



ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR)

MOORETOWN SHD

Proposed Strategic Housing Development

**on Lands at Mooretown,
Swords, Co. Dublin**

Applicant: Gerard Gannon Properties

April 2022

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NON-TECHNICAL SUMMARY

1.0 INTRODUCTION

Gerard Gannon Properties (the applicant) is applying to An Bord Pleanála for planning permission for 650 no. dwellings, a creche, retail units and café (the development) on 18.378ha of land south of Rathbeale Road, Mooretown, Swords, Co. Dublin (the application site). The planning application is made to An Bord Pleanála as a Strategic Housing Development (SHD) application.

The application site of 18.378 hectares falls in what can be considered a built-up area. On this basis, the proposal is environmental impact assessment (EIA) development under Part 2 of Schedule 5 (Annex II) of the EIA Regulations 2018. Additionally, the site forms part of the wider Oldtown-Mooretown zoned land under terms including the Oldtown-Mooretown LAP 2010-2016 (as extended to July 2020 and since expired).

This Environmental Impact Assessment Report (EIAR) has been prepared under the following assessment chapters

1. Introduction	9. Noise and Vibration
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This EIAR has been prepared by an experienced and suitably qualified team of consultants led by Downey Planning. The table below provides information on the members of the EIAR study team and their respective inputs within the report.

Name	Role
<u>Downey Planning</u>	EIAR Project Managers & Planning Consultants
John Downey, Planning Consultant, BA (Hons), MRUP, MBA, MIPI, MRTPI – 25 years' experience & Eva Bridgeman, Planning Consultant BA (Hons), MRUP, MIPI – 10 years' experience	Preparation of the following EIAR chapters: ▪ <i>Chapter 1: Introduction</i> ▪ <i>Chapter 2: Description of Project & Alternatives Considered</i> ▪ <i>Chapter 3: Planning and Development Context</i> ▪ <i>Chapter 4: Population & Human Health</i> ▪ <i>Chapter 15: Interactions</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i> ▪ <i>Compilation of EIAR and NTS</i>

Name	Role
<u>CCK Architects</u> Pamela Gill, Director, MRIA	Preparation of the following EIAR chapters: - Chapter 2: Description of Project & Alternatives Considered - Chapter 16: Summary of Mitigation & Monitoring Measures
<u>Waterman Moylan Consulting Engineers</u> Mark Duignan, Associate Director, Engineer, MA BAI CEng MIEI	Preparation of the following EIAR chapters: - Chapter 6: Land and Soils - Chapter 7: Water - Chapter 12: Traffic & Transport - Chapter 14: Utilities & Waste - Chapter 16: Summary of Mitigation & Monitoring Measures
<u>Doyle & O'Troithigh Landscape Architects</u> Linda Doyle, Director, MILI	Preparation of the following EIAR chapters: - Chapter 11: Landscape and Visual Impact Assessment - Chapter 16: Summary of Mitigation & Monitoring Measures
<u>Courtney Deery Heritage Consultancy Ltd.</u> Siobhán Deery BA, MA, H-Dip (Ed.), Dip Planning & Env. Law, MIAI, Director	Preparation of the following EIAR chapters: - Chapter 13: Cultural Heritage - Chapter 16: Summary of Mitigation & Monitoring Measures
<u>Altamar Ltd.</u> Bryan Deegan, Ecologist, MCIEEM	Preparation of the following EIAR chapters: - Chapter 5: Biodiversity - Chapter 16: Summary of Mitigation & Monitoring Measures
<u>DKP International Ltd</u> Gerard Van Deventer C.ENG., BE. (Mech)., H. Dip. CIOB., MCIBSE	Preparation of the following EIAR chapters: - Chapter 8: Air Quality - Chapter 9: Noise & Vibration - Chapter 10: Climate - Chapter 16: Summary of Mitigation & Monitoring Measures

2.0 DESCRIPTION OF THE SITE, THE PROJECT & ALTERNATIVES CONSIDERED

2.1 The Site

The application site extends to approximately 18.378ha and is located on the western edge of Swords, Fingal, Co. Dublin, approximately 2.5km from Swords town centre and County Hall, 5 km from the M1 interchange at Lissenhall and just under 10km to Dublin Airport. It is accessed from Rathbeale Road and the Mooretown Distributor Road (Western Distributor Link Road). The lands are zoned RA in the Fingal Development Plan 2017-2023 and form the western edge of urban development for Swords.

Further information on the application site is provided in Chapter 2 of this EIAR.

2.2 The Baseline Scenario

The baseline scenario including a description of the current receiving environment has been considered as part of this EIAR through the collection and collation of data through tests, site visits, desktop reviews, etc, including analytical data for traffic, noise levels, surface water quality, etc. A

description of the existing environment is presented in each relevant section for the various environmental chapters.

The application lands are located at Mooretown, Swords, in the northern periphery of Dublin and within the administrative boundaries of Fingal County Council. The surrounding land uses are generally residential and agricultural.

2.3 The Development

Gerard Gannon Properties is applying to An Bord Pleanála for planning permission for the following development:

“The development will consist of the construction of a total of 650 no. residential units (265 no. houses, 187 no. apartments, 6 no. triplex units, and 192 no. duplex units [comprising 113 no. duplex ‘house’ units and 79 no. duplex ‘apartment’ units]), 1 no. childcare facility, 5 no. retail units and 1 no. café/restaurant, all of which will be provided as follows:

- *265 no. residential houses (240 no. 3 bed houses, and 25 no. 4 bed houses) in detached, semi-detached, end-terraced, and mid-terraced houses ranging from two to three storey in height;*
- *Duplex Block A containing a total of 12 no. units comprising of 2 no. 1 bed units, 3 no. 2 bed units, and 7 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block B containing a total of 9 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; 1 no. retail unit at ground floor level with associated signage; car parking and bicycle spaces, and bin stores;*
- *Duplex Block C containing a total of 14 no. units comprising of 3 no. 1 bed units, 3 no. 2 bed units and 8 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block D containing a total of 10 no. units comprising of 1 no. 1 bed unit, 3 no. 2 bed units and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block E containing a total of 12 no. units comprising of 2 no. 1 bed units, 3 no. 2 bed units and 7 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block F containing a total of 9 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; 1 no. retail unit at ground floor level with associated signage; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block G containing a total of 14 no. units comprising of 3 no. 1 bed units, 3 no. 2 bed units and 8 no. 3 bed units, in a building three storeys in height, and all units provided*

with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;

- *Duplex Block H containing a total of 5 no. units comprising of 2 no. 2 bed units and 3 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;*
- *Duplex Block I containing a total of 7 no. units comprising of 2 no. 1 bed units, 1 no. 2 bed unit and 4 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike stores; car parking and bicycle spaces, and bin stores;*
- *Duplex Block J containing a total of 7 no. units comprising of 2 no. 1 bed units, 1 no. 2 bed unit and 4 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block K containing a total of 16 no. units comprising of 5 no. 1 bed units, 2 no. 2 bed units and 9 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block L containing a total of 8 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 5 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;*
- *Duplex Block M containing a total of 8 no. units comprising of 3 no. 2 bed units and 5 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block N containing a total of 4 no. units comprising of 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;*
- *Duplex Block O containing a total of 11 no. units comprising of 4 no. 1 bed units, 1 no. 2 bed unit and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block P containing a total of 5 no. units comprising of 2 no. 2 bed units and 3 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;*
- *Duplex Block Q containing a total of 15 no. units comprising of 1 no. 1 bed unit, 5 no. 2 bed units and 9 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block R containing a total of 7 no. units comprising of 2 no. 1 bed units, 1 no. 2 bed unit and 4 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block S containing a total of 5 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;*

- Duplex Block T containing a total of 5 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block U containing a total of 5 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block V containing a total of 4 no. units comprising of 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Apartment Block A containing a total of 40 no. units comprising of 10 no. 1 bed units, 24 no. 2 beds, and 6 no. 3 bed triplex units with all units provided with private balconies/terraces, in a building five storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; car parking within the undercroft car park and on-street, and bicycle parking;
- Apartment Block B containing a total of 70 no. units comprising of 24 no. 1 bed units and 46 no. 2 bed units with all units provided with private balconies/terraces, in a building one to five storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; 2 no. retail units at ground floor level with associated signage; car parking within the undercroft car park and on-street, and bicycle parking;
- Apartment Block C containing a total of 8 no. units comprising of 8 no. 2 bed units with all units provided with private balconies/terraces, in a building three to four storeys in height, with internal bin stores and plant rooms at ground floor level; 1 no. retail unit at ground floor level with associated signage; car parking within the shared parking court; bin stores and bike stores; and bicycle parking;
- Apartment Block D containing a total of 8 no. units comprising of 8 no. 2 bed units with all units provided with private balconies/terraces, in a building three to four storeys in height, 1 no. café/restaurant unit at ground floor level with associated signage; car parking within the shared parking court; bin stores and bike stores; and bicycle parking;
- Apartment Block E containing a total of 46 no. units comprising of 3 no. 1 bed units and 43 no. 2 bed units with all units provided with private balconies/terraces, in a building five storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; car parking within the parking court and on-street, and bicycle parking;
- Apartment Block F containing a total of 21 no. units comprising of 6 no. 1 bed units and 15 no. 2 bed units with all units provided with private balconies/terraces, in a building four storeys in height, with internal bicycle stores and bin stores at ground floor level; car parking within the parking court and on-street, and bicycle parking;
- 1 no. childcare facility in a one to two storey building, with associated outdoor play area, car parking and drop-off/visitor parking, bicycle parking, and bin stores.

The development will provide for a total of 991 no. car parking spaces within the scheme; a total of 1141 no. bicycle spaces serving the apartments, triplex units, duplex units, childcare facility and commercial units; proposed new vehicular accesses onto Main Street and onto Mooretown Distributor Road (Western Distributor Link Road) which is partly constructed and also permitted under Reg. Ref. F20A/0096; proposed upgrades to public realm including footpaths, a new pedestrian/cyclist link via Abbeyvale Court, landscaping including play equipment, boundary

treatments, and public lighting; and all associated engineering and site works necessary to facilitate the development including the proposed stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River with associated manholes on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road, along with the proposed vehicular/service access onto Balheary Road, Swords."

2.4 The alternatives considered

This EIAR has considered the following alternatives to the development proposal:

1. **Do Nothing Scenario:** The application site, if left undeveloped, most of the subject lands remain in agricultural use. The WDLR adjacent to the subject lands would be an unsupervised road serving no immediate purpose and would need to be fenced off until such time it is continued south to Brackenstown and the Ward River Valley. The school campus would remain detached from urban development and the social infrastructure that accompanies new urban development would not occur. The pedestrian/cycle link from Abbeyvale to Mooretown and the school campus would not be overlooked nor successfully integrated into an urban plan. The level of demand for housing within the development boundary of the Swords area, based on the future population growth predictions, would not be met. A "Do Nothing" scenario would also be inconsistent with the RA land-use zoning pertaining to the lands and the objectives of the Development Plan to facilitate a new residential development on the subject lands as part of a wider development of Mooretown lands, and Swords. Furthermore, not developing these zoned and serviced lands would be inconsistent with national planning policy as set out in the National Planning Framework, Regional Spatial Economic Strategy and Urban Development and Building Height Guidelines.
2. **Alternative Locations:** The consideration of alternatives locations for the development has, in a significant number of cases, already been addressed and decided at strategic planning level during the preparation and adoption of the Fingal Development Plan 2017-2023. This plan establishes a housing need for the district which is required to be accommodated during the plan period and assesses all available land in the district, including the subject site and all available alternatives. This Plan will have been subject to Strategic Environmental Assessment which takes into account the environmental considerations associated with, for example, the cumulative impact of an area zoned for industry on a sensitive landscape. The EIA Guidelines also state that the statutory development plans can establish project-level objectives or other mitigation that a subsequent site project and its EIAR should be cognisant of.
3. **Local Area Plan Layout:** Whilst the LAP has since expired, the LAP indicative plan layout for the subject site area depicts a medium-density residential development with an indicative building line to the WDLR and the regional park. There is one indicative access point from the WDLR shown (Main Street) and two indicative access points from Main Street to the lands north and south. Pedestrian and cycle connections are shown along the WDLR, Main Street and along the eastern boundary of the subject lands. Existing trees and hedges within the subject lands and along the eastern boundary are noted. Objectives for the sensitive treatment of the southern boundary to the existing developments and for the preservation of archaeology within new open space are provided. Indicative building edges along Main Street,

fronting the WDLR and along the eastern boundary are shown. The Local Area Plan formed the basis for the Mooretown masterplan, which in turn formed the basis for the proposed site layout. The diagrammatic nature of the LAP demands a refinement at the level of detailed design. This is particularly the case for the inner road and pedestrian connections as those shown are not compatible with DMURS and current policy for best-practice urban design, nor would they make legible connections with the earlier built phases. The location, quantity and nature of open space was another element that required further consideration in the course of pre-planning consultation with the Local Authority.

4. **Alternative Designs and Layouts:** It must be noted that given the extensive ownership of the applicant of the entire landholding subject to this project, the existing, under construction, and planned infrastructure/development in place, and the zoning of the lands, there were no major alternative uses or processes that were considered reasonable. The alternatives to the proposed development considered during the preparation of this EIAR were related to the overall layout and internal roads pertaining to the proposed scheme. The design of the proposed project has evolved throughout the pre-application consultation process, resulting in alterations to the proposal. It is worth noting that the proposal may continue to develop following the application submission and continued consultation with relevant stakeholders, bringing the proposed development through detailed construction design and implementation.

Further information on the alternatives considered as part of this EIAR is provided in Chapter 2 of this EIAR.

3.0 PLANNING AND DEVELOPMENT CONTEXT

Chapter 3 of this EIAR considers in detail the planning policy and legislative context of the site, development proposal and this EIA at European, national, regional, and local levels. This chapter of the EIAR also considers the planning history of the scheme and the surrounding area. For the purposes of this Non-Technical Summary, this section will consider the site's zoning policy contained in the Fingal County Council Development Plan (2017 to 2023). Under this Plan, the site is zoned "RA – Residential Area" which seeks:

"Provide for new residential communities subject to the provision of the necessary social and physical infrastructure."

The vision for the "RA – Residential Area" seeks to:

"Ensure the provision of high quality new residential environments with good layout and design, with adequate public transport and cycle links and within walking distance of community facilities. Provide an appropriate mix of house sizes, types, and tenures to meet household needs and to promote balanced communities."

The uses proposed as part of this development are permitted under the zoning objectives.

The Class 1 open space lands to the north are zoned OS-Open Space – “to preserve and provide for open space and recreational amenities”. The proposed open space in this area is therefore permitted in principle under this zoning designation.

The proposed storage tank site is zoned ME-Metro Economic Corridor – “to facilitate opportunities for high-density mixed-use employment generating activity and commercial development and support the provision of an appropriate quantum of residential development within the Metro Economic Corridor”. The tank can be considered essential infrastructure and has been designed in conjunction with Irish Water. It will not only facilitate the connection requirement of this subject application but will also have the capacity to allow for continued development in the Oldtown/Mooretown catchment.

The proposed development is in accordance with relevant national, regional, and local planning policy documents.

4.0 POPULATION AND HUMAN HEALTH

This section of the EIAR has been prepared by Downey. The site and proposed development were examined having regard to their impact on the human environment in the general area. The proposed development will have a positive impact on the population and will cater for the predicted future increase in population for the Swords area.

4.1 Methodology

The assessment was carried out by way of site visits and desktop research of the demographic profile of the area, assessment of community and social infrastructure facilities, employment, and educational and commercial facilities in the area.

4.2 Receiving Environment

The baseline assessment has found that the population of the Swords-Lissenhall and Swords-Glasmore ED's, where the subject site is located within, has increased considerably over the Census period 2011-2016 by approximately 4.3% (up to 743 persons). This is submitted to be in line with general population growth in the wider area and County. The Land use and settlement pattern consists of predominately residential developments and community amenities with a mix of house types all of which have resulted in varying building heights and forms within the area.

4.3 Potential Impact of Proposal

4.3.1 Construction Phase

The construction of this project, like any project, has the potential to give rise to an impact on the health and safety of human beings if construction activities are not managed appropriately or impact mitigated.

4.3.2 Operation Phase

The proposed development will see an increase in population from the operation phase of the development. This will support an increase in economic activity in the area and employment. This will take place close to people's homes and public transportation. This is seen as a positive impact. The

development will generate an increase in traffic and noise, which will have a slight and permanent impact on human health, if not mitigated.

4.4 Remedial/Mitigation Measures

4.4.1 Construction Phase

Measures to address such health and safety considerations will be addressed in the Construction Management Plan, including the Construction Traffic Management Plan for the development, which shall be agreed upon with the Planning Authority pending a grant of permission.

4.4.2 Operation Phase

No mitigation or remedial measures are required about population or human health during the operational phase of the development.

4.5 Predicated Impact of Proposal

4.5.1 Construction Phase

The development will have a positive and temporary impact on employment during the construction phase, providing significant construction sector and related employment over the construction period of the development.

4.5.2 Operation Phase

The proposed development will have a significant positive impact on the local community and will positively contribute to the vitality and viability of the local area, through:

- The influx of a new resident population using existing local businesses and services;
- The provision of a new creche as a community facility for the use of new residents and the local community; and
- The provision of open space for the use of the local community

4.6 Monitoring

In terms of population and human health, measures to avoid negative impacts have been a key consideration in the design evolution of the buildings and overall layout of the proposed development to include the provision of a creche, public open space and facilitates to support healthy choices, such as cycle parking. Conditions will be attached to any grant of planning permission to ensure that these facilities are provided and compliance in this regard. Building Regulations will also be adhered to during the construction phase to ensure a fully compliant development is constructed.

Health & Safety requirements, which are site-specific to the proposed project, will be carried out by the Project Manager on site.

Impacts from Air Quality, Noise and Vibration, Climate, and Traffic and Transport and monitoring measures in this regard are addressed in the relevant chapters of this EIAR.

5.0 BIODIVERSITY

5.1 Introduction

The biodiversity chapter has been prepared by Altamar Limited. It assesses the biodiversity value of the proposed development area and the potential impacts of the development on the ecology of the surrounding area and within the potential zone of influence (ZOI). The programme of work in relation to biodiversity assessment was designed to identify and describe the existing ecology of the area and detail designated sites, habitats or species of conservation interest that could potentially be impacted by the proposed development. It also assesses the significance of the likely impacts of the scheme on the biodiversity elements, and designs mitigation measures to alleviate identified impacts.

5.2 Assessment Methodology

A pre-survey biodiversity data search was carried out. This included examining records and data from the National Parks and Wildlife Service (NPWS), National Biological Data Centre (NBDC) and the Environmental Protection Agency (EPA), in addition to aerial, 6-inch maps and satellite imagery. A habitat survey of the site was undertaken within the appropriate seasonal timeframe for terrestrial fieldwork. Field surveys were carried out as outlined in the table below. All surveys were carried out in the appropriate seasons.

Area	Surveyors	Survey Dates
<i>Terrestrial Ecology/ Aquatic Ecology</i>	Bryan Deegan (MCIEEM) of Altamar	20 th April 2021
<i>Bat Survey</i>	Bryan Deegan (MCIEEM) of Altamar	20 th April 2021
<i>Mammal / Amphibian Survey</i>	Bryan Deegan (MCIEEM) of Altamar	16 th March 2021
<i>Wintering Bird Survey</i>	Hugh Delaney (ornithologist)	March 25 th 2021, March 26 th 2021, March 30 th 2021, March 31 st 2021, November 23 rd 2021, December 9 th 2021, December 21 st 2021, January 13 th 2022, January 25 th 2022, February 3 rd 2022, February 22 nd 2022, March 1 st 2022, March 21 st 2022
<i>Breeding Bird Survey</i>	Hugh Delaney (ornithologist)	June 8 th , 2021, June 14 th 2021 & June 25 th 2021

5.3 Characteristics of the Proposed Development

5.3.1 Existing conditions & Location

The Oldtown-Mooretown LAP lands are located at the western development edge of Swords, within the catchment of the Broadmeadow River. The LAP lands cover an area of approximately 111 hectares.

The Oldtown–Mooretown lands are divided by the Rathbeale Road, with Oldtown lands to the north (c. 50 Ha) and Mooretown to the south (c. 61 Ha).

This subject Application (18.378 Ha, gross), which forms Phase 3 of the Mooretown development, is located in the southern section of the Mooretown Lands.

The proposed site for the stormwater storage tank that forms part of the subject application, is located on the junction of the Glen Ellan Road and the Balheary Road, Swords, Co. Dublin. The site is 1.4km north of swords, 1.1km west of the M1 motorway and 300m south of the Broadmeadow River. The site is owned by The Applicant and is locally referred to as the Celestica/Motorola site.

5.3.2 Proposed Development

The proposed development will consist of 650 units, comprising of: 265 No. houses, 119 No. Duplex/Triplexes units, and 266 No. apartments A creche (512m²) and commercial spaces of retail and cafe (totalling 946m²) will also be constructed as part of the development. The site is 18.378 ha gross area and is located 2km west of Swords town centre.

The developer will construct all associated infrastructure to service the development including a network of foul water and surface water drains, a stormwater storage tank on the public foul network, watermain, access roads and footpaths.

5.4 The Existing Receiving Environment

Designated Sites

There is a direct hydrological pathway to Malahide Estuary SAC and Malahide Estuary SPA via the proposed surface water drainage strategy. After attenuation, surface water will then outfall to the Mooretown Mill Stream, which in turn outfalls to Broadmeadow River. As this watercourse ultimately discharges to Malahide Estuary (containing Malahide Estuary SAC & SPA), located 2.5km downstream from the subject site, there is a direct hydrological pathway between the proposed development and Malahide Estuary SAC & SPA.

Habitats

There are no habitats of significant conservation importance on site.

Bats

Soprano pipistrelle (*Pipistrellus pygmaeus*) bats were noted foraging on site. No bat roosts were noted on site. However, several trees of bat roosting potential were noted on site.

Terrestrial Mammals

An 'in season' mammal assessment was carried out. No badger setts or signs of mammal activity was noted on site. A disused badger sett was noted outside the site outline to the west of the site.

Amphibians/Reptiles

Frogspawn was noted on site within the pond in the hedgerow on site. No lizards were noted on site.

Birds

In March 2021 four winter bird surveys were conducted at Mooretown and several nearby sites within the same development by Hugh Delaney (Appendix Chapter 5, 5.1.2). As outlined in Chapter 5,

Appendix 5.1.2 the proposed development site area was classified as Mooretown 1. Over the entire survey area:

"51 bird species were recorded in the areas covered by these 4 winter bird surveys, from these species recorded Snipe and Redwing are red listed as species of conservation concern in the revised Birdwatch Ireland List of birds of conservation concern in Ireland (2020-2026). Five species recorded are amber listed as wintering species in Ireland (Herring Gull, Lesser black-backed Gull, Cormorant, Mute Swan and Teal). Some of the aforementioned species recorded were transitory of nature and in small numbers."

Furthermore, between November 2021 and March 2022 nine more winter bird surveys were conducted at Mooretown, by Hugh Delaney (Appendix 5.1.3). As outline in Chapter 5, Appendix 5.1.3:

"44 bird species were recorded in the survey area covered by these nine winter bird surveys. A great proportion of the species utilizing the mature hedgerow habitat bordering the fields on the site. In the context of wintering bird species that are red listed as species of conservation concern in the revised Birdwatch Ireland List of birds of conservation concern in Ireland (2020-2026) Redwing was recorded. Declining passerine species Yellowhammer was also noteworthy with the site being a consistent foraging site during the winter. Four gull species listed in the amber wintering species category were recorded (Herring, Lesser black-backed, Common and Black-headed), however these species pass through the site only. Results from the surveys suggest that the site is not an ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection areas (SPA's)."

5.5 Potential Impact of the Proposed Development

5.5.1 Construction Impacts

The overall development of the site is likely to have direct negative impacts upon the existing habitats, fauna and flora. Direct negative effects will be manifested in terms of the removal of the site's internal habitats. There is the potential for contaminants and pollutants to enter the onsite drainage ditches, which drain to the Mill Stream and ultimately the Broadmeadow River and significantly impact on downstream biodiversity of European sites; Malahide Estuary SPA and Malahide Estuary SAC.

Designated Conservation sites within 15km

Sedimentation, mixing and dilution will occur within the surface water network and in Malahide Estuary. Flocculation of particulates would also occur within the estuarine element of Malahide Estuary. However, there is a direct pathway to Malahide Estuary and there is potential for effects on biodiversity within the Estuary in the absence of mitigation on site.

There is an indirect hydrological pathway to marine-based European sites via the proposed foul wastewater network. Foul wastewater from all Mooretown phases will be directed to the existing foul sewer on Rathbeale Road, which has been constructed to facilitate the overall Mooretown development. This network ultimately leads to Swords Wastewater Treatment Network (WwTP). As a

result, foul wastewater will be treated along this network. As outlined in the 2020 Environmental report¹ “The WWTP is compliant with the ELV’s set in the Wastewater Discharge Licence.”

The proposed development works could lead to potential impacts on water quality and downstream effects, particularly on Malahide Estuary SAC & SPA via surface water networks.

Potential Impacts: Low adverse / international / Negative Impact / Not significant / short term.

Biodiversity

The impact of the development during construction phase will be a loss of existing habitats and species on site. It would be expected that the flora and fauna associated with these habitats would also be displaced.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site. Loss of habitat and habitat fragmentation may affect some common mammalian species.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of a standard pre-construction site inspection prior to construction commencing on site.

Flora

No protected flora was noted on site. Site clearance will remove the flora species on site including hedgerows.

Potential Impacts: Medium adverse / site / Negative Impact / Not Significant / Short term

Bat Fauna

As bats are not roosting on site, no specific mitigation measures are required in relation to confirmed roosts. However, several trees on site have potential to form bat roosts and should be inspected prior to felling.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of inspection of trees of bat roosting potential prior to construction commencing on site.

Amphibians-Frogs

The drainage ditches on site had evidence of frog activity, would be susceptible to silt and petrochemicals from works on site. Mitigation is needed in the form of inspection hedgerows for frog activity potential prior to construction commencing on site.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / short term

Aquatic Biodiversity

Construction is likely to result in the silt and petrochemicals entering the onsite drainage ditches and adjacent watercourses with downstream impacts on aquatic biodiversity.

¹ https://www.water.ie/uuid/e2a591b2-5070-402c-b040-5330ab3b9c74/d0024-01_2020_aer-1.pdf

Potential Impacts: Moderate adverse / local / Negative Impact / short term. Mitigation is needed in the form of control of silt and petrochemical and dust during construction.

Bird Fauna

Clearance, reprofiling and construction of the site will result in the loss of nesting and foraging habitat for birds.

Potential Impacts: Moderate adverse / local / Negative Impact / short term. Mitigation is needed in the form of ensuring site clearance is outside of bird nesting season.

5.5.2 Operational Impacts

Once constructed all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS. The biodiversity value of the site would be expected to improve as the landscaping matures. It would be expected that the ecological impacts in the long term would be positive following site clearance, once landscaping has established.

Designated Conservation Sites

The development has the potential to cause pollution via the surface water discharge and downstream impacts. There will be increased activity on site which will cause localised disturbance within the site

Potential Impacts: Low adverse / international/ Negative Impact / Not significant / long term. Mitigation is required in the form of standard petrochemical interception.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / long term.

Flora

No protected flora was noted on site. Landscaping will increase flora diversity on site. A 10m wide riparian buffer will be landscaped as per landscape plan

Potential Impacts: Low Adverse/Site/Negative/Not Significant/Long term/permanent. Positive impacts would be seen in the vicinity of the riparian corridor.

Bat Fauna

The proposed development will change the local environment as new structures are to be erected and the existing vegetation will be removed. Some foraging areas may be lost. As landscaping matures foraging activity would also be expected to increase.

Potential Impacts: Low adverse / Site / Negative Impact / Not significant / long term.

Aquatic Biodiversity

Operation will have no significant effects on this habitat. Standard controls will be in place. Standard controls in relation to silt and petrochemicals are required.

Potential Impacts: Low adverse / local / Negative Impact / Not significant / long term. Mitigation is required.

Bird Fauna

Operation will result in increased activity in the area. Landscaping will result in increased foraging and nesting habitat for birds. Potential Impacts: Low adverse / site / Negative Impact / Not significant / long term.

5.6 Potential Cumulative Impacts

No significant cumulative impacts are likely in relation to the proposed development.

5.7 Do Nothing Scenario

The site would continue to be farmed. The drainage ditches and hedgerows would remain on site.

5.8 Mitigation Measures

Construction and operational Mitigation Measures will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (Zoi) including the onsite drainage ditches, the adjacent watercourses (Mill Stream and Broad Meadow River) and the downstream European sites, Malahide Estuary SAC and SPA. Construction phase mitigation measures are required on site particularly as significant reprofiling of the site is proposed which will remove all existing terrestrial habitats and can lead to silt laden and contaminated runoff. In addition, there is existing drainage ditches on site which will be impacted by the development of the site. There is potential for silt laden runoff and contamination to enter the watercourse with potential for downstream impacts. Mitigation measures are required to prevent downstream impacts. In addition, noise mitigation will be in place. These mitigation measures are described in Chapter 5, Table 5.8.

6.0 LAND AND SOILS

This section of the Environmental Impact Assessment Report has been prepared by Waterman Moylan Consulting Engineers and provides a Non-Technical Summary of the assessment of the impact of the proposed residential development at Mooretown 3, Swords, Co. Dublin and associated proposed stormwater storage tank on the foul network at Balheary Road, in terms of bedrock geology and drift geology.

The impact of the proposed development on the soils and geology of the subject site is assessed, and mitigation measures where necessary are proposed to reduce the impact of any development.

6.1 Assessment Methodology

In determining the impact of the proposed development on the prevailing geological conditions, key sources of information were consulted, including the Map of the Bedrock Geology of Ireland, produced by the Geological Survey of Ireland available on www.gsi.ie. Guidance on relevant assessment methods is obtained from “Geology in Environmental Impact Statements – a guide”, September 2002, published by the Institute of Geologists of Ireland.

An extensive site investigation (SI) was carried out within the proposed development site. The purpose of the site investigation was to investigate subsurface conditions utilising different methodologies. The results of the site investigation have been compiled in a report prepared by Site Investigations Ltd (S.I. Ltd), (Contract Number: 5891).

The details of the review of these documents has formed the basis for identification of potential issues and mitigation/remedial measures, which are discussed in the following sections in a non-technical manner.

6.2 Characteristics of the Proposed Development

6.2.1 Existing conditions & Location

The Oldtown-Mooretown LAP lands are located at the western development edge of Swords, within the catchment of the Broadmeadow River. The LAP lands cover an area of approximately 111 hectares.

The Oldtown–Mooretown lands are divided by the Rathbeale Road, with Oldtown lands to the north (c. 50 Ha) and Mooretown to the south (c. 61 Ha). This subject Application (18.378 Ha, gross), which forms Phase 3 of the Mooretown development, is located in the southern section of the Mooretown Lands. The subject site was previously used for agricultural purposes.

The subject site is bounded to the east, west and partially to the south by agricultural land, also to the south is the Abbeyvale residential development. To the north is the completed Mooretown School Campus, and future Mooretown Phase 2 (granted planning reference: F16A/0505).

The site generally tends to slope from southwest to northeast from a height of C.58m to a low of 37m.

The proposed site for the stormwater storage tank that forms part of the subject application, is located on the junction of the Glen Ellan Road and the Balheary Road, Swords, Co. Dublin. The site is 1.4km north of swords, 1.1km west of the M1 motorway and 300m south of the Broadmeadow River. The site is owned by The Applicant and is locally referred to as the Celestica/Motorola site.

6.2.2 Proposed Development

The proposed development will consist of 650 units, comprising of: 265 No. houses, 119 No. Duplex/Triplexes units, and 266 No. apartments. A creche (512m²) and commercial spaces of retail and cafe (totalling 946m²) will also be constructed as part of the development.

The developer will construct all associated infrastructure to service the development including a network of foul water and surface water drains, a stormwater storage tank and outfall, watermain, access roads and footpaths.

The proposed development of the site will incorporate the following works which will be likely to have an impact on the soils and geology:

- Cutting and filling of subsoil and rock to form finished floor levels and development roads
- Excavations for utilities and services
- Potential importation of suitable material
- Reinstatement of excavations and topsoil

- Potential removal off-site of unsuitable and surplus material.

It is intended that any surplus of materials generated on the site will be minimized.

6.3 Potential Impact of the Proposed Development

Prior to commencement of any construction works, the topsoil on the site will be stripped and removed to stockpiles in designated areas within the site boundary for re-spreading on completion of the works where possible.

The removal of topsoil and the earthworks will expose subsoil to weathering and may result in some minor erosion of the soils during the short construction period, in particular following extreme dry and sunny, or prolonged wet weather conditions. The lack of topsoil is likely to give rise to dust from the subsurface during dry periods.

Construction traffic movements involved in the construction of the proposed development and access roads may result in local compaction of the subsoil along haulage routes, but this will be a very limited area.

During the construction phase there is a risk for construction traffic to damage the structure of some of the adjoining road network and to increase the amount of mud and dust on the roads providing access to the site. A dilapidation survey should be undertaken to mitigate the risk of damage exposure to the client. There will also be a temporary increase in traffic volumes due to deliveries of fill materials and removal of surplus unsuitable cut materials.

During adverse weather conditions surface water runoff across the exposed sub-soil could result in increased levels of silt being deposited in the public sewer.

Some minor local contamination of subsoils may occur should chemicals or fuels used during the construction phase spill.

On completion of the construction phase and following replacement of topsoil and a planting programme, no further impacts on the soil environment are envisaged except for the possibility of contamination of soil from foul water effluent or oil/chemical spills.

6.4 Potential Cumulative Impacts

It is not anticipated that potential cumulative impacts will be generated on land, soils and geology during the construction or operation phases or in the event of future developments adjacent to the site should they implement the appropriate mitigation measures, discussed in Section 6.8.

6.5 Do Nothing Scenario

The Ground conditions will remain as they currently are.

6.6 Risks to Human Health

A potential risk to human health due to the associated works during construction is the direct contact, ingestion or inhalation of receptors (i.e. construction workers), with any soils which may potentially

contain low level hydrocarbon concentrations from site activities (potential minor leaks, oils and paint).

No human health risks associated with long term exposure to contaminants (via. direct contact, ingestion or inhalation), resulting from the proposed development are anticipated.

6.7 Mitigation Measures

Construction Stage

The provision of wheel wash facilities at the construction entrance to the development will minimise the amount of soils deposited on the surrounding road network. The adjoining road network will be cleaned on a regular basis, if required, to prevent the build-up of soils from the development site on the existing blacktop roads.

Measures will be implemented throughout the construction stage to prevent contamination of the soil and adjacent watercourses from oil and petrol leakages and significant siltation. Suitable bunded areas will be installed for oil and petrol storage tanks. Designated fuel filling points will be put in place with appropriate oil and petrol interceptors to provide protection from accidental spills. Spill kits will be provided by the Contractor to cater for any other spills.

Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works.

Noise attenuation will be used on rock breakers to reduce noise levels.

After implementation of the above measures the proposed development will not give rise to any significant long-term adverse impact. Negative impacts during the construction phase will be short term only in duration.

Within the development, landscape areas will be topsoiled and planted in accordance with the proposed landscaping plan. Following completion of these reinstatement works, no significant adverse impacts on the soils and geology of the subject lands are envisaged.

A comprehensive drainage network will be constructed to ensure that the lands drain effectively following their reshaping / re-profiling. The drainage system shall incorporate sustainable urban drainage methods to clean flows prior to discharge. The proposed stormwater tank will be located underground with the soil above to be reseeded thus, there is no requirement for a surface water drainage network at this location.

6.8 Predicted Residual Impacts of the Proposed Development

Due to the implementation of the mitigation measures outlined above, the proposed development will not give rise to any significant long-term adverse impact. Negative impacts during the construction phase will not be significant once the appropriate mitigation measures are adopted and will be only short term in duration.

No significant long-term impacts on soil, geology, or hydrogeology, resulting from the proposed development are predicted.

6.9 Monitoring

Monitoring as outlined below, during the construction phase will be undertaken; -

- Adequate protection of the topsoil stockpiled for reuse.
- Monitoring of surface water discharged to existing sewers.
- Monitoring cleanliness of the adjoining road network.
- Monitoring measures for prevention of oil and petrol spillages.
- Dampening down measures close to the boundaries of the site in dry weather.

No operational stage / post-development monitoring will be required.

6.10 Reinstatement

Reinstatement measures in relation to soils consist primarily of the re-soiling of open areas / landscaping and the replanting of these areas. No post development reinstatement works will be required.

6.11 Interactions

Any potential rock breaking will generate noise and excavations on site will give rise to dust. From review of the ground investigations discussed in section 6.3, it is not anticipated that rock breaking will be necessary.

6.12 Difficulties Encountered

There were no difficulties encountered.

7.0 WATER

This section of the Environmental Impact Assessment Report has been prepared by Waterman Moylan Consulting Engineers and provides a Non-Technical Summary of the assessment of the impact of the proposed development on the surrounding hydrological (surface water), hydrogeological (groundwater), foul water, water supply, and flood risk both during the construction and operation phases.

The impact of the proposed development of the subject site is assessed and mitigation measures, where necessary are proposed to reduce the impact of the development.

7.1 Assessment Methodology

The following information sources were used in the assessment of the local hydrology and hydrogeological aspects of the proposed development site.

- Geological Survey of Ireland (GSI) Website
- Environmental Protection Agency
- Office of Public Works (OPW) National Flood Hazard Mapping
- OPW Catchment Flood Risk and Management Studies
- FCC Drainage Record Maps

- Ordinance Survey Mapping
- Topographical Survey
- Site investigation reports and soakaway testing
- Irish Water confirmation of feasibility letter

7.2 Characteristics of the proposed development

7.2.1 Existing conditions & Location

The Oldtown-Mooretown LAP lands are located at the western development edge of Swords, within the catchment of the Broadmeadow River. The LAP lands cover an area of approximately 111 hectares.

The Oldtown–Mooretown lands are divided by the Rathbeale Road, with Oldtown lands to the north (c. 50 Ha) and Mooretown to the south (c. 61 Ha).

This subject Application (18.378 Ha, gross), which forms Phase 3 of the Mooretown development, is located in the southern section of the Mooretown Lands.

The proposed site for the stormwater storage tank that forms part of the subject application, is located on the junction of the Glen Ellan Road and the Balheary Road, Swords, Co. Dublin. The site is 1.4km north of swords, 1.1km west of the M1 motorway and 300m south of the Broadmeadow River. The site is owned by The Applicant and is locally referred to as the Celestica/Motorola site.

7.2.2 Proposed Development

The proposed development will consist of 650 units, comprising of: 265 No. houses, 119 No. Duplex/Triplexes units, and 266 No. apartments A creche (512m²) and commercial spaces of retail and cafe (totalling 946m²) will also be constructed as part of the development. The site is 18.378 ha gross area and is located 2km west of Swords town centre.

The developer will construct all associated infrastructure to service the development including a network of foul water and surface water drains, a stormwater storage tank on the public foul network, watermain, access roads and footpaths.

It is proposed to drain wastewater in a north-easterly direction through a series of 150mm and 225mm diameter pipes. There are 7 No. connection points, 1 No. to the foul network in the Mooretown distributor road extension (planning permission granted F20A/0095) and 4 no. to the foul network in the Mooretown school access road (construction completed). The remaining 2 No. Connections will be for the Phase 3 lands north of the School Access Road, which will connect to the permitted phase 2 drainage network. The foul network in the Mooretown Distributor Road Extension will flow north and connect to the foul network in the Mooretown School Access Road which in turn flows easterly and then northerly along the eastern boundary of the School Campus. It then connects to the foul network in Mooretown Phase 1 (currently under construction) before outfalling to the 500mmØ foul sewer crossing the Rathbeale Road as discussed in Section 2.1.

As regards surface water, Mooretown Phase 1's parent planning permission (F15A/0183) and the adjacent Mooretown Road Extension (F14A/0012) were designed to accommodate the attenuation volumes for the entire Mooretown LAP lands including the subject application site: Mooretown Phase

3, within the Watermill Park and Mooretown Road detention basins and ponds, before discharging at restricted greenfield rates to the Mill Stream. The Mill Stream traverses the Mooretown site, west to east. The local surface water piped network within Phase 3 will be designed to accommodate flows from the 1 in 5-year storm. As noted above, the 1 in 100 storm events (plus 20% to accommodate climate change) shall be catered for in the permitted Watermill Park and Mooretown Road detention basins and ponds constructed under parent planning permission F15A/0183 and the adjacent Mooretown Road planning permission F14/0012.

The requirement for the stormwater storage tank on the public foul network is to alleviate constraints within the public foul network during times of heavy rainfall events, whereby stormwater enters the public foul network temporarily reducing available capacity. The proposed stormwater storage tank has been designed in conjunction with Irish Water and will not only facilitate the connection requirement of this subject application but will also have capacity to allow for continued development in the Oldtown/Mooretown catchment.

The proposed stormwater storage tank is to be located underground, with the surfacing above to be permeable and will not require a stormwater drainage network.

SuDS will be utilised on site for water quality protection, however as discussed above the attenuation element has already been constructed at the Mooretown Phase 1 within the Watermill Park. Water quality will be achieved by using a Sustainable drainage network of Green Roofs, Swales and Permeable Paving all discharging the treated water to the surface water network. The storm water system will be designed to cater for the 1 in 100-year storm plus a 20% allowance for

7.3 Potential impact of the proposed development

The potential impacts of the proposed development from both a hydrology (surface water), and hydrogeology (groundwater) perspective at construction and operational stages are outlined as follows:

Significant amounts of site stripping and excavation will be required in order to construct the development. When the site has been stripped layers of sub-soil will be exposed to weathering and there will be potential for erosion due to rainfall and subsequent runoff. The erosion of soil can lead to sediments being washed into the receiving watercourses /sewers at higher rates of runoff.

There is also potential during the development's construction stage that contaminants from cement/concrete be washed into the receiving watercourses / sewers.

There is a risk of pollution of groundwater / watercourses / soils by accidental spillage of oils / diesel from temporary storage areas or where maintaining construction equipment.

Foul water could be connected to the surface water drainage network resulting in the contamination of the receiving watercourses. Furthermore, if there is damage to any foul pipes, there is potential for contaminants to seep into the groundwater.

The construction of the proposed development has potential to cause a slight, adverse, temporary, residual impact on receiving watercourses/groundwater.

The proposed development will result in increased impermeable areas and there is potential for an increase in risk of higher rates of surface water runoff leading to increased downstream flooding.

There is a potential impact for the discharge of contaminants from the proposed development and road surfaces to the surrounding drainage sewers. These would include particulates, oil, soluble extracts from the bitumen binder etc. The quality of runoff from the site would be dependent on the time of year, weather, particulate deposition from the atmosphere and any gritting or salting carried out by the Local Authority. The time of year has a major bearing on the quality of storm water run-off - in particular the first rains after a prolonged dry period where accumulated deposits of rubber, particulates, oils, etc. are washed away.

There is potential for leaks in the foul network to result in contamination of the groundwater.

Accidental spills of fuels/hydrocarbons and washing down into the drainage pipe network has the potential to impact on the receiving hydrogeology.

The operation of the proposed development has the potential to cause a slight, adverse, temporary, residual impact on receiving watercourses/groundwater.

There is a potential for Watermain leaks which would increase the volume of water permeating through the underground soil strata.

The proposed stormwater storage tank will have an overflow outfall to the Broadmeadow River. This overflow outfall pipe will only function when the storage tank surcharges beyond the proposed 2,250m³ capacity of the tank. Flood mapping undertaken by the OPW indicate that during a 1 in 10-year event at a node point circa 200m upstream of the proposed outfall location will have a flow rate in excess of 36m³/second (refer to accompanying Flood Risk Assessment Report, Section 3), ensuring that any overflow outfall from the tank beyond a 1 in 5-year event will be discharging to a fast moving heavily diluted/surcharged river. The outfall waters (largely surface water) from the tank will result in a vast betterment when compared with the existing arrangement of uncontrolled discharge to the Ward and in turn Broadmeadow Rivers. In this regard, we refer you to the assimilative capacity technical note by Hydro-G and AWN, supplied under a separate cover.

Mitigation measures are discussed in section 7.8 of this chapter.

7.4 Potential cumulative impacts

There are no anticipated cumulative impacts arising from the existing Mooretown Development in relation to water other than those noted in section 7.5 above.

7.5 Do Nothing Scenario

In this scenario, surface water runoff would continue to be discharged at existing un-restricted discharge rates. The existing arrangement of uncontrolled surcharges from the public foul water network will remain unchanged. The receiving watercourses and groundwater aquifers would remain in their current state and there would be no change.

7.6 Risks to Human Health

There is a risk to Human Health should the ground water or the existing water supply become contaminated during the construction or operational stages, and the water is consumed. In order to mitigate these risks, the measures outlined below will be adopted.

7.7 Mitigation Measures

7.7.1 Construction Stage

A Construction Management Plan has been prepared for this application and is included under a separate cover. It is considered that the Construction Management Plan (CMP) will be updated by the appointed contractor. In order to minimise the potential impact of the construction phase of the proposed development on the surrounding surface water and groundwater environs, the following construction stage mitigation measures are to be included in the plan and be implemented in full.

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.
- 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 site.
- Site stripping will be minimised as far as practicable.
- Settlement ponds / silt traps will be provided to prevent silt runoff into the existing sewers / watercourses during the drainage works.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject lands. The location for testing and trigger levels for halting works will be agreed between the project ecologist and the site foreman at the commencement of works.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area. The project ecologist will review and agree alternative pollution control measures, such as deepening or redirecting trenches as appropriate, before works may recommence.
- All fuels and chemicals will be bunded, and where applicable, stored within double skinned tanks / containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a suitable distance from any watercourse or other water conducting features, including the cut off trenches.
- Foul and surface water pipes will be carefully laid so as to minimise the potential for cross connections which results in contamination of receiving watercourses.
- Site personnel inductions are to be conducted such that all site personnel are made aware of the procedures and best practice in relation to the management of surface water runoff and ground water protection.
- Where possible, precast concrete units are to be used to avoid on-site “wet” mix concrete usage. In situ concrete pours are to be managed in accordance with best practice to avoid overspills
- Concrete truck and wheel wash down facilities are to be provided in designated areas. Discharge from these areas is to be directed into the settlement ponds / silt traps.
- Topsoil for landscaping will be located in such a manner as to reduce the risk of washing away into local drainage or watercourses.

- Details of the headwall outfall construction methods, to prevent pollution of the Broadmeadow River during construction, are included in the Preliminary Construction Environmental and Waste Management Plan, which has been submitted under a separate cover.

7.7.2 Operational Stage

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

- The surface water drainage network has been designed in accordance with the CIRIA SUDS Manual and the Greater Dublin Strategic Drainage Scheme. The appropriate interception mechanisms and treatment train process has been incorporated into the design.
- Surface water outflow will be restricted to the equivalent greenfield runoff rate from the existing attenuation ponds.
- Flow restrictors with attenuation storage will be used to slowdown and store surface water runoff from discharging above green field rates to the Broadmeadow River.
- Sustainable urban drainage measures, including green roofs, permeable paving and filter strips/swales will be provided to improve water quality.
- A petrol interceptor will be installed to prevent hydrocarbons entering the local drainage system.
- Regular inspection and maintenance of the drainage network, including petrol interceptor.
- Water metering via district meters will be installed to Irish Water requirements. Monitoring of the telemetry data will indicate any excessive water usage which may indicate the potential for a leak in the watermain network. Early identification of potential leaks will lead a faster response in determining the exact location of leaks and completion of remedial works.
- The outfall headwall to the Broadmeadow River will be fitted with a tide-flex (or similar approved) non-return valve to ensure surcharge from the Broadmeadow River will not backfill into the proposed pipe and tank during extreme weather events.
- The outfall volumes from the stormwater storage tank to the Broadmeadow River shall be metered to record the frequency and duration/volumes of overflows.

7.8 Predicted Impacts of Proposed Development

Due to the proposed mitigation measures outlined above, and the implementation of a Construction Management Plan, the impact during construction stage on the hydrology and hydrogeological aspects of the lands is not significant.

Due to the proposed mitigation measures outlined above many of the potential impacts will not arise during the operational phase of the proposed development on surface water and groundwater quality.

Surface water discharge from the site will be restricted by means of attenuation, therefore, no adverse impact in respect of flooding downstream will arise from the proposed development.

The installation of a Sustainable Urban Drainage System will ensure surface water runoff will be of high quality before discharge to the Watermill Stream, constructed in Mooretown 1. The proposed Phase 3 surface water sewer will flow via gravity to the existing Mooretown detention basins and

attenuation ponds and will not have an impact on the receiving waters downstream of the development.

The impact following the operational phase mitigation measures outlined above is imperceptible.

7.9 Worst Case Scenario

The worst-case scenario in relation to hydrology and hydrogeology during construction phase would be the failure to implement the mitigation measures outlined above. This may result in the contamination of the receiving surface water network and / or groundwater.

In relation to the operation stage, the worst case would be the flooding of the surface water drainage network. In this regard, the network has been designed to accommodate a 20% increase in flows due to climate change. Finished floor levels have also been set with appropriate freeboard and an overland flood route through the site has been provided.

Implementation of the mitigation measures outlined in this document will reduce the risk of the worst-case scenario occurring, making this unlikely.

7.10 Monitoring

Implementation of the Construction Management Plan is required to protect the hydrology and groundwater elements of the subject lands during construction stage. Maintenance of the mitigation measures and monitoring of the management processed is required to ensure best practice.

The monitoring measures to be implemented include:

- Monitoring of the management and storage of dangerous chemicals and fuel.
- Monitoring and maintenance of the wheel wash facilities.
- Regular maintenance and monitoring of the sediment control measures.
- Monitoring and maintenance of the watermain telemetry, SUDS features, road gullies and, attenuation ponds during the construction phase of the development.
- Monitoring of the frequency and volume/duration of overflows from the proposed storage tank.
- Monitoring and maintenance of the SUDS features, road gullies, attenuation and flow control devices are imperative during the operation phase of the development.

No reinstatement is anticipated on site with respect to the Water environment.

7.11 Interactions

The main interactions relating to this EIAR Chapter are Land & Soils, Biodiversity, and Utilities.

During construction stage, the connection of wastewater services has the potential to impact ground water if wastewater were to leak from the network during the construction process. There are potential implications for the local populations if there is a disruption to utility services during the connection of the new services to the proposed development. The construction of the various services will also interact with construction traffic as outlined in the Traffic and Transport Chapter.

During the operation stage, the water supply and foul drainage services have a potential interaction with the available water supply and with potential pollution to natural water bodies.

In respect of Land & Soils, interaction between surface and ground water and the bedrock geology is feasible. Any impact will be negligible as the aquifer is at low risk and is not considered to be regionally important. The implementation of the mitigation measures outlined in this chapter will reduce the potential of surface contaminants into the underlying geology.

In respect of Biodiversity, there is interaction between hydrology and the downstream habitats present along the Broadmeadow River. The mitigation measures ensure that surface water runoff is treated to the required standards so that downstream habitats are not negatively impacted.

7.12 Difficulties Encountered

There were no particular difficulties encountered compiling the Water chapter of the EIAR.

8.0 AIR QUALITY

The assessment identified the existing air quality baseline levels in the area of the proposed development at Mooretown. National and local EPA monitoring data was obtained for current and previous years. It was found that all air quality parameters are well below national and EU ambient air quality limit values. The existing baseline air quality at the site vicinity can be characterised as being good with no exceedances of the Regulations.

The impact on air quality during the construction phase is predicted to be sourced from construction dust emissions. The impact at neighbouring sensitive receptors (nearby existing residential dwellings and Swords community school) was determined by a theoretic assessment of dust soiling. Standard mitigation measures outlined in Section 8.5 along with the dust management plan outlined in Appendix 8.1 would be implemented to control and minimise emissions during construction. With mitigation measures in place impacts of the proposed development on air quality for the construction phase is likely to be short-term and imperceptible.

The impact on air quality during the operational phase was determined by an assessment using the DMRB air quality model predicting pollutant concentrations over a period of time. Modelled results showed a small increase in annual NO₂, PM₁₀, benzene and CO but each parameter would still remain well below the limit values for EU regulations. This predicted increase above the existing environment results in a negligible impact and would not result in a perceptible change in the existing local air quality environment.

9.0 NOISE AND VIBRATION

The impact or increase in noise levels, mainly by increased traffic noise at the Rathbeale Road junction are at worse case deemed a 'slight' impact based on the predicted calculation methodology of BS 5228-1:2009+A1: 2014 and are in line with general noise impacts of new developments.

However, in actual terms when the new government's climate action plan is implemented, the noise levels including the new proposed development will reduce over the current background noise levels due to the fact that petrol & diesel cars will be phased out and replaced by more quiet electrical cars

over the next decade during which the development will be constructed. It is anticipated that construction vibration levels will only have minor temporary increases and that any increase in operational vibration due to the new development is deemed not to have any noticeable impacts on the overall development.

10.0 CLIMATE

The climate impact chapter examines the effects the proposed project will have or contribute to the global environment in terms of carbon dioxide (CO₂) emissions as the main contributors to greenhouses gasses or climate change. CO₂ in this project is emitted in the construction phase and in the operational phase. The construction phase is a relative short phase and its impact on CO₂ is limited when compared with the operational phase. The operational phase is based on the life cycle of a building or dwelling covering a 60-year period. Construction emissions represent approximately 5% to 10% of the Operational emissions in a standard specification building or dwelling.

Construction phase: CO₂ in the construction phase is emitted by construction vehicles, machinery, and equipment but also by CO₂ attributed to construction materials representing the amount of CO₂ it takes to manufacture and deliver a material to site known as a material's "embodied carbon dioxide". Therefore, selecting materials for the construction of buildings/dwellings which have a low embodied carbon factor like wood, local stone rather than steel, zinc, aluminium or other metallics which have high carbon factors would be beneficial to global CO₂ emissions. A number of CO₂ reduction measures have been applied on construction methodology, vehicles, machinery and together with selecting construction materials with low embodied carbon factors a reduction of +/- 20% in CO₂ emissions in the construction phase was achieved over current standard or average emissions.

Operational phase: CO₂ in the operational phase is emitted mainly by passenger vehicles and energy required for the building's heating/hot water needs. The operational phase taken over the buildings 60-year life cycle would be the dominating contributor to CO₂ emissions and any reductions applied here are very effective as a result of the length of the life cycle. For this project a number of CO₂ reduction measures have been applied by using more electric vehicles, encourage the use of public transport and cycling achieving a reduction of +/- 12.5% but the bulk of the reductions at +/- 65% is achieved in the building energy element applying the current Part L standards giving a total combined reduction of +/- 77.5% which is a significant saving.

11.0 LANDSCAPE AND VISUAL IMPACT

This Landscape & Visual Impact Assessment (LVIA) was compiled to assess the impact of the proposed development on the existing landscape of the site and the visual impact of the proposals on adjoining receptors. The site at Mooretown, Swords, Co. Dublin is the 3rd Phase of the Mooretown development, and the earlier phases are either under construction or pre-construction to the north of this site. The proposed development will comprise a residential neighbourhood of 650 dwellings made up of 265 no. houses, 113 duplex units, 6 triplex units, 266 apartments and a 512m² childcare facility. There would be 963m² of retail and café outlets in a small village centre.

The LVIA Report reviewed the existing landscape with respect to existing designations, views and prospects, landscape character, presence of National Monuments, location with respect to existing adjoining residential development and impacts of the proposed development on the existing landscape setting and features.

The site lands are part of an agricultural landscape with mature hedgerows between the fields. A number of established residential estates adjoin the site at the south, agricultural lands are to the west and Swords Community College lies to the north of the site with the first phases of the Mooretown development to the rear of the school. Agricultural lands bound the site to the east with residential developments beyond. A listed National Monument enclosure feature is on the south-eastern section of the site and will be incorporated into a landscaped open space area. A further National Monument ring ditch feature is located at the northwestern part of the site, and this is to be fully excavated as part of the development works. The lands, while typical of the local agricultural landscape, are on the border of the Rolling Hills and Low-Lying Agricultural Landscape Character Areas (LCA). The Rolling Hills LCA is categorised as having a modest value and a medium sensitivity. The lands are visually unremarkable and are not valued for their quality and visually they are generally surrounded by existing or granted residential development.

A set of 12 No. photomontages were created to show the visual impact of the proposals from around the adjoining area. Visual analysis of the photomontages showed that while there would be moderate negative visual impacts from the proposals at the construction stage, the impacts would be classified as not significant neutral in the operational stage.

The LVIA Report concludes that the development would be in accordance with the various landscape and visual objectives, policies and land use zonings as set out in the Oldtown – Mooretown LAP 2010 and the Fingal Development Plan 2017-2023. The proposed development, and particularly in terms of its open space establishment is considered to have a neutral to positive impact on the landscape planning context.

12.0 TRAFFIC & TRANSPORT

This section of the Environmental Impact Assessment Report has been prepared by Waterman Moylan Consulting Engineers and provides a Non-Technical Summary of the assessment of the impact of the proposed development on the surrounding traffic and transport and presents an assessment of the receiving environment for the construction and operation phases of the proposed development.

12.1 Assessment Methodology

Research for this section included a review of the Air Quality Standards Regulations (S.I. 180 of 2011) The following methodology has been adopted for this assessment:

- Review of relevant available information including where available Development Plans, existing traffic information and other relevant studies;
- Site visit to gain an understanding of the site access and observe the existing traffic situation;
- Consultations with Fingal County Council to agree the site access arrangements and determine the scope of the traffic analysis required to accompany a planning application.

- Detailed estimation of the transport demand that will be generated by the development. The morning and evening peak times will be addressed as well as an estimation of the construction stage traffic; and
- Assessment of the percentage impact of traffic on local junctions, car parking requirements and accessibility of the site by sustainable modes including walking, cycling and public transport.

12.2 Characteristics of the Proposed Development

12.2.1 Existing conditions & Location

The area of the Oldtown-Moore LAP lands is approximately 111 hectares. The lands are located at the western development edge of Swords, within the catchment of the Broadmeadow River.

The Oldtown-Mooretown lands are divided by Rathbeale Road, with Oldtown lands to the north (Circa 50 ha) and Mooretown to the south (circa 61 ha). The proposed development site is located in Mooretown, Swords, Co. Dublin, south of the R125 Rathbeale Road.

12.2.2 Local Road Network

The site is to be accessed from the Rathbeale Road via the Mooretown Distributor Road, with direct access from the Mooretown Distributor Road Extension and the Mooretown School Campus Access Road

The Rathbeale Road (R125), has recently undergone extensive upgrade works, completed in 2020, so as to ensure its suitability for the increase in usage due to additional residents and construction works being undertaken as part of the LAP. It has a posted speed limit of 50 kph and is comprised of a 5m wide, 2-lane carriageway, a 1.8m wide pedestrian footpath & 2.25m cycleway on the northern side and a 3.5m shared surface for pedestrians/cyclists on the southern side. The upgraded Rathbeale Road offers a vastly improved and safer connection for the Oldtown Mooretown development LAP lands with the town of Swords and local schools in the area.

The junction of the Mooretown Distributor Road and the Rathbeale Road has been fully upgraded in advance of the proposed development of Mooretown Phases 1, 2 & 3. The junction is a signalised 4-way intersection, pedestrian/cyclist crossings and right turn stacking lanes have been incorporated.

The Mooretown Distributor Road has been designed in accordance with the requirements of the LAP. It is envisaged that this road will later connect to the Brackenstown Road (L2032) as part of future LAPs to neighbouring areas.

The nearest motorway is the M1, which can be joined at Junction 3, near Feltrim, approximately 3.75km southeast of the site.

Glen Ellan Road is a 7.5m wide single carriageway road which is subject to a speed limit of 50kph with cycle lanes and footpaths running along both sides. Traveling in the easterly direction from the subject site, the Glen Ellan Road terminates at a four-armed signal-controlled junction with Balheray Road.

12.2.3 Pedestrian and Cyclist facilities

The existing pedestrian facilities in the surrounding area comprise an inter-connected network of footways linking the various neighbourhoods to each other, to the existing schools, to the local bus stops and to the surrounding public network.

Cyclists can benefit from the provision of dedicated cycle lanes along both sides of the carriageway on Glen Ellan Road (and extension) for the entirety of its length. These cycle lanes are generally separate from the carriageway by a grass verge, except for a small portion of the road extension which comprises a cycle track immediately adjacent to the carriageway along the northern side.

As part of the development works that are now complete on the R125 Rathbeale Road within the Oldtown-Mooretown LAP lands, cycle lanes have been installed along both sides of the carriageway from the new signal-controlled junction with Western Distributor Link Road to the eastern edge of the LAP lands. These road upgrade works were subject to a Part 8 planning application by FCC which were subject to LIHAF funding. The planning application for this development works received approval in 2017. Works were approved for LIHAF funding and are now complete and open to the public.

All the existing pedestrian and cycle facilities make the subject site highly accessible by a wide variety of transportation options which will facilitate a modal shift away from private vehicle usage.

12.2.4 Public Transport

The Mooretown Lands are currently served by bus services. The closest bus stops relative to the proposed development are situated along R125 Rathbeale Road. It is approximately 1.2 km (14-minute walk) to the R125 Rathbeale Road from the centre of the subject site. There are two bus routes along this road, being Dublin Bus 41B and Go-Ahead Bus 197

The subject bus stops serve several routes to both Dublin and Swords. These are the Dublin Bus routes 41, 41C and 41X and Swords express routes 196, 500, 500-N, 500-X, 501, 503 and 506. These routes and associated frequencies are summarised below.

- **Dublin Bus Route 41:** from/to Lower Abbey Street in Dublin City Centre, this route operates every 15 to 20 minutes during the AM (07:00 to 09:00) and PM (17:00 to 19:00) peak periods.
- **Dublin Bus Route 41C:** from/to Abbey Street in Dublin City Centre, this route operates every 10 to 20 minutes during the AM and PM peak periods.
- **Dublin Bus Route 41X:** from/to UCD Belfield in South Dublin, this route operates Monday to Friday only, twice in the AM period (From Knocksedan) and twice in the PM Period (From UCD Belfield).
- **Swords Express Route 196:** from Knocksedan to Swords (Pavilions Shopping Centre), this route operates nine times during the AM peak period and six times during the PM peak period. This equates to approximately a bus running every 13 minutes in the morning and a bus running every 20 minutes in the evening.
- **Swords Express Route 500:** to/from Edan Quay in Dublin City Centre, this route operates 13 times during the day between 8:40 and 18:50. The bus comes approximately every 40-60 minutes.

- **Swords Express Route 503:** this route operates five times per day, three times in the AM peak period towards Marion Square in Dublin City Centre and two times in the PM peak period on the opposite direction – from Marion Square.
- **Swords Express Route 507:** this route operates three times per day, two times in the AM peak period (07:00 to 09:00) towards Eden Quay in Dublin City Centre and one time in the PM peak (17:00 to 19:00) on the opposite direction.
- **Swords Express Route 500X:** this route operates three times in the AM peak period (07:00 to 09:00) towards Eden Quay in Dublin City Centre and four times in the PM peak (17:00 to 19:00) on the opposite direction.

12.3 Transportation Improvements

12.3.1 Oldtown-Mooretown LAP Road Improvements

The road improvements required as part of the Oldtown-Mooretown LAP, both within and outside the LAP boundaries, include:

- Development of a number of new road/road links – in particular provision of the Western Distributor Link Road (WDLR) and the Inner Ward River Valley Crossing;
- Enhancement of existing junctions and roads external to the lands;
- Redesign of Glen Ellan Road as a main urban street within the lands and design of a main street within Mooretown lands;
- Provision of a quality bus route to transport those living in northwest Swords into the Town Centre;
- Provision of pedestrian and cyclist networks associated with green corridors both within and into adjoining areas.

The WDLR is substantially complete within the Mooretown lands. These development works were undertaken as part of the previous phases of Mooretown lands.

The road upgrades along the R125 Rathbeale Road, both within and outside the LAP boundaries, were recently completed and opened to public. The upgrades included dedicated pedestrian and cyclist facilities.

The Glen Ellan Road Extension works are substantially complete as part of the previous phases of Oldtown lands.

The scope, extent and timing of the works related to the Swords Quality Bus Corridor are to be agreed with Fingal County Council.

12.3.2 MetroLink

MetroLink is a proposed high-capacity, high-frequency rail line running from Swords through Dublin Airport and Dublin City Centre to Charlemont. MetroLink will carry up to 50 million passengers annually, cutting journey times from Swords to the city centre to 25 minutes. The preferred route for MetroLink is currently undergoing consultation and an application for planning approval for the MetroLink Scheme is expected to be made to An Bord Pleanála in Q2, 2022. Once a Railway Order has

been granted, work can commence on site. According to MetroLink, the construction work will take between 6-8 years to complete.

The Estuary Park and Ride station, which is also the terminus of MetroLink is located approximately 2.5km east of the proposed site. It will comprise a multi-storey park-and-ride facility with a total of 3,000 car parking spaces. It is envisaged that the introduction of the MetroLink will see a significant modal shift towards public transport resulting in a lower dependence on the private car.

12.3.3 BusConnects

The Bus Connects project currently being promoted by the National Transport Assessment aims to deliver a much-enhanced bus service to the Greater Dublin Area (GDA). The routes proposed to serve the proposed development site are the Local Route 197, Local Route L89, Route X84 and route A4.

12.4 Characteristics of the Proposed Development

12.4.1 Overview

The proposed development is labelled as phase three of the Mooretown development and consists of 650 residential units comprising of:

- 265 Houses
- 119 Duplexes/Simplex
- 266 Apartments

There will also be a creche with circa 512 sqm of area to attend 102 children and c. 15 staff, and 938 sqm of commercial space, of which 544 sqm is reserved for shops and 253 sqm for a café.

The development includes all associated site works and infrastructure, including internal roads, paths, cycle-paths, public lighting, utilities, foul and surface water drainage and landscaped open-space.

12.5 Potential Impact of the Proposed Development During Construction Stage

There is potential for construction traffic to impact from a noise and dust perspective in relation to the surrounding road network. Deliveries to and from the site by heavy good vehicles will impact on noise levels, whilst dust may result from vehicles travelling along gravel roads and from general earthwork activities. There is also potential for traffic congestion, due to increased heavy good vehicles on the road network which may also perform turning movements, unloading, etc., in areas that impact on traffic. The potential for inappropriate parking whilst waiting for access to the site, may also impact local road users.

There is potential for construction traffic to have a moderate effect on the surrounding environment. However, the duration of this impact will be short-term (i.e., one to three years).

12.6 Potential Impact of the Proposed Development During Operational Stage

In order to assess the potential impact of the proposed development a detailed traffic and transport assessment has been prepared and is included as part of the subject application under a separate cover. Details of this assessment are set out below.

Separately, it is noted that the proposed stormwater storage tank site that forms part of this application is not anticipated to generate traffic trips, aside from infrequent maintenance vehicles, and as such does not warrant trip generation assessment. It is considered that the storage tank traffic impact on the local network during operation stage is negligible.

12.7 Do Nothing Scenario

Should the proposed development not take place, the access roads and infrastructure will remain in their current state and there will be no change. Background traffic would be expected to grow over time. Given the location and zoning of the subject site, it is reasonable to assume that a similar development, with a potentially more intensive requirement for vehicular trips would be established on this site at some stage in the future.

12.8 Mitigation Measures

In order to eliminate or reduce the potential impacts described above, remedial and mitigation measures will be implemented as set out below and in the Construction Management Plan included under a separate cover with this application.

Construction Stage

- Adequate signposting will be located on site to ensure safety of all road users and construction workers.
- Due to the proximity of the proposed site along well serviced bus routes and being well served by cycle lanes, it is intended to limit construction staff parking and to encourage the use of public transport. A limited number of car parking spaces may be provided for senior construction managers within the development site. Suitable locations in the surrounding area may be identified where staff can park and link to public transportation.
- The main contractor as part of their site set up arrangements, shall appoint a Coordinator responsible for the implementation of a Construction Stage Mobility Management Plan and shall carry out the following tasks as part of their role:
 - Provide an extensive information service for public transport options and routes at public location(s) within the development for construction workers;
 - Update the public transport information adjacent to the development on on-going basis; and
 - Advise company staff of tax incentives for public transport and bicycles.
- For those wishing to cycle to and from the development, dedicated cycle parking will be provided for the duration of the works within the site. Shower facilities and lockers will also be provided.
- A dedicated “construction site” access/egress system will be implemented during the construction phases.
- Hoarding will be set up around the perimeter to prevent pedestrian access.
- Dedicated construction haul routes will be identified and agreed with the local authority prior to the commencement of construction activities onsite.
- A material storage zone will also be provided in the Construction Compound area. This storage zone will include material recycling areas and facilities.

- A detailed Construction and Traffic Management Plan will be prepared by the contractor and agreed with the Local Authority prior to commencing works on site.

Operational Stage

- To reduce traffic impact and to promote more sustainable modes of transport a Mobility Management Plan will be prepared for the development
- A management company will be appointed by the developer to manage the development. A senior member of staff from the management company who supports the philosophy of the Plan will be appointed as the Co-ordinator. The Co-ordinator will be responsible for:
 - Implementation and maintenance of the Plan;
 - Monitoring progress of the Plan
 - Liaison with public transport operators and officers of the Planning and Highway Authorities;
 - Production of information reports for the Developer, the occupier(s) and the Planning and Highway Authorities; and
 - Ongoing assessment of the objectives of the Plan.
- Up to date local bus timetables will be maintained within the tenant amenity area and other fixed points within the buildings on the site. Residents will be advised of their location. In addition, internet access to travel information will be provided. The developer will provide all new residents with a travel pack showing alternative modes of travel to the development. Where possible, the developer will advise visitors to the site of alternative modes of travel to that of the car.
- Secure parking facilities will be provided for residents, visitors and Creche users. Local cycle route information will be provided in the tenant amenity area and at other fixed points within the development and residents will be advised of their location. Details of cycle parking provided is included in the Traffic and Transport Assessment provided with the planning submission.
- 5 No go Car spaces will be initially provided and details of how to join the scheme will be provided to all residents when they move into their apartment. Information will also be displayed within the resident amenity area and updated when required.
- The Co-ordinator will be responsible for the management of inappropriate parking within the development. This parking management will ensure that spaces are reserved for those who have rented the space and will be accessible only to those users.

12.9 Predicted Impacts of the Proposed Development

Construction Stage

Due to the proposed mitigation measures outlined above, the impact of the proposed development will be temporary and minimised during the construction stage.

Operational Stage

There will be increase in the use of the road network by private vehicles. A mobility management plan will promote more sustainable forms of transport.

There will be an increase in the number of pedestrians and cyclists in the surroundings of the development. However, footpaths and cycling paths are provided as part of the proposed development and the overall Oldtown area, thus, impact should be minimal.

12.10 Monitoring

Construction Stage

Traffic management and deliveries will be carefully monitored during the construction stage as part of the Construction Management Plan. The appointed contractor will monitor their mobility management plan to ensure that is operating effectively. Local residents will be kept fully informed of construction activities through mail shots, email and site notices.

Operational Stage

During the operational stage the Mobility Management Plan will be monitored by the Co-ordinator. The travel survey will establish the initial modal split of travel by residents.

The Co-ordinator, in consultation with the Developer, the Occupiers, and the Local Authority or its agents, will agree annual targets, following completion and analysis of the travel survey, for increasing the percentage of non-car modes.

The Co-ordinator will:

- Meet with officers of the Local Authorities or its agents within a period of 6 months following occupation of the building(s) and thereafter every 12 months to assess and review progress of the Plan and agree objectives for the next 12 months, and
- Prepare and submit to senior management of the Developer, the Occupier(s) and the Local Authorities or its agents, an annual Monitoring Report.

12.11 Interactions

Construction Stage

Temporary negative impacts to human health may be likely during the Construction Phase due to noise, dust, air quality and visual impacts which are discussed in the relevant chapters of this EIAR. Temporary traffic management will be required to facilitate connections to existing utilities in the existing roads.

The traffic impacts, which would be temporary in duration are not considered to be significant due to the implementation of the mitigation measures identified in Section 13.10.

Operational Stage

Noise generated by increased traffic flows have been assessed in the Air and Noise Chapters of the EIAR.

12.12 Difficulties Encountered

There were no difficulties encountered

13.0 CULTURAL HERITAGE

The cultural heritage Impact Assessment has been prepared by Courtney Deery Heritage Consultancy as part of the pre-planning Strategic Housing Development (SHD). The report assesses the impact of the proposed development on the cultural and archaeological heritage environment and proposes measures to safeguard any monuments, features, finds of antiquity or features of architectural or cultural heritage merit. The proposed development lands lie within the Oldtown Mooretown Local Area Plan (LAP) lands on the north-western outskirts of Swords town, Co. Dublin. The LAP lands are situated either side of the Rathbeale Road within the townlands of Rathbeal, Oldtown and Mooretown, in the parish of Swords and the barony of Nethercross. The Phase 3 application lands lie to the south of the Rathbeale Road (R125), in the southwest of the LAP lands, in the townland of Mooretown.

As part of the LAP process the lands have been subject to archaeological investigations since 2003 comprising desk studies, field walkover surveys and licenced geophysical surveys, test excavations, archaeological monitoring and archaeological excavations. The investigations were carried out in order to provide a detailed archaeological assessment for consideration in the development of a planning strategy for the LAP lands. The archaeological investigations identified previously unknown subsurface archaeological sites and features that had no above ground representation and established the plan-form extent of these sites. The definition of these sites has led to a comprehensive understanding of the archaeological landscape within the receiving environment and has enabled a considered strategy for the preservation in situ and protection of significant archaeological remains to be put in place. These sites have since been added to the Sites and Monuments Record (SMR) and are scheduled for inclusion in the next revision of the Record of Monuments and Places (RMP). More recent archaeological investigations within the LAP lands were in response to individual planning applications within the LAP area.

Within the Mooretown Phase 3 application lands a ringfort of probable early medieval date has been identified and its preservation in situ has been incorporated into the proposed development as a green area (RMP DU011-147) in accordance with the LAP.

A burnt mound and possible ring-ditch have also been identified and are scheduled for full excavation resulting in preservation by record (RMP DU011-146001 & 002). An additional area of archaeological potential was highlighted as a result of testing in 2008 to the north of the burnt mound and ring-ditch above, however this was investigated when topsoil was stripped for the western distributor road in 2015 and found not to be of archaeological interest (McLoughlin, 2015, licence ref. 13E0366). There are no structures of architectural heritage merit within the application area or in its environs.

A mitigation strategy has been developed in accordance with the Oldtown-Mooretown Conservation Plan Policies for the preservation in-situ of archaeological remains, the following strategy has been developed for RMP DU011-147:

A protection zone will be placed around the recorded extent of this feature, by way of a robust fence erected in advance of development. The protection zone will encircle the area with a buffer zone of 20m beyond the extent of the monument (as agreed with the DCHG) to protect it from any

construction related activities. The site will be maintained as an open space and has integrated into the development proposals.

The landscape design incorporates the below-ground remains into the development, retaining it as an amenity area in the landscape. The landscaping proposals serve both as a protective measure and to facilitate interpretation of the site.

The site will be covered in a geo-textile layer and soils will be introduced to protect the underlying archaeological remains which are at least 0.30m below the existing ground level. Naturalised bulb planting will demarcate the location of the below ground remains.

Provision of signage to interpret the below-ground remains for the general public will be placed adjacent to the site. It will form part of a network of historic information throughout the LAP lands.

There will be a permanent direct impact on a burnt mound or fulacht fiadh (RMP DU011-146001) overlying a possible ring-ditch (RMP DU011-146002) that is in the northwest of the application lands. It is recommended that these features are archaeologically excavated in advance of development, under licence to the Department of Housing, Local Government and Heritage (DHLGH). Excavation will result in preservation by record of the sites, adding to the archaeological record of the area in the prehistoric period, which until recently was largely unknown in the surrounding area.

It is further recommended that topsoil removal within the Mooretown Phase 3 lands or any other excavation work associated with the development be monitored by a suitably qualified archaeologist. In the event of the discovery of archaeological remains, the area will be cordoned off and protected until the archaeologist has made a decision on how best to deal with the remains in consultation with the DHLGH. This could be in the form of preservation in situ or full archaeological excavation (preservation by record).

14.0 MATERIAL ASSETS - UTILITIES AND WASTE

Waterman Moylan Consulting Engineers has been commissioned to assess the likely impact of the proposed development on the material assets serving the subject lands relating to water supply, foul sewerage, electricity, gas and telecommunications.

14.1 Assessment Methodology

The methodology followed for this section is in accordance with the EPA “Environmental Impact Assessment Reports, Draft Guidelines 2017”. Information on built assets in the vicinity of the development lands was assembled from the following sources:

A desktop review of Irish Water Utility Plans, ESB Networks Utility Plans, Gas Networks Ireland Service Plans, Eir E-Maps and Virgin Media Maps;

- Consultation with Irish Water and Fingal County Council;
- Submission of a Pre-Connection Enquiry Application to Irish Water;
- Review of ESB Network Utility Plans & Site meetings with ESB Network
- Review of Gas Networks Ireland existing network maps;
- Review of EIR Telecommunications existing network maps;

- Site Inspection / Walkover;

As part of assessing the likely impact of the proposed development, surface water runoff, foul drainage discharge and water usage calculations were carried out in accordance with the following guidelines:

- Greater Dublin Strategic Drainage Study (GDSDS);
- IS EN752, "Drain and Sewer Systems Outside Buildings";
- Irish Water's Code of Practice (water demand and foul water loading);

14.2 Characteristics of the Proposed Development

The proposed development will consist of 650 units, comprising of: 265 No. houses, 119 No. Duplex/Triplexes units, and 266 No. apartments A creche (512m²) and commercial spaces of retail and cafe (totalling 946m²) will also be constructed as part of the development. The site is 18.378 ha gross area and is located 2km west of Swords town centre.

The developer will construct all associated infrastructure to service the development including a network of foul water and surface water drains, a stormwater storage tank on the public foul network, watermain, access roads and footpaths.

It is similarly proposed to install a storage tank on the on the public foul network is to alleviate constraints within the public foul network during times of heavy rainfall events, whereby stormwater enters the public foul network temporarily reducing available capacity. The proposed stormwater storage tank has been designed in conjunction with Irish Water and will not only facilitate the connection requirement of this subject application but will also have capacity to allow for continued development in the Oldtown/Mooretown catchment. The storage tank is proposed to be located at the junction of the Glen Ellan Road and the Balheary Road.

The Swords area, including the subject lands, is supplied from Leixlip Water Treatment Plant.

There is an 800mm diameter ductile iron trunk watermain crossing the Oldtown lands, north of Mooretown. This main connects Kingston to Lissenhall. The trunk main has a 16-metre wayleave through the lands which has been incorporated into Oldtown Avenue, the main spine road of the Oldtown development, in accordance with the LAP. A spur has been provided from the 800mm diameter water main to serve the Oldtown/Mooretown LAP lands, located just south of the Glen Ellan Road.

The Mooretown Lands, including those of Phase 3 the subject of this application, will connect to the existing 300mmØ watermain that traverses the Rathbeale Road at the junction between the Rathbeale Road and Mooretown Distributor Road. This 300mm diameter main extends south along eastern side of Mooretown Distributor Road to the Mooretown 3 lands.

It is proposed to serve the site by utilising a series of 100mm and 150mm diameter mains. The internal Mooretown Phase 3 water network is proposed to connect to the adjacent 300mm diameter main within Mooretown Distributor Road Extension, to the 150mm diameter main within the Mooretown School Access Road, and also as specifically requested by Irish Water, to the 150mm diameter main within the Abbeyvale residential development.

It is proposed to drain wastewater in a north-easterly direction through a series of 150mm and 225mm sewers. There are 7 No. connection points, 1 No. to the foul network in the Mooretown distributor road extension (planning permission granted F20A/0095) and 4 no. to the foul network in the Mooretown school access road (construction completed). The remaining 2 No. Connections will be for the Phase 3 lands north of the School Access Road, which will connect to the permitted phase 2 drainage network.

The foul network in the Mooretown Distributor Road Extension will flow north and connect to the foul network in the Mooretown School Access Road which in turn flows easterly and then northerly along the eastern boundary of the school Campus. It then connects to the foul network in Mooretown Phase 1 (currently under construction) before outfalling to the 500mmØ foul sewer crossing the Rathbeale Road.

A Pre-Connection Enquiry form was submitted to Irish Water and a response has been received stating that to accommodate the proposed connection to the Irish Water network at the premises, a storage tank will be required in the future to manage the impacts of excessive rainfall in the sewer network downstream of the development. In this regard, following consultation with Irish Water, it is proposed to include as part of this application a Stormwater Storage Tank. The proposed tank will be located on the junction of the Glen Ellan Road and Balheary Road, Swords, Co. Dublin, approximately 280m east of the development. The proposed tank will alleviate constraints within the Irish Water foul water system, that occur during times of heavy or prolonged rainfall, resulting from surface water and foul water infiltration.

Gas Networks Ireland have been contacted and an existing gas network map for the area surrounding the proposed development has been obtained. There are existing gas pipes adjacent on Main Street, to facilitate Mooretown Phase 3.

If gas is adopted as the fuel source of choice for the heating systems in the scheme, a new gas connection be made to the existing network. The exact extent and location of these connections will be agreed upon with Gas Networks Ireland during the design stage of the project.

ESB Networks have been contacted and an existing ESB network map for the area surrounding the proposed development has been obtained. ESB infrastructure exists in Rathbeale Road to the north, which will extend south via the Mooretown Road, to facilitate Mooretown Phase 3. High Voltage overhead lines traverse the site, which will be undergrounded as part of the overall Mooretown development

Eir have been contacted and an existing Eir network map for the area surrounding the proposed development has been obtained. There is existing EIR infrastructure on Main Street traversing the site, to facilitate Mooretown Phase 3.

14.3 Potential Impact of the Proposed Development

There is a risk to all services during the construction phase of the project. Appropriate mitigation measures such as scanning for all services during excavation to prevent a strike of services must be implemented during the construction stage.

- The main sources of construction waste arising from this project will be:
- Topsoil and subsoil
- Packaging and general waste from construction activities
- General site clearance waste, roots, etc.

It is practical that as much as possible topsoil and subsoil generated remains on site and is used for landscaping and engineering purposes as appropriate.

14.4 Potential Cumulative Impacts

In the event of future development adjacent to the proposed development, there are no predicted cumulative impacts arising from the construction or operation phase related to the material assets – built services provided that the other developments implement appropriate mitigation measures.

14.5 Do Nothing Scenario

No change of use of the greenfield lands and therefore no further impact to the material assets.

14.6 Mitigation Measures – Construction & Operational Phase

14.6.1 Surface Water

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject site.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area. The system is cleaned and starts working again.
- All fuels and chemicals will be bunded, and where applicable, stored within double skinned tanks / containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a minimum distance of 50 m from any watercourse or other water conducting features, including the cut off trenches.
- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- Surface Water pipes will be carefully laid so as to minimise the potential for cross connections.

14.6.2 Foul Water

- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- Foul water pipes to be laid with sufficient falls to ensure self-cleansing velocity
- Foul pipes will be carefully laid so as to minimise the potential for cross connections.

14.6.3 Water Supply

- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- All water mains will be cleaned, sterilised, and tested to the satisfaction of the Irish Water/Local Authority prior to connection to the public water main.

- All connections to the public water main will be carried out under the supervision of the Irish Water/Local Authority.

14.6.4 ESB Network

- Where possible backup network supply to any services will be provided should the need for relocation or diversion of existing services be required otherwise, relocation or diversion works will be planned with the service provider to incur minimal impact, with users notified in advance of any works.

14.6.5 Gas

- Where possible backup network supply to any services will be provided should the need for relocation or diversion of existing services be required, otherwise relocation or diversion works will be planned with the service provider to incur minimal impact, with users notified in advance of any works.
- Connections to the existing gas networks will be coordinated with the relevant utility provider and carried out by approved contractors.

14.6.6 Telecommunications - Eir

- Where possible backup network supply to any services will be provided should the need for relocation or diversion of existing services be required, otherwise relocation or diversion works will be planned with the service provider to incur minimal impact, with users notified in advance of any works.
- Connections to the existing telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.
- A C&D Waste Manager shall be appointed from the Contractor's Staff and have overall responsibility for the implementation of the project Waste Management Plan (WMP) during the construction phase. The C&D Waste Manager will be appropriately trained and assigned the authority to instruct all site personnel to comply with the specific provisions of the WMP.
- During the operational stage, there will be an increased demand for all the services which can be accommodated by the service provider.
- It is the duty of the C&D Waste Manager to ensure that necessary licenses have been obtained as needed. Each consignment of C&D waste taken from the site will be subject to documentation along with Transportation Dockets to ensure full traceability of the material to its final destination.
- The implementation of the following operation stage mitigation measures will minimise the impact on the hydrology and hydrogeology aspects of the development lands.
- The surface water drainage network has been designed in accordance with the CIRIA SUDS Manual and the Greater Dublin Strategic Drainage Scheme. The appropriate interception mechanisms and treatment train process has been incorporated into the design.
- Surface water outflow will be restricted to the equivalent greenfield runoff rate from the existing Oldtown attenuation ponds.
- Flow restrictors with attenuation storage will be used to slowdown and store surface water runoff from discharging above green field rates to the Broadmeadow River.

- Sustainable urban drainage measures, including green roofs, permeable paving and filter strips/swales will be provided to improve water quality.
- A petrol interceptor will be installed to prevent hydrocarbons entering the local drainage system.
- Regular inspection and maintenance of the drainage network, including petrol interceptor.
- Water metering via district meters will be installed to Irish Water requirements. Monitoring of the telemetry data will indicate any excessive water usage which may indicate the potential for a leak in the watermain network. Early identification of potential leaks will lead a faster response in determining the exact location of leaks and completion of remedial works.
- The outfall headwall to the Broadmeadow River will be fitted with a tide-flex (or similar approved) non-return valve to ensure surcharge from the Broadmeadow River will not backfill into the proposed pipe and tank during extreme weather events.
- The outfall volumes from the stormwater storage tank to the Broadmeadow River shall be metered to record the frequency and duration/volumes of overflows.

14.6.7 Foul Water

- The foul network will be inspected annually and maintained.

14.6.8 Water Supply

- It is not envisaged that any other remedial or reductive measures will be necessary upon the completion of the development.

14.6.9 ESB Network

- On completion of the construction phase no further mitigation measures are proposed in relation to the electrical infrastructure.

14.6.10 Gas

- On completion of the construction phase no further mitigation measures are proposed in relation to the gas infrastructure.

14.6.11 Telecommunications - Eir

- On completion of the construction phase no further mitigation measures are proposed in relation to the telecommunications infrastructure.

14.7 Predicted Impacts of the Proposed Development

- Due to the proposed mitigation measures in both construction and operational phase, the impact on the utilities and construction and demolition waste is considered not significant.

14.8 Monitoring and Reinstatement

The proposed monitoring of the various built services during the operation stage will include:

- Surface water drainage and SUDS features will be monitored and maintained by the Developer.

- The water usage within the proposed development will be monitored via the bulk water meters. Records will be maintained by Irish Water to ensure any excess usage is identified and investigated as necessary.
- Irish Water will monitor the operation of the foul drainage network including the receiving environment.
- The construction and waste management plans will be adhered to.
- The provision of utility services including electricity, gas and broadband will be monitored by the relevant utility provider.

14.9 Interactions

The main interactions relating to this EIAR Chapter are Water (Hydrology and Hydrogeology), Population and Human Health, and Traffic and Transport.

14.10 Difficulties Encountered

There were no particular difficulties encountered compiling the Material Assets –Utilities chapter of the EIAR.

15.0 INTERACTION OF IMPACTS

The interaction of impacts, as considered in the EIAR, and their relationship to the information requirements outlined in the European Communities (Environmental Impacts Assessment) Regulations, are summarised as the following:

No.	Heading	Population and Human Health	Biodiversity	Land, Soils & Geology	Water	Air Quality	Noise & Vibration	Climate	Landscape & Visual Impact	Transportation	Cultural Heritage	Material Assets – Utilities & Waste
4	Population and Human Health				X	X	X			X		
5	Biodiversity											
6	Land and Soils											
7	Water		X	X								
8	Air Quality	X								X		
9	Noise & Vibration	X								X		
10	Climate	X								X		
11	Landscape											
12	Traffic and Transport	X				X	X		X			
13	Cultural Heritage											
14	Utilities & Waste	X			X					X		

16.0 OVERALL IMPACT ON THE ENVIRONMENT

The Environmental Impact Assessment Report has assessed the characteristics of the proposal for significant environmental impacts. Each topic was examined and the resultant environmental impact, if any, noted and mitigation or reductive measures have been put in place. Accordingly, the proposed development will not result any significant negative long-term impacts on the environment as a result of the mitigation measures proposed as part of the design and at operation stage.

1.0 INTRODUCTION

1.1 Purpose of This Report

This Environmental Impact Assessment Report (EIAR) has been prepared in parallel with the preparation and formulation of a proposed Strategic Housing Development (SHD) at lands to the south of Rathbeale Road and to the south of and north of Main Street and southeast of Mooretown Distributor Road (Western Distributor Link Road), Mooretown, Swords, Co. Dublin, with associated engineering works on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road, Swords, Co. Dublin.

The application site comprises greenfield land, road and verge which is 18.378ha in size. As depicted in Figure 2-1, it comprises three main parts, first the developable lands in the southern section of the site between the existing settlement of Abbeyvale and Swords Community College (16.52 ha), second the open space lands to the north adjacent to the Broadmeadow River (1.295 ha) and third the stormwater storage tank at the junction of Glen Ellan Road and Balheary Road (0.563ha).

The developable lands are located approximately 2.5km from the town centre and County Hall, circa 5 km from the M1 interchange at Lissenhall and just under 10km to Dublin Airport.

