigation measures in place the proposed development will not result in any significant singular adverse effects on the environment. It is therefore considered that the environmental impact of the proposed development is acceptable.

## **5.0 Summary of EIA Mitigation and Monitoring Measures**

Chapter 15 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 Board and all other interested parties.

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