The lands form part of a larger landholding known as the 'Oldtown – Mooretown Lands' within the ownership of Gerard Gannon Properties (the applicant), which have been substantially developed since 2013 having been zoned for development. A combined total of 491 dwellings and 2 crèches have been granted planning permission at Mooretown. Of these, 223 dwellings and the creche are under construction. The subject site is the final plot of zoned lands in Mooretown.



Figure 1. Outline of Site Boundary and Aerial View (source: Google Maps)

The proposed development that is the subject of this SHD application provides for the construction of 650 no. residential dwellings, comprising 265 no. houses, 187 no. apartments, and 198 no. duplex and triplex units (192 no. duplex and 6 no. triplex units). The proposed development also provides for 1 no. childcare facility, 5 no. retail units, 1 no. café/restaurant along with ancillary amenity facilities (the proposed development / the project).

The proposed development also provides for public open space, including outdoor play area and playgrounds, car parking, bicycle parking and all associated engineering and site works necessary to facilitate the development

The site is accessed from the recently constructed Mooretown distributor road (part of the Western Distributor Link Road or WDLR) and 'Main Street' which is an east-west spine road in the centre of the adjacent zoned land and completed development to the north of the site. This is described in more detail in Chapter 2.

1.2 Nature and Extent of Proposed Development

Gerard Gannon Properties is applying to An Bord Pleanála for planning permission for the following development:

"We, Gerard Gannon Properties, intend to apply to An Bord Pleanála for a 10 year permission for a strategic housing development at lands to the south of Rathbeale Road and to the north and south of Main Street and to the east and southeast of Mooretown Distributor Road (Western Distributor Link Road), Mooretown, Swords, Co. Dublin, with associated engineering works on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road, Swords, Co. Dublin.

The development will consist of the construction of a total of 650 no. residential units (265 no. houses, 187 no. apartments, 6 no. triplex units, and 192 no. duplex units [comprising 113 no. duplex 'house' units and 79 no. duplex 'apartment' units]), 1 no. childcare facility, 5 no. retail units and 1 no. café/restaurant, all of which will be provided as follows:

- *265 no. residential houses (240 no. 3 bed houses, and 25 no. 4 bed houses) in detached, semi-detached, end-terraced, and mid-terraced houses ranging from two to three storeys in height;*
- *Duplex Block A containing a total of 12 no. units comprising of 2 no. 1 bed units, 3 no. 2 bed units, and 7 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block B containing a total of 9 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; 1 no. retail unit at ground floor level with associated signage; car parking and bicycle spaces, and bin stores;*
- *Duplex Block C containing a total of 14 no. units comprising of 3 no. 1 bed units, 3 no. 2 bed units and 8 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block D containing a total of 10 no. units comprising of 1 no. 1 bed unit, 3 no. 2 bed units and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*

- Duplex Block E containing a total of 12 no. units comprising of 2 no. 1 bed units, 3 no. 2 bed units and 7 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block F containing a total of 9 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; 1 no. retail unit at ground floor level with associated signage; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block G containing a total of 14 no. units comprising of 3 no. 1 bed units, 3 no. 2 bed units and 8 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block H containing a total of 5 no. units comprising of 2 no. 2 bed units and 3 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block I containing a total of 7 no. units comprising of 2 no. 1 bed units, 1 no. 2 bed unit and 4 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike stores; car parking and bicycle spaces, and bin stores;
- Duplex Block J containing a total of 7 no. units comprising of 2 no. 1 bed units, 1 no. 2 bed unit and 4 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block K containing a total of 16 no. units comprising of 5 no. 1 bed units, 2 no. 2 bed units and 9 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block L containing a total of 8 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 5 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block M containing a total of 8 no. units comprising of 3 no. 2 bed units and 5 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block N containing a total of 4 no. units comprising of 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block O containing a total of 11 no. units comprising of 4 no. 1 bed units, 1 no. 2 bed unit and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block P containing a total of 5 no. units comprising of 2 no. 2 bed units and 3 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block Q containing a total of 15 no. units comprising of 1 no. 1 bed unit, 5 no. 2 bed units and 9 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block R containing a total of 7 no. units comprising of 2 no. 1 bed units, 1 no. 2 bed unit and 4 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;

- Duplex Block S containing a total of 5 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block T containing a total of 5 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block U containing a total of 5 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block V containing a total of 4 no. units comprising of 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Apartment Block A containing a total of 40 no. units comprising of 10 no. 1 bed units, 24 no. 2 beds, and 6 no. 3 bed triplex units with all units provided with private balconies/terraces, in a building five storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; car parking within the undercroft car park and on-street, and bicycle parking;
- Apartment Block B containing a total of 70 no. units comprising of 24 no. 1 bed units and 46 no. 2 bed units with all units provided with private balconies/terraces, in a building one to five storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; 2 no. retail units at ground floor level with associated signage; car parking within the undercroft car park and on-street, and bicycle parking;
- Apartment Block C containing a total of 8 no. units comprising of 8 no. 2 bed units with all units provided with private balconies/terraces, in a building three to four storeys in height, with internal bin stores and plant rooms at ground floor level; 1 no. retail unit at ground floor level with associated signage; car parking within the shared parking court; bin stores and bike stores; and bicycle parking;
- Apartment Block D containing a total of 8 no. units comprising of 8 no. 2 bed units with all units provided with private balconies/terraces, in a building three to four storeys in height, 1 no. café/restaurant unit at ground floor level with associated signage; car parking within the shared parking court; bin stores and bike stores; and bicycle parking;
- Apartment Block E containing a total of 46 no. units comprising of 3 no. 1 bed units and 43 no. 2 bed units with all units provided with private balconies/terraces, in a building five storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; car parking within the parking court and on-street, and bicycle parking;
- Apartment Block F containing a total of 21 no. units comprising of 6 no. 1 bed units and 15 no. 2 bed units with all units provided with private balconies/terraces, in a building four storeys in height, with internal bicycle stores and bin stores at ground floor level; car parking within the parking court and on-street, and bicycle parking;
- 1 no. childcare facility in a one to two storey building, with associated outdoor play area, car parking and drop-off/visitor parking, bicycle parking, and bin stores.

The development will provide for a total of 991 no. car parking spaces within the scheme; a total of 1141 no. bicycle spaces serving the apartments, triplex units, duplex units, childcare facility and commercial units; proposed new vehicular accesses onto Main Street and onto Mooretown

Distributor Road (Western Distributor Link Road) which is partly constructed and also permitted under Reg. Ref. F20A/0096; proposed upgrades to public realm including footpaths, a new pedestrian/cyclist link via Abbeyvale Court, landscaping including play equipment, boundary treatments, and public lighting; and all associated engineering and site works necessary to facilitate the development including the proposed stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River with associated manholes on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road, along with the proposed vehicular/service access onto Balheary Road, Swords.”

1.3 EIA Process

The requirements for an Environmental Impact Assessment (EIA) of development proposals (projects) are governed by Directive 2014/52/EU, which amends the previous EIA Directive (Directive 2011/92/EU). The primary purpose of an EIA is to ensure that certain projects that are likely to have significant effects on the environment are subjected to an assessment of their likely environmental impacts. The EIA process itself forms part of the planning consenting process and is carried out by the Competent Authority (An Bord Pleanála in this instance).

An EIAR is prepared by and on behalf of an applicant/developer in respect of a development proposal/project that they are seeking planning consent/permission for. Therefore, the EIAR becomes a central element that informs the Competent Authority’s determination of the planning application.

The 2014 Directive has introduced strict new requirements in respect of the competency of experts responsible for the preparation of the EIAR. It is possible to summarise the EIA process as follows:

1. Screening - Is EIA required?
2. Scoping - If EIA is required, what aspects of the Environment should be considered?
3. Preparation of EIAR.
4. EIAR informs EIA (as part of the consent process).

1.4 The Need for an Environmental Impact Assessment Report

The EIA Directive was transposed into Irish Planning legislation on 1st September 2018. Section 172(1) of the Planning and Development Act 2000 (as amended) sets out the requirement for EIA. This current proposed project has been screened for EIA by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018).

The EIA Directives list those projects for which an EIA is mandatory (Annex I) and those projects for which an EIA may be required (Annex II). Annex I projects are listed in Part 1 of Schedule 5 of the Planning and Development Regulations 2001 as amended (“the Regulations”). The Project is not listed within Part 1 of Schedule 5 of the Regulations and therefore mandatory EIA is not required under Annex 1. Concerning Part 2 of Schedule 5 (Annex II) Projects, the relevant thresholds relating to the subject proposal are outlined below:

- **Class 10(b)(i) “Construction of more than 500 dwelling units.”:** This project comprises a residential development including the provision of 650 no. new residential dwelling units. Therefore, the Project exceeds the stated threshold, and an EIA is required in this context.

- **Class 10(b)(ii): “Construction of a car-park providing more than 400 spaces, other than a car-park provided as part of, and incidental to the primary purpose of a development.”:** The Project does not include a car park providing 400 no. spaces or more. Furthermore, all car parking is provided within the project is incidental to the primary purpose of the residential development. Therefore, the car parking element of the project does not fall within this Class of Regulations.
- **Class 10(b)(iv): “Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere”:** In this instance, the application site extends to c. 18.378 hectares within what can be considered a built-up area. Therefore, the project exceeds this threshold, and an EIA is required on this basis.

Additionally, the requirement for an EIAR in this instance was triggered by the legacy of the Oldtown-Mooretown LAP 2010-2016 (extended up to July 2020 and expired since) which pertained to the subject lands. The LAP contained two statements, which had implications for the requirement of an EIAR. The LAP referred to an E.I.S. which is what an EIAR was formerly known as. The first statement in question, referred to in Section 4 of the plan relating to phasing and implementation was as follows:

“An E.I.S for the developments shall be prepared and submitted, as determined by the Planning Authority. The EIS shall be submitted with every planning application”.

The second statement of interest is set out in Section 4.1 of the LAP, provided guidance on the phasing programme for development of the LAP, as follows:

“No one application for residential development shall be greater than 250 units”.

Furthermore, due to the location of the subject lands, the on-going delivery on the Oldtown-Mooretown lands and the potential cumulative impact it can have, an EIA is required, and thus an Environmental Impact Assessment Report has been prepared to accompany this planning application.

- *The European Community Directive on Environmental Impact Assessment (No 85/337/EEC);*
- *The European Community Directive (97/11/EC) amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment;*
- *The Planning and Development Act, 2000 (as amended);*
- *The Planning and Development Regulations 2000-2015;*
- *European Commission, Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (May 1999);*
- *European Commission, Guidance on EIA Screening (June 2001);*
- *European Commission, Guidance on EIA Scoping (June 2001);*
- *Environmental Protection Agency (EPA), Guidelines on the information to be contained in Environmental Impact Statements (March 2002);*
- *EPA, Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (September 2003);*
- *EPA, Guidelines on the Information to be contained in Environmental Impact Assessment Reports (August 2017);*
- *EPA, Advice notes for preparing Environmental Impact Statements Draft (September 2015);*

- *European Commission, Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (April 2013)*
- *Circular Letter PI 1/2017: Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive)*
- *The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018); and*
- *The Guidelines for Planning Authorities and An Bord Pleanála on Carrying Out Environmental Impact Assessment (August 2018).*

The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) transpose the requirements of the 2014 EIA Directive into Irish Planning Law. On 1st September 2018, the provisions of the Regulations came into effect. This EIAR has been prepared in light of these EIAR Regulations and has also with specific regard to the ‘*Guidelines for Planning Authorities and An Bord Pleanála on Carrying Out Environmental Impact Assessment*’ which were published in August 2018.

1.5 Scope of Environmental Impact Assessment Report

The scope of this EIAR has had regard to the following:

- *Guidelines on the recommended information to be contained in EIAR, which have been published by the EPA (March 2002, September 2003, September 2015, and August 2017);*
- *The requirements of Part X of the Planning and Development Act, 2000 (as amended) and also Part 10 of the Planning and Development Regulations, 2001 as amended;*
- *The requirements of the Fingal Development Plan 2017-2023;*
- *The location, scale, and nature of the proposed development;*
- *The receiving environment and any vulnerable or sensitive local features and current uses;*
- *Previous planning applications that have been submitted on lands adjoining the subject site;*
- *The likely and significant impacts of the proposed development (including interactive effects, indirect and cumulative effects) on the environment; and,*
- *Available mitigation measures (including mitigation embedded in the design of the development/project) for reducing or eliminating any potential undesirable impacts.*

Other assessments made under EU legislation have been considered for this EIAR, however, these have been ruled out as irrelevant for this chapter which includes, for example, the Environmental Noise Directive (2002/49/EC) and the Strategic Environmental Assessment Directive (2001/42/EC).

1.6 Structure of Environmental Impact Assessment Report

An EIAR is a process of examining and assessing the environment in tandem with a proposed development in a series of loops and flow systems to ensure that all potential environmental impacts are documented and taken into consideration in the overall formulation of the proposed development inter alia through the design process. This process allows for the creation of a series of steps in the assessment of potential impacts on various elements of the environment.

The overall structuring of this EIAR has regard to the information requirements of the Directives and Irish Statutory Law and Regulations. In accordance with the statutory regulations, a Non-Technical Summary has been prepared and is included as part of this EIAR. The structure used in this report is a grouped format structure in the form of chapters that examine the broadened scope of environmental consideration introduced by the 2014 Directive.

The structure of this EIAR is based on the requirement to provide a detailed and systematic analysis of the environment at the subject lands; the potential impacts of the development; proposed mitigation measures and future monitoring of environmental indicators.

1.7 The EIAR Study Team

This EIAR has been prepared by an experienced and suitably qualified team of consultants led by Downey Planning. The table below provides information on the members of the EIAR study team and their respective inputs within the report.

Table 1. The EIAR Study Team

Name	Role
<u>Downey Planning</u> John Downey, Planning Consultant, BA (Hons), MRUP, MBA, MIPI, MRTPI – 25 years' experience & Eva Bridgeman, Planning Consultant BA (Hons), MRUP, MIPI – 10 years' experience	EIAR Project Managers & Planning Consultants Preparation of the following EIAR chapters: - Chapter 1: Introduction - Chapter 2: Description of Project & Alternatives Considered - Chapter 3: Planning and Development Context - Chapter 4: Population & Human Health - Chapter 15: Interactions - Chapter 16: Summary of Mitigation & Monitoring Measures - Compilation of EIAR and NTS
<u>CCK Architects</u> Pamela Gill, Director, MRAl	Preparation of the following EIAR chapters: - Chapter 2: Description of Project & Alternatives Considered - Chapter 16: Summary of Mitigation & Monitoring Measures
<u>Waterman Moylan Consulting Engineers</u> Mark Duignan, Associate Director, Engineer, MA BAI CEng MIEI	Preparation of the following EIAR chapters: - Chapter 6: Land and Soils - Chapter 7: Water - Chapter 12: Traffic & Transport - Chapter 14: Utilities & Waste - Chapter 16: Summary of Mitigation & Monitoring Measures
<u>Doyle & O'Troithigh Landscape Architects</u> Linda Doyle, Director, MILI	Preparation of the following EIAR chapters: - Chapter 11: Landscape and Visual Impact Assessment - Chapter 16: Summary of Mitigation & Monitoring Measures
<u>Courtney Deery Heritage Consultancy Ltd.</u> Siobhán Deery BA, MA, H-Dip (Ed.), Dip Planning & Env. Law, MIAI, Director	Preparation of the following EIAR chapters: - Chapter 13: Cultural Heritage - Chapter 16: Summary of Mitigation & Monitoring Measures

Name	Role
<u>Altemar Ltd.</u> Bryan Deegan, Ecologist, MCIEEM	Preparation of the following EIAR chapters: ▪ <i>Chapter 5: Biodiversity</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i>
<u>DKP International Ltd</u> Gerard Van Deventer C.ENG., BE. (Mech)., H. Dip. CIOB., MCIBSE	Preparation of the following EIAR chapters: ▪ <i>Chapter 8: Air Quality</i> ▪ <i>Chapter 9: Noise & Vibration</i> ▪ <i>Chapter 10: Climate</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i>

The development is being proposed by Gerard Gannon Properties, Kinvara House, 52 Northumberland Road, Ballsbridge, Co. Dublin (the applicant).

1.8 Impartiality

This EIAR has been prepared with a standardised methodology that is accepted and acknowledged universally. Competently qualified and experienced specialists have been used throughout the EIA process to ensure that this document is robust, subjective, and impartial.

1.9 Statement of Difficulties Encountered

No exceptional difficulties were experienced in compiling this EIAR. However, where difficulties and limitations have been encountered by the study team, this shall be stated within the relevant section(s) of the EIAR.

1.10 Errors

Every effort has been made to ensure that the EIAR is error-free and accurate. However, there may be instances within the document where typographical errors or minor errors may occur. When minor in nature, any such cases are unlikely to have any material impact on the overall and final findings contained in the EIAR.

1.11 References

A reference list detailing the sources used for the descriptions and assessment has been included with each chapter, where necessary.

2.0 DESCRIPTION OF PROJECT & ALTERNATIVES CONSIDERED

2.1 Site Location and Context

The application site is located on the western edge of Swords, Fingal, Co. Dublin, approximately 3.5km from the town centre and County Hall, 5 km from the M1 interchange at Lissenhall and just under 10 km to the airport. It is accessed from the Western Distributor Link Road (WDLR), which forms the western boundary of the subject site. The lands are zoned RA and, when completed, will form the western edge of urban development for Swords.

2.2 Site Description

The application site comprises greenfield land and existing roads and verge which is 18.378ha in size. As depicted in Figure 2-1, the application site comprises three main parts, first the developable lands in the southern section of the site between the existing settlement of Abbeyvale and Swords Community College (16.52 ha), second the open space lands to the north adjacent to the Broadmeadow River (1.295 ha) and third the water storage tank at the junction of Glen Ellan Road and Balheary Road (0.563ha).



Figure 2-1. Aerial View of the Subject Site (approximate boundaries of the site outlined in red)

The southern site developable lands were formerly part of a larger dairy farm but more recently used for arable farming. Fields are defined by hedgerows and ditches, and the southern section of the site is divided into 3 fields marked by north-south hedgerows. The northern field boundary was removed to facilitate the construction of a link road to the new school campus (Main Street), but the southern field boundary remains. There are no constructed roads or services within the southern part of the application site, and there are two sets of overhead power lines crossing east to west.

A significant feature of the developable lands is the slope regime which falls from high ground in the southwest corner (OD 56.97) by approximately 22m to the northeast corner (OD 34.66). In contrast, the lands in the northern section of the townland are much flatter and lower. The elevated parts of the site have good long-distance views of Oldtown and Balheary in the north.

Known archaeological remains exist in the southeast corner of the developable lands, possibly a medieval ringfort, which are due to be fully archaeologically excavated in advance of development (preservation by record). It is likely there may be other remains to be discovered as the northern part of the Mooretown townland is rich in finds from many periods. Any new finds will be dealt with on a case-by-case basis, under the supervision of the consulting archaeologist.

The existing developments of Abbeyvale and Berwick back onto the south and southwest boundary of the developable lands. The south boundary comprises sections of hedgerow in varying condition and a number of properties have constructed garden sheds and other ancillary structures up to the legal property line. The southwest boundary is defined by a solid blockwork wall for the most part. There is an existing pocket park on Abbeyvale Court that provides the only possible physical link between the existing development and Mooretown. A pedestrian and cycle path linking the two has been granted planning permission.

2.3 Site Context

Mooretown is a townland on the western edge of Swords, south of the Rathbeale Road and bounded to the east and south by the existing housing estates of Cianlea, Ormond, Berwick and Abbeyvale. The lands to the west are agricultural, mostly dairy farming and some glasshouses for floriculture.

The subject site forms part of a landholding of c.37.55 ha in Moortown which is in the ownership of Gerard Gannon Properties. The subject site together with land to the north in the ownership of Gerard Gannon Properties is designated as part of the Oldtown-Mooretown Local Area Plan 2010-2016 (extended up to July 2020 and has since expired).

The site is bounded:

- To the west by the recently constructed Mooretown distributor road (part of the Western Distributor Link Road or WDLR) from which the main site access is taken. Planning permission has been sought and granted for an extension to the WDLR, F20A/0096, and this project is currently at tender stage. Beyond this is the open countryside.
- To the north by 'Main Street' which is an east-west spine road in the centre of the overall land holding. Beyond this to the north is a new school campus, comprising a large, new-built secondary school, Swords Community College, and a primary school in temporary accommodation, Broadmeadow Community School. Beyond the school, the first phase of residential development on the Mooretown lands is under construction at the northern end of the townland and adjacent to the Rathbeale Road. This phase has been named Cronan's Well, and comprises 283 dwellings and a creche, plus a large c.2 ha park at its centre. Planning permission has been granted for the second phase of Mooretown, Reg. Ref. F16A/0505, comprising 208 dwellings and a creche.
- To the south by the existing residential communities of Abbeyvale, Moortown.
- To the east by the zoned land making up the 'Oldtown-Moortown' zoned land.



Figure 2-2. Aerial View of the Subject Site [Note: redline developable site area indicatively shown only]

The site is accessed from the Rathbeale Road via the Western Distributor Link Road (WDLR), which will ultimately connect Brackenstown Road in the south to Lissenhall in the north of Swords. An east-west Main Street (F12A/0270) has been constructed linking the WDLR to the newly built school campus and which will provide access to the third-party lands in the east, and to the subject development lands in the south.

Within the Oldtown part of the zoned lands, to the north of the site beyond Rathbeale Road, substantial development has occurred since 2013. To date, 615 dwellings have been constructed and completed, comprising the smaller neighbourhoods of “Miller’s Glen”, “Longview”, and “Meadowbank”. The current construction phase is “Westmill”, and the first of 140 dwellings in this new character area are ready for occupation. There is an existing school campus on the Glen Ellan Road, comprising two primary schools (Swords Educate Together and Gaelscoil Bhrian Boroimhe) and a community hall, which forms the southern edge of the new village centre. The civic square, “Miller’s Square”, and two of three separate mixed-use apartment buildings on the square are complete. A large convenience store has recently opened, and a 2-storey creche has been constructed to shell and core, ready for a tenant.

A combined total of 498 dwellings and two crèches have been granted planning permission within Phases 1 and 2 of Mooretown lands, comprising 379 houses and 110 apartments, pocket parks and

the large “Watermill” park that crosses the northern section of the site from east to west. Phase 1 of developing Mooretown lands is currently under construction. A significant swathe of open space has already been provided by Gannon Properties as set out below.

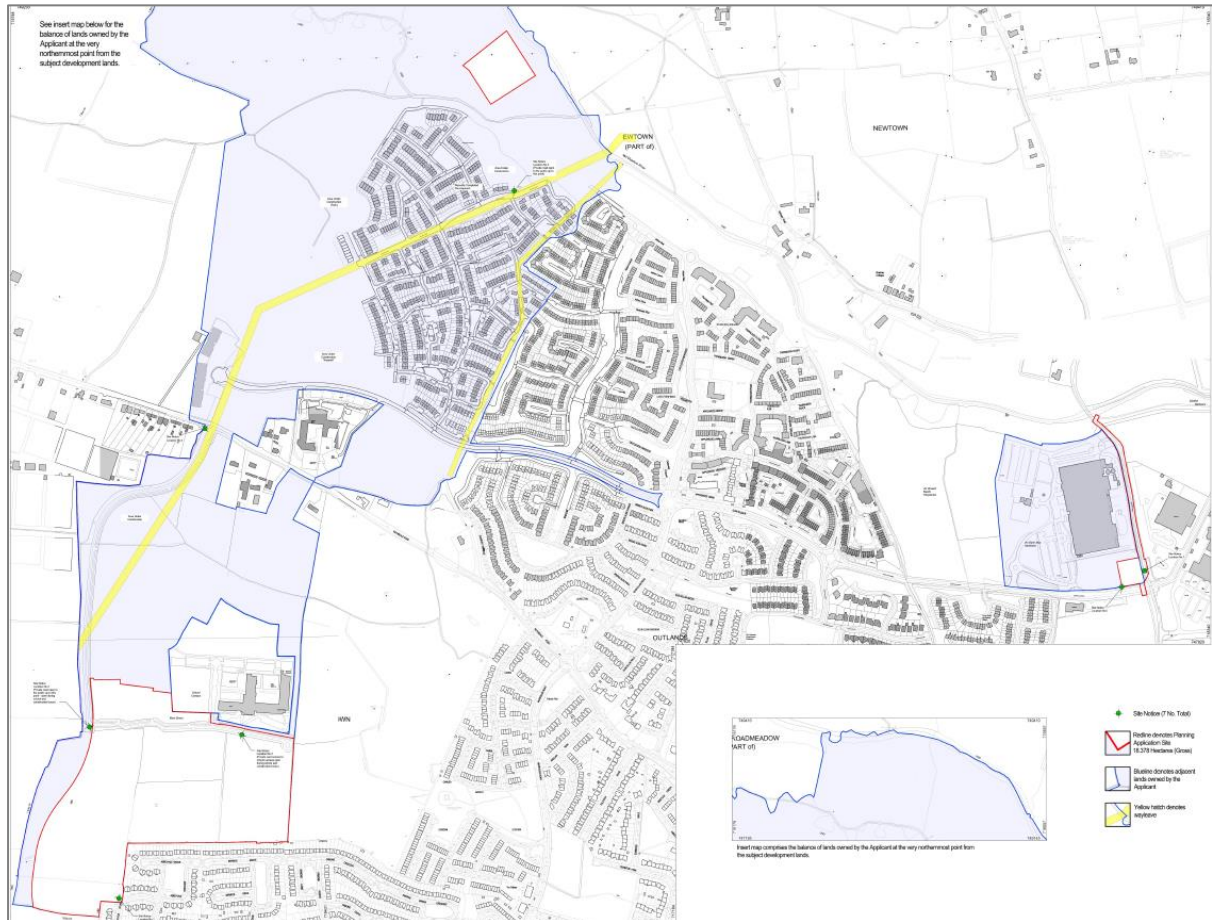


Figure 2-3. Site Boundaries within the Overall Landholding (source: CCK Architects)

2.4 Description of the Design

It was determined that in addition to the Fingal County Council zoning objectives pertaining to the subject site, the design of the development was guided by the relevant national, regional, and local policy documents and guidelines. Furthermore, the design brief for the development proposal was set to create an exemplar of sustainable design in harmony with the earlier phases of Mooretown to ensure all new development can be delivered in a manner that protects and enhances the biodiversity of the local environment, mitigates climate change, and delivers high energy efficiency in accordance with NZEB strategies in all typologies.

2.5 Description of Proposed Development

The proposed development will consist of a mixed-use residential neighbourhood of 650 dwellings comprising 265 houses, 113 duplex units, 6 triplex units, 266 apartments, a 519sqm childcare facility and 946sqm of retail and café uses clustered in a small village centre. The development includes all associated site works and infrastructure, including landscaped open space, internal road, paths, cycle paths, public lighting and drainage. The development also includes off-site drainage works for a stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River on lands at the junction of the Glen Ellan and Balheary roads.

The vision for this design strategy is to provide a pedestrian and cycle-friendly well-connected neighbourhood integrated with the surrounding environment, and which uses its pivotal location between the Broadmeadow River linear park and the Ward River Valley to join an emerging arc of green spaces and green walks on the western edge of Swords. A desire and greater appreciation for a quality bio-diverse public realm has grown as a direct result of the pandemic and due consideration is given to the provision of short, medium and longer walking routes within and beyond the development and thus the landscape strategy is the driver behind this planning application.

The urban pattern is legible and easily navigated. Landmark buildings on key corners and nodal points provide markers or 'way-finders' for visitors. Streets have wide pavements with continuous and active frontages, and a high percentage of own-door dwellings (72.15% of the 650 units) ensuring constant passive surveillance and safety. The nature trail and nature park hugging the boundaries make for a pleasant and bio-diverse foil to the more formal, active pocket parks.

This planning application is for the third and final phase of development on the Mooretown lands owned by the Applicant. It benefits from existing and permitted infrastructure, much of which has already been constructed. The gross site area is 18.37845 hectares, of which the net developable area is 14.45 hectares (when Class 1 open space, the existing Main Street link road and off-road cycle paths, the off-site drainage works and Greenbelt lands are omitted), giving a net density of 45 units per hectare.

The form, architecture and landscaping of the proposal are informed by context, by sustainability goals and by good urban design practice. The established neighbourhoods are characteristic of late C.20th suburbia, being single-entry estates of semi-detached houses on large plots, and having few pedestrian and cycle links. The proposed development has a permeable, tightly planned and fine-grained pattern, with variation in dwelling type, form and height, and with the provision of complementary non-residential uses (shops, cafe, other services).

The proposed Mooretown development takes every opportunity to make as many connections as it can to the surrounding area. The new distributor road and its permitted extension link to the Rathbeale Road and the Glen Ellan Road, thus linking directly to Oldtown (Millers Glen) and the regional and Broadmeadow parks to the north, and to Applewood Village and Swords in the east. It is an objective of the County Development Plan that this distributor road continues north to Lissenhall and the proposed metro stop, and south to the Ward River Valley and Brackenstown.

More immediate local connections are proposed to integrate the development with the adjacent permitted planning permission, 'Phase 2', Reg. Ref. F16A/0505, and provision is made for at least 2 other road connections to the east, thereby linking the zoned and undeveloped third-party lands that form the rest of the Mooretown townland.

The existing estates of Abbeyvale and Berwick present a continuous barrier to the south of Mooretown. There is a single opportunity to make a new connection between the two sites via a small pocket park on the corner of Abbeyvale Court that is owned by the applicant. Planning permission has been granted to make this pedestrian and cycle link.

A secondary street link can be provided in the southernmost corner of the development. The adjacent lands are not zoned for residential development at this time but making provision for a connection will future proof their long-term potential, particularly with regard to the continuance of the distributor road to Brackenstown.

2.6 Design Character and Boundary Treatments

Mooretown will have a unique character, distinct from the surrounding, established neighbourhoods, and distinct from the permitted and constructed development in Oldtown (Millers Glen), Mooretown Phase 1, Cronan's Well (F18A/0701, F18A/0751 and F19A/0029) and Mooretown Phase 2 (F16A/0505). The adjacent developments of Abbeyvale and Berwick are early 1990's estates of generally identical semi-detached houses typical of their time having a dendritic plan, many cul-de-sacs, single use building typologies, homogenous heights and roofscape.

The proposed development comprises 3-character areas: Main Street (the 'Village'), Mooretown East and Mooretown West. Variation in building type, scale, public open space, design consideration and materiality are layered to underpin distinct character in each of the 3 areas, with some common elements easing the transition between them.

The mixed-use village centre is the focal point for all of the Mooretown lands and consideration is given to the design of the central landmark buildings and generous civic spaces. The red brick gable-fronted facades of the village landmark buildings make them very identifiable, and they will be readily associated with the new school communities and residential cells alike.

Despite the differences between existing and new, the proposed development sits comfortably with its neighbours. Density and building height respect the established development to the south and integrate neatly with the permitted developments to the north.

Appropriate responses are made to boundary conditions, and it is proposed to retain, repair and enhance natural boundaries to the east and south as part of the overall landscape plan. A large nature park between the proposed development and the distributor road is to be constructed as part of the road works and will add to the visual and bio-diverse amenity of the western edge of the proposed development.

The proposed scheme provides housing of different types, sizes and tenures. The unit mix facilitates for all stages of life. There is a range of houses, own door duplex units and shared access apartments. It is envisaged that different tenures will be present, including Part V and cost-rental schemes. The

apartment development is designed to meet the format required for either individual sale or professional managed rental tenancies, and the 'Main Street' will have an emphasis on apartments, duplexes and own door simplex units suitable for elderly, vulnerable or retired people.

The proposed scheme for 650 new dwellings could accommodate c.1737 people. This sizeable population increase for the local area will support and enhance existing facilities (shops on Rathbeale Road, Applewood Village and Millers Glen, Oldtown) and the new small village centre planned as part of this development. The permitted phases of Mooretown comprise 491 dwellings, so the overall total will be 1141 dwellings or potentially 3000 people.

The recently completed school campus has the capacity for the new and growing population, and school halls are an asset for any new community that requires space for extra-curricular and alternative activities. The current proposal for shops, cafe, creche, home-office/small business uses, and the two new civic spaces are compatible with the scale of the Mooretown residential development. New pocket parks, playgrounds, natural play elements and a nature walk linking to the strategic green arc around western Swords promote a connection with the outdoors and a healthier lifestyle.

The site has a very different slope regime to its neighbours, falling by 22m from end to end, and has excellent long-distance views looking north, particularly from the higher ground in the south.

Table 2-1. Schedule of Accommodation

1-Bed Dwellings	2-Bed Dwellings	3-Bed Dwellings	4-Bed Dwellings	Total
76	193	356	25	650
12%	29.5%	54.5%	4%	100%

The location of Mooretown approximately half-way between the Broadmeadow River Park and the Ward River Valley makes it a potential key 'player' in linking these two linear parks to create a green arc or necklace of open spaces and woodland walks around the western edge of Swords.

Gannon Properties have already provided 8 ha of Class 1 open space along the Broadmeadow River, have transferred 22 ha of land for the Swords Regional Park, are currently developing another 8.65 ha of open space for the same Regional Park as part of the Oldtown (Millers Glen) development, and a 3.9 ha archaeology park on the Rathbeale Road. Gannon Properties have also transferred the 4.9 ha Mill Site in the Ward River Valley and a 0.43 ha site on Church Road to Fingal County Council to enable their consolidation of the Ward River Valley. In all, Gannon Properties have contributed c.47.9 ha of public open space since 1998, exclusive of internal pocket parks and Class 2 open space. That is roughly equivalent to 37.5 Croke Park pitches or 5.3 St. Stephen's Greens.

Mooretown is one potential piece of the green network infrastructure that can create many new connections to the wider neighbourhood. Externally, it can connect directly to (i) the permitted phases of Mooretown Phase 1 and 2, (ii) Abbeyvale and (iii) the third-party lands east of the site and can set up future connections to Brackenstown and the Ward River Valley. Internally, Mooretown integrates pedestrian and cycle routes through and around the development site, enhanced by pocket parks, active open spaces, nature trails and traffic-calmed streets with wide pavements and large, leafy trees.

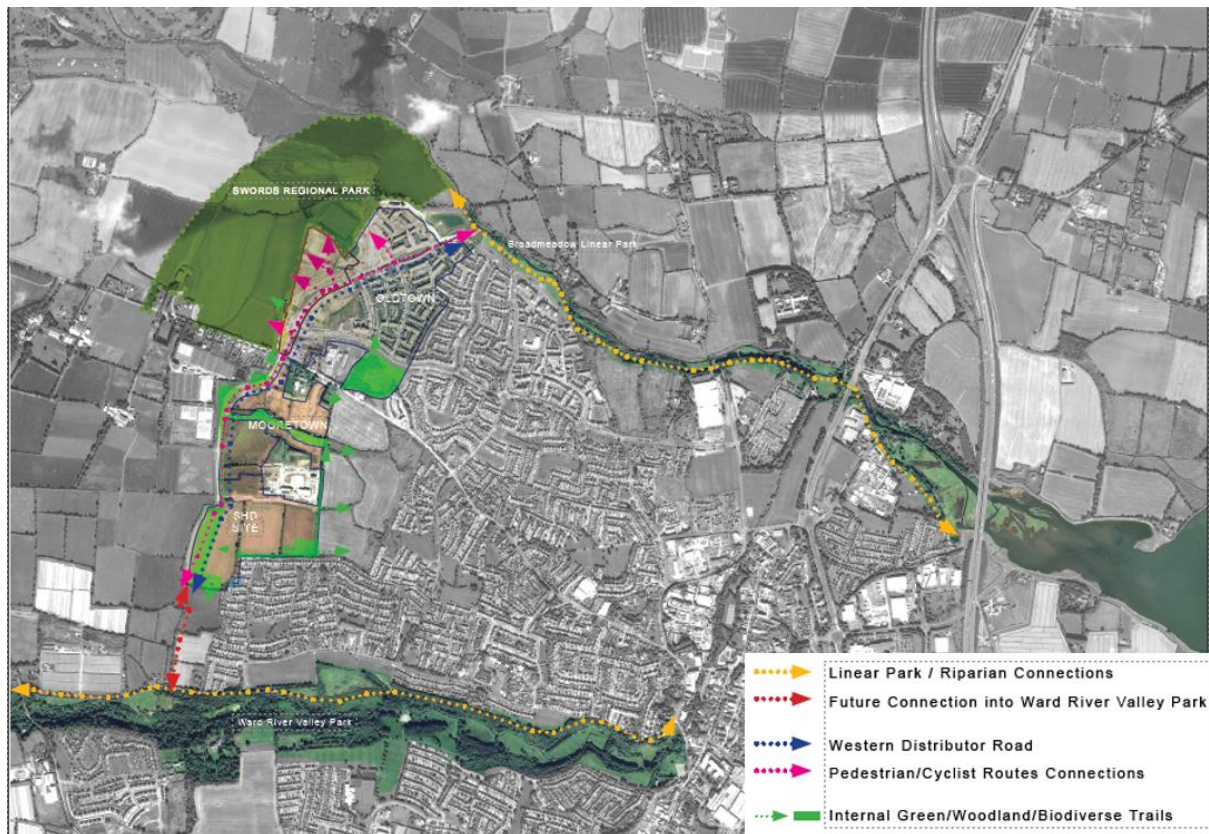


Figure 2-4. Green links and strategic context for Western Swords

2.7 Characteristics of the Proposed Development

The following provides a detailed overview of the characteristics of the proposed SHD.

2.4.1 Site Location

The proposed development is located on lands to the south of Rathbeale Road and to the south of and north of Main Street and southeast of Mooretown Distributor Road (Western Distributor Link Road), Mooretown, Swords, Co. Dublin, with associated engineering works on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road, Swords, Co. Dublin.

2.4.2 Site Area

The application site comprises greenfield land, road and verge which is 18.378ha in size. As depicted in Figure 2-1, it comprises three main parts, first the developable lands in the southern section of the site between the existing settlement of Abbeyvale and Swords Community College (16.52 ha), second the open space lands to the north adjacent to the Broadmeadow River (1.295 ha) and third the water storage tank at the junction of Glen Ellan Road and Balheary Road (0.563ha).

2.4.3 Density of Development

As outlined earlier, the site application subject extends to approximately 18.378ha. The quantum of developable land for the provision of housing and directly associated uses stands at 14.47 hectares providing an average residential density of 45 uph which is calculated as follows:

- Overall Site Area Subject to this SHD Application: 18.378 ha
- Net Site Area: 14.47 ha
- Net Density: 650 units ÷ 14.47 ha = 45 uph

With respect to the Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas (May 2009), which recommends a net density of 35-50 dwellings per hectare on “Outer Suburban/Greenfield” sites, the proposed development falls comfortably in the higher end of the suggested range. As per, the residential density of the proposed development this is consistent with the DEHLG Guidelines on “*Sustainable Residential Development in Urban Areas and Best Practice Urban Design Guidelines (2009)*” and accompanying Design Manual.

In light of the objectives and constraints associated with the development site, it is considered that the density proposed represents an optimum design solution and an efficient use of the site.

2.4.4 Detailed Description of Proposed Development

The proposed development, as per the description contained within the statutory planning notices, provides for:

We, Gerard Gannon Properties, intend to apply to An Bord Pleanála for a 10 year permission for a strategic housing development at lands to the south of Rathbeale Road and to the north and south of Main Street and to the east and southeast of Mooretown Distributor Road (Western Distributor Link Road), Mooretown, Swords, Co. Dublin, with associated engineering works on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road, Swords, Co. Dublin.

The development will consist of the construction of a total of 650 no. residential units (265 no. houses, 187 no. apartments, 6 no. triplex units, and 192 no. duplex units [comprising 113 no. duplex ‘house’ units and 79 no. duplex ‘apartment’ units]), 1 no. childcare facility, 5 no. retail units and 1 no. café/restaurant, all of which will be provided as follows:

- *265 no. residential houses (240 no. 3 bed houses, and 25 no. 4 bed houses) in detached, semi-detached, end-terraced, and mid-terraced houses ranging from two to three storey in height;*
- *Duplex Block A containing a total of 12 no. units comprising of 2 no. 1 bed units, 3 no. 2 bed units, and 7 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block B containing a total of 9 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; 1 no. retail unit at ground floor level with associated signage; car parking and bicycle spaces, and bin stores;*
- *Duplex Block C containing a total of 14 no. units comprising of 3 no. 1 bed units, 3 no. 2 bed units and 8 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*
- *Duplex Block D containing a total of 10 no. units comprising of 1 no. 1 bed unit, 3 no. 2 bed units and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;*

- Duplex Block E containing a total of 12 no. units comprising of 2 no. 1 bed units, 3 no. 2 bed units and 7 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block F containing a total of 9 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; 1 no. retail unit at ground floor level with associated signage; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block G containing a total of 14 no. units comprising of 3 no. 1 bed units, 3 no. 2 bed units and 8 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block H containing a total of 5 no. units comprising of 2 no. 2 bed units and 3 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block I containing a total of 7 no. units comprising of 2 no. 1 bed units, 1 no. 2 bed unit and 4 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike stores; car parking and bicycle spaces, and bin stores;
- Duplex Block J containing a total of 7 no. units comprising of 2 no. 1 bed units, 1 no. 2 bed unit and 4 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block K containing a total of 16 no. units comprising of 5 no. 1 bed units, 2 no. 2 bed units and 9 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block L containing a total of 8 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 5 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block M containing a total of 8 no. units comprising of 3 no. 2 bed units and 5 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block N containing a total of 4 no. units comprising of 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block O containing a total of 11 no. units comprising of 4 no. 1 bed units, 1 no. 2 bed unit and 6 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block P containing a total of 5 no. units comprising of 2 no. 2 bed units and 3 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block Q containing a total of 15 no. units comprising of 1 no. 1 bed unit, 5 no. 2 bed units and 9 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;
- Duplex Block R containing a total of 7 no. units comprising of 2 no. 1 bed units, 1 no. 2 bed unit and 4 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; internal bike store; car parking and bicycle spaces, and bin stores;

- Duplex Block S containing a total of 5 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block T containing a total of 5 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block U containing a total of 5 no. units comprising of 1 no. 1 bed unit, 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Duplex Block V containing a total of 4 no. units comprising of 2 no. 2 bed units and 2 no. 3 bed units, in a building three storeys in height, and all units provided with private balconies/terraces; car parking and bicycle spaces, and bin stores;
- Apartment Block A containing a total of 40 no. units comprising of 10 no. 1 bed units, 24 no. 2 beds, and 6 no. 3 bed triplex units with all units provided with private balconies/terraces, in a building five storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; car parking within the undercroft car park and on-street, and bicycle parking;
- Apartment Block B containing a total of 70 no. units comprising of 24 no. 1 bed units and 46 no. 2 bed units with all units provided with private balconies/terraces, in a building one to five storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; 2 no. retail units at ground floor level with associated signage; car parking within the undercroft car park and on-street, and bicycle parking;
- Apartment Block C containing a total of 8 no. units comprising of 8 no. 2 bed units with all units provided with private balconies/terraces, in a building three to four storeys in height, with internal bin stores and plant rooms at ground floor level; 1 no. retail unit at ground floor level with associated signage; car parking within the shared parking court; bin stores and bike stores; and bicycle parking;
- Apartment Block D containing a total of 8 no. units comprising of 8 no. 2 bed units with all units provided with private balconies/terraces, in a building three to four storeys in height, 1 no. café/restaurant unit at ground floor level with associated signage; car parking within the shared parking court; bin stores and bike stores; and bicycle parking;
- Apartment Block E containing a total of 46 no. units comprising of 3 no. 1 bed units and 43 no. 2 bed units with all units provided with private balconies/terraces, in a building five storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; car parking within the parking court and on-street, and bicycle parking;
- Apartment Block F containing a total of 21 no. units comprising of 6 no. 1 bed units and 15 no. 2 bed units with all units provided with private balconies/terraces, in a building four storeys in height, with internal bicycle stores and bin stores at ground floor level; car parking within the parking court and on-street, and bicycle parking;
- 1 no. childcare facility in a one to two storey building, with associated outdoor play area, car parking and drop-off/visitor parking, bicycle parking, and bin stores.

The development will provide for a total of 991 no. car parking spaces within the scheme; a total of 1141 no. bicycle spaces serving the apartments, triplex units, duplex units, childcare facility and commercial units; proposed new vehicular accesses onto Main Street and onto Mooretown

Distributor Road (Western Distributor Link Road) which is partly constructed and also permitted under Reg. Ref. F20A/0096; proposed upgrades to public realm including footpaths, a new pedestrian/cyclist link via Abbeyvale Court, landscaping including play equipment, boundary treatments, and public lighting; and all associated engineering and site works necessary to facilitate the development including the proposed stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River with associated manholes on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road, along with the proposed vehicular/service access onto Balheary Road, Swords.”

2.4.5 Demolition Works

There are no existing permanent structures or other features on the site requiring demolition to facilitate the development.

2.4.6 General Layout

The site layout is a permeable, legible and attractive network of residential character areas, streets and spaces. Streets in particular are designed as spaces in their own-right and create a hierarchy of space where pedestrians are considered first.

Desire lines to Main Street and the village centre follow direct but also slightly more organic routes by foot, bike or car. A nature trail hugging the east boundary and the larger nature park on the west boundary provides attractive alternatives to the most obvious and shortest route.

Internal streets are tree-lined, with varying building types, forms and heights. Parking is a mix of on- and off-street, parallel, perpendicular and chevron. There are advantages and disadvantages to on and off-street, but a combination of the two is key to a more interesting neighbourhood. Homogeneity in the streetscape of a large development is to be avoided and parking solutions is one such means of doing this.

Continuous and active edges provide enclosure and passive surveillance contributing to the comfort of pedestrians and cyclists. All residential buildings ‘turn the corner’ with specially designed end-units that present a public face at street junctions, and blank rear garden walls are kept to a minimum by the use of single-storey rear extensions and by ‘backless’ wide-fronted houses that have shorter rear gardens.

Traffic speed within the development is calmed by design, using DMURS as a guiding reference. One-way systems are proposed on particular streets where dispersion of traffic is desired, and cyclists can enjoy the benefits of a counter-flow and/or ‘taking the lane’.

Apartment and duplex buildings are generally laid out as larger perimeter urban blocks, presenting active frontages to the public realm. Communal open space for the residents is enclosed in the internal courtyard where it is overlooked and defensible by the residents.



Figure 2-5. Proposed site layout CCK Architects)

2.4.7 Building Height and Form

Mooretown SHD is a mid to high density development of 45 units per hectare, which is deemed to be appropriate for an outer suburban site that does not, at present, have the benefit of immediate and high-quality public transport.

Higher density apartments and terraces of duplex units are generally clustered close to Main Street, beside schools, shops and services. The balance of the site layout is populated by 2 and 3-storey terraced houses, with landmark duplex and apartment blocks at key junctions or nodes where they provide create visual interest and character, such as Apartment Block F, a 4-storey pavilion block in the southwest corner of the site and on the highest point.

It is noted that the heights being proposed are suggested to be consistent with national planning guidelines, particularly the *“Urban Development and Building Heights Guidelines for Planning Authorities (December 2018)”*.

2.4.8 Nodes, edges, and landmark buildings

There are a number of nodal points that offer areas of activity and focus at intersections on the desire lines of the proposed layout. A nodal point to the north of the site connects the boulevard into the main street which will offer amenities such as cafés and shops. To the west, nodal points are created linking the development into the proposed linear park that will form part of the necklace of green infrastructure to the Swords regional park to the north and the Ward River valley park to the south

Movement routes between nodal points have been identified and will be integrated into the site layout, these offer the provision of high quality, direct, safe and secure routes that connect the key locations along the desire lines. Connections are provided by way of primary, secondary and tertiary routes along with giving priority to pedestrians and cycles that encourage legible permeability.

Connections between nodes are all defined by clear edges that will offer passive surveillance by active frontages. The avoidance of blank garden walls, gables will be achieved by the use of high-quality treatment for buildings that 'turn the corner'. Connections between nodal points will also be provided with good visibility and preference is given to pocket parks over narrow alleyways.



Figure 2-6. Nodes, edges and landmark buildings

There are a number of landmark buildings proposed that will aid wayfinding and legibility within the development. These are set at key intersections within the layout.

1. The T-junction at the north intersection of Central Boulevard with Main Street is marked by pair of mixed-use red-brick buildings (apartment Blocks C and D) with shops and a cafe at ground level. They open out east and west onto two civic squares landscaped with external seating, raised planting and mature tree planting. The distinctive gable elevations are a nod to the many glasshouses located in this part of north county Dublin, some of which are visible from the Mooretown distributor road. Similarly, a series of three storey terraced houses mirror the gables

of Apartment Blocks C + D at the southern end of the Central Boulevard visually linking the two ends of the street.

2. The west elevation of Apartment Block A, at the junction of the distributor road and Main Street, echoes the same gable facades and marks the primary entrance to the village centre and the new development.
3. The southwest corner of the site provides a high point on the slope; a 4-storey building overlooking the nature park and Mooretown distributor road creates a focal point assisting in the local sense of identity and place (Apartment Block G).
4. A 3-storey L-shaped duplex building at the southern end of Central Park will assist in closing the vista from North Street and Park Boulevard (Duplex Block T). This block has a strong roof profile and defined gables.
5. A pair of mirrored duplex blocks (Type N and O) bookend a terrace of 3-storey houses on the east side of Central Park. The gable motif is a recurring theme of the

2.4.9 Communal and Public Open Space

Public open space is provided at a rate of 25 sq. m per bedspace, of which 11.9% of the developable site area is provided on site as public open space. The total number of bedspaces is calculated at 1,737 and the total area of public open space required is 43,425 sq. m

Table 2-2. Open Space Requirement

Units	No. of Each	x Bedspaces	Total Bedspaces	x area	Open Space Required
1 & 2 Bed	269	x 1.5	403.5	x 25 sqm	10,087 sq. m
3 & 4 Bed	381	x 3.5	1,333.5	x 25 sqm	33,337.5 sq. m
Total	650	-	1,737	x 25 sqm	43,425 sqm

The location and area of each plot of public open space is depicted on Figure 2-7 and described in Table 2-3. Taken together, these demonstrate that of the 43,425 sq. m of public open space required, 1,7232 sq. m (1.72 ha) is to be provided within the proposed scheme. This is 11.9% of the net development lands (14.47 ha), calculated at 14,474 hectares. The balance of 26,193sqm is to be provided on OS zoned lands as part of the regional park.

Formal play equipment is provided where appropriate as well as along the perimeter nature walk and likely to be an asset rather than a nuisance as play equipment in smaller spaces can be a problem in terms of noise for nearby houses. A local playground is to be provided in the Central Park and the Archaeology Park. Pocket parks offer generous spaces to accommodate an informal kick-about area. A much larger playground with different zones for younger and older children is to be developed in the regional park. This playground is co-located with the playing pitch, MUGA and a trail of fitness stations.

These figures, the plan and table are best read in conjunction with the Architect and Landscape Architects Drawings provided as part of the planning application package, but are summarised for the purposes of this EIAR.



Figure 2-7. Location of 'Class 2' public open space within and adjacent to the development CCK Architects)

Table 2-3. 'Class 2' Public Open Space Provided

Park	Area (sq. m)	Description
East Square	1,137	Multi-purpose civic space in front of the primary school and linked to East Square by a wide path
West Square	416	Smaller, more intimate west-facing civic space with 'spill-out' from the shop/café and linked to East Square by a wide path
Pocket Park 01	735	Small amenity park buildings close to the edges on two sides
Pocket Park 02	500	Small active space on the eastern nature walk.
Central Park	5,647	Large park with space for active play and kick-about
Ringfort Park	8,588	Large Park with space for active play and kickabout. Links directly into the eastern nature walk.
Abbeyvale	209	New open space to be contiguous with the existing park in Abbeyvale
Total	17,232	

The public open space is designed to provide a clear definition of open space as public and communal, as distinct from private, and the organization of pocket parks define sub-character places within the scheme, e.g., the Central Park is a highly legible triangular space that helps to orientate visitors in the most intensely planned part of the development.

2.4.9 Car & Bicycle Parking

A total of 991 parking spaces are proposed for this development. Of these, 880 spaces are to be designated for residents, 95 for visitors, 6 for Go-Car, 3 for staff creche, and 6 for creche drop-off and collection. The mean rate, at 976 units for 650 dwellings, is 1.5 spaces per dwelling.

Parking for the shops and café is proposed to be shared with the creche drop-off and the residential visitor parking, performing a double-job for retail use during working hours, and visitor use in the evenings and weekends.

Table 9 outlines the amount and designation of residential car parking proposed on a block-by-block basis. In general, 2 spaces are proposed for every 3-4 bedroom house and 1 space for every apartment or duplex unit. The reservation of 6 spaces for the provision of a Go-Car scheme will compensate for the small shortfall and hopefully encourage residents to choose public transport, cycling and Go-Car over owning 2, or even 1 private cars.

The creche in Urban Block 4 has 3 off-street staff spaces and 6 drop-off on-street spaces; these parking spaces have not been included in the residential schedule below. The drop-off spaces are parallel bays on the left-hand side of the carriageways around the block to mitigate against reverse movements and to make the street as safe as possible for families with small children. Staff parking is off-street and is not considered a risk; most staff will have parked or left after drop-off and collection times.

EV Charging Points

Charging points for electric cars will be provided on-curtilage for all private dwellings. This is generally an electrical point on the metre wall, to which a socket for a particular vehicle can be fitted. EV charging points for managed parking courts and on-street spaces will be provided at a rate of 10% across the site. These are provided in the form of a bollard, usually between two parking bays, and often include a designated disabled parking space and, within this phase of the development, a Go-Car space so that EV may be an option for that entity.

Disabled Parking Bays

Disabled parking bays have been identified on the Architects site layout and are provided at a rate of 5% for all duplex and apartment blocks. They are located where they are easily identifiable to residents and visitors alike, accessible and well-overlooked. They can be either on-curtilage (i.e. management company) or on-street (i.e. intended to be taken-in-charge)

Parking Variation & DMURS

Different types of car parking bays are proposed in the development: on-curtilage to the front or side, on-street parallel bays, on-street perpendicular bays, privately managed communal parking courts and under-croft parking. Whereas the Development Plan looks for residential parking for private house to always be on-curtilage this is not always possible nor is it the best design solution.

DMURS advocates for well-designed on-street parking as a means to calm traffic by (i) increasing driver caution, (ii) visually reducing the carriageway and (iii) reducing forward visibility, and (iv) by adding to the vitality of the community by supporting local retail, social and commercial activities by the generation of pedestrian activity as people come and go from their vehicles.

This is particularly true for the duplex blocks and larger apartment blocks which have a blend of on-street, on-curtilage parking courts and covered (podium) parking bays. Activity generated on all sides of the building as people come and go makes for a vital and neighbourly community.

The variation in type and location of car parking spaces within the development makes for a more interesting and characterful neighbourhood than one with a homogeneous pattern of 2-car driveways fronting every dwelling. There is a terrace of 7 houses fronting Main Street, opposite the café, shop and primary school which can't be parked to the front on-curtilage due to constraints on Main Street regarding reverse parking movements. These houses are proposed to be parked to the rear on a mews court (Road 3.3) and will have two freehold spaces each and rear access to their property via a secure gate. The mews is populated another 4 dwellings, so the spaces will be overlooked and secured by passive surveillance. (See Section 4.11 for an example).

Table 2-4. Car Parking Schedule

Urban Block	No. of Dwellings	Residents Spaces	Visitor Spaces	Go-Car	Total
Urban Block 1	48	44	9	1	54
Urban Block 2	70	52	15	1	68
Urban Block 3	20	19	6		25
Urban Block 4	57	55	11		66
Urban Block 5 (creche below)	21	42			42
Urban Block 6	49	53	10	3	66
Urban Block 7	78	78	16	1	95
Urban Block 8	36	58	7		65
Urban Block 9	20	40			40
Urban Block 10	30	61			61
Urban Block 11	38	49	4		53
Urban Block 12	26	52	2		54
Urban Block 13	14	23	4		27
Urban Block 14	18	36			36
Urban Block 15	33	66			66
Urban Block 16	8	16			16
Urban Block 17	41	61	8		69
Urban Block 18	43	76	3		79
Creche		3 staff	6 staff		9
Total	650	884	101	6	991

Bicycle parking

Bicycle parking is to be provided in accordance with Section 4.15 of the 2020 guidelines Design Standards for Apartments. A total of 1141 spaces are to be provided, divided between residential bike parking spaces, visitor bike parking spaces, creche staff and visitor parking and short-stay parking spots on Main Street and West Square close to the shops and café.

Duplex and apartment buildings will have a secure, accessible and sheltered purpose-built store. These are integrated into the ground floors of the apartment blocks and are provided as either integrated or stand-alone external storage buildings for duplex units.

Different types of bike racks will be provided: vertical racks are very efficient but not the most-user friendly for less than able-bodied persons, whereas Sheffield stands are universally accessible and will be provided in combination with the vertical racks. Space will be made for cargo bikes and trailers. Visitor bike racks will be Sheffield stands located close to entrances and in the public realm if suitable.

Houses are proposed to secure and store their bicycles on their own private property. All end-of-terraced houses have a secure gate to their rear gardens and bikes can be stored there. Terraced houses do not have rear access to their private gardens and while bikes can be wheeled through the house it is not always ideal. Storing and securing bikes to the front of terraced houses is a growing trend and there are many ways to do this.

The simplest measure is to install a cycle hoop or 'Sheffield' stand on the driveway or threshold of the house, usually to the side where it won't impede access or parking. Gerard Gannon Properties will provide a lockable hoop or stand to the front of every mid-terraced house as part of their external landscape works.

2.4.10 Drainage Infrastructure

Proposed Foul Water

It is proposed to drain wastewater in a north-easterly direction through a series of 150mm and 225mm sewers as can be seen on Drainage Layout drawing number: P1200. There are 7 No. connection points, 1 No. to the foul network in the Mooretown distributor road extension (planning permission granted F20A/0095) and 4 no. to the foul network in the Mooretown school access road (construction completed). The remaining 2 No. Connections will be for the Phase 3 lands north of the School Access Road, which will connect to the permitted phase 2 drainage network. The foul network in the Mooretown Distributor Road Extension will flow north and connect to the foul network in the Mooretown School Access Road which in turn flows easterly and then northerly along the eastern boundary of the School Campus. It then connects to the foul network in Mooretown Phase 1 (currently under construction) before outfalling to the 500mmØ foul sewer crossing the Rathbeale Road.

A pre-connection enquiry was submitted to Irish Water. The subsequent confirmation of feasibility letter dated February 3rd, 2022, included as Appendix A, advises of the downstream constraints and the requirement of a storage tank.

The required storage tank has been designed in conjunction with Irish Water input on volumetric storage capacity and was lodged as a planning application to Fingal County Council by the subject applicant. The application was registered under planning Reg. Ref. F21A/0476 and is currently a live application at Additional Information stage which is due for decision in mid-April 2022 (current status at the time of writing this report). Thus, it was deemed appropriate to propose the tank and the associated works as part of this SHD application.

The accompanying Waterman Engineering Assessment (EAR Ref: 21-011r.008), Flood Risk Assessment (FRA Ref: 21-011r.009), Construction, Environmental Management Plan (CEMP Ref 21-011r.010) reports and associated drawings as provided prepared under separate cover for this tank, which is similarly submitted and applied for as part of this SHD planning application.

A Statement of Design Acceptance for the subject site has been received from Irish Water and is similarly appended in Appendix A of the Engineering Report which accompanies this planning application.

Proposed Surface Water

Mooretown Phase 1's parent planning permission (F15A/0183) and the adjacent Mooretown Road Extension (F14A/0012) were designed to accommodate the attenuation volumes for the entire Mooretown LAP lands including the subject application site: Mooretown Phase 3, within the Watermill Park and Mooretown Road detention basins and ponds, before discharging at restricted greenfield rates to the Mill Stream. The Mill Stream traverses the Mooretown site, west to east. In this regard, we refer you to the catchment drawing submitted and permitted as part of the Mooretown 1 parent planning permission. The proposed development drainage layout and overall Mooretown drainage strategy layout drawings is shown on P1200 and P1210 respectively, identifying drainage routing within the proposed development and the greater Mooretown area, in accordance with the overall drainage strategies outlined above.

The local surface water piped network within the proposed development will be designed to accommodate flows from the 1 in 5-year storm. As noted above, the 1 in 100 storm events (plus 20% to accommodate climate change) shall be catered for in the permitted Watermill Park and Mooretown Road detention basins and ponds constructed under parent planning permission F15A/0183 and the adjacent Mooretown Road planning permission F14/0012. In this regard, we again refer you to the surface water layout drawing P1200 & P1210 showing the network for surface water within Mooretown 3 and the connecting Mooretown surface drainage strategy to the respective catchment outfall ponds.

Similar to the approved Mooretown Phase 1 Strategy, the proposed development will also incorporate similar SuDS features as an integral part of the surface water strategy and design process. This strategy is based upon recommendations in the Greater Dublin Strategic Drainage Study (GSDSDS) and in the Ciria SuDS Manual. The approved Mooretown Phase 1 design incorporates a storm water management approach across the entire development through the use of various SuDS techniques. Typical proposed Mooretown SuDS details have been provided on accompanying drawing P1230.

FCC's SuDS checklist, required to be submitted as part of the planning application package, is included as Appendix D of the Engineering Assessment submitted with this planning application.

Based on three key elements, Water Quantity, Water Quality and Amenity, the targets of the Mooretown SuDS Strategy are:

- Water Quality Protection – in receiving watercourses and groundwater.
- Stream Regime Protection – minimisation of ecological/physical impacts on receiving streams.
- Level of Service Protection – protection of the site from flooding of the drainage system.

- Stream Flood Protection – minimising the risk of downstream flooding.
- Site Flood Protection – control of flooding of the site during extreme events.
- Amenity – Ponds/wetlands can be visually attractive & add to the character of developments. ☐
- Source Control - Individual house or structure.
- Site Control - A site or phase within the subject lands.
- Regional Control – An entire catchment, i.e. Oldtown or Mooretown.

A SUDS train concept has been implemented in the design of the storm water systems for the subject development as a whole:

Potable Water

An application has been made to Irish Water, requesting a Confirmation of Feasibility letter. This application has a reference number of: CDS21002769 and the subsequent Confirmation of Feasibility Letter was issued dated 3rd February 2022. This letter is included as Appendix A of the Engineering Report that accompanies this application. This letter does not note any local upgrades required but does request the location of 2 No. connection points to serve the proposed development.

It is proposed to serve the site by utilising a series of 100mm and 150mm diameter mains. The network routing and connection points have been shown on water layout drawing P1300. As indicated on P1300, the internal Mooretown Phase 3 water network is proposed to connect to the adjacent 300mm diameter main within Mooretown Distributor Road Extension, to the 150mm diameter main within the Mooretown School Access Road, and also as specifically requested by Irish Water, to the 150mm diameter main within the Abbeyvale residential development.

A Statement of Design Acceptance has been received from Irish Water and is similarly appended in Appendix A of the Engineering Report.

2.8 Construction and Phasing

The Mooretown lands are zoned RA (new residential communities subject to the provision of the necessary social and physical infrastructure) under the Fingal County Development Plan 2017-2023 and were subject to the Oldtown-Mooretown Local Area Plan 2010 before it expired in July 2020. The primary objectives of the LAP are recognised and considered in the preparation and detailed design of this planning application.

There are a number of extant planning permissions for the Mooretown lands, summarised in Table 01 below. A combined total of 491 dwellings and 2 crèches have been granted planning permission. Of these, 223 dwellings and the creche are under construction.

This being the last phase of Mooretown, the proposed SHD development will benefit from new and completed educational infrastructure, transport and drainage infrastructure and the support of a growing community of new residents. The new amenities in Miller's Glen, such as the existing primary school campus, the civic space with its convenience shop are c.1km from the development by road and cycle lane, and the main entrance to the new regional park (from Park Avenue in Miller's Glen) is 1.3km away.

Table 2-5. Extant planning permissions on the Mooretown Lands

Reg. Ref.	Description	Status
F15A/0183	Parent Permission for Mooretown Phase 1. 248 dwellings & creche granted.	Revised by subsequent permissions to change house types
F15A/0183/E1	Extension of duration of planning permission for Phase 1	Granted
F12A/0270	North section of the 'Western Distributor Link Road' (WDLR) within the Mooretown lands	Constructed
F14A/0012	'Main Street' from WDLR to school campus	Constructed
F16A/0505	Parent Permission for Mooretown Phase 2. 215 dwellings & creche granted.	Granted, not commenced
F17A/0128	Revisions to part of Phase 1 to change house types	Granted, but not actioned
F17A/0358	Revisions to part of Phase 1 to change house types	Granted, but not actioned
F17A/0316	Advertising sign for Mooretown development	Refused
F17A/0650	Permission for pylon to facilitate undergrounding of 110kV overhead power line	Granted, not commenced
F18A/0102	Wall to western boundary to secure farmland	Constructed
F18A/0163	Permission for school campus	Constructed
F18A/0701	'Phase 1A' revisions to parent permission Phase 1 to change house types. 99 units & creche granted.	Commenced
F18A/0751	'Phase 1B' revisions to parent permission Phase 1 to change house types. 90 units granted.	Enabling works commenced
F19A/0029	'Phase 1C' revisions to parent permission Phase 1 to change house types. 94 units granted.	Enabling works commenced
F19A/0641	Southern section of the WDLR within Mooretown	Invalid (site notice)
F20A/0095	Pedestrian and cycle link to Abbeyvale	Decision to grant 29.03.21
F20A/0096	Southern section of the WDLR	Granted

The current status of completed and under construction activities on land within Gannon's ownership within the wider Mooretown landholding is summarised as follows:

Existing / completed development

- New primary school in Mooretown: Broadmeadow Community NS
- New secondary school in Mooretown: Swords Community College
- Two primary schools in Miller's Glen: Gaelscoil Bhriain Boroimhe and Swords Educate Together (1.2km away)
- Applewood Community Centre in Miller's Glen: indoor sports, fitness, dance and children's activities (1.2km away)
- High-quality civic square & meeting place in Miller's Square
- Local convenience shop in Miller's Square (1.2km away)
- Full size playing pitch in the regional park

Under construction

- 223 dwellings in Mooretown Phase 1 (Cronan's Well)
- Creche: a creche is under construction in Cronan's Well
- Pharmacy in Miller's Square, Miller's Glen
- Changing rooms & car park for the regional park
- Playgrounds: large-scale within regional park
- Mixed-Use Games Area within regional park
- Passive and informal open space within the regional park
- Passive and natural play within the Rathbeale Archaeology Park

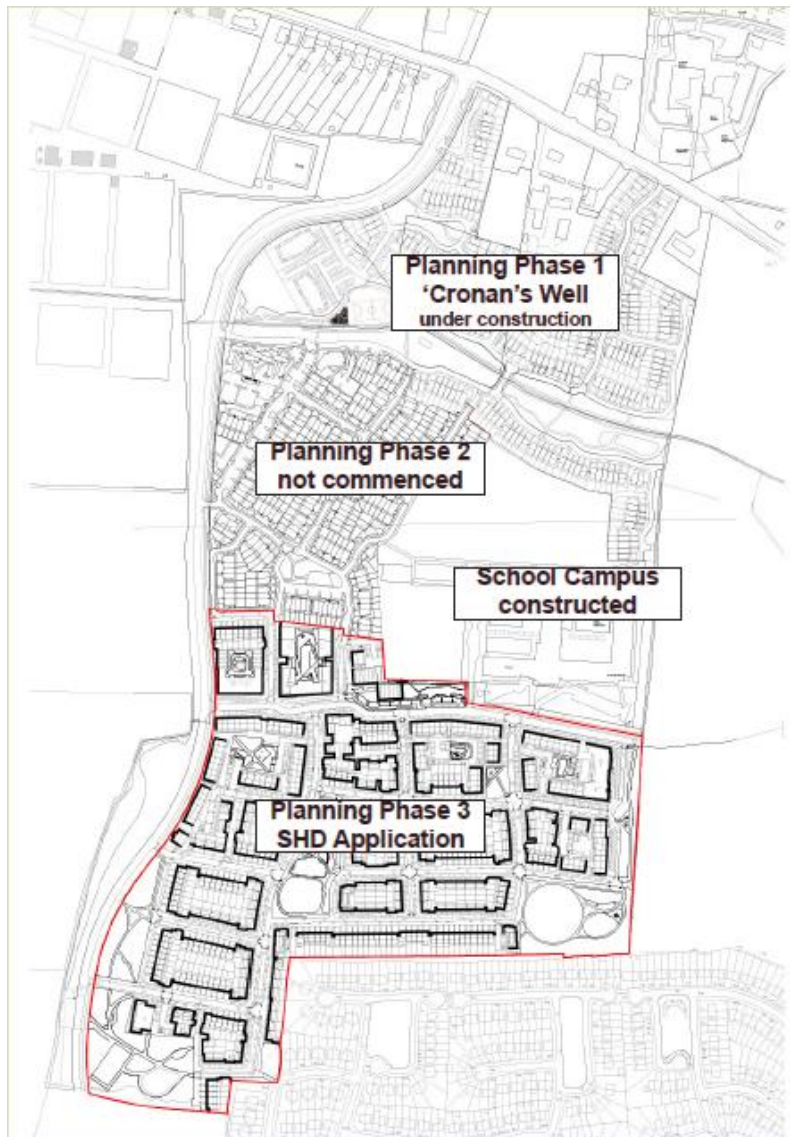


Figure 2-8. Gannon Landholding Mooretown: Current status of construction and implementation (CCK Architects)

It is proposed that this final phase will be constructed over the course of 5-10 years in three large construction phases, leaving pockets or blocks of development complete and occupied in an orderly manner as construction proceeds.

2.9 Emissions and Waste

Please refer to Chapters 7.0, 8.0 and Chapter 10.0 of this Environmental Impact Assessment Report for a full assessment of the impact of the proposed development on emissions and waste arising in relation to air and water quality, and climate. All spoil and waste material will be removed to an approved location and storage of construction materials in public areas will be minimised. Excavated material may be temporarily stored on site, with excess material to be removed off-site. All oil/diesel stored on site will be in suitable containers which will be located in a purpose-built bunded area, which will provide containment in the event of accidental spills. Such waste will be handled and/or off appropriately in line with Waste Legislation.

2.10 Description of Reasonable Alternatives

This section of the EIAR focuses on alternatives that were considered during the preparation of this EIAR and planning application. It has been carried out by Part 1(d) of Schedule 6 of the Regulations which requires: “An outline of the main alternatives studied by the developer and an indication of the main reasons for his or her choice, taking into account the effects on the environment.” It also has close regard to the Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment (2018) which state in this regard that:

“The Directive requires that information provided by the developer in an EIAR shall include a description of the reasonable alternatives studied by the developer. These are reasonable alternatives, which are relevant to the project and its specific characteristics. The developer must also indicate the main reasons for the option chosen taking into account the effects of the project on the environment.

Reasonable alternatives may relate to matters such as project design, technology, location, size and scale.”

This section of the EIAR sets out an outline of the main alternatives that have been examined through the design and consultation stages of the planning process with the following headings:

- Alternative Locations
- Do-Nothing Scenario
- Alternative Uses
- Alternative Processes
- Alternative Designs/Layouts

2.7.1 Alternative Locations

The consideration of alternatives locations for the development has, in a significant number of cases, already been addressed and decided at strategic planning level during the preparation and adoption of the Fingal Development Plan 2017-2023. This plan establishes a housing need for the district which is required to be accommodated during the plan period and assesses all available land in the district, including the subject site and all available alternatives. This Plan will have been subject to Strategic Environmental Assessment which takes into account the environmental considerations associated with, for example, the cumulative impact of an area zoned for industry on a sensitive landscape. The

EIA Guidelines also state that the statutory development plans can establish project-level objectives or other mitigation that a subsequent site project and its EIAR should be cognisant of.

Having regard to the above, Downey note that the lands subject to this application and EIAR are located within the Fingal County Council administrative area and the subject site is zoned “RA – Residential Area”. Outlined in the Development Plan, this zoning objective seeks the following:

“RA - Residential Area Zoning Objective: To provide for new residential communities subject to the provision of the necessary social and physical infrastructure.”

As this site is mainly zoned for residential development within an established urban area, it was not considered necessary to consider other sites outside of those already considered as part of the plan-making process. Furthermore, the site forms a natural extension to the existing developments currently occupied and/or under construction by the same applicant, namely Miller’s Glen, Longview, and Meadowbank to the east of the lands.

2.7.2 Do Nothing Scenario

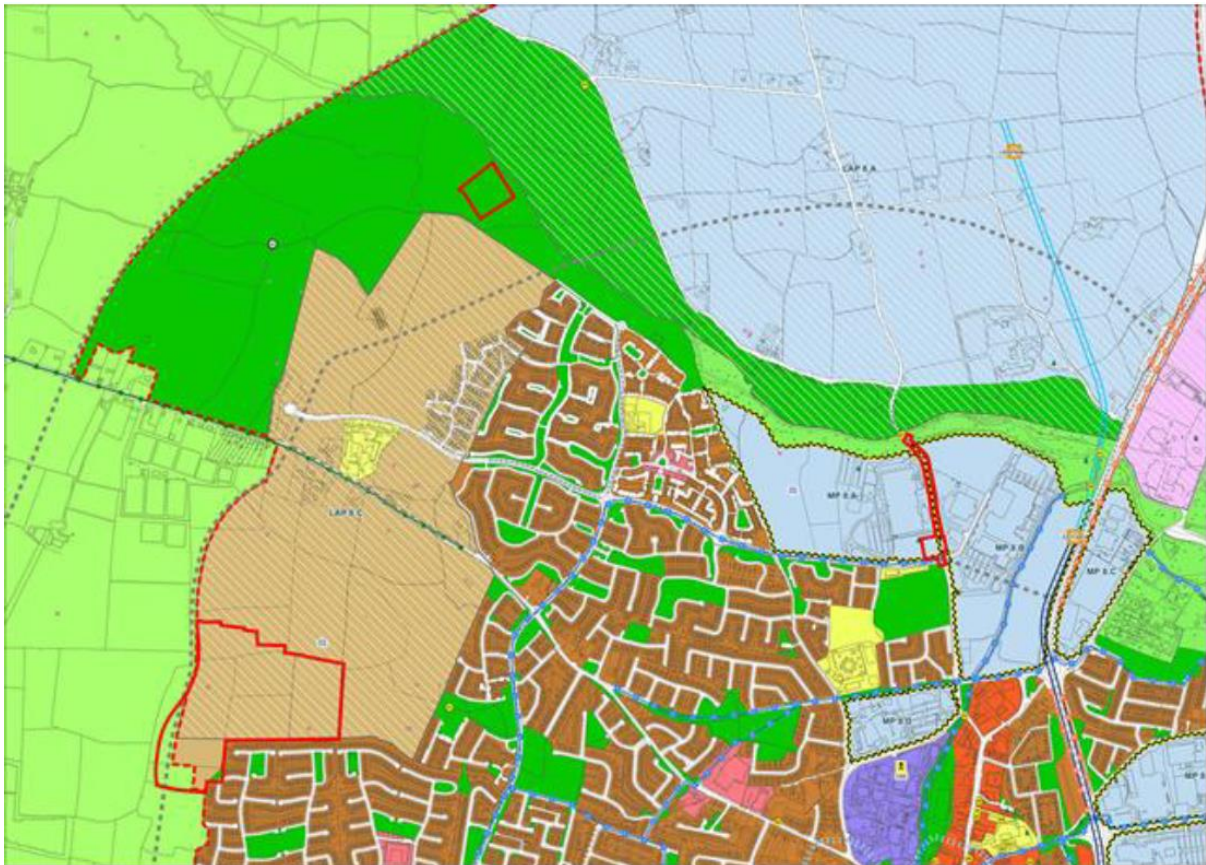


Figure 2-9. Do Nothing' Scenario. Extract from Fingal Development Plan 2017-2023

If the application site was left undeveloped, most of the subject lands remain in agricultural use. The WDLR adjacent to the subject lands would be an unsupervised road serving no immediate purpose and would need to be fenced off until such time it is continued south to Brackenstown and the Ward River Valley. The school campus would remain detached from urban development and the civil, social and amenity infrastructure that accompanies new urban development would not occur.

The pedestrian and cycle link from Abbeyvale to Mooretown and the school campus would not be overlooked nor successfully integrated into an urban plan. Cycling and pedestrian habits for local children attending the new Mooretown school campus would be negatively impacted upon by an absence of mixed-use and residential development and the passive surveillance and security they bring.

The level of demand for housing within the development boundary of the Swords area, based on the future population growth predictions, would not be met.

2.7.3 Local Area Plan Layout

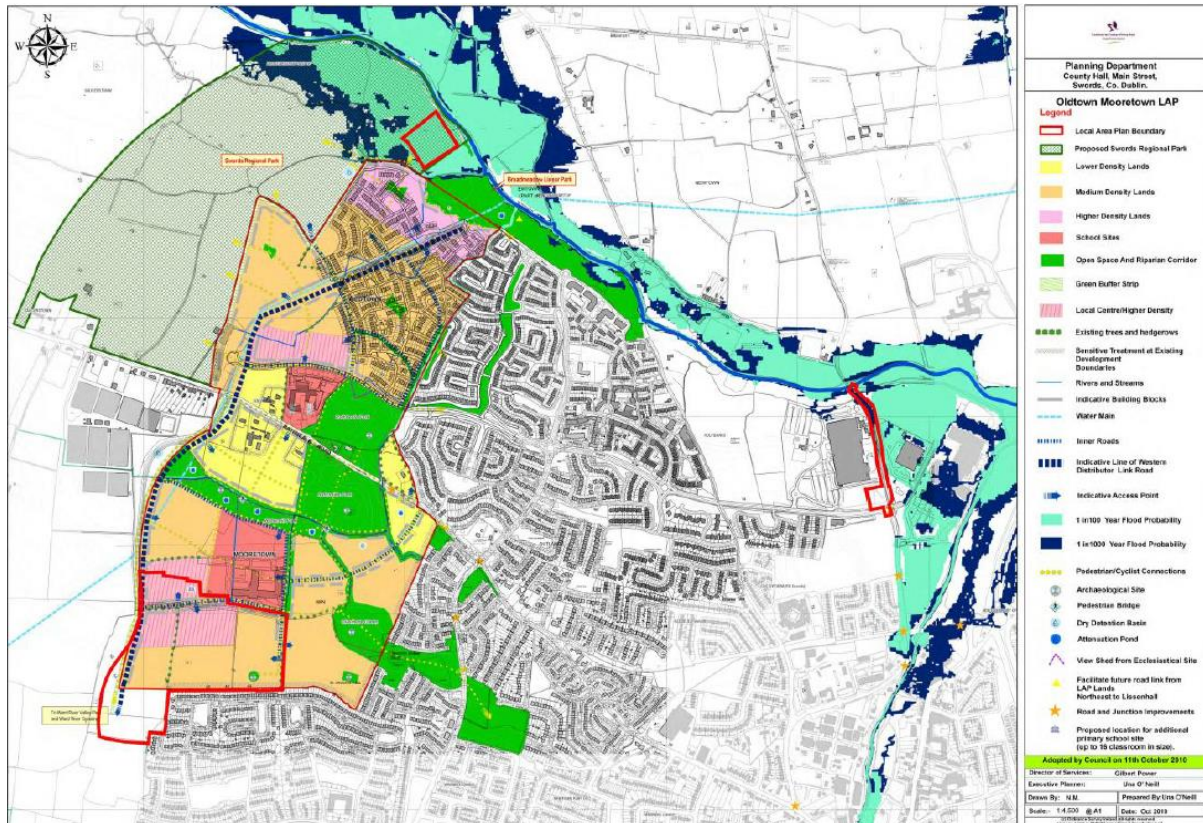


Figure 2-10. Local Area Plan Layout

The LAP indicative plan layout for the subject site area shows medium-density residential development with higher density development to both sides of the east-west main street spine. There is one indicative access point from the WDLR shown (Main Street) and two indicative access points from Main Street to the lands north and south. Pedestrian and cycle connections are shown along the WDLR, Main Street and along the eastern boundary of the subject lands. Existing trees and hedges within the subject lands and along the eastern boundary are noted. Objectives for the sensitive treatment of the southern boundary to the existing developments and for the preservation of archaeology within new open space are provided. Indicative building edges along Main Street, fronting the WDLR and along the eastern boundary are shown.

The Local Area Plan formed the basis for the Mooretown masterplan, which in turn formed the basis for the proposed site layout. The diagrammatic nature of the LAP demands a refinement at the level of detailed design. This is particularly the case for the inner road and pedestrian connections as those

shown are not compatible with DMURS and current policy for best-practice urban design, nor would they make legible connections with the earlier built phases. The location, quantity and nature of open space was another element that required further consideration in the course of pre-planning consultation with the Local Authority.

2.7.4 Alternative Designs and Layouts

It must be noted that given the extensive ownership of the applicant of the entire landholding subject to this project, the existing, under construction, and planned infrastructure/development in place, and the zoning of the lands, there were no major alternative uses or processes that were considered reasonable. The alternatives to the proposed development considered during the preparation of this EIAR were related to the overall layout and internal roads pertaining to the proposed scheme. The design of the proposed project has evolved throughout the pre-application consultation process, resulting in alterations to the proposal. It is worth noting that the proposal may continue to develop following the application submission and continued consultation with relevant stakeholders, bringing the proposed development through detailed construction design and implementation.

The alternatives that have been considered as part of the design development are listed as follows:

Alternative Design 1: Gannon Properties Alternative 1

The Mooretown Masterplan is a non-statutory plan and was required to be prepared in advance of any planning application as an objective of the Local Area Plan. In consultation with the Planning Authority, Gerard Gannon Properties prepared a comprehensive masterplan which serves as a design code for the preparation of planning applications on the subject lands in May 2014. The masterplan proposes various strategies for urban form, residential type, open space networks and movement. It is open to future consideration of alternatives informed by a changing economic environment and has flexibility to evolve over time. The SHD site is within the 'Village' and 'South of Village' character areas.

The Village is the social focus for Mooretown and is planned as a widening of Main Street in the vernacular manner of a linear Irish town. The neighbourhood south of the Village is on the steepest part of the site and stepping buildings is the chief characteristic. Two areas of open space provide character and orientation, and the lower park is on the site of a medieval ringfort. From this space and at other points along the eastern boundary potential east-west street connectivity with adjoining LAP lands shall be provided. The upper pocket park is at a strategic location in the western part of this character area. It is the local focus for several minor streets. Small mews homezones in this area provide attractive alternative routes. Multi-unit dwellings edge the main street within the village core and housing terraces outside of it. There is the potential for several key nodal buildings within this area such as at junctions with the WDLR and adjacent to the western pocket park where the change in the slope regime can accommodate a taller building. Parts of this neighbourhood form the transitional zone between the commercial core and residential where the supermarket and its carparking/loading are proposed.

This layout would provide c.530 dwellings and a large anchor supermarket on a site of c.16.5 ha. The net development area is c.15ha, which would be a net overall density of 35 uph.



Figure 2-11. Applicant's Masterplan Layout – Alternative 1 (source: CCK Architects)

Alternative 2: SHD Layout Pre-Planning Consultation

The Oldtown-Mooretown Local Area Plan (expired July 2020) and the non-statutory Oldtown Masterplan (2012) were the 'blueprint' documents for the proposed development and included detailed specific objectives for density, building height, connections, open space, village centre and unit mix. The preliminary layout proposed for the development in 2018 was compliant with the LAP and Masterplan and provided for 673 dwellings, of which there were 267 houses, 126 duplex units, 282 apartments and a creche, plus 930sqm of retail, café and service uses.

This proposed was presented to the Local Authority who subsequently requested amendments to (i) the location and size of the central area of open space, (ii) the staggered building edge to the WDLR, (iii) strengthening a pedestrian and cycle link from Abbeyvale north through the development to Main Street, (iv) boundaries and enclosure of semi-private communal open spaces and (v) consideration of the retentions of hedgerows within the scheme.

This layout includes additional lands to the south which were zoned for development after the Masterplan and Local Area Plans were published.



Figure 2-12. SHD Layout Pre-Planning Consultation

Alternative 3: Final Site Layout

The current proposal reflects the development strategy and design issues required to be considered and addressed by the Applicant as per the Opinion of An Bord Pleanála, issued on foot of the Section 5 Pre-Consultation (Tripartite Meeting). The principle design issue raised by An Bord Pleanála is as follows:

1. Development Strategy

“Further consideration and/or justification of the documents as they relate to the urban design response of the proposed development along the proposed Western Distributor Link Road (WDLR). The documentation should demonstrate how the design, scale and massing of the proposed development takes into consideration the indicative building blocks/line illustrated in the Oldtown Mooretown LAP and complies with the 12 Criteria of the Urban Design Manual – A best practice guide (in particular Criteria No. 1). The further consideration and/or justification may require an amendment of the documentation to ensure the proposed development can ensure a high-quality design response to the permitted WDLR. “

Further consideration has been given to the form, height and grain of the building line to the WDLR. The proposed development has been brought tight to the zoning line which for the greater part follows the edge of the WDLR. Buildings closest to the Main Street junction are taller and denser, with a 3-5

storey apartment block (Apartment Block A) proposed on the north side of the junction and 3-storey own-door duplex buildings on the southern side. The north 'wings of Apartment Block A comprise own-door triplex units with a distinctive gabled elevation and ease the transition from the 5-storey element of the building to the permitted 2-storey houses behind this block (F16A/0505). The site falls towards the southeast and it was considered appropriate to place taller buildings on the north side of the street and at a slightly lower level, thereby mitigating against overshadowing of the public realm and ground/first floor dwellings from buildings on the southern side.

South of the junction, 3-storey terraces of duplex units continue tight to the road and zoning line, ending with a 3-storey pavilion block, which acts as a punctuation stop for this main street character area.

From this point, the permitted WDLR curves west towards the townland boundary before swinging due south to the Applicant's southernmost boundary, leaving a large expanse (up to 40m wide) between the kerb and zoning line. It is proposed to create a large nature park on these lands, fronted by two long terraces of 3-storey houses and two pavilion buildings closing the development at either end, Duplex Block N and Apartment Block F. Blocks need to 'step' with the slope and in this regard fine-grained duplex units and houses work well, and better than a single-entrance 'flat' slab apartment block could.

The proposed nature park takes its cue from the landscape plan permitted with the WDLR (F20A/0096). This is a very natural and native planting scheme that will reinforce the townland boundary running along the western edge of the Mooretown lands. It is proposed to continue this theme into the nature park, effectively wrapping the southern part of Mooretown in a green wall that hugs the building line. The permitted cycle and pedestrian link from Abbeyvale (F20A/0095) is now proposed the curve through the park, with options to join an off-road 2-way cycle track aligned to the WDLR or to continue through the park setting. Further consultation between Fingal Parks Section and the landscape architect has led to the inclusion of playground areas and a MUGA, all carefully and sensitively placed into the nature park. This park will be one small part of a series of green spaces and links forming an arc around western Swords from the Broadmeadow Linear Park to the Ward River Valley (see also Section 4.1 of this report).

It is considered that the proposed development complies with the objectives of the Oldtown-Mooretown LAP for a defined, built edge to the WDLR where the WDLR runs tight to the RA zoning line. Taller, fine-grained buildings with a variety of typologies (own-door triplex units, apartments, own-door duplex units and terraced houses) provide enclosure, activity and variety in elevation and roofscape. Where the building

line cannot contravene the RA zoning and 'follow' the road, a large nature park will provide an attractive, active and bio-diverse amenity for residents and for those travelling through the site on foot or by bike.

Consideration is also given to the design issues raised by Fingal County Council on foot of the Section 5 Pre-Consultation (Tripartite Meeting). The current proposal addresses many of these issues, the principle items being as follows:

2. Hedgerow protection and location within designated public open space area.

It is proposed to retain and reinforce the existing hedgerow along the eastern boundary and the complement this with a linear walk set back from the kerb and separated from the hedge by a new herb layer. Halfway along this nature walk is a small pocket park that bellows out forming a loose circle on plan and provides a small informal play space for the nearest residents. The hedge along the southern boundary is in poor condition and has deteriorated very quickly over the last couple of years, whereby existing residents have removed practically all the vegetation leaving boundaries exposed and vulnerable. It is now proposed that the development backs on to Abbeyvale and Berwick, and that their boundaries and what remains of the original hedgerow are secured by the rear gardens of the new development.

Consideration was given to the retention of the two north-south hedgerows that divide the subject lands into 3 fields south of Main Street. The Landscape Architect consulted the Parks Section of Fingal County Council on the feasibility of retaining and managing these hedgerows within new open spaces: post the Tripartite meeting, 'Central Park' was revised so it might incorporate a 120m stretch of hedgerow and 'Pocket Park 01' was revised to retain two mature ash trees. However, the Parks Section have instructed that the hedgerow be removed and also the two ash trees due to concerns regarding ash die-back. The new public open spaces proposed for Mooretown will compensate for the loss of biodiversity, in particular the new nature park on the west and southwest boundaries. Please refer to the Landscape Architects report for full details.

3. Location and layout of communal open spaces, bin and bikes storage.

The site layout has been revised to improve the amenity value of communal open spaces by integrating most bicycle stores into the building footprint. Bin stores are general external and located where they will not cause a nuisance (noise, smell and visual impact). Communal open spaces are central to the dwellings they serve and parking in and around them has been kept to a minimum by locating many spaces on the side streets around these urban blocks. Pedestrian and cycle permeability into and through the urban blocks is provided and overlooked by front doors and habitable rooms on all gable elevations. Boundaries between communal open spaces and adjacent private houses and their rear gardens will be of solid blockwork and 2m high, e.g., Urban Blocks 6, 13, 17 and 18.

4. Location of apartments and duplex units along Main Street and appropriate treatment along street front.

Consideration has been given to the elevational treatment of the buildings along Main Street and the scheme has been revised to give greater variety and a more distinctive character. In addition, feature brick archways define the pedestrian walkways between Duplex Blocks A and B, and Duplex Blocks F and G. A number of ground floor apartments in Apartment Blocks A and B are own-door, and attention has been given to re-defining their entrances. These ground floor dwellings have a flexible space that is designed as a home-office/study but could, subject to a separate and future planning application, be converted into a small shop or business unit if required. Two additional shop units are proposed on the corners of Duplex

Block B and Duplex Block F and these are proposed to have specially detailed brickwork framing the display window.

A new terrace of 3-storey private houses has been introduced opposite Apartment Blocks C and D which will add to the variety of building type and tenure on the street. The residential mews court to the rear of these houses will accommodate free-hold parking spaces for these houses, and a secure garden gate gives access to their rear garden and kitchen entrance.

The large creche has capacity for 102 children and is located on the corner of Main Street and Road 1 where it is visible and accessible. It has a distinctive building form and closes the vista at the T-junction of Road 15 with Main Street and forms an edge to the southwest corner of the West Square in the village centre.

It is considered that the buildings proposed for Main Street provide variety in form, scale, materials and use and that this will be an attractive and animated streetscape.

5. The overall layout and design of the proposed development and the need for compliance with the street hierarchy and DMURS.

Main Street has been constructed and is in use to serve the new school campus. A 2-way off-street cycle path, a pedestrian path and some parallel parking bays have been constructed along the northern side of the street. The Transport Section of Fingal County Council has requested that the Safe Routes to Schools programme is implemented as part of the development works, in particular where new side streets cross the cycle paths, that the cycle and pedestrian paths shall have priority. These crossing points have been detailed by the Consulting Engineer. Additional measures, such as pencil bollards, good, clear signage, planting, trees, art elements and civic spaces to sit down in can all be provided.

Within the overall development, further consideration has been given to improving pedestrian and cycle comfort on Road 1(North Street), which is a direct link between Abbeyvale and Main Street. Wide pavements on both sides, a large number of street trees, mostly parallel parking and wide, double-fronted houses, and the option to cut through the Central Park make for a pleasant experience. Cyclists are encouraged by the provision of a contraflow lane on the one-way system at the southern/Abbeyvale end of the street and the narrow 5m carriageway will serve to slow vehicular carriageway and encourage cyclists to 'take the lane'.

All the residential streets have been designed to prioritise pedestrians and cyclists above cars. The wide, tree-lined pavements, mix of on and off-street parking, one-way street networks, raised table junctions and continuous, active building edges will mitigate against driver speed and rat-running.

It is considered that the current proposed development is compliant with the relevant planning and urban design guidelines, that it is the most appropriate, efficient and sustainable use of the lands, and that it meets the recommendations posed by the Local Authority and An Bord Pleanála.

The final application design for the Mooretown SHD application site proposes a legible, permeable layout that places pedestrian and cyclists first.



Figure 2-13. Site Layout

2.11 Consideration of Cumulative Effects with Other Projects

The assessment in each EIAR Chapter (Nos. 4 to 14) has considered the cumulative impacts of construction and operational phases of the proposed development, in conjunction with surrounding developments completed, under construction, and those to be commenced.

As it stands, the proposed development forms the final phase of the zoned Mooretown lands, located in a context with ongoing developments in the adjoining areas. Additional planning applications in the wider vicinity of the lands include the earlier phases of the zoned Oldtown-Mooretown lands, most of which are now under construction. Other planning applications in the wider area include revisions and alterations to existing buildings or small proposals or permissions which have since expired. Such applications have no material consideration to the proposed development noting the minor nature of same. The aforementioned applications and developments have all been taken into consideration as part of this EIAR.

As per this EIAR, it is submitted that such applications are expected to have no material consideration to the proposed development, save for a betterment resulting from the combined landscape and visual effect (Chapter 11) by providing the final phase of development in this tranche of lands which would complete the residential development in this area which is moderate and positive in nature.

2.12 Risk of Major Accidents and/or Disasters

The surrounding environment of the proposed project consists of a mix of low to mid-rise residential, commercial, and educational facilities. The Fingal Development Plan 2017-2023 identifies Seveso sites within the Fingal area and specific distances for each ranging from 300-1000m, all of which are identified in Table 12.13 of the Development Plan and on the relevant zoning maps for the county. There is one SEVESO II Directive site (96/82/EC & 2003/105/EC) within 1km of the proposed project located within Swords, approximately 0.8km from the proposed tank site that forms part of the application site. Given the nature of the proposed development at this part of the application site, no people will be residing/working/occupying this portion of the application site for long periods as it is a stormwater storage tank piece of infrastructure. Therefore, there is no risk of a major accident or disaster in relation to a major chemical accident.

In terms of the risk of a major accident and disaster, the vulnerability of the scheme is considered to be low given the location of the proposed scheme and the existing built environment surrounding the site. Therefore, the potential risk posed by a major accident and or disaster has been considered based on a low vulnerability of same. The overall risk is considered to be low.

3.0 PLANNING & DEVELOPMENT CONTEXT

3.1 Introduction

The site is located within the administrative area of Fingal County Council, for which the statutory Development Plan is the Fingal Development Plan 2017-2023. The lands are subject to national, regional, and local objectives and planning policies. The foregoing represents the relevant plans, guidelines, frameworks, and legislation for the Assessment in line with recital 32 and Article 4(4) of the EIA Directive and Article 299(1)(b)(ii)(II)(C) of the Planning and Development Regulations 2001 (as amended).

National Planning Policy

- Project Ireland 2040: National Planning Framework
- Project Ireland 2040: National Development Plan 2021-2030
- Rebuilding Ireland, An Action Plan for Housing and Homelessness (2016)
- Housing for All: A New Housing Plan for Ireland
- Affordable Housing Act 2021 & Housing Circular 28/2021
- The Housing Agency Statement of Strategy 2022-2024
- Residential Densities in Towns and Villages (Circular Letter: NRUP 02/2021)
- Sustainable Residential Development in Urban Areas and Best Practice Urban Design Manual Guidelines (2009)
- Delivering Homes, Sustaining Communities: Statement on Housing Policy (2007)
- Quality Homes for Sustainable Communities (2007)
- Sustainable Urban Housing: Design Standards for New Apartments (Dec 2020)
- Urban Development and Building Heights Guidelines for Planning Authorities (Dec 2018)
- Childcare Facilities: Guidelines for Planning Authorities (2001)
- Childcare Facilities operating under the ECCE Scheme (Circular Letter: PL 3/2016)
- Space for Play; A Play Policy for Fingal
- Smarter Travel: A Sustainable Transport Future
- Design Manual for Urban Roads and Streets (DMURS)
- National Cycle Manual (June 2011)
- Retail Planning Guidelines (2012) and Retail Design Manual (2012)
- EIA Directive
- Birds and Habitats Directive - Appropriate Assessment
- The Planning System and Flood Risk Guidelines (2009)
- All-Ireland Pollinator Plan 2021-2025
- National Adaptation Framework: Planning for a Climate Resilient Ireland
- Climate Action Plan 2019

Regional Planning Policy

- Regional Spatial and Economic Strategy for the Eastern and Midland Region 2019-2031; and,
- Transport Strategy for the Greater Dublin Area 2016-2035.

Local Planning Policy

- Fingal Development Plan 2017-2023
 - Oldtown-Mooretown Local Area Plan 2010-2016 (extended July 2020 and expired since)

This chapter outlines the planning and development context for the proposed development with reference to the aforementioned principal planning policy documents. This chapter also sets out the development context and the planning history within which the proposed development should be considered and provides the policies, principles, and objectives within which the proposed development should be assessed. It is important to note that a full Statement of Consistency with Planning Policy has been prepared by Downey Planning and is submitted under separate cover as part of the planning application. That report sets out a detailed analysis of the project's consistency with the relevant planning objectives as they pertain to the area and project.

3.2 National Planning Context

3.2.1 Project Ireland 2040: National Planning Framework

The National Planning Framework is *“the Government's high-level strategic plan for shaping the future growth and development of our country out to the year 2040”*. It is a Framework to guide public and private investment, to create and promote opportunities for our people, and to protect and enhance our environment - from our villages to our cities and everything in between. It is stated within the National Planning Framework that, *“a major new policy emphasis on renewing and developing existing settlements will be required, rather than continual expansion and sprawl of cities and towns out into the countryside, at the expense of town centres and smaller villages”*. It is also stated that there will be an ongoing shift in population and jobs to the east and to the counties around Dublin in particular. The NPF will support the future growth and success of Dublin as Ireland's leading global city of scale, by better managing Dublin's growth to ensure that more of it can be accommodated within and close to the city.

According to the National Planning Framework, Dublin needs to accommodate a greater proportion of the growth it generates within its metropolitan boundaries and to offer improved housing choice, transport mobility and quality of life. Dublin's continued performance is critical to Ireland's competitiveness.

The NPF states that, *“the long-term vision for Ireland's housing future aims to balance the provision of good quality housing that meets the needs of a diverse population, in a way that makes our cities, towns, villages and rural areas good places to live now and in the future.”*

It is outlined within the Plan that future homes are required to be located where people have the best opportunities to access a high standard quality of life. In Ireland, the location of housing has taken on a dispersed and fragmented character which has led to people living further away from their jobs and often being at a sizeable remove from important services such as education and healthcare. It is stated

that it is important to *“prioritise the location of new housing provision in existing settlements as a means to maximising a better quality of life for people through accessing services, ensuring a more efficient use of land and allowing for greater integration with existing infrastructure.”*

The NPF has a number of national policy objectives which are relevant to this application, which include:

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

National Policy Objective 4: *“Ensure the creation of attractive, liveable, well designed, high quality urban places that are home to diverse and integrated communities that enjoy a high quality of life and well-being.”*

National Policy Objective 6: *“Regenerate and rejuvenate cities, towns and villages of all types and scale as environmental assets, that can accommodate changing roles and functions, increased residential population and employment activity and enhanced levels of amenity and design quality, in order to sustainably influence and support their surrounding area.”*

National Policy Objective 11: *“In meeting urban development requirements, there will be a presumption in favour of development that can encourage more people and generate more jobs and activity within existing cities, towns and villages, subject to development meeting appropriate planning standards and achieving targeted growth.”*

National Policy Objective 13: *“In urban areas, planning and related standards, including in particular building height and car parking will be based on performance criteria that seek to achieve well-designed high-quality outcomes in order to achieve targeted growth. These standards will be subject to a range of tolerance that enables alternative solutions to be proposed to achieve stated outcomes, provided public safety is not compromised and the environment is suitably protected.”*

National Policy Objective 33: *“Prioritise the provision of new homes at locations that can support sustainable development and at an appropriate scale of provision relative to location.”*

National Policy Objective 35: *“Increase residential density in settlements, through a range of measures including reductions in vacancy, re-use of existing buildings, infill development schemes, area or site-based regeneration and increased building heights.”*

The proposed development will provide for a high-quality mixed-use development which would represent the completion of the developable lands originally envisaged for residential development within the Oldtown-Mooretown LAP, where thus far a combined total of 491 no. dwellings and 2 crèches have been granted planning permission, and of these, 223 dwellings and the creche are under construction. It will also form the natural extension to the two adjoining, existing developments of Abbeyvale and Berwick, which back onto the south and southwest boundary of the lands. Therefore,

the lands are located within a predominately residential area, where the proposed development provides for an overall total of 650 no. dwellings along with 1 no. childcare facility, 5 no. retail units, and 1 no. café/restaurant. The proposed unit mix provides for 265 no. houses (240 no. 3 beds and 25 no. 4 beds), 187 no. apartments, 6 no. triplex units, and 192 no. duplex units (113 no. duplex “house” units and 79 no. duplex “apartment” units).

In relation to residential density, it is submitted that with regard to the developable site area standing at 14.47ha, a net density of 45 units per hectare is envisaged. In terms of building height, it is noted that the scheme is essentially a mid-rise scheme appropriate to its setting on the outskirts of Swords. For the most part, principal streets, edges and open spaces are defined by taller blocks of 3 to 5 storeys, with the highest buildings located to the north side of Main Street and on the eastern edge. The twin landmark buildings in the village centre step from 4 to 3 storeys, in consideration to the permanent buildings planned for the primary school behind (at present, the primary school is in temporary pre-fab accommodation). Long terraces of fine-grained 3-storey duplex units and private houses front the WDLR and the nature park that bellows out as the road curves away from the zoning line. Duplex Blocks A, E, O and N are located as close to the WDLR as possible. Duplex Block N marks the change in direction of the road, and as it veers west, terraces of 3-storey houses continue heights and enclosure along the park edge, tight to the zoning, and terminating in a 4-storey apartment block (Block F) on the highest point of the site. Along the southern boundary to Abbeyvale, the straight run of buildings is book-ended by mirrored Duplex Blocks T and U. Terraces of 2 and 3-storey houses alternate between then, with one 3-storey terrace of Type G and H1 houses closing the T-junction to Central Boulevard, and echoing the landmark buildings of Apartment Block C and D at the northern end of that street. This is submitted to provide a good variation of building heights across the overall site, and the change in level from the southwest corner to the northeast corner will make for an interesting streetscape.

Downey are of the considered opinion that the proposed development is in line with the objectives of the National Planning Framework as its states that, *“to more effectively address the challenge of meeting the housing needs of a growing population in our key urban areas, it is clear that we need to build inwards and upwards, rather than outwards. This means that apartments will need to become a more prevalent form of housing, particularly in Ireland’s cities”*.

The National Planning Framework also states that, *“this is underpinned by ongoing population growth, a long-term move towards smaller average household size, an ageing and more diverse population, greater mobility in the labour market and a higher proportion of households in the rented sector”*. The National Planning Framework also states that, *“while apartments made up 12% of all occupied households in Ireland and 35% of occupied households in the Dublin City Council area in 2016 (census data)”*. It is evident that Ireland is a long way behind European averages in terms of the numbers and proportion of households living in apartments, especially in our cities and larger towns. It is stated within the Project Ireland 2040 plan that, *“in many European countries it is normal to see 40-60% of households living in apartments.”*

Apartment developments have become an increasingly attractive and desirable housing option for a range of household types and tenures, building on and learning from experience to date, and that the economic and regulatory conditions are such that apartment development attracts investment that

will result in greater delivery of apartments in Ireland's cities and towns and other appropriate locations. It is evident that apartment developments are required in urban areas to meet the current demand for housing, particularly in Dublin. It is therefore considered that the provision of 265 no. houses, and 385 no. apartment/duplex/triplex units on the subject site will assist in achieving the objectives of the National Planning Framework.

3.2.2 Project Ireland 2040: National Development Plan 2021-2030

Project Ireland 2040 National Planning Framework (NPF), which sets the overarching spatial strategy for the next twenty years, includes the National Development Plan, which sets out the ten year investment strategy. The recent Review of the NDP was led by the National Investment Office in the Department of Public Expenditure and Reform and was structured in two phases with associated outputs. The review was founded upon a strongly evidence based approach, building upon the extensive data and analyses that have been produced by the NIO and by the work of IGEEs and other policy units across other Government Departments and agencies, including other newly commissioned and targeted research. The NDP sets out funding to underpin key Government priorities. Specifically, allocations will support the realisation of critical goals laid out in Housing for All and will enable a step-change in investment to ameliorate the effects of climate change.

Outlined in the NDP, the key achievements of NPF over 2018-2021 and in relation to housing includes delivery of over 63,000 homes and 26,256 new social housing homes. To underpin NPF population targets, a detailed assessment of structural housing demand identifies demand for almost 400,000 new homes in Ireland between 2020 and 2031, or 33,000 new homes per annum. At city and county level, this is broken down to form a Housing Supply Target (HST) for each local authority area, to guide planning for future development.

The NPF housing supply target has been refined to reflect recent (2020) ESRI research based on NPF population growth, taking into account both existing demand and a legacy of undersupply to date. There is now a need to accommodate around 600,000 new households by 2040, with the Department of Housing planning to deliver an average of 33,000 homes per annum to 2030 including an average of 10,000 new social homes each year and an average of 6,000 affordable homes each year.

Set out in the NDP, public capital investment must, as a top priority, support the delivery and location of the homes that society will need over the next decade and beyond, while also ensuring that in the future the pattern of housing development underpins the development of more compact higher-density cities, towns, and other areas. It is also a priority to enable infill development, with up to 50% of future housing in our cities and major urban centres and 30% elsewhere to be provided within existing built-up areas serviced by existing facilities and along high-capacity public transport corridors.

The proposed development will provide for a sustainable mixed-use development on appropriately zoned lands, which forms part of the overall Oldtown/Mooretown scheme contributing to completion of the developing Mooretown lands. It is therefore considered that the provision 650 no. residential units (265 no. houses and 385 no. apartment/duplex/triplex units) along with 1 no. childcare facility, 5 no. retail units, and a café/restaurant on the subject site will assist in achieving the objectives of the National Development Plan 2021-2030. Furthermore, the proposed development will support the completion of the overall scheme of the area and will provide the population needed to facilitate the

economic growth of Swords. Oldtown-Mooretown, Swords is an emerging attractive area for people to live and work in, supported by high-quality physical and social infrastructure as well as vast recreational amenities within the area.

The proposed development will benefit from the built environment already established within Oldtown-Mooretown lands and surrounding areas of Swords including the network of local streets, public spaces and in particular natural open spaces. The proposed development will also be close to several schools, health services and childcare facilities which will cater for the influx of population arising from the proposed development. In light of the above, it is submitted that the proposed development is consistent with the National Development Plan in this instance.

3.2.3 Rebuilding Ireland, An Action Plan for Housing and Homelessness (2016)

'Rebuilding Ireland, an Action Plan for Housing and Homelessness', provides a multi-stranded, action-oriented approach to achieving many of the Government's key housing objectives. The overarching aim of the Plan is to ramp up delivery of housing from its current undersupply across all tenures to help individuals and families meet their housing needs, and to help those who are currently housed to remain in their homes or be provided with appropriate options of alternative accommodation especially those families in emergency accommodation.

The Action Plan comprises of 5 key pillars which are addressing homelessness, accelerating social housing, building more homes, improving the rental sector and utilising existing housing. The Action Plan sets ambitious targets to double the annual level of residential construction to 25,000 homes and deliver 47,000 units of social housing in the period to 2021, while at the same time making the best use of the existing housing stock and laying the foundations for a more vibrant and responsive private rental sector.

Achieving the aim of accelerated delivery will contribute to the following core objectives:

- *Addressing the unacceptable level of households, particularly families, in emergency accommodation;*
- *Moderating rental and purchase price inflation, particularly in urban areas;*
- *Addressing a growing affordability gap for many households wishing to purchase their own homes;*
- *Maturing the rental sector so that tenants see it as one that offers security, quality and choice of tenure in the right locations and providers see it as one they can invest in with certainty;*
- *Ensuring housing's contribution to the national economy is steady and supportive of sustainable economic growth; and,*
- *Delivering housing in a way that meets current needs while contributing to wider objectives such as the need to support sustainable urban and rural development and communities and maximise the contribution of the built environment to addressing climate change.*

The provision of 650 no. residential units on the subject site will help the Government to achieve the objectives of the Housing Action Plan. Thus, it is submitted that the proposed development is consistent with the policy in this regard.

3.2.4 Housing for All: A New Housing Plan for Ireland

The Housing for All: A New Housing Plan for Ireland states that Ireland's housing system is not meeting the needs of enough of our people, and therefore, it needs to increase new housing supply to an average of at least 33,000 new units per year over the next decade. This will include over 10,000 social homes each year over the next five years, with 9,500 of these being new-builds, and an average of 6,000 affordable homes for purchase or rent. As per, Housing for All provides four pathways to achieving four overarching objectives:

- *Supporting Homeownership and Increasing Affordability;*
- *Eradicating Homelessness, Increasing Social Housing Delivery and Supporting Social Inclusion;*
- *Increasing New Housing Supply; and*
- *Addressing Vacancy and Efficient Use of Existing Stock.*

Outlined in the Plan, the State must act decisively to increase supply of both private and public housing. An average of 33,000 homes must be provided every year between now and 2030. Increased housing output is needed in all sectors - private, affordable, and social - to meet the needs of people in a wide variety of circumstances. It is submitted that provision of 650 no. residential units on the subject site will help the Government to achieve the objectives of the Housing for All Plan. Thus, it is submitted that the proposed development is consistent with the development framework in this regard.

3.2.5 Affordable Housing Act 2021 & Housing Circular 28/2021

In July 2021, the Affordable Housing Act 2021 was published, aiming to address problems associated with the high cost of housing for the portion of the population that do not qualify for social housing. Coming to effect from 3rd September 2021, the Housing Circular 28/2021, amends Part V of the Planning and Development Act 2000. The Programme for Government contained commitments in relation to expanding Part V to encompass affordable purchase and cost rental units and introducing affordable homes requirements to Part V. Part 6 of the Affordable Housing Act 2021, which was enacted on 21 July 2021, gives effect to this commitment.

The principal change to Part V made by these amendments is to increase the Part V contribution for new housing developments from 10% social housing to a mandatory 20% requirement, at least half of which must be applied to social housing provision and up to half of which may be applied to affordable and cost rental housing. It is noted that these changes to Part V primarily apply to land purchased on or after 1 August 2021. Any new planning permissions for housing development on that land will have a 20% Part V requirement. However, a 10% Part V requirement will apply where land already has planning permission or was purchased between 1 September 2015 and 31 July 2021 and planning permission is granted before 31 July 2026.

It is considered that the proposed development is consistent with the Affordable Housing Act 2021, Housing Circular 28/2021, and the requirements under Part V of the Act as it is proposed to provide 20% of the housing units for social and affordable housing. For further details, please refer to the enclosed Part V Validation Letter from Fingal County Council with associated indicative costings and layout.

3.2.6 The Housing Agency Statement of Strategy 2022-2024

Launched in late January 2022, the Housing Agency's Statement of Strategy, outlines how more affordable housing, increasing the supply of social and private homes and addressing social inclusion issues such as homelessness and ageing will be the priorities for the work of The Housing Agency over 2022-2024. The Statement of Strategy frames the work of The Housing Agency under three broad themes:

- Being a centre for housing knowledge;
- Bridging housing supply and demand; and,
- Building capacity for housing.

It also outlines how, over the coming years, the Housing Agency will use research, informed policy insights and data to work *"to achieve a housing system that meets the housing needs of the nation and promotes viable, sustainable communities"*.

The Housing Agency's Strategic Plan 2022-2024 has been framed in the context of supporting Housing for All, the Government's housing plan for Ireland and key trends in the housing system including:

- Diverse and changing housing needs for people living in Ireland.
- Long-term government policy and strategic planning for the Irish housing system.
- A continuing focus on building inclusive, sustainable communities.

It is submitted that the provision of 650 no. residential units on appropriately zoned land under the Fingal Development Plan 2017-2023 would help utilise an existing capacity within the built-up area of Oldtown-Mooretown, Swords, and facilitate meeting the housing target for the area and the overall County. Therefore, it is considered that the proposed development is consistent with the foregoing Strategy in this regard.

3.2.7 Residential Densities in Towns and Villages (Circular Letter: NRUP 02/2021)

The purpose of this Circular, issued on 21st April 2021, is to provide clarity in relation to the interpretation and application of current statutory guidelines, in advance of issuing updated Section 28 guidelines that will address sustainable residential development in urban areas. It is considered important to address this matter in the context of both the need for significantly increased and more sustainable housing supply throughout Ireland, and national recovery from the Covid-19 pandemic.

Outlined in the Circular, while the *Sustainable Residential Development Guidelines* clearly encourage net densities in the 35-50 dwellings per hectare range within cities and larger towns, net densities of 30-35 dwellings per hectare may be regarded as acceptable in certain large town contexts and net densities of less than 30 dwellings per hectare, although generally discouraged, are not precluded in large town locations.

These "outer suburban" provisions apply to cities and larger towns, and the *Sustainable Residential Development Guidelines* define larger towns as having a population in excess of 5,000 people. Large towns therefore range from 5,000 people up to the accepted city scale of 50,000 people. Given the very broad extent of this range and variety of urban situations in Ireland, it is necessary for An Bord Pleanála and Planning Authorities to exercise discretion in the application and assessment of residential density at the periphery of large towns, particularly at the edges of towns in a rural context.

Accordingly, the full range of outer suburban density, from a baseline figure of 30 dwellings per hectare (net) may be considered, with densities below this figure permissible subject to Section 5.12 of the Sustainable Residential Development Guidelines. It is also clarified that in certain circumstances, the neighbourhood or district referred to in Section 5.12, may comprise a significant portion of a rural town.

Considering that the Census 2016 recorded a population of 39,248 people for Swords, the town stands within the larger towns category, contributing to the consolidation of the Dublin Metropolitan Area. Accordingly, the proposed development of the subject lands is submitted to strengthen the urban role of Swords and reinforcing the vital role of Swords in the settlement's hierarchy of the County, and therefore, is considered to be consistent with the foregoing Circular.

3.2.8 Sustainable Residential Development in Urban Areas and Best Practice Urban Design Guidelines (2009)

This document reviews and updates the Residential Density Guidelines (1999), and its aim is to assist both planning authorities and developers in meeting certain standards in the design of residential development. The main objective of the '*Sustainable Residential Development in Urban Areas Guidelines*' is to produce high-quality sustainable developments through providing:

- *Quality homes and neighbourhoods;*
- *Places where people actually want to live, to work and to raise families; and,*
- *Places that work - and will continue to work - not just for us, but for our children and for our children's children.*

The Guidelines state that sustainability is about the integration of schools, community facilities, employment, transport, and amenities with the housing development process in a timely, cost-effective way.

In terms of planning for sustainable neighbourhoods, there is focus on "*planning at the district or neighbourhood scale within larger towns and cities, whether on brownfield or green-field sites*". The Guidelines state that, "*national policy makes it clear that sustainability is not confined to the physical environment. Sustainability also includes the concept of stable, integrated communities, and planning for such communities must embrace both tangible issues - such as the timely provision of school places - and the intangible, such as people's perception of what constitutes an attractive, secure environment in which to rear children. Planning objectives at the district/neighbourhood scale can thus be grouped under four main themes:*

- (a) Provision of community facilities;*
- (b) Efficient use of resources;*
- (c) Amenity/quality of life issues; and*
- (d) Conservation of the built and natural environment."*

The document goes on to state that, "sustainable neighbourhoods require a range of community facilities, and each district/neighbourhood will need to be considered within its own wider locality, as some facilities may be available in the wider area while others will need to be provided locally". It then outlines the importance of the provision of schools, community centres, healthcare facilities and

district/neighbourhood centres use to the sustainability of communities. The subject site is located within the townland of Mooretown, forming part of the wider Oldtown-Mooretown lands and is located to the south of Rathbeale Road. As it stands, the permitted development in Mooretown includes a combined total of 498 dwellings and two crèches which have been granted planning permission within Phases 1 and 2, comprising 379 houses and 110 apartments, pocket parks, and the large “Watermill” park that crosses the northern section of the site from east to west. This proposed development comprises Phase 3 of the development proposed on the Mooretown lands.

In relation to amenity/quality of life issues, *“public open space can have a positive impact on physical and mental well-being as it provides spaces to meet, interact, exercise and relax. It needs to be appropriately designed, properly located, and well maintained to encourage its use. It is one of the key elements in defining the quality of the residential environment. Apart from the direct provision of active and passive recreation, it adds to the sense of identity of a neighbourhood, helps create a community spirit, and can improve the image of an area (especially a regeneration area). Well-designed open space is even more important in higher density residential developments”*. The proposed development provides for 4.3 ha of amenity space (incl. Class 1 and 2 open space) within the proposed scheme whilst being in close proximity to Broadmeadow Park comprising 8.5 ha of high quality public open space, the proposed development would provide for a hierarchy of green open spaces within and around the development site. This would provide for a central park, a pocket park, a nature park, a woodland park, a number of shared green spaces, and trails to serve the residents of Mooretown and the wider area.

The design of the proposed development has placed considerable emphasis on the context of the site and location as well as the surrounding built environment. The proposed development successfully incorporates the criteria of the *‘Urban Design Manual - A Best Practice Guide’* and its 12 criteria, including: *Context, Connections, Inclusivity, Variety, Efficiency, Distinctiveness, Layout, Public Realm, Adaptability, Privacy/Amenity, Parking, and Detailed Design*, of which Planning Authorities are recommended to assess planning applications. It is evident that the form, layout, and architectural and landscaping design of the proposed development have been informed by the development’s place and time. Well-designed homes in the right locations are fundamental to building strong, sustainable communities. Such communities will ensure Ireland’s continued success in attracting and generating investment and improving the quality of life for residents.

Downey are of the considered opinion that the proposed development represents a development that has been carefully and appropriately designed, giving full consideration to its neighbouring properties and will integrate successfully with its environs. The proposed development has had regard to the surrounding environment and carefully assesses the proposal in light of same. The development positively contributes to the character and identity of the surrounding neighbourhood. The proposed scheme is also considered to be of an appropriate density which will help to support efficient public transport. It is submitted that the proposed development would be a positive addition to the surrounding built environment of Mooretown and to the identity of the locality. Furthermore, it is considered that the proposed buildings will meet the aspirations of a range of people and the design and layout of such allows easy access by all. For further information on the proposed development’s consistency with the *‘Urban Design Manual’*, please refer to the Architectural Design Statement (Architects Report) prepared by CCK Architects.

3.2.9 Delivering Homes, Sustaining Communities: Statement on Housing Policy (2007)

The Department's policy statement '*Delivering Homes, Sustaining Communities*' provides the overarching policy framework for an integrated approach to housing and planning. The statement notes that demographic factors will continue to underpin strong demand for housing, which in turn will present considerable challenges for the physical planning of new housing and the provision of associated services. The quality of the housing environment is recognised as being central to creating a sustainable community. Sustainable neighbourhoods are areas where an efficient use of land, high quality design and effective integration in the provision of physical and social infrastructure combine to create places people want to live in.

The "*Delivering Homes, Sustaining Communities*" policy statement is accompanied by Best Practice Guidelines entitled "*Quality Housing for Sustainable Communities*". The purpose of these Guidelines is to promote high standards in the design and construction and the provision of residential units and services in new housing developments. Best use of land is encouraged and optimal utilisation of services and infrastructure in the provision of new housing; point the way to cost effective options for housing design that go beyond minimum codes and standards; promote higher standards of environmental performance and durability in housing construction; seek to ensure that residents of a new housing scheme enjoy the benefits of first-rate living conditions in a healthy, accessible and visually attractive environment; and provide homes and communities that may be easily managed and maintained. This planning application is accompanied by an Architectural Design Statement (Architects Report) and a Housing Quality Assessment (HQA) document prepared by CCK Architects, which demonstrate that the proposed development is compliant with the relevant standards in the '*Quality Housing for Sustainable Communities*' document and the Fingal Development Plan 2017-2023.

3.2.10 Delivering Homes, Sustaining Communities: Statement on Housing Policy (2007)

The aim of these Guidelines is to identify principles and criteria that are important in the design of housing and to highlight specific design features, requirements and standards that have been found, from experience to be particularly relevant. The guidelines set out some recommended standards in terms of space provision and room sizes, etc. The proposed scheme has been cognisant of the need to facilitate a high standard of living for future occupants, while representing a proposal that is conducive to complimenting and augmenting the established residential character of the surrounding area. In this regard it is noted that all of the residential units have been designed to comply with the room standards as set out in these Guidelines, as well as in the County Development Plan. CCK Architects have also prepared an Architect and Urban Designer's Statement for this scheme and is submitted under separate cover. This outlines the rationale behind the design of the scheme and how it will contribute to a positive and attractive residential development. This SHD application is accompanied by a Housing Quality Assessment document, which has been prepared CCK Architects, which illustrates how the proposed development will comply with the required standards that have been set out in this assessment.

3.2.11 Sustainable Urban Housing: Design Standards for New Apartments (December 2020)

The “*Sustainable Urban Housing: Design Standards for New Apartments*” build on the content of the 2015 and 2018 apartment guidance, much of which remains valid, particularly with regard to design quality safeguards such as internal space standards for apartments, internal storage and amenity space. The Guidelines state that, “*in the longer term to 2040, the Housing Agency has identified a need for at least 45,000 new homes in Ireland’s five cities (Dublin, Cork, Limerick, Galway and Waterford), more than 30,000 of which are required in Dublin City and suburbs, which does not include additional pent-up demand arising from under-supply of new housing in recent years*”. It is also stated that it is “*critical to ensure that apartment living is an increasingly attractive and desirable housing option for a range of household types and tenures*.”

The Guidelines also state that, “*aspects of previous apartment guidance have been amended and new areas addressed in order to:*

- *enable a mix of apartment types that better reflects contemporary household formation and housing demand patterns and trends, particularly in urban areas;*
- *make better provision for building refurbishment and small-scale urban infill schemes;*
- *address the emerging ‘build to rent’ and ‘shared accommodation’ sectors; and*
- *remove requirements for car-parking in certain circumstances where there are better mobility solutions and to reduces costs.”*

The Guidelines state that Ireland is a long way behind European averages in terms of the numbers of households living in apartments, especially in our cities and larger towns. Given the gap between Irish and European averages in numbers of households living in apartments and the importance of addressing the challenges of meeting the housing needs of a growing population in our key cities and towns and by building inwards and upwards rather than outwards, apartments need to become the norm for urban housing solutions.

The Guidelines state that, “*ongoing demographic and societal changes mean that in addition to families with children, the expanding categories of household that may wish to be accommodated in apartments include:*

- *Young professionals and workers generally;*
- *Those families with no children;*
- *‘Downsizers’; and,*
- *Older people, in both independent and assisted living settings.”*

The Guidelines identify types of locations that may be suitable for apartment developments. In this regard, it is considered that the proposed development falls within “(3) *Peripheral and/or Less Accessible Urban Locations*” as it meets the criteria for this location in that the site is located approximately within circa 5km of Swords Town Centre and is located within the town’s development boundary and as such is suitable for a net density of 45 units per hectare.

The Guidelines also have specific planning policy requirements (SPPRS), which include:

Specific Planning Policy Requirement 1: “*Apartment developments may include up to 50% one-bedroom or studio type units (with no more than 20-25% of the total proposed*

development as studios) and there shall be no minimum requirement for apartments with three or more bedrooms. Statutory development plans may specify a mix for apartment and other housing developments, but only further to an evidence-based Housing Need and Demand Assessment (HNDA), that has been agreed on an area, county, city or metropolitan area basis and incorporated into the relevant development plan(s)."

Specific Planning Policy Requirement 3: "Minimum Apartment Floor Areas:

- *Studio apartment (1 person) 37 sqm*
- *1-bedroom apartment (2 persons) 45 sqm*
- *2-bedroom apartment (4 persons) 73 sqm*
- *3-bedroom apartment (5 persons) 90 sqm"*

In this regard, the proposed development at Mooretown (subject to this application) provides for 265 no. houses (240 no. 3 beds and 25 no. 4 beds), 187 no. apartments, 6 no. triplex units, and 192 no. duplex units (113 no. duplex "house" units and 79 no. duplex "apartment" units), all with associated car parking spaces, areas of amenity space, and 1 no. childcare facility, 5 no. retail units, a café/restaurant. It is considered that the overall quality of the facilities provided throughout the proposed scheme are appropriate and of high-quality, thus providing an enhanced standard of amenity for the future residents of the scheme. The development provides residents with the required level of amenity as outlined within the Guidelines. Furthermore, the proposed development contributes to the completion of the overall residential scheme on the subject lands and will support the completion of the same. Downey Planning are of the professional opinion that the proposed development complies with the SPPRs of the *"Sustainable Urban Housing: Design Standards for New Apartments"* Guidelines. This SHD application includes a Housing Quality Assessment prepared by CCK Architects.

A detailed daylight, sunlight and internal light analysis report, and Building Lifecycle Report will be submitted with the SHD application in accordance with Chapter 6 of the Guidelines. The proposed development will help to meet the current demand for apartment type developments. For further information in this regard, please refer to the enclosed architectural drawings and detailed Housing Quality Assessment schedules prepared by CCK Architects, which provide confirmation that the proposed development is consistent with the design standards of these Guidelines.

The Guidelines also note the following with regard to aspect of units under Specific Planning Policy Requirement 4 which states:

"In relation to the minimum number of dual aspect apartments that may be provided in any single apartment scheme, the following shall apply:

- (i) *A minimum of 33% of dual aspect units will be required in more central and accessible urban locations, where it is necessary to achieve a quality design in response to the subject site characteristics and ensure good street frontage where appropriate.*

- (ii) *In suburban or intermediate locations, it is an objective that there shall generally be a minimum of 50% dual aspect apartments in a single scheme.*
- (iii) *For building refurbishment schemes on sites of any size or urban infill schemes on sites of up to 0.25ha, planning authorities may exercise further discretion to consider dual aspect unit provision at a level lower than the 33% minimum outlined above on a case-by-case basis, but subject to the achievement of overall high design quality in other aspects."*

In this regard, the minimum requirement for dual aspect units is 50%. The proposed development provides for a minimum of 70% dual aspect units and therefore accords with the aforementioned Guidelines. For further information in this regard, please refer to the enclosed Housing Quality Assessment (HQA) and drawings prepared by CCK Architects.

In terms of Children's Play areas, the proposed development has considered the recreational needs of children and incorporates children play equipment as part of the communal amenity space within the scheme. As stated within the Guidelines,

"Children's play needs around the apartment building should be catered for:

- *within the private open space associated with individual apartments;*
- *within small play spaces (about 85-100 sqm) for the specific needs of toddlers and children up to the age of six, with suitable play equipment, seating for parents/guardians, and within sight of the apartment building, in a scheme that includes 25 or more units with two or more bedrooms; and,*
- *within play areas (200-400 sqm) for older children and young teenagers, in a scheme that includes 100 or more apartments with two or more bedrooms."*

In accordance with Management Standards of the Development Plan, playground provision is to be provided at a rate of 4 sqm per dwelling, which is 2,600 sqm. Doyle O'Troithigh Landscape Architects have developed a proposal to provide 14 different play areas throughout the scheme, along with a MUGA which was requested by the Parks Department of Fingal County Council. The play provision includes natural play, incidental play, formal playgrounds, callisthenics units and then play areas designed for the needs of very small children and their parents and guardians within the communal open space provided for apartments and duplex units.

As such, it is submitted that the proposed development is consistent with the Guidelines in this instance. For further details, please refer to the enclosed landscape drawings prepared by Doyle & O'Troithigh Landscape - Architecture, and Urban Design & Architectural Statement prepared by CCK Architects.

In relation to bicycle and car parking requirements, A total of 991 no. parking spaces are proposed for this development. Of these, 880 no. spaces are to be designated for residents, 95 no. spaces for visitors, 6 no. spaces for Go-Car, 3 no. spaces for staff creche, and 6 no. spaces for creche drop-off and collection. The mean rate, at 976 units for 650 dwellings, is 1.5 spaces per dwelling.

Parking for the shops and café is proposed to be shared with the creche drop-off and the residential visitor parking, performing a double-job for retail use during working hours, and visitor use in the evenings and weekends.

In general, 2 spaces are proposed for every 3-4 bedroom house and 1 space for every apartment or duplex unit. The reservation of 6 no. spaces for the provision of a Go-Car scheme will compensate for the small shortfall and hopefully encourage residents to choose public transport, cycling and Go-Car over owning 2, or even 1 private cars.

The creche in Urban Block 4 has 3 off-street staff spaces and 6 no. drop-off on-street spaces; these parking spaces have not been included in the residential schedule below. The drop-off spaces are parallel bays on the left-hand side of the carriageways around the block to mitigate against reverse movements and to make the street as safe as possible for families with small children. Staff parking is off-street and is not considered a risk; most staff will have parked or left after drop-off and collection times.

It is noted that the overall car parking proposed for the proposed scheme is below standards set out in the Development Plan, which requires a total of 1,235 car parking spaces. Thus, the overall car parking provision may be considered to potentially materially contravenes the Fingal Development Plan 2017-2023. This is fully addressed in the Statement of Material Contravention prepared by Downey, which we invite the Board to refer to.

In relation to the bicycle parking provision, an overall total of 1,141 cycle parking spaces is proposed, with 910 no. spaces for residents, 231 no. spaces for visitors, and 12 no. spaces to serve the creche and 6 no. spaces to serve the retail/café. The cycle parking proposed for the residents is submitted to be in line with the requirements set out in the 2020 Apartment Guidelines. It is also submitted that the cycle parking for visitors and for the non-residential units comply or exceed the requirements of the Development Plan.

Specific Planning Policy Requirement	Compliance
SPPR1 (Housing Mix)	In compliance
SPPR2 (Building Refurbishment and Urban Infill Development on sites up to 0.25ha)	Not Applicable; SPPR1 applies to the entire development
SPPR3 (Minimum Apartment Floor Areas)	In compliance with the standards
SPPR4 (Dual Aspect Ratios)	In compliance with the requirements
SPPR5 (Floor to Ceiling Height)	In compliance with the requirements
SPPR6 (Lift and Stair Cores)	In compliance with the required quantum
SPPR7 (Specific BTR Developments)	Not Applicable
SPPR8 (Qualified as BTR Developments)	Not Applicable

Table 1. Compliance with Specific Planning Policy Requirements

3.2.12 Urban Development and Building Heights Guidelines for Planning Authorities (Dec 2018)

The “*Urban Development and Building Heights, Guidelines for Planning Authorities*” are intended to set out national planning policy guidelines on building heights in relation to urban areas, building from the strategic policy framework set out in the National Planning Framework 2040 (NPF). This document recognises that in recent years local authorities, through the statutory plan processes, have begun to set generic maximum height limits. However, such limits if inflexibility and unreasonably applied, can undermine national policy objectives to provide more compact urban forms as outlined in the National Planning Framework and instead can continue unsustainable patterns of development.

These Guidelines reinforce that, “*a key objective of the NPF is therefore to see that greatly increased levels of residential development in our urban centres and significant increases in the building heights and overall density of development is not only facilitated but actively sought out and brought forward by our planning processes and particularly so at local authority and An Bord Pleanála levels.*”

Section 1.10 of the Guidelines states, “*the rationale... for consolidation and densification in meeting our accommodation needs into the future must also be applied in relation to locations that development plans and local area plans would regard as city and town centre areas*”. It continues, “*in such areas, it would be appropriate to support the consideration of building heights of at least 6 storeys at street level as the default objective, subject to keeping open the scope to consider even greater building heights by the application of the objectives and criteria laid out in Sections 2 and 3 of these guidelines, for example on suitably configured sites, where there are particular concentrations of enabling infrastructure to cater for such development, e.g. very significant public transport capacity and connectivity, and the architectural, urban design and public realm outcomes would be of very high quality.*”

Section 1.11 states, “*these guidelines therefore set out national planning policy that:*

- *Expand on the requirements of the National Planning Framework; and*
- *Applies those requirements in setting out relevant planning criteria for considering increased building height in various locations but principally (a) urban and city-centre locations and (b) suburban and wider town locations.*”

The proposed development at Mooretown is submitted to be essentially a mid-rise scheme appropriate to its setting on the outskirts of Swords. For the most part, principle streets, edges and open spaces are defined by taller blocks of 3 to 5 storeys, with the highest buildings located to the north side of Main Street and on the eastern edge. Therefore, it is submitted that the proposed development is consistent with these objectives and with the physical and social infrastructure already in place can easily accommodate the proposed apartment heights of 4-5 storeys.



Figure 3-1. Building Heights Diagram (source: CCK Architects)

The following Special Planning Policy Requirements are contained within the Guidelines and are relevant to the proposed development:

SPPR1: *“In accordance with Government policy to support increased building height and density in locations with good public transport accessibility, particularly town/city cores, planning authorities shall explicitly identify, through their statutory plans, areas where increased building height will be actively pursued for both redevelopment, regeneration and infill development to secure the objectives of the National Planning Framework and Regional Spatial and Economic Strategies and shall not provide for blanket numerical limitations on building height.”*

The proposed development is situated within the wider Oldtown-Mooretown lands and comprises the third phase of a wider residential scheme within Mooretown. It is located within close proximity to the R125 regional road, with the new Distributor Link Road located to the western boundaries of the application site. These provide the lands to be capable of supporting taller buildings and increased density.

SPPR2: *“In driving general increases in building heights, planning authorities shall also ensure appropriate mixtures of uses, such as housing and commercial or employment development, are provided for in statutory plan policy. Mechanisms such as block delivery sequencing in statutory plans could be utilised to link the provision of new*

office, commercial, appropriate retail provision and residential accommodation, thereby enabling urban redevelopment to proceed in a way that comprehensively meets contemporary economic and social needs, such as for housing, offices, social and community infrastructure, including leisure facilities.”

The proposed development seeks to provide for a mixed-use development that is surrounded by a wide range of uses. As part of the scheme, a childcare facility is proposed. There are numerous retails, health, community and commercial facilities within the vicinity of the subject site, as well as a number of recreational amenities including parks and sports clubs. A Community and Social Infrastructure Audit prepared by Downey Planning is enclosed with this request and provides an overview and assessment of existing infrastructure and facilities within Mooretown that ensures compliance with the aforementioned specific planning policy. It is noted that the proposed development also provides for 1 no. childcare facility, 5 no. retail units, and a café/restaurant.

SPPR3: *“It is a specific planning policy requirement that where;*

(A) 1. An applicant for planning permission sets out how a development proposal complies with the criteria above, and

2. the assessment of the planning authority concurs, taking account of the wider strategic and national policy parameters set out in the National Planning Framework and these guidelines;

Then the planning authority may approve such development, even where specific objectives of the relevant development plan or local area plan may indicate otherwise.”

It is respectfully submitted that the following document outlines how the proposal is consistent with the relevant national, regional, and local planning policy as it pertains to the site and its environs, and as such the development accords with SPPR 3. As per, this SHD application has adhered to the Development Management Criteria set out within the Guidelines, which outline the specific criteria a planning must meet when proposing increased height. Within section 3.0 Building Height and the Development Process four criteria are set out in 3.2 Development Management Criteria which the applicant must demonstrate to the Planning Authority/An Bord Pleanála when making a planning application, this application satisfies that:

1. At the scale of the relevant city/town

- The site is within the development boundary of Swords and is served by various public bus routes.
- This development has been carefully modulated to respect the character of the area and residential amenity of neighbouring properties. It successfully integrates and enhances the public realm of the locality having regard to the surrounding area and existing residential developments. All such considerations have been made during the design process which has involved a multi-disciplinary team, which includes Ecologists, Architects, Landscape Architects, Engineers, Archaeologists, etc.
- A positive contribution has been made towards achieving densities within this locality, which is predominantly characterised by lower density suburban style development. The unit mix

provides a good choice for future residents and caters for a broad range of housing requirements within the housing market, namely first-time buyers, singles, downsizers, and retirees.

2. At the scale of district/ neighbourhood/ street

- The proposed height will help to create and add visual interest in this area, while protecting views in the wider area, as confirmed within the Landscape/LVIA chapter of the EIAR.
- It is respectfully considered that the proposal introduces a high-quality development at an appropriately zoned site. The proposed development responds appropriately to the massing and scale of the residential pattern and scale in the town of Swords and creates a strong sense of place through the introduction of key buildings at various character nodes within the scheme.
- A positive contribution has been made towards integrated and cohesive house and apartment design in this emerging area of Swords.

3. At the scale of the site/building

- As submitted within the Specific Site Assessments, the form, massing and height of proposed development has been carefully modulated to maximise access to natural daylight, ventilation and views and minimise overshadowing and loss of light.
- The design of the houses, duplexes and apartments is bespoke for this site in terms of the palette of materials and provision of public and communal open space to create an attractive public realm.

It is submitted that this SHD application contains sufficient reports, documentation, plans and justification to support the proposed development and outlines how the development is in accordance with the relevant planning policies and guidelines pertaining to the area. Such documents include architectural plans and elevations, Design Statement (Architects Report), DMURS statements, Traffic Assessment, EIAR report, planning reports, and engineering reports, which we invite the Board to refer to.

SPPR4: *“It is a specific planning policy requirement that in planning the future development of greenfield or edge of city/town locations for housing purposes, planning authorities must secure:*

1. *The minimum densities for such locations set out in the Guidelines issued by the Minister under Section 28 of the Planning and Development Act, 2000 (as amended), titled “Sustainable Residential Development in Urban Areas (2007)” or any amending or replacement Guidelines;*
2. *A greater mix of building heights and typologies in planning for the future development of suburban locations; and*
3. *Avoid mono-type building typologies (e.g. two storey or own-door houses only), particularly, but not exclusively so in any one development of 100 units or more.”*

The proposed development provides for 265 no. houses (240 no. 3 beds and 25 no. 4 beds), 187 no. apartments, 6 no. triplex units, and 192 no. duplex units (113 no. duplex “house” units and 79 no. duplex “apartment” units), along with 1 no. childcare facility, 5 no. retail units, and a café/restaurant.

This provides for a net density of 45 units per hectare for the proposed scheme (650 units on 14.47 hectares). It is respectfully submitted that the density proposed is in accordance with the national guidelines referred to in SPPR 4.

Specific Planning Policy Requirement	Compliance
SPPR1 (building height and density)	In compliance
SPPR2 (building height and mix of uses)	In compliance
SPPR3 (assessment of planning applications)	In compliance in light of content of application submission
SPPR4 (development of greenfield/edge of city/town centre sites)	In compliance

Table 2. Compliance with Specific Planning Policy Requirements

In light of the above, it is considered that the proposed development is consistent with the requirements of these guidelines on building heights for urban developments. The proposed development steps in height from 1 to 5 storeys with cognisance given to existing built environment in the vicinity of the subject site and the provision of appropriate separation distances. The existing lands at Mooretown are zoned for development and are serviced with road and public transport infrastructure. Therefore, the proposed residential development can be achieved on the lands in accordance with the aforementioned policy guidelines.

3.2.13 Childcare Facilities: Guidelines for Planning Authorities (2001)

Government policy on childcare is to increase the number of childcare places and facilities available and to improve the quality of childcare services for the community. These Guidelines for Planning Authorities on Childcare Facilities provide a framework to guide both local authorities in preparing development plans and assessing applications for planning permission, and developers and childcare providers in formulating development proposals. The following definition of Childcare is included in the Guidelines:

“In these Guidelines, “childcare” is taken to mean full day-care and sessional facilities and services for pre-school children and school-going children out of school hours. It includes services involving care, education, and socialisation opportunities for children. Thus services such as pre-schools, naíonraí (Irish language playgroups), day-care services, crèches, playgroups, and after-school groups are encompassed by these Guidelines. Conversely childminding, schools, (primary, secondary and special) and residential centres for children are not covered by these Guidelines.”

For housing schemes, the Guidelines provide a benchmark provision of 1 no. 20 space childcare facility per 75 dwellings. The threshold for provision should be established having regard to existing location of facilities and the emerging demography of the area where new housing is proposed. The recommendations provided within the Guidelines must be considered in the context of the ‘Sustainable Urban Housing: Design Standards for New Apartments’ (2018), which state that:

“Notwithstanding the Department’s Planning Guidelines for Childcare Facilities, which are currently subject to review and recommend the provision of one childcare facility (equivalent to a minimum of 20 child places) for every 75 dwelling units, the threshold for provision in apartment scheme should be established having regard to the scale and unit mix of the proposed development and the existing geographical distribution of childcare facilities and the emerging demographic profile for the area.”

As recommended in the Guidelines, a maximum of 9 no. childcare facilities providing for 173 no. spaces would be required as part of the proposal to cater for the influx of population arising from the proposed scheme. It is worth noting that as stated within the apartment guidelines, *“one-bedroom or studio type units should not generally be considered to contribute to a requirement for any childcare provision and subject to location, this may also apply in part or whole, to units with two or more bedrooms”*. As such, only 8 no. childcare facilities (153 no. child spaces in total) would be required to cater for the proposed development. The proposed scheme provides for 1 no. childcare facility of 512 sqm capable of accommodating circa 102 children. This would also be complemented by the proposed childcare facility provisioned as part of the forthcoming application on Oldtown lands, which will provide for 1 no. childcare facility capable of accommodating circa 102 children and is submitted to be 39 no. spaces over what was initially projected to suffice the proposed scheme. Therefore, this is considered to be sufficient to cater for the proposed development.

In light of the above, it is submitted that the proposed development is consistent with the Childcare Facilities Guidelines. For Further information in this regard, please refer to the enclosed Childcare Provision Assessment enclosed with this SHD application.

3.2.14 Childcare Facilities operating under the ECCE Scheme (Circular Letter: PL 3/2016)

The purpose of this Circular, issued on 31st March 2016, is to revise the Childcare Facilities Guidelines for Planning Authorities 2001, and having regard to the extension of the ECCE scheme and the associated increased demands on childcare facilities with effect from September 2016, planning authorities are hereby requested to:

- Expedite all pre-planning application consultation requests from Childcare facility providers in relation to proposals to extend opening hours, to increase capacity or to provide new facilities.
- Expedite, insofar as is possible, consideration of all planning applications or Section 5 declaration submissions in respect of childcare facilities in order to facilitate the expansion of required capacity as appropriate.

The Childcare Facilities Guidelines for Planning Authorities 2001 outline general planning related standards for childcare facilities. Planning Authorities are advised that the Child Care (Pre-School Services) Regulations 2006 set out a range of childcare related standards for childcare facilities as stipulated by the Department of Children and Youth Affairs. The Child and Family Agency, also known as TUSLA, is responsible for inspecting pre-school services under, and enforcing compliance with, the afore-mentioned 2006 Regulations.

In light of the foregoing, planning authorities are requested to exclude matters relating to childcare facility standards outlined in Appendix 1 of the Childcare Facilities Planning Guidelines 2001 - including the minimum floor area requirements per child - from their consideration of planning applications

relating to childcare facilities and to solely focus on planning related considerations that fall within the remit of the Planning and Development Act 2000, as amended, in the determination of such planning applications.

It is submitted that a creche with a gross floor area of 512 sqm, with an approximate capacity of 102 childcare spaces, is also proposed as part of the scheme. The is located in this focussed village centre, where it and the new shops will build on a growing 'buzz' of activity already generated by the new primary and secondary schools. Situated on the corner of Main Street and Road 1, the proposed creche is suggested to enjoy a visible and accessible location. It has a distinctive building form and closes the vista at the T-junction of Road 15 with Main Street and forms an edge to the southwest corner of the West Square in the village centre. Therefore, it is suggested that the proposed development is consistent with Circular PL 3/2016.

3.2.15 Space for Play; A Play Policy for Fingal

"Space for Play; A Play Policy for Fingal", the best practice policy guidelines developed by the Council's Parks & Green Infrastructure Division aims to provide a framework for the provision of safe, accessible, inclusive, natural, and engaging play spaces for all children and adolescents up to the age of 17. Fingal County Council currently manages a network of play spaces on Council managed land ranging from playgrounds of various scales in local and regional parks, to Multi Use Games Areas (MUGA), and skate parks. The Play Policy will provide the basis on which the current and future play provision throughout the County will be developed to the highest quality in line with international best practice.

Outlined in the policy guidelines, it is Fingal County Council's policy that Play facilities shall be provided at a rate of 4 sq. m per residential unit. All residential schemes in excess of 50 units shall incorporate play facilities clearly delineated on the planning application drawings and demarcated and built, where feasible and appropriate, in advance of the sale of any units.

In accordance with the foregoing policy, the playground provision is to be provided at a rate of 4 sqm per dwelling, which is 2,600 sqm. Doyle O'Troithigh Landscape Architects have developed a proposal to provide 14 different play areas throughout the scheme, along with a MUGA which was requested by the Parks Department of Fingal County Council. The play provision includes natural play, incidental play, formal playgrounds, callisthenics units and then play areas designed for the needs of very small children and their parents and guardians within the communal open space provided for apartments and duplex units.

3.2.16 Smarter Travel: A Sustainable Transport Future

In summary, '*Smarter Travel: A Sustainable Transport Future*' states that, "*to achieve the vision of a sustainable transport system, individual lifestyles will have to change and collectively we will have to work progressively on a range of solutions which deal with apparently conflicting goals: economic growth, reduced emissions, less use of motorised transport and better accessibility.*"

The 5 key goals of this transport policy are as follows:

- *Improve quality of life and accessibility to transport for all and, in particular, for people with reduced mobility and those who may experience isolation due to lack of transport;*

- *Improve economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks;*
- *Minimise the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions;*
- *Reduce overall travel demand and commuting distances travelled by the private car; and,*
- *Improve security of energy supply by reducing dependency on imported fossil fuels.*

It is considered that the proposed development complies with 'Smarter Travel: A Sustainable Transport Future'. The Mooretown LAP lands are currently served by various bus services which serve a number of bus stops distributed across the area. The subject site is located approximately 800 metres from R125 Rathbeale Road and closest bus stops (currently served by Dublin Bus Route 41B and Go-Ahead Bus Route 197). Additionally, with the extension of the new Distributor Link Road to the western boundaries of the subject site, accessibility of the site to the southern parts and eventually Brackenstown Road would provide for an increased level of bus services (currently served by Dublin Bus Routes 41, 41C, 41X, 196, 500, 500X, 503, and 507). These routes provide direct access to Dublin City Centre from the proposed development.

The proposed development also provides considerable secure bicycle parking for future residents and visitors to again encourage use of sustainable modes of transportation. This can also be noted within the scheme with an enhanced permeability and connectivity to adjoining sites. It is evident that the proposed scheme's main aim is to facilitate and support the use of sustainable transport, particularly by facilitating connectivity within the lands.

Therefore, it is considered that the proposed development is consistent with this national transport policy and will assist in its implementation. Please refer to the enclosed Traffic and Transport Assessment prepared by Waterman Moylan Engineering Consultants for further details in this regard.

3.2.17 Design Manual for Urban Roads and Streets (DMURS)

The 'Design Manual for Urban Roads and Streets' (DMURS) 2013 and as updated in 2019, sets out design guidance and standards for constructing new and reconfigured existing urban roads and streets. It also sets out practical design measures to encourage more sustainable travel patterns in urban areas. The engineering assessment report prepared by Waterman Moylan Engineering Consultants provide further details in respect of the compliance of the proposed development with the provision of DMURS. Please refer to the pertaining documents prepared by Waterman Moylan Engineering Consultants for further information in this regard.

3.2.18 National Cycle Manual (June 2011)

The 'National Cycle Manual' 2011 embraces the Principles of Sustainable Safety as this will offer a safe traffic environment for all road users including cyclists. It offers guidance on integrating the bike in the design of urban areas. The Manual challenges planners and engineers to incorporate cycling within transport networks more proactively than before.

Outlined in the Manual, many residential and access streets already offer a high quality of service to cycling. Cycling two-abreast on quiet, interesting, well-surfaced streets and roads can be attractive to

cyclists. In many cases there is no physical infrastructure involved, other than the self-evident and self-enforcing nature of the environment.

The Manual also gives guidance on the minimum number of spaces which should be provided initially at new private and public facilities in urban areas. For housing developments, this is stated to be:

- 1 no. private secure bicycle space per bed space (note - design should not require bicycle access via living area), minimum 2 spaces; and
- 1 visitor bicycle space per two housing units.

The following gives an overview of the varying characteristics of parking at residential areas that should be considered in determining the most appropriate parking facility.

- Convenience is essential for frequently used bicycles, and preferably not via living areas;
- Private parking should accommodate residents and visitors; and,
- Shared parking facilities can be suitable for multiple dwellings (e.g. apartment complex).

It is submitted that connections in the proposed development have been addressed by provision of high standard and prioritised cycle infrastructure throughout the scheme and its wider context. All internal roads in the proposed development are designed for a speed limit of 30kph with typically 5.0m wide carriageways and footpaths along both sides. All intersections within the development itself will be priority junctions with raised tables where appropriate. The low design speeds and traffic calming measures will ensure the safe operation of these junctions and a safe/secure environment for pedestrians and cyclists. For further information in this regard, please refer to the enclosed Traffic and Transport drawings and documentation prepared by Waterman Moylan Engineering Consultants for further details in this regard.

3.2.19 Retail Planning Guidelines (2012) and Retail Design Manual (2012)

The Retail Planning Guidelines, which were first issued in 2000 and subsequently revised in 2005, and subsequently the third iteration of the Guidelines were published in 2012 accompanied by the Retail Design Manual (2012), providing the strategic policy framework for the spatial distribution of new retail development. Therefore, the Guidelines provide a comprehensive framework to guide both local authorities in preparing development plans and assessing applications for planning permission, and retailers and developers in formulating development proposals.

The guidelines specifically state that local retail units such as corner shops or shops located in local or neighbourhood centres serving local residential districts perform an important function in urban areas. Where a planning authority can substantiate the local importance of such units in defined local centres, they should safeguard them in development plans, through appropriate land-use zoning. Development management decisions should support the provision of such units, particularly where they encompass both food-stores and important non-food outlets such as retail pharmacies, and have significant social and economic functions in improving access to local facilities especially for the elderly and persons with mobility impairments, families with small children, and those without access to private transport. The guidelines identify five key objectives, of equal weight, which are as follows:

- to ensure that in future all Development Plans incorporate clear policies and proposals for retail development,

- to facilitate a competitive and healthy environment for the retail industry of the future,
- to promote forms of development which are easily accessible, particularly by public transport and in a location which encourages multi-purpose shopping, business and leisure trips,
- to support the continuing role of town and district centres, with
- a presumption against large retail centres located adjacent or close to existing, new or planned national roads/motorways.

The Guidelines clearly acknowledge that it is critical for the proper planning and sustainable development of an area that new retail development is located at the optimum location having regard to the type of retail offering and the context of the existing environs. It is submitted that the proposed scheme comprises of 5 no. retail units and a café/restaurant which is considered a scale appropriate to serve the local needs of residents.

3.2.20 EIA Directive

The EIA Directive was transposed into Irish Planning legislation on 1st September 2018. Section 172(1) of the Planning and Development Act 2000 (as amended) sets out the requirement for EIA. This current proposed project has been screened for EIA by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018).

The EIA Directives list those projects for which an EIA is mandatory (Annex I) and those projects for which an EIA may be required (Annex II). Annex I projects are listed in Part 1 of Schedule 5 of the Planning and Development Regulations 2001 as amended (“the Regulations”). The Project is not listed within Part 1 of Schedule 5 of the Regulations and therefore mandatory EIA is not required under Annex 1. Concerning Part 2 of Schedule 5 (Annex II) Projects, the relevant thresholds relating to the subject proposal are outlined below:

- **Class 10(b)(i) “Construction of more than 500 dwelling units.”:** This project comprises a residential development including the provision of 650 no. new residential dwelling units. Therefore, the Project exceeds the stated threshold, and an EIA is required in this context.
- **Class 10(b)(ii): “Construction of a car-park providing more than 400 spaces, other than a car-park provided as part of, and incidental to the primary purpose of a development.”:** The Project does not include a car park providing 400 no. spaces or more. Furthermore, all car parking is provided within the project is incidental to the primary purpose of the residential development. Therefore, the car parking element of the project does not fall within this Class of Regulations.
- **Class 10(b)(iv): “Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere”:** In this instance, the application site extends to c. 18.378 hectares within what can be considered a built-up area. Therefore, the project exceeds this threshold, and an EIA is required on this basis.

Additionally, the requirement for an EIAR in this instance was triggered by the legacy of the Oldtown-Mooretown LAP 2010-2016 (extended up to July 2020 and expired since) which pertained to the subject lands. The LAP contained two statements, which had implications for the requirement of an EIAR. The LAP referred to an E.I.S. which is what an EIAR was formerly known as. The first statement in question, referred to in Section 4 of the plan relating to phasing and implementation was as follows:

“An E.I.S for the developments shall be prepared and submitted, as determined by the Planning Authority. The EIS shall be submitted with every planning application”.

The second statement of interest is set out in Section 4.1 of the LAP, provided guidance on the phasing programme for development of the LAP, as follows:

“No one application for residential development shall be greater than 250 units”.

Furthermore, due to the location of the subject lands, the on-going delivery on the Oldtown-Mooretown lands and the potential cumulative impact it can have, an EIA is required, and thus an Environmental Impact Assessment Report has been prepared to accompany this planning application.

- *The European Community Directive on Environmental Impact Assessment (No 85/337/EEC);*
- *The European Community Directive (97/11/EC) amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment;*
- *The Planning and Development Act, 2000 (as amended);*
- *The Planning and Development Regulations 2000 as amended;*
- *European Commission, Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (May 1999);*
- *European Commission, Guidance on EIA Screening (June 2001);*
- *European Commission, Guidance on EIA Scoping (June 2001);*
- *Environmental Protection Agency (EPA), Guidelines on the information to be contained in Environmental Impact Statements (March 2002);*
- *EPA, Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (September 2003);*
- *EPA, Guidelines on the Information to be contained in Environmental Impact Assessment Reports (August 2017);*
- *EPA, Advice notes for preparing Environmental Impact Statements Draft (September 2015);*
- *European Commission, Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (April 2013)*
- *Circular Letter PI 1/2017: Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive)*
- *The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018); and*
- *The Guidelines for Planning Authorities and An Bord Pleanála on Carrying Out Environmental Impact Assessment (August 2018).*

The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) transpose the requirements of the 2014 EIA Directive into Irish Planning Law. On 1st September 2018, the provisions of the Regulations came into effect. This EIAR has been prepared in light of these EIAR Regulations and has also with specific regard to the ‘Guidelines for Planning Authorities and An Bord Pleanála on Carrying Out Environmental Impact Assessment’ which were published in August 2018.

3.2.21 Bird and Habitats Directive - AA Screening & Natura Impact Statement

The proposed development has been screened for Appropriate Assessment in accordance with the requirements of Article 6(3) of the EU Habitats Directive (92/32/EEC). Altemar Ltd. has prepared a report for Screening for Appropriate Assessment for the proposed development. In a strict application of the precautionary principle, it has been concluded that effects on Malahide Estuary SAC and Malahide Estuary SPA are likely from the proposed works in the absence of mitigation measures, as a result of a direct hydrological connection to the site via the proposed surface water drainage network, with possible downstream impacts from the project during the reprofiling, construction landscaping and drainage works. For this reason, an NIS was carried out to assess whether the proposed project, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European Site. All other European sites were screened out at initial screening.

Construction on this site will create localised light and noise disturbance that will not impact on European sites. Mitigation measures will be in place to ensure that there are no significant impacts on the surface water that leads to Malahide Estuary SAC and Malahide Estuary SPA. Following the implementation of the mitigation measures outlined, the construction and presence of this development would not be deemed to have a significant impact. No significant impacts are likely on European sites, alone or in combination with other plans and projects based on the implementation of mitigation measures.

The report presents an Appropriate Assessment Screening and NIS for the proposed development. It outlines the information required for the competent authority to screen for appropriate assessment and to determine whether or not the proposed development, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European site. On the basis of the content of the report, the competent authority is enabled to conduct an Appropriate Assessment and consider whether, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European site.

No significant effects are likely on European sites, their features of interest or conservation objectives. The proposed project will not will adversely affect the integrity of European sites. For further information in this regard, please refer to the Appropriate Assessment Screening and Natural Impact Statement Report prepared by Altemar Ltd.

3.2.22 The Planning System and Flood Risk Guidelines (2009)

These Guidelines require the planning system at all levels to avoid developments in areas at risk of flooding, particularly floodplains, except where there are no suitable alternative sites available in areas at lower risk that are consistent with the objectives of proper planning and sustainable development. Where such development has to take place, in the case of urban regeneration for example, the type of development has to be carefully considered and the risks should be mitigated and managed through location, layout and design of the development to reduce flood risk to an acceptable level. Applicants are advised to carefully examine their development proposals to ensure

consistency with the requirements of these Guidelines including carefully researching whether there have been instances of flooding or there is the potential for flooding on specific sites and to carry out a site-specific flood risk assessment. In accordance with these Guidelines, Waterman Moylan Engineering Consultants have carried out a flood risk assessment of the subject site. The site has been assessed in accordance with the Flood Risk Management Guidelines, with appropriate mitigation measures proposed such as SuDs design, attenuation ponds, overland flood routing, appropriate floor levels, and regular inspections. Therefore, it is considered that the proposed development is consistent with the requirements of this national flood risk management policy. For further information in this regard, please refer to the enclosed Flood Risk Assessment prepared by Waterman Moylan Engineering Consultants.

3.2.23 National Adaptation Framework: Planning for a Climate Resilient Ireland

In accordance with the ‘*Climate Action and Low Carbon Development Act 2015*’, this National Adaptation Framework (NAF) specifies the national strategy for the application of adaptation measures in different sectors and by local authorities in their administrative areas in order to reduce the vulnerability of the State to the negative effects of climate change and to avail of any positive effects that may occur.

This NAF and its successors will set out the context to ensure local authorities, regions and key sectors can assess the key risks and vulnerabilities of climate change, implement climate resilience actions and ensure climate adaptation considerations are mainstreamed into all local, regional and national policy making.

The ‘Built Environment and Spatial Planning’ section within this Framework recognises that, “*climate change considerations need to be taken into account as a matter of course in planning-related decision making processes and that the deepening of adaptation considerations in the planning and building standards processes is considered the most appropriate way of increasing the resilience of the built environment*”.

Furthermore, “*effective planning reduces vulnerability to the negative effects of climate change by integrating climate considerations into decision making in order to avoid inappropriate forms of development in vulnerable areas and promoting compact development in less vulnerable areas*”. It is important to mention that this Framework envisions ‘flood resilience’ and ‘access to wildlife and green space’ as no-regret benefits of effective adaptation which would continue to be worthwhile regardless of future climate scenarios.

As such, the proposed development has taken into consideration the context of the site and it can be noted that an assessment of Flood Risk has been prepared by Waterman Moylan Engineering Consultants, with appropriate mitigation measures proposed such as SuDs design, attenuation ponds, overland flood routing, etc. Thus, the proposed development with access to high-quality green communal space and introduction of best practice energy efficiency measures as required to meet the Energy Strategy and Building Regulations and promoting a compact urban form for ‘less vulnerable areas’ is consistent with this national framework.

3.2.24 Climate Action Plan 2019

Climate disruption is already having diverse and wide-ranging impacts on Ireland's environment, society, economic and natural resources. The Climate Action Plan 2019 sets out an ambitious course of action over the coming years to address this issue. The Plan clearly identifies the nature and scale of the challenge. It outlines the current state of play across key sectors including Electricity, Transport, Built Environment, Industry and Agriculture and charts a course towards ambitious decarbonisation targets. The Plan sets out governance arrangements including carbon-proofing policies, establishment of carbon budgets, a strengthened Climate Change Advisory Council and greater accountability to the Oireachtas.

The Plan clearly recognises that Ireland must significantly step up its commitments to tackle climate disruption. The leadership role both the Government and public bodies can play in taking early action on climate is fundamental to achieving our decarbonisation goals. The Plan notes that the built environment accounted for 12.7% of Ireland's greenhouse gases in 2017. It is important that we improve the energy efficiency of our buildings, including our homes, workplaces, and schools by meeting higher energy performance standards and by increasing retrofit activity. This will not only reduce Ireland's dependence on fossil fuels, but will also improve our living standards by making our buildings more comfortable, healthier, safer, and less costly to heat.

Our buildings are 70% reliant on fossil fuels, including oil fired boilers; over 80% of our homes and other buildings assessed for their BER have a rating of C or worse; and the current annual retrofit activity for existing stock is far too limited (approximately 23,000, mainly shallow, retrofits). A hierarchy of the most cost effective investments underpin this, including:

- Improving the fabric of buildings
- District heating in commercial buildings
- Switching from oil burners to heat pumps
- Setting new building standards.

As such, the proposed development has taken into consideration the Climate Action Plan and measures have been included within the design of the development to reduce carbon emissions in line with the requirements of the Action Plan.

3.2.25 All-Ireland Pollinator Plan 2021-2025

The All-Ireland Pollinator Plan is a shared plan of action which is to bring about a landscape where pollinators can flourish over 2021-2025. To achieve this, the Plan sets out six objectives; (1) Making farmland pollinator friendly, (2) Making public land pollinator friendly, (3) Making private land pollinator friendly, (4) All-Ireland Honeybee Strategy, (5) Conserving rare pollinators, and (6) Strategic coordination of the Plan.

Accordingly, the planting has been selected to ensure resilient planting establishes well and offers variety throughout the seasons. A select number of species which are already present in the hedgerows on site have been included within the planting species mix. By including species which are already present on the site lands, and flourish in the local micro-climate; this is considered a practical and a respectful approach with regard to a species selection. It is proposed that much of the

appropriate ornamental shrubs, for more highly maintained zones, shall be under-planted with bulb species to offer ‘flurries’ of colour from early to late spring. Leaf colour, bark tone and berries shall all be considered for the scheme which allows for good contrast and again, seasonal variation. To the grass amenity areas, the planting of large swathes of bulbs many of the open spaces and pocket parks will provide colour in early through to late spring. This will reduce the grass cutting maintenance for a period of time when bulb planting is developing right through to senescence. This reduced mowing regime would also be encouraged under the previously referenced ‘All-Ireland Pollinator Plan 2021-2025.’ Please refer to the Landscape Design Report prepared by Doyle & O’Troithigh Landscape - Architecture for further details on inclusion of the Plan guidelines within the proposed landscape of the scheme.

3.3 REGIONAL POLICY AND GUIDELINES

The key provisions of the regional planning policy as it relates to the proposed development are now set out in the following sections. The key regional policy of relevance includes:

- Regional Spatial and Economic Strategy for the Eastern and Midland Region 2019-2031; and,
- Transport Strategy for the Greater Dublin Area 2016-2035.

3.3.1 Regional Spatial and Economic Strategy

The Regional Spatial and Economic Strategy (RSES) was published by the Eastern and Midland Regional Assembly. The RSES outlines the long-term regional level strategic planning and economic framework in support of the National Planning Framework for the period 2019-2031. The RSES identifies regional assets, opportunities, pressures, and constraints and provides a framework for investment to better manage spatial planning and economic development throughout the Eastern & Midland Region. The RSES is tasked with the development of planning policy for future housing needs in the region upon consideration of the availability of land, resources, environment, and infrastructure capacity.

In conjunction with the NPF, the RSES predicts Dublin City and Suburbs to experience continued population growth over the period 2019-2031 with a predicted increase of 220,000. The NPF targets 50% of all housing to be provided within or contiguous to the built-up area of Dublin city and suburbs. In order to combat and provide for compact residential development, the RSES outlines a number of key Regional Policy Objectives that pertain to the NPF targets. The key Regional Policy Objectives applicable to the development proposal is the following:

Regional Policy Objective (RPO) 5.4 - *“Future development of strategic residential development areas within the Dublin Metropolitan area shall provide for higher densities and qualitative standards as set out in the ‘Sustainable Residential Development in Urban Areas’, ‘Sustainable Urban Housing; Design Standards for New Apartments’ Guidelines, and ‘Urban Development and Building Heights Guidelines for Planning Authorities.’”*

Regional Policy Objective (RPO) 5.5 - *“Future residential development supporting the right housing and tenure mix within the Dublin Metropolitan Area shall follow a clear sequential approach, with a primary focus on the consolidation of Dublin and suburbs, and the development of Key Metropolitan Towns, as set out in the Metropolitan Area*

Strategic Plan (MASP) and in line with the overall Settlement Strategy for the RSES. Identification of suitable residential development sites shall be supported by a quality site selection process that addresses environmental concerns.”

The proposed development is located on already serviced zoned lands, comprises the third phase of a wider residential scheme for the area, and provides for a residential development in close proximity to a wide range of services and amenities. It is submitted that the provision of a high-quality residential development consisting of 265 no. houses (240 no. 3 beds and 25 no. 4 beds), 187 no. apartments, 6 no. triplex units, and 192 no. duplex units (113 no. duplex “house” units and 79 no. duplex “apartment” units) within this SHD application will assist in achieving the aforementioned objectives and it also complies with the pertaining policies and standards. For further details on how the proposed development is in accordance with these policies, please refer to the Housing Quality Assessment (HQA) and Architectural Design Statement prepared by CCK Architects which are included as part of the architectural planning packs.

In relation to Settlement Strategies, Regional Policy Objectives (RPO) 4.1 and 4.2 of the RSES set out the rationale and basis for preparing these strategies. RPO 4.1 states:

“In preparing Core Strategies for development Plans, Local Authorities shall determine the hierarchy of settlements in accordance with the hierarchy, guiding principles and typology of settlements in the RSES, within the population projections set out in the National Planning Framework to ensure that towns grow at a sustainable and appropriate level, by setting out a rationale for land proposed to be zoned for residential, employment and mixed-use development across the Region. Core strategies shall also be developed having regard to the infill/brownfield targets set out in the National Planning Framework, National Policy Objectives 3a-3c.”

RPO 4.2 states:

“Infrastructure investment and priorities shall be aligned with the spatial planning strategy of the RSES. All residential and employment developments should be planned on a phased basis in collaboration with infrastructure providers so as to ensure adequate capacity for services (e.g. water supply, wastewater, transport, broadband) is available to match projected demand for services and that the assimilative capacity of the receiving environment is not exceeded.”

It is submitted that the proposed development on existing zoned, serviced lands within Swords will adhere with the policies and objectives of the Regional Spatial and Economic Strategy for the Eastern & Midland Regional Assembly area and will contribute to providing additional housing units and employment opportunities within the existing envelop of Dublin City and Suburbs.

3.3.2 Transport Strategy for the Greater Dublin Area 2016-2035

This transport strategy provides a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA). The purpose of the Strategy is: *“To contribute to the economic, social and cultural progress of the Greater Dublin Area by providing for the efficient, effective and sustainable movement of people and goods.”*

The core of the strategy seeks the better integration of land use planning and transport planning. This can be achieved through the consolidation of development into higher order centres. In terms of the provision of housing, the strategy seeks to directly enable the sustainable development of strategically important residential sites, particularly in Metropolitan Dublin, where demand is highest.

The proposed development at Mooretown, Swords, which seeks to complete the overall Mooretown residential scheme, is considered an appropriate form of development in the context of supporting the vision and objectives of the Transport Strategy for the Greater Dublin Area 2016-2035.

3.4 LOCAL PLANNING POLICY

This section of the report provides an account of the relevant local planning policy framework pertaining to the application site and proposed development, all of which is contained within the Fingal Development Plan 2017-2023 and the Oldtown-Mooretown Local Area Plan 2010-2016 (as extended).

3.4.1 Fingal County Development Plan 2017-2023

3.4.1.1 Overarching Considerations

The subject site is located within the functional area of Fingal County Council. The development of the site is therefore informed by the policies and objectives of the Fingal County Development Plan. It is submitted that the Development Plan, and in particular the County Core Strategy, is updated with NPF/RSES population targets for the Dublin Region and Fingal County Council, however the proposed variation does not contemplate changes, but in fact facilitates achieving the updated population targets for Swords and the overall County.

3.4.1.2 Core Strategy & Housing Strategy

The purpose of the Core Strategy is to articulate a medium-to-longer term quantitatively based strategy for the spatial development of the area of the Planning Authority and in doing so, to demonstrate that a Development Plan and its policies and objectives are entirely consistent with national and regional policies and strategies.

The vision of the Fingal Development Plan is to grow the county in a long-term sustainable way as it enters a period of economic and population growth. The plan states that, *“the emphasis of this Plan is to continue to consolidate the existing zoned lands and to maximise the efficient use of existing and proposed infrastructure. In this way the Council can ensure an integrated land use and transport strategy in line with national and regional policy. [...] The development of larger areas of residential or mixed-use lands will only take place subject to the necessary infrastructure being available and to this end will be subject to a Local Area Plan. It is through the LAP process that, within the towns and villages, the detailed phasing and distribution of housing will be determined in line with the population and housing targets established at a strategic level.”*

In this instance, the subject site forms part of the Oldtown and Mooretown lands in Swords. The design principles that informed the proposed layout reflected the urban design objectives of the since expired LAP for the area thus ensuring the development of these lands is consistent with earlier phases. The proposed development forms part of a wider residential scheme for the Mooretown lands granted

under Reg. Ref. F15A/0183 (Phase 1), Reg. Ref. F16A/0505 (Phase 2), Reg. Ref. F18A/0701 (Phase 1A), Reg. Ref. F18A/0751 (Phase 1B), and Reg. Ref. F19A/0029 (Phase 1C). The proposed scheme comprises the third phase of the overall development for the Mooretown lands.

Outlined in the Variation No. 2 of the Development Plan, Swords currently provides for a significant employment base, reflecting its location proximate to the M1, M50 and Dublin Airport. The Development Strategy for the town is of consolidation, active land management, employment generation and residential development centred around regeneration of the town centre and high-quality public transport in the form of Metrolink and Busconnects. Development will be appropriately managed through the provision of LAPs and Masterplans. Having regard to the status of the Key Town designation and the ongoing delivery of housing within Swords, a 15% increase in population is appropriate.

With regards to the housing strategy as set out within the Development Plan, there are three core principles which inform and guide the core strategy which are as follows:

- *“To ensure Fingal County Council provides for the development of sufficient housing to meet its obligations as set out in the Regional Planning Guidelines.*
- *To identify the existing and likely future need for housing in the area of the Development Plan.*
- *To ensure that sufficient zoned lands are provided to meet the needs of the different categories of households.”*

It is submitted that the proposed development at Mooretown is consistent with the Variation No. 2 of the Development Plan, as well as housing strategy as it will assist in the delivery of housing, of a sustainable density, within a wider residential scheme granted under Reg. Ref. F15A/0183, Reg. Ref. F16A/0505, Reg. Ref. F18A/0701, Reg. Ref. F18A/0751, and Reg. Ref. F19A/0029, within close proximity to a public transport corridor, whilst providing a variety of unit types and mixed tenures for all, in a high-quality, vibrant community setting.

3.4.1.3 Sustainable Neighbourhoods and Communities

In terms of sustainable communities and urban design in residential developments, the Development Plan states that, *“successful areas are places where people want to live, work and visit”*. The Development Plan emphasises several characteristics that attractive places have in common:

- *“Include a range of facilities focused in a consolidated area with a critical mass of attractions and make best use of the already established investment in the built environment; these attractions include a mix of shops as well as a wide range of financial, professional and government services together with cultural, entertainment and leisure facilities.*
- *Include a thriving local residential population which adds to the vitality and vibrancy of the area as it ensures activity outside of standard retail and office opening hours.*
- *Are easily accessible by a range of transport modes including cycling and walking, have sufficient good quality short stay car parking close to the core area, have good transport linkages within the centre, and have efficient arrangements for delivery of goods.*

- *Present an attractive amenity in terms of the built environment and streetscape, streets and public spaces which are considered clean and safe, and have a sense of local identity and character, all of which greatly enhances the attraction of the centre.*
- *Have the vision and mechanisms in place to build on these existing assets, can overcome problems, adapt to both market and consumer needs and can secure appropriate and necessary improvements where required.*
- *Encourage and facilitate sustainable lifestyles and livelihoods.”*

It is submitted that the proposed development at Mooretown is consistent with these criteria. The proposed residential development which incorporates 1 no. childcare facility (512 sqm), 5 no. retail units, and a café/restaurant is located in an area which benefits from ease of access to a range of transport modes (including bus) with cycling and walking also a key consideration of the proposed development. The influx of population arising from the proposed development will increase the critical mass required to further support public transport infrastructure. There is a range of facilities in the immediate vicinity of the subject lands including community facilities, sports clubs, etc. and within the wider Swords area. A Community and Social Infrastructure Audit, prepared by Downey Planning, also accompanies this SHD application request which provides detailed information and assessment on the existing infrastructure currently serving the Mooretown lands. The design of the proposed development provides for an attractive development with a sense of character and place that will integrate the proposed development with the surrounding area and assist in the completion of the wider residential scheme for the Oldtown-Mooretown lands.

3.4.1.4 Movement and Transport

In relation to movement and infrastructure, the Development Plan states that a safe, efficient, effective, and sustainable transportation system is essential to the future economic, social, and physical development of Fingal. The Development Plan seeks to:

- *“Promote and facilitate movement to, from, and within the County of Fingal, by integrating land use with a high quality, sustainable transport system that prioritises walking, cycling and public transport.*
- *Provide an appropriate level of safe road infrastructure and traffic management, in particular to support commercial and industrial activity and new development.*
- *Work with all relevant stakeholders to seek a reduction in greenhouse gas emissions from transport.”*

The Plan notes that the integration of land-use and transport involves locating trip intensive land uses (such as high-density housing, offices, and comparison retail) near high capacity public transport (such as DART, Metro, Luas, and Bus Rapid Transit). It benefits the land uses by providing high quality public transport for the greatest number of residents and employees. It benefits public transport by providing sufficient customers within its catchment to sustain the high cost of public transport infrastructure and services.

Allowing higher density development to occur along public transport corridors increases the number of people within the walking catchment of the public transport service, which in turn increases the patronage of the service, and leads to an increase in its financial and economic viability and positive environmental impact. In this instance, the proposed development provides for a residential development of sustainable density within close proximity to high-frequency public transport in accordance with objectives set out within the Development Plan including:

Objective MT05: *“Integrate land use with transportation by allowing higher density development along higher capacity public transport corridors.”*

Objective MT08: *“Control on-street parking in the interests of the viability, vitality and amenity of commercial centres by maximising the supply of short stay parking for shoppers, while providing appropriate levels of long-term parking within a reasonable distance for employees.”*

Objective MT13: *“Promote walking and cycling as efficient, healthy, and environmentally friendly modes of transport by securing the development of a network of direct, comfortable, convenient and safe cycle routes and footpaths, particularly in urban areas.”*

Objective MT19: *“Design roads and promote the design of roads, including cycle infrastructure, in line with the Principals of Sustainable Safety in a manner consistent with the National Cycle Manual and the Design Manual for Urban Roads and Streets.”*

Objective MT22: *“Improve pedestrian and cycle connectivity to stations and other public transport interchanges.”*

Objective MT37: *“Implement traffic calming on particular roads and in appropriate areas of the County, especially residential areas, to reduce vehicle speeds in the interests of road safety and residential amenity. Ensure that where appropriate, traffic calming is included as a pre-condition as part of the development of all new estates or extensions to existing estates.”*

It is submitted that the proposed development at Mooretown is consistent with these policies and objectives. The completion of this area of the Oldtown-Mooretown lands and wider area will ensure walking and cycling are viable options for the community, with the area also very well served by existing public transport infrastructure all of which will ensure that the future population utilise sustainable public transport and active travel options rather than car transport. This is outlined further in the enclosed Traffic and Transport Assessment prepared by Waterman Moylan Engineering Consultants.

3.4.1.5 Land Use Zoning

Under the Fingal County Development Plan 2017-2023, the subject site is zoned “RA - Residential Area” and therefore aims to:

“Provide for new residential communities subject to the provision of the necessary social and physical infrastructure.”

The vision for this objective seeks to “ensure the provision of high quality new residential environments with good layout and design, with adequate public transport and cycle links and within walking distance of community facilities. Provide an appropriate mix of house sizes, types and tenures in order to meet household needs and to promote balanced communities”.

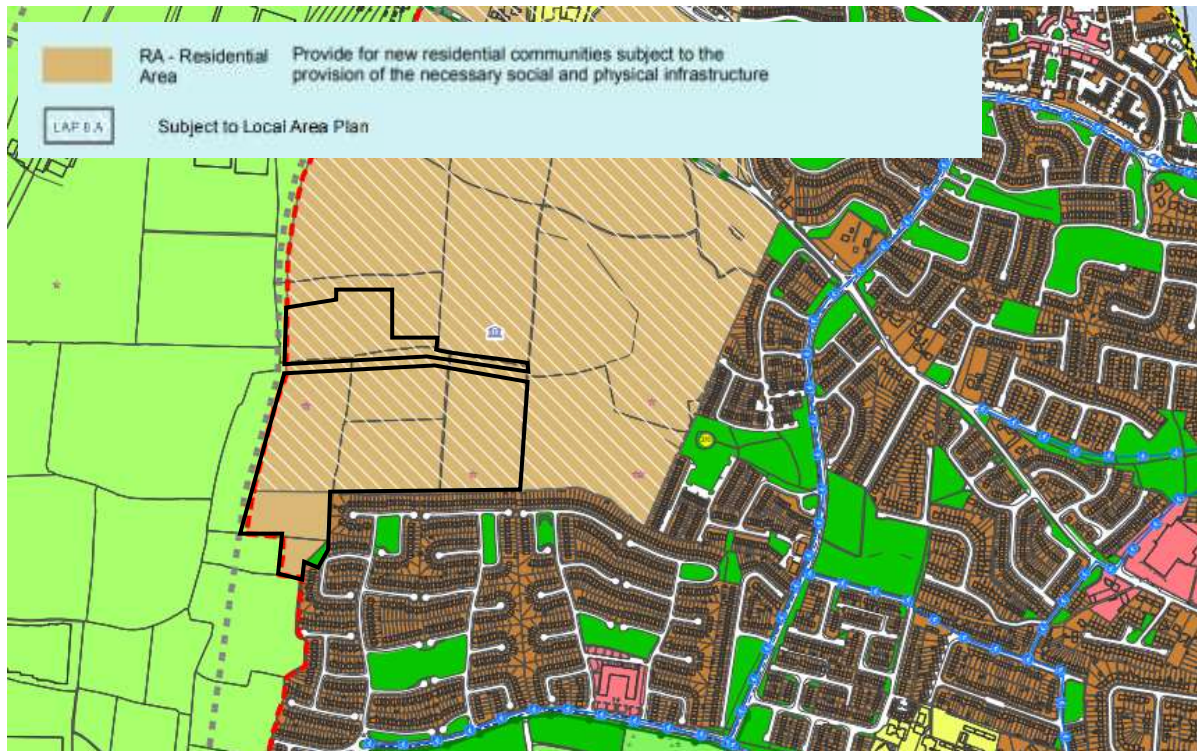


Figure 3-2. Land Use Zoning Map Extracted from the County Development Plan (application site outlined in black)

Under the RA zoning, the following uses are permitted in principle.

Uses Permitted in Principle under the RA Land Use Zoning

Amusement Arcade⁹; Bed and Breakfast; Betting Office⁹; Childcare Facilities; Community Facility; Education; Funeral Home/Mortuary⁹; Guest House; Health Centre; Health Practitioner; Hospital; Office Ancillary to Permitted Use; Office ≤ 100sqm⁹; Office > 100sq.m. and, 1,000sqm¹¹; Open Space; Place of Worship; Public House⁹; Public Transport Station; Recreational Facility/Sports Club; Residential; Residential Care Home/Retirement Home; Restaurant/Cafe⁹; Retail-Local < 150 sqm nfa⁹; Retail – Convenience ≤ 500 sqm nfa⁹; Retail – Comparison ≤ 500 sqm nfa⁹; Retail – Supermarket ≤ 2,500 sqm nfa⁹; Retirement Village; Sheltered Accommodation; Sustainable Energy Installation; Taxi Office; Traveller Community Accommodation; Utility Installations; Veterinary Clinic.

⁹ In a local centre only

¹¹ Only located in a local centre and of a scale appropriate to that centre

Table 3. Permitted Uses under the RA Land Use Zoning

Therefore, the proposed mixed-used development providing for residential, community amenity, and retail/commercial services are permitted in principle under the zoning objectives pertaining to the subject lands. The Class 1 open space lands to the north are zoned OS-Open Space – “to preserve and provide for open space and recreational amenities”. The proposed open space in this area is therefore permitted in principle under this zoning designation. The proposed storage tank site is zoned ME-Metro Economic Corridor – “to facilitate opportunities for high-density mixed-use employment

generating activity and commercial development and support the provision of an appropriate quantum of residential development within the Metro Economic Corridor". The tank can be considered essential infrastructure and has been designed in conjunction with Irish Water. It will not only facilitate the connection requirement of this subject application but will also have the capacity to allow for continued development in the Oldtown/Mooretown catchment.

3.4.1.6 Development Standards

Chapter 12 of the Fingal County Development Plan sets out development standards and criteria that from the policies and objectives of the Development Plan to ensure that development occurs in an orderly and efficient manner and that it is in accordance with proper planning and sustainable development. The following section assesses the main set of standards and criteria required for high-quality, sustainable development:

(A) High Quality Urban Design

The Development Plan defines several objectives to support high quality urban design. It will allow the creation of accessible places where people want to live, work, and spend time. It is the policy of the Council to ensure all development is of a high-quality design and promotes the achievement of accessible, safe and sustainable built and natural environments, which reflect the special character and heritage of the County and its varied townscapes and landscapes. Design principles are based on the 'Sustainable Residential Development in Urban Areas - Guidelines for Planning Authorities' and 'Best Practice Urban Design Manual', which contains twelve design principles to be applied to all developments with Objective DMS03 requiring:

Objective DMS03: *"Submit a detailed design statement for developments in excess of 5 residential units or 300 sq. m of retail/commercial/office development in urban areas. The design statement is required to:*

- *Explain the design principles and design concept.*
- *Demonstrate how the twelve urban design criteria (as per the 'Urban Design Manual - A Best Practice Guide') have been taken into account when designing schemes in urban areas. Each of the twelve criteria is of equal importance and has to be considered in an integrated manner.*
- *Outline how the development meets the Development Plan Objectives, and the objectives of any Local Area Plan, Masterplan, Urban Centre Strategy, Framework Plan or other similar Plan affecting the site.*
- *Include photographs of the site and its surroundings.*
- *Include other illustrations such as photomontages, perspectives, sketches.*
- *Outline detailed proposals for open space and ensure the provision of open space is designed in from the beginning when designing a new scheme.*
- *Outline a detailed high-quality open space and landscape design plan including specifications, prepared by suitably qualified professionals.*
- *Outline how Green Infrastructure integrates into the scheme."*

In accordance with the aforementioned objective, an Architectural Design Statement as been prepared by CCK Architects which sets out the proposed developments compliance with the 12 urban design criteria and how the proposed development accords with the requirements of Objective DMS03 of the pertaining Development Plan.

(B) Dwelling Mix

The Development Plan states that the dwelling mix in any residential scheme should provide a balanced range of dwelling types and sizes to support a variety of household types. The proposed development consists of 265 no. houses (240 no. 3 beds and 25 no. 4 beds), 187 no. apartments, 6 no. triplex units, and 192 no. duplex units (113 no. duplex “house” units and 79 no. duplex “apartment” units). In this regard, the proposed development provides for a mix of units in accordance with the Development Plan and the mix requirements as set out within the ‘*Sustainable Urban Housing: Design Standards for New Apartments*’ Guidelines.

(C) Density

The Development Plan provides that the number of dwellings to be provided on a site should be determined with reference to the ‘*Sustainable Residential Development in Urban Areas - Guidelines for Planning Authorities*’ (2009). Section 5.11 of the Guidelines encourages a net residential density in the range of 35-50 units/hectare for the subject lands. It also states that densities less than 30 dwellings per hectare should generally be discouraged in the interests of land efficiency. In this regard, the proposed development provides for a net density of 45 units per hectare (650 units on 14.47 hectares) and therefore accords with the density requirements of both the Development Plan and national guidelines.

(D) Apartment Developments

The ‘*Sustainable Urban Housing: Design Standards for New Apartments*’ Guidelines have superseded the design standards for apartments as set out in the Development Plan. With regards to Dual Aspect the proposed development provides for a minimum of 70% dual aspect units in accordance with Objective DMS20 of the Development Plan.

The apartment floor areas are also in accordance with the ‘*Sustainable Urban Housing: Design Standards for New Apartments*’ as set out in the enclosed Architectural Design Statement (Architects Report) prepared by CCK Architects and generally exceed the minimum standard. Please refer to the enclosed report for full details on the proposed developments compliance with standards for apartment developments.

(E) Daylight, Sunlight and Overshadowing

Objective DMS30 of the Development Plan requires that all new residential units comply with the recommendations of the ‘*Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice*’ (B.R.209, 2011) and ‘*BS 8206-2:2008 Lighting for Buildings, Code of Practice for Daylighting*’ or other updated relevant documents. This planning application is accompanied by a preliminary Daylight Assessment prepared by Waterman Moylan Engineering Consultants, which demonstrate that the proposed development complies with aforementioned guidelines and accords with the BRE recommended daylight levels.

(F) Refuse Storage and Bins

The proposed development provides for refuse storage areas to rear gardens for those units benefiting of access to a rear garden (detached, semi-detached or end of terrace). Bin storage for mid-terrace houses is provided in the front gardens. Bins will generally be located behind a short screen and a soft landscaped strip where on-curtilage parking is provided. If on-street parking is proposed, the front gardens allow for landscape screening between the bins and the front railings. Communal bin stores are provided for the apartment buildings in enclosed spaces ensuring that refuse storage and bins are in accordance with Objective DMS36 of the Development Plan.

(G) Landscaping/Open Space

The Development Plan states that for all developments with a residential component, the overall standard for public open space provision is 2.5 hectares per 1000 population. In this regard, Objectives PM52 and DMS57:

“Require a minimum public open space provision of 2.5 hectares per 1000 population. For the purposes of this calculation, public open space requirements are to be based on residential units with an agreed occupancy rate of 3.5 persons in the case of dwellings with three or more bedrooms and 1.5 persons in the case of dwellings with two or fewer bedrooms.”

There is significant public open space in the vicinity of the subject site. The proposed development provides for a total of 4.3 ha of amenity space (incl. Class 1 and 2 open space) within the overall scheme to serve the proposed and existing units. This includes 2.6ha of Class 1 and 1.7ha of Class 2 open space. The subject site is also within proximity to Broadmeadow Park which comprises 8.58 ha of high quality public open space, the future Regional Park providing an additional 22 ha of open space, as well as the Rathbeale Archaeological Park to serve the residents of Mooretown and the wider area. The design of the proposed development has also sought to ensure that the public have access across the site with permeability and links a key criterion in the design evolution of the proposed development with pedestrian and cycle links provided throughout the scheme. This is detailed further within the Architectural Design Statement (Architects Report) and Landscape Design Report enclosed with this SHD application. It is important to note that the Regional Park is considered critical infrastructure within the pertaining Development Plan and thus represents a significant additional open space to be enjoyed by the future occupants of the proposed scheme, as indicated in Objective SWORDS 6 below.

Objective SWORDS 6 - *“Prioritise the early construction of the following critical infrastructure:*

- *The Western Distributor Road,*
- *The Fosterstown Link Road,*
- *The ‘Green link’ across the Ward River Valley,*
- *The Highfield Link Road,*
- *The two new roads (The Western and Eastern Avenues included as per the adopted Local Area Plan for Barrysparks) through the Barrysparks MC and*

adjoining HT zoned lands (These roads link the R132 and the proposed Airside - Drinan Link Road to the south), and

- *Develop a Regional Park (of circa 65 ha) immediately west of Oldtown, and adjoining and ultimately extending into the Broadmeadow River Valley Linear Park, to serve Swords and its hinterland, and to comprise active recreational and passive activities, commensurate with the Council's vision for the emerging city of Swords, subjecting the proposal to Screening for Appropriate Assessment, in particular the cumulative impacts of increased access to European Sites."*

Apartment schemes must provide for communal open space, which is a critical environmental resource as a 'breathing space' and for meeting the amenity needs of residents. It may be in the form of accessible sheltered roof gardens, communal landscaped areas at ground level or at podium level where commercial or retail uses occupy the ground floor. Communal open space has been provided throughout the scheme for the enjoyment of residents.

In terms of private open space, the Development Plan states that, *"private open space associated with apartments and duplexes is important to ensure a suitable level of amenity for occupiers. Balconies and terraced areas are the primary form of private open space for apartment and duplex type schemes. Whilst private and communal amenity space may adjoin each other, there should generally be a clear distinction with an appropriate boundary treatment and/or a 'privacy strip' between the two."*

Each apartment unit within the proposed development has been provided with adequately sized balconies or patios/terraces which have been designed in accordance with the pertaining quantitative and qualitative standards, with appropriate boundary treatments to ensure privacy and security.

Please refer to the enclosed schedule of accommodation prepared by CCK Architects which sets out the private and communal open space provided within each block, and to the enclosed landscaping documents prepared by Doyle & O'Troithigh Landscape - Architecture for further details regarding the landscape scheme for the proposed development.

(H) Childcare Facilities

The provision of childcare facilities is considered an important factor for economic and social wellbeing. The Council will seek to facilitate the provision of childcare facilities in appropriate locations throughout the County and may require their provision in accordance with the provisions of the DoEHLG 'Childcare Facilities Guidelines for Planning Authorities' (2001). The following objective of the Development Plan pertains to the proposed development:

Objective PM76: *"Require as part of planning applications for new residential and commercial developments that provision be made for appropriate purpose-built childcare facilities where such facilities are deemed necessary by the Planning Authority."*

As part of the scheme, the proposed development provides for a 512 sqm childcare facility which can accommodate circa 102 pre-school children. This would also be supported by the proposed childcare facility provisioned as part of the forthcoming planning application on Oldtown lands, which will provide for 1 no. childcare facility of 497 sqm capable of accommodating circa 104 children and is submitted to be 44 no. spaces over what was initially projected to suffice the proposed scheme.

Therefore, this is considered to be sufficient to cater for the proposed development. Please refer to the Community & Social Infrastructure Audit, Childcare Provision Assessment report, and School Demand Assessment report prepared by Downey for further details on the childcare and educational facilities to serve the proposed development.

In light of the above, it is submitted that the proposed development is consistent with the Childcare Facilities Guidelines and the requirements for the Fingal County Development Plan 2017- 2023.

(I) Car and Bicycle Parking Standards

It is submitted that a total of 610 no. spaces with an additional 381 no. visitor spaces are proposed. It can be noted that the overall car parking proposed for the proposed scheme is below standards set out in the Development Plan, which requires a total of 1,235 car parking spaces. Thus, the overall car parking provision may be considered to potentially materially contravenes the Fingal Development Plan 2017-2023. This is fully addressed in the Statement of Material Contravention prepared by Downey, which we invite the Board to refer to.

In relation to the bicycle parking provision, an overall total of 1,141 cycle parking spaces is proposed, with 910 no. spaces for residents, 231 no. spaces for visitors, and 12 no. spaces to serve the creche and 6 no. spaces to serve the retail/café. The cycle parking proposed for the residents is submitted to be in line with the requirements set out in the 2020 Apartment Guidelines. It is also submitted that the cycle parking for visitors and for the non-residential units comply or exceed the requirements of the Development Plan.

It is noteworthy to mention that the proposed development is located in an area served by good public transport which, as planned under BusConnects programme, is projected to be upgraded with more frequent and reliable routes. Moreover, cycle and pedestrian facilities in the locality are new (along R125 Rathbeale Road, Western Distributor Road and Glen Ellan Road) with good connections to bus stops and local amenities. Within the 15-minute cycle band from the site there are several retail, leisure, sports, and employment facilities available.

Therefore, based on the above and on the guidelines for parking as set out under the '*Sustainable Urban Housing: Design Standards for New Apartments*' Guidelines, the proposed car parking is considered appropriate to serve the subject development as it meets criteria to minimise car parking provisions, such as being served by public transport facilities and being close to a potential town centre and employment areas.

Please refer to the Traffic and Transport Assessment prepared by Waterman Moylan Engineering Consultants for further details on the proposed car parking and bicycle parking to serve the proposed development.

3.4.2 Oldtown-Mooretown Local Area Plan 2010-2016 (extended to July 2020)

The subject site forms part of the Oldtown and Mooretown lands in Swords, which were previously informed by the Oldtown-Mooretown Local Area Plan 2010-2016. The LAP had also been extended for a further five years from the 13th of July 2015 up to the 12th of July 2020. This final phase of the lands has been designed and proposed within the spirit of the Plan. As such, the proposed scheme is

considered to comply with the vision and aims of the since expired LAP and pertaining planning guidelines for the application site in the context of the wider Oldtown-Mooretown lands.

3.5 Planning History Context

Downey have carried out a comprehensive examination of the planning history pertaining to the subject site and its broader Oldtown-Mooretown lands, which determined that there have been a number of planning applications made on these lands. An overview of the most relevant planning history pertaining to the subject site and its wider context is provided below.

3.5.1 Planning Applications pertaining to the Subject Site

As summarised below, there are a number of planning applications made on the subject lands, all primarily focused on the southern sections of the site:

- **Reg. Ref. F08A/0146** - By order dated 9th May 2008, Fingal County Council granted permission to Gaelscoil Bhrian Boroimhe for construction of two single storey prefabricated extensions to existing schools. The National school extension will consist of 2 no. classrooms and associated bathrooms, 4 no. resource rooms, storage, and library (total area c. 390sqm). The Gaelscoil extension includes 4 no. classrooms and associated bathrooms (total area 385sqm). Both extensions will be the same design and finishes as per existing and connected to site services.
- **Reg. Ref. F07A/1683** - By order dated 1st August 2008, Fingal County Council granted permission to Gerry Gannon for the erection of a single-storey prefabricated school. The school will consist of 8 no. classrooms with associated WCs, 3 no. resource rooms, administration, staff room, storage/utility and multi-purpose room, inter-connected by a roof lit corridor (total are 970m.sq). The school will be accessed off an extended distributor road, footpath, and services from Applewood Village.
- **Reg. Ref. F05A/1778** - By order dated 7th June 2006, Fingal County Council granted permission to Gerry Gannon on behalf of Swords Educate Together NS & Gaelscoil Bhrian Boroimhe for a temporary planning permission for a period of three years, for the erection of two single storey prefabricated schools. This is a part of the decanting phase for the permanent School & Community Campus. The National school will consist of 12 no. classrooms, 3 no resource rooms, admin/staff room, storage/plant, and multi-purpose room (total area c. 1535 sqm). The Gaelscoil includes 9 no. classrooms, 2 no. resource rooms, admin/staff room, storage/plant, and multi-purpose room (total area c. 1185 sqm) Both schools will be accessed off an extended distributor road, footpath, and services from Applewood Village/Oldtown.
- **Reg. Ref. F20A/0095** - A c. 185m long pedestrian and cycle path with ancillary works to provide a new east-west connection from Abbeyvale Court to the proposed Mooretown Distributor Road extension and a new school campus. An appeal was lodged on 23rd April 2021 and a decision to Grant Permission was made by An Bord Pleanála on 25th February 2022.

In relation to the proposed storage tank works:

- **Reg. Ref. F21A/0476** - Planning permission is sought by Gerard Gannon Properties for development on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road

and Balheary Road, and at/on Balheary Road, Swords, Co. Dublin. The proposed development will consist of a proposed stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River with associated manholes, proposed vehicular/service access onto Balheary Road; landscaping; boundary treatments; and all associated engineering and site works necessary to facilitate the development. A Natura Impact Statement (NIS) has been prepared and is submitted to the planning authority with the application.

The aforementioned application is currently a live planning application on the proposed tank site, is at Additional Information stage of the process and due for decision in mid-April 2022 (current status at the time of writing this report). Thus, it was deemed appropriate to propose the tank and the associated works as part of this SHD application.

3.5.2 Planning Applications pertaining to the Oldtown and Mooretown lands

As summarised below, a number of applications have been made on the Oldtown-Mooretown lands which can be summarised into 4 development phases, as follows:

- **Mooretown Phase 1 (F15A/0183)** – Parent permission for Mooretown Phase 1, 248 dwellings and a creche granted (as extended by F15A/0183/E1 and revised by F17A/0128, F17A/0358, F18A/0701, F18A/0751, F19A/009 and advertising sign for Mooretown development F17A/0316)
- **Mooretown WDLR (F12A/0270, F19A/0641 and D20A/0096)** – Northern and southern section of the WDLR through the Mooretown Lands
- **Mooretown Main Street (F14A/0012)** – Main Street from WDRL to the school campus
- **F16A/0505 Mooretown Phase 2 (F16A/0505)** – Parent permission for Mooretown Phase 2, 215 dwellings and a creche
- **F18A/0163 Mooretown School** – Permission for school campus
- **Oldtown Phase 1 (F11A/0436)** - Parent Permission for 245 dwellings and a creche, amended by subsequent permissions and subsequently changed to 242 dwellings and an additional creche. This phase is largely complete and occupied.
- **Oldtown Phase 2 (F11A/0473)** - Parent Permission for 224 dwellings, 1 no. creche, and the commercial centre. Amending permissions have been granted to alter the internal site layout and change the house type, and the overall total is currently 252 units. The anchor commercial block (mini-market, shops, café and 14 apartments) due for completion June/July 2020.
- **Oldtown Phase 3 (F15A/0390)** - Parent Permission for 246 dwellings and a crèche. Amending permission has been granted to alter the internal site layout and change the house type, and the overall total is currently at 255 units. 147 residential units complete and occupied.
- **Oldtown Phase 4A (F17A/0666)** - Parent Permission for 41 houses and 54 apartments. Houses complete and being occupied, apartments to commence in 2020/early 2021.
- **Oldtown Phase 4B (F17A/0735)** - Parent Permission for 53 houses and 45 apartments. Houses largely complete and occupied, apartments to commence in 2020/early 2021.

- **Oldtown Phase 4C (F17A/0687)** - Parent Permission for 92 houses. Amending permission has been granted to alter the internal site layout and change the house type, and the overall total is currently at 101 units. Under construction.

4.0 POPULATION AND HUMAN HEALTH

4.1 Introduction

This section of the Environmental Impact Assessment Report assesses the impact of the proposed development on the population, human health, and human environment in the general area of the proposed project on lands south of the Rathbeale Road, Mooretown, Swords, Co. Dublin, and within the administrative area of Fingal County Council. Specific aspects that will be examined include population levels, human health, residential amenity, impact on employment, commercial activity, land-use, community infrastructure and social facilities. Insofar as possible, this assessment has also considered impacts on the future residents, workers, and visitors to the subject lands.

4.2 Research Methodology

The following assessment of the predicted impacts on population and human health was undertaken based on local population information from the Central Statistics Office's Census of Population reports and databank, the Regional Spatial and Economic Strategy 2019-2031, and the Fingal County Council Development Plan 2017-2023. It is important to note that given the location of the subject site situated within the Swords-Lissenhall ED and appearing as an extension to the Swords-Glasmore electoral division (ED) with regards to the location of the overall Oldtown-Mooretown lands, the catchment area for demographic investigation of this study was defined as follows:

1. Swords-Lissenhall ED (04038)
2. Swords-Glasmore ED (04037)

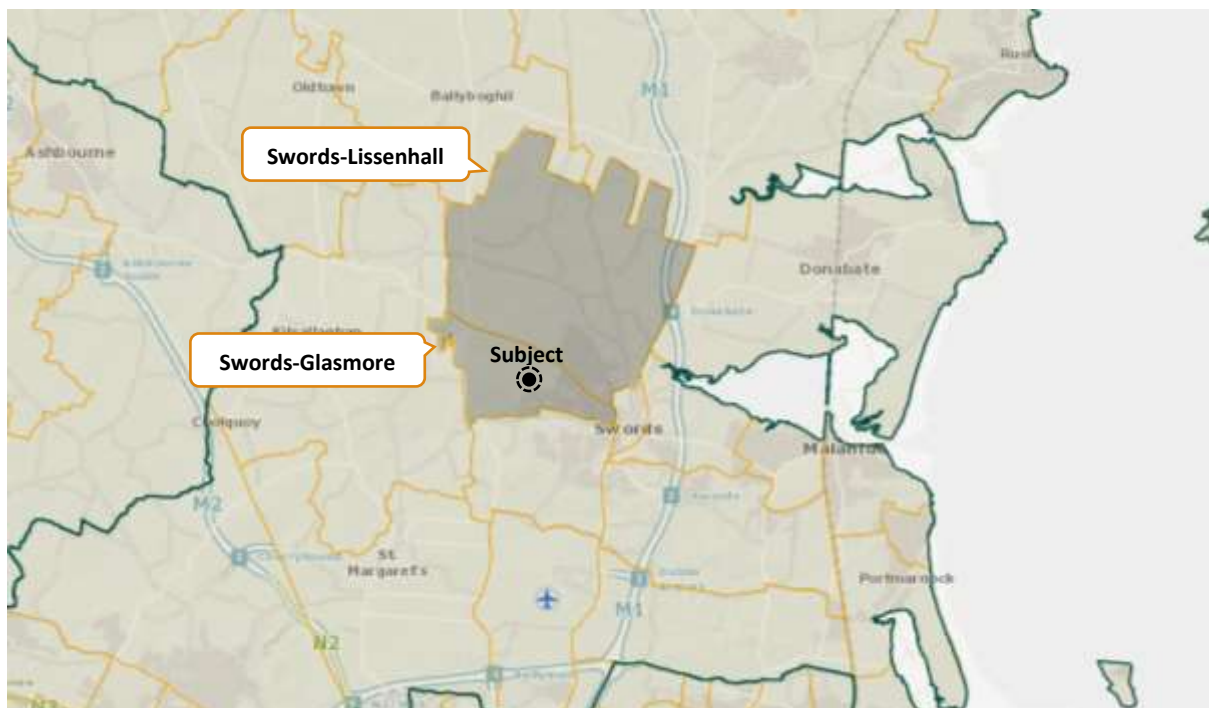


Figure 4-1. Spatial Scope of Demographic Studies (subject site location marked with in black)

It is important to note that given the nature and scale of the proposed development, it was considered that an assessment of amenities within a 2km radius of the development was appropriate. The same approach was taken for the Community and Social Infrastructure Audit, School Demand Assessment,

and Childcare Provisions Assessment, and as such provides for greater consistency between these reports and the following EIAR.

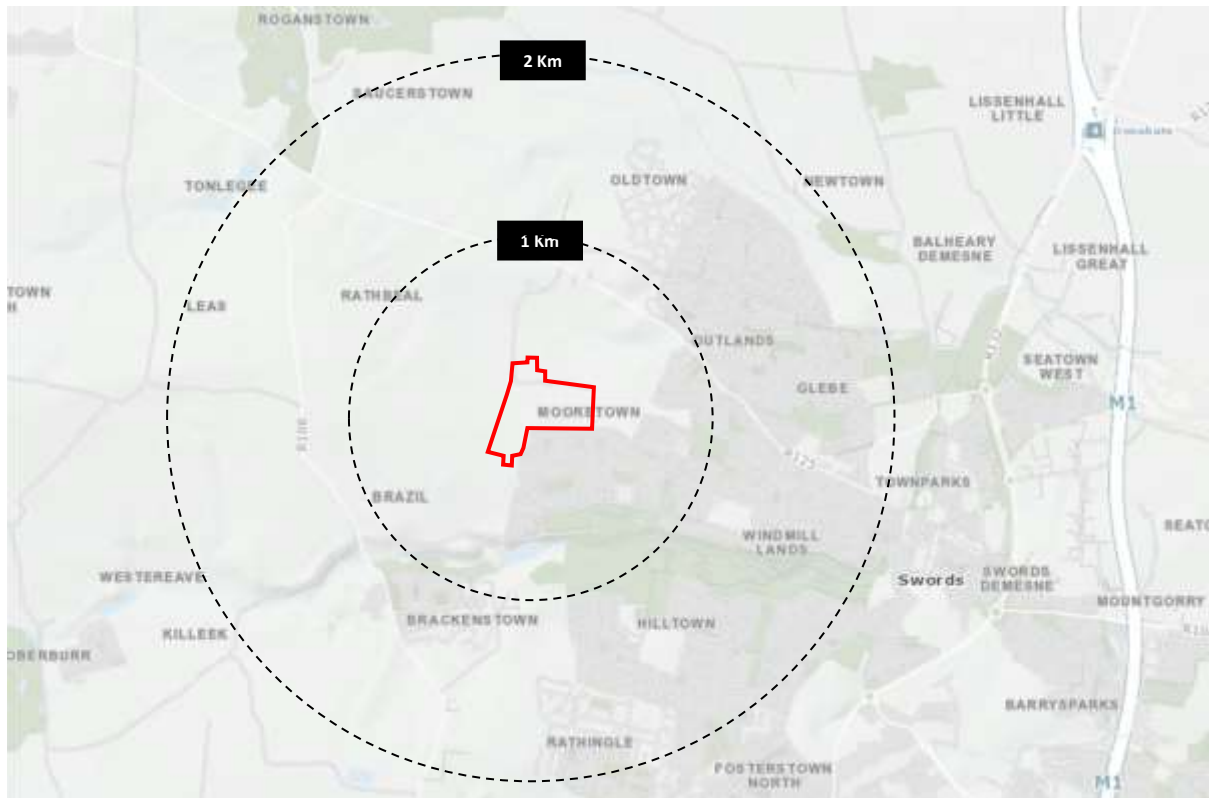


Figure 4-2. Spatial Scope of the Community and Social Infrastructure Audits (approximate boundaries of the subject site outlined in red)

A site visit and a Community and Social Infrastructure Audit was also undertaken to appraise the location, the existing infrastructure and services in the area and any likely and significant potential impact upon human receptors. This also accompanies a School Demand Assessment and a Childcare Provision Assessment to further investigate the future demand for these facilities with respect to the flux of population arising from the proposed scheme.

The employment context was set out drawing principally on the most recently available statistics for the total number of persons at work, unemployment levels and employment categorised according to social group. Therefore, information on the economic performance of the area and the wider Dublin region is derived primarily from the 2016 Census results and statistics obtained from the ESRI.

The following assessment of land-use was undertaken based on a site visit appraisal and a review of the zoning objectives from the Fingal County Council Development Plan 2017-2023. The assessment was also carried out in accordance with the following guidance documents and aligned accordingly based on Downey's professional experience and judgement.

- EPA (2017), Guidelines on the Information to be Contained in Environmental Impact Statements.
- EPA (2015), Advice Notes on Current Practice in the Preparation of Environmental Impact Statements.

4.3 Baseline Environment

The application site is located on the western edge of Swords, Fingal, Co. Dublin, approximately 3.5km from the town centre and County Hall, 5km from the M1 interchange at Lissenhall and just under 10km to the airport. It is accessed from Rathbeale Road via Western Distributor Link Road (WDLR), which its southern extension forms the western boundary of the subject site.

The lands are zoned RA, and with an approximate area of 18.378 ha, are situated to the south of Rathbeale Road and within the existing built-up area of Oldtown-Mooretown lands to the western development boundaries of Swords. The subject site is located within the area designated as part of the Oldtown-Mooretown Local Area Plan 2010-2016 (extended up to July 2020 and has since expired). The subject site is bounded by the existing developments of Abbeyvale and Berwick to the south and southeast.

The southern boundary of the site comprises sections of hedgerow in varying condition, while the southwest boundary is defined by a solid blockwork wall for the most part. There is an existing pocket park on Abbeyvale Court that provides the only possible physical link between the existing development and Mooretown. A pedestrian and cycle path linking the two is proposed as part of this SHD application.

With an approximate area of 18.378 hectares, the subject site is bounded by the Brackenstown Village to the south, Phase 2 lands of the overall residential scheme (Reg. Ref. F16A/0505) and the school campus (Reg. Ref. F18A/0163) to the north, and rural and agricultural lands to the west.

4.4 Characteristics of the Proposed Development

The proposed development subject to this SHD application provides for the construction of a total of 650 no. residential dwellings, comprising 265 no. houses (76 no. 1-bed units, 193 no. 2 beds, 365 no. 3 beds, and 25 no. 4 beds), 187 no. apartment/duplex units, 6 no. triplex units with 1 no. childcare facility and associated car parking and bicycle parking, landscaping, boundary treatments, and all associated engineering and site development works necessary to facilitate the development including the proposed stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River with associated manholes on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road, along with the proposed vehicular/service access onto Balheary Road.

4.5 Demographic Trends

4.5.1 Population

The latest Census results show that Ireland's population stood at 4,761,865 in April 2016, an increase of 173,613 (3.8%) since April 2011. This trend has been represented in the Dublin region with a greater growth rate, increasing by 5.9% to 1,347,359 over the intercensal period. As illustrated in Table 4-1 below, the population growth of County Fingal followed the same pattern as the Region but with an even greater growth rate, increasing by 8% to 296,020 in 2016. This recorded the County Fingal as the most dynamic county in the Region in terms of population change over 2011-2016.

Table 4-1. Population Change Across the Dublin Region over 2011-2016

Area	2011	2016	Actual Change	% Change
Dublin City	527,312	554,554	+27,242	5.2
Dun Laoghaire - Rathdown	206,261	218,018	+11,757	5.7
South Dublin	265,205	278,767	+13,562	5.1
Fingal	273,991	296,020	+22,029	8.0

Source: CSO StatBank

The proposed development is located within the Swords-Lissenhall ED, appearing as an extension to the Swords-Glasmore ED. Table 4-2 below shows the population change within EDs defined as the catchment area of this assessment. In this regard, the “catchment area” refers to the area surrounding the subject lands which bound the lands and may be affected by the proposed development. Coincidentally, the catchment area also refers to the population which will be served by the proposed scheme.

Table 4-2. Population Change in the Catchment Area over 2011-2016

Area	2011	2016	Actual Change	% Change
Swords-Lissenhall ED	9,667	10,447	780	8.1%
Swords-Glasmore ED	7,748	7,711	-37	-0.5%
Total	17,415	18,158	743	4.3%

Source: CSO StatBank

4.5.2 Average Household Size

With an average household size of 3.1, there were 5,831 private households in the Assessment Area in 2016. As shown in Table 4-3 below, nearly 60% of the households residing in this area in 2016 were small-sized households ranging from 1- to 3-person households (4,835 households). It is noted that the average household size in the Assessment Area increased slightly from 3.0 persons per household in 2011 to 3.1 persons per household in 2016. The same pattern of change in the average household size in Swords-Lissenhall ED, where the subject lands fall under, can be observed, i.e., the figures slightly increased from 2.9 in 2011 to 3.0 in 2016 during the intercensal period.

Table 4-3. Private Households in the Assessment Area by Household Size, 2016

Size of household	Swords-Lissenhall ED	Swords-Glasmore ED	Total	%
1-person Households	495	335	830	14.2%
2-person Households	841	614	1,455	25.0%
3-person Households	708	454	1,162	19.9%
4-persons Households	817	571	1,388	23.8%
5-person and over Households	540	456	996	17.1%
Total	3,401	2,430	5,831	-

Source: CSO StatBank

4.5.3 Average Age

CSO 2016 statistics indicate that the average age for the study area has increased by almost two years since the last census period in 2011, increasing from 31.8 to 33.6 years old. Also, while the average age has increased within the study area and it stands well below the State average (37.4) for both Swords-Lissenhall and Swords-Glasmore ED's, the age profile of Swords-Lissenhall ED is characterised by a younger population.

Table 4-4. Average Age within the Assessment Area

Area	Avg. Age (years)		Avg. Change (%)
	2011	2016	2011-2016
Swords-Lissenhall ED	29.9	31.3	4.7%
Swords-Glasmore ED	33.7	35.9	6.5%

Source: CSO StatBank

Investigating the age profile of the area as per Census 2016 indicates that younger age cohorts still form the greatest share of the population residing in Swords Area, however, as shown on the Figure 4-3, this is more notable in the Swords-Lissenhall ED.

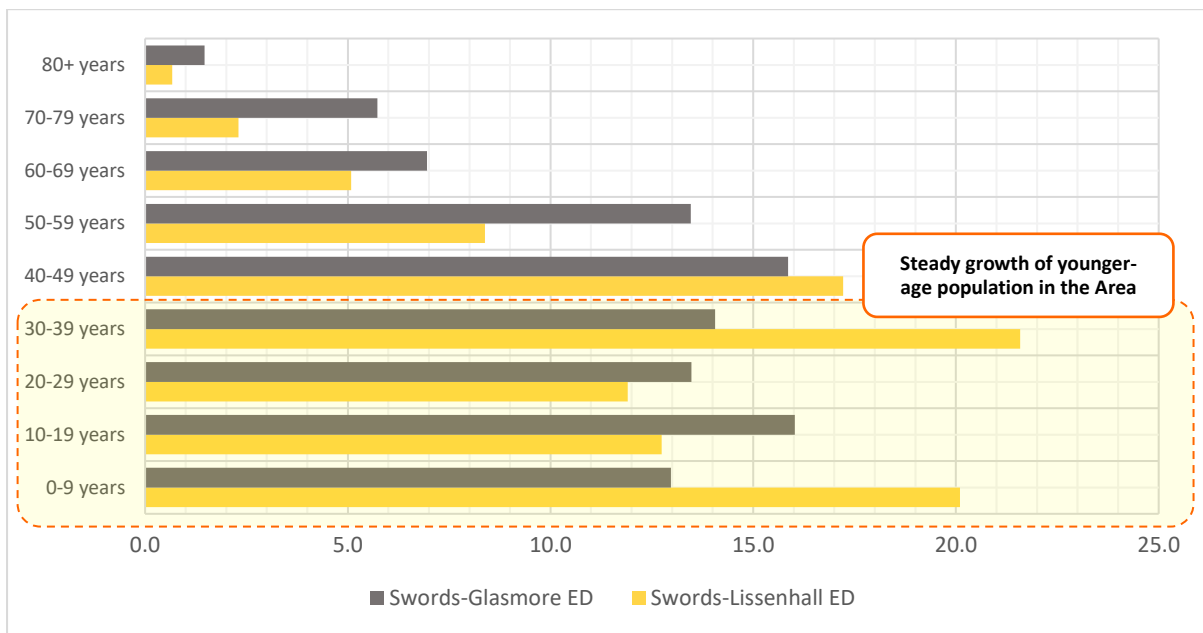


Figure 4-3. Population Age Cohorts in Swords Area across the ED's, 2016

The population pyramid below (Figure 4-4-4) shows the age distribution in the area with more detail. A peak of births in 1980's shows up in the 30-39 age category, and another peak in the number of births occurred in 2000's and shows up in the 0-9 age category. Overall, the age pyramid indicates a young population residing in the town, which is expected to grow in the coming years.

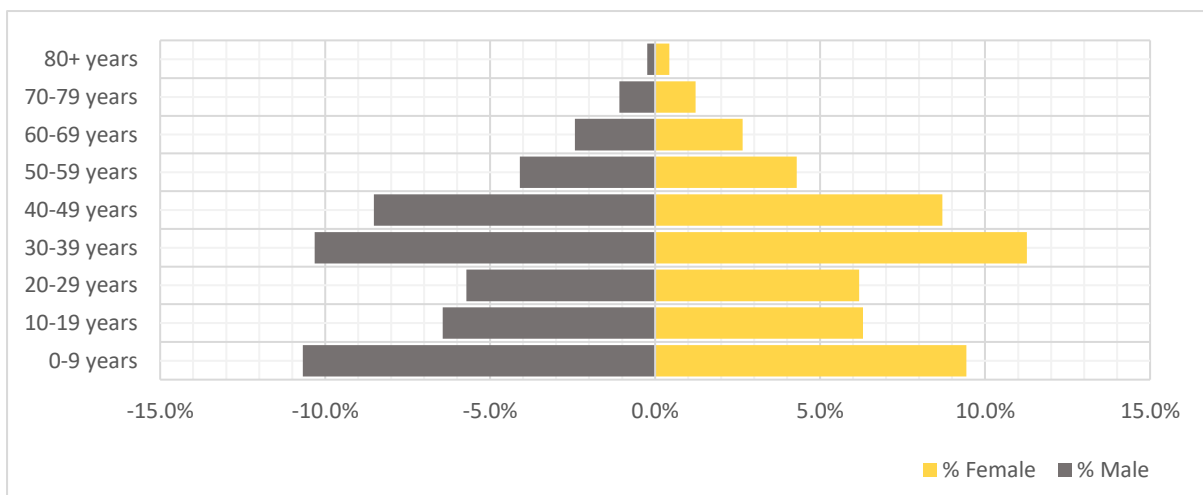


Figure 4-4. Population Age Pyramid of the Assessment Area, 2016

The factors outlined above have a knock-on implication on the provision of housing and its associated required facilities to cater for this increase in population within the local area. The factors above would indicate that with a relatively small household size and an average age in house-buying age, there would be a need for the proposed development within this area.

4.5.4 Potential Impact of the Proposed Development

4.5.4.1 Construction Phase

The construction phase of the proposed development should not have any direct impact on the population of the area or the subject lands. It is expected that the workforce will generally travel to the development site rather than take up residence in the immediate vicinity. However, the construction of any project has the potential to give rise to an impact on the health and safety of human beings if construction activities are not managed appropriately. Measures to address such health and safety considerations will be addressed in a Construction Management Plan for the development for implementation during the construction phase, in accordance with best practice.

4.5.4.2 Operational Phase

The operational phase of the proposed development will result in the provision of 650 no. new residential units. The average household size in Fingal is currently 3.02 persons, which is based on the 2016 census of population and for the development's catchment area it is also 3.1 persons. Based on this figure, it is anticipated that the proposed development to accommodate a maximum of 2,015 persons. It is noted that within the proposed mix of unit types, there is also one-bedroom apartment/duplex units.

Excluding the 1-bedroom apartment/duplex units, this leaves a total of 574 no. units that can be deemed to accommodate families. Applying the average household size to 574 apartment/duplex units capable of accommodating families would generate 1,779 total residents in total within these units. Applying a maximum household size of 2 to the one-bedroom apartments would generate 152 total residents in these units. This would provide for an overall of 1,931 persons. Therefore, the proposed scheme is expected to accommodate a maximum of 1,779 to 1,931 persons.

4.5.5 Remedial and Reductive Measures

No remedial or reductive measures are proposed with reference to population.

4.5.6 Predicted Impact of the Proposed Development

4.5.6.1 Construction Phase

The construction phase of the development will have a negligible or neutral impact on population.

4.5.6.2 Operational Phase

The population analysis above suggests that the population of the area will continue to rise in the medium term. The population increase predicted as a result of the operational stage of the proposed development ties in with broader trends in the area and the development will provide for this increase, therefore resulting in a positive impact on population.

4.5.6.3 Monitoring

There is no requirement for population monitoring.

4.6 Employment

CSO 2016 Statistics noted an employment level of 2,006,641 and an unemployment level of 297,396 for the State. The employment level is up 199,281 since 2011 and the unemployment level is down significantly from the previous figure of 424,843 people, this was mainly due to the impact of the recession on employment levels during the census period. County Fingal as a whole experienced an increase in employment between the period of 2011-2016, and the same trend was followed within the study area with Swords-Lissenhall and Swords-Glasmore ED's recording a notable increase in the rate of employment as summarised in the Table 4-5 below.

Table 4-5. Total Number of Persons aged +15 years at Work in the County and Study Area, 2011-2016

Area	Persons at Work		% Change
	2011	2016	2011-2016
County Fingal	119,276	133,971	12.3%
Swords-Lissenhall ED	4,658	5,046	8.3%
Swords-Glasmore ED	3,228	3,542	9.7%

Source: CSO StatBank

The Labour Force Survey Q3 2021, which was published by the CSO in November 2021, contains the labour market statistics for Ireland. Due to the impact of COVID-19 on the global economy the CSO has compiled standard methodology and separate COVID-19 adjusted estimates (as stated in their Information Note on Implications of COVID-19 on the Labour Force Survey), which stated:

“As the Central Statistics Office (CSO) is obliged to follow standard definitions and methodology when calculating official estimates from the Labour Force Survey (LFS), it has been decided to compile the Quarter 1 2020 LFS Estimates in the usual way and provide separate COVID-19 Adjusted Estimates. This approach preserves the methodology of the LFS while at the same time providing transparency around the current impact of COVID-19 on the Labour Market within Ireland.

The CSO has produced a supplementary measure of Monthly Unemployment in parallel with the routine Monthly Unemployment Estimate methodology, which incorporates those in receipt of the Pandemic Unemployment Payment into the calculation to produce a COVID-19 Adjusted Measure of Monthly Unemployment. This new measure was published as part of the Monthly Unemployment Estimates (MUE) release for March 2020 and April 2020 and will continue to be made available for as long as deemed necessary by the CSO.”

Accordingly, there were 2,471,200 people aged 15-89 years in employment in Q3 2021, giving an employment rate of 72.2% for those aged 15-64, based on the International Labour Organisation (ILO) criteria. The number of persons in employment was up 9.8% (221,200) from 2,250,000 over the year while the employment rate was up from 66.4% in Q3 2020.

The COVID-19 Adjusted Measure of Employment, or the lower bound for the number of employed persons aged 15-89 years, rose from 2,369,731 to 2,393,394 between the end of September 2021 and

the end of October 2021. This was accompanied by an increase from 69.1% in September 2021 to 69.8% in October 2021 in the associated COVID-19 Adjusted Employment Rate for those aged 15-64.

Table 4-6. Summary of Labour Force Survey (Q3 2021)

	Standard LFS Methodology (ILO)	COVID-19 Adjusted Estimates September 2021
Indicator	Q3 2021	end of Q3 2021
Employed persons aged 15-89 years	2,471,200	2,369,731
Employment rate for those aged 15-64 years	72.2%	69.1%
Unemployed persons aged 15-74 years	149,100	232,866
Unemployment rate for those aged 15-74 years	5.7%	8.9%
In labour force	2,620,300	-
Not in labour force	1,407,700	-

Source: CSO StatBank

There were 149,100 unemployed persons aged 15-74 years in Q3 2021 based on ILO methodology. In Q3 2021, the unemployment rate was 5.7% for those aged 15-74 years with a rate of 12.1% for those aged 15-24 years, these rates are down from 7.4% and 20.9% respectively in Q3 2020. The COVID-19 Adjusted Measure of Monthly Unemployment published as part of the Monthly Unemployment release for October 2021, was 232,866 for September 2021 (end of Q3 2021), this estimate is an upper bound and adds all those on the Pandemic Unemployment Payment (PUP) to the standard Monthly Unemployment Estimate. Furthermore, the COVID-19 Adjusted Measure of Unemployment fell to 205,246 in October 2021. The associated COVID-19 Adjusted Unemployment Rate fell from 8.9% in September 2021 to 7.9% in October 2021.

4.6.1 Potential Impact of the Proposed Development

4.6.1.1 Construction Phase

The proposed development will provide significant construction sector and related employment over the construction period of the development. It can be difficult to determine the exact numbers that may be employed directly on site during the construction phase as workers may only be employed on a temporary basis as sub-contractors and may also work on other sites during the period. Should An Bord Pleanála grant planning permission for this proposed development, then it will be constructed over a phased basis, in accordance with the indicative proposed construction phasing plan for the proposed project and in agreement with the Planning Authority. Aside from the benefits of direct employment, it is anticipated that builder suppliers and other related services will indirectly benefit from the construction phase of the proposed development. The construction phase therefore will be beneficial to the local economy due to the additional income and expenditure that will arise. This is considered to be a positive impact arising from the development.

4.6.1.2 Operational Phase

The proposed development will attract visitors to the area on a temporary basis, possibly sustaining and increasing the demand for local services, including shops, public houses, restaurants, etc. In addition to the residential component of the development, the application also proposes 1 no. childcare facility and 5 no. retail units and 1 café, which will deliver new local employment

opportunities, both full time and part time positions which will become available, for the resident population, with an overall positive impact on employment.

4.6.2 Remedial and Reductive Measures

No adverse impacts on employment are predicted during the construction or operational phase of the development. No remedial or mitigation measures are considered necessary.

4.6.3 Predicted Residual Impact of the Proposed Development

The predicted residual impact of the proposed development will be the same as that set out for potential impacts.

4.6.4 Monitoring

There is no requirement for economic monitoring.

4.7 Land-Use

Under the Fingal Development Plan 2017-2023, the subject site is zoned “RA - Residential Area” and therefore aims to:

“Provide for new residential communities subject to the provision of the necessary social and physical infrastructure.”

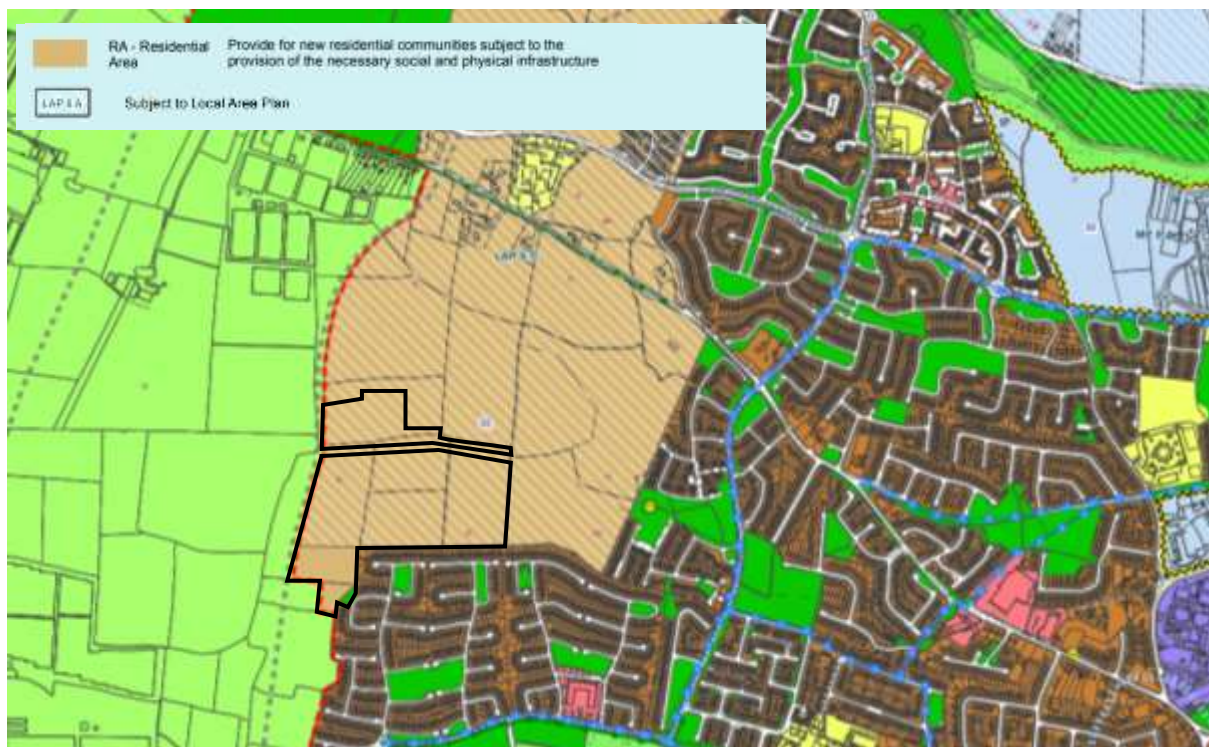


Figure 4-5. Land Use Zoning Map Extracted from the County Development Plan (application site outlined indicatively in black)

The vision for this objective seeks to:

“Ensure the provision of high quality new residential environments with good layout and design, with adequate public transport and cycle links and within walking distance of community facilities.”

Provide an appropriate mix of house sizes, types and tenures in order to meet household needs and to promote balanced communities.”

Under the RA zoning, the following uses are permitted in principle.

Uses Permitted in Principle under the RA Land Use Zoning

Amusement Arcade⁹; Bed and Breakfast; Betting Office⁹; **Childcare Facilities**; Community Facility; Education; Funeral Home/Mortuary⁹; Guest House; Health Centre; Health Practitioner; Hospital; Office Ancillary to Permitted Use; Office ≤ 100sqm⁹; Office > 100sq.m. and, 1,000sqm¹¹; Open Space; Place of Worship; Public House⁹; Public Transport Station; Recreational Facility/Sports Club; **Residential**; Residential Care Home/Retirement Home; Restaurant/Cafe⁹; Retail-Local < 150 sqm nfa; Retail – Convenience ≤ 500 sqm nfa⁹; Retail – Comparison ≤ 500 sqm nfa⁹; Retail – Supermarket ≤ 2,500 sqm nfa⁹; Retirement Village; Sheltered Accommodation; Sustainable Energy Installation; Taxi Office; Traveller Community Accommodation; Utility Installations; Veterinary Clinic.

⁹ In a local centre only

¹¹ Only located in a local centre and of a scale appropriate to that centre

Table 4-7. Permitted Uses under the RA Land Use Zoning

Therefore, the proposed uses are permitted in principle under the zoning objectives pertaining to the subject lands.

4.7.1 Potential Impact of the Proposed Development

4.7.1.1 Construction Phase

The construction phase of the development involves a change in land-use of the majority of the site from a current greenfield site, which has no current activity to use as a temporary active construction site. The site is considered suitable for construction activities to provide a development that will cater for the planned population at western edge of Swords development boundaries through provision of new homes. With recommended construction mitigation measures in place as set out within this EIAR, the subject lands and surrounding area have the capacity to accommodate the construction of the proposed development without any significant risk of impact upon existing land uses.

4.7.1.2 Operational Phase

The proposed development will result in a permanent change in land use of the site from a current greenfield site, which has no current activity to a residential development and supporting community uses, comprising 1 no. childcare facility. The total proposed net development area comprises c. 14.47 hectares. This is considered to be a permanent positive impact on an area of land that has no current active use. The surrounding land uses (primarily residential, recreation and commercial uses) will continue during the operational phase of the proposed development. The impact of the proposed site is negligible as the site will have a positive impact on the surrounding area through the provision of a new residential community.

Therefore, while the proposed development will result in a permanent change in land use from undeveloped land to a mix of residential and residential amenity use, this change is consistent with the zoning objectives for the lands as per Fingal Development Plan 2017-2023.

4.7.2 Remedial and Reductive Measures

No remedial or reductive measures are proposed with reference to land-use.

4.7.3 Predicted Impact of the Proposed Development

4.7.3.1 Construction Phase

The predicted impacts of the construction phase of the development are the same as that set out under the potential impacts of the construction phase of the development and are not anticipated to be significant. Furthermore, all impacts will be temporary in nature.

4.7.3.2 Operational Phase

The predicted impact is the same as that set out under the potential impacts of the operational phase of the development.

4.7.4 Monitoring

There is no requirement for land-use monitoring.

4.8 Community Infrastructure and Social Facilities

Community infrastructure can generally be defined as services and facilities that are available to the residents of any given area. These include early childcare and educational facilities, open spaces, recreational, and sporting facilities, community centres and halls, retail provision, healthcare facilities, and religious buildings. The current situation in relation to these facilities in the subject area is set out in the following sections and is also subject to a separate report prepared by Downey, which forms part of the planning application documentation.

4.8.1 Early Childcare & Educational Facilities

4.8.1.1 Childcare Facilities

As seen on the TUSLA map below, there are a number of registered childcare providers in the area and Downey have contacted them to determine their current capacity. The details of these childcare facilities are outlined in the **Error! Reference source not found.**4-8 on the next page. It is important to note that not all the childcare facilities decided to participate in the assessment, however the information obtained from our efforts indicates that most childcares are working at full capacity for the time-being.

It is also important to note that the earlier developments at Oldtown-Mooretown LAP lands are to provide for 5 no. childcare facilities with a gross floor area of more than 1,400 sqm (Reg. Ref. 11A/0473, Reg. Ref. F11A/0436, Reg. Ref. F16A/0091, Reg. Ref. 15A/0390, and Reg. Ref. F18A/0701). These services are anticipated to cater for over 200 pre-school children.

This is further supported by the proposed childcare facility provided as part of the forthcoming Phase 5 of developing Oldtown lands, which proposes 1 no. childcare facility of 512 sqm capable of accommodating circa 102 children, which is submitted to provide adequate spaces to suffice the proposed scheme. For further details in this regard, please refer to the enclosed Childcare Provision Assessment prepared by Downey.

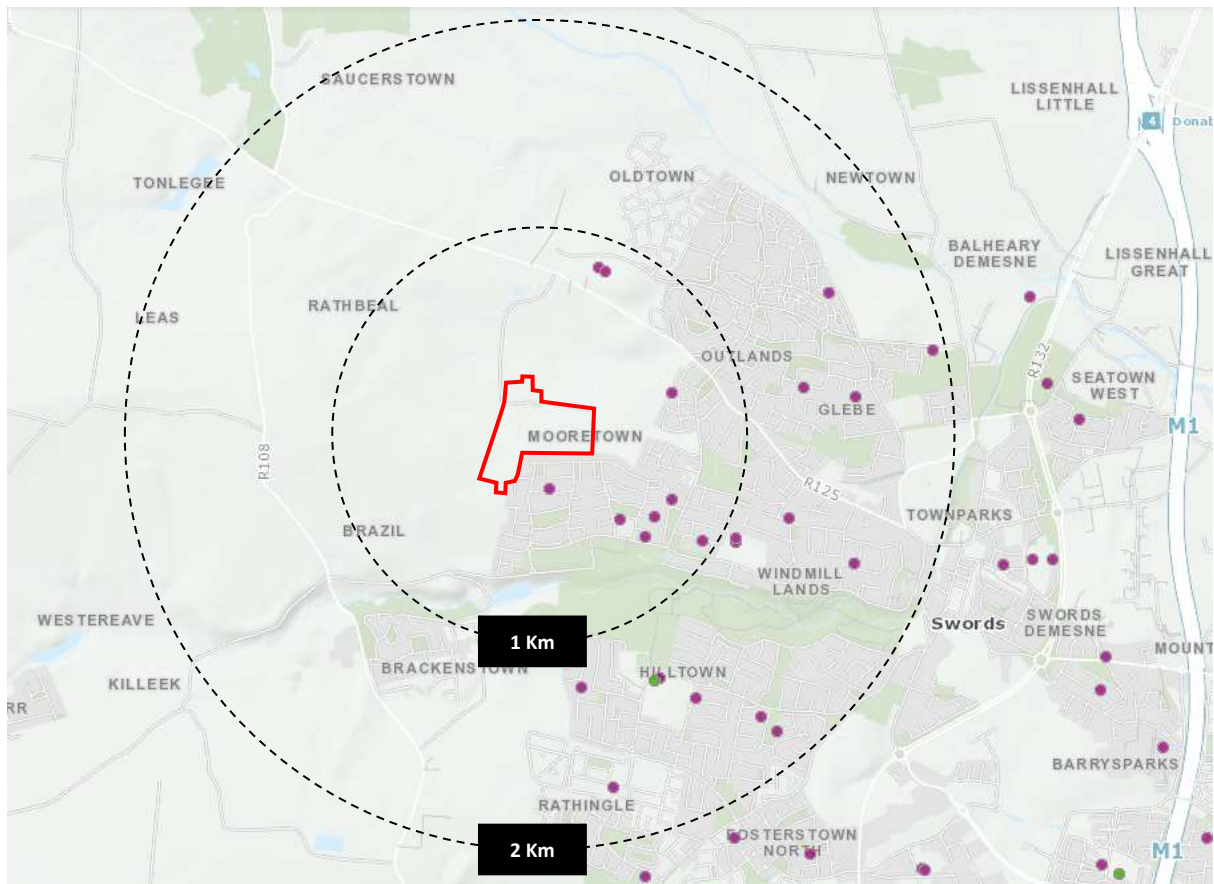


Figure 4-6. Location of Childcare Facilities within 1-2km of the Subject Lands (approximate boundaries of the lands outlined in red) (Source: pobal.ie)

Therefore, Downey are of the considered opinion that while there is a significant number of childcare facilities within the area, the substantial scale of the scheme providing for an overall total of 650 no. residential units would justify the provision of a new childcare facility which forms part of this proposed development.

Table 4-8. Childcare Facilities within 1-2km Radius of the Subject Lands (source: Tulsa.ie)

	Name	Address	Max Capacity	Type of Service Age Profile
Within 1 Km Radius of the Subject Lands	Appleseed's Pre-school	Applewood Community Centre, Applewood, Swords, Co. Dublin	33 children	Sessional (2-6 years)
	Appleseed's Afterschool	Applewood Community Centre, Castlevue Lawn, Bunbury Gate Ave, Swords, Co. Dublin	32 children	Afterschool Standalone Service (4-10 years)
	Sherpa Kids Thornleigh Educate Together	Thornleigh Educate Together National School, Applewood Village, Swords, Co. Dublin	39 children	Afterschool Combined Service (4-12 years)

	Name	Address	Max Capacity	Type of Service Age Profile
Within 2 Km Radius of the Subject Lands	Little Apples Creche & Montessori	Applewood Lane, Applewood Village, Swords, Co. Dublin	105 children	Full Day/Sessional (0-6 years)
	ABC Playschool	21 Glen Ellan Crescent, Swords, Co. Dublin	16 children	Sessional (2-6 years)
	Play & Learn Playschool	68 Cianlea, Swords, Co. Dublin	22 children	Full Day/Part Time/Sessional (2-6 years)
	The Montessori Way	27 Berwick Way, Swords, Co. Dublin	16 children	Sessional (2-6 years)
	The Little Learners Corner	Swords Manor, Brackenstown Road, Swords, Co. Dublin	40 children	Full Day/Part Time/Sessional (0-6 years)
	St Brigid's Montessori School	5 Swords Manor Grove, Swords, Co. Dublin	15 children	Sessional (3-6 years)
	Little Friends Playgroup	23 Swords Manor Way, Swords, Co. Dublin	15 children	Sessional (2-6 years)
	Little Valley Preschool	9 Valley View, Swords, Co. Dublin	11 children	Sessional (2-6 years)
	Bright Stars Childcare	1 St Cronan's View, Swords, Co. Dublin	54 children	Part Time/Sessional (2-6 years)
	Sunshine Playschool	The Scouts Den, Brackenstown Road, Swords, Co. Dublin	33 children	Full Day/Part Time/Sessional (2-6 years)
	Kids Care	B.A.S.E. St Cronan's School Grounds, Brackenstown Road, Swords, Co. Dublin	41 children 30 spare after-school places	Part Time/Sessional (2-6 years)
	Kid- E-Winks Montessori	147 Glasmore Park, Swords, Co. Dublin	20 children	Sessional (2-6 years)
	Smiles Preschool	8 Cedar Park, Ridgewood, Swords, Co. Dublin	5 children	Sessional (2-6 years)
	A to Z playschool	24 Rathbeale Rise, Swords, Co. Dublin	20 children	Sessional (3-6 years)

Name		Address	Max Capacity	Type of Service Age Profile
	Little Footsteps	32 Brookdale Road, Swords, Co. Dublin	32 children	Full Day/Part Time/Sessional (0-6 years)
	Fhionn's Afterschool Ltd.	St. Finnian's GAA, Rivervalley, Swords, Co. Dublin	22 children	Afterschool Standalone Service (4-12 years)
	New Horizons Montessori School	13 Forest Park, Rivervalley, Swords, Co. Dublin	22 children	Sessional (3-6 years)
	Buzbie's Community Childcare Services	Rivervalley Community Centre, Rivervalley, Swords, Co. Dublin	44 children	Sessional (2-6 years)
	Rivervalley Creche	4 Rivervalley Rise, Swords, Co. Dublin	18 children	Full Day/Part Time/Sessional (0-6 years)
	Tigger's Play House	51 Hawthorn Park, Forest Road, Swords, Co. Dublin	19 children	Sessional (2-6 years)
Total Maximum Potential Capacity			497 Children (30 spare after-school spaces)	

4.8.2 Primary Schools

There are three primary schools within one kilometre radius, and three primary schools within two kilometres radius of the subject site. Downey attempted to contact the schools with regard to their available capacity, however, the level of feedback was low.

The feedback received did not indicate exact numbers, but it was suggested there is some spare capacity within the secondary schools in the vicinity of the site. The relevant details on these schools are outlined in the **Error! Reference source not found.** on the next page.

In addition, a 5.6 ha school campus (F18A/0163) has been developed in the centre of the Mooretown lands which has a "public" face onto the new east-west "Main Street" (F14A/0012). It was originally envisaged that the interface of school with public realm would provide an attractive village-school civic setting.

However, the building line is set back from the street and a defensive wall/railing boundary has been constructed for its length. This is somewhat softened by a double row of large specimen street trees on either side of the footpath and off-street cycle path.

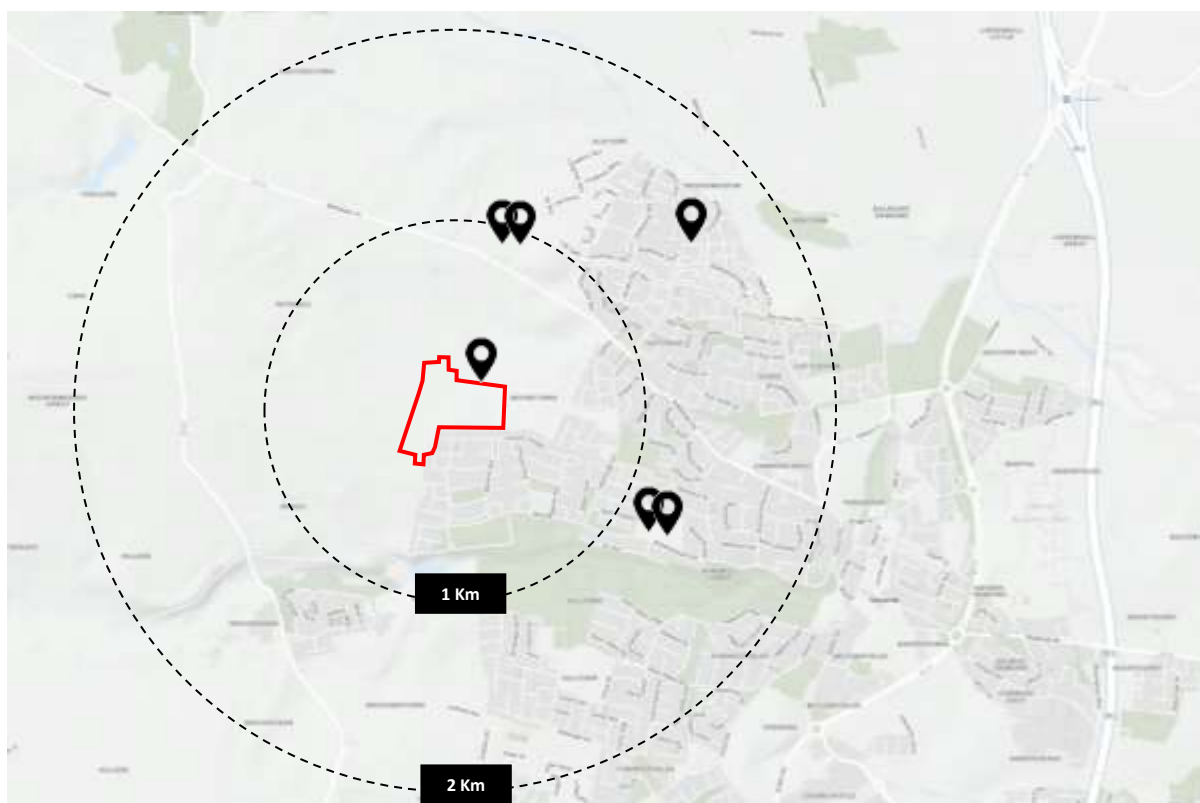


Figure 4-7. Location of Primary Schools (approximate boundaries of the subject site outlined in red)

It is noted that the Swords Community College (RN76475D) as part of this granted permission came into operation since September 2018 with a capacity to cater for 1,000 pupils when fully developed.¹ and thus has been included in the following assessment. However, the new primary school consisting of a new 2-storey, 24-classroom, 4,516 sqm primary school with a 2-classroom Special Needs unit is still under construction. Therefore, an additional capacity in the primary school level within close proximity to the subject lands is expected, which will push up the maximum potential capacity in the area as well.

Table 4-9. Primary Schools within 1-2km Radius of the Subject Lands (source: Schooldays.ie)

	Name	Address	Enrolment 2021-22
Within 1 Km Radius of the Subject Lands	Gaelscoil Bhrian Bóroimhe	Applewood, Swords, Co. Dublin	Boys: 261 Girls: 223
	Swords Educate Together	Glen Ellan Dr, Road, Swords, Co. Dublin	Boys: 252 Girls: 187
	Broadmeadow Community National School	Mooretown, Swords, Co. Dublin	Boys: 252 Girls: 187
Within 2 Km Radius of the Subject Lands	Thornleigh Educate Together National School	Applewood Village, Swords, Co. Dublin	Boys: 164 Girls: 187
	St. Cronan's Junior National School	Brackenstown Swords Co Dublin	Boys: 277 Girls: 263
	St. Cronan's Senior National School	Brackenstown Swords Co Dublin	Boys: 336 Girls: 268

¹ <https://www.independent.ie/regional/finqal/independent/news/new-secondary-school-in-swords-is-enrolling-35692087>

Therefore, Downey are of the considered opinion that there is suitable capacity within and close proximity to the area at a National School level to accommodate the proposed development. For full details in this regard, please refer to the enclosed School Demand Assessment prepared by Downey as part of this SHD application.

4.8.3 Post-primary Schools

As illustrated below, there is one post-primary schools within one kilometre radius, and two within two kilometres radius of the subject site. Also, the Fingal Community College and Loreto College are located within c. 3-3.5km distance from the subject site, which considering that secondary students would travel further distances, it is suggested that theses secondary schools would cater for the scheme as well. Downey attempted to contact the schools with regard to their available capacity, however, the level of feedback was low. The feedback received did not indicate exact numbers, but it was suggested there is some spare capacity within the secondary schools in the vicinity of the site.

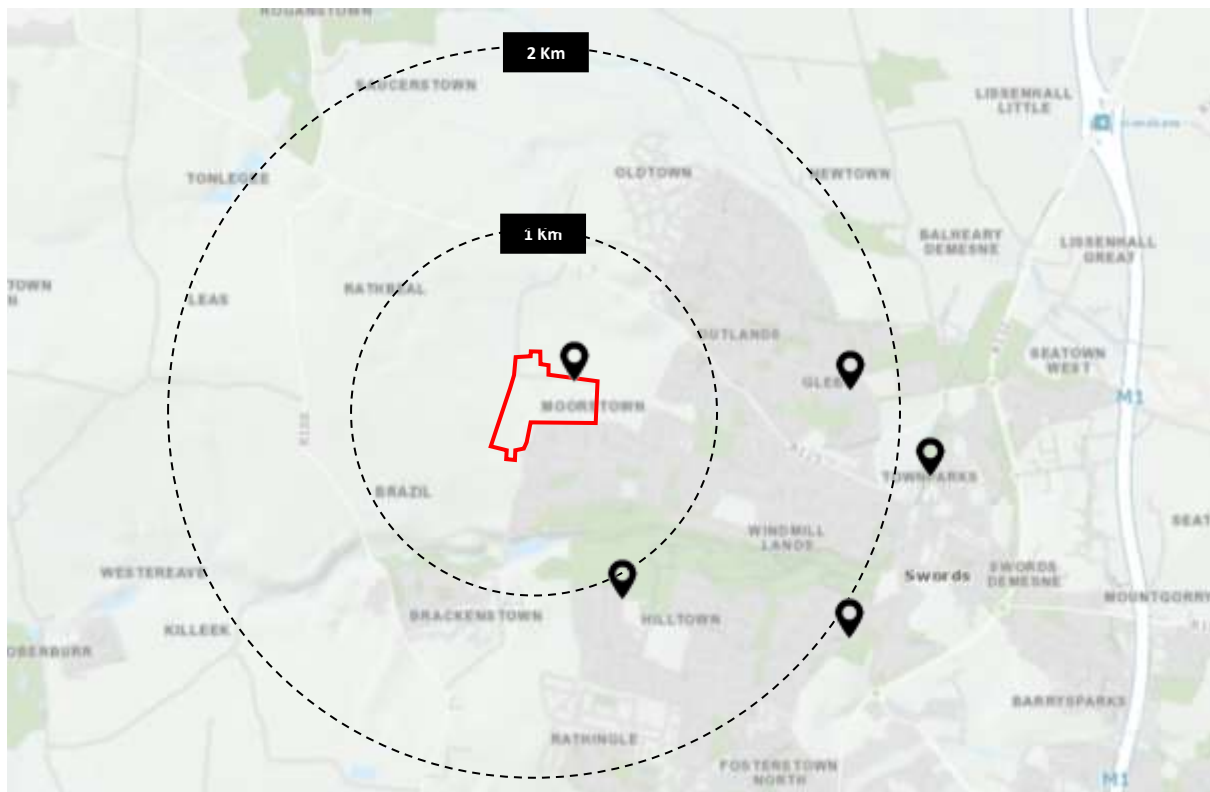


Figure 4-8. Location of Post-primary Schools (approximate boundaries of the subject site outlined in red)

Table 4-10. Post-primary Schools within 1-2km Radius of the Subject Lands (source: Schooldays.ie)

Name	Address	Enrolment 2021-22
Swords Community College	Rathbeale Rd, Mooretown, Swords, Co. Dublin	Boys: 334 Girls: 245
St. Finian's Community College	St Finian's Community College, Swords, Co. Dublin	Boys: 315 Girls: 327
Fingal Community College	Seatown Road, Swords, Co. Dublin	Boys: 469 Girls: 407
Loreto College (all-girls secondary school)	River Valley, Swords, Co. Dublin	Boys: N/A Girls: 621
Colaiste Choilm (all-boys secondary school)	Dublin Road, Miltonsfields, Swords, Co. Dublin	Boys: N/A Girls: 621

It is important to note that “a Swords councilor has asked Fingal County Council to engage with Fingal Community College in Swords that needs a new home if it is to expand to meet local demand. The councilor asked the council to initiate talks with the Department of Education and the local Education and Training Board with a view to moving Fingal Community College off the confined site they are on between North Street and Seatown Lane... also suggested the council eventually acquire the current school site and integrated it into its plans for the Swords Cultural Quarter in the same area.”² This suggests an opportunity for expanding the capacity of secondary-level education in the area, which would also benefit the population arising from the proposed scheme. Therefore, Downey are of the considered opinion that there is suitable capacity within the area at a secondary school level to accommodate the proposed development.

4.8.4 Indoor Leisure & Recreational Facilities

It can be seen in the **Error! Reference source not found.** below, there are a few sport centres, a community centre, a library, and a number of community-related facilities within 1-2km radius of the proposed development.

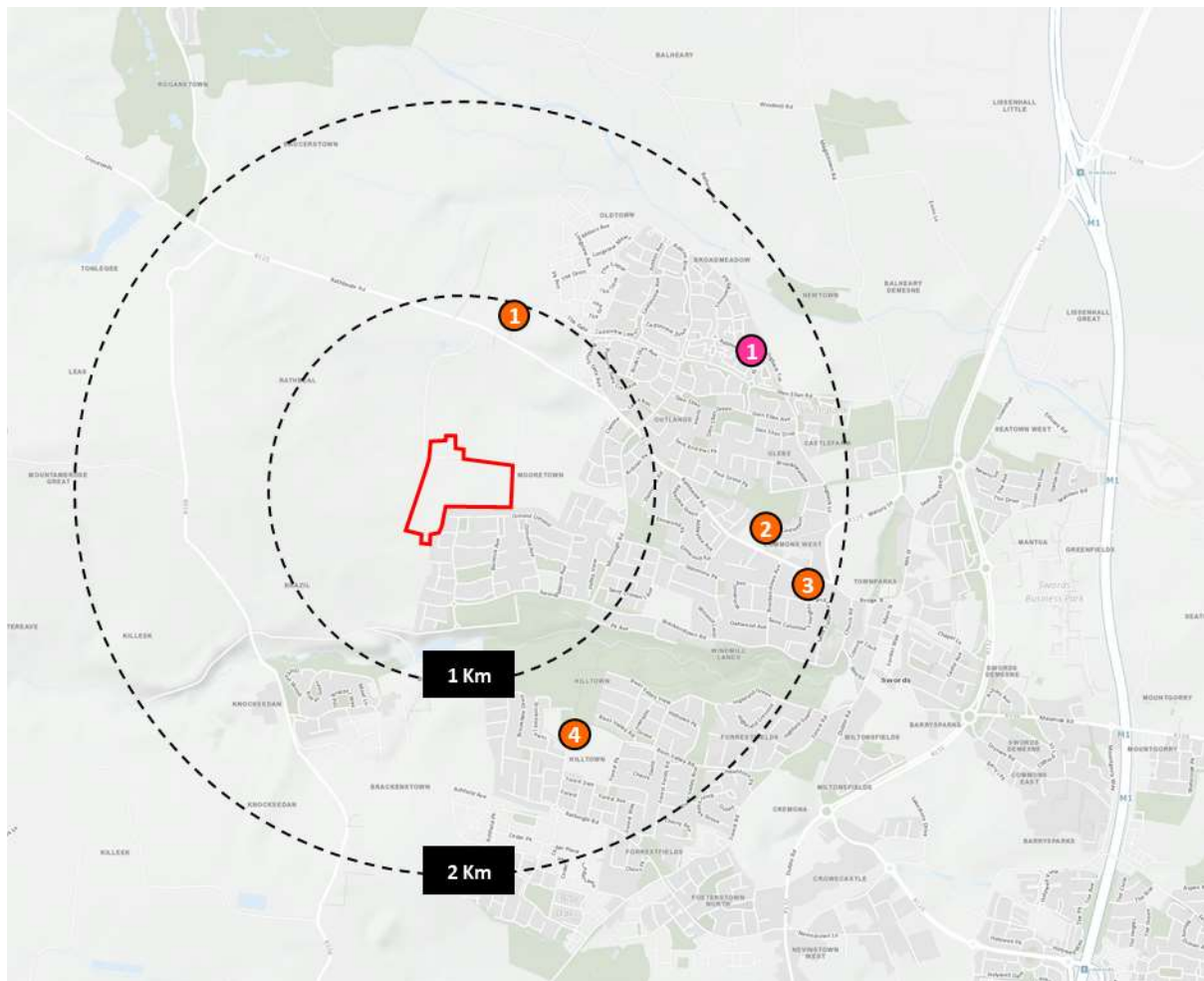


Figure 4-9. Location of Indoor Recreational Facilities (approximate boundaries of the subject site outlined in red)

² <https://www.independent.ie/regional/dublin/fingal/fingal-community-college-needs-a-move-says-local-councillor-41077646.html>

Accordingly, there are a number of sport centres, community centres, a library within a convenient distance of the proposed development. Interestingly, the sport centres cover a considerable range of services for different age groups, including swimming pools, spa facilities, studios, specialist equipment or service areas for beauty and health treatments. In addition, the Applewood Community centre at Castlevew Lawns with 3 no. sport halls, a childcare, a dance studio, 3 no. meeting rooms supports a wide range of activities including, sports and fitness, dance classes, Irish language classes, social clubs and all community-related activities for different age groups. The relevant details on these facilities are outlined in the **Error! Reference source not found.**4-11 on the next page.

Table 4-11. Indoor Leisure & Recreational Facilities within 1-2km Radius of the Subject Lands

	No.	Name	Location	Type
Gyms and Leisure Facilities	1	Gym Plus Swords	Applewood, Swords, Co. Dublin	Gym
Community Facilities	1	Applewood Community Centre	Castlevew Lawns, Bunbury Gate Ave, Oldtown, Swords, Co. Dublin	Community Centre
	2	Swords Library	Rathbeale Rd, Commons West, Swords, Co. Dublin	Public Library
	3	Islamic Cultural Centre Swords	Islamic Cultural Centre, Rathbeale Rd, Swords Glebe, Swords, Co. Dublin	Mosque
	4	Rivervalley & Rathingle Community Centre	Rivervalley Community Centre, Rivervalley, Hilltown, Swords, Co. Dublin	Sports Club



Figure 4-10. Applewood Community Centre Supporting a Wide Range of Activities

4.8.5 Outdoor Leisure & Recreational Facilities

There is a huge range of outdoor recreational facilities within the 1-2km radius of the subject site and its wider area. This includes GAA football clubs, a tennis club, playing pitches, a skateboard park, golf courses, and a variety of open green spaces (**Error! Reference source not found.**). The location of Mooretown is approximately half-way between the Broadmeadow River Park and the Ward River Valley. This not only indicate a good level of site accessibility to quality green open spaces, but also a

notable opportunity to linking these two linear parks and creating a green arc or necklace of open green spaces and woodland walks around the western edge of Swords. The relevant details of these amenities are outlined in **Error! Reference source not found..**

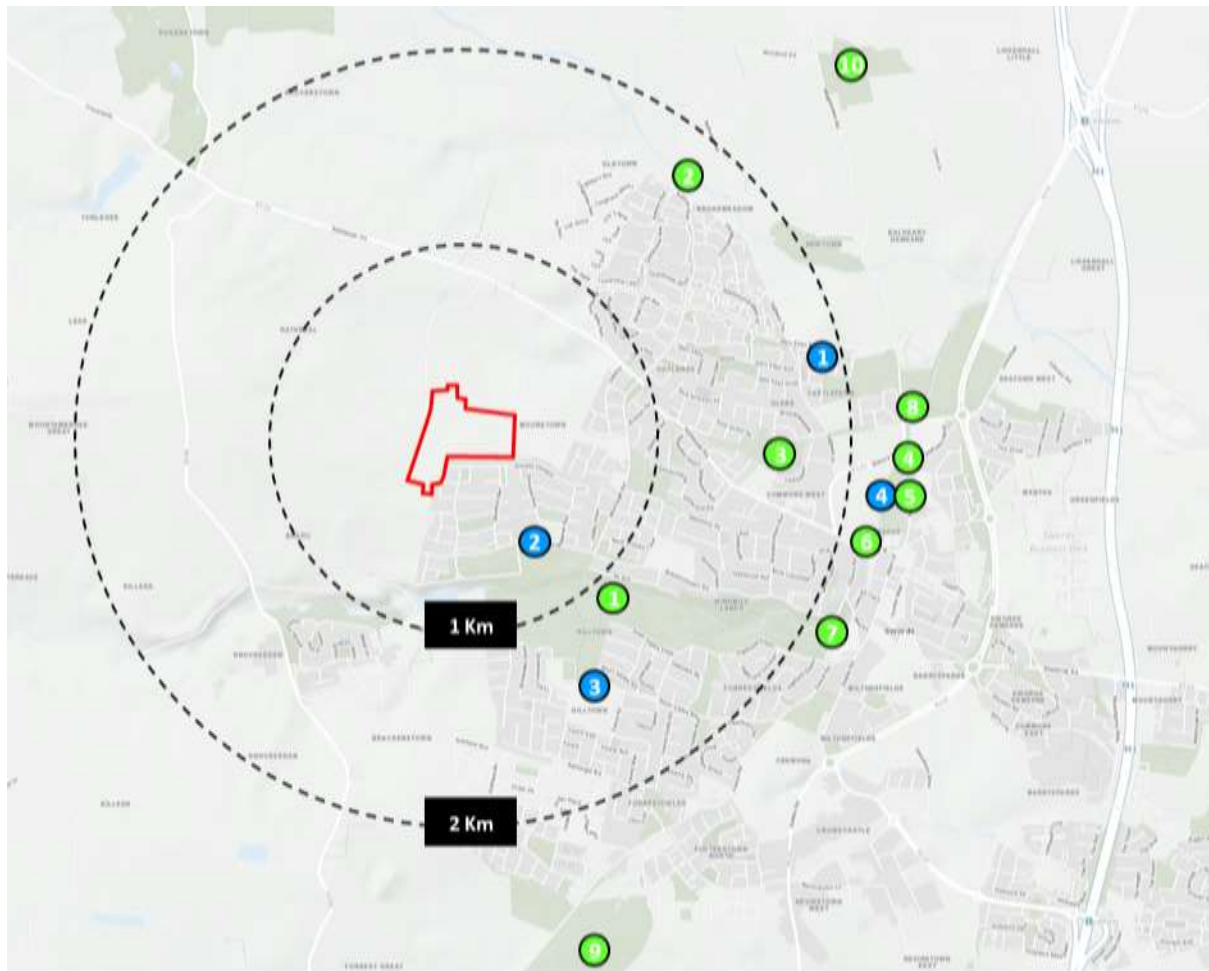


Figure 4-11. Location of Outdoor Recreational Facilities (approximate boundaries of the subject site outlined in red)

The Broadmeadow Linear Park extends to 8.5 ha and consists of a 0.6-mile (1,500-step) route with generous parkland, recreational walks, a community garden, and playing pitch. The Ward River Valley extends to 89 ha and consists of a 1.8-mile (4,000-step) route with several viewing points, picnic sites and sports pitches, and Swords Town Park. Swords Town Park itself provides for a playground and tennis courts with Swords Castle forming part of this park.

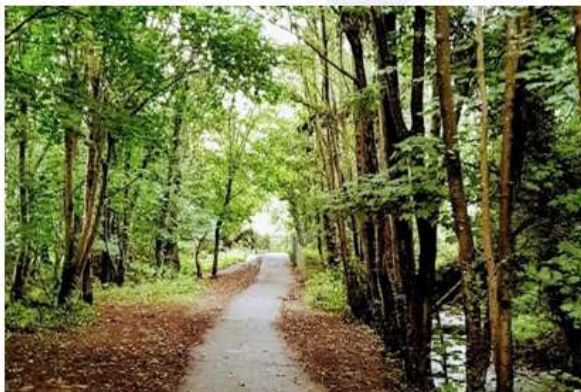


Figure 4-12. Parks and Playgrounds in Swords

Furthermore, as part of the overall scheme for the subject lands, the proposed development enjoys numerous small pockets parks, shared green spaces, and communal/public open space throughout the Mooretown lands interlinked with network of green spaces proposed in the subject lands.



Table 4-12. Outdoor Leisure & Recreational Facilities within 1-2km Radius of the Subject Lands

	No.	Name	Location	Type
Sport Clubs	1	St. Colmcille's GAA Club	Holybanks, Swords, Co. Dublin	Football Club
	2	Swords Manor Football Club	Ward River Valley, Brackenstown Road, Swords, Co. Dublin	Football Club
	3	St Finians GAA	Hilltown, Swords, Co. Dublin	Sports Club
	4	Swords Lawn Tennis Club	Swords Castle Grounds, Townparks, Swords, Co. Dublin	Tennis Club
Outdoor Recreational & Park Facilities	1	Rivervalley Park Swords	Windmill Lands, Co. Dublin	Park
	2	Broadmeadow Community Garden	Broadmeadow Linear Park, Ashton Rise, Swords, Co. Dublin	Park
	3	Hamilberg Park	Castlefarm, Swords, Co. Dublin	Park
	4	Swords Town Park	Townparks, Swords, Co. Dublin	National Park
	5	Swords Community Park	4 Bridge St, Townparks, Swords, Co. Dublin	Park
	6	Townpark	Townparks, Swords, Co. Dublin	Park
	7	Ward River Valley Park	Moatview Court, Priorswood, Dublin	Park
	8	Balheary Skatepark	Castlefarm, Swords, Co. Dublin	Skateboard Park
	9	Balheary Par 3 Golf Course	Balheary Rd, Balheary, Swords, Co. Dublin	Golf Course
	10	Forrest Little Golf Club	Forrest Little, Swords, Co. Dublin	Golf Course

Therefore, Downey are of the considered opinion that there is suitable capacity within the area for the recreational and leisure facilities to accommodate the proposed development. This would be complemented by the proposed range of open green spaces within the development.

4.9 Retail Provision

The Audit will now look further into the subject site within the retail hierarchy in its wider area and Swords, providing details on the number and location of retail provision within proximity of the subject site. These provide an important factor in the overall quality of life for the future residents of the proposed development. In this regard, it is noted that the retail provision ranges from large convenience food supermarkets to comparable good facilities within 1-2km of the subject site and its wider area. Further details are outlined in **Error! Reference source not found..**

As part of Phase 1 development of Oldtown, a new anchor building was proposed, which is now open and operating. This includes a convenience store, retail shops and a café, as well as the creche and plaza pertaining to the 'Village Centre' character area of the Oldtown LAP lands.



Figure 4-15. Miller's Glen Retail Centre

Furthermore, two local centres of Applewood and Rathbeale are located within 2km radius of the subject lands. As per the planning policy on level 4 of retail provision, this is to *"provide for one supermarket ranging in size from 1,000-2,500 sqm with a limited range of supporting shops (low order comparison), supporting services, community facilities or health clinics grouped together to create a focus for the local population. This level of centre should meet the everyday needs of the local population and surrounding catchment."*

There are a number of retail offerings along Applewood Main Street, including local convenience shops, pharmacy, hair studios, dry cleaners, bookmakers, restaurants /take-aways, etc. Therefore, the existing shops cater for the daily necessities of the residents and have the capacity to cater for the influx of population arising from the proposed development.



Figure 4-16. Retail offerings along Applewood Main Street

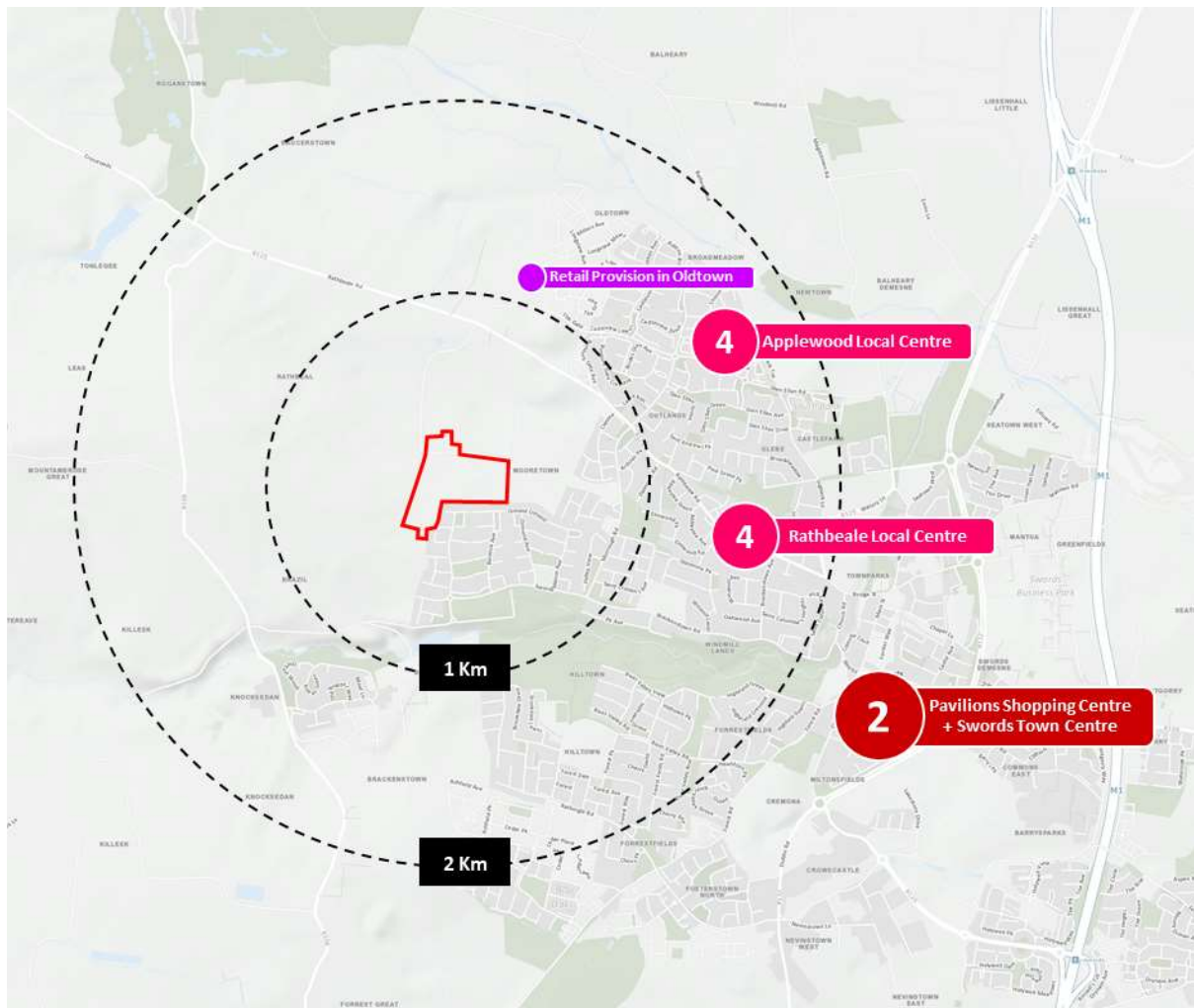


Figure 4-17. Subject Site within Retail Hierarchy of Swords (approximate boundaries of the subject site outlined in red)

There are also a number of retail offerings along Rathbeale Road (R125), including supermarkets, a department store, a pharmacy, a news-agency, a florist, and a library. The existing shops cater for the daily necessities of the residents and the wider area. Therefore, the injection of new population into this area will enable the local shops to thrive and will also have the population to support the sustainable growth of the area.



Figure 4-18. Retail offerings along Rathbeale Road (R125)

Table 4-13. List of Retail Facilities in Proximity of the Subject Site

Name	Location	Type
Applewood Main Street	Applewood Main St, Applewood, Swords, Co. Dublin	Restaurants, take-aways, café, range of local convenience shops, hair salon, retail units, dry cleaners, bookmakers, pharmacy
EUROSPAR	Applewood Main St, Applewood, Swords, Co. Dublin	Convenience Store
Swords Shopping Centre	Swords Shopping Centre, Rathbeale Rd, Commons West, Swords, Co. Dublin	Dunnes Stores, JC's Supermarket, shopping centre offerings, barber shop
Lidl	Rathbeale Rd, Swords, Co. Dublin	Supermarket
Applegreen	North St, Townparks, Swords, Co. Dublin	Petrol station, Convenience Store
Centra Miller's Glen	1 Miller's Square, Oldtown, Swords, Co. Dublin	Convenience Store, retail units, and creche facility

It is noted that the proposed development is anticipated to promote the existing retail provision in the area and add to the vitality of the community by supporting local retail, social and commercial activities. This is to be achieved by a 512 sqm childcare facility and 938 sqm of retail and café uses clustered in a small village centre in the scheme. For further details in this regard, please refer to the Urban Design & Architectural Statement prepared by CCK as part of this SHD application.

4.10 Healthcare Facilities

As shown on **Error! Reference source not found.**, there is a wide range of healthcare facilities in the vicinity of the subject site and its wider area. This includes GP clinics, health centres, pharmacies, dental practice, nursing home, and out of hours GP's. The relevant details on the healthcare provision in the area is listed in 4-14.

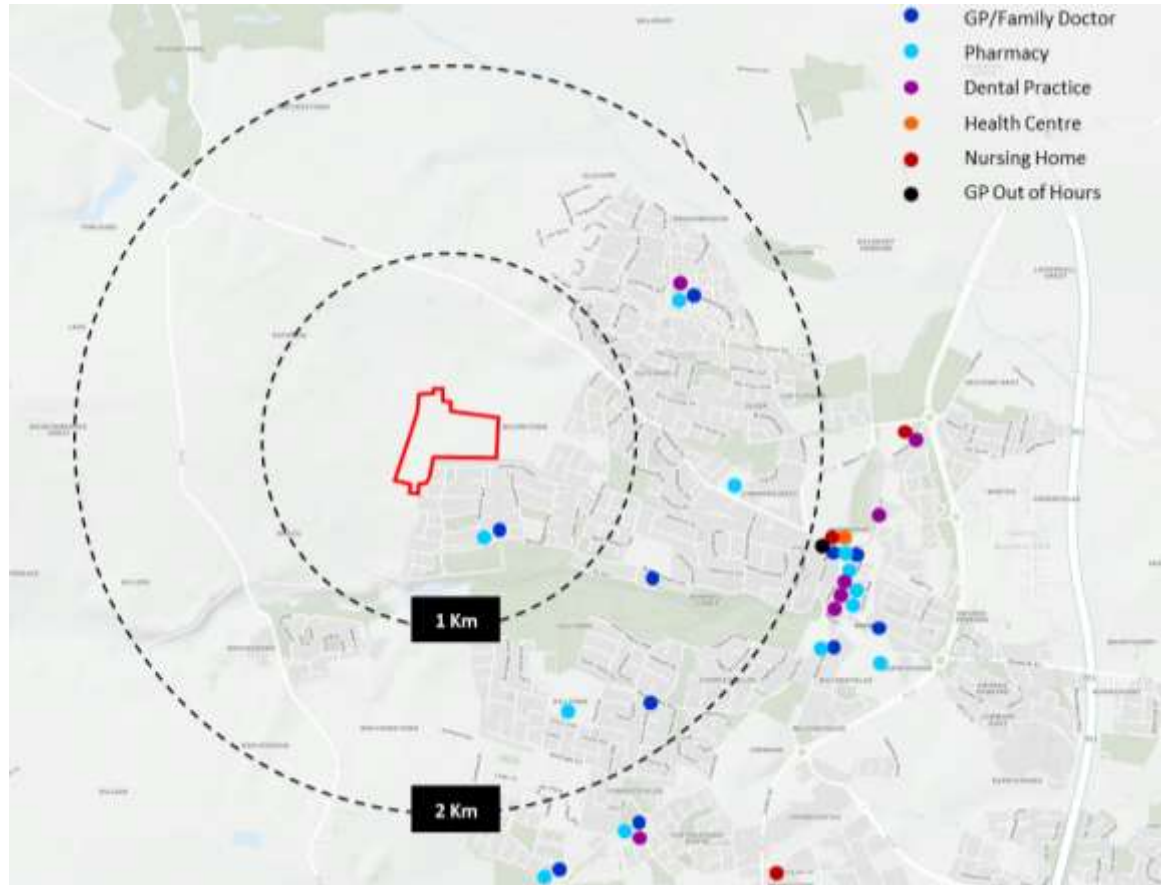


Figure 4-19. Location of Healthcare Facilities within 1-2km Radius of the Subject Site and its Wider Area (approximate boundaries of the subject site outlined in red)

Table 4-14. List of Healthcare Facilities in Proximity of the Subject Site

	Name	Location	Type
	Manor Hall Medical Centre	Manor Mall Shopping Centre, Brackenstown Road, Swords, Co. Dublin	Family Practice
	Applewood Medical Centre	Applewood Village, Swords, Co. Dublin	Family Practice
	Dr Rosaleen O'Kelly, Margaret McGrory, Declan O'Malley, Rosaleen Marie O'Kelly	28 Brackenstown Village, Swords, Co. Dublin	Family Practice
	Forest Medical Practice	108 Forrest Fields Road, Swords, Co. Dublin	Family Practice
	Centric Health - Boroimhe Medical Centre	Boroimhe Shopping Centre, Boroimhe, Swords, Co. Dublin	Family Practice
	Ridgewood Medical Centre	Ridgewood Grove, Ridgewood, Swords, Co. Dublin	Family Practice
	Swords Family Practice	Castle Shopping Centre, Bridge Street, Swords, Co. Dublin	Family Practice
	The Plaza Clinic	17 Main Street, Swords, Co. Dublin	Family Practice
	Adrewendomed Medical Ltd	14 Main Street, Swords, Co. Dublin	Family Practice
	Dr Niall Moore	Rath Mhuire Health Centre, 9 Malahide Road, Swords, Co. Dublin	Family Practice
	Primehealth Medical Centre	91 Main Street, Swords, Co. Dublin	Family Practice
	Salus Medical Clinic	Unit 2 Albany House, Main Street, Swords, Co. Dublin	Family Practice
	Foleys Pharmacy	7 Applewood Village Green, Applewood, Swords, Co. Dublin	Pharmacy
	McNally Pharmacy	Unit 1, Manor Mall Shopping Centre, Brackenstown, Swords, Co. Dublin	Pharmacy
	McCabes Pharmacy	Swords Shopping Centre, Rathbeale Road, Swords, Co. Dublin	Pharmacy
	Swords Pharmacy	Castle Shopping Centre, Bridge Street, Swords, Co. Dublin	Pharmacy
	Life MacNamara's Pharmacy	30 Main Street, Swords, Co. Dublin	Pharmacy
	Gilsenan's Allcare Pharmacy	Unit 1/2 Swords Town Centre, Main Street, Swords, Co. Dublin	Pharmacy
	Plaza Pharmacy	The Plaza, Main Street, Swords, Co. Dublin	Pharmacy
	MacNamara's Pharmacy	Dublin Road, Swords, Co. Dublin	Pharmacy
	Applewood Dental Centre	6 Applewood Village Green, Applewood, Swords, Co. Dublin	Dental Practice
	Swords Dentist	Saint Brendan's, Seatown West, Swords, Co. Dublin	Dental Practice
	Dublin Orthodontics	29/31 North Street, Swords, Co. Dublin	Dental Practice
	Swords Orthodontic Practice	17 Main Street, Swords, Co. Dublin	Dental Practice
	Dental Practice	40/42 Main Street, Swords, Co. Dublin	Dental Practice
	Swords Dental Clinic	66 Main Street, Swords, Co. Dublin	Dental Practice

	Name	Location	Type
	Dr. Eoin O'Neill & Associates	58 Main Street, Swords, Co. Dublin	Dental Practice
	Boroimhe Dental Practice	Boroimhe Shopping Centre, Boroimhe, Swords, Co. Dublin	Dental Practice
	Swords Health Centre	Bridge Street, Swords, Co. Dublin	Health Centre
	Fingal House Nursing Home	Fingal House Nursing Home, Seatown West, Swords, Co. Dublin	Nursing Home
	Carechoice Swords	Carechoice Nursing Home, Bridge Street, Swords, Co. Dublin	Nursing Home
	Tara Winthrop Private Clinic	Tara Winthrop Private Clinic, Nevinstown Lane, Swords, Co. Dublin	Nursing Home
	DDOC	Swords Health Centre, Bridge Street, Swords, Co. Dublin	GP Out of Hours

Furthermore, Beaumont Hospital is located within approximately 14 km of the subject lands, and this is a c. 25-minute driving distance via M1.

4.11 Religious and Community Provision

There are several religious centres in the area including Catholic, Protestant and Anglican churches, in addition to Mosques and Islamic Centre. Taking into consideration the scale of the proposal, and the influx of new population into the area, the existing facilities prove to be sufficient and meet the needs of the proposed development.

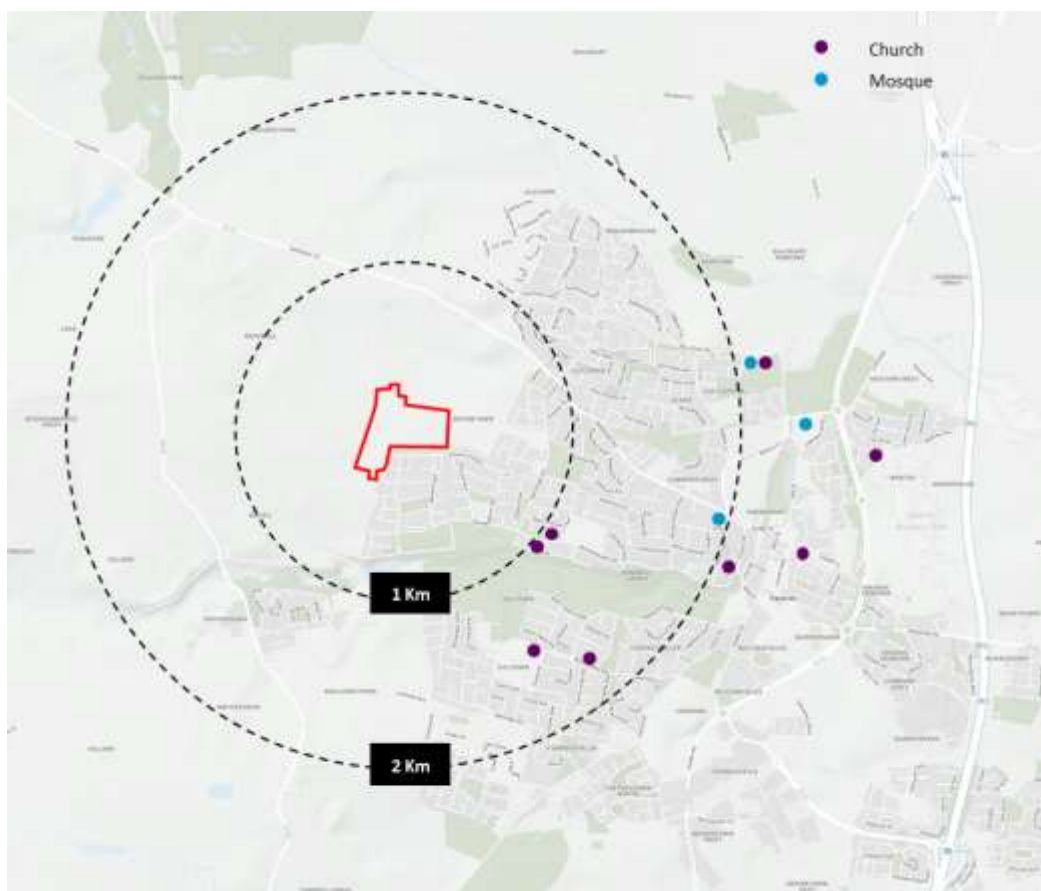


Figure 4-20. Location of Religious & Community Facilities within 1-2km Radius of the Subject Site and its Wider Area (approximate boundaries of the subject site outlined in red)

Table 4-15. List of Religious & Community Facilities in Proximity of the Subject Site

Name	Location	Type
Swords Elim Church	St. Colmcille's GAA, Glen Ellan Road, Holybanks, Swords, Co. Dublin	Christian Church
St. Cronan's Catholic Church	Brackenstown Village, Windmill Lands, Swords, Co. Dublin	Catholic Church
Brackenstown Parish	Brackenstown Rd, Windmill Lands, Swords, Co. Dublin	Catholic Church
St. Columba's Church	Church Rd, Swords Glebe, Swords, Co. Dublin	Catholic Church
St Colmcille's Catholic Church	Chapel Ln, Swords Demesne, Swords, Co. Fingal	Catholic Church
Church of the Immaculate Conception	Seatown Cottages Road, Swords, Co. Dublin	Catholic Church
St. Finian's Church	2 River Valley Heights, Forestfields, Swords, Co. Dublin	Church
St. Finian's Catholic Church	St. Finian's Church, River Valley Parish, Swords, Co. Dublin	Catholic Church
Islamic Centre Swords	St. Colmcille's GAA Club, Glen Ellan Rd, Swords, Co. Dublin	Mosque
Swords Mosque	North Street Business Park, 2 North St, Townparks, Swords, Co. Dublin	Mosque
Islamic Cultural Centre Swords	Islamic Cultural Centre, Rathbeale Rd, Swords Glebe, Swords, Co. Dublin	Mosque

4.12 Demographic Profile

The following provides a study of population distribution and movement in Swords as the context area to the subject lands, also providing further details on demographic profile of the Swords-Glasmore ED, which the subject lands for the proposed development fall under.

4.12.1 Demographic of Swords

Census 2016 results show that Swords population stood at 39,248 in April 2016, which brought the Fingal capital to the second in the country, only after Drogheda. This also indicates an increase of 2,324 (6.3%) since the last Census in 2011. With an average household size of 3, there were 12,896 private households in Swords in 2016. As shown in the Table 4-16 below, more than 60% of the households residing in Swords in 2016 were small sized households (8,021 households).

Table 4-16. Private Households in Swords by Household Size, 2016

Size of Household	Households	%
1-person Household	1,876	14.5
2-person Households	3,428	26.6
3-person Households	2,717	21.1
4-person Households	2,948	22.9
5-person and over Households	1,927	14.9
Total	12,896	-

Investigating the age profile of the town over the Census 2011-2016 indicates that the younger age cohorts still form the greatest share of the population residing in Swords, however, there was a notable drop in cohort aged 20-29, which can partially be an outcome of housing market failing to meet the growing demand. The greatest share of the population growth however, occurred in 50-59 age cohort followed by 40-49 years old.

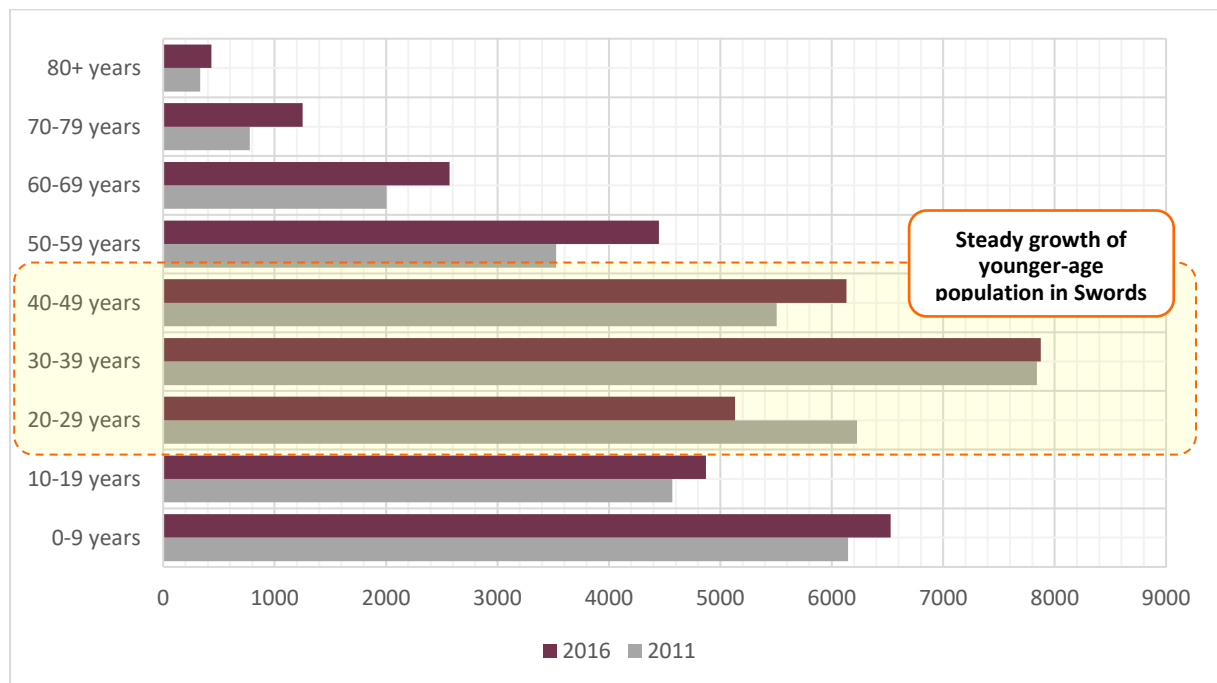


Figure 4-21. Population Change by Age Cohort in Swords over 2011-2016

The population pyramid below (Figure 4-4) shows the town age distribution in more detail. A peak of births in 1980's shows up in the 30-39 age category, and another peak in the number of births occurred in 2000's and shows up in the 0-9 age category. Overall, the age pyramid indicates a young population residing in the town, which is expected to grow in the coming years.

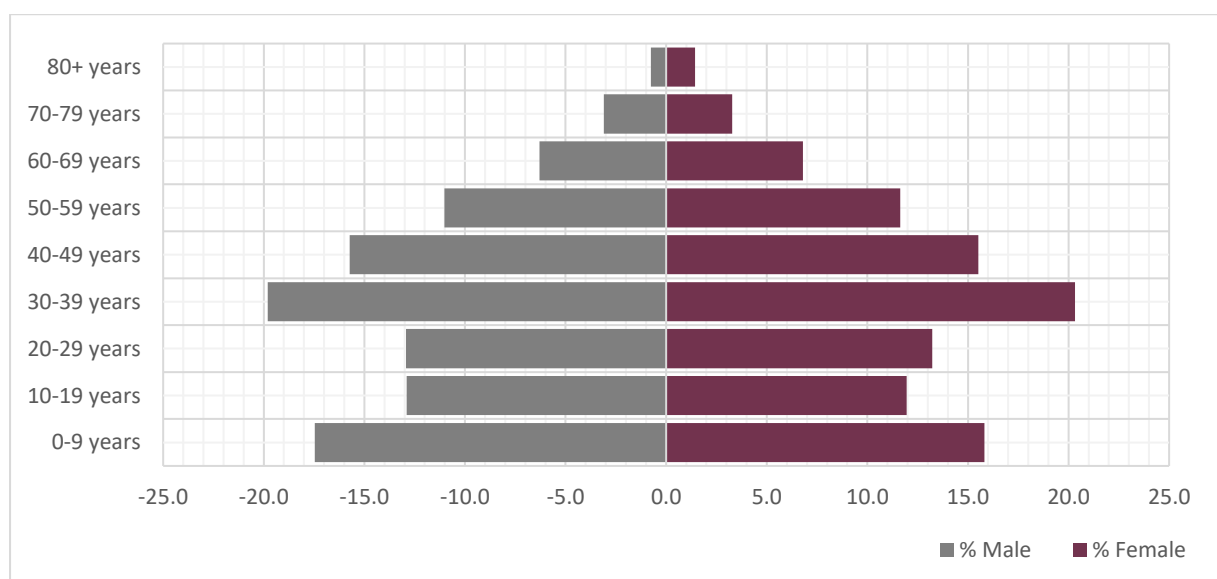


Figure 4-22. Population Age Pyramid of Swords, 2016

As it is mapped on the Figure below, the overall distribution of population in Census 2016 indicates that there are significant variances in population trends within ED's throughout the town. However, the highest concentration of the total population in Swords is clearly to the western ED's and towards the lands on Oldtown-Mooretown.

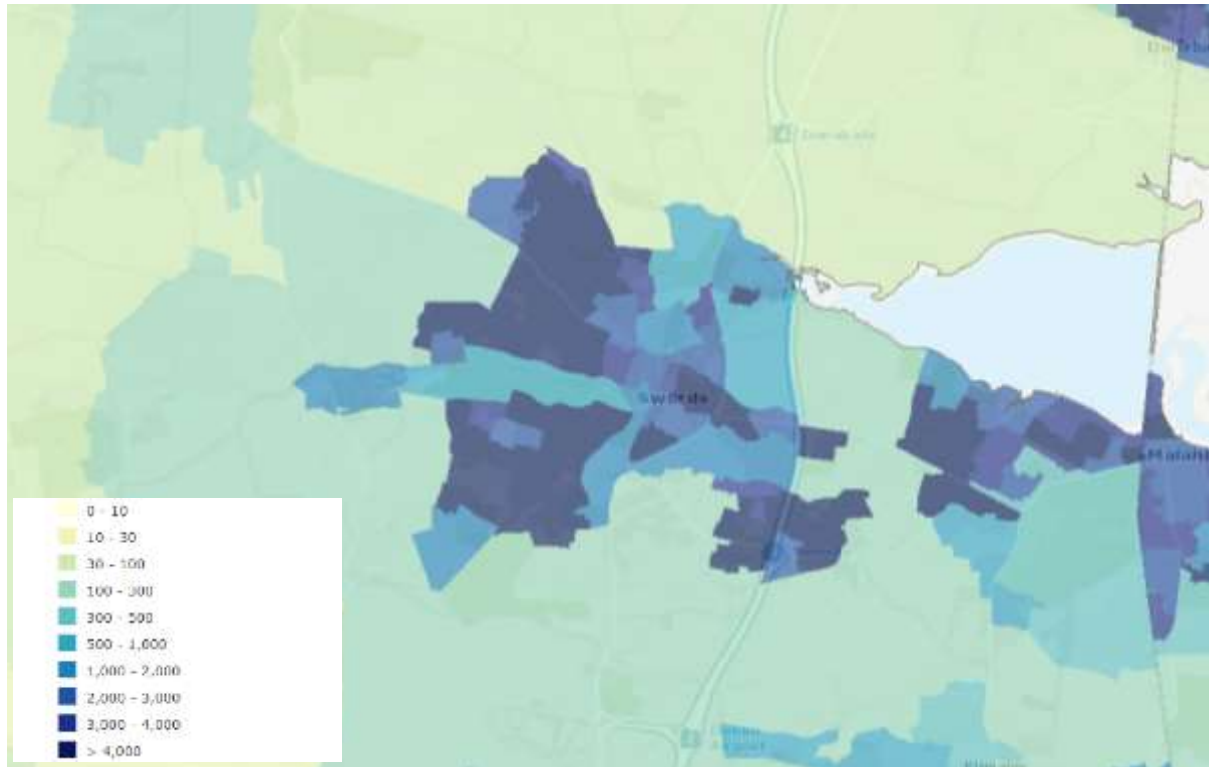


Figure 4-23. Spatial Distribution of Population Density per Km² in Swords, 2016

4.12.2 Population Distribution and Movement

Census 2016 results show that Swords-Glasmore ED's population stood at 7,711 in April 2016, which is approximately 20 percent of Swords population. There has been a slight population decrease in the area, dropping by -37 persons, from 7,748 persons in 2011.

Table 4-17. Private Households in Swords-Glasmore by Household Size, 2016

Size of Household	Household	%
1-person Household	335	13.8
2-person Household	614	25.3
3-person Household	454	18.7
4-person Households	571	23.5
5-person and over Households	456	18.8
Total	2430	-

Investigating the age profile of the Swords-Glasmore ED as per Census 2016 indicates that the greatest share of the population living in this area are from cohort aged 40-49, followed by 30-39 years age group. This is clearly demonstrated that the demographic of the area is characterised by young age groups and small sized households, which would then give rise to a growing housing market in the area.

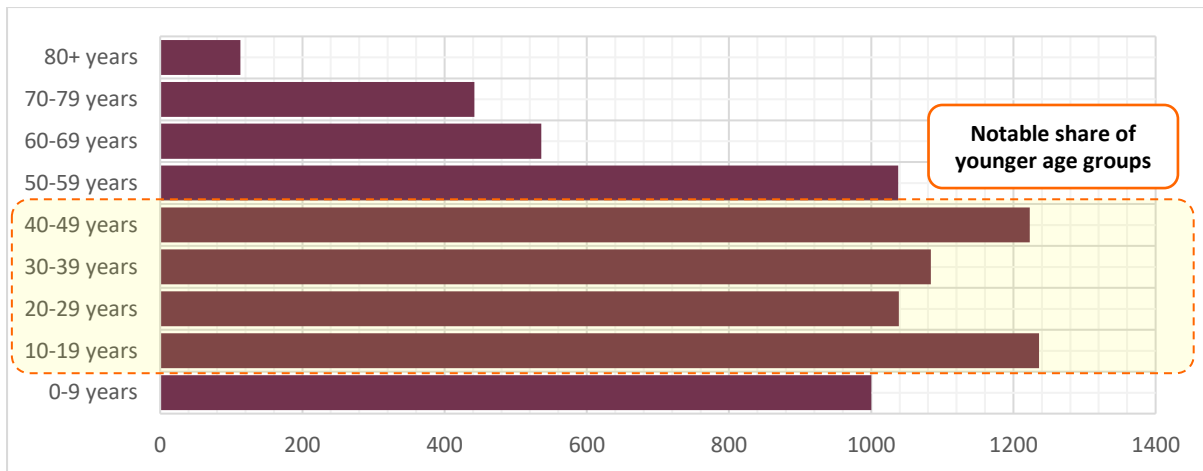


Figure 4-24. Population Residing in Swords-Glasmore by Age Cohort, 2016

Based on the aforementioned results, Swords is expected to have a steady population growth with the greatest share of the population residing in the western side of the town. This population is characterised with young age profile and smaller sized households. Despite a slight decline in Swords-Glasmore ED, which the proposed development falls under, the area demonstrates notable potential for accommodating a notable share of Swords growing population. This is further supported by the existing infrastructure and community facilities and amenities assessed in the Audit.

On the other hand, the influx of population arising from the proposed development will benefit the electoral division as well as Fingal, as this will offer the social support needed for further improvements to the accessibility and connectivity of Oldtown-Mooretown, even favouring the use of public transport. Mooretown is surrounded by numerous employment areas, i.e. Dublin Airport, Dublin City, Swords, which have good transport and connectivity links, with Dublin City being approximately 45min away by bus or a 30min drive.

The new consumers the proposed development will bring to the area will also benefit the retail activity and other shops in the vicinity creating more business opportunities for the existing offerings, thus facilitating the future growth and sustainable development of Mooretown.

4.13 Potential Impact of the Proposed Development

4.13.1 Construction Phase

Construction impacts are expected to be short term, but some potential adverse local impacts can be expected due to the actual construction of the development. This is likely to be associated with construction traffic and any possible nuisance with such movements, for example an increase in daytime noise levels.

The resident community in adjoining housing developments are most likely to be affected by these short-term temporary impacts. Corresponding mitigation measures are set out in Chapter 9 which will reduce these impacts to an insignificant level. Noting the inclusion of this mitigation plan, any further assessment in relation to noise impact was not considered relevant.

The development may also have some positive impacts on passive recreational facilities within the area with additional revenue being derived from the use of these facilities by the construction

workers. Impacts to the local population are considered to be neutral, imperceptible, temporary in nature and therefore not considered significant.

4.13.2 Operational Phase

The proposed development could have the following potential operational impacts:

- 1) An increase in traffic levels.
- 2) Additional demand on local community services.
- 3) An impact on the landscape and appearance in the area.
- 4) Increased demands on services infrastructure.

The predicted population increase arising from the proposed development will generate additional traffic loads in the area, although according to the Transportation Chapter of this EIAR, will be within the capacity of the road network. The impacts in this regard are set out in detail in Chapter 12.0 Transportation.

The resident community will benefit from the additional passive amenity areas, to be provided as part of the proposed development. There is a hierarchy of open spaces being put forward as part of the proposed development, in particular areas of public open space containing play equipment for children that will be available for future residents and the wider community, which will add to recreational amenity of the area and will have a positive impact on health for the overall area.

4.13.3 Remedial and Reductive Measures

4.13.3.1 Construction Phase

Measures to mitigate potential impacts arising from the construction phase of the proposed development such as noise are set out in relevant chapters of this EIAR.

4.13.3.2 Operational Phase

The proposed development will have a positive impact on the local community and will positively contribute to the vitality and viability of the local area, as well as passive amenity and open space provision.

4.13.3.3 Predicted Impact of the Proposed Development

Construction Phase

Through the implementation of remedial and reductive measures that have been set out above, the impacts of the construction phase of the development are not anticipated to be significant. Furthermore, all impacts will be temporary in nature.

Operational Phase

The predicted impact is the same as that set out under the potential impacts of the operation phase of the development.

4.13.4 Monitoring

There is no requirement for community monitoring.

4.14 Human Health

The subject lands have an approximate area of 18.378ha, and are situated within existing built-up area of Oldtown-Mooretown lands to the western development boundaries of Swords. The subject site is located south of Rathbeale Road and to the south of Main Street and southeast of Mooretown Distributor Road (Western Distributor Link Road), Mooretown, Swords, Co. Dublin, with associated engineering works on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road, Swords, Co. Dublin.

. The existing and/or ongoing developments are characterised by a variety of apartment/duplex units and 2-storey dwellings with associated on-curtilage parking in a mix of unit types.

The proposed development will provide for another phase of the Moortown zoned land by providing for a predominately residential scheme that will be well-integrated with the surrounding area. The proposed scheme will make a positive contribution to the existing community by creating new places/spaces that are accessible not only to the residents of the scheme, but also to members of the public. It is submitted that the completion of the proposed scheme will not have an adverse impact on human health including mental health or wellbeing. Furthermore, there will be no adverse impacts on social, economic, or environmental living conditions as a result of the development.

4.14.1 Potential Impact of the Proposed Development

4.14.1.1 Construction Phase

Construction impacts are expected to be short term, but some potential adverse local impacts can be expected due to the actual construction of the development. These impacts are likely to be associated with construction traffic movements and any possible nuisance with such movements, for example an increase in daytime noise levels, migration of surface contaminants and dust. The resident community in adjoining housing estates are most likely to be affected by these short term temporary impacts. Corresponding mitigation measures are set out in Chapter 8.0 which will reduce these impacts to an insignificant level. Noting the minor nature of these impacts, any further assessment in this regard was not considered relevant.

The development may also have some positive impacts on passive recreational facilities within the area with additional revenue being derived from the use of these facilities by the construction workers.

4.14.1.2 Operational Phase

The proposed development could have the following potential operational impacts as a result of an increase in population levels:

- 1) An increase in traffic levels.
- 2) Additional demand on local community services.
- 3) An impact on the landscape and appearance in the area.
- 4) Increased demands on services infrastructure.

The impacts in regard to additional traffic loads in the Back Road area generated by the predicted population increase are set out in detail in Transportation Chapter of this EIAR.

In relation to potential impacts on human health and safety during the operational phase are unlikely to result in any significant adverse impacts once the development is completed and operational. Environmental impacts of the proposed development and their relationship to human health is dealt with under the relevant noise and vibration, air and climate and traffic sections of the EIAR. There will not be significant impacts on human health as a result of the operation of the proposed development.

4.14.2 Remedial and Reductive Measures

Construction Phase

Measures to mitigate potential impacts arising from the construction phase of the proposed development such as noise, traffic and air quality are set out in relevant chapters of this EIAR.

Operational Phase

No mitigation measures are required in respect of human health during the operational phase of the development.

4.14.3 Predicted Impact of the Proposed Development

Construction Phase

Through the implementation of remedial and reductive measures that have been set out above, the impacts of the construction phase of the development are not anticipated to be significant. Furthermore, all impacts will be temporary in nature.

Operational Phase

The proposed development will provide a development that will be integrated with the surrounding area and existing and future transport infrastructure, including green infrastructure. The proposed development will make a positive contribution to the existing community by creating new places and spaces as well as improved permeability that are accessible not only to the residents of the scheme, but also to members of the public.

It is submitted that the proposed development at Moortown, Swords will not have an adverse impact on human health including mental health or wellbeing. Furthermore, there will be no adverse impacts on social, economic, or environmental living conditions as a result of the proposed scheme.

4.15 Monitoring

In terms of population and human health, measures to avoid negative impacts have been a key consideration in the design evolution of the buildings and overall layout of the proposed project. Conditions will be attached to any grant of planning permission to ensure compliance in this regard. Building Regulations will also be adhered to during the construction phase to ensure a fully compliant development is constructed. Health & Safety requirements, which are site specific to the proposed project, will be carried out by the Project Manager on site. Impacts from Air Quality, Noise and

Vibration, Climate, and Traffic and Transport and monitoring measures in this regard are addressed in the relevant chapters of this EIAR.

4.16 Reinstatement

No reinstatement will be required specifically for population and human health.

4.17 Interactions

The main interactions relating to population and human health are water, air quality, noise, and traffic during the construction phase. Construction activities will have a temporary impact the landscape of the area by way of visual disturbance. These impacts are not considered to be significant. During the operational phase, the main interactions relating to population and human health are water, air quality, noise, and traffic. These impacts are not considered to be significant. Please refer to the associated chapters for further information on these interactions.

4.18 Difficulties Encountered in Compiling

Overall, no difficulties were encountered in compiling this chapter.

4.19 Cumulative Impacts

The assessment has considered cumulative impacts of construction and operational phases of the proposed project, in conjunction with surrounding developments.

Multiple sites under construction at the one time may result in cumulative impacts in terms of noise and vibration during the construction period for human beings. However, such impacts are short-term, and the implementation of appropriate mitigation measures will ensure that noise and vibration impact is kept to a minimum. Please refer to Chapter 9.0 for further details in this regard.

During the operational phase of the development, there will be residential, recreational, and commercial developments in proximity to the proposed project which will generate a synergy of uses. This will increase population, increase employment opportunities, and increase community facilities such as childcare facilities, and as such the long-term effect will be a positive and permanent impact for Broomfield and the overall town.

4.20 “Do Nothing” Impact

A “Do Nothing” scenario is not considered appropriate as the lands are currently zoned for residential under the Fingal Development Plan 2017-2023. However, if a do-nothing scenario were to occur, the lands would not be developed and therefore would be no adverse impacts to population and human health. In the event that the proposed project does not proceed, the lands would remain in its current condition in the short-term or until alternative development proposals are granted planning permission.

4.21 References

- *Central Statistics Office [CSO] (Census data results and analysis from 2011 and 2016)*
- *CSO (2021). Quarterly Labour Force Survey Q1 2021*

- *Economic and Social Research Institute [ESRI] (data results and analysis)*
- *Eastern and Midland Regional Assembly (2019), Regional Spatial and Economic Strategy 2019-2031*
- *Fingal County Council, Fingal County Council Development Plan 2017-2023*

5.0 BIODIVERSITY

5.1 Introduction

The biodiversity chapter has been prepared by Altemar Limited. It assesses the biodiversity value of the proposed development area and the potential impacts of the development on the ecology of the surrounding area and within the potential zone of influence (ZOI). The programme of work in relation to biodiversity assessment was designed to identify and describe the existing ecology of the area and detail designated sites, habitats or species of conservation interest that could potentially be impacted by the proposed development. It also assesses the significance of the likely impacts of the scheme on the biodiversity elements, and designs mitigation measures to alleviate identified impacts.

A separate AA Screening and Natura Impact Statement in accordance with the requirements of Article 6(3) of the EU Habitats Directive, has been produced to identify potential impacts of the development on European (Natura 2000) sites, Annex species or Annex habitats. It concludes that:

“In a strict application of the precautionary principle, it has been concluded that effects on Malahide Estuary SAC and Malahide Estuary SPA are likely from the proposed works in the absence of mitigation measures, as a result of a direct hydrological connection to the site via the proposed surface water drainage network, with possible downstream impacts from the project during the reprofiling, construction landscaping and drainage works. For this reason, an NIS was carried out to assess whether the proposed project, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites’ conservation objectives, will adversely affect the integrity of the European Sites in Malahide Estuary. All other European sites were screened out at initial screening.

Construction on this site will create localised light and noise disturbance that will not impact on European sites. Mitigation measures will be in place to ensure that there are no significant impacts on the surface water that leads to Malahide Estuary SAC and Malahide Estuary SPA.

Following the implementation of the mitigation measures outlined, the construction and presence of this development would not be deemed to have a significant impact. No significant impacts are likely on European sites, alone or in combination with other plans and projects based on the implementation of mitigation measures.

No significant effects are likely on European sites, their features of interest or conservation objectives. The proposed project will not will adversely affect the integrity of European sites.”

5.1.1 Background to Altemar

Altemar Ltd. is an established environmental consultancy based in Greystones, Co. Wicklow that has been in operating in Ireland since 2001. Bryan Deegan (MCIEEM) is the primary consultant. Bryan Deegan has 26 years’ experience working in Irish terrestrial and aquatic environments, providing ecological consultancy. He has a Certificate in Science, Diploma in Applied Aquatic Science, BSc in Applies Marine Biology and a MSc in Environmental Science. Bryan has extensive aquatic and terrestrial fieldwork experience including flora and fauna (bird & mammal) surveys. Hugh Delaney provided specialist support to Bryan Deegan in relation to birds. Hugh Delaney is an ecologist

(ornithologist primarily) having completed work on numerous sites with ecological consultancies over 10+ years. Hugh is from the Dublin area and is especially familiar with the bird life and its ecology in the environs going back over 30 years.

5.2 Study Methodology

A pre-survey biodiversity data search was carried out. This included examining records and data from the National Parks and Wildlife Service (NPWS), National Biological Data Centre (NBDC) and the Environmental Protection Agency (EPA), in addition to aerial, 6-inch maps and satellite imagery. A habitat survey of the site was undertaken within the appropriate seasonal timeframe for terrestrial fieldwork. Field surveys were carried out as outlined in Table 5.1. All surveys were carried out in the appropriate seasons.

Table 5-1. Field Surveys

Area	Surveyors	Survey Dates
<i>Terrestrial Ecology/ Aquatic Ecology</i>	Bryan Deegan (MCIEEM) of Altamar	20th April 2021
<i>Bat Survey</i>	Bryan Deegan (MCIEEM) of Altamar	20th April 2021
<i>Mammal / Amphibian Survey</i>	Bryan Deegan (MCIEEM) of Altamar	16th March 2021
Wintering Bird Survey	Hugh Delaney (ornithologist)	March 25th 2021, March 26th 2021, March 30th 2021, March 31st 2021, November 23rd 2021, December 9th 2021, December 21st 2021, January 13th 2022, January 25th 2022, February 3rd 2022, February 22nd 2022, March 1st 2022, March 21st 2022
Breeding Bird Survey	Hugh Delaney (ornithologist)	June 8th, 2021, June 14th 2021 & June 25th 2021

Desk studies were carried out in April 2021 and updated in April 2022. The assessment also extends beyond the immediate development area to include those species and habitats that are likely to be impacted by the project. There is a series of drainage ditches on and adjacent to the site boundary, which drain to the Mill Stream and ultimately the Broadmeadow River. This river outfalls to Broadmeadow Water which is hydrologically connected to Malahide Estuary SAC and Malahide Estuary SPA.

5.2.1 Proximity to designated conservation sites and habitats/species of conservation interest

The designated conservation sites within 15 km of the site were examined for potential impact. Sites beyond 15 km had no direct or indirect pathways. This assessment included sites of international importance; European sites (Special Areas of Conservation (SAC), candidate Special Areas of Conservation (including candidate sites of Community importance and sites of Community importance) (cSAC), Special Protection Areas (SPA) and candidate Special Protection Areas (cSPA)) and Ramsar sites and sites of National importance ((Natural Heritage Areas (NHA), proposed Natural Heritage Areas (pNHA)). Up to date GIS data (2020 NPWS data shapefiles) were acquired and plotted

against the proposed development site. A data search of rare and threatened species within 10km of the proposed site (GIS shapefile), which in our professional opinion is deemed appropriate, was provided by NPWS. Additional information on rare and threatened species was researched through the National Biodiversity Data Centre maps. Works are proposed to the drainage ditch on-site and it is considered that there is a direct hydrological pathway to Natura 2000 sites (Skerries Islands SPA) at low tide, as the drainage ditch enters the intertidal environment that extends to the Skerries Island SPA. As a result, an AA Screening Report and a Natura Impact statement was carried out for the project and is included with the supporting documentation for this application.

5.2.2 Terrestrial and Avian Ecology

A pre-survey data search was carried out. This included a literature review to identify and collate relevant published information and ecological studies previously conducted and comprised of information from the following sources; the National Parks and Wildlife Service, NPWS Rare and Protected Species Database, National Biodiversity Data Centre, EPA WMS watercourses data, in addition to aerial, 6 inch, satellite imagery. Following the desktop study, walk-over assessments of the site were carried out on the 16th March 2021 and the 20th April 2021. The presence of mammals is indicated principally by their signs, such as resting areas, feeding signs or droppings - though direct observations are also occasionally made. Habitat mapping was carried out according to Fossitt (2000) using ArcGIS 10.5 and displayed on Bing satellite imagery or street mapping. Any rare or protected species or habitats were noted. A comprehensive Wintering Bird Assessment was also carried out on numerous dates during 2021 and 2022 (Appendix 5.1). As part of the fieldwork an invasive species assessment was carried out. Wintering and breeding bird surveys were carried out as outlined in Table 5.1. Birds noted on site were classed based on the Birds of Conservation Concern In Ireland classification, of red, amber and green, which is based on an assessment of the conservation status of all regularly occurring birds on the island of Ireland.

5.2.3 Bat Fauna

Onsite trees were inspected for bats and/or their signs using a powerful torch (141 Lumens) – Petzl MYO RXP. The site survey was supplemented by a review of Bat Conservation Ireland's (BCIreland) National Bat Records Database. Bat detector and emergent surveys were carried out on 20th April 2021.

5.2.4 Rating of Effects

The terminology for rating impacts is derived from the EPA Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (2017) (Table 5.2)

Table 5-2. Impact description terminology**Magnitude of impact and typical descriptions.**

Magnitude of impact (change)		Typical description
High	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Medium	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Low	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring
Negligible	Adverse	Very minor loss or alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.

Criteria for Establishing Receptor Sensitivity/Importance

Importance	Ecological Valuation
International	Sites, habitats or species protected under international legislation e.g. Habitats and Species Directive. These include, amongst others: SACs, SPAs, Ramsar sites, Biosphere Reserves, including sites proposed for designation, plus undesignated sites that support populations of internationally important species.
National	Sites, habitats or species protected under national legislation e.g. Wildlife Act 1976 and amendments. Sites include designated and proposed NHAs, Statutory Nature Reserves, National Parks, plus areas supporting resident or regularly occurring populations of species of national importance (e.g. 1% national population) protected under the Wildlife Acts, and rare (Red Data List) species.
Regional	Sites, habitats or species which may have regional importance, but which are not protected under legislation (although Local Plans may specifically identify them) e.g. viable areas or populations of Regional Biodiversity Action Plan habitats or species.
Local/County	Areas supporting resident or regularly occurring populations of protected and red data listed-species of county importance (e.g. 1% of county population), Areas containing Annex I habitats not of international/national importance, County important populations of species or habitats identified in county plans, Areas of special amenity or subject to tree protection constraints.
Local	Areas supporting resident or regularly occurring populations of protected and red data listed-species of local importance (e.g. 1% of local population), Undesignated sites or features which enhance or enrich the local area, sites containing viable area or populations of local Biodiversity Plan habitats or species, local Red Data List species etc.
Site	Very low importance and rarity. Ecological feature of no significant value beyond the site boundary

Quality of Potential Impacts on Biodiversity

	Impact Description
Negative /Adverse Impact	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Neutral Impact	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Positive Impact	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

Significance of Impacts

Significance of Impact	Description of Potential Impact
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An impact which obliterates sensitive characteristics.

Duration of Impact

Duration of Impact	Description
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting less than a year
Short-term	Effects lasting one to seven years.
Medium-term	Effects lasting seven to fifteen years.
Long-term	Effects lasting fifteen to sixty years.
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration

Probability of Effects

Probability of Impact	Description
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

5.2.5 Difficulties Encountered

No difficulties were encountered in relation to the preparation of the Biodiversity EIA Chapter. All surveys were carried out in appropriate seasons.

5.2.6 Consultation

Consultation was carried out with the project team in relation to the preparation of the Landscape strategy and Construction Environmental Management Plan (CEMP).

5.3 The Existing Receiving Environment

5.3.1 Zone of Influence

The potential zone of influence (ZOI) was set at a radius of 2km from the proposed Project. Where there was a potential for the ZOI to be influenced by natural biodiversity corridors e.g., rivers or woodland were also taken into account and the assessment was extended. Details of the proposed development are provided in Chapter 2 of this EIAR. The proposed layout, drainage strategy and landscape design were reviewed to inform this assessment. Further, Chapter 2, Development Description, Chapter 5, Land and Soils and Chapter 6 Water of this EIAR were reviewed.

As works are proposed in close proximity to multiple watercourses and the surface water from the site will be discharged to the Mooretown Mill Stream, which connects to the Broadmeadow River and outfalls to Malahide Estuary (SAC and SPA), in the absence of mitigation measures, Malahide Estuary SAC and Malahide Estuary SPA are deemed to be within the potential Zone of Influence (ZOI). The ZOI of the proposed project would be seen to be restricted to the site outline with potential for localised noise, dust and light impacts during construction, in addition to downstream effects on the marine environment and European sites. Drainage from the site, both foul and surface water during construction and operation, would be seen as the outputs, in addition to the watercourses adjacent to the site, could potentially extend the potential ZOI into the marine environment.

5.3.2 Designated sites

As demonstrated in Figure 5-5, there are a number of drainage ditches within, and immediately proximate to, the proposed development site. The drainage ditches on-site outfall to the Mooretown Mill Stream, located on the eastern boundary of the subject site. It is worth noting that the EPA WFD River Waterbodies mapping demonstrates a waterbody flowing through the constructed school located to the north of the site. This waterbody, appears however, to have been diverted to a man-made drainage ditch during construction works for the school (Planning Ref. **F18A/0183**). This man-made drainage ditch also ultimately outfalls to the Mooretown Mill Stream.

There is a direct hydrological pathway to Malahide Estuary SAC and Malahide Estuary SPA via the proposed surface water drainage strategy. After attenuation, surface water will then outfall to the Mooretown Mill Stream, which in turn outfalls to Broadmeadow River. As this watercourse ultimately discharges to Malahide Estuary (containing Malahide Estuary SAC & SPA), located 2.5km downstream from the subject site, there is a direct hydrological pathway between the proposed development and Malahide Estuary SAC & SPA.

Table 5-3a. European sites within 15 km of the proposed development

European Site Code	European Site	Distance	Screened In for NIS
Special Areas of Conservation			
IE0000205	Malahide Estuary SAC	2.5 km	Yes
IE0000208	Rogerstown Estuary SAC	5.0 km	No
IE0000199	Baldoyle Bay SAC	8.6 km	No
IE0000206	North Dublin Bay SAC	11.1 km	No
IE0003000	Rockabill to Dalkey Island SAC	11.7 km	No
IE0002193	Ireland's Eye SAC	13.3 km	No
IE0000202	Howth Head SAC	14 km	No
IE000210	South Dublin Bay SAC	14.2 km	No
IE0000204	Lambay Island SAC	14.2 km	
Special Protected Areas			
IE0004025	Malahide Estuary SPA	2.8 km	Yes
IE0004015	Rogerstown Estuary SPA	5.7 km	No
IE0004016	Baldoyle Bay SPA	8.6 km	No
IE0004006	North Bull Island SPA	11.1 km	No
IE0004024	South Dublin Bay and River Tolka Estuary SPA	11.3 km	No
IE0004117	Ireland's Eye SPA	13.0 km	No

Table 5-3b. Nationally designated sites within 15 km of the proposed development

Status	Site Name	Distance
Proposed NHA	Malahide Estuary	2.5 km
Proposed NHA	Feltrim Hill	4.1 km
Proposed NHA	Rogerstown Estuary	5.0 km
Proposed NHA	Santry Demesne	6.2 km
Proposed NHA	Sluice River Marsh	7.6 km
Proposed NHA	Baldoyle Bay	8.6 km
Proposed NHA	Portraine Shore	8.9 km
Proposed NHA	Royal Canal	10.4 km
Proposed NHA	North Dublin Bay	11.3 km
Proposed NHA	Bog of the Ring	12.2 km
Proposed NHA	Knock Lake	13.1 km
Proposed NHA	Ireland's Eye	13.2 km
Proposed NHA	Liffey Valley	13.2 km
Proposed NHA	Dolphins, Dublin Docks	13.8 km
Proposed NHA	Howth Head	14.1 km
Proposed NHA	Lambay Island	14.2 km
Proposed NHA	Grand Canal	14.3 km
Proposed NHA	South Dublin Bay	14.5 km
Ramsar	Broadmeadow Estuary	2.9 km
Ramsar	Rogerstown Estuary	7.6 km
Ramsar	Baldoyle Bay	8.7 km
Ramsar	North Bull Island	11.5 km
Ramsar	Sandymount Strand/ Tolka Estuary	14.3 km



Figure 5-1. Proposed Development Site

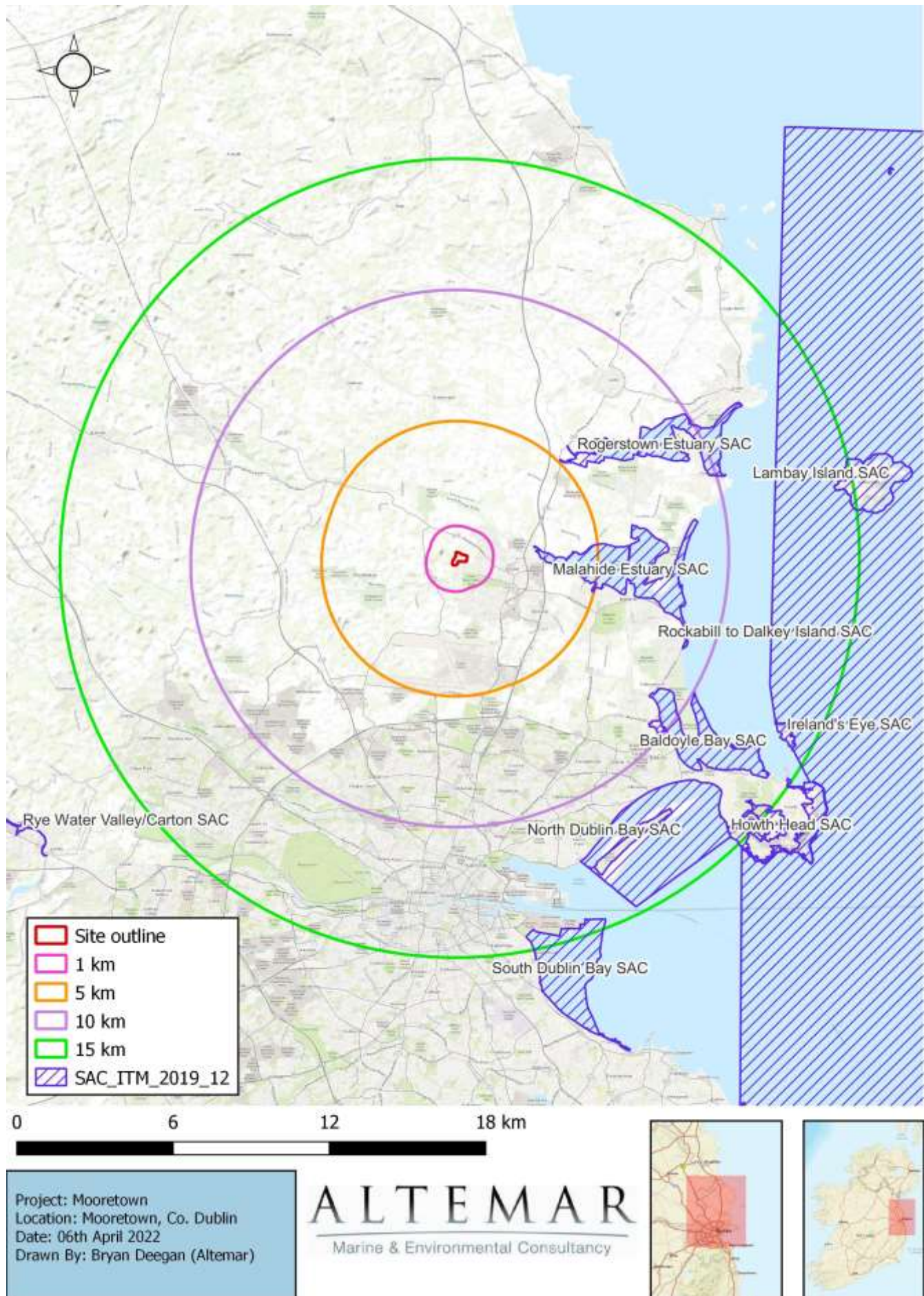
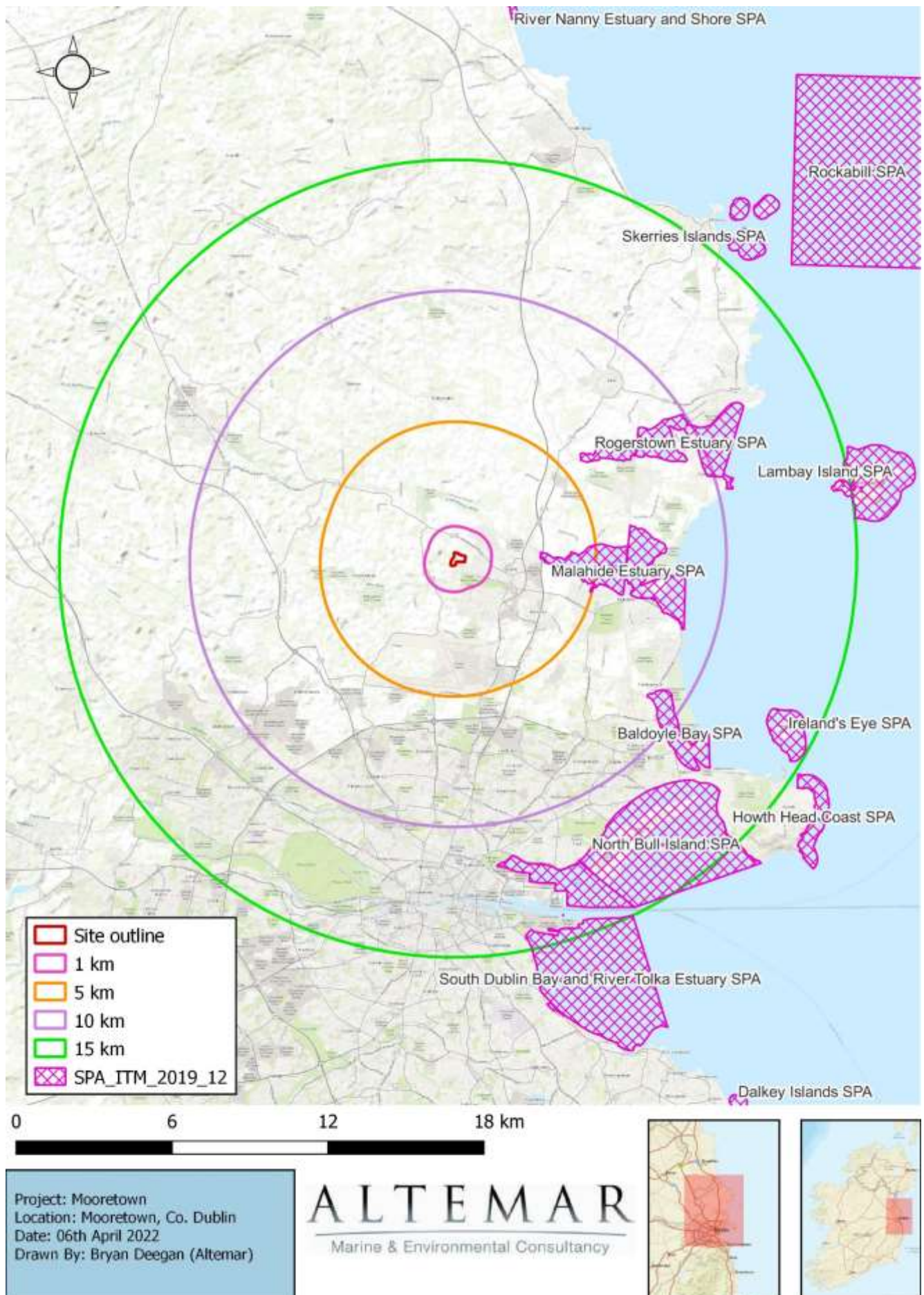


Figure 5-2. Special Areas of Conservation within 15 km



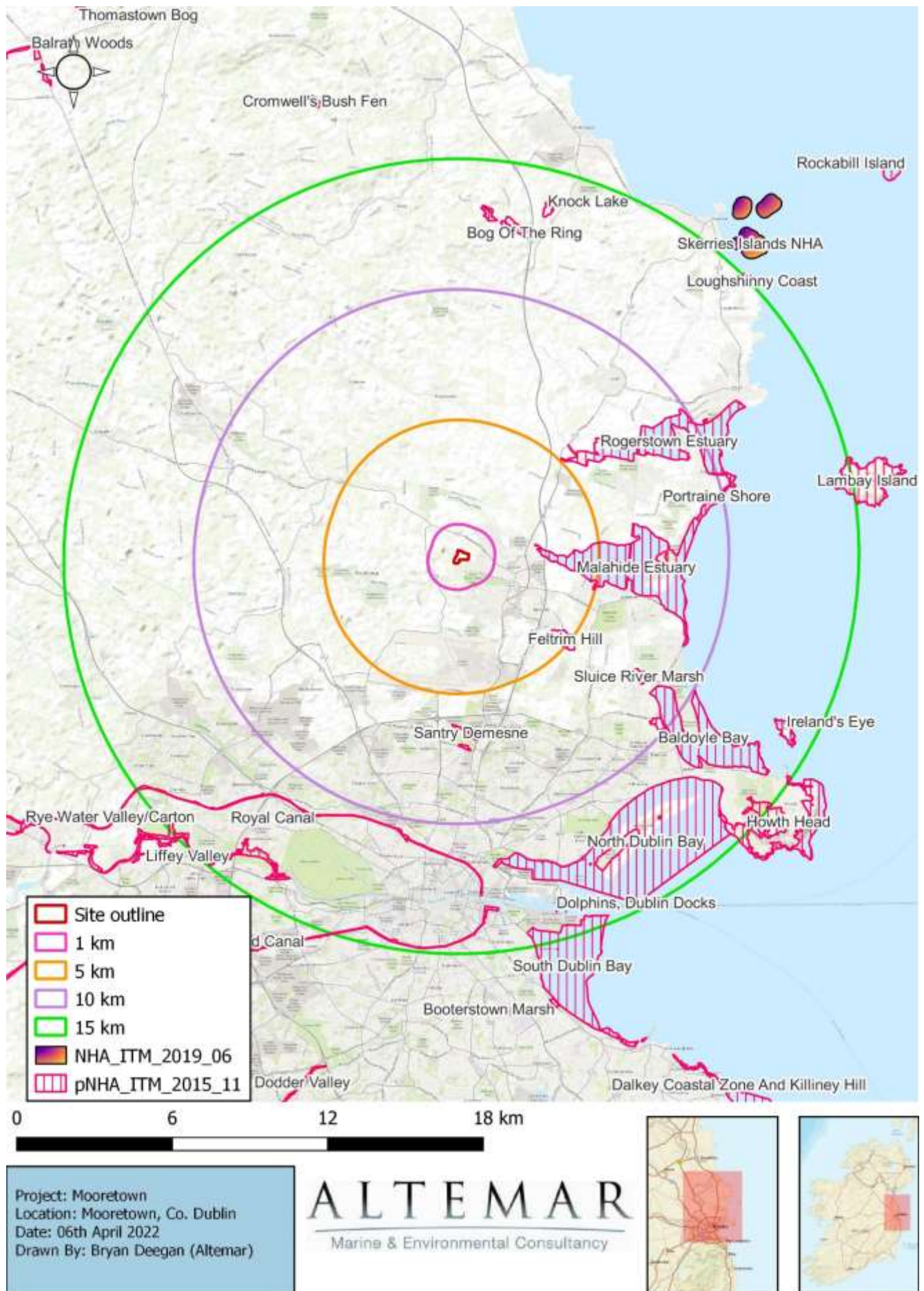


Figure 5-4. Natural Heritage Areas and proposed Natural Heritage Areas within 15 km



Figure 5-5. Watercourses (drainage ditch on site entering the Mill Stream and Irish Sea directly)

5.3.3 Species data

It should be noted that no species of conservation importance were noted on site, based on NPWS and NBDC records as fine resolution. Species recorded within the 10km grid include are seen in Table 5.4.

Table 5-4a National Biodiversity Data Centre Records within 10km2 grid

The following Protected and Threatened Species were noted under the National Biodiversity Data Centre records as having been sighted within the 10km² grid (grid reference O14):

Common Frog (*Rana temporaria*), Smooth Newt (*Lissotriton vulgaris*), Barn Owl (*Tyto alba*), Barn Swallow (*Hirundo rustica*), Bar-tailed Godwit (*Limosa lapponica*), Black-headed Gull (*Larus ridibundus*), Black-tailed Godwit (*Limosa limosa*), Brent Goose (*Branta bernicla*), Common Coot (*Fulica atra*), Common Goldeneye (*Bucephala clangula*), Common Grasshopper Warbler (*Locustella naevia*), Common Greenshank (*Tringa nebularia*), Common Kestrel (*Falco tinnunculus*), Common Kingfisher (*Alcedo atthis*), Common Linnet (*Carduelis cannabina*), Common Pheasant (*Phasianus colchicus*), Common Pochard (*Aythya ferina*), Common Redshank (*Tringa totanus*), Common Sandpiper (*Actitis hypoleucos*), Common Shelduck (*Tadorna tadorna*), Common Snipe (*Gallinago gallinago*), Common Starling (*Sturnus vulgaris*), Common Swift (*Apus apus*), Common Tern (*Sterna hirundo*), Common Wood Pigeon (*Columba palumbus*), Corn Crake (*Crex crex*), Dunlin (*Calidris alpina*), Eurasian Curlew (*Numenius arquata*), Eurasian Oystercatcher (*Haematopus ostralegus*), Eurasian Teal (*Anas crecca*), Eurasian Tree Sparrow (*Passer montanus*), Eurasian Wigeon (*Anas penelope*), Eurasian Woodcock (*Scolopax rusticola*), European Golden Plover (*Pluvialis apricaria*), Great Black-backed Gull (*Larus marinus*), Great Cormorant (*Phalacrocorax carbo*), Great Crested Grebe (*Podiceps cristatus*), Greater Scaup (*Aythya marila*), Grey Plover (*Pluvialis squatarola*), Grey Wagtail (*Motacilla cinerea*), Hen Harrier (*Circus cyaneus*), Herring Gull (*Larus argentatus*), House Martin (*Delichon urbicum*), House Sparrow (*Passer domesticus*), Lesser, Black-backed Gull (*Larus fuscus*), Little Egret (*Egretta garzetta*), Little Grebe (*Tachybaptus ruficollis*), Little Gull (*Larus minutus*), Mallard (*Anas platyrhynchos*), Mediterranean Gull (*Larus melanocephalus*), Mew Gull (*Larus canus*), Mute Swan (*Cygnus olor*), Northern Goshawk (*Accipiter gentilis*), Northern Lapwing (*Vanellus vanellus*), Northern Wheatear (*Oenanthe oenanthe*), Peregrine Falcon (*Falco peregrinus*), Pink-footed Goose (*Anser brachyrhynchus*), Red Kite (*Milvus milvus*), Red Knot (*Calidris canutus*), Red-breasted Merganser (*Mergus serrator*), Rock Pigeon (*Columba livia*), Ruddy Duck (*Oxyura jamaicensis*), Ruff (*Philomachus pugnax*), Sand Martin (*Riparia riparia*), Short-eared Owl (*Asio flammeus*), Sky Lark (*Alauda arvensis*), Slavonian Grebe (*Podiceps auritus*), Snowy Owl (*Bubo scandiaca*), Spotted Flycatcher (*Muscicapa striata*), Stock Pigeon (*Columba oenas*), Tufted Duck (*Aythya fuligula*), Twite (*Carduelis flavirostris*), Velvet Scoter (*Melanitta fusca*), Water Rail (*Rallus aquaticus*), White-tailed Eagle (*Haliaeetus albicilla*), Whooper Swan (*Cygnus cygnus*), Wood Lark (*Lullula arborea*), Yellowhammer (*Emberiza citrinella*), Blue Fleabane (*Erigeron acer*), Meadow Barley (*Hordeum secalinum*), Smooth Brome (*Bromus racemosus*), Baggus (*Hydronomus*) alismatis, Gyrinus urinator, Nebrioporus (*Nebrioporus*) depressus, Grayling (*Hipparchia semele*), Marsh Fritillary (*Euphydryas aurinia*), Wall (*Lasiommata megera*), Andrena (*Melandrena*) nigroaenea, Bombus (*Bombus*) magnus, Large Red Tailed Bumble Bee (*Bombus (Melanobombus) lapidarius*), Moss Carder-bee (*Bombus (Thoracombus) muscorum*), Red-tailed, Carder Bee (*Bombus (Thoracombus) ruderarius*), Ephemerella notata, Fairy Beads (*Microlejeunea ulicina*), MacKay's Pouncewort (*Marchesia mackaii*), Minute Pouncewort (*Cololejeunea minutissima*), Rock Pouncewort (*Cololejeunea calcarea*), Rossetti's Pouncewort (*Cololejeunea rossettiana*), Toothed Pouncewort (*Drepanolejeunea hamatifolia*), Lake Orb Mussel (*Musculum lacustre*), Mauge's Shelled Slug (*Testacella (Testacella) maugei*), Moss Chrysalis Snail (*Pupilla (Pupilla) muscorum*), Archangelic Thread-moss (*Bryum archangelicum*), Bird's-claw Beard-moss (*Barbula unguiculata*), Bryum dichotomum, Common Cord-moss (*Funaria hygrometrica*), Common Extinguisher-moss (*Encalypta vulgaris*), Common Feather-moss (*Eurhynchium praelongum*), Common Pottia (*Tortula truncata*), Crimson-tuber Thread-moss (*Bryum rubens*), Cuspidate Earth-moss (*Tortula acaulon*), Dwarf Feather-moss (*Eurhynchium pumilum*), Field Forklet-moss (*Dicranella staphylinia*), Intermediate Screw-moss (*Syntrichia intermedia*), Lateral Cryphaea (*Cryphaea heteromalla*), Lesser Bird's-claw Beard-moss (*Barbula convoluta*), Pale Glaucous Thread-moss (*Pohlia wahlenbergii*), Pea Bryum (*Bryum ruderales*), Pill Bryum (*Bryum violaceum*), Pink-fruited Thread-moss (*Pohlia melanodon*), Pointed Spear-moss (*Calliergonella cuspidata*), Raspberry Bryum (*Bryum klinggraeffii*), Rigid Aloe-moss (*Aloina rigida*), Rough-stalked Feather-moss (*Brachythecium rutabulum*), Rusty Feather-moss (*Sciuro-hypnum plumosum*), Sausage Beard-moss (*Didymodon tomaculosus*), Schreber's Forklet-moss (*Dicranella schreberiana*), Shaw's, Bristle-moss (*Orthotrichum striatum*), Silver-moss (*Bryum argenteum*), Small Hairy Screw-moss (*Syntrichia laevipila*), Swartz's Feather-moss (*Oxyrrhynchium hians*), Variable Forklet-moss (*Dicranella varia*), Brown Long-eared Bat (*Plecotus auritus*), Daubenton's Bat (*Myotis daubentonii*), Eurasian Badger (*Meles meles*), Eurasian Pygmy Shrew (*Sorex minutus*), Eurasian Red Squirrel

(*Sciurus vulgaris*), European Otter (*Lutra lutra*), Lesser Noctule (*Nyctalus leisleri*), Natterer's Bat (*Myotis nattereri*), Pine Marten (*Martes martes*), Pipistrelle (*Pipistrellus pipistrellus sensu lato*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), West European Hedgehog (*Erinaceus europaeus*)

Invasive species:

Butterfly-bush (*Buddleja davidii*), Canadian Fleabane (*Conyza canadensis*), Cherry Laurel (*Prunus laurocerasus*), Common Cord-grass (*Spartina anglica*), Evergreen Oak (*Quercus ilex*), Giant Hogweed (*Heracleum mantegazzianum*), Himalayan Honeysuckle (*Leycesteria formosa*), Japanese Knotweed (*Fallopia japonica*), Russian-vine (*Fallopia baldschuanica*), Sycamore (*Acer pseudoplatanus*), Three-cornered Garlic (*Allium triquetrum*), Wild Parsnip (*Pastinaca sativa*), Jenkins' Spire Snail (*Potamopyrgus antipodarum*), American Mink (*Mustela vison*), Brown Rat (*Rattus norvegicus*), Eastern Grey Squirrel (*Sciurus carolinensis*), European Rabbit (*Oryctolagus cuniculus*)

No species of conservation importance have been noted within the site outline from the National Biodiversity Data Centre.

Table 5-4b. Species found by NPWS within 10 km.

Common Frog (*Rana temporaria*), Meadow Barley (*Hordeum secalinum*), Smooth Newt (*Lissotriton vulgaris*), Otter (*Lutra lutra*), Irish Stoat (*Mustela erminea subsp. hibernica*), Green-winged Orchid, Barn Owl, Opposite-leaved Pondweed, *Groenlandia densa*, Common Lizard *Zootoca vivipara*

The closest species recorded by NPWS to the site was Common Frog (*Rana temporaria*), which was sited 595 m from the site boundary to the south.

5.3.4 Site Survey

Numerous site visits were carried out. However, the habitat assessment is based on the 20th April 2021 survey. Additional species noted within habitats on other survey dates were also noted within the habitat descriptions.

BC3-Tilled Land

The vast majority of the project site comprised of a tilled land. During the April 2021 site visit it had been recently tilled, with no flora present.

ED3- Recolonising Bare Ground.

Several areas of the site had undergone recent disturbance and were recolonising. Species noted included rape (*Brassica napus*), gorse (*Ulex* Sp.), creeping buttercup (*Ranunculus repens*), dandelion (*Taraxacum spp.*), docks (*Rumex spp.*), plantains (*Plantago spp.*), nettle (*Urtica dioica*), cat's-ear (*Hypochaeris radicata*), groundsel (*Senecio vulgaris*), prickly sowthistle (*Sonchus asper*), thistles (*Cirsium sp.*), cow parsley (*Anthriscus sylvestris*), colt's Foot (*Tussilago farfara*), pineapple weed (*Matricaria discoidea*), butterbur (*Petasites hybridus*), scarlet pimpernel (*Anagallis arvensis*), shepherd's purse (*Capsella bursa-pastoris*) and rosebay willowherb (*Chamaenerion angustifolium*). No species of conservation importance were noted.



Figure 5-6. Fossitt Habitats on site (orange circle -disused badger sett-outside site outline)

WL1-Hedgerows

Several hedgerows were noted within the site and separated the fields. The hedgerows separating the fields were of higher biodiversity value than the hedgerows on the southern portion of the site which abutted the housing development. Species included hawthorn (*Crataegus monogyna*), bramble (*Rubus fruticosus agg.*), dog-rose (*Rosa canina*), ivy (*Hedera helix*), bush vetch (*Vicia sepium*), rape (*Brassica napus*), elder (*Sambucus nigra*), ash (*Fraxinus excelsior*), willows (*Salix sp*), rosebay willowherb (*Chamaenerion angustifolium*), gorse (*Ulex. Sp*), common dog-violet (*Viola riviniana*), blackthorn (*Prunus spinosa*), holly (*Ilex aquifolium*), cleavers (*Galium aparine*), elder (*Sambucus nigra*), honeysuckle (*Lonicera periclymenum*), Lords-and-ladies (*Arum maculatum*), Lesser Celandine (*Ficaria verna ssp verna*), hedge bindweed (*Calystegia sepium*), Primrose (*Primula vulgaris*), cherry laurel (*Prunus laurocerasus*), sycamore (*Acer pseudoplatanus*) and wild carrot (*Daucus carota*). Of note water filled drainage ditches were noted within the hedgerows. Frogspawn of the common frog (*Rana temporaria*) was noted in the pond within the hedgerow in Figure 5.6.

Bats

As seen in Appendix 5.1, soprano pipistrelle (*Pipistrellus pygmaeus*) bats were noted foraging on site. No bat roosts were noted on site. However, several trees of bat roosting potential were noted on site.

Terrestrial Mammals

An in season mammal assessment was carried out. No badger setts or signs of mammal activity was noted on site. A disused badger sett was noted outside the site outline to the west of the site (Figure 5.6).

Amphibians/Reptiles

Frogspawn was noted on site within the pond in the hedgerow on site. No lizards were noted on site.

Birds**Wintering Bird Surveys**

In March 2021 four winter bird surveys were conducted at Mooretown and several nearby sites within the same development by Hugh Delaney (Appendix 5.2). As outlined in Appendix 5.2 the proposed development site area was classified as Mooretown 1. Over the entire survey area "51 bird species were recorded in the areas covered by these 4 winter bird surveys, from these species recorded Snipe and Redwing are red listed as species of conservation concern in the revised Birdwatch Ireland List of birds of conservation concern in Ireland (2020-2026). Five species recorded are amber listed as wintering species in Ireland (Herring Gull, Lesser black-backed Gull, Cormorant, Mute Swan and Teal). Some of the aforementioned species recorded were transitory of nature and in small numbers."

Furthermore, between November 2021 and March 2022 nine more winter bird surveys were conducted at Mooretown, by Hugh Delaney (Appendix 5.3). As outline in Appendix 5.3: "44 bird species were recorded in the survey area covered by these nine winter bird surveys. A great proportion of the species utilizing the mature hedgerow habitat bordering the fields on the site. In the context of wintering bird species that are red listed as species of conservation concern in the revised Birdwatch

Ireland List of birds of conservation concern in Ireland (2020-2026) Redwing was recorded. Declining passerine species Yellowhammer was also noteworthy with the site being a consistent foraging site during the winter. Four gull species listed in the amber wintering species category were recorded (Herring, Lesser black-backed, Common and Black-headed), however these species pass through the site only. Results from the surveys suggest that the site is not an ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection areas (SPA's).'

Table 5-5. Bird species noted in the vicinity of the proposed development (Bird Surveys Appendix 5.1.2 and 5.1.3

Common Name	Scientific Name
Yellowhammer	<i>Emberiza citrinella</i>
Long-tailed Tit	<i>Aegithalos caudatus</i>
Song Thrush	<i>Turdus philomelos</i>
Chaffinch	<i>Fringilla coelebs</i>
Wren	<i>Troglodytes troglodytes</i>
Blackbird	<i>Turdus merula</i>
Herring Gull	<i>Larus argentatus</i>
Black-headed Gull	<i>Chroicocephalus ridibundus</i>
Goldfinch	<i>Carduelis carduelis</i>
Robin	<i>Erithacus rubecula</i>
Dunnock	<i>Prunella modularis</i>
Woodpigeon	<i>Columba palumbus</i>
Hooded Crow	<i>Corvus cornix</i>
Jackdaw	<i>Corvus monedula</i>
Linnet	<i>Carduelis cannabina</i>
Blue Tit	<i>Parus caeruleus</i>
Rook	<i>Corvus frugilegus</i>
Magpie	<i>Pica pica</i>
Pipit	<i>Anthus rubescens</i>
Starling	<i>Sturnus vulgaris</i>
Redpoll	<i>Acanthis</i>
Pied Wagtail	<i>Motacilla alba yarrellii</i>
Buzzard	<i>Buteo buteo</i>
Fieldfare	<i>Turdus pilaris</i>
Skylark	<i>Alauda arvensis</i>
House Sparrow	<i>Passer domesticus</i>
Mistle Thrush	<i>Turdus viscivorus</i>
Goldcrest	<i>Regulus regulus</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Great Tit	<i>Parus major</i>
Common Gull	<i>Larus canus</i>
Pheasant	<i>Phasianus colchicus</i>

Common Name	Scientific Name
Rook	<i>Corvus frugilegus</i>
Magpie	<i>Gymnorhina tibicen</i>
Meadow Pipit	<i>Anthus pratensis</i>
Redwing	<i>Turdus iliacus</i>
Piped Wagtail	<i>Motacilla alba yarrellii</i>
Fieldfare	<i>Turdus pilaris</i>
Skylark	<i>Alauda arvensis</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Collared Dove	<i>Streptopelia decaocto</i>
Red Kite	<i>Milvus milvus</i>
Hooded Crow	<i>Corvus cornix</i>
Raven	<i>Corvus corax</i>
Stock Dove	<i>Columba oenas</i>
Stonechat	<i>Saxicola rubicola</i>
Goldcrest	<i>Regulus regulus</i>
Lesser black-backed Gull	<i>Larus fuscus</i>
Black-headed Gull	<i>Chroicocephalus ridibundus</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Grey Heron	<i>Ardea cinerea</i>
Lesser Redpoll	<i>Acanthis cabaret</i>
Siskin	<i>Spinus spinus</i>
Greenfinch	<i>Chloris chloris</i>

5.4 Potential Impact of The Project

This section of the EIAR examines the potential causes of the impact that could result in likely significant effects to the species and habitats that occur within the ZOI of the proposed development. These impacts could arise during either the construction or operational phases of the proposed development. The terms (Table 5.2) are derived from EPA EIAR Guidance and are used in the assessment to describe the predicted and potential residual impacts on the ecology arising from the construction and operation phases of the proposed development, including the cumulative impacts from the proposed development and other proposed projects.

The proposed development consists of a mixed-use residential neighbourhood of some 650 no. units; comprising of 265 no. houses, 192 no. duplex units, 6 no. triplex units, 187 apartments, a creche and retail/café uses clustered in a small village centre. The development includes all associated site works and infrastructure, including landscaped open space, internal road, paths, cycle paths, public lighting, and drainage. The development also includes on-site drainage works for a stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River on lands at the junction of the Glen Ellan and Balheary roads.

5.4.1 Construction Impacts

The overall development of the site is likely to have direct negative impacts upon the existing habitats, fauna and flora. Direct negative effects will be manifested in terms of the removal of the site's internal habitats. There is the potential for contaminants and pollutants to enter the onsite drainage ditches, which drain to the Mill Stream and ultimately the Broadmeadow River and significantly impact on downstream biodiversity of European sites; Malahide Estuary SPA and Malahide Estuary SAC.

Designated Conservation sites within 15km

Sedimentation, mixing and dilution will occur within the surface water network and in Malahide Estuary. Flocculation of particulates would also occur within the estuarine element of Malahide Estuary. However, there is a direct pathway to Malahide Estuary and there is potential for effects on biodiversity within the Estuary in the absence of mitigation on site.

There is an indirect hydrological pathway to marine-based European sites via the proposed foul wastewater network. Foul wastewater from all Mooretown phases will be directed to the existing foul sewer on Rathbeale Road, which has been constructed to facilitate the overall Mooretown development. This network ultimately leads to Swords Wastewater Treatment Network (WWTP). As a result, foul wastewater will be treated along this network. As outlined in the 2020 Environmental report¹ "The WWTP is compliant with the ELV's set in the Wastewater Discharge Licence."

The proposed development works could lead to potential impacts on water quality and downstream effects, particularly on Malahide Estuary SAC & SPA via surface water networks.

Potential Impacts: Low adverse /international / Negative Impact / Not significant / short term.

¹ https://www.water.ie/uuid/e2a591b2-5070-402c-b040-5330ab3b9c74/d0024-01_2020_aer-1.pdf

Biodiversity

The impact of the development during construction phase will be a loss of existing habitats and species on site. It would be expected that the flora and fauna associated with these habitats would also be displaced.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site. Loss of habitat and habitat fragmentation may affect some common mammalian species.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of a standard pre-construction site inspection prior to construction commencing on site.

Flora

No protected flora was noted on site. Site clearance will remove the flora species on site including hedgerows.

Potential Impacts: Medium adverse / site / Negative Impact / Not Significant / Short term

Bat Fauna

As bats are not roosting on-site, no specific mitigation measures are required in relation to confirmed roosts. However, several trees on the site have the potential to form bat roosts and should be inspected prior to felling.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of inspection of trees of bat roosting potential prior to construction commencing on site.

Amphibians-Frogs

The drainage ditches on site had evidence of frog activity, would be susceptible to silt and petrochemicals from works on site. Mitigation is needed in the form of inspection hedgerows for frog activity potential prior to construction commencing on site.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / short term

Aquatic Biodiversity

Construction is likely to result in the silt and petrochemicals entering the onsite drainage ditches and adjacent watercourses with downstream impacts on aquatic biodiversity.

Potential Impacts: Moderate adverse / local / Negative Impact / short term. Mitigation is needed in the form of control of silt and petrochemical and dust during construction.

Bird Fauna

Clearance, reprofiling and construction of the site will result in the loss of nesting and foraging habitat for birds.

Potential Impacts: Moderate adverse / local / Negative Impact / short term. Mitigation is needed in the form of ensuring site clearance is outside of bird nesting season.

5.4.2 Operational Impacts

Once constructed all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS. The biodiversity value of the site would be expected to improve as the landscaping matures. It would be expected that the ecological impacts in the long term would be positive following site clearance, once the landscaping has established.

Designated Conservation Sites

The development has the potential to cause pollution via surface water discharge and downstream impacts. There will be increased activity on site which will cause localised disturbance within the site

Potential Impacts: Low adverse / international/ Negative Impact / Not significant / long term. Mitigation is required in the form of standard petrochemical interception.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / long term.

Flora

No protected flora was noted on site. Landscaping will increase flora diversity on site. A 10m wide riparian buffer will be landscaped as per the landscape plan

Potential Impacts: Low Adverse/Site/Negative/Not Significant/Long term/permanent. Positive impacts would be seen in the vicinity of the riparian corridor.

Bat Fauna

The proposed development will change the local environment as new structures are to be erected and the existing vegetation will be removed. Some foraging areas may be lost. As landscaping matures foraging activity would also be expected to increase.

Potential Impacts: Low adverse / Site / Negative Impact / Not significant / long term.

Aquatic Biodiversity

Operation will have no significant effects on this habitat. Standard controls will be in place. Standard controls in relation to silt and petrochemicals are required.

Potential Impacts: Low adverse / local / Negative Impact / Not significant / long term. Mitigation is required.

Bird Fauna

Operation will result in increased activity in the area. Landscaping will result in increased foraging and nesting habitat for birds.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / long term.

5.4.3 Potential Cumulative Impacts

There are several proposed developments located in the area immediately surrounding the subject site

The following is a list of planning applications as identified on the Department of Housing, Local Government and Heritage's 'National Planning Application Database' portal²:

Planning Ref.	Address	Proposal
F20A/0096	Lands at Mooretown, Swords, Co. Dublin	A c. 400m long southerly extension to the newly constructed Mooretown Distributor Road including verges, cycle paths, footpaths, water supply, foul and surface water drainage, surface water attenuation, utilities and ancillary works. The Mooretown Distributor Road is part of the Swords Western Distributor Road which connects the Rathbeale Road to the Mooretown Local Area Plan lands. Add Info received 16th February 2021. Add Info deemed Significant 17th February 2021. Revised Notices received 2nd March 2021.
F20A/0095	Lands at Mooretown and Abbeyvale Court, Swords, Co. Dublin.	A c. 185m long pedestrian and cycle path with ancillary works to provide a new east-west connection from Abbeyvale Court to the proposed Mooretown Distributor Road extension and a new school campus. The Mooretown Distributor Road is part of the Swords Western Distributor Road, which connects the Rathbeale Road to the Mooretown Local Area Plan lands. Add Info received 16th February 2021. Add Info deemed Significant 17th February 2021. Public Notices received 2nd March 2021.
F19A/0029	Lands south of the Rathbeale Road, And east of the Swords Western Distributor Link Road, And north of Watermill Park, Mooretown, Swords, Co. Dublin	Revisions to part of previously permitted development Reg. Ref. F15A/0183 to omit a crèche and 69 no. houses comprising 23 no. 4-bedroom 2-storey houses and 46 no. 3-bedroom 2-storey houses and two 3-storey with penthouse level blocks of 15 apartments comprising 8 no. 1-bedroom apartments and 22 no. 2-bedroom apartments (99 units in total) and to now provide 81 no. 3-bedroom 2-storey houses and 13 no. 4-bedroom 2-storey houses (94 units in total). The development includes 188 car parking spaces and all associated and ancillary site works. This application is referred to as 'Phase 1C and is the third of 3 planning applications to revise the

² <https://housinggov.ie/maps.arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de>

Planning Ref.	Address	Proposal
		house types, apartments and crèche permitted in the parent permission F15A/0183. Add Info received 6th September 2019. Add Info deemed Significant 12th September 2019. Revised Public Notices received 25th September 2019.
F18A/0701	Lands south of the Rathbeale Road, And east of the Swords Western Distributor Link Road, And north of the Watermill Park, Mooretown, Swords, Co. Dublin.	Permission to omit 43 no. houses comprising 18 no 4-bedroom 2-storey houses, 23 no. 3-bedroom 2-storey houses, 2 no. 3-bedroom 3-storey houses and a single 3 storey with penthouse level block of 15 apartments comprising 4 no. 1-bedroom apartments and 11 no. 2-bedroom apartments (58 units in total) and to now provide 2 no. 2-bedroom 2-storey houses, 33 no. 3-bedroom 2-storey houses and 4 no. 4-bedroom 2-storey houses. It also proposes 2 no. 3-storey with penthouse level apartment blocks comprising 40 no. 2-bedroom apartments and 20 no. 1-bedroom apartments (99 units in total) and a 352m² crèche. The development includes 153 car parking spaces and all associated and ancillary site works. The application is referred to as 'Phase 1A' and is the first of 3 planning applications to revise the house types and apartments permitted in the parent permission F15A/0183. Add Info received 7th March 2019. Clarification of Add Info received 21st May 2019. Clarification of Add Info deemed Significant 24th May 2019. Revised Public Notices received 6th June 2019.
F18A/0163	Lands at Mooretown, Off Rathbeale Road, Swords, Fingal, Co. Dublin.	2 new school buildings with a total floor area of 15,913 sq.m. incorporating: (A) Swords Community College (RN76475D), consisting of a new, part 3-storey, part 2-storey, 11,397 sq.m. post primary school, including a 2-classroom Special Needs unit and Sports Hall with all ancillary pupil and staff facilities; and (B) new Primary School consisting of a new 2-storey, 24-classroom, 4,516 sq.m. primary school with a 2-classroom Special Needs unit, including all ancillary pupil and staff facilities; GP hall; and (C) all associated site works, including a substation, with a total of 104 number car parking spaces (40 spaces for primary and 64 spaces for post primary) including all landscaping, ball courts and soft play areas.
F16A/0505	Three parcels of land adjacent to the approved	The construction of 188 houses and 50 apartments. The proposed houses comprise 72 no. four-bedroom two storey houses, 19 no. three-bedroom three storey houses and 97 no. three-bedroom two

Planning Ref.	Address	Proposal
	Watermill Park, at lands south of Rathbeale Road, Mooretown, Swords, Co. Dublin.	storey houses. The proposed apartments are in two blocks (A & B). Core A1 comprises 3 no. one-bedroom apartments, 17 no. two-bedroom apartments and 1 no. three bedroom apartment in four storeys plus penthouse. Adjoining Core A2 comprises 3 no. one-bedroom apartments, 14 no. two-bedroom apartments and 1 no. three-bedroom apartment in three storeys plus penthouse. Block B comprises 2 no. one-bedroom apartments and 9 no. two-bedroom apartments in three storeys plus penthouse. The site area includes minor amendments to the site area of adjacent permission Reg. Ref. F15A/0183. The development includes all associated site works and infrastructure which includes landscaped open space, internal roads, paths, cycle-paths, public lighting, utilities, a reserved site for future ESB mast, drainage and surface water attenuation. This site is accessed from previously approved Swords Western Distributor Link Road (approved under Reg. Ref. F12A/0270, PL 06F.241634) and roads permitted under previously approved residential development Reg. Ref. F15A/0183. The application is accompanied by an Environmental Impact Statement (EIS) which will be available for inspection or purchase for a fee not exceeding the reasonable costs of making a copy at the offices of Fingal County Council during its public opening hours. Additional Information lodged 15/06/2017 Deemed Significant. Revised Public Notices lodged 28/06/2017 - Irish Independent 26/06/2017
F15A/0183	Lands South of the Rathbeale Road, Mooretown, Swords, Co. Dublin.	The construction of 190 houses and 60 apartments. The proposed houses comprise 72 no. four bedroom two storey houses, 15 no. three bedroom three storey houses and 103 no. three bedroom two storey houses. The proposed apartments are within four blocks of 15 apartments each comprising 4 no. one bedroom apartments and 11 no. two bedroom apartments in three storey plus penthouse. The development includes all associated site works and infrastructure which includes landscaped open space, internal roads, paths, cycle-paths, public lighting, utilities, drainage and surface water attenuation. This application is accompanied by an Environmental Impact Statement (EIS), which will be available for inspection or purchase for a fee not exceeding the reasonable costs of making a copy at the offices of Fingal County Council during its public opening hours.

Planning Ref.	Address	Proposal
F14A/0012	LAP Lands at Mooretown, Swords, Co. Dublin.	Access road and services enabling works to serve the future school campus. The access road shall form the main street of the future local centre at Mooretown and includes a civic plaza area, street parking, cycle paths and footpaths. The new access road shall connect the future schools campus to the approved section of the Swords Western Distributor link road within Mooretown that connects to the Rathbeale Road (approved under Reg. Ref. F12A/0270; PL 06F.241634). The application includes water supply, foul water drainage connecting to the existing sewer on the Rathbeale Road, surface water attenuation and ancillary works.
F11A/0436	Glen Ellan Road, Oldtown, Swords, Co. Dublin	Construction of 245 dwellings and a 316m ² two-storey creche. The residential development comprises 104 four-bedroom houses, 113 three-bedroom houses, 12 two-bedroom houses, 8 three-bedroom maisonettes and 8 one-bedroom apartments in two and three storeys. The development includes all associated site works and infrastructure which includes landscaped open space, internal roads, paths, cycle paths, public lighting, utilities, drainage, surface water attenuation and a temporary emergency access road.

In relation to Planning Ref. **F18A/0163**, a Report for the purposes of Appropriate Assessment Screening has been prepared by Moore Group – Environmental Services to accompany this application. This report concludes with the following:

‘Potential source vector pathways were addressed in considering the hydrological connectivity between the site and the Broadmeadow River leading to Malahide Estuary. There would be no direct impact on the Estuary and so potential indirect impacts are then considered. The potential for a large-scale pollution event is unlikely and by employing construction management included in the Construction Management Plan for the overall Mooretown development there would be no significant indirect impacts on the Malahide Estuary European sites.

It has been objectively concluded by Moore Group Environmental Services that:

- 1. The project is not directly connected with, or necessary to the conservation management of the European sites considered in this assessment.*
- 2. The proposed development is unlikely to indirectly, significantly affect the Qualifying interests or Conservation Objectives of the European sites considered in this assessment.*
- 3. The project, alone or in combination with other projects, is not likely to have significant effects on the European sites considered in this assessment in view of their conservation objectives.*
- 4. It has been determined by Moore Group – Environmental Services that it is possible to rule out likely significant impacts on any European sites considered in this assessment.*

5. *It is possible to conclude that there would be no adverse effects on site integrity resulting from the project and that there would be no significant effects, no potentially significant effects and no uncertain effects if the projects were to proceed.*

It is the view of Moore Group Environmental Services that it is not necessary to undertake any further stage of the Appropriate Assessment process.'

In relation to Planning Ref. **F16A/0505**, an Appropriate Assessment Screening Report has been prepared by OPENFIELD Ecological Services to accompany this application. This report concludes with the following:

'This proposed development is not located within or directly adjacent to any SAC or SPA but pathways do exist to a number of these areas. An assessment of the aspects of this project has shown that significant negative effects are not likely to occur to these areas with regard to their conservation objectives, either alone or in combination with other plans or projects.'

Furthermore, there are several development proposals located within close proximity to the proposed site. The following is a planning history as identified in the Department of Housing, Local Government and Heritage's 'National Planning Application Map' portal³:

Table 5.7. Development proposals located in close proximity to the proposed development site

Planning Ref.	Address	Proposal
F11A/0436/E1	Glen Ellan Road, Oldtown, Swords, Co. Dublin.	Construction of 245 dwellings and a 316m ² two-storey crèche. The residential development comprises 104 four-bedroom houses, 113 three-bedroom houses, 12 two-bedroom houses, 8 three-bedroom maisonettes and 8 one-bedroom apartments in two and three storeys. The development includes all associated site works and infrastructure which includes landscaped open space, internal roads, paths, cycle paths, public lighting, utilities, drainage, surface water attenuation and a temporary emergency access road.
F16A/0091	Lands at Glen Ellan Road, Oldtown, Swords, Co. Dublin.	Revisions to approved development (Reg. Ref. F11A/0436), to omit 7 two bedroom apartments in a 3-storey plus penthouse block, 5 three bedroom triplex units and 2 two bedroom duplex units and now provide 2 four bedroom 3-storey houses, 4 one-bedroom apartments and 10 two bedroom apartments in a 3-storey plus penthouse block and a 253 sq.m. crèche. The development includes 28 no. car parking spaces, and all associated ancillary and site works.

³

<https://housinggov.ie/maps/arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de>

No significant projects are proposed or currently under construction that could potentially cause in combination effects on European sites.

Given this, it is considered that in combination effects with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant, and localised. It is concluded that no significant effects on European sites will be seen as a result of the proposed development alone or combination with other projects.

No significant cumulative impacts are likely in relation to the proposed development.

5.5 'Do Nothing' Impact

The site would continue to be farmed. The drainage ditches and hedgerows would remain on site.

5.6 Mitigation Measures

Construction and operational Mitigation Measures will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (Zoi) including the onsite drainage ditches, the adjacent watercourses (Mill Stream and Broad Meadow River) and the downstream European sites, Malahide Estuary SAC and SPA. Construction phase mitigation measures are required on-site, particularly as significant reprofiling of the site is proposed which will remove all existing terrestrial habitats and can lead to silt-laden and contaminated runoff. In addition, there are existing drainage ditches on site which will be impacted by the development of the site. There is potential for silt-laden runoff and contamination to enter the watercourse with potential for downstream impacts. Mitigation measures are required to prevent downstream impacts. In addition, noise mitigation will be in place. These mitigation measures are described in Table 5.8.

Table 5.8. Sensitive Receptors/Impacts and mitigation measures.

Sensitive Receptors	Designed-in Mitigation
Malahide Estuary SAC Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Malahide Estuary SPA Qualifying Interests Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	A Preliminary Construction, Demolition and Waste Management Plan has been prepared by Waterman Moylan Consulting Engineers to accompany this planning application. The report outlines the following in relation to runoff pollution and sediment control: '13. Runoff Pollution and Sediment Control 13.1 Runoff Pollution Control <i>Significant quantities of waste and potential pollutants can be generated during construction. Controls will be put in place to prevent these pollutants from washing into the local storm water system during storm events.</i> <i>The Inland Fisheries Ireland document: Guidelines on Protection of Fisheries During Construction Works In and Adjacent to Waters 2006, outlines the following areas to be considered for the protection of adjacent water courses during the construction stage</i> • <i>Damage to the aquatic and associated riparian habitat due to loss of vegetation, damage to banks & changes in watercourse morphology & hydrology.</i> • <i>Pollution of waters due to construction materials.</i> • <i>Introduction of non-native species such as plants, algae, fish & shellfish.</i> • <i>Interference to the movement of aquatic life.</i> • <i>Timing of in-stream works on seasonal salmonid activity.</i> • <i>Temporary crossing structures in waters.</i> • <i>Permanent crossing structures in waters.</i> • <i>Construction impacts such as cast in-situ concrete, sediment laden surface water, hydrocarbon leaks & water abstraction. (Also discussed in section 13.2)</i> <i>In consideration of the above list the following methods listed, but not limited to, will be implemented on site as appropriate:</i>

Sensitive Receptors	Designed-in Mitigation
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Pintail (<i>Anas acuta</i>) [A054] Goldeneye (<i>Bucephala clangula</i>) [A067] Red-breasted Merganser (<i>Mergus serrator</i>) [A069] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162] Wetland and Waterbirds [A999] Watercourses	• <i>Fuels, oils, greases and hydraulic fluids will be stored in bunded compounds well away from the watercourse/ditches. Refuelling of machinery, etc., will be carried out in bunded areas.</i> • <i>Runoff from machine service and concrete mixing areas will not enter the watercourse.</i> • <i>Stockpile areas for sands and gravel will be kept to minimum size, well away from the watercourse.</i> • <i>Runoff from the above will only be routed to the watercourse via suitably designed and sited settlement ponds/filter channels.</i> • <i>Settlement ponds will be inspected daily and maintained regularly.</i> • <i>Temporary crossings will be designed to the criteria laid down for permanent works.</i> • <i>Watercourse banks will be left intact if possible. If they have to be disturbed, all practicable measures should be taken to prevent soils from entering the watercourses.'</i> '13.2 Sediment Control <i>Construction runoff is heavily laden with silt which can block road gullies and reduce the hydraulic capacity in pipes and watercourses, contributing to ponding and flooding. Continued development without appropriate controls will ultimately keep maintenance costs elevated, whether that be in cleaning gullies, jetting pipes or dredging. Sediment control plans can be implemented on-site to mitigate these issues.</i> <i>Sediment basins and traps should be installed before any major site grading takes place. Additional sediment traps and silt fences should be installed as grading takes place to keep sediment contained on site at appropriate locations.</i> <i>Key runoff-control measures should be located in conjunction with sediment traps to divert water from planned undisturbed areas away from the traps and sediment-laden water into the traps. Diversions should be installed above the areas to be disturbed before any grading operations. Any perimeter drains should be installed with stable outlets before opening major areas for development.</i> <i>Any additional facilities needed for runoff control should be installed as grading takes place.</i> <i>During grading operations temporary diversions, slope drains, and inlet and outlet protection installed in a timely manner can be very effective in controlling erosion and sediment build up.'</i>

Sensitive Receptors	Designed-in Mitigation
Drainage Ditches Aquatic flora Fauna	<i>The main run-off conveyance system with inlet and outlet protection measures should be installed early and used to convey stormwater run-off through the development site without creating gullies or channels. Install inlet protection for storm drains as soon as the drain is functional to trap sediment on site in shallow pools and to allow the flood flows to enter the storm drainage system safely. Install outlet protection at the same time as the conveyance system to prevent damage to the receiving watercourse.</i> <i>During the final stages of construction unstable sediment from sediment basins and traps should be removed and if possible incorporated into the topsoil, not just spread on the surface.</i> 13.2.1 Sediment Control Measures <i>Sediment entrapment facilities are necessary to reduce sediment discharges to downstream properties and receiving waters. All run-off leaving a disturbed area should pass through a sediment entrapment facility before it exits the site and flows downstream.</i> <u><i>Straw Bales:</i></u> <i>Straw bales can be placed at the base of a slope to act as a sediment barrier. These are not recommended for use within a swale or channel. Straw bales are temporary in nature and may perform for only a period of weeks or months. Proper installation and maintenance are necessary to ensure their performance.</i> <u><i>Silt Fencing</i></u> <i>A silt fence is made of a woven synthetic material, geotextile, and acts to filter run-off. Silt fencing can be placed as a temporary barrier along the contour at the base of a disturbed area but is not recommended for use in a channel or swale. The material is durable and will last for more than one season if properly installed and maintained. Silt fencing is not intended to be used as a perimeter fence or in area of concentrated flow. If concentrated flow conditions exist, a more robust filter should be considered.</i> <u><i>Silt Barriers</i></u>

Sensitive Receptors	Designed-in Mitigation
	<i>Silt barriers can also be temporarily installed in any road gullies of partially constructed roads to prevent sediment movement into downstream drainage systems or SUDS components.</i> <i>When the catchment area is greater than that allowed for straw bale barriers or silt fences, runoff should be collected in diversion drains and routed through temporary sediment basins.</i> <u><i>Diversion Drains</i></u> <i>Diversion drains are simple linear ditches, often with an earth bund, for channelling water to a desired location. If the drains are being eroded, they can be lined with geotextile fabric or large stones or boulders.'</i> Operational Mitigation Petrochemical interception will be in place on the surface water network.
Birds	- Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) will be followed. Should the removal of potential nesting habitats outside of bird breeding season not be possible, a pre-works check by a qualified ecologist will be undertaken to ensure nesting birds are absent. 30 Nest boxes will be placed on site to compensate for temporary resource loss. These will be located within the compensatory hedgerow.
Bats	- Lighting at all stages will be done sensitively on site with no direct lighting of hedgerows, treelines and drainage ditch, swale and buffer zone. 6 bat boxes will be placed on site. - A pre-construction inspection of trees of bat roosting potential will be carried out.
Mammals	A pre-construction inspection of the site will be carried out
Amphibians	A pre-construction inspection of the drainage ditches will be carried out and frogs removed under NPWS licence if found.

5.7 Residual Impacts

Construction and operational mitigation measures will be carried out. These will ensure that water entering the onsite drainage ditches and the Mill Stream (which discharges to the Broadmeadow River), is clean and uncontaminated. Given the proximity of numerous sensitive receptors and the drainage ditch leading to the Malahide Estuary SPA and Malahide Estuary SAC, the early implementation of ecological supervision on site at initial mobilisation and enabling works is seen as an important element to the project, particularly in relation to the implementation of surface water runoff mitigation.

With the successful implementation of mitigation measures to limit, noise during construction, surface water impacts on the drainage ditches and watercourse (Mill Stream) in addition to biodiversity mitigation/supervision and the successful installation and initiation of the foul treatment system, no significant impacts are foreseen from the construction or operation of the proposed project. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works.

The construction and operational mitigation proposed for the development satisfactorily addresses the potential impacts on biodiversity and designated conservation sites through the application the construction and operational phase controls, as described above in section 5.6. In particular, these mitigation measures will satisfactorily address the potential impacts from noise and on downstream biodiversity and designated sites. No significant adverse impacts on the conservation objectives of European sites are likely following the implementation of the mitigation measures outlined above.

The mitigation measures described in this chapter will be complied with, to ensure that the proposed development does not have “downstream” environmental impacts. These measures are to protect the groundwater/surface water, which are potentially the primary vectors of impacts from the site and to ensure that it is not impacted during construction and /or operational phases of the proposed development.

5.8 Interactions

The biodiversity elements of this EIAR have involved consultation with a wide section of the Project Team particularly in relation to the Construction Management, design, drainage, lighting and landscape elements of the proposed Project. Enhancement measures were put in place where possible, particularly in the vicinity of the open space and riparian areas. There are numerous inter-related environmental topics described in detail throughout this EIAR document which are of relevance to the biodiversity chapter. There is potential for interaction between the biodiversity and other chapters outlined in the EIAR, during construction and operation. The mitigation measures that will be put in place for the proposed development will ensure that the impact on biodiversity would be negligible following the implementation of mitigation measures.

5.9 Residual Impacts Conclusion

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on the sensitive receptors through the application of construction and operational phase controls. The overall impact on the ecology of the proposed development will result in a slight Adverse / not significant impact on the ecology of the area and locality overall. This is

primarily as a result of the loss of terrestrial habitats including hedgerows on site, supported by the creation of an improved biodiversity focused riparian corridor, additional biodiversity features, standard construction and operational controls and a sensitive native landscaping strategy. The implementation of SUDS drainage on site with riparian features will be beneficial to the onsite drainage ditch. It is considered that in combination effects with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant and localised.

5.10 Monitoring

Monitoring of the project by a project ecologist will be undertaken to oversee the implementation of the surface water management on site, ensure that frogs, mammals, and birds are not impacted by the proposed works.

5.11 References

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6.0 LAND AND SOILS

6.1 Introduction

This section of the Environmental Impact Assessment Report describes the natural characteristics of the proposed residential development at Mooretown Phase 3, Swords, Co. Dublin and associated proposed stormwater storage tank on the foul network at Balheary Road, in terms of bedrock geology and drift geology.

The impact of the proposed development on the soils and geology of the subject site is assessed, and mitigation measures where necessary are proposed to reduce the impact of any development.

6.2 Study Methodology

In determining the impact of the proposed development on the prevailing geological conditions, key sources of information were consulted, including the Map of the Bedrock Geology of Ireland, produced by the Geological Survey of Ireland available on www.gsi.ie. Guidance on relevant assessment methods is obtained from “Geology in Environmental Impact Statements – A Guide”, September 2002, published by the Institute of Geologists of Ireland.

An extensive site investigation (SI) was carried out within the proposed development site. The purpose of the site investigation was to investigate subsurface conditions utilising different methodologies. The results of the site investigation have been compiled in a report prepared by Site Investigations Ltd (S.I. Ltd), (Contract Number: 5891). This site investigation report is appended to this document at Appendix 6.1.

6.3 The Existing Receiving Environment (Baseline)

This section describes the land, soils and geology in the subject site and its surroundings. It also states the historic land use of the subject site.

6.3.1 Site Development

The Oldtown-Mooretown LAP lands are located at the western development edge of Swords, within the catchment of the Broadmeadow River. The LAP lands cover an area of approximately 111 hectares.

The Oldtown–Mooretown lands are divided by the Rathbeale Road, with Oldtown lands to the north (c. 50 Ha) and Mooretown to the south (c. 61 Ha). This subject Application (18.378 Ha, gross), which forms Phase 3 of the Mooretown development, is located in the southern section of the Mooretown Lands.

The subject site was previously used for agricultural purposes.

The subject site is bounded to the east, west and partially to the south by agricultural land, also to the south is the Abbeyvale residential development. To the north is the completed Mooretown School Campus, and future Mooretown Phase 2 (granted planning reference: F16A/0505).

The site generally tends to slope from southwest to northeast from a height of C.58m to a low of 37m.

The proposed site for the stormwater storage tank that forms part of the subject application, is located on the junction of the Glen Ellan Road and the Balheary Road, Swords, Co. Dublin. The site is 1.4km north of swords, 1.1km west of the M1 motorway and 300m south of the Broadmeadow River. The tank site is owned by The Applicant and is locally referred to as the Celestica/Motorola site.

6.3.2 Historic Land use

The Ordnance Survey of Ireland (OSI) has been consulted to review historic maps and aerial photographs. The subject site has historically been an agricultural site.

The location of the proposed stormwater storage tank is on the grounds of an industrial site, but the exact location itself is greenfield in nature. It is located adjacent to a gravel overflow carpark which serves the industrial unit.

6.3.3 Ground Investigation

An extensive site investigation (SI) was carried out within the proposed development site. The purpose of the site investigation was to investigate subsurface conditions utilising different methods. SI comprised the following scope of work:

- 12 No. cable percussive boreholes
- 62 No. trial pits with dynamic probes
- 3 No. soakaway tests
- 20 No. California Bearing Ratio tests
- Geotechnical & Environmental Laboratory testing.

Refer to Figure 6.1 for the location of Trial Pits, CBRs and Boreholes.

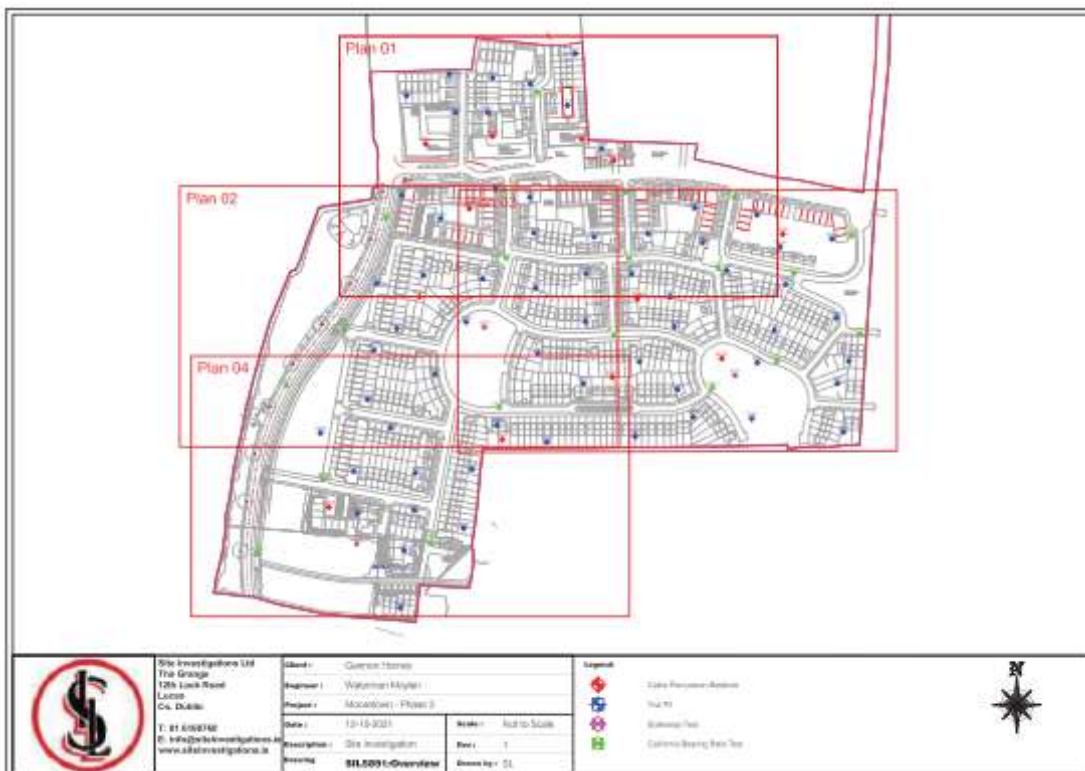


Figure 6.1 - Site Location Plan

Geotechnical laboratory testing was completed on representative soil samples in accordance with BS 1377 (1990). Testing included:

- 4 No. Moisture contents
- 4 No. Atterberg limits
- 4 No. Particle size gradings
- 4 No. pH, sulphate and chloride content

Environmental testing was completed by ALS Environmental Ltd. And this allows for a Waste Classification report to be produced. The environmental testing consists of the following:

- 4 No. Suite I analysis
- 4 No. loss on ignition tests

The geotechnical laboratory test results are presented in Appendix 4 of the SI with the environmental test results and Waste Classification report in Appendix 5 and 6 respectively.

A thin layer of MADE GROUND was encountered in one trial pit, TP07, to 0.40mbgl. The soil consists of cohesive clay soils with some red brick fragments.

The natural ground conditions are consistent with cohesive soils encountered across the site.

This includes brown and brown/grey overlying black slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content soils. The boundary between the brown and black soils is between 1.30mbgl and 2.80mbgl and these ground conditions are encountered across the north Co. Dublin region. The boreholes terminated at similar depths ranging from 6.70mbgl to 8.80mbgl on boulder obstructions.

The SPT N-values in the natural ground at 1.00mbgl range from 11 to 18 indicating firm to stiff soils. The N-values then increase to 14 to 29 at 2.00mbgl and steadily increase with depth as the boreholes progress as shown by the graph overleaf.

Laboratory tests of the shallow cohesive soils confirm that CLAY soils dominate the site with low to intermediate plasticity indexes of 14% to 16% recorded. The particle size distribution curves were poorly sorted straight-line curves with 42% to 56% fines content.

6.3.4 Geology

The Bedrock Geology Map of Ireland produced by the Geological Survey of Ireland (GSI), describes the prevalent geology of the area. The proposed development spans an area predominantly underlain by a single geological formation:

- Type TC. The Tober Colleen Formation is a calcareous shale, limestone conglomerate. This type of formation is located over the majority of the site.

The location of the stormwater storage tank is Type ML, Malahide Formation argillaceous bioclastic limestone, shale.

An extract from the GSI map showing the area of the proposed development is shown in Figure 6.2 overleaf.

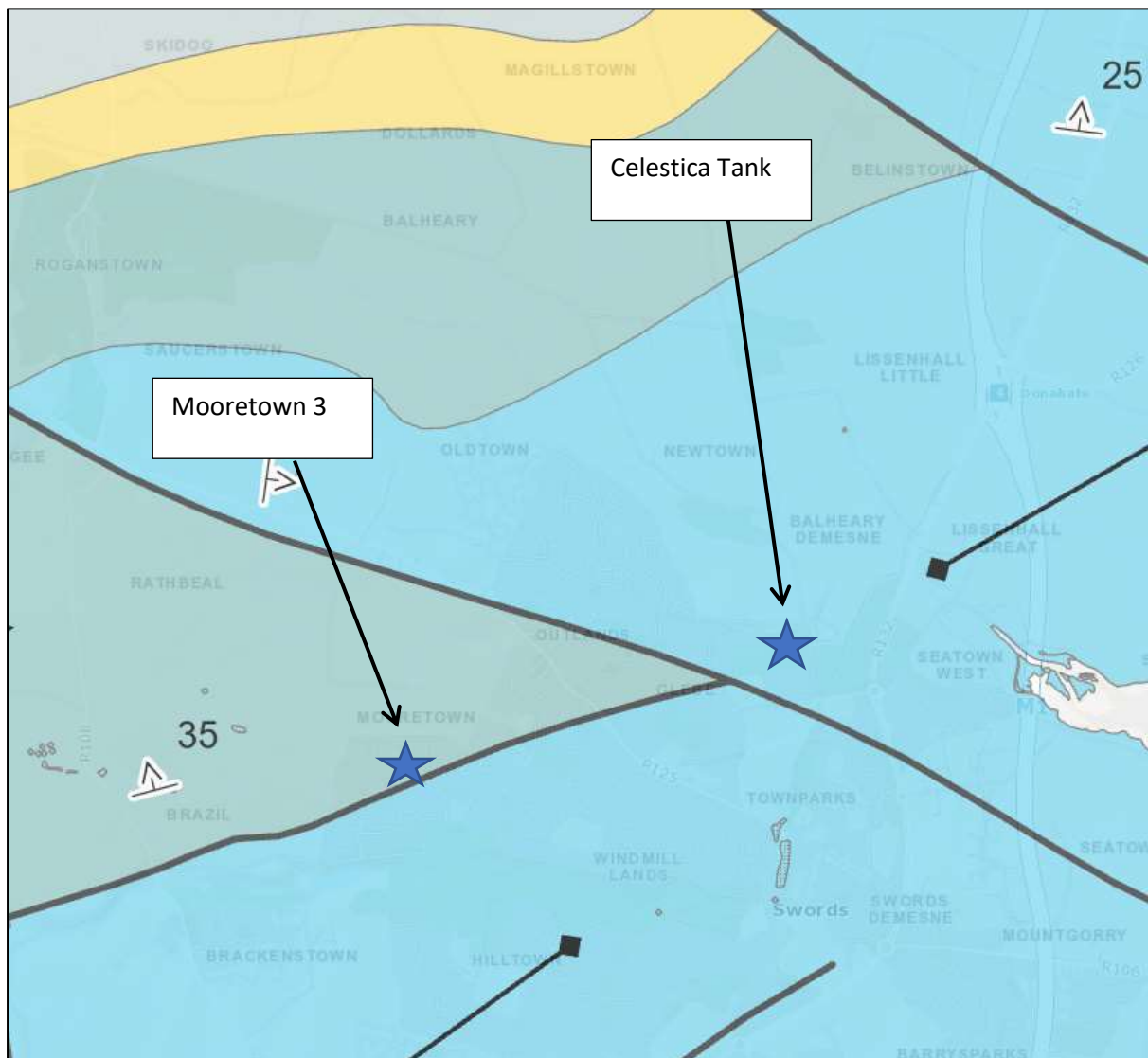


Figure 6.2 Extract from GSI Bedrock Map

6.3.5 Soils

According to the Teagasc Soils website datasets (www.gis.teagasc.ie) indicate the site is underlain by fine loamy drift with limestone. The location of the proposed stormwater storage tank is identified as made ground.



Figure 6.4 - Teagasc Soil Mapping

6.4 Characteristics of the Proposed Development

The proposed development will consist of 650 units, comprising of: 265 No. houses, 198 No. Duplex/Triplexes units, and 197 No. apartments. A creche and commercial spaces of retail and cafe will also be constructed as part of the development.

The developer will construct all associated infrastructure to service the development including a network of foul water and surface water drains, a stormwater storage tank and outfall, watermain, access roads and footpaths.

The proposed development of the site will incorporate the following works which will be likely to have an impact on the soils and geology:

- Cutting and filling of subsoil and rock to form finished floor levels and development roads
- Excavations for utilities and services
- Potential importation of suitable material
- Reinstatement of excavations and topsoil
- Potential removal off-site of unsuitable and surplus material.

It is intended that any surplus of materials generated on the site will be minimized.

6.5 Potential Impact of the Proposed Development during Construction Phase

Prior to the commencement of any construction works, the topsoil on the site will be stripped and removed to stockpiles in designated areas within the site boundary for re-spreading on completion of the works where possible.

The removal of topsoil and the earthworks will expose subsoil to weathering and may result in some minor erosion of the soils during the short construction period, in particular following extreme dry and sunny, or prolonged wet weather conditions. The lack of topsoil is likely to give rise to dust from the subsurface during dry periods.

The main source of earthworks for the project will be excavations for foundations, roads, and utility networks. The excavation volume for the stormwater storage tank and overflow network has been calculated to be a volume of C. 3,660m³, refer to the Preliminary Construction, Environmental and Waste Management Plan for further details.

The soil excavated from the location of the stormwater tank will be chemically analysed to assess its suitability for reuse on-site. If the soil is to be reused off-site it will be subject to a prior Article 27 notification to the EPA. Should the chemical analysis determine that the soil is polluted, it will be disposed of at a waste facility that can accept it as a waste based on the contamination type and concentration.

Construction traffic movements involved in the construction of the proposed development and access roads, may result in local compaction of the subsoil along haulage routes, but this will be a very limited area.

During the construction phase there is a risk for construction traffic to damage the structure of some of the adjoining road network and to increase the amount of mud and dust on the roads providing access to the site. A dilapidation survey should be undertaken to mitigate the risk of damage exposure to the client. There will also be a temporary increase in traffic volumes due to deliveries of fill materials and removal of surplus unsuitable cut materials.

During adverse weather conditions surface water runoff across the exposed sub-soil could result in increased levels of silt being deposited in the public sewer.

Some minor local contamination of subsoils may occur should chemicals or fuels used during the construction phase spill.

6.6 Potential Impact of the Proposed Development during Operational Phase

On completion of the construction phase and following replacement of topsoil and a planting programme, no further impacts on the soil environment are envisaged except for the possibility of contamination of soil from foul water effluent or oil/chemical spills.

6.7 Potential Cumulative Impacts

It is not anticipated that potential cumulative impacts will be generated on land, soils and geology during the construction or operation phases or in the event of future developments adjacent to the site should they implement the appropriate mitigation measures.

6.7.1 Existing Mooretown Development

There are no anticipated cumulative impacts arising from the existing Mooretown Development in relation to lands, soils, and geology other than those noted in section 6.5 above.

6.7.2 Future Development

The applicant is in control of the Oldtown & Mooretown lands to provide a consolidated development in north Swords. This current application relates to Phase 3 of the Mooretown lands north of Rathbeale Road. This Phase is the final Phase of Masterplan development within the Mooretown lands. There has been a carefully considered design approach to development to ensure that the subject application can be delivered to enhance and improve upon existing amenity.

The Oldtown Masterplan development successfully integrates and enhances the existing built fabric in north Swords.

There are no additional impacts to those noted in section 6.5 above.

6.8 Do Nothing Scenario

The Ground conditions will remain as they currently are.

6.9 Risks to Human Health

A potential risk to human health due to the associated works during construction is the direct contact, ingestion or inhalation of receptors (i.e. construction workers) with any soils which may potentially contain low level hydrocarbon concentrations from Site activities (potential minor leaks, oils and paint).

No human health risks associated with long term exposure to contaminants (via. direct contact, ingestion, or inhalation) resulting from the proposed development are anticipated.

6.10 Mitigation Measures

6.10.1 Construction Stage

The provision of wheel wash facilities at the construction entrance to the development will minimise the amount of soils deposited on the surrounding road network. The adjoining road network will be cleaned on a regular basis, if required, to prevent the build-up of soils from the development site on the existing blacktop roads.

Measures will be implemented throughout the construction stage to prevent contamination of the soil and adjacent watercourses from oil and petrol leakages and significant siltation. Suitable bunded areas will be installed for oil and petrol storage tanks. Designated fuel filling points will be put in place with appropriate oil and petrol interceptors to provide protection from accidental spills. Spill kits will be provided by the Contractor to cater for any other spills.

Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works.

Noise attenuation will be used on rock breakers to reduce noise levels.

After implementation of the above measures the proposed development will not give rise to any significant long-term adverse impact. Negative impacts during the construction phase will be short term only in duration.

6.10.2 Operational Stage

Within the development, landscape areas will be topsoiled and planted in accordance with the proposed landscaping plan. Following completion of these reinstatement works, no significant adverse impacts on the soils and geology of the subject lands are envisaged.

A comprehensive drainage network will be constructed to ensure that the lands drain effectively following their reshaping / re-profiling. The drainage system shall incorporate sustainable urban drainage methods to clean flows prior to discharge.

6.11 Predicted Impacts of the Proposed Development

6.11.1 Construction Stage

Due to the implementation of the mitigation measures outlined above, the proposed development will not give rise to any significant long-term adverse impact. Negative impacts during the construction phase will not be significant once the appropriate mitigation measures are adopted and will be only short term in duration.

6.11.2 Operational Stage

No significant long-term impacts on soil, geology, or hydrogeology, resulting from the proposed development are predicted.

6.12 Monitoring

6.12.1 Construction Stage

Monitoring as outlined below, during the construction phase will be undertaken; -

- Adequate protection of the topsoil stockpiled for reuse.
- Monitoring of surface water discharged to existing sewers.
- Monitoring cleanliness of the adjoining road network.
- Monitoring measures for prevention of oil and petrol spillages.
- Dampening down measures close to the boundaries of the site in dry weather.

6.12.2 Operational Stage

No operational stage / post-development monitoring will be required.

6.13 Reinstatement

Reinstatement measures in relation to soils consist primarily of the re-soiling of open areas / landscaping and the replanting of these areas. No post development reinstatement works will be required.

6.14 Interactions

Any potential rock breaking will generate noise and excavations on site will give rise to dust. From review of the ground investigations discussed in section 6.3, it is not anticipated that rock breaking will be necessary.

6.15 Difficulties Encountered

There were no difficulties encountered.

6.16 References

- Geological Survey of Ireland 1:100,000 scale bedrock maps.
- Google maps, 2021.
- Site Investigations Ltd (S.I. Ltd), (Contract Number: 5599).
- Ordnance Survey of Ireland historical map. www.osi.ie
- Subsoils datasets Teagasc (www.gis.teagasc.ie)
- Site walkover visits.

7.0 WATER

7.1 Introduction

This chapter has been prepared by Waterman Moylan Consulting Engineers in order to describe the impact of the proposed development on the surrounding hydrological (surface water), hydrogeological (groundwater), foul water, water supply, and flood risk both during the construction and operation phases. The interaction between the surface water drainage proposal as part of the development will also be assessed in this chapter.

7.2 Study Methodology

The methodology followed for this section is in accordance with the EPA “Environmental Impact Assessment Reports, Draft Guidelines 2017”.

The following information sources were used in the assessment of the local hydrology and hydrogeological aspects of the proposed development site.

- Geological Survey of Ireland (GSI) Website
- Environmental Protection Agency
- Office of Public Works (OPW) National Flood Hazard Mapping
- OPW Catchment Flood Risk and Management Studies
- FCC Drainage Record Maps
- Ordinance Survey Mapping
- Topographical Survey
- Site investigation reports and soakaway testing

The following methodology have been adopted for this assessment:

- Review of relevant information including where available, Development Plans, existing drainage information, and other relevant studies as outlined above; and
- Consultations with Fingal County Council to agree drainage strategy.
- Irish Water confirmation of feasibility letter.

7.3 The Existing Receiving Environment (Baseline)

The Oldtown-Mooretown LAP lands are located at the western development edge of Swords, within the catchment of the Broadmeadow River. The LAP lands cover an area of approximately 111 hectares.

The Oldtown–Mooretown lands are divided by the Rathbeale Road, with Oldtown lands to the north (c. 50 Ha) and Mooretown to the south (c. 61 Ha).

This subject Application (18.378 Ha, gross), which forms a phase of the Mooretown development, is located in the southern section of the Mooretown Lands.

The proposed site for the stormwater storage tank that forms part of the subject application, is located on the junction of the Glen Ellan Road and the Balheary Road, Swords, Co. Dublin. The site is 1.4km north of swords, 1.1km west of the M1 motorway and 300m south of the Broadmeadow River. The site is owned by The Applicant and is locally referred to as the Celestica/Motorola site.

7.3.1 Hydrology (Surface Water)

The subject site is predominantly greenfield in nature and slopes from a height of 58m in the southwest corner to 37m in the north-east. The site lies within the catchment of the Broadmeadow River which outfalls to the Malahide estuary. The estuary is a Special Protection Area (SPA), a candidate Special Area of Conservation (cSAC) a proposed National Heritage Area (pNHA) and a RAMSAR site.

The site is drained by surface ditches as shown in the figure below, which in turn flow to the Mooretown Mill Stream, on the eastern border of the Mooretown LAP lands. This Mill Stream flows north to the Rathbeale Road where it is culverted by 1200mmØ pipes which traverses the eastern boundary of the oldtown lands before ultimately discharging to the Broadmeadow River.

Neither the Oldtown/Mooretown Lands nor the adjacent Broadmeadow River are part of the SPA or SAC site, however, any development immediately upstream is required to maintain, or improve the quality of surface water to status objectives, as set out in the Water Framework Directive (WFD). These requirements are in place in order to protect and enhance the status of the aquatic ecosystems of the SAC or SPA site. This will require the implementation of SuDS, which are intended to be utilised as part of the development.

Mooretown Phase 1's parent planning permission (F15A/0183) and the adjacent Mooretown Road Extension (F14A/0012) were designed to accommodate the attenuation volumes for the entire Mooretown LAP lands including the subject application site: Mooretown Phase 3, within the Watermill Park and Mooretown Road detention basins and ponds, before discharging at restricted greenfield rates to the Mill Stream. The Mill Stream traverses the Mooretown site, west to east.

7.3.2 Hydrology (Groundwater)

A review of the Environmental Protection Agency website database at <https://gis.epa.ie/EPAMaps/> classifies the groundwater risk on the subject lands as 'Not at Risk'. The groundwater risk looks at the current water quality and trends and is used to highlight waterbodies that are at risk of deteriorating or being at less than good status in the future.

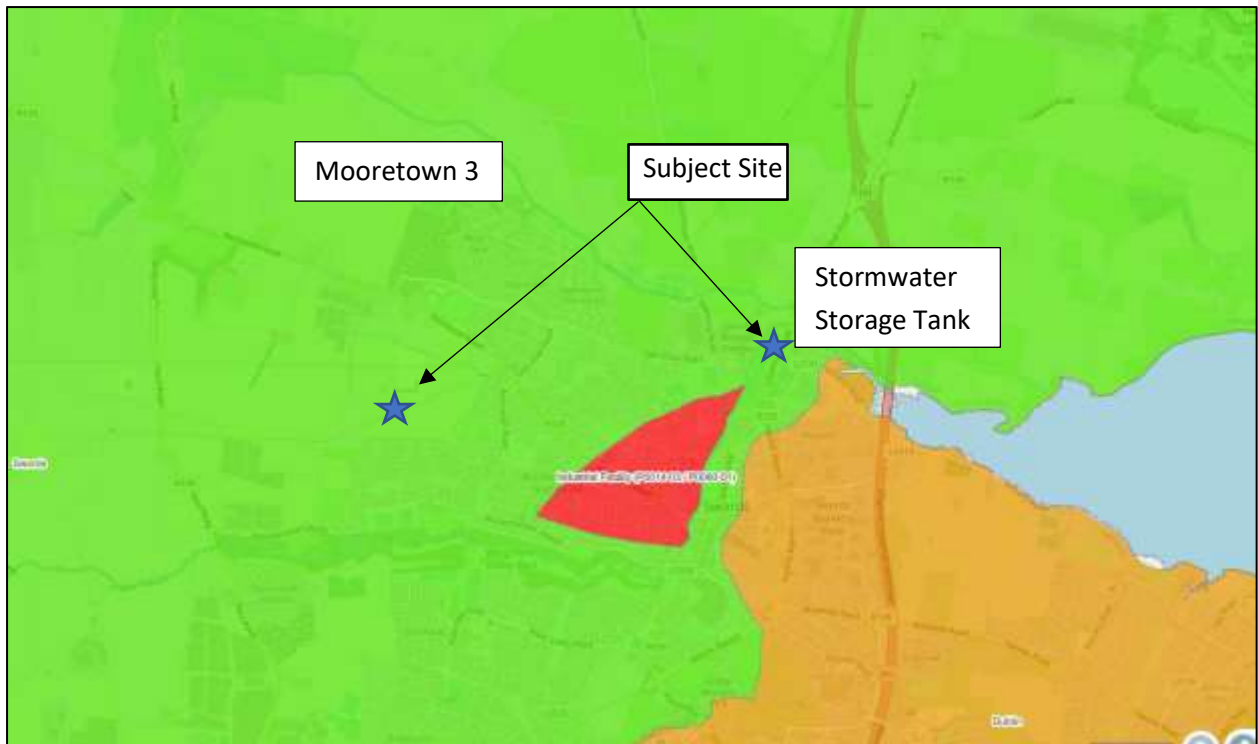


Figure 7.1 - Groundwater Risk (EPA)

GSI's aquifer classes are divided into three main groups based on their resource potential, and further sub-divided based on the type of openings through which groundwater flows. A review of the GSI database revealed that the aquifer below the subject lands is classified as Poor Aquifer, PI, Bedrock which is Generally unproductive except for Local Zone. The lands below the storage tank site is classified as LI, Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones.

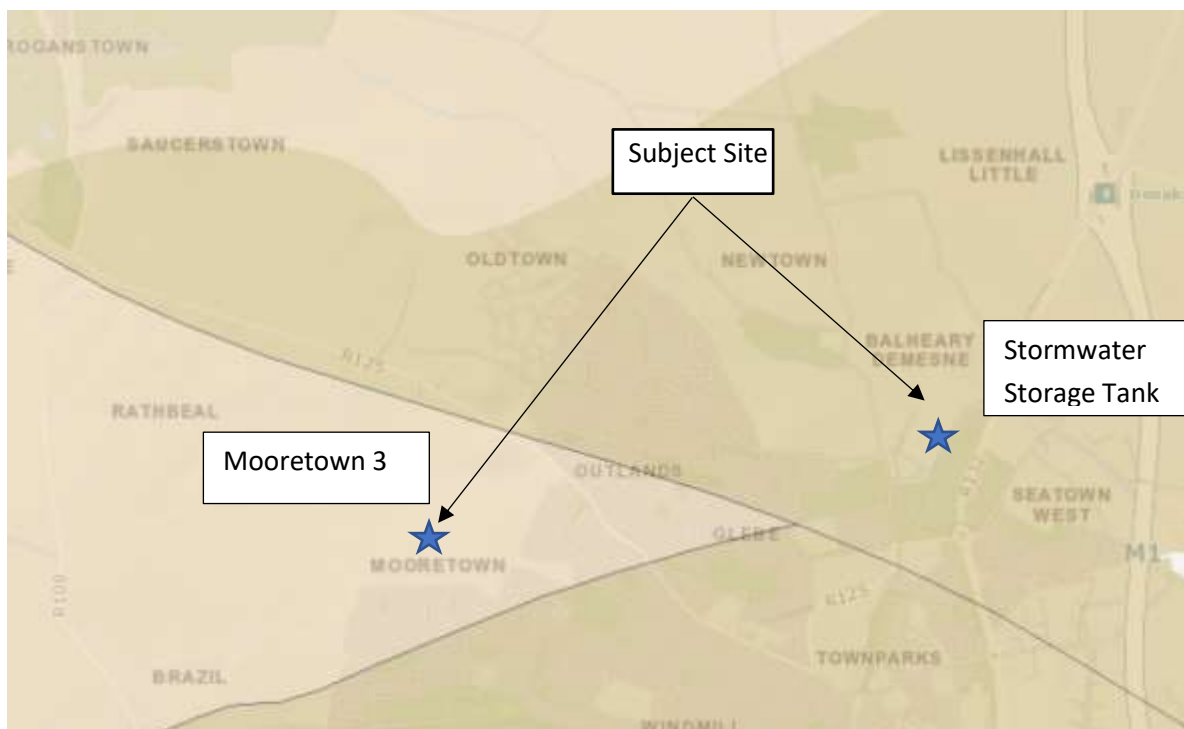


Figure 7.2 - GSI Aquifer

7.3.3 Flood Risk Assessment

A Flood Risk Assessment has been prepared by Waterman Moylan Engineers and is available under separate cover. This Flood Risk Assessment has been carried out in accordance with the DEHLG/OPW Guidelines on the Planning Process and Flood Risk Management published in November 2009. The assessment identifies and sets out possible mitigation measures against potential risks of flooding from various sources. Sources of possible flooding include coastal, fluvial (river), pluvial (direct heavy rain) and groundwater.

The subject site is located within the Broadmeadow River catchment.

The Fingal East Meath Flood Risk Assessment and Management Study (FEM FRAMS) maps, available on the OPW's National Flood Information Portal and extracted below in Figure 7.3, shows that none of the subject site falls within the 0.1% AEP (1-in-1,000 year) flood plain.

The nearest node point to the Mooretown 3 site, reference number: 4Wa3870, located on the River Ward, will have a 1-in-1,000-year flood event water height of 31.16m, well below the lowest height of 37m on the subject lands. The River Ward is a tributary of Broadmeadow River joining immediately prior to the Broadmeadow's outfall. There is no identified risk of flood from the Mill Stream on the eastern boundary of the site.

The nearest node point to the Celestica Storage Tank site that forms part of this submission is reference number: 4Ba1608, located circa 400m to the north-west, will have a 1-in-1,000-year flood event water height of 6.32m, half a metre below the lowest height of 6.85m on the subject lands.

There is no known history of ground water / springs seeping through the ground in this area. However, it is possible for ground water to rise and cause potential flooding on site during prolonged wet periods. Groundwater vulnerability maps indicate that the site is located between a moderate and high vulnerability location. The proposed tank site lies within an area with low to moderate groundwater vulnerability.

Thus, the site can conservatively be considered to have a moderate to high likelihood to groundwater flood.

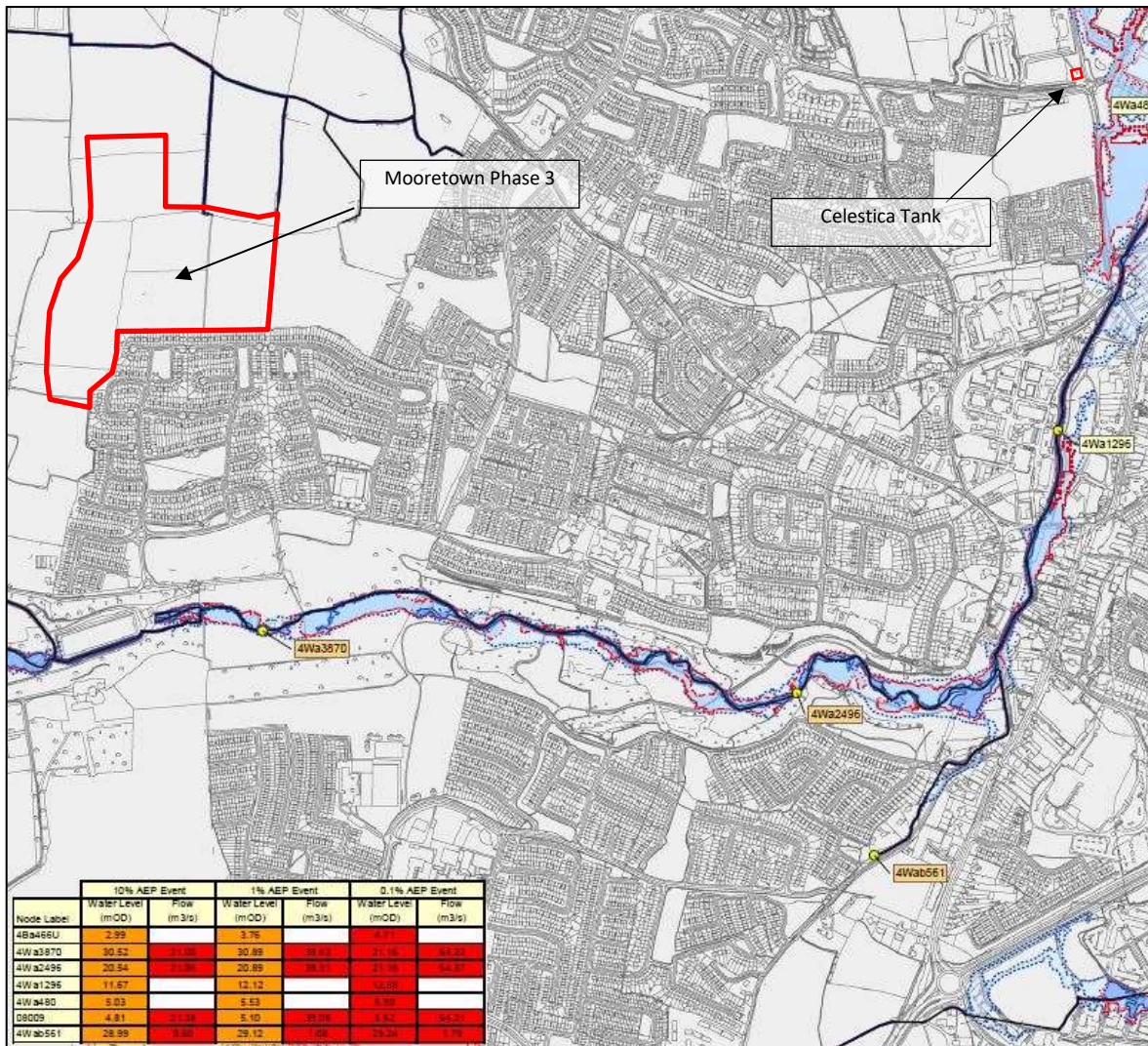


Figure 7.3 - Broadmeadow River Flood Extent Map - Up to 1 in 1,000 Year Return Period

A summary of flood risk is provided in Table 7.4 and Table 7.5 overleaf.

Source	Pathway	Receptor	Likelihood	Consequence	Risk	Mitigation Measure	Residual Risk
Tidal	Irish Sea (Malahide Estuary)	Proposed development	Extremely low	None	Extremely low	None	Extremely low
Fluvial	The River Ward & Mill Stream	Proposed development	Low	Low	Extremely Low	Setting of floor levels & freeboard, overland flood routing, no localised low points	Extremely Low
Pluvial	Private & Public Drainage Network	Proposed development, downstream properties, and roads	Ranges from high to low	Moderate	Ranges from high to low	Appropriate drainage, SuDS, and attenuation design, setting of floor levels, overland flood routing	Low
Ground Water	Ground	Underground services, ground level of buildings, roads	High	Moderate	High	Appropriate setting of floor levels, flood routing, damp proof membranes	Low
Human/Mechanical Error	Drainage network	Proposed development	High	Moderate	High	Setting of floor levels, overland flood routing, regular inspection of SW network	Low

Table 7.4 Summary of the Flood Risks from each flooding type – Mooretown 3

Source	Pathway	Receptor	Likelihood	Consequence	Risk	Mitigation Measure	Residual Risk
Tidal	Irish Sea (Malahide Estuary)	Proposed tank site	Extremely low	None	Extremely low	None	Extremely low
Fluvial	The River Broadmeadow	Proposed tank site	High	High	Extremely high	Setting of finished levels, overland flood routing and non-return flap to Outfall pipe	Low
Pluvial	Private & Public Drainage Network	Proposed tank site and adjacent roads	Ranges from moderate to low	Moderate	Ranges from moderate to low	Appropriate drainage, setting of site levels, permeable surfacing	Low
Ground Water	Ground	Underground services/ infrastructure	Moderate	Moderate	Moderate	Appropriate setting of levels, flood routing, tank impervious to groundwater ingress	Low
Human/Mechanical Error	Drainage network	Proposed tank site / adjacent roads and footpaths	High	Moderate	High	Setting of site levels, overland flood routing, regular inspection of drainage network	Low

Table 7.5 Summary of the Flood Risks from each flooding type – Storage Tank

7.3.4 AA Screening

Indirect impacts from foul and surface flows are discussed in the AA Screening commentary and are addressed in the Biodiversity Chapter of this EIAR.

7.3.5 Water Supply

A pre-connection enquiry was submitted to Irish Water, the subsequent confirmation of feasibility letter from Irish Water advises that there are no constraints to the water supply network and the addition of this development does not pose any issues.

7.3.6 Foul Water Network

A pre-connection enquiry was submitted to Irish Water, the subsequent confirmation of feasibility letter from Irish Water advises that there is sufficient available capacity in the Wastewater Treatment Plan (Swords WWTP), to serve the development but that network upgrades are required to facilitate the development. The stormwater tank on the public foul network, that forms part of this application is proposed in order to alleviate this issue.

7.4 Characteristics of the Proposed Development

The proposed development will consist of 650 units, comprising of 265 No. houses, 198 No. Duplex/Triplexes units, and 187 No. apartments. A creche and commercial spaces of retail and cafe will also be constructed as part of the development. The site is 18.378 ha gross area and is located 2km west of Swords town centre.

The developer will construct all associated infrastructure to service the development including a network of foul water and surface water drains, a stormwater storage tank on the public foul network, watermain, access roads and footpaths.

It is proposed to drain wastewater in a north-easterly direction through a series of 150mm and 225mm diameter pipes. There are 7 No. connection points, 1 No. to the foul network in the Mooretown distributor road extension (planning permission granted F20A/0095) and 4 no. to the foul network in the Mooretown school access road (construction completed). The remaining 2 No. Connections will be for the Phase 3 lands north of the School Access Road, which will connect to the permitted phase 2 drainage network. The foul network in the Mooretown Distributor Road Extension will flow north and connect to the foul network in the Mooretown School Access Road which in turn flows easterly and then northerly along the eastern boundary of the School Campus. It then connects to the foul network in Mooretown Phase 1 (currently under construction) before outfalling to the 500mmØ foul sewer crossing the Rathbeale Road as discussed in Section 2.1.

As regards surface water, Mooretown Phase 1's parent planning permission (F15A/0183) and the adjacent Mooretown Road Extension (F14A/0012) were designed to accommodate the attenuation volumes for the entire Mooretown LAP lands including the subject application site: Mooretown Phase 3, within the Watermill Park and Mooretown Road detention basins and ponds, before discharging at restricted greenfield rates to the Mill Stream. The Mill Stream traverses the Mooretown site, west to east. The local surface water piped network within Phase 3 will be designed to accommodate flows from the 1 in 5-year storm. As noted above, the 1 in 100 storm events (plus 20% to accommodate

climate change) shall be catered for in the permitted Watermill Park and Mooretown Road detention basins and ponds constructed under parent planning permission F15A/0183 and the adjacent Mooretown Road planning permission F14A/0012.

The requirement for the stormwater storage tank on the public foul network is to alleviate constraints within the public foul network during times of heavy rainfall events, whereby stormwater enters the public foul network temporarily reducing available capacity. The proposed stormwater storage tank has been designed in conjunction with Irish Water and will not only facilitate the connection requirement of this subject application but will also have capacity to allow for continued development in the Oldtown/Mooretown catchment.

The proposed stormwater storage tank is to be located underground, with the surfacing above to be permeable and will not require a stormwater drainage network.

SuDS will be utilised on site for water quality protection, however as discussed above the attenuation element has already been constructed at the Mooretown Phase 1 within the Watermill Park. Water quality will be achieved by using a Sustainable drainage network of Green Roofs, Swales and Permeable Paving all discharging the treated water to the surface water network. The storm water system will be designed to cater for the 1 in 100-year storm plus a 20% allowance for climate change.

Construction activities with a possible impact to surface water and groundwater features will include the following:

- Excavation of soil, sub-soil, and vegetation.
- Infilling and landscaping will be undertaken.
- Construction of the outfall headwall from the stormwater storage tank to the Broadmeadow River.
- Temporary storage/use of fuel/oils on site will be required for construction machinery.

Operational Activities will include the following:

- The total hardstanding area will be increased. It is expected that the surface water will be treated via SuDS and then discharged to the public surface water network. The public surface water sewer will flow from the proposed development, and ultimately outfall to the existing Mooretown Phase 1 attenuation ponds and basins.
- Consumption of potable water for the development will be supplied by a watermain network connected to the Irish Water public water supply. The Irish Water confirmation of feasibility letter has not identified any issues with this arrangement.
- Foul water drainage for the development will be provided via a foul network which will connect to the public foul network and flow to Swords WWTP. Irish water has advised that upgrade works to the network are required to be completed prior to the connection of the Phase 3 development to the public foul network. The stormwater tank on the public foul network that forms part of the application, is proposed to alleviate this issue.

7.5 Potential Impact of the Proposed Development

The potential impacts of the proposed development from both a hydrology (surface water), and hydrogeology (groundwater) perspective at construction and operational stages are outlined in the following sections.

7.5.1 Construction Stage

Significant amounts of site stripping and excavation will be required in order to construct the development. When the site has been stripped layers of sub-soil will be exposed to weathering and there will be potential for erosion due to rainfall and subsequent runoff. The erosion of soil can lead to sediments being washed into the receiving watercourses /sewers at higher rates of runoff.

There is also potential during the development's construction stage that contaminants from cement/concrete be washed into the receiving watercourses/sewers.

There is a risk of pollution of groundwater/watercourses / soils by accidental spillage of oils/diesel from temporary storage areas or where maintaining construction equipment.

Foul water could be connected to the surface water drainage network resulting in the contamination of the receiving watercourses. Furthermore, if there is damage to any foul pipes, there is potential for contaminants to seep into the groundwater.

The construction of the proposed development has the potential to cause a slight, adverse, temporary, residual impact on receiving watercourses/groundwater.

7.5.2 Operational Stage

The proposed development will result in increased impermeable areas and there is potential for an increase in risk of higher rates of surface water runoff leading to increased downstream flooding.

There is a potential impact for the discharge of contaminants from the proposed development and road surfaces to the surrounding drainage sewers. These would include particulates, oil, soluble extracts from the bitumen binder etc. The quality of runoff from the site would be dependent on the time of year, weather, particulate deposition from the atmosphere and any gritting or salting carried out by the Local Authority. The time of year has a major bearing on the quality of stormwater run-off - in particular, the first rains after a prolonged dry period where accumulated deposits of rubber, particulates, oils, etc. are, washed away.

There is potential for leaks in the foul network to result in contamination of the groundwater.

Accidental spills of fuels/hydrocarbons and washing down into the drainage pipe network has the potential to impact on the receiving hydrogeology.

The operation of the proposed development has the potential to cause a slight, adverse, temporary, residual impact on receiving watercourses/groundwater.

There is a potential for Watermain leaks which would increase the volume of water permeating through the underground soil strata.

The proposed stormwater storage tank will have an overflow outfall to the Broadmeadow River. This overflow outfall pipe will only function when the storage tank surcharges beyond the proposed 2,250m³ capacity of the tank. Flood mapping undertaken by the OPW indicate that during a 1 in the 10-year event at a node point circa 200m upstream if the proposed outfall location will have a flow rate in excess of 36m³/second (refer to accompanying Flood Risk Assessment Report, Section 3), ensuring that any overflow outfall from the tank beyond a 1 in the 5-year event will be discharged to a fast-moving heavily diluted/surcharged river. The outfall waters (largely surface water) from the tank will result in a vast betterment when compared with the existing arrangement of uncontrolled discharge to the Ward and in turn Broadmeadow Rivers. In this regard, we refer you to the assimilation simulation evaluation reports prepared by Hydro-G and AWN, supplied under a separate cover, who respectively note:

- *“Based on assimilation capacity simulations, it can be concluded that the discharge is feasible, justifiable and defensible in the context of the objectives of EC Environmental Objectives (Surface Waters) Regulations Statutory Instrument S.I. No. 272 of 2009, as amended 2012, 2015, 2019. This conclusion is made because the simulations have been carried out to evaluate whether the proposed development would aid or hinder catchment efforts to improve the Status from the assigned Poor Status to the Regulatory requirement that is Good Status. Simulated resultant concentrations suggest the potential for improvement in Status class as a result of the proposed infrastructure improvements.”*
- *“As a stormwater storage tank, the projected tank will store stormwater that would otherwise be discharged unimpeded to the Ward River. The function of the storage tank activates when the current Irish Water foul water system overflows during heavy rainfall events and surface/stormwater and foul water infiltration occurs. The tank therefore will capture the surface/stormwater and foul waters that are generated during heavy rainfall events, stopping these mixed, deleterious waters from discharging directly to the river, thereby reducing the potential for contaminants present in the mixed storm/foul water to enter the stream. In this way, the tank will improve the capacity of the network to prevent the discharge of pollutant material to the Broadmeadow River, and by extension, the Malahide Estuary SAC/SPA/pNHA.*
- *..... the Malahide Estuary SAC/SPA/pNHA is also not expected to be affected by the operation of the tank.”*

Mitigation measures are discussed in detail in section 7.9 of this chapter.

7.6 Potential Cumulative Impacts

7.6.1 Existing Mooretown Development

There are no anticipated cumulative impacts arising from the existing Mooretown Development in relation to water other than those noted in Section 7.5 above.

7.6.2 Future Development

The applicant is in control of the adjacent Oldtown & Mooretown lands to provide a consolidated development in north Swords. This current application relates to Phase 3 of the Mooretown lands south of Rathbeale Road. This Phase is the final Phase of Masterplan development within the

Mooretown lands. There has been a carefully considered design approach to development to ensure that the subject application can be delivered to enhance and improve upon existing amenity.

The Oldtown Masterplan development successfully integrates and enhances the existing built fabric in north Swords.

There are no additional impacts to those noted in Section 7.5 above.

7.7 Do Nothing Scenario

In this scenario, surface water runoff would continue to be discharged at existing un-restricted discharge rates. The existing arrangement of uncontrolled surcharges from the public foul water network will remain unchanged. The receiving watercourses and groundwater aquifers would remain in their current state and there would be no change.

7.8 Risks to Human Health

There is a risk to Human Health should the groundwater or the existing water supply become contaminated during the construction or operational stages, and the water is consumed. In order to mitigate these risks the measures outlined below will be adopted.

7.9 Mitigation Measures

This section of the report will discuss mitigation measures to reduce the impact of the proposed development on the surrounding water environments during the construction and operation phase.

7.9.1 Construction Stage

A Construction Management Plan has been prepared for this application and is included under a separate cover. It is considered that the Construction Management Plan (CMP) will be updated by the appointed contractor. In order to minimise the potential impact of the construction phase of the proposed development on the surrounding surface water and groundwater environs, the following construction stage mitigation measures are to be included in the plan and be implemented in full.

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.
- 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 site.
- Site stripping will be minimised as far as practicable.
- Settlement ponds / silt traps will be provided to prevent silt runoff into the existing sewers / watercourses during the drainage works.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject lands. The location for testing and trigger levels for halting works will be agreed between the project ecologist and the site foreman at the commencement of works.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area. The project ecologist will review and agree alternative pollution control measures, such as deepening or redirecting trenches as appropriate, before works may recommence.

- All fuels and chemicals will be banded, and where applicable, stored within double skinned tanks / containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a suitable distance from any watercourse or other water conducting features, including the cut off trenches.
- Foul and surface water pipes will be carefully laid so as to minimise the potential for cross connections which results in contamination of receiving watercourses.
- Site personnel inductions are to be conducted such that all site personnel are made aware of the procedures and best practice in relation to the management of surface water runoff and ground water protection.
- Where possible, precast concrete units are to be used to avoid on-site “wet” mix concrete usage. In situ concrete pours are to be managed in accordance with best practice to avoid overspills
- Concrete truck and wheel wash down facilities are to be provided in designated areas. Discharge from these areas is to be directed into the settlement ponds / silt traps.
- Topsoil for landscaping will be located in such a manner as to reduce the risk of washing away into local drainage or watercourses.
- Details of the headwall outfall construction methods, to prevent pollution of the Broadmeadow River during construction, are included in the Preliminary Construction Environmental and Waste Management Plan, which has been submitted under a separate cover.

The implementation of the following operation stage mitigation measures will minimise the impact on the hydrology and hydrogeology aspects of the development lands, Celestica Storage Tank .

All works will be undertaken with reference to the following guidelines:

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

The schedule of mitigation presented within Table 7.6 summarises measures that will be undertaken in order to reduce impacts on ecological receptors within the zone of influence of the proposed development.

No.	Risk	Possible Impact	Mitigation	Result of Mitigation
1	Hydrocarbons from carparking area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Designated parking at least 50m from any watercourse.	Ensures no soil disturbance or hydrocarbons leak near aquatic zone
2	Pollutants from site compound areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	The site compound will be located at least 50m from any watercourse.	Prevents pollution of the aquatic zone from toxic pollutants
3	Pollutants from material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Fuels, oils, ~~greases~~ and other potentially polluting chemicals will be stored in bunded compounds at the Contractor's compound or at a location at least 50m from any body of water. Bunds are to be provided with 110% capacity of storage container. Spill kits will be ~~kept on site at all times~~ and all staff trained in their appropriate use. Method statements for dealing with accidental spillages will be provided the Contractor for review by the Employer's Representative.	Prevents contamination of aquatic zone by toxic pollutants
4	Concrete/cementitious materials entering the watercourse from washdown.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	A designated wash down area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off site
5	Concrete/cementitious materials entering the watercourse from concrete pours.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Pouring of cementitious materials will be carried out in the dry.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off site

6	Leaching of contaminated soil into groundwater.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Spill kits will contain 10 hr terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent leaching to ground water	Prevents contamination of aquatic zone by petrochemicals
7	Pollutants from equipment storage/refuelling area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Any refuelling and maintenance of equipment will be done at designated bunded areas with full attendance of plant operative(s) within contained areas at least 50m from any watercourse	Prevents contamination of aquatic zone by petrochemicals
8	Runoff from exposed work areas and excavated material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Contractor to prepare a site plan showing the location of all surface water drainage lines and proposed discharge points to the sewer. The plan will include the location of all surface water protection measures, including monitoring points and treatment facilities.	Prevents contamination of aquatic zone by suspended solids or pollutants.

Table 7.6 Schedule of Surface Water Mitigation Measures

7.9.2 Operational Stage

The implementation of the following operation stage mitigation measures will minimise the impact on the hydrology and hydrogeology aspects of the development lands, Mooretown Phase 3.

- The surface water drainage network has been designed in accordance with the CIRIA SUDS Manual and the Greater Dublin Strategic Drainage Scheme. The appropriate interception mechanisms and treatment train process has been incorporated into the design.
- Surface water outflow will be restricted to the equivalent greenfield runoff rate from the existing Oldtown attenuation ponds.
- Flow restrictors with attenuation storage will be used to slowdown and store surface water runoff from discharging above green field rates to the Broadmeadow River.
- Sustainable urban drainage measures, including green roofs, permeable paving and filter strips/swales will be provided to improve water quality.
- A petrol interceptor will be installed to prevent hydrocarbons entering the local drainage system.
- Regular inspection and maintenance of the drainage network, including petrol interceptor.
- Water metering via district meters will be installed to Irish Water requirements. Monitoring of the telemetry data will indicate any excessive water usage which may indicate the potential for a leak in the watermain network. Early identification of potential leaks will lead a faster response in determining the exact location of leaks and completion of remedial works.
- The outfall from the stormwater storage tank headwall to the Broadmeadow River will be fitted with a tide-flex (or similar approved) non-return valve to ensure surcharge from the Broadmeadow River will not backfill into the proposed pipe and tank during extreme weather events.
- The outfall volumes from the stormwater storage tank to the Broadmeadow River shall be metered to record the frequency and duration/volumes of overflows.

7.10 Predicted Impacts of the Proposed Development

7.10.1 Construction Stage

Due to the proposed mitigation measures outlined above, and the implementation of a Construction Management Plan, the impact during the construction stage on the hydrology and hydrogeological aspects of the lands is not significant.

7.10.2 Operational Stage

Due to the proposed mitigation measures outlined above many of the potential impacts will not arise during the operational phase of the proposed development on surface water and groundwater quality.

Surface water discharge from the Phase 3 site will be restricted by means of attenuation, therefore, no adverse impact in respect of flooding downstream will arise from the proposed development.

The installation of a Sustainable Urban Drainage System will ensure surface water runoff will be of high quality before discharge to the Proposed Phase 3 public surface water sewer. The proposed Phase 3 surface water sewer will flow via gravity to the existing Mooretown attenuation basins ponds and will not have an impact on the receiving waters downstream of the development.

The impact following the operational phase mitigation measures outlined above is imperceptible.

The proposed stormwater storage tank will have an overflow outfall to the Broadmeadow River. This overflow outfall pipe will only function when the storage tank surcharges beyond the proposed 2,250m³ capacity of the tank. Flood mapping undertaken by the OPW indicate that during a 1 in 10-year event at a node point circa 200m upstream if the proposed outfall location will have a flow rate if in excess of 36m³/second (refer to accompanying Flood Risk Assessment Report, Section 3), ensuring that any overflow outfall from the tank beyond a 1 in the 5-year event will be discharging to a fast-moving heavily diluted/surcharged river. The outfall waters (largely surface water) from the tank will result in a vast betterment when compared with the existing arrangement of uncontrolled discharge to the Ward and in turn Broadmeadow Rivers. In this regard, we refer you to the assimilation simulation evaluation reports prepared by Hydro-G and AWN, supplied under a separate cover, who respectively note:

- *“Based on assimilation capacity simulations, it can be concluded that the discharge is feasible, justifiable and defensible in the context of the objectives of EC Environmental Objectives (Surface Waters) Regulations Statutory Instrument S.I. No. 272 of 2009, as amended 2012, 2015, 2019. This conclusion is made because the simulations have been carried out to evaluate whether the proposed development would aid or hinder catchment efforts to improve the Status from the assigned Poor Status to the Regulatory requirement that is Good Status. Simulated resultant concentrations suggest potential for improvement in Status class as a result of the proposed infrastructure improvements.”*
- *“As a stormwater storage tank, the projected tank will store stormwater that would otherwise be discharged unimpeded to the Ward River. The function of the storage tank activates when the current Irish Water foul water system overflows during heavy rainfall events and surface/storm*

water and foul water infiltration occurs. The tank therefore will capture the surface/storm water and foul waters that are generated during heavy rainfall events, stopping these mixed, deleterious waters from discharging directly to the river, and thereby reducing the potential for contaminants present in the mixed storm/foul water to enter the stream. In this way, the tank will improve the capacity of the network to prevent the discharge of pollutant material to the Broadmeadow river, and by extension, the Malahide Estuary SAC/SPA/pNHA.

- *..... the Malahide Estuary SAC/SPA/pNHA is also not expected to be affected by the operation of the tank."*

The impact following the operational phase mitigation measures outlined above facilitates the potential for improvement in Status class as a result of the proposed infrastructure improvements.

7.11 Worst Case Scenario

The worst-case scenario in relation to hydrology and hydrogeology during the construction phase would be the failure to implement the mitigation measures outlined above. This may result in the contamination of the receiving surface water network and/or groundwater.

In relation to the operation stage, the worst case would be the flooding of the surface water drainage network. In this regard, the network has been designed to accommodate a 20% increase in inflows due to climate change. Finished floor levels have also been set with appropriate freeboard and an overland flood route through the site has been provided.

Implementation of the mitigation measures outlined in this document will reduce the risk of the worst-case scenario occurring, making this unlikely.

7.12 Monitoring

7.12.1 Construction Stage

Implementation of the Construction Management Plan is required to protect the hydrology and groundwater elements of the subject lands during the construction stage. Maintenance of the mitigation measures and monitoring of the management process is required to ensure best practice.

The monitoring measures to be implemented include:

- Monitoring of the management and storage of dangerous chemicals and fuel.
- Monitoring and maintenance of the wheel wash facilities.
- Regular maintenance and monitoring of the sediment control measures.
- Monitoring and maintenance of the watermain telemetry, SUDS features, road gullies and, attenuation ponds during the construction phase of the development.

7.12.2 Operational Stage

Monitoring and maintenance of the water metering telemetry, SUDS features, road gullies, attenuation and flow control devices are imperative during the operation phase of the development.

Monitoring of the frequency and volume/duration of overflows from the proposed storage tank.

7.13 Reinstatement

No reinstatement is anticipated on site with respect to the Water environment.

7.14 Interactions

The main interactions relating to this EIAR Chapter are Land & Soils, Biodiversity and Utilities.

During the construction stage, the connection of wastewater services has the potential to impact groundwater if wastewater were to leak from the network during the construction process. There are potential implications for the local populations if there is a disruption to utility services during the connection of the new services to the proposed development. The construction of the various services will also interact with construction traffic as outlined in the Traffic and Transport Chapter.

During the operation stage, the water supply and foul drainage services have a potential interaction with the available water supply and with potential pollution to natural water bodies.

In respect of Land & Soils, the interaction between surface and groundwater and the bedrock geology is feasible. Any impact will be negligible as the aquifer is at low risk and is not considered to be regionally important. The implementation of the mitigation measures outlined in this chapter will reduce the potential of surface contaminants into the underlying geology.

In respect of Biodiversity, there is the interaction between hydrology and the downstream habitats present along the Broadmeadow River. The mitigation measures ensure that surface water runoff is treated to the required standards so that downstream habitats are not negatively impacted.

7.15 Difficulties Encountered

There were no particular difficulties encountered compiling the Water chapter of the EIAR.

7.16 References

- Environmental Impact Assessment Reports – Draft Guidelines, (2017), Environmental Protection Agency
- Environmental Protection Agency available at <http://gis.epa.ie/EPAMaps/>
- Geological datasets available at www.gsi.ie
- Greater Dublin Strategic Drainage Study (GDSDS), (2015), Dublin Drainage
- OPW Eastern CFRAM study
- OPW Flood Hazard Mapping

8.0 AIR QUALITY

8.1 Introduction

Chapter 8 of this Environmental Impact Assessment has been prepared by DKP Environmental (DKP_{EV}) and assesses the air quality impacts associated with the proposed development at Mooretown, Swords, Co. Dublin. The proposed residential development consists of residential housing units, duplex, triplexes, and apartment blocks. This chapter examines the existing air quality in the vicinity of the development site and the potential impact of the proposed development during the construction phase and operational phase. The assessment includes recommended mitigation measures to control and minimise the impact that the development may have on local air quality. This assessment has been prepared in accordance with the EIA Directive 2014/52/EC and current Environmental Protection Agency (EPA) guidelines. This section should be read in conjunction with the site layout plans and project description sections of this EIAR.

8.2 Methodology

Research for this section included a review of the Air Quality Standards Regulations (S.I. 180 of 2011) and the EPA annual reports on air quality in Ireland. Predicted air quality emissions for the main traffic-derived pollutants have been modelled using the screening air quality assessment from the U.K Highway Agency Design Manual for Roads and Bridges (DMRB) and data from the transport Assessment undertaken for the residential development at Mooretown. Analysis for this chapter included a review of the following guidelines and recommendations:

- Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports Draft (EPA, 2017)
- Advice Note on Preparing Environmental Impact Statements – Draft (EPA, 2015)
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment 2013.
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment August 2018
- Guidance on the Assessment of Dust from Demolition and Construction Version 1.1 (Institute of Air Quality Management (IAQM), 2014)

8.2.1 Legislation and guidelines

To reduce the risk of poor air quality impacts, National and European statutory bodies have set limit values in ambient air for a range of air pollutants. EU directives set baseline standards for monitoring air quality and reducing emissions. The applicable standards in Ireland include the Air Quality Standards Regulations 2011, which incorporate EU Directive 2008/50/EC, which has set limit values for a number of pollutants. These limits are for the protection of human health and are presented in Table 8.1. Air quality significance criteria are assessed on the basis of compliance with the standards.

Table 8-1. Air quality standards regulations (S.I.180)

Pollutant	Limit Value Objective	Averaging Period	Value Limit ($\mu\text{g}/\text{m}^3$)
Nitrogen Dioxide (NO_2)	Protection of Human Health	Calendar year	40
		1 hour	200
Benzene Carbon Monoxide (CO)	Protection of human health	Calendar year	5
	Protection of human health	Calendar year	10,000
Lead	Protection of human health	Calendar year	0.5
Sulphur Dioxide (SO_2)	Protection of human health	1 hour	350
Particulate Matter (PM_{10})	Protection of human health	24 hours	125
		24 hours	50
		Calendar year	40
Particulate Matter (PM_{25})	Protection of human health	Calendar year	25

8.2.2 National air quality network

The EPA is the authority with responsibility for ambient air quality monitoring in Ireland and measures the levels of a number of atmospheric pollutants. Ambient air quality monitoring is carried out in accordance with the requirements of the CAFE Directive which has been transposed into Irish national legislation by the Air Quality Standards Regulations 2011. For the purposes of detailing ambient air quality in Ireland, it is divided into four zones: Zone A: Dublin, Zone B: Cork, Zone C: Other cities and large towns, Zone D: Rural Ireland. In Ireland, the network is managed by the EPA in partnership with Local Authorities and other public/semi-state bodies. A series of monitoring stations are located across the country, these stations collect air quality data for public information.

The proposed development site is located within Zone A, Dublin. The EPA monitor at local sites and national sites. The nearest local EPA air quality monitoring station from the development site is Swords Council Depot, Co. Dublin. These local monitoring stations give people a rapid and up-to-date indication only, of air quality in their locality.

8.2.3 Dust deposition guidelines

The concern from a health perspective is focused on particles of dust that are less than 10 microns (PM_{10}) and less than 2.5 microns ($\text{PM}_{2.5}$) and the EU ambient air quality standards outlined in Table 8.1 have set ambient air quality limit values for PM_{10} and $\text{PM}_{2.5}$. With regards to larger dust particles that can give rise to nuisance dust, there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction phase of a development in Ireland. Furthermore, no specific criteria have been stipulated for nuisance dust. With regard to dust deposition, there are currently no national or European Union air quality standards with which levels of dust deposition can be compared. To measure dust deposition a figure of 350 $\text{mg}/\text{m}^2/\text{day}$ (as measured using Bergerhoff type dust deposit gauges as per German Standard Method for determination of dust deposition rate, VDI 2129) can be applied to ensure that no nuisance effects will result. The IAQM guidelines outline an assessment method for predicting the impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts.

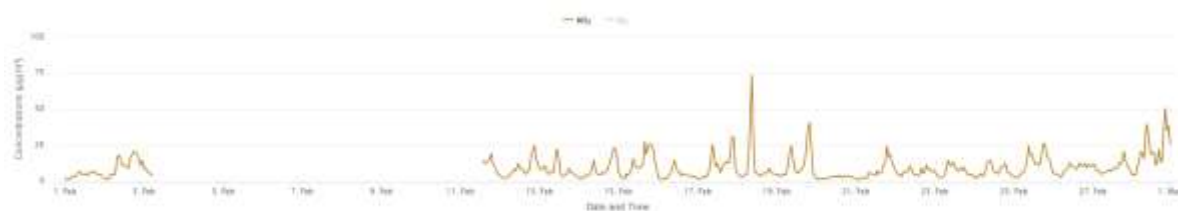
8.3 Receiving Environment at Mooretown, Swords

Swords is a large suburban town on the east coast of Ireland, situated circa 10km north of Dublin city centre and Applewood is located north-west of the centre of Swords. The proposed development site at Mooretown borders existing residential estates to the south. Located west and east is existing agricultural open fields. Swords community school is located to the north.

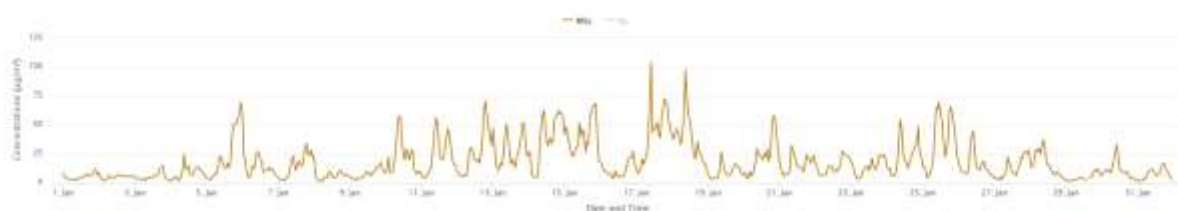
The development area is located within an area that includes sources of transportation-related air emissions principally from the R125 Rathbeale Road and local sources of domestic heating from nearby residential housing estates located south. There are currently no business activities which exceed EPA emission thresholds requiring an industrial IED or IPC license. The site is not in any immediate location of facilities that generate industrial emissions on a large scale. This means there are no existing industrial emissions of concern that would have an adverse impact on future resident's air quality at the proposed development.

8.3.1 EPA air quality monitoring results

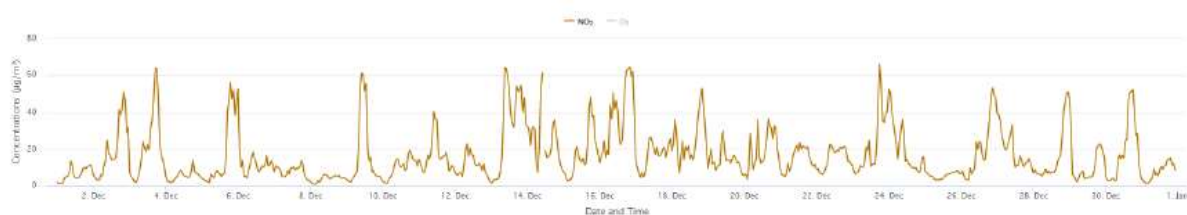
The EPA publish annual reports on air quality in Ireland. These reports can be accessed via the EPA website at www.epa.ie. The most current EPA report 'Air Quality in Ireland 2020' has been examined in order to describe the existing air quality conditions and to provide information on background concentrations. The ambient air quality data collected and reviewed for the purpose of this study focused on the principal substances (NO₂ and PM emissions) which may be released from the site during the construction and operation phases, and which may exert an influence on local air quality. The proposed residential development site is located within Zone A, the Dublin conurbation. The EPA monitor locally and nationally. The nearest local and national EPA air quality monitoring station from the development site is Swords Council Depot, Co. Dublin, approximately 4km away. Local monitoring stations give people a rapid and up-to-date indication only, of air quality in their locality. Local monitoring data for PM and NO₂ can only be obtained up to a couple of months previous. Graphs for the previous 4 months for NO₂ local emissions are illustrated below:



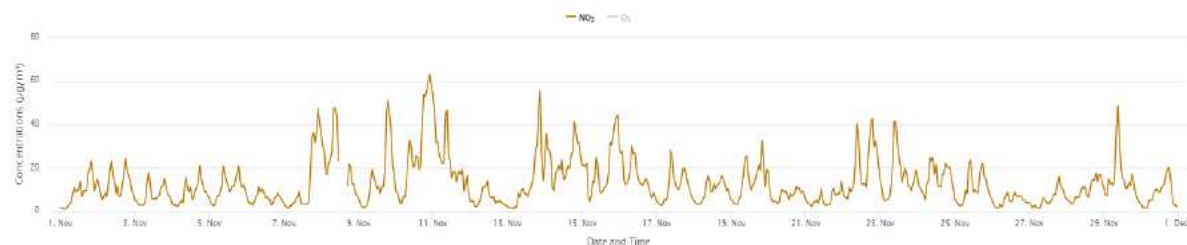
1st Feb – 28th Feb 2022 monitoring data. Copyright EPA



1st Jan – 31st Jan 2022 monitoring data. Copyright EPA



1st December - 31st December 2021 monitoring data. Copyright EPA



1st November - 30th November 2021 monitoring data. Copyright EPA

The national EPA air quality annual mean value concentrations measured at this monitoring site for 2020, 2019, 2018 and 2017 are shown in Table 8.2.

Table 8-2. Summary of data from the EPA ambient air monitoring report 2019, 2018 and 2017

Pollutant	2020 mean concentration (µg/m ³)	2019 mean concentration (µg/m ³)	2018 mean concentration (µg/m ³)	2017 mean concentration (µg/m ³)	4-year Average	Annual Limit for Protection of Human Health (µg/m ³)
Sulphur Dioxide (SO ₂)	2.98 *	1.50 *	2.10 *	1.66 *	2.06	20
Particulate Matter (PM ₁₀) (With a diameter <10 microns)	13.10 *	14.5 *	14.10 *	12.40 *	13.53	40
Particulate Matter (PM _{2.5}) (With a diameter <2.5 microns)	7.60 *	9.20 *	8.55 *	7.50 *	8.21	20
Nitrogen Dioxide (NO ₂)	11.0	15.0	16.0	14.2	14.05	40
Carbon Monoxide (CO) (mg/m ³)	0.30 *	0.30 *	0.20 *	0.28 *	0.27	10
Benzene	0.52 *	0.16 *	0.30 *	0.92 *	0.46	5
Lead (Pb)	0.04 *	0.07 *	0.06 *	0.05 *	0.06	0.5
Ozone (O ₃)	53.0	53.0	54.0	51.7	52.3	120

* Swords monitoring station does not record all ambient air quality parameters outlined in the Directive. Therefore, air quality in the receiving environment was assessed using the average annual mean value concentrations from all measured monitoring stations in Zone A for that year.

8.3.2 Significance of EPA results and receptors

The EPA data of 2020 (and pre lockdown levels in 2019) pollutants show air quality parameters are all below the air quality limit values. It can be seen that the existing baseline air quality at the Mooretown

site can be characterised as being good with no exceedances of the National Air Quality Standards Regulations limit values of individual pollutants.

8.3.3 Sensitive receptors

The principal local receptors, see image 8.1, that may be impacted by the development are existing residential dwellings to the south, Abbeyvale / Berwick residential estate, located at a distance of ~20m. The existing Swords Community school located north.

Image 8-1. Principal local receptors



8.4 Impact Assessment

The proposed development is described in Section 2 of this EIAR. When considering a development of this nature, the potential impact must be considered for each distinct stage:

- The short-term impact of the construction phase and
- The longer-term impact of the operational phase.

During the construction stage the main source of air quality impacts will be as a result of fugitive dust emissions from site activities. The primary sources of air emissions in the operational phase are considered long term and will involve the change in traffic flows or congestion in the local areas which are associated with the development.

8.4.1 Predicted impact of the proposed development

8.4.1.1 Construction phase

The construction phase of the development has the potential to generate short term dust emissions and may have the potential to impact air quality in the short term. Dust emissions can lead to elevated PM10 and PM2.5 concentrations and may also cause dust soiling. The potential for dust to be emitted depends on the type of construction activity being conducted in conjunction with ambient conditions, including rainfall, wind speed and the distance to potentially sensitive locations. The majority of any dust produced during the construction phase may be deposited close therefore any potential impacts from dust deposition will typically be close to the source. There is a risk that dust can cause an impact at previously chosen sensitive receptors that are in close proximity to the source of the generated dust. It is not easy to accurately quantify dust emissions arising from construction activities. A semi-quantitative approach is recommended by the National Roads Authority (NRA) Guidelines 2011 to determine the likelihood of a significant impact. The construction assessment guidelines reproduced from the NRA guidance, are set out in Table 8.3.

Table 8-3. Assessment criteria for the impact of dust from construction activities with standard mitigation in place (NRA 2011)

	Source	Potential Distance for Significant Effects (distance from source)		
Scale	Description	Soiling	PM10	Vegetation Effects
Major	Large Construction sites, with high use of haul routes.	100m	25m	25m
Moderate	Moderate Construction sites, with moderate use of haul routes.	50m	15m	15m
Minor	Minor Construction sites, with minor use of haul routes.	25m	10m	10m

While dust from construction activities tends to be deposited within 200m of a construction site, the majority of the deposition occurs within the first 50m. Some of the existing dwellings to the south, Abbeyvale / Berwick residential estate are found within a distance range of 20-50m to the potential construction of the new build. Likewise, located north the Swords Community school grounds are within 50m of the site. Where dust impacts are likely, avoidance and mitigation measures will be put in place to reduce the impact levels such as windbreaks, barriers and frequent cleaning and watering of the construction site roads, further detailed mitigation measures discussed in Section 8.6. Provided the dust minimisation measures outlined in the plan are adhered to, the air quality impacts during the construction phase will not be significant.

The significance of impacts due to vehicle emissions during the construction phase will be dependent on the number of additional vehicle movements, HGVs and the closeness of sensitive receptors to the site. Increases in levels to PM and pollutants related to increased traffic can be predicted however relative to baseline levels, the impact of the proposed development during construction will not have an adverse impact in concentrations over the limit of regulation values.

8.4.1.2 Operational phase

The design and construction of buildings in accordance with National Building Regulations (The Irish Building Regulations Technical Guidance Document L – Conservation of Fuel & Energy – Dwellings) will ensure that modern building materials are used and that they are designed to be thermally efficient resulting in a reduction in the volume of fossil fuels required to heat the buildings. In order to counteract the impact of the development on the existing and future air quality the design of the proposed residential apartments and houses has considered a number of sustainable heating and energy-saving features.

The operational phase of the proposed development also has the potential to result in an impact on local air quality primarily as a result of the increased traffic movements associated with the development. It is envisioned that a proportion of the commuting residents will avail of Dublin Bus / Dart commuter services. The availability of public transport will significantly reduce the number of private vehicles exiting and entering the development. The DMRB screening air quality spreadsheet from the U.K Highway Agency Design Manual for Roads and Bridges, was used to assess the impact of increased traffic associated with the new development. Annual Average Daily Traffic Flow (AADT) information was obtained from Chapter 12 on this project and has been used to model pollutant levels under various traffic scenarios to assess whether any significant air quality impact on sensitive receptors may occur.

Projected transport figures were used to predict the concentrations of traffic-derived pollutants in future years. The model then combined background concentrations of pollutants, sourced from the EPA reports (4-year average values were used). Results were generated using an average speed of 40 km/h assuming congested traffic conditions. 2 no. of neighbouring receptors were chosen, see receptor 1 and 2 on image 8.2 for their location.

Image 8-2. 2 no. neighbouring receptor locations, 1 and 2.



In order to quantify the magnitude of change in pollutant concentrations, the descriptors in Table 8.4 were used. To describe the significance of the impact, Table 8.5 was then used. These descriptor tables are from the Transport Infrastructure Ireland (TII) Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes which detail a methodology for determining air quality impact significance criteria for road schemes and has been adopted for this assessment. The degree of impact is determined based on both the absolute and relative impact of the proposed development. Results are compared against the 'Do-Nothing' scenario, which assumes that the proposed development is not in place in future years, in order to determine the degree of impact.

Table 8-4. Definition of impact magnitude for changes in ambient air pollutant concentrations.

Magnitude of Change	Annual Mean NO ₂ / PM ₁₀ (µg/m ³)	No. of Days with PM ₁₀ concentration >50µg/m ³	Annual Mean PM (µg/m ³)
Large	Increase/decrease ≥4	Increase/decrease >4 days	Increase/decrease ≥2.5
Medium	Increase/decrease 2 - <4	Increase/decrease 3 or 4 days	Increase/decrease 1.25 - <2.5
Small	Increase/decrease 0.4 - <2	Increase/decrease 1 or 2 days	Increase/decrease 0.25 - <1.25
Imperceptible	Increase/decrease <0.4	Increase/decrease <1 day	Increase/decrease <0.25

Table 8.5: Air quality impact descriptors for changes in annual mean NO₂, PM₁₀ and PM_{2.5} concentrations.

Absolute Concentration in Relation to Objective /Limit Value	Changes in Concentration		
	Small	Medium	Large
Increase with Scheme			
Above Limit Value with Scheme (≥40µg/m ³ of NO ₂ or PM ₁₀) (≥25µg/m ³ of PM _{2.5})	Slight Adverse	Moderate Adverse	Substantial Adverse
Just Below Limit Value with Scheme (36-<40µg/m ³ of NO ₂ or PM ₁₀) (22.5-<25µg/m ³ of PM _{2.5})	Slight Adverse	Moderate Adverse	Moderate Adverse
Below Limit Value with Scheme (30-<36µg/m ³ of NO ₂ or PM ₁₀) (18.75-<22.5µg/m ³ of PM _{2.5})	Negligible	Slight Adverse	Slight Adverse
Well Below Limit Value with Scheme (<30µg/m ³ of NO ₂ or PM ₁₀) (<18.75µg/m ³ of PM _{2.5})	Negligible	Negligible	Slight Adverse

The results of the impact assessment arising from increased transport are presented in Table 8.6 and 8.7. The results predict the future air quality relative to the existing baseline.

Table 8.6: Modelled results for receptor 1

Receptor 1	Annual Average NO ₂ (µg/m ³)	Annual Average PM ₁₀ (µg/m ³)	Annual Average (µg/m ³)Benzene	Annual Average CO (µg/m ³)
Background (2022)	14.05	13.53	0.46	0.27
Limits	40	40	5	10
Do Nothing (2030)	14.65	13.90	0.48	0.30
Increase	+ 0.60	+ 0.37	+ 0.02	+ 0.03
Magnitude	small	small	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible
Do Something (2030)	15.20	14.34	0.50	0.31
Increase	+ 1.15	+ 0.81	+ 0.04	+ 0.04
Magnitude	small	small	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible

Table 8.7: Modelled results for receptor 2

Receptor 2	Annual Average NO ₂ (µg/m ³)	Annual Average PM ₁₀ (µg/m ³)	Annual Average (µg/m ³)Benzene	Annual Average CO (µg/m ³)
Background (2021)	14.05	13.53	0.46	0.27
Limits	40	40	5	10
Do Nothing (2030)	14.65	13.90	0.48	0.30
Increase	+ 0.60	+ 0.37	+ 0.02	+ 0.03
Magnitude	small	small	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible
Do Something (2030)	15.53	14.71	0.50	0.31
Increase	+ 1.48	+ 1.18	+ 0.08	+ 0.08
Magnitude	small	small	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible

8.4.1.3 Summary of modelling assessment

Levels of traffic-derived air pollutants for the development at receptor 1 and 2 show an expected increase in annual NO₂, PM₁₀, benzene and CO but each parameter remain well below the limit values for EU regulations and will not exceed the ambient air quality standards either with or without the proposed development in place. Using the assessment criteria outlined previously, the impact of the development in terms of PM₁₀, CO, NO₂ and benzene is negligible and would not result in a perceptible change in the existing local air quality environment.

8.5 Mitigation Measures

8.5.1 Remedial and Reductive Measures

Construction phase

Full details of the dust management plan can be found in Appendix 8.1. At all times, the procedures within the plan will be monitored and assessed. Summary of mitigation measures include:

- Avoid unnecessary vehicle movements and limit speeds on-site so as to minimise the generation of airborne dust.
- Use of rubble chutes and receptor skips during construction activities.
- Site roads shall be regularly cleaned and maintained as appropriate, especially during dry and/or windy conditions. Any unsurfaced roads shall be restricted to essential site traffic only.
- A mobile wheel wash unit shall be installed at the site exit to wash down the wheels of all trucks exiting the site.
- The overloading of tipper trucks exiting the site shall not be permitted and aggregates will be transported to and from the site in covered trucks.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind, stockpiles holding fine or dusty elements including topsoils shall be covered with tarpaulins. Water misting or sprays will be used as needed if particularly dusty activities are necessary during dry or windy periods.
- Where drilling or pavement cutting operations are taking place, measures to control dust emissions will be used to prevent unnecessary dust emissions by the erection of windbreaks or barriers.
- All vehicles which present a risk of spillage of materials, while either delivering or removing materials, will be loaded in such a way as to prevent spillage.
- A complaints log shall be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated.

Operational phase

No additional mitigation measures are required for the operational phase of the proposed development as it is predicted the operational phase will not generate air emissions that would have an adverse impact on local ambient air quality. The government aims to promote sustainability by enhancing public transport with regular and ongoing increases in the public transport capacity, both road and rail and to reduce dependency on the use of the private car. The operational phase includes mitigation by design measures to minimise the impact of the development on air quality as follows:

- Inclusion of electric car charging points to encourage electric vehicle ownership
- Proximity to public transport will reduce private vehicle use.

8.6 Monitoring

Construction phase: If the construction contractor adheres to good working practices and the mitigation measures are in place, the levels of emission generated are assessed to be minimal and are

unlikely to cause an impact on air quality during the construction phase, there is no monitoring recommended.

Operational phase: There is no monitoring recommended for the operational phase of the development as impacts to air quality are predicted to be negligible.

8.7 Interactions

The main interactions relating to air quality are population and human health and transportation.

8.8 Cumulative effects

Construction phase

There is the potential for cumulative dust emissions to impact the nearby sensitive receptors. The dust produced from construction activities tends to be deposited within 200m of a construction site and the majority of the deposition occurs close to the source, typically within the first 50m. The dust mitigation measures outlined in section 8.5 along with the Dust management plan will be applied throughout the construction phase of the proposed development, which will avoid significant cumulative impacts on air quality. With mitigation measures in place and adhered to, the predicted cumulative impacts on air quality associated with the construction phase of the proposed development are deemed short-term and not significant.

Operational phase

The cumulative effects during the operational phase were assessed from changes in traffic flows during the operational phase due to the additional residents. The traffic data used to assess the impacts included the traffic associated with the new proposed development as well as Phase 1 and Phase 2 Mooretown / under construction developments. Therefore, the cumulative impact is included within the operational stage impact for the proposed development. Modelled results show that concentrations of ambient air pollutants will remain well within the limit values for air quality which are based on the protection of human health. The predicted cumulative impacts on air quality is negligible and would not result in a perceptible change in the existing local air quality environment.

8.5.5 Difficulties encountered in compiling the chapter

There were no difficulties met when conducting this assessment.

8.5.6 References

- EPA. Air Quality Monitoring Report 2019 (and previous annual reports)
- EPA. Ireland's Provisional Greenhouse Gas Emissions 1990 – 2019
- EPA Air Quality Index for health. AirQuality.ie
- Met Eireann (2021). Met Eireann website: www.met.ie
- TII (2011). Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes
- UK Highways Agency (2019b). UK Design Manual for Roads and Bridges (DMRB) Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 14 LA 114 Climate

- Transport Infrastructure Ireland (TII) 2011 Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes Revision 1.
- The Irish Building Regulations Technical Guidance Document L 'Conservation of Fuel & Energy Dwellings'

9.0 NOISE AND VIBRATION

9.1 Introduction

This chapter of this Environmental Impact Assessment has been prepared by DKP Environmental (DKPEV) and assesses noise and vibration impacts associated with the proposed development at Mooretown, Swords, Co. Dublin. The proposed residential development consists of residential housing units, duplex, triplexes, and apartment blocks. This chapter will identify and assess the impact of the proposed development in terms of noise and vibration during the construction phase and operational use with particular attention to the nearby residential units. Increased traffic volumes associated with the subject site are likely to be the main impact source. Traffic volumes for the proposed scheme have been projected and therefore the noise impact assessment for the operational phase of the subject site will consider the cumulative impact of the existing and new predicted volumes.

This assessment was prepared in accordance with the EIA Directive 2014/52/EC and current Environment Protection Agency (EPA) guidelines. This section should be read in conjunction with any guidance documents for the site and project description sections of this EIAR.

9.2 Research Methodology

9.2.1 Construction Noise Criteria

The level of environmental noise generated during the construction phase of any development is determined primarily by the exact construction methods employed. The level of the noise impact of these methods will arise from the specific sound power levels generated by the plant and machinery used, the duration of each particular construction activity, as well as the time and location in which the equipment is used. The potential sources of environmental noise during the construction phase of the development will primarily arise from increased traffic on the surrounding roads (from construction workers and delivery of plant and materials) and actual on-site works where plant and machinery will be deployed.

As at this point of time we do not have an any actual specific construction plan to outline details of plant and machinery to be used, materials, construction phasing and working hours) it is not possible to accurately model construction noise levels using the recommended standard ISO 9613:1996 - Acoustics, Attenuation of sound during propagation outdoors however a basic analysis of worst-case noise levels has been calculated. This basic calculation was based on the current construction methods applied on site to complete the works and assessed noise impacts for the anticipated construction equipment.

As we do not have any published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project however local authorities normally control construction activities by imposing limits on the hours of operation with certain noise limits at their discretion. For this report we applied the British Standard BS 5228-1:2009+A1: 2014 - Code of practice for noise and vibration control on construction and open sites.

BS 5228-1:2009+A1: 2014 sets out a method of calculating the propagation of sound towards a receiver from the use of certain construction plant and machinery on a construction site. The standard

describes single octave sound power level data for a range of standardised plant and machinery as would be expected to be the norm on construction sites.

9.2.2 Construction Vibration Criteria

During the construction phase of a development certain aspects of the site work may result in increased levels of vibration in the vicinity of the site. BS 5228-2:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites: - Part 2: Vibration, outlines a number of calculation methods for predicting peak particle velocity (PPV) resulting from construction works on open sites.

The prediction methods require specific information relating to the soil composition and compaction levels within the propagation path between the construction area and nearest receiver, as well as highly detailed information regarding the type and location of plant and machinery. As such specific data is not available a quantitative impact of vibration will not be undertaken as part of this assessment. Construction practices employed should have regard to best practice as recommended in the following standards and guidance:

- BS 7385-1 (1990) Evaluation and Measurement for Vibration in Buildings - Guide for Measurement of Vibration and evaluation of their effects on buildings.
- BS 7385-2 (1993) Evaluation and Measurement for Vibration in Buildings - Guide to damage levels from Ground borne Vibration.
- BS 5228-2:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.
- BS 6472-1 (2008) Guide to evaluation of Human Exposure to Vibration in Buildings - Vibration sources other than Blasting.

9.2.3 Operational Noise Criteria

As we do not have any statutory limits, it is therefore, necessary to reference appropriate best practice guidance and standards in order to determine the impact of the subject site on the noise climate in the surrounding area during the operational phase. It is important to note that the primary potential source of noise arising during the operational phase is that of road traffic associated with the increased population of the area.

For the calculation and assessment of road it has generally been best practice to assess road traffic noise on the basis of the LA10 18-hour parameter as outlined in the CRTN document. Transport Infrastructure Ireland (formerly the National Roads Authority (NRA)) have produced guidelines for national road schemes however in this development we do not have any national primary road hence this standard would not apply.

The World Health Organisation propose guideline values for the prevention of moderate and serious nuisance in outdoor areas as 50dB LAeq (16 hour) and 55dB LAeq (16 hour) respectively although a more appropriate criteria for assessing disturbance or annoyance from noise arising from the site would be related to the significance of changes in noise levels as perceptible to human beings.

The information in the table below is taken from the 'Guidelines for Noise Impact Assessment' produced by the Institute of Environmental Management and Assessment (IEMA). This document replaces the draft guidelines published by the Institute of Acoustics (IOA) and IEMA in April 2002 and shows an appropriate impact.

Table 9.1. Guidelines for Noise Impact Assessment (IEMA)

Change in Noise Level	Subjective Reaction	Impact Guidelines for Noise Impact assessment significance	Impact Guidelines on the Information to be contained in EIAR's
0 dB	No change	None	Imperceptible
0.1 to 2.9 dB	Barely perceptible	Minor	Slight
3.0 to 4.9 dB	Noticeable	Moderate	Moderate
5.0 to 9.9 dB	Up to a doubling or halving of loudness	Substantial	Significant
10 dB or more	More than a doubling or halving of loudness	Major	Profound

The following tasks were carried out in order to assess the noise impacts of the subject site on identified receptors during the operational phase of the scheme:

- A survey has been conducted to establish baseline noise levels or background noise levels at the nearest noise sensitive receptor surrounding the site.
- A calculation of anticipated noise levels arising at the nearest noise sensitive receptors due to current and forecast increases in traffic arising from the subject site as per basis of the LA10 18hour parameter as outlined in the CRTN document.
- An assessment of the cumulative calculated anticipated noise levels and potential impact upon noise sensitive receptors was carried out with reference to best practice guidelines in the assessment of environmental noise.

9.2.4 Vibration Assessment Criteria

There are generally accepted criteria for vibration levels that would be likely to lead to complaints and vibration levels that would be likely to lead to structural damage. These levels are outlined in the guidance documents BS6472: 1992 Guide to Evaluation of human exposure to vibration in buildings (1Hz to 80Hz), and BS7385: Part 2 1990: Evaluation and measurement for vibration in buildings - Guide to damage levels from ground-borne vibration.

9.2.5 Operational Vibration Criteria

Traffic has been identified as the only likely source of vibration during the operational phase of the scheme. In the case of nominally continuous sources of vibration, such as traffic, vibration is perceptible at around 0.5 mm/s PPV and may become disturbing or annoying at higher magnitudes. Currently no major sources of vibration exist on the site. It would therefore be appropriate to assume that negligible vibration impacts will occur during the operation of the subject site and no further assessment is deemed to be required.

9.3 Receptor Location Identification

In this chapter, an assessment was made on receptor location having due regard to several considerations including:

- Determining the most exposed or nearest sensitive receptor (NSR) to potential sources of environmental noise related to current and future increases in traffic volumes.
- Ensuring that the number of receptors assessed would allow for sufficient baseline data to be obtained in the allocated background measurement period but also that the spatial spread of receptor locations was such that all locations in and around the subject site were assessed.

The table below represents the background noise monitoring location chosen and image 9.1 highlights the monitoring station on a site map.

Table 9.2. Station 1 Measurement location

Measurement location	Location	Measurement Type	Justification
Station 1	Junction location with Rathbeale Road	Manual	To determine back ground noise levels

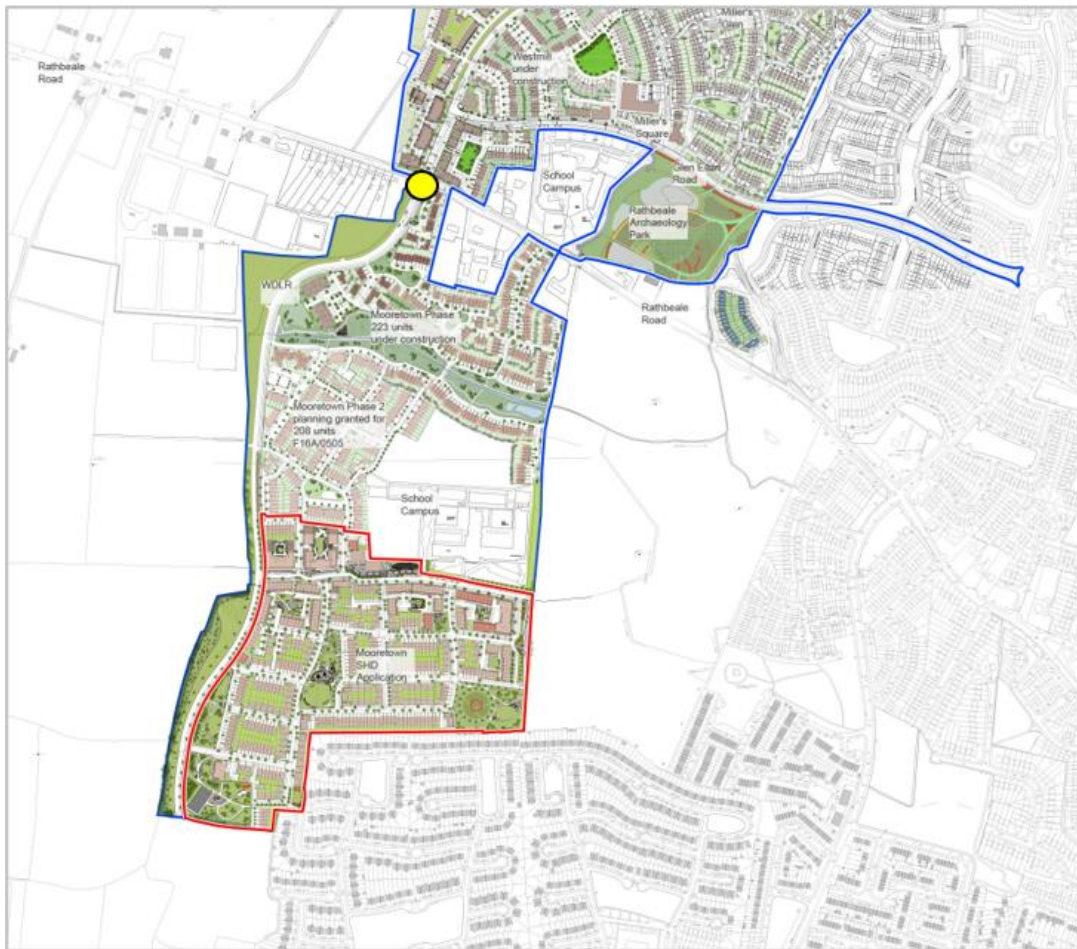


Image 9.1: Receptor locations (highlighted in yellow)

9.3.1 Calculated Noise levels

For the anticipated road traffic noise levels and cumulative noise levels the measured noise level data was applied and calculated on the basis of the LA10 18hour parameter as outlined in the CRTN document issued by Transport Infrastructure Ireland (formerly the National Roads Authority (NRA)). Using the Chapter 12 traffic report for the increased volume of traffic on the Rathbeale Road taking traffic in and out of the new proposed development.

9.3.2 Receiving Environment

Swords is a growing town in north County Dublin, Ireland. Mooretown is approximately 1km from the Swords town centre (Main Street). The proposed development site at Mooretown borders existing residential estates to the south. Located west and east is existing agricultural open fields. Swords community school is located north.

9.3.3 Back-ground Noise Survey

To assess the surrounding background noise levels, a daytime background noise survey was carried out on December 1st and 2nd 2021 outside the covid lockdown period. During the survey, the station was monitored and at the station, three consecutive 15-minute measurements were recorded during the period from 08:00 to 13:00. The measurements taken are deemed to be representative of typical noise levels on the relevant road.

The measurements have been performed using a Bruel & Kjaer Type 2260 sound level meter and Bruel & Kjaer 4231 sound level calibrator. All measurements were carried out in accordance with ISO 1996: 'Acoustics-Description and measurement of environmental noise'. Weather conditions during the survey were in line with the conditions described within ISO 1996, Acoustics 'Description and Measurements of Environmental Noise'. Weather conditions were rainy and cool with a moderate wind.

The following environmental noise parameters were measured which are defined below.

- LAeq is the A-weighted equivalent continuous steady sound level during the measurement period and effectively represents an average ambient noise value.
- LMax is the maximum A-weighted sound level measured during the measurement period.
- LMin is the minimum A-weighted sound level measured during the measurement period.
- LA10 is the A-weighted sound level that is exceeded for 10% of the sample period; this parameter is typically used to quantify traffic noise.
- LA90 is the A-weighted sound level that is exceeded for 90% of the sample period; this parameter is typically used to quantify background noise.

Typical ranges of noise levels are presented in the table below comparing against the baseline noise levels measured:

Table 9.3. Noise level descriptions

Sound level (dB (A))	Description of Activity
0	Absolute silence
25	Very Quiet

35	Rural night-time
55	Suburban roadway 0.5km away
70	Busy Restaurant
85	Very busy pub, voice is raised to be heard
100	Rock concert
120	Uncomfortably loud, conversation impossible
140	Noise causes pain in ears

9.3.4 Back-ground Noise Survey Data

The following table is the measured and calculated (average) background noise levels from the monitoring location.

Table 9.4. Background average noise levels

Station 1						
Time	LAeq	LAm	LAmi	LA10	LA90	Comments
8.00	58	83	44	66	51	Mainly general traffic noise with occasional lorry for construction site main artery road
9.00	60	88	46	67	52	
11.00	58	78	47	60	48	
13.00	60	81	49	69	48	
Avg	59			65.5	50	

9.3.5 Basic Noise Measurement Overview

During daytime periods average ambient noise levels were in the range 58 to 60dB LAeq Average background noise levels were in the range 48to 52dB LA90 and average LA10 values, typically used to describe traffic noise were in the range 60 to 69dB, indicating that most of the measured noise levels would have arisen from traffic noise.

9.3.6 Back-ground Vibration Survey

Only minor vibration was observed during the noise measurements and therefore it has not been considered necessary to undertake baseline vibration monitoring as there is no evidence to suggest that existing receptors are currently affected by appreciable environmental vibration.

9.3.7 Dublin Airport noise contour maps

EPA noise contour maps available show Lden and Lnight contours. Lnight is the A-weighted long-term average sound level for the night time period (23.00 to 07.00). Lden – is the A-weighted long-term average sound level for the day-evening-night noise indicator in decibels (24 hours).



Image 9.3. EPA airport noise map – Night Night time 23.00 – 7.00 noise map

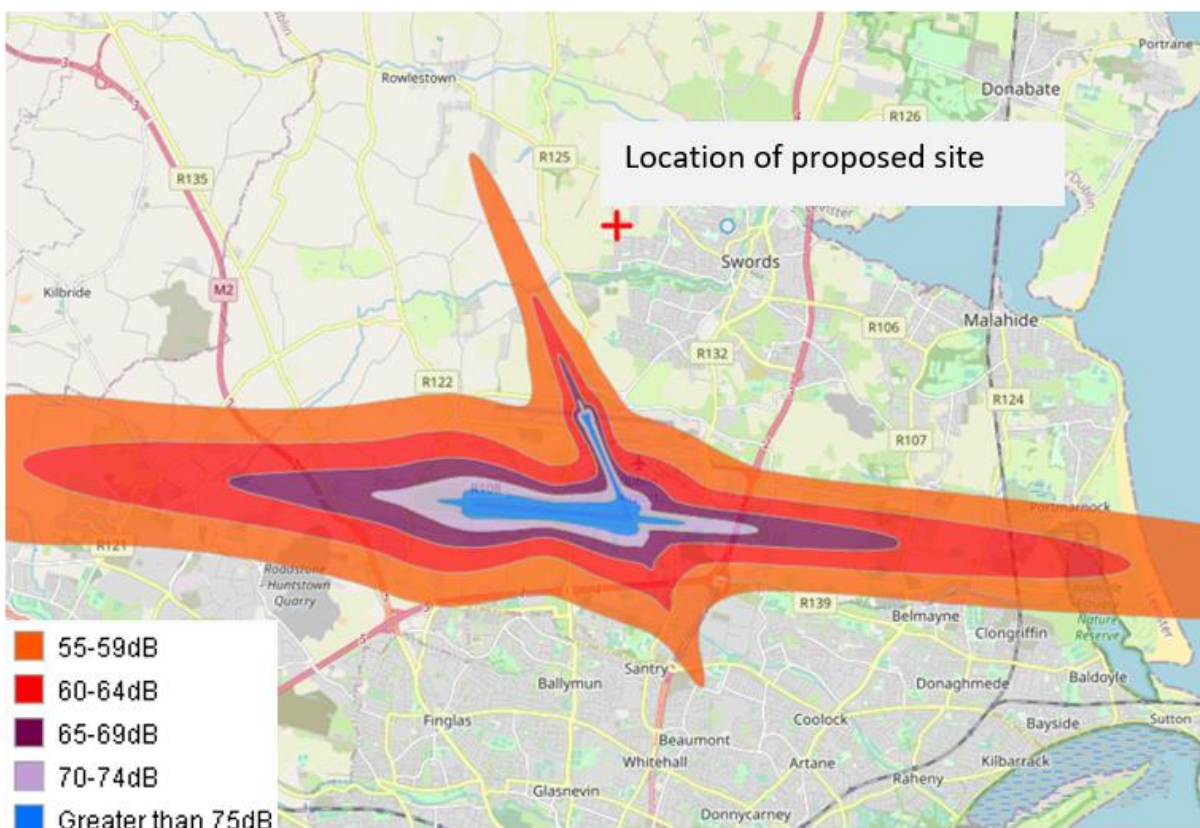


Image 9.3.1 EPA airport noise map – Lden Day time 7.00 – 23.00 noise map

These strategic noise mapping of Dublin airport indicate that the proposed development site in Mooretown is located outside the area of Dublin Airport's noise contour map. Fingal County Council's County Development Plan 2017 - 2023 has defined noise zones A-D, with zone A having the most potential for noise exposure during airport operations. The new proposed development site at is located in zone D, where the zone is identified as 'likely to be acceptable from a noise perspective'.

9.4 Characteristics of the Proposed Development

650 no. residential dwellings, comprising 265 no. houses, 187 no. apartments, and 198 no. duplex and triplex units (192 no. duplex and 6 no. triplex units).

9.5 Potential Impact of the Proposed Development

The anticipated noise impacts on the surrounding environment must be considered for both the short-term impact of the construction phase and the operational phase.

9.5.1 Construction Phase

Short-term noise impacts are only to occur during the construction phase of the development due to the requirement to use plant and machinery on and to the construction site. In the absence of specific construction information regarding the construction stage, construction noise impacts cannot be fully quantified at this point, therefore sample calculations have been provided. Minor short-term vibration impacts may occur during the construction phase as a result of the use of heavy plant and machinery; however, these impacts will be unlikely to propagate beyond the construction site boundary.

9.5.2 Operational Phase

As per measured noise level data the main potential noise source that would be evident during the operational phase of the development would be that of increased road traffic noise associated with the subject site. In general, this can be categorised as:

- Residents small vehicular traffic in and out of the development site.
- Delivery and service vehicles servicing the dwelling houses.
- General activities, landscape maintenance, cleaning, energy producing equipment etc.
- Vibration is not anticipated to be a contributing factor in the operational phase.

9.6 Predicted Impact of the Proposed Development

9.6.1 Construction Noise

Using the method outlined in BS5228, a worst case LAeq value at potential NSRs at distances of 100m, 150m, 200m and 250m have been calculated for a range of construction plant. The following plant has been applied to give an example of the potential construction noise levels:

- Heavy delivery trucks.
- Ground works excavators.
- Noisy construction plant (mixers, vibrators).

We have used BS 5228-1:2009+A1: 2014 to anticipate/calculate the construction noise levels in the proposed development. This methodology relates to the method for construction vehicles/plant in a defined construction area. The prediction of the LAeq from construction plant operating over a small area or on site can be used for other activities when items of construction plant are operating in close proximity to the reception point, taking into account the adjustment of the predicted LAeq for standing and idling time of the plant. It is assumed that over a 1-hour period, all construction plant

will be operational for 80% of the time. The results of these calculations are presented in the tables below.

Table 9.4. Noise level descriptions

Noise Source	Sound Power LWA dB
Heavy delivery truck	102
Ground works excavator	100
Noisy construction plant (mixers, vibrators)	106

Table 9.4. Noise level descriptions

Distance of Potential NSR from construction site	Predicted Noise levels at NSR LAeq dB	BS5228-1 (2009)	
		Monday-Friday (07.00–19.00)	Saturday (07.00–13.00)
100m	59	70	65
150m	56		
200m	53		
250m	51		

As most of the construction sites will generally be within 100m of an occupied building the results of the indicative construction calculations shows that the resultant LAeq (1 hour) values of using such construction plant and vehicles would be in the region of 59db LAeq and below the maximum allowable day time ambient level of 70dB LAeq. BS5228-1 (2009) +A1: 2014 specifies that a daytime limit of 70dB LAeq shall apply on weekdays and a daytime limit of 65dB LAeq shall apply on Saturday.

The ambient noise levels at the nearest noise measurement location with construction noise (NSR2) are comfortably below the BS5228-1 limits and will be short-term in duration also. The construction phase generally has no noticeable change on the noise environment in the longer term.

9.6.2 Construction Vibration

We only anticipate minor temporary ground borne vibration events during the construction phase, but the exact impact of these vibration impacts cannot accurately be quantified.

9.6.3 Operational Noise

The anticipated noise impacts from the overall development during its operational phase will mainly be as a result of increased small vehicle traffic flows along the incoming and outgoing routes into the proposed development site. It is anticipated that the additional road traffic noise attributable to the development (cumulatively with existing Rathbeale Road traffic) will result in an increase in the baseline noise environment by 0.9 to 1.1 dB(A) at the Rathbeale Road junction entrance.

The change in noise levels and the significance of such changes can be categorised by the Guidelines for Noise Impact Assessment, Institute of Environmental Management and Assessment. The table below details the impact/category.

Table 9.4. Noise level descriptions

Change in Noise Level	Subjective Reaction	Impact Guidelines for Noise Impact assessment significance	Impact Guidelines on the Information to be contained in EIAR's (EPA)
0 dB	No change	None	Imperceptible
0.1 to 2.9 dB	Barely perceptible	Minor	Slight
3.0 to 4.9 dB	Noticeable	Moderate	Moderate
5.0 to 9.9 dB	Up to a doubling or halving of loudness	Substantial	Significant
10 dB or more	More than a doubling or halving of loudness	Major	Profound

Based on the table above and the anticipated increase in noise levels we deem the operational noise impact to be categorised as 'Slight' at the worst case. The increase in traffic associated with the proposed development scheme is therefore not expected to give rise to any significant noise nuisance in the area. We note that as part of the Government Climate Change action plan that petrol and diesel passenger vehicles are being phased out and replaced by quieter electric vehicles eventually leading to less operational noise.

9.6.4 Operational Vibration

Operational vibration is deemed not to have any noticeable impacts on the development.

9.7 Remedial and Reductive Measures

DKPEV do not anticipate the requirement of any remedial measures but list the following recommendations mainly for the construction sites;

- Ensure that the local authority guidelines or planning directives to noise levels and operational times are adhered to.
- Prepare a construction phase operational plan with regards to limiting noise nuisance.
- Ensure all construction vehicles and plant are regularly maintained including any noise control measures such as attenuators, filters etc.
- Limit any construction noise spreading to neighbouring site by erecting temporary noise barriers (site boundary hoarding).
- Schedule particular high-level noise activities for times when increased noise levels are less sensitive or notify neighbouring residents or any sensitive sites.

9.8 Monitoring

No noise monitoring is deemed necessary for the operational phase however noise monitoring will most likely be a requirement as directed by the local authority for the construction phase based on the local authorities imposed limits on the hours of operation and noise limits. No vibration monitoring is deemed necessary for both the operational and construction phase.

9.8.1 Interactions

The main interactions relating to noise and vibration are population and human health and transportation.

9.8.2 Cumulative effects

Construction phase

The construction noise/vibration assessment in the previous sections represents the worst-case scenario and it is very unlikely that the same noise/vibration event would happen to coincide at the same time of other potential developments giving rise to a theoretical increase in predicted noise levels. However, the impact of any predicted cumulative noise or vibration levels on nearby sensitive receptors is assumed not to exceed the worst-case scenario and is temporary and deemed not significant.

Operational phase

The anticipated noise impacts from the development during the operational phase will mainly be as a result of increased vehicle traffic flows along the incoming and outgoing routes into the proposed development site. It is anticipated that additional road traffic noise attributable to the overall masterplan will result in an increase in the baseline noise environment. The change in noise levels and the significance of such changes can be categorised by the Guidelines for Noise Impact Assessment, Institute of Environmental Management and Assessment. Based on these guidelines the anticipated increase in noise levels can be categorised as 'Slight' at the worst case. The increase in traffic associated with the proposed development scheme together with other potential developments is therefore not expected to give rise to any significant noise nuisance in the area. We note that as part of the Government Climate Change action plan that petrol and diesel passenger vehicles are being phased out and potentially replaced by quieter electric vehicles eventually leading to less operational noise.

Traffic/transportation has been identified as the only likely source of vibration during the operational phase of the scheme. In the case of nominally continuous sources of vibration, such as traffic, vibration is perceptible at around 0.5 mm/s PPV and may become disturbing or annoying at higher magnitudes. There may, in theory, be a small increase (+/-10%) in vibration levels as a result of increased traffic from the other potential developments, however, it would still be appropriate to assume that negligible vibration impacts will occur during the operation and no further assessment is deemed to be required. The cumulative noise / vibration impact is determined to be not significant.

10.0 CLIMATE

10.1 Introduction

Chapter 10 of this Environmental Impact Assessment has been prepared by DKP Environmental (DKPEV) and assesses the effects of the proposed development on Carbon Dioxide (CO₂) emissions effecting the current climatic conditions. The proposed residential development consists of residential housing units, duplex, triplexes, and apartment blocks. This section will identify and assess the impact of the proposed development in terms of CO₂ emissions during the construction phase and when in full operational use.

We note that although the construction phase contributes to CO₂ emissions through the type of construction methods, choice of materials, transport / traffic requirements etc its impact compared with the operational use is minimal. This assessment was prepared in accordance with the EIA Directive 2014/52/EC and current EPA guidelines.

10.2 Research Methodology

CO₂ is the largest and most important contributor to climate change. Methane, nitrous oxide, other gases, and ozone are also important greenhouse gases. CO₂ is particularly important owing to its role in the global carbon cycle, which is central to life on Earth. This cycle is being significantly disrupted by the combustion of fossil fuels. Consequently, CO₂ is accumulating in the atmosphere, where it is the key driver of global climate change. It is difficult to accurately apportion any increase in CO₂ emissions as a result of the proposed development at Mooretown to any specific climate impacts other than noting that any increase large or small will more than likely also effect the climate or climate change.

We have therefore concentrated the report on the proposed development's CO₂ emission impact and methods to reduce this to a minimum on both the construction and operational stages in line with Ireland's National Policy Position on 'Climate Action and Low Carbon Development'.

10.2.1 Climate Policy

The National Policy Position on Climate Action and Low Carbon Development was published on in April 2014 but was updated with the government's latest plan in January 2021. The policy sets a fundamental national objective to achieve transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. The National Policy Position envisages that development of National Mitigation Plans will be guided by a long-term vision of low carbon transition based on aggregate reduction in CO₂ emissions of at least 80% compared to 1990 levels by 2050 across the construction and transport section relative to this planning application.

10.2.2 Transport

Transport / road transport is currently the second largest contributor of greenhouse gas emissions (after agriculture) at +/- 20%. Between 1990 and 2015, the transport sector showed the greatest overall increase of +/- 130% and increases are linked to economic prosperity with year-on-year increases observed up to 2007 followed by six years of year on year decrease during the economic downturn.

The latest EPA projections from 'An Integrated Assessment 2020' state greenhouse gas emissions from transport accounted for 20.3 per cent of Ireland's total national emissions in 2019. EPA projections indicate that transport emissions are projected to decrease by 38.6 per cent over the period 2021-2030 to 7.6 Mt CO₂ eq under the 'with additional measures' scenario, which assumes that 936,000 electric vehicles, including approximately 840,000 passenger cars, will be on the road by 2030.

10.2.3 Residential

Emissions from the residential sector have fluctuated in the period 1990 to 2015 but overall, the 2015 emissions are +/- 20% lower than their 1990 level. Initially there was a sharp reduction in emissions in the early 1990's from residential fuel switching to cleaner fuels. The increase in housing stock drove a gradual upward trend in the emissions from the residential sector after 1998 to reach a peak in 2010. For the residential sector under the various (energy reduction) schemes the CO₂ emissions are targeted to be reduced by 60% for new dwellings mainly through the implementation of the new Nearly Zero Energy Building (NZEB) regulations (Part L 2017 for non-residential units and Part L 2019 for residential units) and increased use of renewable energy.

The latest EPA projections from 'An Integrated Assessment 2020' state emissions are projected to decrease by 52.4 per cent between 2021 and 2030 to 2.9 Mt CO₂ eq under the 'with additional measures' scenario. This scenario assumes full implementation of the measures in Ireland's Climate Action Plan, including upgrades to homes and significant supports for heat pumps.

10.3 Receiving Environment

Swords is a growing town in north County Dublin, Ireland. Mooretown is approximately 1km from the Swords town centre (Main Street). The proposed development site at Mooretown borders existing residential estates to the south. Located west and east is existing agricultural open fields. Swords community school is located north.

10.4 Potential CO₂ Emission Effect

The CO₂ impact in this development is affected by the construction phase and operational residential phase with the latter dominating the emissions. In essence any new development will add to existing CO₂ emissions until we have managed to construct & operate at zero emissions however in the meantime it is key to limit the additional CO₂ emissions to a minimum.

10.4.1 The construction phase base line

The base line construction transport CO₂ data is based on an average distance of vehicular movement of HGV's (50%), LGV's (35%) and private cars (15%) with a combined average carbon output of 255 gr/km/CO₂ taken from the Irish Construction Federation statistics resulting in emission totalling +/- 1100 kg CO₂ for the construction period.

The base line embodied CO₂ data is taken from the data base available from the university of Bath CO₂ embodied carbon dioxide tables with a typical average residential unit (122m²) to embody +/- 23,000 kg CO₂ using typical traditional building materials.

Table 10.1: Construction phase base line CO2 emissions

Construction phase base line CO2 emissions	Single unit	Single unit
	emission rate	emission
	kgCO2/m2	ton-CO2
	baseline	baseline
Construction transport	0.15	1.1
Construction embodied CO2	3.1	23.0
Total impact	3.3	24.1

10.4.2 Operational Phase

The operational phase of the buildings also has 2 no typical CO2 emission sources: Transport and energy mainly for heating/hot-water use. During the operational phase a residential development emits CO2 through vehicular traffic into and out of the development and energy usage within the buildings. Vehicular impact is mainly addressed using a predicted traffic count based on general transport use for a residential development taking in account any proposed central locations for schools, social / recreational spaces, and the inclusion of options for pedestrian and bicycle movement with a view to encouraging public transport. We note that the Governments Climate Change policy sets out to phase out petrol and diesel cars by 2030 hence this will result in a significant CO2 reduction it is envisaged at least 936,000 electric vehicles, both passenger and commercial, will be on the road by 2030 with additional charging infrastructure to cater for planned growth. Transport emissions from the residential sector have fluctuated in the period 1990 to 2015 but overall, the 2015 emissions are +/- 20% lower than their 1990 level. Initially there was a sharp reduction in emissions in the early 1990's from residential fuel switching to cleaner fuels. The increase in housing stock drove a gradual upward trend in the emissions from the residential sector after 1998 to reach a peak in 2010.

CO2 emissions from energy supplies to buildings is the more significant part of the overall operational development operational contribution. The main energy supply CO2 emissions in residential developments come from providing space heating and domestic hot-water heating. In recent years great strides have been made with regards to reducing energy for space heating using efficient technologies (heat pumps, photovoltaic solar panels) however hot-water heating is determined mainly by its use and therefore reductions are harder to achieve.

The operational phase of a building is much longer than the construction phase with the standard building life cycle period of 60 years. As a result of the much longer operational phase any reductions made to this have significant impacts on the CO2 emissions over the life cycle period of the building.

10.4.2.1 Operational Phase base line

The base line construction transport CO2 data for residential vehicular movement CO2 emissions are based on an average of 10,000km/year per residential unit with a current vehicular output of 175 gr/km to represent private and LGV's manufactured between 2005 and 2022 resulting in a yearly emission of 1750 kg/CO2/year or 1.75 ton-CO2/year.

The base line CO2 emissions from energy supplies to buildings is the more significant part of the overall development's operational phase contribution. Using the national software for CO2 emissions

attributed to energy supplies for a typical 122m² residential unit the emissions of a standard reference unit 7811kg/CO₂/year or 7.8 ton-CO₂/year.

Table 10.2: Operational phase base line CO₂ emissions.

Operational phase base line CO ₂ emissions and effects of reductions.	Life cycle impact rate / m ² kgCO ₂ /m ²		Single unit 1 year ton-CO ₂	
	baseline	reduced	baseline	reduced
Transport	14.3	12.5	1.75	1.52
Energy (heat & hotwater)	63.9	17.9	7.8	2.18
Total impact	78.3	30.4	9.55	3.71

We note the transport emissions personal and delivery vehicles are being reduced through EU and national initiatives and regulation on a continuous basis. CO₂ emissions from cars are regulated through EU legislation which sets statutory maximum emission targets for new vehicles currently set to achieve an average of 95 grams of CO₂ per km in 2022 compared to the current average vehicular emission rate of 175 gr/km.

10.4.2.2 Irelands National base line

Irelands current national base line taken from the EPA 2020-2040 Irelands Greenhouse Gas report issued June 2020. Nb; the data is given below is in Mton representing 1,000,000 ton.

Table 10.2: Operational phase base line CO₂ emissions.

Project CO ₂ emission impact on National emissions	National total emissions Mt-CO ₂ /year	Transport emissions Mt-CO ₂ /year	Residential emissions Mt-CO ₂ /year
2022	62	11	7.5

10.5 Minimizing CO₂ Emissions

The following sections are reduction measures implemented in the project's CO₂ emission calculations to illustrate the effects of such reductions on the environment.

10.5.1 Construction phase transport

CO₂ reduction measures to minimise impacts from transport during the construction phase include the following:

- Local sourcing of construction materials such as the recycling of material from excavations for reuse on site.
- Implementation of the Traffic Management Plan to minimise congestion and queuing, reduce distances of deliveries and eliminate unnecessary loads.
- Reducing the idle times by providing an efficient material handling plan that minimises the waiting time for loads and unloads. Reducing idle times could save up to 10% of total emissions during construction phase.
- To turn off engines when machinery is not required to operate in the relative short term unless this is an issue for security or functionality reasons.

- Periodic maintenance of plant and equipment.
- Technical inspection of vehicles to ensure they will perform the most efficiently.
- Possible use of electric construction equipment / vehicles

10.5.2 Construction phase Embodied CO2

Embodied CO2 is the amount of carbon dioxide a material emits to the environment per unit (weight / volume) including its exploration, manufacturing process, transport to site, its 60-year use and end-of-life requirements also known as the Cradle-to-Grave impact. Embodied CO2 is attributed to all materials to be used on site and by minimising or avoiding certain materials the impact on CO2 emissions can be reduced by:

- Increasing the use of locally available recycled materials.
- Reducing the use of materials with a high embodied CO2 element.
- Increasing the use of “green” concrete (Granulated Blast Furnace Slag to replace Portland cements as the latter has significant embodied CO2.)
- Reducing the use of metals. Metals generally contain the highest embodied CO2 element of all materials mainly due to their exploration and manufacturing processes.

10.5.3 Operational phase transport

Transport emissions personal and delivery vehicles are being reduced through EU and national initiatives and regulation on a continuous basis. CO2 emissions from cars are regulated through EU legislation which sets statutory maximum emission targets for new vehicles currently set to achieve an average of 95 grams of CO2 per km in 2022. The following is applied to lower CO2 emissions as a result of transport:

- Encourage the use of electric cars.
- Encourage the use of new low CO2 petrol cars.
- Utilise available fiscal measures for the use of electric vehicles or renewable fuels.
- Design and plan the overall project in such manner as to encourage walking and cycling.
- Design and plan certain required facilities like schools, medical centres, shopping areas recreational spaces, within the development to lower the need to use motorised vehicles.
- Design and plan public transport routes throughout the development to encourage the use of public transport.

10.5.4 Operational phase energy CO2 Emissions

Under the new building regulation requirements (NZEB), in not so many words, the electrical and thermal energy systems in buildings must be designed and constructed to deliver at least a 70% primary energy reduction and a 60% CO2 reduction over the Part L reference dwelling and have at least 20% primary energy equivalent energy coming from on-site produced renewable energy.

To achieve these reductions to following outline specification can be applied:

- Ground floors: $U \leq 0.110 \text{ W/m}^2\text{K}$
- External walls: $U \leq 0.150 \text{ W/m}^2\text{K}$

- Party walls: $U = 0.0 \text{ W/m}^2\text{K}$ (solid party wall)
- Roofs: $U \leq 0.125 \text{ W/m}^2\text{K}$
- Window & frame: $U \leq 1.20 \text{ W/m}^2\text{K}$, Solar transmittance ≤ 0.64
- External (unglazed) door & frame: $U \leq 1.2 \text{ W/m}^2\text{K}$
- Cold bridging: $U \leq 0.08 \text{ W/m}^2\text{K}$ special construction joints applied.
- Thermal mass: TP250
- Ventilation: Humidity controlled natural ventilation / intermittent extracts or full MVHR.
- Air tightness: Design assumption $\leq 2.75 \text{ m}^3/\text{m}^2\cdot\text{h}$
- Lighting: 100% LED
- Controls: Time clock/ thermostatic control for each separate heating/hot-water zone
- Circulation pumps: Class A variable speed pump
- Heating / hot-water system: Air source heat pump / exhaust air heat pump.
- Renewable energy: Air source heat pump / exhaust air heat pump.

10.6 Effects of reductions measures

Applying the suggested reduction measures listed in sections 10.5.1,-2,-3 and -4 effects the construction and operational phase emissions for a single unit and for the total combined number residential units tabled below. The Mooretown project proposes 650 no residential units, 1 no. childcare facility, 5 no. retail units and 1 no. café/restaurant.

10.6.1 Construction phase

Table 10.3: Construction phase base line CO₂ emissions and effects of reductions

Construction phase base line CO ₂ emissions and effects of reductions	Life cycle impact emission rate kgCO ₂ /m ²		Single unit emissions ton-CO ₂		650 units emissions ton-CO ₂	
	baseline	reduced	baseline	reduced	baseline	reduced
Construction transport	0.15	0.13	1.1	1.0	715	626
Construction embodied CO ₂	3.1	2.6	23.0	19.0	14950	12334
Total impact	3.3	2.7	24.1	19.9	156	12959

We note the reduction of 12.5% on transport and 17.5% on embodied CO₂ reductions to result in a reduction of 4.2 tonCO₂ for a single unit and a reduction of 2,706 tonCO₂ for the 650 no of units. The emission rate for the construction phase was reduced from 3.3 kgCO₂/m² to 2.7 kgCO₂/m² or an overall reduction of 17.3%.

10.6.2 Operational phase

Table 10.4: Operational phase base line CO₂ emissions and effects of reductions.

Operational phase base line CO ₂ emissions and effects of reductions.	Life cycle impact rate / m ² kgCO ₂ /m ²		Single unit 1 year ton-CO ₂		650 units 1 year ton-CO ₂	
	baseline	reduced	baseline	reduced	baseline	reduced
Transport	14.3	12.5	1.75	1.52	1137.5	990
Energy (heat & hotwater)	63.9	17.9	7.8	2.18	5070	1420

Total impact	78.3	30.4	9.55	3.71	6207.5	2409

We note the reduction of 13.0% on transport and 72.0% on energy CO₂ reductions to result in a reduction of 5.8 tonCO₂ per year for the average single unit totalling 3,798 tonCO₂ / year for 650 units. Over the 60-year life cycle of the building this represents a reduction of 350.6 tonCO₂ for a single unit and a total of 227,898 tonCO₂ for the 265 units. The emission rate for construction was reduced from 78.3 kgCO₂/m² to 30.4 kgCO₂/m² or an overall reduction of 61.2%

10.7 National 2022 and 2030 CO₂ emissions

The impact on Irelands current and 2030 predicted CO₂ emissions are based on the EPA data issued in their “Greenhouse Gas Emissions projection report 2020-2040” report. For this chapter we have targeted the current and 2030 data being the first major milestone for European. The emissions are expressed in Mt or one million (Mega) tons.

Table 10.5: National overall CO₂ emissions in 2022 and 2030.

EPA CO ₂ emission data	National emissions		
	Total	Transport	Residential
	Mt-CO ₂ /year	Mt-CO ₂ /year	Mt-CO ₂ /year
2022 emissions (base line)	62	11	7.5
2030 emissions	58	11	4.6
2030 emission with additional measures	47.5	9	3.8

10.7.1 Proposed development CO₂ emissions

Using the data from tables 10.3 and 10.4 we have calculated to CO₂ emissions using the same unit (Mt-CO₂/year) as the National CO₂ emission table (10.5) to get a better idea of the actual impacts. For the purpose of this chapter and calculating the impacts we assumed the emissions of the construction phase to be executed in one year (2022).

Table 10.6: Total project CO₂ emissions

Total project CO ₂ emissions	650 units construction Mt-CO ₂ /year	650 units operational Mt-CO ₂ /year	650 units combined Mt-CO ₂ /year
2022	0.01296	0.00241	0.01537
2030	0.00000	0.00241	0.00241

10.7.2 Effects of the proposed project CO₂ emissions on the national emissions

Using the data from tables 10.5 and 10.6 we have calculated to CO₂ emissions from the proposed project and compare these with the National (EPA) listed emissions for 2022 and 2030.

Table 10.7: Effect of proposed project CO₂ emissions on national emissions in 2022 and 2030.

Project CO ₂ emission impact on National emissions	National emissions Mt-CO ₂ /year	650 units emissions Mt-CO ₂ /year	fraction %
2022	60	0.01537	0.02561

2030	58	0.00241	0.00415
2030 with additional measures	48	0.00241	0.00507

The national impact; The impact of this 650-unit development/phase 1 no. childcare facility, 5 no. retail units and 1 no. café/restaurant of 0.01537 Mt-CO₂ on Ireland's current emissions (2022) @ 60 Mt-CO₂/year represents an increase of 0.02561%. The impact of this 650 -unit development/phase of 0.00241 Mt-CO₂ on Ireland's projected 2030 emissions @ 58 Mt-CO₂/year represents an increase of 0.00415%.

Based on the above findings we note the impacts on the national CO₂ emission at worse to be very fractional. CO₂ emission from the construction and operational phase have been reduced to a minimum and the impact on National emissions for the construction phase are therefore deemed to be imperceptible and short term and for the operational phase to be deemed imperceptible and long term both in 2022 and 2030. Any new development in essence will increase CO₂ emissions to the national and global environment however by introducing the reduction measures at design stage the increase has been kept to a reasonable minimum.

10.8 Mitigation measures

There are no particular mitigation measures noted. All the recommended reduction measures at design stage and as applied in the CO₂ reduction tables are for the greater part mandatory to comply to the relevant regulations and standards. As each development/building can only be certified for compliance under the Building Control Amendment Regulations (BCaR) if the minimum criteria set at design stage is met in full it is very unlikely that noncompliance i.e., mitigation occurs.

10.8.1 Monitoring

Construction phase: No CO₂ monitoring is deemed necessary for the construction phase as the CO₂ output / emission is relatively small and the duration of the construction phase is short-term.

Operational phase: No CO₂ monitoring is deemed necessary for the operational phase as the current and future mandatory CO₂ reduction requirement (BER) are a secure process to ensure compliance.

10.8.2 Interactions

The main interactions relating to climate are population and human health and transportation.

10.8.3 Cumulative effects

Based on available planning permission data and current status on the ground a combined total of 489 dwellings and two creches have been granted planning permission within Phase 1 and Phase 2 of the Mooretown lands have been granted planning permission. Of these, the Phase 1 lands (24 dwellings) are currently under construction. The current proposal will add another 650 dwellings which will bring the overall permitted total to 1,139 dwellings.

It could be assumed that the dwellings constructed at this point would be included in the national greenhouse gas emission data of 2022 which leaves us to add the units in neighbouring projects to be

added. For ease of calculation for the national impact we have assessed the commercial element as residential units also as the CO₂ emissions would be similar for this report purpose.

Table 10.7: Effect of proposed project CO₂ emissions on national emissions in 2022 and 2030.

Project CO ₂ emission impact on National emissions	National	Cumulative units	fraction
	emissions	emissions	
	Mt-CO ₂ /year	Mt-CO ₂ /year	%
2022	60	0.02693	0.04488
2030	58	0.00422	0.00728
2030 with additional measures	48	0.00422	0.00889

The national impact; The impact of the cumulative development/phases of 0.02693 Mt-CO₂ on Ireland's current emissions (2022) @ 60 Mt-CO₂/year represents an increase of 0.04488%. The impact of this is 1139 unit development of 0.00422 Mt-CO₂ on Ireland's projected 2030 emissions @ 58 Mt-CO₂/year represents an increase of 0.00728%.

Based on the above findings we note the cumulative impacts on the national CO₂ emission at worse to be very fractional. CO₂ emissions from the construction and operational phase have been reduced to a minimum. The impact on National emissions for the construction phase are therefore deemed to be short term and imperceptible. For the operational phase it is deemed long term and imperceptible both in 2022 and 2030. Any new development in essence will increase CO₂ emissions to the national and global environment however by introducing the reduction measures at design stage the increase has been kept to a reasonable minimum.

11.0 LANDSCAPE AND VISUAL AMENITY

11.1 Introduction

This Landscape & Visual Impact Assessment (LVIA) report has been prepared by doyle + o'troithigh landscape architecture. The purpose of this study is to appraise the existing landscape settings of the site and to assess the likely impacts arising from the proposed development and describe the proposed mitigation measures and residual impacts.

This assessment should be read in conjunction with the Downey Planning Report and in conjunction with the Photomontages prepared for the scheme (refer to Appendix 11.1).

11.2 Methodology

This assessment has been based on the following guidelines:

- Environmental Protection Agency (EPA) publication 'Guidelines on the Information to be contained in Environmental Impact Statements (2017) and the accompanying Draft Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (2017); and,
- 'Guidelines for Landscape and Visual Assessment', 3rd Ed., The Landscape Institute and Institute of Environmental Management and Assessment, 2013.
- Urban Development & Building Heights, Guidelines for Planning Authorities, 2018, Dept. of Housing Planning & Local Government.

This assessment has involved:

- Undertaking a desk-top study of the site; including reviewing ordnance survey mapping and aerial photography;
- Reviewing the plans, sections, and elevations of the proposed scheme;
- A review of statutory planning and other documentation in order to ascertain the local and wider; significance; and
- Visiting the site and surrounding area during the spring of 2021 and preparing a photographic record of views and landscape features.

11.2.1 Definition of Landscape

The Council of Europe defines 'Landscape as an area, as perceived by people, whose character is a result of action and interaction of natural and/or human factors'. The definition broadens the concept of landscape further than solely framed in terms of aesthetics and visual amenity. This definition of landscape is what will be used in this report.

11.2.2 Forces for Landscape Change

The demand for housing in the area close to Dublin City is at a high level and therefore there is a need for a range of housing types for the expanding population. This area in North Dublin has a good supply of available lands for residential development and good local transport links along with accessible retail and educational facilities make the area suitable for such a development. The general area is

changing from extensive agriculture into residential, infrastructure and commercial development as per the relevant local authority zoning and Local Area Plans.

11.2.3 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 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 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 / townscape
- Overall impact on townscape character and visual amenity

11.2.4 Impact Significance Criteria

Whenever appropriate the following terms are used to describe the degree, quality and duration of an impact: (Note this is based on the EPA Advice Notes and Guidelines) and provided in Table 11.1 below.

Table 11.1 Terms used to describe Quality of Visual Impact

Impact Criteria	Description
Profound Effects	An effect which obliterates sensitive characteristics
Very Significant	An effect which, by its character, magnitude, duration, or intensity significantly alters the majority of a sensitive aspect of the environment
Significant Effects	An effect which, by its character, magnitude, duration, or intensity alters a sensitive aspect of the environment
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with the existing and emerging trends
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
Not Significant	An effect which causes notable changes in the character of the environment but without significant consequences.
Imperceptible	An effect capable of measurement but without significant consequences.

Terms used to describe the quality of change:

- Positive impact: A change that improved the quality of the environment.
- Neutral impact: A change that does not affect the quality of the environment.
- Negative impact: A change that reduces the quality of the environment.

11.2.5 Terms used to describe the Duration of Visual Impact

Terms relating to the duration of impacts as described in the EPA Guidelines are listed as follows:

- Temporary impact: Lasting one year or less
- Short-term impact: Lasting one to seven years
- Medium-term impact: Lasting seven to fifteen years
- Long-term impact: Lasting fifteen to sixty years
- Permanent impact: Lasting over sixty years.

11.2.6 Photomontages

A collection of 12 photomontages have been prepared surrounding the site to fully illustrate the physical and visual nature of the proposed development. These have been prepared from publicly accessible locations that are representative of views of the scheme from surrounding areas (Appendix 11.1). Views where the granted Phase 2 buildings form a significant portion of the vista have been included to give a more accurate representation of the impact of the development. Existing views and proposed versions of each view have been provided and have been taken at the following locations: -

Table 11.2 Viewpoints

View	Description	Location in relation to site:
View 01	South from Mooretown Western Distributor Rd	North
View 02	South from R125 Rathbeale Road	North
View 03	Southwest from Cronan's Well, Mooretown	Northeast
View 04	Southwest from R125 Rathbeale Road	Northeast
View 05	West from Clanlea	East
View 06	Northwest from Berwick Estate	Southeast
View 07	Northwest from Abbeyvale Estate	Southeast
View 08	Northeast from Brackenstown	Southwest
View 09	East from R108, Leas, Balcultry	West
View 10	East from R108, Rathbeale	West
View 11	Southeast from RR125, Rathbeale Hall	Northwest
View 12	Southwest from Balheary Church	Northeast

11.3 Receiving Environment

The site is approx. 3.5km from the centre of Swords accessed off the R125 Rathbeale Road in the Townland of Mooretown. To the south of the site lie the Abbeyvale, Berwick and Ormond residential estates accessed off the Brackenstown Road. To the east is the Lioscian and Clanlea housing estates. To the north is the Mooretown Phases 1 & 2 under construction and Swords Community School. Millers Glen development is on the north side of Rathbeale Rd. which is under construction and the Swords Regional Park which also in development. To the west of the site is a mixture of farmland and the glasshouses and scattered housing. The lands were set as tillage up till recent times and comprise of a number of fields separated by mature tree lined hedgerows.



Figure 11.1 – Site and surrounds

11.4 Landscape Policy Context

The Fingal County Development plan 2017 to 2023 shows that the proposed site lands are zoned RA 'Provide for new residential communities subject to the provision of the necessary social and physical infrastructure'.

The Fingal County Development Plan also emphasises the concept of Green Infrastructure themes including:

- Biodiversity,
- Parks, Open Space and Recreation,
- Sustainable Water Management,
- Archaeological and Architectural Heritage
- Landscape

The Development Plan lists a range of Green Infrastructure Objectives including GI03, Develop the green infrastructure network to ensure the conservation and enhancement of biodiversity, including the protection of European Sites, the provision of accessible parks, open spaces and recreational facilities (including allotments and community gardens), the sustainable management of water, the maintenance of landscape character including historic landscape character and the protection and enhancement of the architectural and archaeological heritage.

In the Section 8.4 Green Infrastructure and Planning Objective GI18 states: Require all Local Area Plans to protect, enhance, provide and manage green infrastructure in an integrated and coherent manner addressing the five GI themes set out in the Development Plan – Biodiversity, Parks, Open Space and

Recreation, Sustainable Water Management, Archaeological and Architectural Heritage, and Landscape.

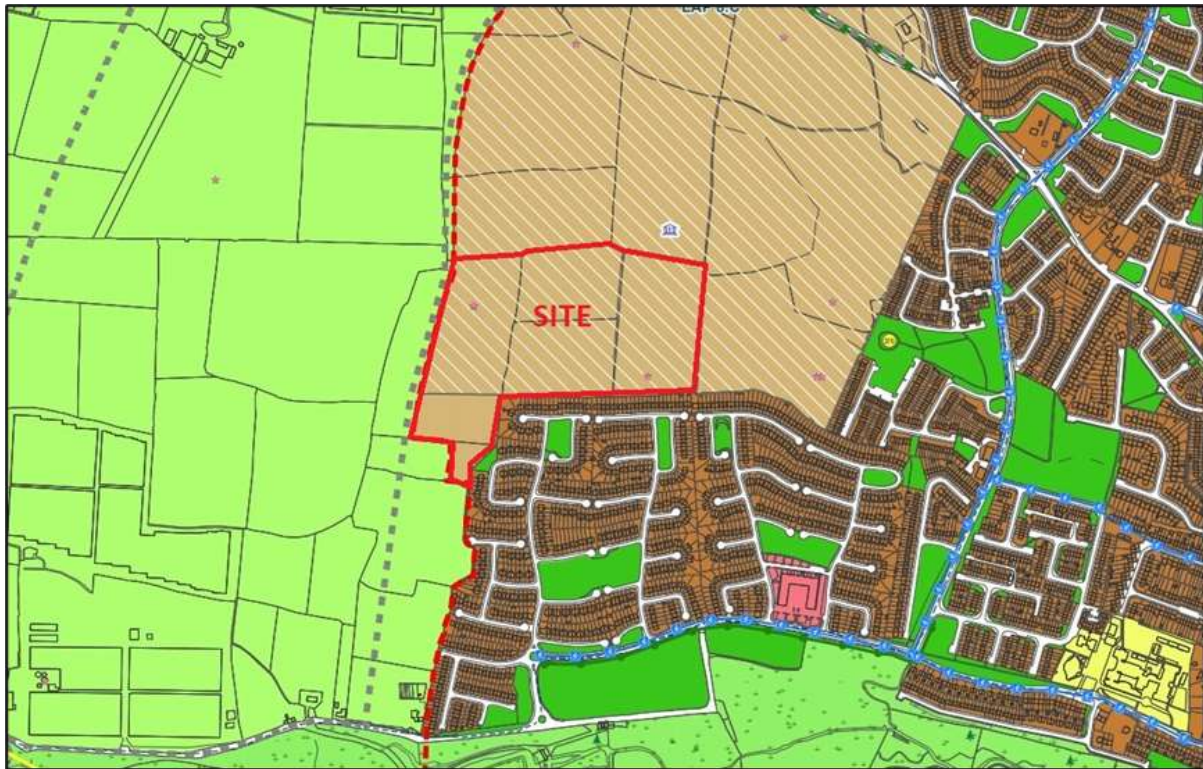


Fig. 11.2 – Site Zoning – (Extract from Fingal Development Plan 2017-2023 Map 8)

Under the Landscape Theme Objective GI36 states: Ensure green infrastructure provision responds to and reflects landscape character including historic landscape character, conserving, enhancing, and augmenting the existing landscapes and townscapes of Fingal which contribute to a distinctive sense of place.



Landscape Character Assessment (Fig. 11.3 – Landscape Character Types – (Extract from Fingal Development Plan 2017-2023 Sheet No. 14): The Landscape Character Assessment shows that the site within the Rolling Hills Character Type: - The Rolling Hills Character Type is made up principally of agricultural land and is of value due to the Ward and Broadmeadow River and the ecological and visual attributes they bring. The protected views, tree belts and undulating lands also add value to the area. An important quality is the archaeological heritage in Swords. The Rolling Hills Character Type is categorised as having a modest value. With respect to Landscape Character Types Sensitivity, the

Rolling Hills Character Type has a medium Sensitivity, and it is stated that: - These landscapes can absorb a certain amount of development once the scale and forms are kept simple and surrounded by adequate screen boundaries and appropriate landscaping to reduce impact on the rural character of the surrounding roads. The protection of views and riparian corridors from inappropriate development is of paramount importance in these areas.

The Green Infrastructure Figure 11.4 below shows that there are 'Preserve Views' on roads to the north and south of the site. The site is screened from these roads by intervening vegetation and buildings and therefore there would be no negative visual impact from the development proposals on these designated views.

It is proposed to remove the two tree-lined hedgerows in the centre of the site due the presence of extensive Ash Die Back Disease in the trees, the safety aspects associated with deep drainage ditches, the screening of proposed open space areas reducing passive surveillance and issues with regard to maintenance of existing hedgerows. Significant additional native species tree planting is proposed in the open space areas as per the Doyle O'Troithigh Planting Plans accompanying this application. Retention and augmentation of the hedgerow to the east and southeast as well as that to the southwest. The planting a buffer area of 2 to 3.0m with an herb layer mix to improve the local biodiversity is also part of the landscape planting strategy.



Fig. 11.4 – Green Infrastructure – (Extract from Fingal Development Plan 2017-2023 Sheet No. 14)

National Monuments

There are two National Monuments within the site area. Neither have any above-ground visible evidence of their presence but the layout of the lands. The Ringfort area on the southeastern part of the site will be incorporated into the open space area. The Ring Ditch is in a strategic section of the development and therefore will be fully excavated. There are several other National Monuments to the east of the site lands but there should be no negative visual impact on these sites from the

proposed development due to intervening screening. The Oldtown Mooretown LAP 2010 proposes that these archaeological sites and the others in the LAP area will be incorporated into a network of Archaeological Parks.



Fig. 11.5 – National Monuments – (Extract from Heritage Viewer)

Photoviews

Photoview 1: View southwest across site from in front of Swords Community College.	Photoview 2: View southeast over site from in front of Swords Community College.

	
Photoview 3: View east across western section of site. Swords Community College is to the left of the image	Photoview 4: View southeast across site from western section with the Abbeyvale Estate visible in the distance

11.5 Characteristics of the Proposed Development

This planning application is made on behalf of Gerard Gannon Properties for a proposed Strategic Housing Development on the townland of Mooretown, Swords.

The proposed development will consist of a mixed-use residential neighbourhood of 650 no. residential units (265 no. houses, 187 no. apartments, 6 no. triplex units, and 192 no. duplex units), a childcare facility and retail and café uses clustered in a small village centre.

The development includes all associated site works and infrastructure, including landscaped open space, internal road, paths, cycle paths, public lighting and drainage. The development also includes off-site drainage works for a stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River on lands at the junction of Glen Ellan and Balheary roads.

The vision for this design strategy is to provide a pedestrian and cycle-friendly well-connected neighbourhood integrated with the surrounding environment, and which uses its pivotal location between the Broadmeadow River linear park and the Ward River Valley to join an emerging arc of green spaces and green walks on the western edge of Swords. A desire and greater appreciation for a quality bio-diverse public realm has grown as a direct result of the pandemic and due consideration is given to the provision of short, medium and longer walking routes within and beyond the development.

The landscape strategy is the driver behind this planning application, and this report is best read in conjunction with the Landscape Architects Design Report.

This planning application is for the third phase of development on the Mooretown lands owned by the Applicant. It benefits from existing and permitted infrastructure, much of which has already being constructed.

11.6 Potential Impacts of the Proposed Development

The proposed development site is located mainly in the Rolling Hills Landscape Character Area (LCA) with the eastern section in the Low-Lying Agriculture Landscape Character Area. The Rolling Hills LCA has a medium sensitivity in that it can absorb a certain amount of development once the scale and forms are kept simple with adequate screen boundaries and appropriate landscaping to reduce the impact on rural character. Given the existing and zoned residential lands to the north, east and south of the site only the western side of the development site adjoins a rural landscape. Although there are scenic designations on the R125 to the north and northwest of the site they are screened to the south by intervening roadside buildings and vegetation. There are two designated National Monuments on the site lands, i.e., a Ring ditch and Ringfort which could be potentially impacted by the proposals. The residential housing estates of Abbeyvale, Berwick and Ormond are set on slightly elevated lands which drops down across the site to the north. These estates back out onto the development lands from the south will be the most visually impacted by the change from agricultural lands to that of a residential development. The Lioscian estate further to the east will be less impacted due to the separation of undeveloped lands and screening of intervening mature hedgerows. The impacts on the landscape will be the most severe with the removal of hedgerows and the loss of agricultural land. The Green Infrastructure Objectives as stated in the Fingal Development Plan will be incorporated into the landscape design which will mitigate to an extent for this impact and landscaped open space and significant tree planting will further enhance the area over time.

11.7. Remedial and Reductive Measures

There are a number of measures that have and can be taken to ensure that the impacts of the proposed development are minimised during construction and subsequent occupation.

11.7.1 Design Phase

Consideration of the impact on landscape and visual aspects has been integral in the design and layout of the scheme. A number of mitigation measures have been addressed including:

- Provision of new public open spaces for future interaction of the said and adjoining developments;
- Addressing and adopting the requirements stipulated within the Oldtown Mooretown LAP 2010.
- The use of high quality hard and soft landscape materials befitting of a new residential scheme and suitable to the existing landscape.
- Creating a green buffer space to the west beside the Mooretown Western Distributor Link Road which provides a extensively planted separation to the rural character lands to the west.

11.7.2 Construction Phase

Consideration shall be made to limit potential adverse construction-related effects during construction stage.

Whilst considering the above, the operation of a well-managed organised and planned construction site, with adequate control of construction traffic and working activity is key to avoiding or minimising impact. Other measures shall include:

- Use of hoarding for screening works as appropriate.
- Directing site lighting away from the adjoining properties where applicable.

11.7.3 Operational Phase

Consistent and effective maintenance of hard and soft landscape areas, (in particular entrance areas, streetscapes, semi-public areas and pocket parks) together with quality construction and building management are key to avoiding or minimising negative landscape and visual impacts arising from the operation of the proposed development.

The landscape proposals which accompany this application in scaled format note the detailed general landscape proposals as in the Landscape Masterplan as shown in figure 11.6 and which forms part of the planning application package of drawings.



Fig. 11.6 – Landscape Plan – (Doyle O'Troithigh Landscape Architects)

11.8 Predicted Impacts

11.8.1 Construction Phase

The visual impacts are greatest at the early site clearance and construction stage where once enclosed lands are opened up and soil stripping and service installation commences. A range of measures can and will be used to minimise negative visual impacts at this stage in the project:

- The protection of existing retained trees and screening vegetation on the site boundaries to BS 5837:2012 standards with the Root Protection Area (RPA) protected by secure fencing for the duration of the development.

- Soil stripping and correct stockpiling method will ensure that where existing topsoil is to be reused it is stripped and stored in dry conditions and placed in a suitable area of the site where it is not trafficked or contaminated with building spoil.
- Site works are carried out in consideration of neighbouring houses and roadways and site warning signage are properly maintained.
- The use of hoarding and scaffold netting to screen works as appropriate.

11.8.2 Operational Phase

It is considered that given the zoning objectives pertaining to the lands, the characterising of the lands as being agricultural lands, the detailed requirements and policies outlined in the Oldtown-Moortown LAP 2010 and the extensive residential developments to the north, east and south; the lands are positioned to somewhat 'expect a residential scheme of this nature. Residential development is a familiar element within the immediate landscape setting.

Whilst there is a protected view immediately to the north of the site along the Swords to Ashbourne Road (R125), the potential impacts of the development on this route are limited given the roadside hedgerow screening and intervening residential development of Cronan's Well.

The design and layout of the proposed scheme is considered appropriate in terms of its character, zoning, and context. The proposed scheme, as per landscape drawings provided with this package, includes for a series of measures that will ensure a long-term positive impact including the open spaces to the south west of the development, in the centre and on the south eastern side where there is an archaeological feature which will be incorporated into the landscape design, consistent treatment of streetscapes, dedicated cycleways / footpaths, introduction of specimen tree planting and high seed meadow grass mix to aid feeding birds and naturalised/drifts of daffodil planting.

11.8.3 Visual Impact Assessment

In order to assess the predicted visual impacts of the development, 12 No. photomontages were prepared around the site to evaluate the visual impacts on adjoining properties, roads, listed views etc. The views were taken from publicly accessible areas during the month of March 2022 when trees were dormant and providing no additional seasonal screening. Consideration was made in the visual analysis where the granted but not yet constructed Mooretown Phase 2 sections of development would impact on photomontage views.

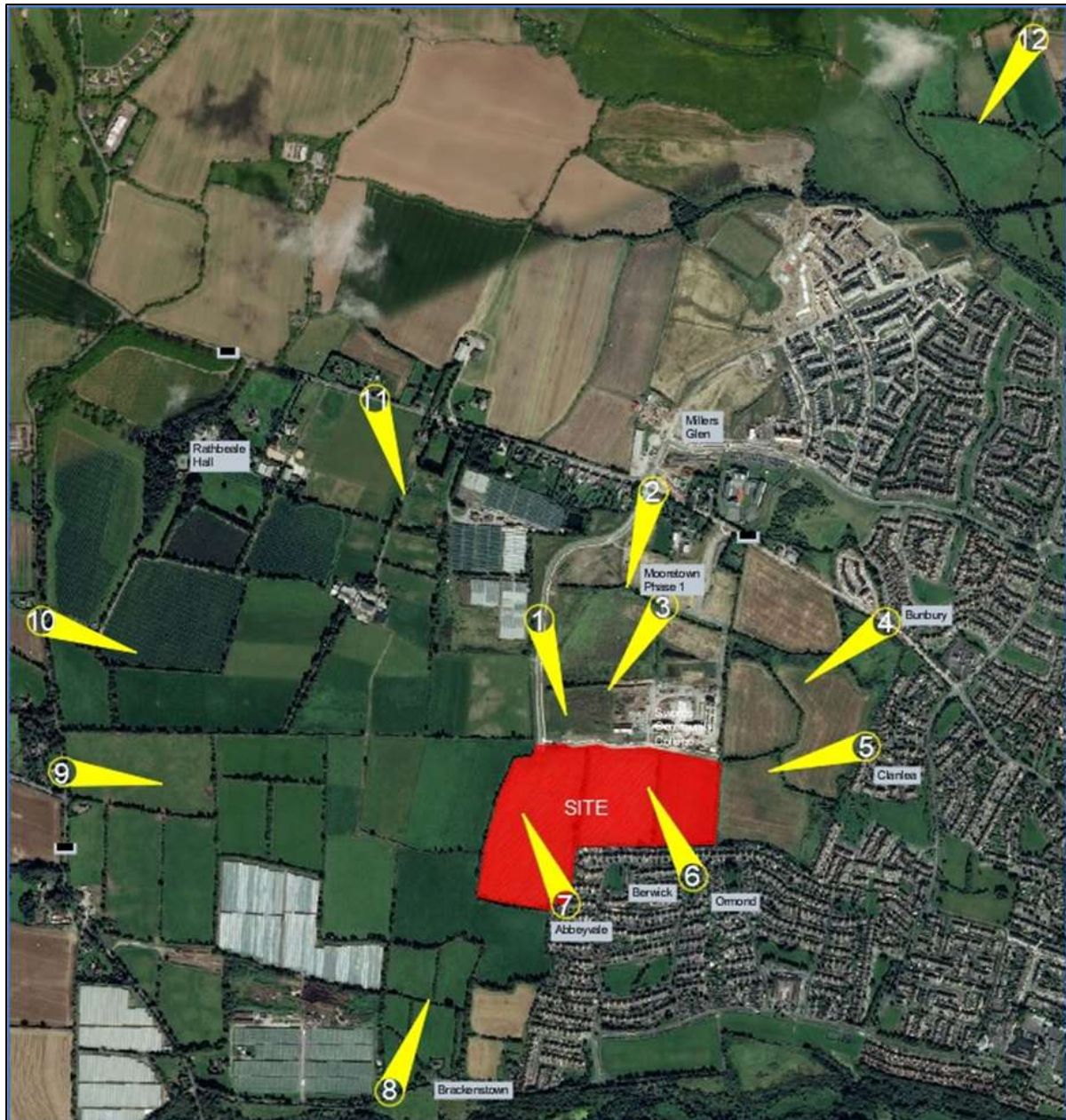


Fig. 11.7 – 12 No. Photomontage Views (Microsoft Maps)

Table 11.3 Photomontages

Photomontage View 01: South from Mooretown Western Distributor Rd	
Existing View	This view from the Mooretown Western Distributor Link Road is approximately 400M to the north of the site. On the left is the paladin security fence for the Cronan's Well development and Swords Community College is visible on the left of the image. The tops of the houses in Abbeyvale and Berwick Estates are partially visible in the distance on rising land.
Proposed View	The proposed development is set across the horizon in the distance visually linking with the school buildings on the left. When the granted Phase 2 section of Moortown is added, the

	proposed Phase 2 will screen most of the views of the development in this viewpoint. The Western Distributor Road would then appear as planned with residential development on its eastern side with open lands to the west.
Impact (Construction Stage)	Slight negative short term visual impact
Impact (Operation Stage)	Not significant neutral long term visual impact

Photomontage View 02: South from R125 Rathbeale Road

Existing View	This view is at the junction of the R125 and the Mooretown Western Distributor Link Road over 650M to the north of the site. The Cronan's Well development under construction is visible on the left of the image. The site is generally screened from view by buildings under construction.
Proposed View	The view from the junction of the R125 and Western Distributor Road shows the Mooretown Phase 1 under construction on the left which effectively screens views of the development in the background.
Impact (Construction Stage)	Imperceptible neutral short term visual impact
Impact (Operation Stage)	Imperceptible neutral long term visual impact

Photomontage View 03: Southwest from Cronan's Well, Mooretown

Existing View	The view is across undeveloped lands which form part of the Phases 1 & 2 Mooretown lands and school grounds. The Community College buildings are on the left with the housing of Berwick and Abbeyvale visible on the horizon beyond the site lands.
Proposed View	The proposed view shows the proposed development on the horizon visually linking with the school buildings with the trees and hedgerows of the lands to the west softening the visual impact of the development. When the granted Phase 2 development is added it effectively screens views of the proposed development from this viewpoint.
Impact (Construction Stage)	Slight negative short term visual impact
Impact (Operation Stage)	Not significant neutral long term visual impact

Photomontage View 04: Southwest from R125 Rathbeale Road	
Existing View	The view is from the R125 Rathbeale Road opposite the Bunbury Gate development over 550M northeast of the site. The high ground to the south of the site towards Knocksedan is visible in the distance.
Proposed View	A section of the development is visible through a gap in the vegetation with the rest of the development screened from view. A section of the granted Phase 2 development appears on the right of the image visually connecting with the proposed development.
Impact (Construction Stage)	Imperceptible neutral short term visual impact
Impact (Operation Stage)	Imperceptible neutral long term visual impact

Photomontage View 05: West from Clanlea	
Existing View	Clanlea Estate is over 550M to the east of the site. The view over farmland shows the Swords Community College campus partially visible to the rear of intervening hedgerows.
Proposed View	The proposed development, particularly the taller apartment building, is visible to the left of the school buildings. Even in their winter form the intervening hedgerows partially screens views of the development from this viewpoint.
Impact (Construction Stage)	Slight negative short term visual impact
Impact (Operation Stage)	Not significant neutral long term visual impact

Photomontage View 06: Northwest from Berwick Estate	
Existing View	The view from the open space in Berwick Crescent is approximately 100M south of the site. There are glimpse views towards the north between the houses.
Proposed View	The existing houses screen views of the development from this viewpoint as indicated by the red line. Even though the development is imperceptible from this viewpoint there would be views of the development from the rear of the houses particularly from upper windows which would be mitigated by separation and boundary treatments.
Impact (Construction Stage)	Imperceptible neutral short term visual impact
Impact (Operation Stage)	Imperceptible neutral long term visual impact

Photomontage View 07: Northwest from Abbeyvale Estate	
Existing View	Abbeyvale Estate adjoins the southwestern portion of the proposed development site and a 2M high wall screens views into the site from this location. There is a grassed open space area between the houses and the site is to the rear of this.
Proposed View	The proposed view shows the wall at the back of the open space removed opening up views into the proposed development. A landscaped open space area with a connecting cycle path / footpath links the proposed development with Abbeyvale.
Impact (Construction Stage)	Moderate negative short term visual impact
Impact (Operation Stage)	Not significant neutral long term visual impact

Photomontage View 08: Northeast from Brackenstown	
Existing View	The L2030 Brackenstown Road runs parallel to the Ward River and this view approximately 600M southwest of the site shows rising ground towards a ridgeline with the site beyond.
Proposed View	The proposed view shows that the development is screened from view by intervening landform and therefore there would be no visual impact on views from this location.
Impact (Construction Stage)	Imperceptible neutral short term visual impact
Impact (Operation Stage)	Imperceptible neutral long term visual impact

Photomontage View 09: East from R108, Leas, Balcultry	
Existing View	The R108 passes through a rural landscape 1Km to the west of the site. Hedgerows line the field terminating views eastwards towards the site.
Proposed View	The proposed development is generally screened from view from this viewpoint but there are some glimpse views of the buildings in the distance particularly during the construction phase. The mitigation proposals include dense planting on the western edge of the site which will eliminate these views in time.
Impact (Construction Stage)	Slight negative short term visual impact
Impact (Operation Stage)	Imperceptible neutral long term visual impact

Photomontage View 10: East from R108, Rathbeale	
Existing View	The view eastwards from the R108 is approximately 1.2Kms west of the site. Intervening vegetation screens views towards the site.
Proposed View	Distance from the site and the intervening dense vegetation means there are no views of the development from this viewpoint.
Impact (Construction Stage)	Imperceptible neutral short term visual impact
Impact (Operation Stage)	Imperceptible neutral long term visual impact

Photomontage View 11: Southeast from RR125, Rathbeale Hall	
Existing View	Rathbeale Hall is a listed building and there are listed views from the R125 in this area. The site is approximately 1Km to the southeast from this viewpoint and the site is screened from view by intervening landform and vegetation.
Proposed View	The view shows that the site is effectively screened from view by intervening vegetation even when hedgerows are in their winter form. There would be impact on listed views from the roadway.
Impact (Construction Stage)	Imperceptible neutral short term visual impact
Impact (Operation Stage)	Imperceptible neutral long term visual impact

Photomontage View 12: Southwest from Balheary Church	
Existing View	The site is approximately 2Kms to the southwest from this viewpoint. Intervening vegetation screens views towards the site.
Proposed View	The view shows that the site even though on rising ground is screened from view by intervening winter vegetation and therefore there would be no visual impact on this viewpoint from the proposals.
Impact (Construction Stage)	Imperceptible neutral short term visual impact
Impact (Operation Stage)	Imperceptible neutral long term visual impact

11.9 Residual Impacts

The residual impact will be associated with the removal of an agricultural landscape of fields and hedgerows and the provision of a residential area with associated roads, landscaped open spaces and other facilities. Given that the lands are zoned for residential development and the current strong requirement for the provision of housing in areas with good local infrastructure the development would be seen as a positive contribution to this developing area. While the impacts range from moderate negative to imperceptible neutral during the construction phase, impacts from the operational stage are not significant neutral to imperceptible long term, there would be some residual negative visual impacts from the change from agricultural to residential on the housing backing on to

the development at Abbeyvale, Berwick and Ormond. This would be mitigated to an extent by the proposed separation between the existing and proposed and the screening of the boundary treatments.

11.10 Cumulative Impact

The Guidelines for Landscape and Visual Impact Assessment (3rd Ed.) defines cumulative visual impacts as the effects on views and visual amenity enjoyed by people, which may result from either adding the effects of the project being assessed to the effects of the other projects on the baseline conditions or from their combined effect. This may result from changes in the content and character of the views experienced in particular places due to the introductions of new elements or removal of or damage to existing ones. The residents to the south of the proposed development lands will have experienced a gradual change to the landscape to the north with the construction of the Community School and the currently under construction Cronan's Well, part of the Mooretown Phase 1 development to the north of the school. This development will be the culmination of development in the zoned lands to the north of their estates and while there would be a cumulative landscape and visual impact on these estates it would be moderate in terms of the provision of this type of housing development on zoned land.

11.11 Monitoring & Reinstatement

Soft landscape works will be monitored to check establishment during the first 12 months post-planting. Plant failure during this defects liability period shall be replaced within the following planting season (i.e. November to March) as necessary.

Aftercare to a high standard of both hard and soft landscape elements throughout the scheme will form part of the annual management/maintenance programme which shall be adopted as part of the scheme.

11.12 References

- Environmental Protection Agency (EPA) publication 'Guidelines on the Information to be contained in Environmental Impact Statements (2017) and the accompanying Draft Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (2017); and,
- 'Guidelines for Landscape and Visual Assessment', 3rd Ed., The Landscape Institute and Institute of Environmental Management and Assessment, 2013.
- Urban Development & Building Heights, Guidelines for Planning Authorities, 2018, Dept. of Housing Planning & Local Government.
- British Standard BS5837:2012 Trees in Relation to Design, Demolition and Construction. Recommendations.

12.0 MATERIAL ASSETS - TRAFFIC AND TRANSPORT

12.1 Introduction

This section 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.

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.

12.2 Methodology

Research for this section included a review of the Air Quality Standards Regulations (S.I. 180 of 2011). The following methodology has been adopted for this assessment:

- Review of relevant available information including where available Development Plans, existing traffic information and other relevant studies;
- Site visit to gain an understanding of the site access and observe the existing traffic situation;
- Consultations with Fingal County Council to agree the site access arrangements and determine the scope of the traffic analysis required to accompany a planning application.
- Detailed estimation of the transport demand that will be generated by the development. The morning and evening peak times will be addressed as well as an estimation of the construction stage traffic; and
- Assessment of the percentage impact of traffic on local junctions, car parking requirements and accessibility of the site by sustainable modes including walking, cycling and public transport.

12.3 Receiving Environment at Oldtown, Swords, Applewood

This section considers the baseline conditions, providing background information for the site in order to determine the significance of any traffic implications. This section also considers the existing accessibility of the site by sustainable modes of transport.

12.3.1 Site Location

The area of the Oldtown-Mooretown LAP lands is approximately 111 hectares. The lands are located at the western development edge of Swords, within the catchment of the Broadmeadow River. The Oldtown-Mooretown lands are divided by R125 Rathbeale Road, with Oldtown lands to the north (circa 50 ha) and Mooretown to the south (circa 61 ha).

The proposed development site is located in Mooretown, Swords, Co. Dublin, south of the R125 Rathbeale Road. The planning application locations are shown in Figure 12.1 below.

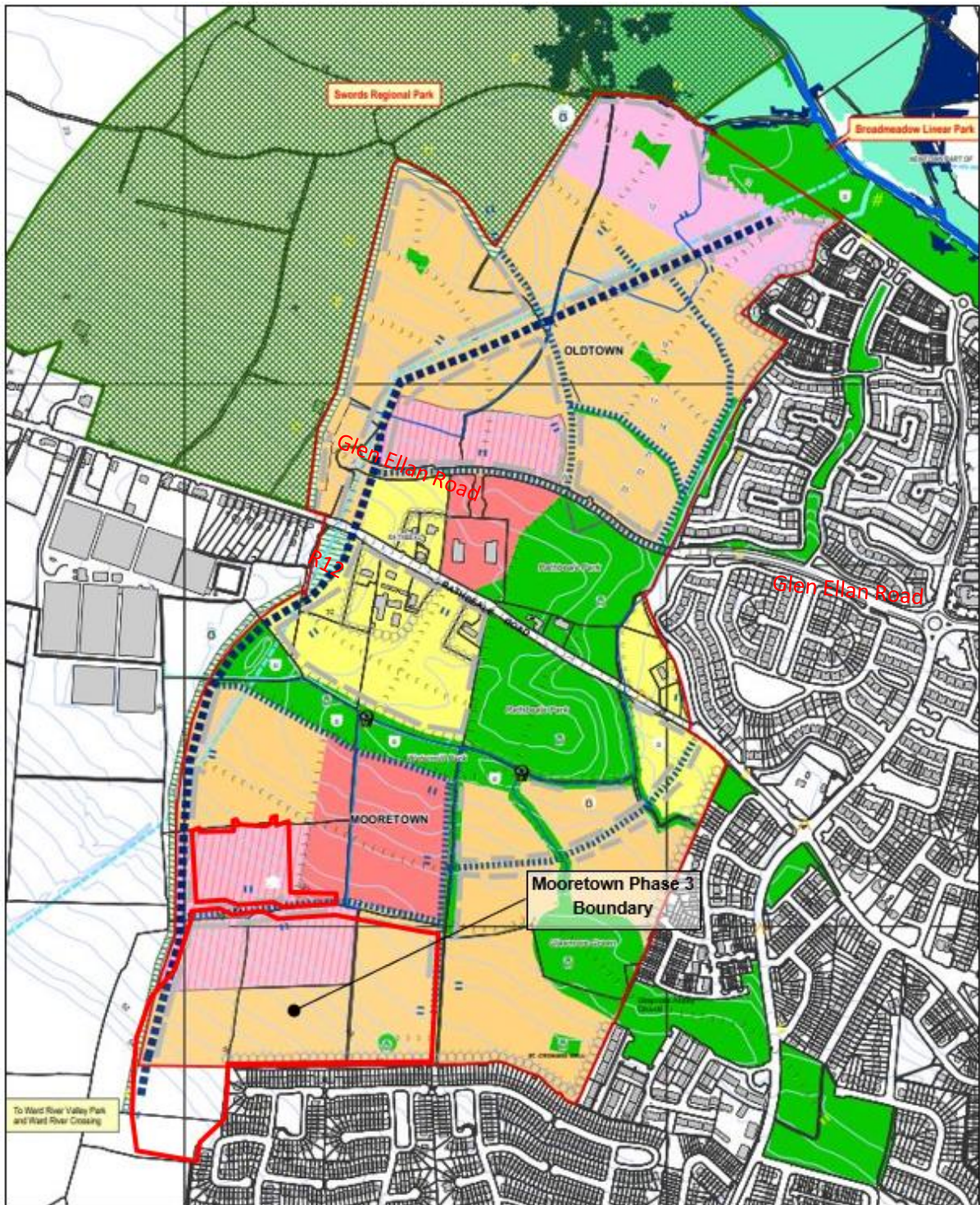


Figure 12.1 – Site Location

12.3.2 Existing Road Network

The site is to be accessed from the Rathbeale Road via the Mooretown Distributor Road, with direct access from the Mooretown Distributor Road Extension and the Mooretown School Campus Access Road

The Rathbeale Road (R125), has recently undergone extensive upgrade works, completed in 2020, so as to ensure its suitability for the increase in usage due to additional residents and construction works

being undertaken as part of the LAP. It has a posted speed limit of 50 kph and is comprised of a 5m wide, 2-lane carriageway, a 1.8m wide pedestrian footpath & 2.25m cycleway on the northern side and a 3.5m shared surface for pedestrians/cyclists on the southern side. The upgraded Rathbeale Road offers a vastly improved and safer connection for the Oldtown Mooretown development LAP lands with the town of Swords and local schools in the area.

The junction of the Mooretown Distributor Road and the Rathbeale Road has been fully upgraded in advance of the proposed development of Mooretown Phases 1, 2 & 3. The junction is a signalised 4-way intersection, pedestrian/cyclist crossings and right turn stacking lanes have been incorporated.

The Mooretown Distributor Road has been designed in accordance with the requirements of the LAP. It is envisaged that this road will later connect to the Brackenstown Road (L2032) as part of future LAPs to neighbouring areas.

The nearest motorway is the M1, which can be joined at Junction 3, near Feltrim, approximately 3.75km southeast of the site.

Glen Ellan Road is a 7.5m wide single carriageway road which is subject to a speed limit of 50kph with cycle lanes and footpaths running along both sides. Traveling in the easterly direction from the subject site, the Glen Ellan Road terminates at a four-armed signal-controlled junction with Balheray Road.

Glen Ellan Road serves an existing school complex to the south of the Oldtown lands as follows:

- Swords Educate Together has approximately 444 students and 21 staff. The operating hours of the school are 08:30 – 13:10 for Junior and Senior Infants and 08:30 – 14:10 for all other classes.
 - Gaelscoil Brian Boroimhe has approximately 360 students and 20 staff. The operating hours of the school are 08:50 – 13:30 for Junior and Senior Infants and 08:50 – 14:30 for all other classes.

In order to determine the volume of traffic movements at key points on the road network surrounding the subject site, traffic count data has been assessed for four junctions in the vicinity of the site. The junctions that have been assessed are the following:

- Junction 1 (Priority T-junction): R125 Rathbeale Road/R108 Naul Road;
- Junction 2 (Signalised Crossroads): R125 Rathbeale Road/Western Distributor Link Road;
- Junction 3 (Signalised Crossroads): R125 Rathbeale Road/Murrough Road;
- Junction 4 (Four-armed Roundabout): Glen Ellan Road.



Figure 12.2 Location of Junctions Surveyed.

Due to the ongoing travel restrictions that have been implemented to curb the spread of COVID-19, carrying out traffic count surveys was not possible for this application, and in any case would not yield useful data. Instead, historic traffic count data from 2005/2006, 2017 and 2019 has been used to extrapolate current and anticipated volumes.

The 2017 and 2019 data used is taken from a traffic count survey which was carried by IDASO Ltd. on 03rd October 2017 and on 21st May 2019 at the two junctions indicated in Figure 13.2. The junctions surveyed were Junction 2 (2017) and Junction 4 (2019).

The 2005/2006 traffic volume data used is taken from the Environmental Impact Statement (EIS) prepared by Downey Hynes Partnership in November 2011 approved by FCC under Reg. Ref. F11A/0436. This data was based on extensive traffic and transportation studies that were carried out in 2010 on behalf of Fingal County Council.

It is recognised that traffic volume data from 2005/2006 are not appropriate to be used when preparing a report 15 years later as such data is likely to change as a reflex of many factors along the years. However, due to the absence of more recent traffic volume data and the impossibility of carrying out useful traffic count surveys due to the restrictions to curb the spread of COVID-19, the 2005/2006 has been used for Junctions 1 and 3.

The use of historical traffic counts can be further justified due to the emerging neighbourhood surrounding the proposed development. The representativeness of current existing survey data in this context may be questionable with construction traffic meaning the survey data may only be temporary in nature.

The results of this survey indicated that the peak traffic levels through the junctions occurred between the hours of 08:00 – 09:00 in the morning and 17:00 – 18:00 during the evening. These traffic levels can be seen in Figure 12.3.

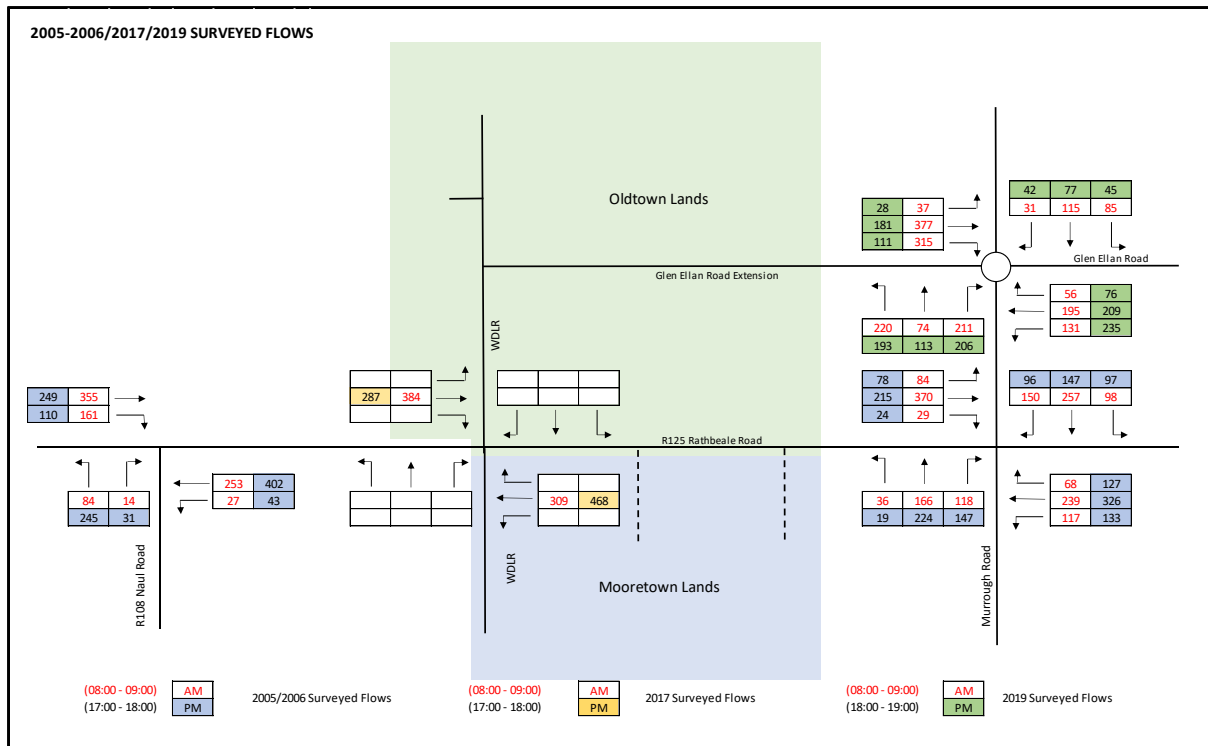


Figure 12.3 Surveyed Flows

12.3.3 Pedestrian and Cycling Facilities

Cyclists can benefit from the provision of dedicated cycle lanes along both sides of the carriageway on Glen Ellan Road (and extension) for the entirety of its length (See Figure 12.4). These cycle lanes are generally separate from the carriageway by a grass verge, except for a small portion of the road extension section which comprises a cycle track immediately adjacent to the carriageway along the northern side.

As part of the development works that are now complete on the R125 Rathbeale Road within the Oldtown-Mooretown LAP lands, cycle lanes have been installed along both sides of the carriageway from the new signal-controlled junction with the Western Distributor Link Road to the eastern edge of the LAP lands.

These road upgrade works were subject to a Part 8 planning application by FCC which are now complete and open to the public.



Figure 12.4 - Local Cycle Infrastructure

The existing pedestrian facilities in the surrounding area comprise an interconnected network of footways linking the various neighbourhoods to each other, to the existing schools, to the local bus stops and to the surrounding public network.

As part of the development works that are now complete on the R125 Rathbeale Road within the Oldtown-Mooretown LAP lands, footpaths have been constructed along both sides of the carriageway from the new signal-controlled junction with Western Distributor Link Road to the eastern edge of the LAP lands.

The newly constructed Western Distributor Road (within Mooretown) comprises a footpath with dedicated pedestrian crossings along the eastern side of the carriageway for its entirety.

All the existing pedestrian and cycle facilities make the subject site highly accessible by a wide variety of transportation options which will facilitate a modal shift away from private vehicle usage.

12.3.4 Existing Public Transport Accessibility

Dublin Bus

The Mooretown Lands are currently served by bus services. The closest bus stops relative to the proposed development are situated along R125 Rathbeale Road. It is approximately 1.2 km (14-minute walk) to the R125 Rathbeale Road from the centre of the subject site. There are two bus routes along this road, being Dublin Bus 41B and Go-Ahead Bus 197

The subject bus stops serve several routes to both Dublin and Swords. These are the Dublin Bus routes 41, 41C and 41X and Swords express routes 196, 500, 500-N, 500-X, 501, 503 and 506. These routes and associated frequencies are summarised below.

- **Dublin Bus Route 41:** from/to Lower Abbey Street in Dublin City Centre, this route operates every 15 to 20 minutes during the AM (07:00 to 09:00) and PM (17:00 to 19:00) peak periods.
- **Dublin Bus Route 41C:** from/to Abbey Street in Dublin City Centre, this route operates every 10 to 20 minutes during the AM and PM peak periods.
- **Dublin Bus Route 41X:** from/to UCD Belfield in South Dublin, this route operates Monday to Friday only, twice in the AM period (From Knocksedan) and twice in the PM Period (From UCD Belfield).
- **Swords Express Route 196:** from Knocksedan to Swords (Pavilions Shopping Centre), this route operates nine times during the AM peak period and six times during the PM peak period. This equates to approximately a bus running every 13 minutes in the morning and a bus running every 20 minutes in the evening.
- **Swords Express Route 500:** to/from Eden Quay in Dublin City Centre, this route operates 13 times during the day between 8:40 and 18:50. The bus comes approximately every 40-60 minutes.
- **Swords Express Route 503:** this route operates five times per day, three times in the AM peak period towards Marion Square in Dublin City Centre and two times in the PM peak period on the opposite direction – from Marion Square.
- **Swords Express Route 507:** this route operates three times per day, two times in the AM peak period (07:00 to 09:00) towards Eden Quay in Dublin City Centre and one time in the PM peak (17:00 to 19:00) on the opposite direction.
- **Swords Express Route 500X:** this route operates three times in the AM peak period (07:00 to 09:00) towards Eden Quay in Dublin City Centre and four times in the PM peak (17:00 to 19:00) on the opposite direction.



Figure 12.5 - Location of Public Transport Facilities



Figure 12.6 - Location of Public Transport Facilities

Route	From	To	AM Frequency (07:00 to 09:00)	PM Frequency (17:00 to 19:00)
197	Ashbourne (Opp Pillo Hotel)	Swords, Airside Ind. Estate	2 services	2 services
	Swords, Airside Ind. Estate	Ashbourne (Opp Pillo Hotel)	2 services	2 services
41B	Rowlestown	Irish Life Mall	1 service	1 service
	Irish Life Mall	Rowlestown	1 service	1 service

Table 12.1 - Bus Service Frequencies for Routes 197 and 41B

Go Car

The closest GoCar vehicle is located in the car park at Braeburn Terrace, Applewood, approximately 2.6km (31-minute walk) east from the subject development site. At the time of writing in 2022, two vehicles are provided at the Braeburn Terrace station.

12.4 Transportation Improvements

12.4.1 Oldtown-Mooretown LAP Road Improvements

The road improvements required as part of the Oldtown-Mooretown LAP, both within and outside the LAP boundaries, include:

- Development of a number of new road/road links – in particular provision of the Western Distributor Link Road (WDLR) and the Inner Ward River Valley Crossing;
- Enhancement of existing junctions and roads external to the lands;
- Redesign of Glen Ellan Road as a main urban street within the lands and design of a main street within Mooretown lands;
- Provision of a quality bus route to transport those living in northwest Swords into the Town Centre;
- Provision of pedestrian and cyclist networks associated with green corridors both within and into adjoining areas.

The WDLR is substantially complete within the Oldtown lands. These development works were undertaken as part of the previous phases of Oldtown lands.

The road upgrades along the R125 Rathbeale Road, both within and outside the LAP boundaries, were recently completed and opened to public. The upgrades included dedicated pedestrian and cyclist facilities.

The Glen Ellan Road Extension works are substantially complete as part of the previous phases of Oldtown lands.

The scope, extent and timing of the works related to the Swords Quality Bus Corridor are to be agreed with Fingal County Council.

12.4.2 MetroLink

MetroLink is a proposed high-capacity, high-frequency rail line running from Swords through Dublin Airport and Dublin City Centre to Charlemont. MetroLink will carry up to 50 million passengers annually, cutting journey times from Swords to the city centre to 25 minutes. The preferred route for MetroLink is currently undergoing consultation and an application for planning approval for the MetroLink Scheme is expected to be made to An Bord Pleanála in Q2, 2022. Once a Railway Order has been granted, work can commence on site. According to MetroLink, the construction work will take between 6-8 years to complete.

The Estuary Park and Ride station, which is also the terminus of MetroLink is located approximately 2.5km east of the proposed site. It will comprise a multi-storey park-and-ride facility with a total of 3,000 car parking spaces. It is envisaged that the introduction of the MetroLink will see a significant modal shift towards public transport resulting in a lower dependence on the private car.

12.4.3 BusConnects

The Bus Connects project currently being promoted by the National Transport Assessment aims to deliver a much-enhanced bus service to the Greater Dublin Area (GDA). The routes proposed to serve the proposed development site are the Local Route 197, Local Route L89, Route X84 and route A4. A summary of the frequency of these routes is shown in Table 12.2. Service frequency of Route 197 will remain as it currently is.

Bus Route	Monday – Friday	Saturday	Sunday
L89	Every 1 – 2 hours	Every 2 hours	Every 2 hours
X84	07:00; 3 Buses at 17:00	-	-
A4	2-15 minutes	5-20 minutes	10-30 minutes

Table 12.2 - Bus Connects Routes 82 and 197 – AM and PM Weekday Frequency

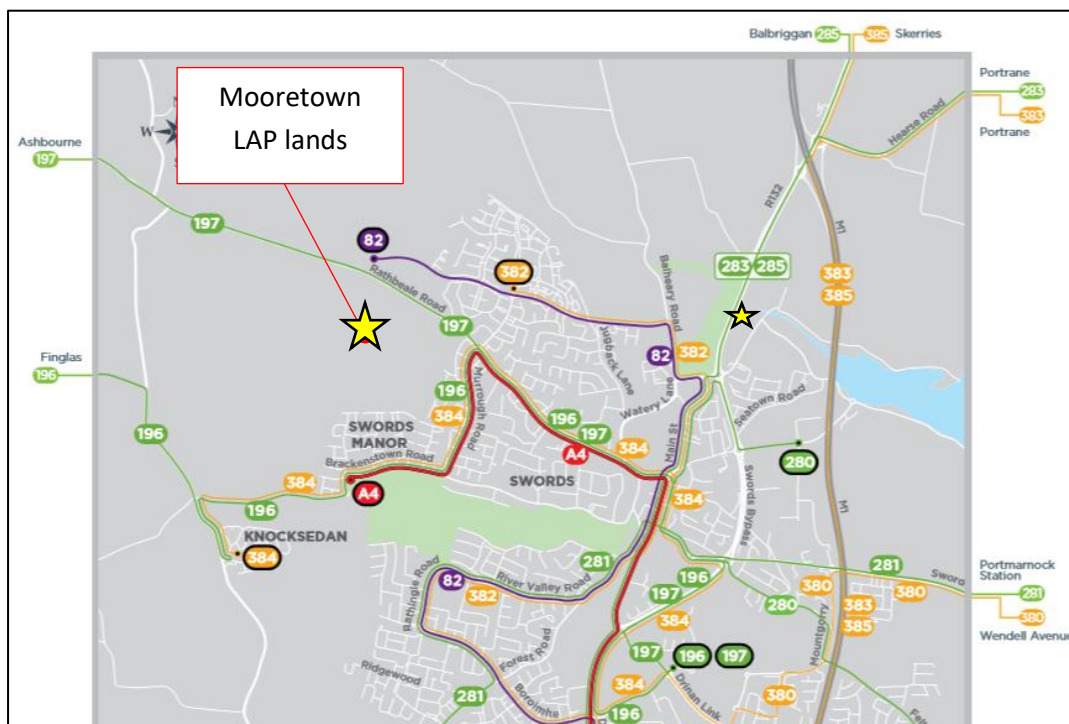


Figure 12.7 – Bus Connects Routes Map.

12.5 Characteristics of the Proposed Development

12.5.1 Overview

The proposed development is labelled as phase three of the Mooretown development and consists of 650 residential units comprising of:

- 265 Houses
- 119 Duplexes/Simplex
- 266 Apartments

There will also be a creche with circa 519 sqm of area to attend 102 children and c. 15 staff, and 946 sqm of commercial space.

The development includes all associated site works and infrastructure, including internal roads, paths, cycle-paths, public lighting, utilities, foul and surface water drainage and landscaped open-space.

<i>Unit Type</i>	<i>1 – Bed</i>	<i>2 – Bed</i>	<i>3 – Bed</i>	<i>4 – Bed</i>	<i>Total</i>
Apartment	76	190	-	-	266
Duplex	-	3	110	-	113
Triplex	-	-	6	-	6
House	-	-	240	25	265
Total	76	193	356	25	650

Table 12.3: Schedule of Accommodation

12.5.2 Physical Infrastructure

Local access roads and pedestrian/cyclist links shall be provided to open up the LAP lands development as per plan layout.

All internal roads in the proposed development are designed for a speed limit of 30kph with typically 5.0m wide carriageways and footpaths along both sides. All intersections within the development itself will be priority junctions with raised tables where appropriate. The low design speeds and traffic calming measures will ensure the safe operation of these junctions and a safe/secure environment for pedestrians and cyclists.

The design and layout of the proposal has been prepared to fully comply with the current relevant design standards and specifications applicable to this form of development.

For general arrangement of internal roads, please refer to Waterman Moylan Drawings No's 21-011-P1100, 21-011-P1101, 21-011-P1102, 21-011-P1103 and 21-011-P1104 accompanying the subject application as part of the documentation package.

All the road network improvements required as part of the local area plan, both within and outside the LAP boundaries, have been summarised earlier. Details of these improvements are described in the TTA accompanying the subject planning application package.

12.6 Potential Impact of the Proposed Development During Construction Stage

There is potential for construction traffic to impact from a noise and dust perspective in relation to the surrounding road network. Deliveries to and from the site by heavy good vehicles will impact on noise levels, whilst dust may result from vehicles travelling along gravel roads and from general earthwork activities. There is also potential for traffic congestion, due to increased heavy good vehicles on the road network which may also perform turning movements, unloading, etc., in areas that impact on traffic. The potential for inappropriate parking whilst waiting for access to the site, may also impact local road users.

There is potential for construction traffic to have a moderate effect on the surrounding environment. However, the duration of this impact will be short-term (i.e., one to three years).

12.7 Potential Impact of the Proposed Development During Operational Stage

In order to assess the potential impact of the proposed development a detailed traffic and transport assessment has been prepared and is included as part of the subject application under a separate cover. Details of this assessment are set out below.

Separately, it is noted that the proposed stormwater storage tank site that forms part of this application is not anticipated to generate traffic trips, aside from infrequent maintenance vehicles, and as such does not warrant trip generation assessment. It is considered that the storage tank traffic impact on the local network during the operation stage is negligible.

12.7.1 Trip Generation

Person Trip Rates

Full person trip rates for the residential and retail developments, which were taken from TRICS Database version 7.6.4 are included and are summarised in Table 12.4

Land Use Category	AM Peak Hour		PM Peak Hour	
	Trip Rate IN	Trip Rate OUT	Trip Rate IN	Trip Rate OUT
Mixed Residential (Flats and Houses)	0.107 per unit	0.284 per unit	0.237 per unit	0.136 per unit
Retail	2.373 per 100 sqm	1.594 per 100 sqm	2.637 per 100 sqm	2.912 per 100 sqm
Commercial (Non-retail)	0.780 per 100 sqm	0.314 per 100 sqm	2.352 per 100 sqm	1.874 per 100 sqm

Table 12.4: Person Trip Generation - Residential and Retail - AM and PM Peak Hour.

The vehicle trip generation calculation for the assessment year of 2027 (Opening Year of Proposed Development – Mooretown 03) is shown below. It is estimated that, in 2027, the following developments will be in place at Oldtown-Mooretown LAP:

12.7.2 Mooretown Development

- Residential development (approved not constructed) comprising a total of 521 residential units.
- School development (constructed and occupied) to cater for 1,624 pupils on site.

The Mooretown School Site received permission from FCC to develop one primary school and one post-primary school to cater for a total population of 1,624 pupils. These schools are currently constructed but not yet operational.

In order to understand the future travel patterns of the pupils attending these schools, the approved School Travel Plan (STP) prepared by Waterman Moylan for the school site (Reg. Ref: F18A/0163) has been consulted. In this consultation, it was identified two modal split scenarios of which trip generation calculation was based on; the Opening Modal Split, referent to the expected modal split during the opening year of the schools, and the Target Modal Split, which indicates a target pattern of commuting based on a reduced use of car which will be achieved through the methods described in the STP, such as promoting car-pooling / sharing, promoting private bus services, promoting park and stride strategies and promoting walking and cycling.

For the Opening Modal Split, the usage of private car to commute to the school site was determined as 40%, which reduces to 35% for the Target Modal Split with the school fully operational.

As part of the STP, two other relevant commuting parameters were also used to calculate car trip generation for the schools during the opening and future years. These are shown below.

Average Car Occupancy % Early Drop Off

School Opening Year:	1.5	5%
Future Year:	1.75	10%

It is recognised that by the year of 2027 (Opening Year of Mooretown Phase 3 and assessment year of the TTA) the schools are unlikely to be operating at full capacity. However, in order to undertake a robust and conservative assessment of the surrounding road network and analysed junctions, as part of this TTA, trip generation for the Mooretown School site has been calculated based on the future year parameters as shown above and the schools operating at their full capacities. The estimated car trips for the Mooretown School development are presented below.

Development	Pupils	% Car (Future Modal Split)	Average Car Occupancy	% Early Drop Off	AM Peak Hour Trips	
					Trips IN	Trips OUT
Mooretown School	1,624 pupils	35%	1.75	10%	292	292
Total	-	-	-	-	292	292

Table 12.5 | Trip Generation – School Site in Mooretown – 2027.

As can be seen from above, based on the future travel patterns as indicated in the School Travel Plan for the Mooretown School, the site is estimated to generate a total of 584 car trips in the AM peak hour (292 inbound and 292 outbound). No PM peak hour trips were assumed for the school site as the school collection period will not coincide with the road network peak hour.

Trip generation calculation for the residential and retail developments in Mooretown (approved but not constructed and proposed Mooretown 03) are shown below. It is envisaged that the creche proposed under the subject application (Mooretown 03) will serve the residents of the proposed development only. It is expected to attract only internal trips (within the Mooretown 03 development) and therefore no additional car trips have been assumed for this proposed land use.

Land Use	Phase Reference	Dev. Size	AM Peak Hour		PM Peak Hour	
			Trips IN	Trips OUT	Trips IN	Trips OUT
Residential	Mooretown 01A, B&C*	283 units	30	80	67	38
Residential	Mooretown 02*	238 units	25	68	56	32
Residential	Mooretown 03**	650 units	70	185	154	88
Commerical	Mooretown 03**	946 sqm	7	3	22	18
Total	Overall Mooretown	1,171 units 938 sqm	132	336	299	176

Table2 | AM and PM Peak Hour Trip Generation – Mooretown, 2027.

* Development Approved but not Constructed.

** Development proposed as part of subject application.

As can be seen from above, by 2027, it is estimated that the Mooretown development (considering the approved Mooretown 01 & 02 and the proposed Mooretown 03) will generate a total of 468 vehicle trips in the AM peak hour (132 inbound and 336 outbound) and a total of 475 vehicle trips in the PM peak hour (299 inbound and 176 outbound).

12.7.3 Oldtown Development

- Residential development (constructed and occupied, constructed not occupied, approved not constructed and proposed) comprising a total of 1,344 residential units.
- Retail development (constructed and operational) comprising of 1,510 sqm of area.

Land Use	Phase Reference	Dev. Size	AM Peak Hour		PM Peak Hour	
			Trips IN	Trips OUT	Trips IN	Trips OUT
Residential	Oldtown 01*	243 units	26	69	58	33
Residential	Oldtown 03A&D*	181 units	19	51	43	25
Residential	Oldtown 04A*	95 units	10	27	23	13
Residential	Oldtown 04B*	98 units	10	28	23	13
Residential	Oldtown 04C&D*	101 units	11	29	24	14

Residential	Oldtown 02A***	86 units	9	24	20	12
Residential	Oldtown 02B***	91 units	10	26	22	12
Residential	Oldtown 02C***	56 units	6	16	13	8
Residential	Oldtown 05****	377 units	40	107	89	51
Retail	Oldtown 02*	1,510sqm	36	24	40	44
Total	Oldtown	1,344 units 1,510 sqm	178	401	355	225

Table 12.7: Trip Generation – Oldtown Developments - 2027.

* Development Constructed and Occupied.

** Development Constructed but not Occupied.

*** Development Approved but not Constructed.

**** Potential Future Development Proposed by the Applicant under a separate Planning Application.

As can be seen from above, it is estimated that the Oldtown development (considering constructed, approved and proposed developments) will generate a total of 579 vehicle trips in the AM peak hour (178 inbound and 401 outbound) and a total of 579 vehicle trips in the PM peak hour (355 inbound and 225 outbound).

At the time of writing this report, the developments of Oldtown 01 and Oldtown 03A&D were fully constructed and occupied, which suggests that the trips associated with these developments already exist on the road network and the calculation of trip generation for them would not be necessary. In a typical and normal situation these trips would be accounted for in the traffic survey. However, as previously described, a traffic survey was not carried out as part of the subject application, and instead, historic traffic count data, extracted from previous assessments in the area, were used. At the time when the used traffic surveys were carried out, the development of the Oldtown 01 and Oldtown 03A&D were not in place and therefore their associated trips, were not existent. In this case, with the objective to undertake a complete assessment of the surrounding road network and analysed junctions, trip generation for Oldtown 01 and Oldtown 03A&D have been calculated and included in this assessment as part of the additional trips.

12.7.4 Modal Split

Residential

The Census 2016 surveyed modal split for the journey to work, school or college by the residents living at developed area surrounding Oldtown and Mooretown LAP lands, recorded that approximately 75% of the 7,606 population generated 5,914 trips for the journey to work, school or college. The results of the Census 2016 survey and the target proposals for modal split for residents engaged on the journey to and from work, school or college outside Oldtown-Mooretown Lands in 2032 are shown below.

Mode	Census 2016	Target 2032
Car (Driver)	55%	30%
Train	1%	30%
Bus	18%	20%
Cycle	2%	5%
On Foot	14%	15%
Other	10%	-
Total	100%	100%

Table 12.8: Census 2016 and 2032 Target Modal Split for Residents Journey to Work, School or College.

This target reduction in the use of private car and increase in the use of public transport have been based on the proposed local improvements in the area, such as BusConnects, MetroLink and the Swords Western Quality Bus Corridor.

12.7.5 Multi-Modal Trip Generation – 2027 – LAP Phases 1 and 2

Residential

From Table 12.5, it can be seen that the 1,344 new residential units (under construction, permitted and proposed) to be developed on Oldtown-Mooretown LAP lands by 2027 are expected to generate a total of 710 person trips during the AM peak hour (194 inbound and 516 outbound) and a total of 678 person trips during the PM peak hour (431 inbound and 247 outbound).

The analysis of the Census 2016 showed that the modal split for the journey to work, school or college by residents living in the surrounding area, was 55% by car, 1% by rail, 18% by bus, 2% by cycle, 14% on foot and the remaining 10% by others or were not stated. Accordingly, the mode shares percentages have been applied to the calculated person trips to quantify the multi-modal trip generation for the residential units and the results are presented below.

2027 - LAP Phases 1 & 2 (1,344 new residential units)					
Mode	Modal Split (Census 2016)	AM Peak Hour Trips		PM Peak Hour Trips	
		In	Out	In	Out
Car	55%	107	284	237	136
Train	1%	2	5	4	2
Bus	18%	35	93	78	44
Cycle	2%	4	10	4	4
On foot	14%	27	72	60	35

Other	10%	19	52	43	25
Total	100.0%	194	516	426	246

Table 12.9: Peak Hour Multi-Modal Trip Generation – Residential Units - 2027.

Retail

As shown in Table 12.5, the new retail units (under construction) to be developed in Oldtown-Mooretown lands by 2027 are expected to generate a total of 60 person trips during the AM peak hour (36 inbound and 24 outbound) and a total of 84 person trips during the PM peak hour (40 inbound and 44 outbound).

It is understood that the new retail units will primarily serve the residents of the LAP lands. However, with the objective to undertake a robust assessment of the surrounding road network, for the purpose of this TTA, it was assumed that 50% of all retail trips will originate externally, from outside of the LAP boundaries, 30% made by car, 10% by cycle and 10% on foot.

The calculated multi-modal trip generation for the retail units in 2027 is presented below.

2027 - LAP Phases 1 & 2 (1,510 sqm new retail)					
Mode	Assumed Modal Split (External)	AM Peak Hour Trips		PM Peak Hour Trips	
		In	Out	In	Out
Car	30%	5	4	6	7
Train	-	-	-	-	-
Bus	-	-	-	-	-
Cycle	10%	2	1	2	2
On foot	10%	2	1	2	2
Other	-	-	-	-	-
Total	50%	9	6	10	21

Table 12.10: Peak Hour Multi-Modal Trip Generation – Retail Units - 2027.

School

The under-construction Mooretown School Site (Reg. Ref. F18A/0163) received permission to develop one primary and one post-primary schools to cater for a total population of 1,624 students. It is likely that the majority of these students will originate internally, from within the LAP lands. However, in order to provide a conservative assessment of the surrounding road network, for the purpose of this TTA, it was assumed that 50% of students will attend the schools from outside the LAP lands, representing a total of 812 students.

The analysis of the Census 2016 showed that the modal split for the journey to school or college by residents living in Swords settlement area, was 38% by car, 1% by rail, 21% by bus, 2% by cycle, 33% on foot and the remaining 5% by others or were not stated. Assuming a realist occupancy rate of 1.75 pupils per car, the 38% recorded by Census 2016 will be reduced to approximately 22%.

The estimated multi-modal trip generation for the under-construction school site is presented below.

2027 - LAP Phases 1 & 2 (812 pupils attending the schools from outside LAP)						
Mode	Modal Split (Census 2016)	Car Occupancy of 1.75	AM Peak Hour Trips		PM Peak Hour Trips	
			In	Out	In	Out
Car	38%	22%	179	179	-	-
Train	1%	-	8	-	-	-
Bus	21%	-	171	-	-	-
Cycle	2%	-	16	-	-	-
On foot	33%	-	268	-	-	-
Other	5%	-	41	-	-	-
Total	100%	-	683	179	-	-

Table 12.11: Peak Hour Multi-Modal Trip Generation – School Site - 2027.

School – 2032

The estimated multi-modal trip generation for the constructed school site in 2032 is presented below. It has been assumed that the 2027 school travel patterns will be maintained in 2032.

2032 – Overall LAP (812 pupils attending the schools from outside LAP)						
Mode	Modal Split (Census 2016)	Car Occupancy of 1.75	AM Peak Hour Trips		PM Peak Hour Trips	
			In	Out	In	Out
Car	38%	22%	179	179	-	-
Train	1%	-	8	-	-	-
Bus	21%	-	171	-	-	-
Cycle	2%	-	16	-	-	-
On foot	33%	-	268	-	-	-
Other	5%	-	41	-	-	-
Total	100%	-	683	179	-	-

*Table 12.12: Peak Hour Multi-Modal Trip Generation – School Site – 2032.***Summary of Peak Hour Trips – 2032**

Table 12.15 below shows a summary of the all mode, inbound and outbound trips expected to be generated by the new developments in Oldtown-Mooretown by 2032 during the AM and PM peak periods.

Mode	AM Peak Hour Trips		PM Peak Hour Trips	
	In	Out	In	Out
Car	381	585	390	317
Train	121	318	295	198
Bus	247	212	197	132
Cycle	65	82	81	73
On foot	355	187	179	139
Other	41	-	-	-
Total	1,210	1,384	1,142	859

*Table 12.13: Peak Hour Multi-Modal Trip Generation – Summary – 2032.***12.7.6 Trip Distribution**

In order to determine the amount of new car trips expected to travel through each assessed junction in the local road network, the calculated vehicle trips for Oldtown and Mooretown lands in the assessed years of 2027 (Opening Year of Proposed Development – Mooretown Phase 3) and 2032 (Opening Year of Proposed Development + 5 Years).

Main vehicular access to the overall Mooretown lands will be provided via the new Signalised Crossroads between the R125 Rathbeale Road and the Western Distributor Link Road (WDLR). This junction was recently constructed as part of the R125 Rathbeale Road Upgrades scheme, which was subject to a Part 8 application by FCC and are now complete and open to public.

As part of the development works carried out under the Part 8 application, two additional priority-controlled T-junctions to provide access to Mooretown lands were also delivered on R125 Rathbeale Road, one approximately 225 metres east of the new signalised crossroads with the WDLR to provide a secondary access via the Mooretown Phase 1A approved under Plg. Ref. F17A/0128, and the other approximately 280 metres west of the existing signalised crossroads with Murrough Road to facilitate future access to third party lands in Mooretown. The provision of these additional junctions and their locations are in line with the Oldtown-Mooretown LAP Map. The indicative location of both junctions is illustrated in Figure 19.

Given the nature and capacity of the Western Distributor Link Road in comparison with the projected Mooretown access roads approaching the two additional junction on R125 Rathbeale Road, and its

more direct route from/to the southern portion of the Mooretown lands – including the recently constructed school and potential future Local Centre; as part of this assessment, it was assumed that 70% of the overall vehicle trips to/from the Mooretown developments will use the WDLR whilst the remaining 30% will use the other two access junctions. Of the 70% using the WDLR, 15% was assumed to turn left and travel westward along R125 Rathbeale Road, 10% was assumed to cross the R125 Rathbeale Road and use Glen Ellan Road to travel east and 45% was assumed to turn right and travel east along R125 Rathbeale Road. Of the 30% using the two additional junctions, 5% was assumed to travel west and 25% east along R125 Rathbeale Road.

Trip distribution percentage for the signalised crossroads between R125 Rathbeale Road and Murrough Road and the priority T-junction between R125 Rathbeale Road and R108 Naul Road, were generally calculated using the base surveyed flows and associated turning movements. These percentages are shown in Figure 12-7.

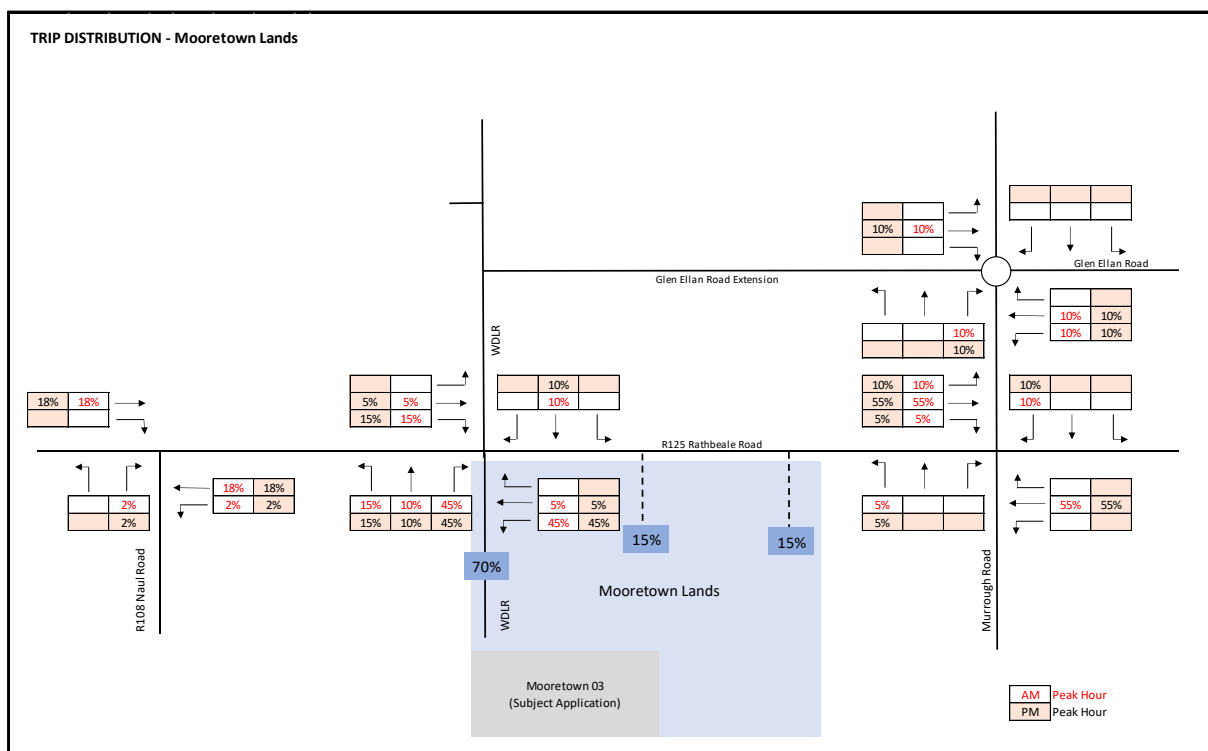


Figure 12.8 - Distribution of Generated Traffic

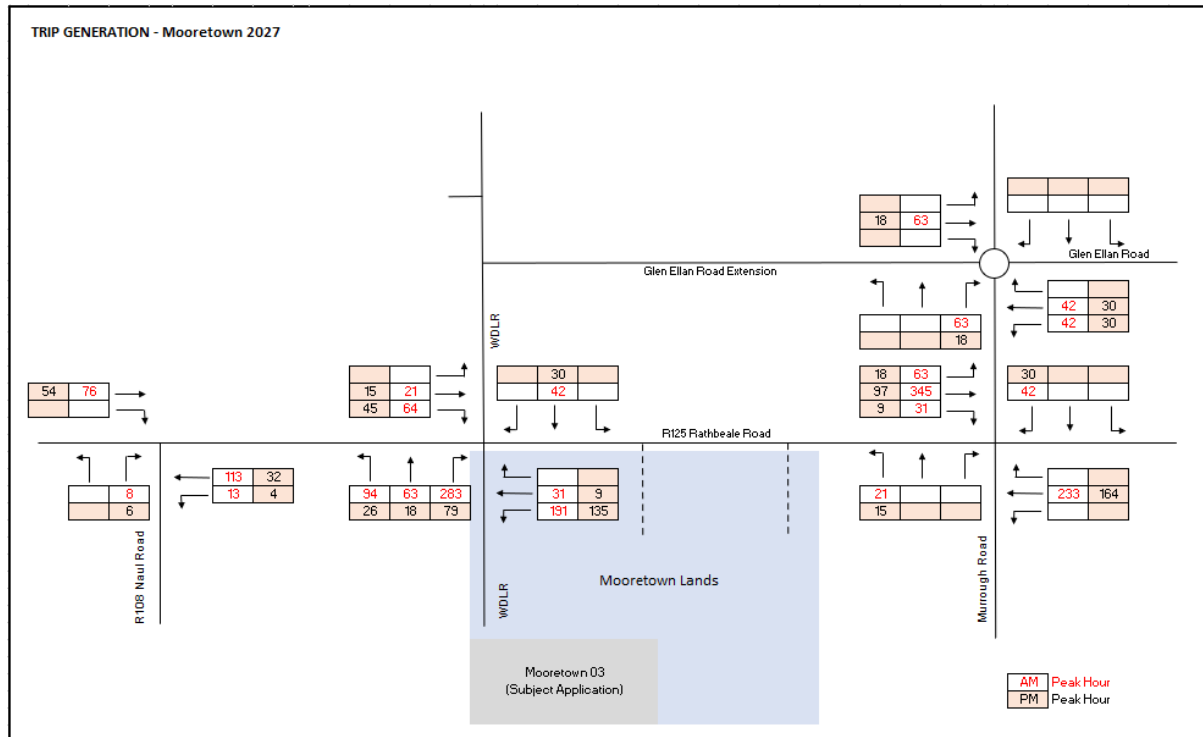


Figure 12.9: Car Trip Generation for AM and PM Peak Hours - Overall LAP – 2027

In accordance with the Oldtown-Mooretown LAP and the quantum of residential and commercial developments set out within that document, it was assumed that c. 631 new residential units, 6,703 sqm of new retail development and 2,500 sqm of new commercial (non-retail) development, all subject to future planning application and approval, will be fully constructed, occupied and operational in Mooretown lands by 2032.

The trip generation estimated for these additional developments will equate to a total of 541 vehicle trips in the AM peak hour (247 inbound and 294 outbound) and a total of 714 vehicle trips in the PM peak hour (386 inbound and 328 outbound).

Based on the trip distribution showed in Figure 20 above, these estimated Mooretown 2032 AM & PM vehicle trips were spatially distributed on the local road network and nearby assessed junctions and are presented in Figure 12.9.

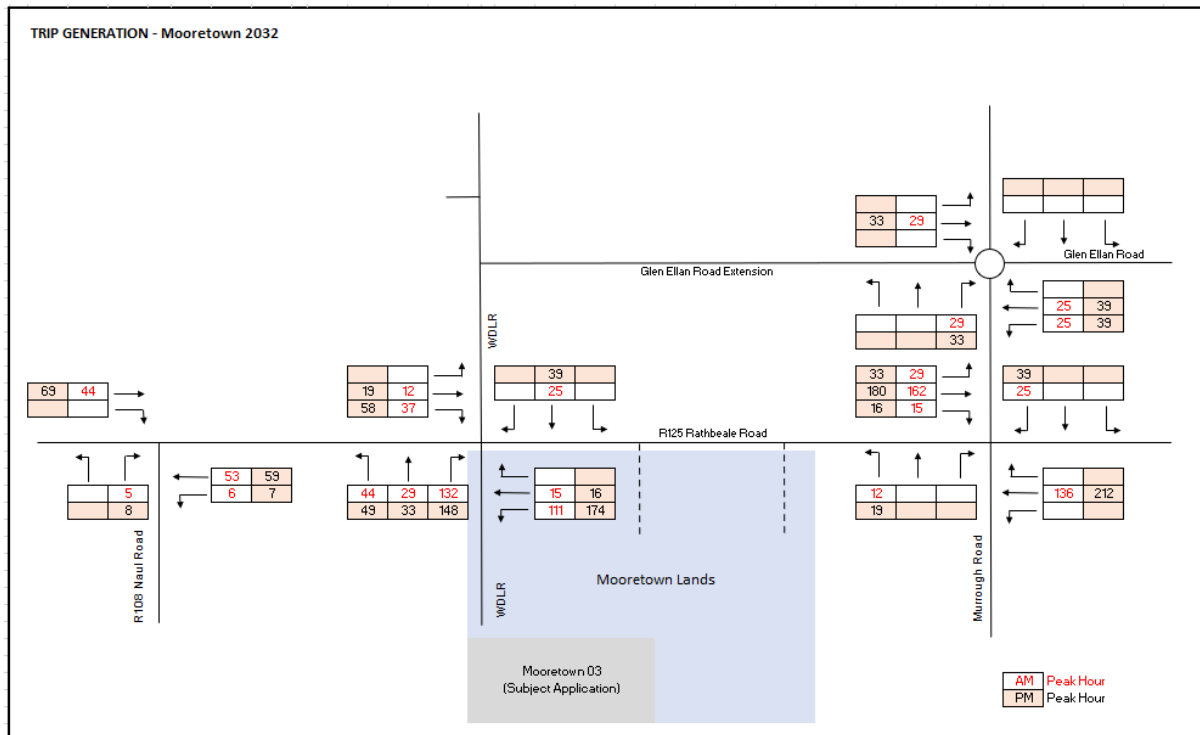


Figure 12.10: Car Trip Generation for AM and PM Peak Hours - Overall LAP – 2027

12.7.7 Traffic Growth and Assessment Periods

For the purpose of establishing the baseline year of 2020, the peak hour flows taken from the traffic surveys illustrated in Figure 12.3 have been factored up and the results are presented in Figure 12.10. As previously stated above, historic data from 2005/2006, 2017 and 2019 have been used.

The background traffic growth rates used to factor up the 2005/2006, 2017 and 2019 surveyed traffic movements are in accordance with the 'Table 6.1: Link-Based Growth Rates: Metropolitan Area Annual Growth Rates' within the TII Publications – Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (May 2019). These are:

- 1.293 (Central Growth) growth factor from 2005/2006 to 2022.
- 1.084 (Central Growth) growth factor from 2017 to 2022.
- 1.049 (Central Growth) growth factor from 2019 to 2022.

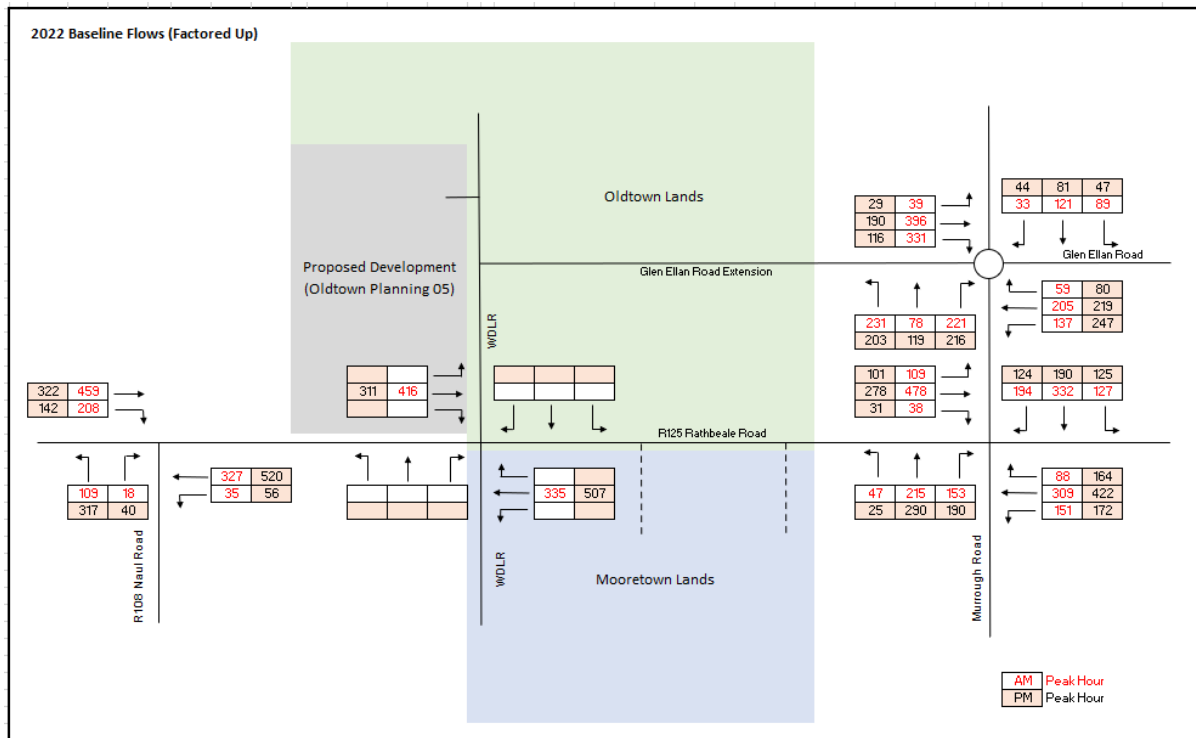


Figure 12.11 - 2042 Design Year Traffic Flows

13.7.8 Road Impact – Junction Analysis

Junctions Assessed

The assessment was based on the existing junction layouts which comprise: -

- Junction 1: R125 Rathbeale Road/R108 Naul Road (Priority T-junction);
- Junction 2: R125 Rathbeale Road/Western Distributor Link Road (Signalised Crossroads);
- Junction 3: R125 Rathbeale Road/Murrough Road (Signalised Crossroads);
- Junction 4: Glen Ellan Road (Four-armed Roundabout);

Modelling Background

There are various modelling software packages available to assess every type of junction. Waterman Moylan uses ARCADY, TRANSYT and PICADY to analyse roundabouts, signalised and priority junctions, respectively.

ARCADY is a software for modelling roundabouts. This programme utilises roundabouts geometry and traffic flows input by the user to determine Ratio of Flow to Capacity (RFC) and queue length for each link on the roundabout.

TRANSYT (Traffic Network Study Tool) software is a widely accepted software for modelling signalised controlled junctions. This programme utilises the phases input by the user and optimises their timings over a cycle time. The outputs of a TRANSYT assessment include a Degree of Saturation percentage (DOS%) figure and queue length for each link on the road network.

PICADY is a software for modelling priority-controlled junctions. This programme utilises junction's geometry and traffic flows input by the user to determine Ratio of Flow to Capacity (RFC) and queue length for each link on the junction.

Typically, a junction is said to be working satisfactorily when the DOS% or RFC of each link does not exceed 90%/0.9. Acceptable DOS% or RFC values are considered to be in the range of 80%/0.8 to 100%/1.0 with higher values indicating restrained movements.

Assessment Scenarios

The performance of the junctions has been analysed for the critical AM Peak Hour and PM Peak Hour (08:00 – 09:00 and 17:00 – 18:00) for the following scenarios:

- 2021 (Base Year): Surveyed Flows factored up to 2021 Baseline Flows.
- 2024: 2021 Baseline Flows factored up to 2024.
- 2024 + LAP Developments: 2024 Flows + Constructed, Approved and Proposed Developments in Oldtown-Mooretown LAP.
- 2029: 2021 Baseline Flows factored up to 2029.
- 2029 + Overall LAP: 2029 Flows + Overall Oldtown-Mooretown LAP Developments.
- 2039: 2021 Flows factored up to 2039.
- 2039 + Overall LAP: 2039 Flows + Overall Oldtown-Mooretown LAP Developments.

A summary of the baseline two-way flows and the two-way flows expected to be generated by the proposed + committed and potential future developments in the Oldtown-Mooretown LAP are presented below for each individual junction.

Description	Total Junction Two Way Flow (Veh)	Proposed + Committed + Future Developments Two Way Flow (Veh)	% Traffic Increase
AM Peak Hour (08:00 - 09:00)	1092	290	26.57%
PM Peak Hour (17:00 - 18:00)	1319	212	16.07%

Table 12.14: Existing and Predicted Two-way Traffic – Junction 1.

Description	Total Junction Two Way Flow (Veh)	Proposed + Committed + Future Developments Two Way Flow (Veh)	% Traffic Increase
AM Peak Hour (08:00 - 09:00)	722	821	113.71%

PM Peak Hour (17:00 - 18:00)	786	601	76.46%

Table 12.15: Existing and Predicted Two-way Traffic – Junction 2.

Description	Total Junction Two Way Flow (Veh)	Proposed + Committed + Future Developments Two Way Flow (Veh)	% Traffic Increase
AM Peak Hour (08:00 - 09:00)	2,115	580	27.43%
PM Peak Hour (17:00 - 18:00)	1,994	424	21.26%

Table 12.16: Existing and Predicted Two-way Traffic – Junction 3.

Description	Total Junction Two Way Flow (Veh)	Proposed + Committed + Future Developments Two Way Flow (Veh)	% Traffic Increase
AM Peak Hour (08:00 - 09:00)	1,872	193	10.31%
PM Peak Hour (17:00 - 18:00)	1,536	142	9.25%

Table 12.17: Existing and Predicted Two-way Traffic – Junction 4..

As recommended in the TII publication, 'Project Appraisal Guidelines Unit 16.1: Expansion Factors for Short Period Traffic Counts (October 2016)', the traffic count data has been converted to Annual Average Daily Traffic (ADDT) data in order to provide a dataset representative of the annual traffic flow profile for the road network surrounding the proposed development.

The general expansion factor method, as outlined in the TII Publication, was used to convert the surveyed flows for the 4 No. Junctions into the Annual Average Daily Traffic (ADDT). The corresponding Factors for the Greater Dublin Region were used. Note that: for Junction 1 and Junction 3 the date of the survey is unknown and the day and month for the ADDT calculation was assumed to be the same as Junction 2 Survey – IDASO 2017.

Junction 1 (Priority T-junction): R125 Rathbeale Road / R108 Naul Road

Hour Ending	Proportion of Daily Traffic	Existing Two-way Flows Through Site 1 (Veh)
09:00	0.081	894
18:00	0.088	1,080
Total	0.169	1,974

Table 12.18: Junction 1 – AADT Calculations

24 Hour Estimate = $1,974/0.169 = 11,680$ vehicles

Weekly Average Daily Traffic (WADT) = $11,680 \times 0.94 = 10,979$ vehicles

Annual Average Daily Traffic (AADT) = $10,979 \times 0.98 = 10,759$ vehicles

Junction 2 (Signalised Crossroads): R125 Rathbeale Road/Western Distributor Link Road;

Junction 2 has a full 24-hour survey and the traffic count for this junction was 7,645 vehicles.

24 Hour Traffic = 7,645

Weekly Average Daily Traffic (WADT) = $7,645 \times 0.94 = 7,186$ vehicles

Annual Average Daily Traffic (AADT) = $7,186 \times 0.98 = 7,042$ vehicles

Junction 3 (Signalised Crossroads): R125 Rathbeale Road/Murrough Road;

Hour Ending	Proportion of Daily Traffic	Existing Two-way Flows Through Site 3 (Veh)
09:00	0.081	1683
18:00	0.088	1623
Total	0.169	3,306

Table 12. 19: Junction 3 – AADT Calculations

24 Hour Estimate = $3,306/0.169 = 19,562$ vehicles

Weekly Average Daily Traffic (WADT) = $19,562 \times 0.94 = 18,388$ vehicles

Annual Average Daily Traffic (AADT) = $18,388 \times 0.98 = 18,020$ vehicles

Junction 4 (Four-armed Roundabout): Glen Ellan Road.

Hour Ending	Proportion of Daily Traffic	Existing Two-way Flows Through Site 3 (Veh)
07:00	0.037	921

08:00	0.077	1,849
09:00	0.081	962
10:00	0.066	576
11:00	0.055	658
12:00	0.055	819
13:00	0.059	1,142
14:00	0.062	1,266
15:00	0.063	1,144
16:00	0.069	1,309
17:00	0.083	1,494
18:00	0.088	1,521
Total	0.795	13,661

Table 12.20: Junction 4 – AADT Calculations.

24 Hour Estimate = $13,661 / 0.795 = 17,184$ vehicles

Weekly Average Daily Traffic (WADT) = $17,184 \times 0.94 = 16,153$ vehicles

Annual Average Daily Traffic (AADT) = $16,153 \times 0.98 = \mathbf{15,830}$ vehicles

12.7.8 Junction Analysis Results

Junction 1 – R125 Rathbeale Road / R018 Naul Road

Junction 1 is an existing three-armed priority-controlled junction located to the west of the proposed development site. This junction has been modelled based on its current configuration and the PICADY analysis results are summarise in Table 12.23 below. The results are shown below. The arms of the junction were labelled as follows within PICADY model:

- Arm A: R125 Rathbeale Road (E);
- Arm B: R108 Naul Road (S);
- Arm C: R125 Rathbeale Road (W).



Figure 12.12: Junction 1 Rathbeale Road / R018 Naul Road

Junction 1 is an existing three-armed priority-controlled junction located to the west of the proposed development site. This junction has been modelled based on its current configuration and the PICADY analysis results are summarised in Table 12.20 below. The arms of the junction were labelled as follows within the PICADY model:

- Arm A: R125 Rathbeale Road (E);
- Arm B: R108 Naul Road (S);
- Arm C: R125 Rathbeale Road (W).

Stream	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
	Queue (veh.)	RFC	Queue (veh.)	RFC
2022				
Stream B-C	0.2	0.17	1.2	0.54
Stream B-A	0.1	0.06	0.2	0.15
Stream C-AB	2.0	0.55	0.9	0.37
2027				
Stream B-C	0.2	0.17	1.3	0.57
Stream B-A	0.1	0.06	0.2	0.16
Stream C-AB	2.2	0.58	1.0	0.40

2027 + LAP Developments				
Stream B-C	0.3	0.20	1.8	0.65
Stream B-A	0.2	0.13	0.4	0.28
Stream C-AB	5.1	0.74	1.6	0.47
2032				
Stream B-C	0.2	0.19	1.8	0.65
Stream B-A	0.1	0.07	0.3	0.21
Stream C-AB	3.3	0.67	1.4	0.45
2032 + Overall LAP Developments				
Stream B-C	0.3	0.21	2.1	0.69
Stream B-A	0.2	0.15	0.4	0.31
Stream C-AB	8.0	0.82	1.8	0.50
2042				
Stream B-C	0.2	0.20	2.1	0.68
Stream B-A	0.1	0.07	0.3	0.23
Stream C-AB	4.0	0.70	1.5	0.48
2042 + Overall LAP Developments				
Stream B-C	0.3	0.22	2.4	0.71
Stream B-A	0.2	0.15	0.5	0.33
Stream C-AB	7.6	0.81	1.9	0.52

Table 12.21 | Junction 1 - PICADY Analysis Results.

The analysis results as summarised above indicate that Junction 1 is currently operating within capacity during both peak hours and would continue to do so for the future assessment year of 2042 + Overall LAP with the highest RFC at 0.81 and a corresponding queue of 7.6 vehicles in the AM and with the highest RFC at 0.71 and a corresponding queue of 2.4 vehicles recorded in the PM.

Junction 2 – R125 Rathbeale Road/Western Distributor Link Road

Junction 2 is a recently constructed signalised crossroads located immediately south of the proposed development site. This junction has been modelled based on its current configuration and the TRANSYT analysis results are summarised in Table 12.21 below. The arms of the junction were labelled as follows within the TRANSYT model:

- Arm A: R125 Rathbeale Road (E);

- Arm B: WDLR (S);
- Arm C: R125 Rathbeale Road (W);
- Arm D: WDLR (N).

Arm	Mov.	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
		Queue (veh.)	DOS%	Queue (veh.)	DOS%
2027 + LAP Developments					
A	S/L	19.35	77	20.56	74
	R	2.98	62	6.75	83
B	S/L	5.02	41	1.51	26
	R	10.51	74	2.90	46
C	S/L	15.42	66	9.62	44
	R	2.59	56	1.55	26
D	S/L	7.74	71	4.24	50
	R	2.59	28	1.46	19
2032 + Overall LAP					
A	S/L	20.07	78	21.51	76
	R	2.98	62	6.75	83
B	S/L	5.02	41	1.51	26
	R	10.51	74	2.90	46
C	S/L	16.29	69	10.04	45
	R	2.59	56	1.55	26
D	S/L	7.74	71	4.24	50
	R	2.59	28	1.46	19
2042 + Overall LAP					
A	S/L	20.81	80	22.04	76
	R	2.98	62	6.75	83
B	S/L	5.02	41	1.51	26
	R	10.51	74	2.90	46

C	S/L	16.98	71	10.30	46
	R	2.59	56	1.55	26
D	S/L	7.74	71	4.24	50
	R	2.59	28	1.46	19

Table 12.22: Junction 2 - TRANSYT Analysis Results.

The analysis results as summarised above indicate that, by 2027 with the new developments in place in Oldtown-Mooretown LAP, Junction 2 would operate within capacity during both peak hours, with the highest DOS at 77% and a corresponding queue of 19.35 vehicles during the AM, and with the highest DOS at 83% and a corresponding queue of 6.75 vehicles during the PM.

For the future assessment year of 2042, with the inclusion of the trips expected to be generated by the overall LAP development, the results indicate that Junction 2 would continue to operate below the 100% threshold during both peak hours, with the highest DOS at 80% and a corresponding queue of 20.81 vehicles during the AM, and the highest DOS at 83% and a corresponding queue of 6.75 vehicles recorded for the PM.

Junction 3 – R125 Rathbeale Road / Murrough Road

Junction 3 is an existing signalised crossroads located southeast of the proposed development site. This junction has been modelled based on its current configuration and the TRANSYT analysis results are summarise in Table 12.25 below. The arms of the junction were labelled as follows within the TRANSYT model:

- Arm A: Glen Ellan Road (NE);
- Arm B: R125 Rathbeale Road (SE);
- Arm C: Murrough Road (SW);
- Arm D: R125 Rathbeale Road (NE);

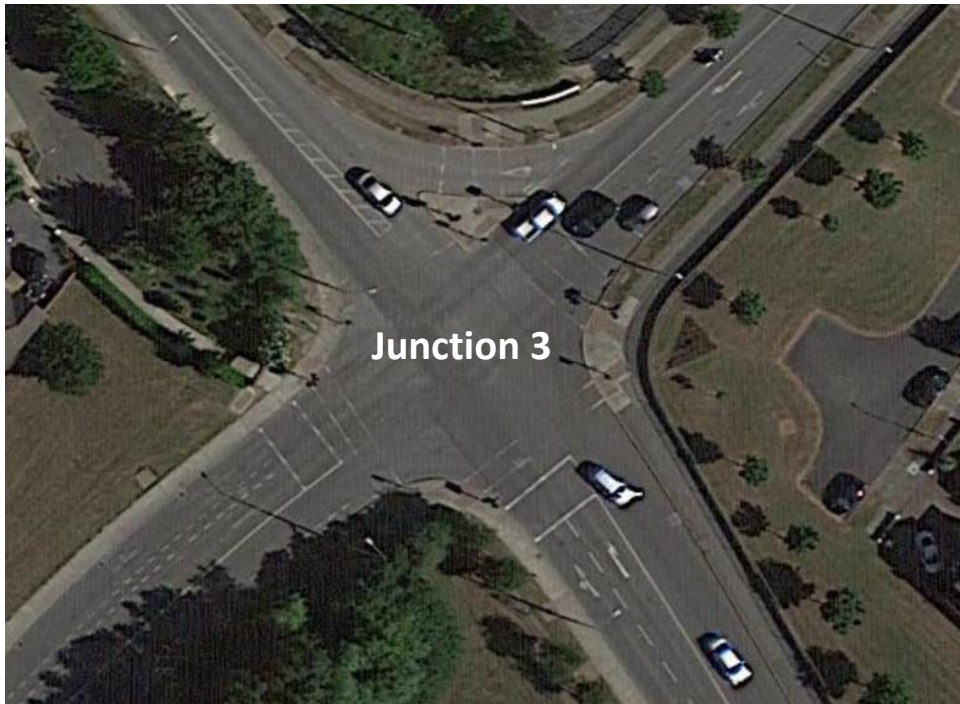


Figure 12.13: Junction 3 - R125 Rathbeale Road / Murrough Road.

Junction 3 is an existing signalised crossroads located southeast of the proposed development site. This junction has been modelled based on its current configuration and the TRANSYT analysis results are summarised in Table 12.22 below. The arms of the junction were labelled as follows within the TRANSYT model:

- Arm A: Glen Ellan Road (NE);
- Arm B: R125 Rathbeale Road (SE);
- Arm C: Murrough Road (SW);
- Arm D: R125 Rathbeale Road (NE).

Arm	Mov.	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
		Queue (veh.)	DOS%	Queue (veh.)	DOS%
2022					
A	S/L	21.26	96	13.91	91
	R	9.95	912	3.68	36
B	S/L	27.90	102	15.59	94
	R	3.77	73	3.58	48
C	S/L	7.75	55	18.81	100
	R	5.81	73	6.26	60
D	S	15.84	80	10.36	81

	R	1.11	14	1.28	52
	L	21.26	96	13.91	91
2027					
A	S/L	32.99	104	23.84	104
	R	14.27	101	4.08	41
B	S/L	44.54	112	24.84	100
	R	4.50	80	4.01	52
C	S/L	8.66	59	28.53	109
	R	6.71	79	7.00	66
D	S	18.91	87	11.71	84
	R	1.20	15	1.46	57
	L	2.26	36	1.93	12

Table 12.23: Junction 3 - TRANSYT Analysis Results.

The analysis results as summarised above indicate that the Junction 3 is currently operating at capacity during the AM peak hour and close to capacity in the PM peak hour. Even without the inclusion of any new development trips, for the 2027 scenario (with the baseline flows factored up), the results indicate that the Junction 3 would operate above capacity during both peak hours.

The Oldtown-Mooretown LAP acknowledges that, at the time of preparing the LAP document in 2010, this junction was already operating at capacity with the critical arm operating at 89% of the available capacity and sets out plan to modify this junction.

It is recognised by the Council that R125 Rathbeale Road is one of the critical routes currently serving the Swords Northwest area, including the Oldtown and Mooretown lands.

It is understanding that the development of Oldtown and Mooretown lands without any intervention to the transportation infrastructure is likely to increase the current pressures on R125 Rathbeale Road and consequently oversaturate its intersections with other important links, which are currently working at or above their capacities. Rathbeale Road / Murrough Road (Junction 3) is definitely one of the most affected junctions.

With the objective to update and refine the development strategy in the overall South Fingal area in terms of transportation, Fingal County Council commissioned SYSTRA to carry out the South Fingal Transport Study. This study, which includes extensive assessment and modelling of the Swords North West area, was published in February 2019 and forms the basis for future transportation development in the medium and long terms. The transportation modelling carried out by SYSTRA included all modes of transport (including active modes) and provided for extensive predictive modelling based on

demand forecasting and supply changes in terms of new roads, cycle and public transport infrastructure.

In summary, to provide the necessary priority to attract a sufficient share of trips by bus and active modes, SYSTRA indicated that it is crucial to provide continuous high-quality bus and cycle priority along major roads in the area (including Rathbeale Road which is subject to congestion) and also recommended Rathbeale and Backenstown Roads to be prioritised to support the advancement of the GDA Cycle Network Plan in Swords.

With the recommendations included as part of the SYSTRA assessment of the Swords North West area (presented in Section 12 of the subject TTA), it is estimated that the overall traffic increase and impact will not be of a scale that would indicate a requirement for additional road capacity at Junction 3.

It is noted that Junction 3 has been part upgraded as part of the LIHAF funded works to the Rathbeale Road via the provision of a new right hand turn lane on the western approach to the existing Murrough Road Junction and it is further noted it has been agreed with Linda Lally of FCC Transportation & Planning Department on 4 March 2022, that further wider infrastructure upgrade works, including that of the Murrough Road Junction 3, do not form part of the remit of the applicant.

Junction 4 – Glen Ellan Road Roundabout

Junction 4 is an existing four-armed priority-controlled roundabout located east of the proposed development site. This junction was modelled based on its current configuration and the results of the ARCADY modelling are shown 13.25 below. The arms of the roundabout were labelled as follows within the ARCADY model:

- Arm 1: Glen Ellan Road (E);
- Arm 2: Glen Ellan Road (S);
- Arm 3: Glen Ellan Road (W);
- Arm 4: Northern Arm (N).



Figure 13.24: Junction 4 – Glen Ellan Road Roundabout

Junction 4 is an existing four-armed priority-controlled roundabout located east of the proposed development site. This roundabout has been modelled based on its current configuration and the ARCADY analysis results are summarised in Table 12.23 below. The arms of the roundabout were labelled as follows within the ARCADY model:

- Arm 1: Glen Ellan Road (E);
- Arm 2: Glen Ellan Road (S);
- Arm 3: Glen Ellan Road (W);
- Arm 4: Northern Arm (N).

The analysis results in Table 12.26 indicate that Junction 4 is currently operating well within capacity during both peak hours, with the highest RFC at 0.58 and a corresponding queue of 1.4 vehicle during the AM and a maximum RFC at 0.44 with a corresponding queue of 0.8 vehicle recorded for the PM.

For the future assessed year of 2042, with the inclusion of the estimated trips to/from the overall Oldtown Mooretown LAP development, the results indicate Junction 4 would operate at capacity during the AM peak hour, with the highest RFC at 0.76 and a corresponding queue of 3.1 vehicles, and within capacity during the PM peak hour, with the highest RFC at 0.55 and a corresponding queue of 1.2 vehicles recorded.

Arm	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
	Queue (veh.)	RFC	Queue (veh.)	RFC
2022				
Arm 1	0.4	0.30	0.6	0.37
Arm 2	0.5	0.34	0.5	0.35
Arm 3	1.1	0.51	0.3	0.24
Arm 4	0.4	0.27	0.2	0.15
2027				
Arm 1	0.8	0.45	0.7	0.41
Arm 2	0.8	0.44	0.6	0.38
Arm 3	2.8	0.74	0.3	0.26
Arm 4	0.6	0.39	0.2	0.17
2027 + LAP Developments				
Arm 1	0.8	0.45	1.1	0.52
Arm 2	0.8	0.44	0.8	0.45

Arm 3	2.8	0.74	0.5	0.33
Arm 4	0.6	0.39	0.2	0.18
2032				
Arm 1	0.5	0.35	0.7	0.43
Arm 2	0.6	0.38	0.7	0.40
Arm 3	1.4	0.59	0.4	0.27
Arm 4	0.5	0.33	0.2	0.17
2032 + Overall LAP				
Arm 1	0.9	0.47	1.2	0.54
Arm 2	0.9	0.46	0.9	0.47
Arm 3	3.2	0.77	0.5	0.35
Arm 4	0.7	0.41	0.2	0.19
2042				
Arm 1	0.6	0.37	0.8	0.44
Arm 2	0.7	0.40	0.7	0.42
Arm 3	1.6	0.61	0.4	0.28
Arm 4	0.5	0.35	0.2	0.18
2042 + Overall LAP				
Arm 1	0.9	0.48	1.2	0.55
Arm 2	0.7	0.41	0.9	0.49
Arm 3	3.1	0.76	0.6	0.36
Arm 4	0.7	0.41	0.2	0.20

Table 12.25: Junction 4 - ARCADY Analysis Results.

12.8 Do Nothing Scenario

Should the proposed development not take place, the access roads and infrastructure will remain in their current state and there will be no change. Background traffic would be expected to grow over time. Given the location and zoning of the subject site, it is reasonable to assume that a similar development, with a potentially more intensive requirement for vehicular trips would be established on this site at some stage in the future.

12.9 Risks to Human Health

Construction Stage

A number of temporary risks to human health may occur during the construction phase related to noise, dust, air quality and visual impacts which are addressed in other sections of this EIAR. Traffic impacts are considered to be negligible due to the implementation of mitigation measures identified in Section 13.10.

Operational Stage

There will be increase in traffic on the local road network.

12.10 Mitigation Measures

In order to eliminate or reduce the potential impacts described above, remedial and mitigation measures will be implemented as set out below and in the Construction Management Plan included under a separate cover with this application.

Construction Stage

- Adequate signposting will be located on site to ensure safety of all road users and construction workers.
- Due to the proximity if the proposed site along well serviced bus routes and being well served by cycle lanes, it is intended to limit construction staff parking and to encourage the use of public transport. A limited number of car parking spaces may be provided for senior construction managers within the development site. Suitable locations in the surrounding area may be identified where staff can park and link to public transportation.
- The main contractor as part of their site set up arrangements, shall appoint a Coordinator responsible for the implementation of a Construction Stage Mobility Management Plan and shall carry out the following tasks as part of their role:
 - Provide an extensive information service for public transport options and routes at public location(s) within the development for construction workers;
 - Update the public transport information adjacent to the development on on-going basis; and
 - Advise company staff of tax incentives for public transport and bicycles.
- For those wishing to cycle to and from the development, dedicated cycle parking will be provided for the duration of the works within the site. Shower facilities and lockers will also be provided.
- A dedicated “construction site” access/egress system will be implemented during the construction phases.
- Hoarding will be set up around the perimeter to prevent pedestrian access.
- Dedicated construction haul routes will be identified and agreed with the local authority prior to the commencement of constructions activities onsite.
- A material storage zone will also be provided in the Construction Compound area. This storage zone will include material recycling areas and facilities.
- A detailed Construction and Traffic Management Plan will be prepared by the contractor and agreed with the Local Authority prior to commencing works on site.

Operational Stage

- To reduce traffic impact and to promote more sustainable modes of transport a Mobility Management Plan will be prepared for the development
- A management company will be appointed by the developer to manage the development. A senior member of staff from the management company who supports the philosophy of the Plan will be appointed as the Co-ordinator. The Co-ordinator will be responsible for:
 - Implementation and maintenance of the Plan;
 - Monitoring progress of the Plan
 - Liaison with public transport operators and officers of the Planning and Highway Authorities;
 - Production of information reports for the Developer, the occupier(s) and the Planning and Highway Authorities; and
 - Ongoing assessment of the objectives of the Plan.
- Up to date local bus timetables will be maintained within the tenant amenity area and other fixed points within the buildings on the site. Residents will be advised of their location. In addition, internet access to travel information will be provided. The developer will provide all new residents with a travel pack showing alternative modes of travel to the development. Where possible, the developer will advise visitors to the site of alternative modes of travel to that of the car.
- Secure parking facilities will be provided for residents, visitors and Creche users. Local cycle route information will be provided in the tenant amenity area and at other fixed points within the development and residents will be advised of their location. Details of cycle parking provided is included in the Traffic and Transport Assessment provided with the planning submission.
- 5 No go Car spaces will be initially provided and details of how to join the scheme will be provided to all residents when they move into their apartment. Information will also be displayed within the resident amenity area and updated when required.
- The Co-ordinator will be responsible for the management of inappropriate parking within the development. This parking management will ensure that spaces are reserved for those who have rented the space and will be accessible only to those users.

12.11 Predicted Impacts of the Proposed Development**Construction Stage**

Due to the proposed mitigation measures outlined above, the impact of the proposed development will be temporary and minimised during the construction stage.

Operational Stage

- There will be increase in the use of the road network by private vehicles. A mobility management plan will promote more sustainable forms of transport.

There will be an increase in the number of pedestrians and cyclists in the surroundings of the development. However, footpaths and cycling paths are provided as part of the proposed development and the overall Oldtown area, thus, impact should be minimal.

12.12 Monitoring

Construction Stage

Traffic management and deliveries will be carefully monitored during the construction stage as part of the Construction Management Plan. The appointed contractor will monitor their mobility management plan to ensure that is operating effectively. Local residents will be kept fully informed of construction activities through mail shots, email and site notices.

Operational Stage

During the operational stage the Mobility Management Plan will be monitored by the Co-ordinator. The travel survey will establish the initial modal split of travel by residents.

The Co-ordinator, in consultation with the Developer, the Occupiers, and the Local Authority or its agents, will agree annual targets, following completion and analysis of the travel survey, for increasing the percentage of non-car modes.

The Co-ordinator will:

- Meet with officers of the Local Authorities or its agents within a period of 6 months following occupation of the building(s) and thereafter every 12 months to assess and review progress of the Plan and agree objectives for the next 12 months, and
- Prepare and submit to senior management of the Developer, the Occupier(s) and the Local Authorities or its agents, an annual Monitoring Report.

12.13 Interactions

Construction Stage

Temporary negative impacts to human health may be likely during the Construction Phase due to noise, dust, air quality and visual impacts which are discussed in the relevant chapters of this EIAR. Temporary traffic management will be required to facilitate connections to existing utilities in the existing roads.

The traffic impacts, which would be temporary in duration are not considered to be significant due to the implementation of the mitigation measures identified in Section 13.10.

Operational Stage

Noise generated by increased traffic flows have been assessed in the Air and Noise Chapters of the EIAR.

12.14 Difficulties Encountered

There were no difficulties encountered.

12.15 References

- Dublin BusConnects Website: [New Dublin Area Bus Network - BusConnects](#)

- Design Manual for Urban Roads and Streets (DMURS), Department of Transport, Tourism and Sport
- Irish Rail Website: www.irishrail.ie
- Fingal County Council Development Plan 2017 – 2023
- Oldtown-Mooretown Local Area Plan (October 2010)
- NRA Guidelines, Traffic and Transportation Assessment Guidelines (2014), National Roads Authority
- Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections, (May 2019), Transport Infrastructure Ireland Publications
- Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts, (2016), Transport Infrastructure Ireland Publications
- Transport for Ireland (TFI): www.transportforireland.ie

13.0 CULTURAL HERITAGE

13.1 Introduction

Chapter 13 of this Environmental Impact Assessment has been prepared by Courtney Deery Heritage Consultancy Ltd. It examines the cultural heritage (comprising cultural heritage, archaeological and architectural heritage) background of the proposed development at Mooretown Phase 3, Swords, Co. Dublin. The proposed planning application area, Phase 3, lies in the townland of Mooretown, south of the Rathbeale Road (R125) to the west of Swords Town in north County Dublin.

The proposed development is located within the southwestern section of the Oldtown Mooretown Local Area Plan (LAP) lands. It is bounded to the east and west by agricultural land, to the south by the existing Abbeyvale housing development and agricultural land, and to the north by Swords Community College and future Phase 2 lands (Fig. 13.1).

The development comprises a residential development with some retail and associated car parking and landscaping etc. (Figure 13.2, see Section 13.4 below for a more detailed description). Vehicular accesses will be provided onto Main Street and the Mooretown Distributor Road (Western Distributor Link Road) [under construction]. A proposed stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River with associated manholes on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road is also proposed (Figure 13.1).

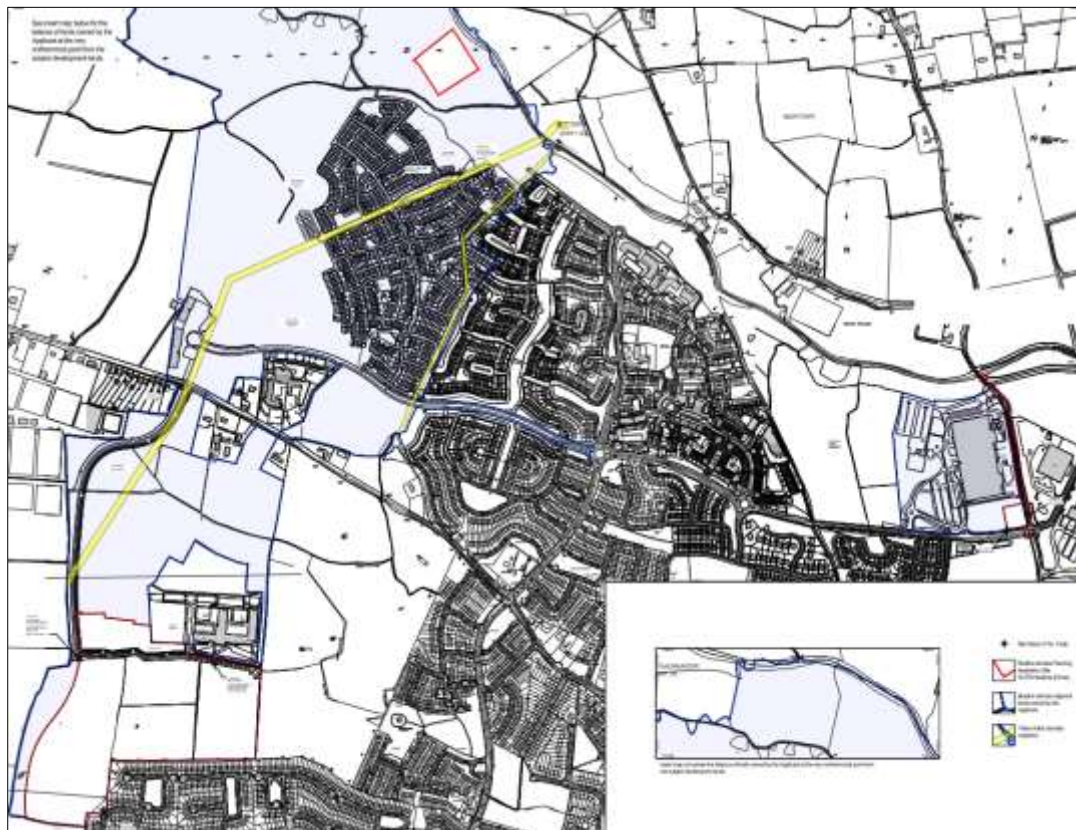


Figure 13.1 – Site Location



Figure 13.2 – Proposed development site layout

The objective of the report is to assess the impact of the proposed development on the receiving cultural, archaeological and archaeological heritage environments and to propose ameliorative measures to safeguard any monuments, features, finds of antiquity or features of architectural or cultural heritage merit.

This assessment has been prepared in accordance with the EIA Directive 2014/52/EC and current Environmental Protection Agency (EPA) guidelines. This section should be read in conjunction with the site layout plans and project description sections of this EIAR.

13.2 Methodology

13.2.1 Archaeological Heritage Assessment Methodology

This archaeological impact study was based on the combination of a desk study, geophysical survey, archaeological testing, monitoring and excavations within the application area. The following sources were availed of:

Record of Monuments and Places (RMP) and Sites and Monuments Record (SMR)

The primary source of information for the desk study is the Record of Monuments and Places (RMP) of the Department of Housing, Local Government and Heritage (DHLGH). The Sites and Monuments Record (SMR), as revised in the light of fieldwork, formed the basis for the establishment of the statutory RMP pursuant to Section 12 of the National Monuments (Amendment) Act, 1994. The RMP records known upstanding archaeological monuments, their original location (in cases of destroyed

monuments) and the position of possible sites identified as cropmarks on vertical aerial photographs. It is based on a comprehensive range of published and publicly available documentary and cartographic sources. The information held in the RMP files is read in conjunction with constraint maps (published at reduced six-inch scale). The RMP is constantly updated and is the first stage in the preparation of a national archaeological survey; inventories are published at an interim stage. The sites and monuments database of the Archaeological Survey of Ireland which is available online at www.archaeology.ie was also examined.

The topographical files of the National Museum of Ireland

The topographical files of the National Museum of Ireland (NMI) identify recorded stray finds held in the museum's archive. The finds, which are donated to the state in accordance with national monuments legislation, are provenanced to townland and sometimes include reports on excavations undertaken by NMI archaeologists earlier in the twentieth century.

Oldtown-Mooretown Archaeological Investigations 2003–2009, 2011, 2013–2020

As part of the LAP, (adopted 2010) several phases of licenced non-invasive and invasive archaeological assessments have been carried out across the Oldtown-Mooretown LAP lands within which the present planning application lies (Appendix 13.1 provides a full list of surveys carried out). The focus of many of the earlier investigations was to provide a detailed archaeological assessment for consideration in the development of a planning strategy for the LAP. The most significant result of these investigations has been the identification of a previously unknown extensive early medieval ecclesiastical complex; a religious site with burials and settlement, dating to the first millennium AD. This complex is entirely subsurface, without any remains above ground, and presents only as natural ridges within green fields. It extends from the southern part of Oldtown, into the northern part of Mooretown. The complex is now cut by the Rathbeale Road and separated into two different townlands. Later investigations were specific to individual planning applications within the LAP area.

In addition to the ecclesiastical complex at Oldtown-Mooretown, further significant unrecorded archaeological sites were discovered within the Mooretown lands to the south of the Rathbeale Road, including a water mill, a medieval settlement in vicinity of what is known as Glasmere Abbey (RMP no: DU011-019), a fulacht fiadh (RMP no: DU011-148) and natural spring source for the recorded holy well (RMP no: DU011-018), and a possible ringfort (RMP no: DU011-147). In Oldtown a large ditched-enclosure was identified as a result of testing in 2013 and remains in situ (RMP no: DU011-150) within the Phase 5 and adjacent Phase 4 lands and more recently a further ditched enclosure was excavated in Rathbeal within the Phase 2 lands (licence Ref. 19E0736). Further smaller scale archaeological remains have also been uncovered within the wider lands as a result of testing and monitoring and include a number of cereal drying kilns, a well and various pits. Figures 13.4 and 13.6 provide an overview of the archaeological findings.

Oldtown Mooretown Conservation and Management Plan (Courtney, 2010)

Given the scale and significance of the discoveries within the LAP lands, a Conservation and Management Plan was undertaken on behalf of Fingal County Council. The plan outlines the historical and cultural significance of the LAP lands at Oldtown-Mooretown. It recognises the subsurface nature

of the newly identified sites and features, and that any future development layout should support the identity of these sites and features. The provisions of the Archaeological Conservation and Management Plan form an integral element of the LAP strategy and have been vital in informing the Urban Design/Landscape Masterplan(s) for the lands.

The plan outlines policies for the protection and management of the below-ground remains and provides recommendations for improving access in the form of an Archaeological Park and greenways, linking archaeological features and surrounding parklands. It also provides guiding principles for the future planning and development strategies in the LAP area.

Consultation

The then Department of Culture Heritage and the Gaeltacht (DCHG, now Department of Housing Local Government and Heritage, DHLGH) was consulted through all key stages of the LAP particularly in relation to the establishment of buffer zones around the sensitive subsurface archaeological sites and in the compilation of the Conservation and Management Plan 2010 which has informed the Masterplan for the area.

Geophysical Survey

Two phases of geophysical survey have been undertaken within the Mooretown Phase 3 application lands (Fig. 13.3). The first was undertaken in 2005 in the eastern part of the Mooretown LAP lands (Leigh, 2005; Licence no: 05R0170), while the second was undertaken in 2008 along the western side of the Mooretown LAP lands (Thébaudeau, 2008, Licence no: 08R0026).

Test Excavations

A programme of test excavations was undertaken in 2006 (Bolger, 06E0578) and 2008 (Frazer & Erikson, 08E0303) which included the Mooretown Phase 3 application lands. Within the application area two trenches (T10 and T11) were excavated in 2006 and 11 trenches (T37 – T47) were excavated in 2008 (Fig. 13.3).

Excavations

In addition to the extensive archaeological investigations within the lands, the summary results of excavations that previously have been undertaken in the environs of the proposed development was also examined in 'Excavations', an annual bulletin that contains summary accounts of all excavations carried out annually in Ireland. The bulletins range from 1969 to 2021 and can be accessed at www.excavations.ie. Full excavation reports up to 2017 were also sourced from the Dublin County Heritage GIS dataset which is found the Heritage Councils website, www.heritagemaps.ie.

13.2.2 Architectural and Cultural Heritage Assessment Methodology

The main purpose of the architectural heritage and cultural heritage assessment is to examine the potential significance and sensitivity of the existing architectural and cultural heritage environment, and in turn to evaluate the likely and significant impacts of the proposed development on this environment. The assessment of the architectural and cultural heritage is based on a desk study of published and unpublished documentary and cartographic sources:

The Record of Protected Structures (RPS) and National Inventory of Architectural Heritage (NIAH)

The primary source of architectural heritage information is Fingal County Development Plan (2017-2023) which was consulted for the Record of Protected Structures (RPS) in the study area. The National Inventory of Architectural Heritage (NIAH) survey of Fingal was carried out in 2002; this building survey highlights a representative sample and raises awareness of the wealth of architectural heritage in the county. The NIAH surveys can be reviewed at www.buildingsofireland.ie.

Documentary and Cartographic Sources

Documentary and literary sources were consulted in the Trinity map library and the National Library of Ireland; they are listed in the bibliography in Section 10. A review of historical maps was also undertaken, at sources online such as www.downsurvey.tcd.ie and www.osi.ie where the following were examined: Down Survey, Barony Map of Nethercross, 1656 (Fig. 13.7), the first six-inch edition of the Ordnance Survey series, 1843 (Fig. 13.10), and Revised 25-Inch OS Map, 1907. In addition, digital copies of John Rocque's map of County Dublin 1756 (Fig. 13.8) and Taylor's Map of County Dublin, 1816 (Fig. 13.9) were also reviewed.

13.2.3 Architectural and Cultural Heritage Assessment Methodology

The following guidelines were considered and consulted for the purposes of the report:

- National Monuments Acts, 1930-2004
- The Planning and Development (Strategic Infrastructure) Bill, 2006
- Heritage Act, 1995
- CAAS Environmental Ltd on behalf of the Environmental Protection Agency (EPA) (2002), Guidelines on the information to be contained in Environmental Impact Statements
- CAAS Environmental Ltd on behalf of the Environmental Protection Agency (EPA) (2003), Advice Notes on Current Practice (in preparation of Environmental Impact Statements)
- EPA (2017), Revised Guidelines on The Information to be Contained in Environmental Impact Statements, Draft
- EPA (2017), Advice Notes for Preparing Environmental Impact Statements Draft
- Department of Arts, Heritage, Gaeltacht and Islands (DAHGI), (1999a), Framework and Principles for the Protection of the Archaeological Heritage
- NRA, (2006), Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes
- NRA, (2006), Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999 and the Planning and Development Act 2000 to 2006

Excerpts from the relevant legislation are contained in Appendix 13.2.

13.2.4 Assessment Criteria/Indicators

Archaeological Heritage

The significance criteria used to evaluate an archaeological site, monument or complex are as follows: existing status (level of protection), condition or preservation, documentation or historical significance, group value, rarity, visibility in the landscape, fragility or vulnerability, and amenity value. In accordance with the EPA guidelines (EPA, 2003, 139) the removal of archaeological remains will result in a negative, direct and significant impact. This impact can, however, be mitigated by excavation in which a detailed record and archive of each site and also the publication of the results are provided, thereby ensuring preservation by record. Archaeological features may, in some situations, be considered as architectural heritage and therefore, may appear on both the RMP and RPS. This means that these features are protected by both the National Monuments Act and the Planning and Development Act 2000 and 2006.

Architectural Heritage

‘Architectural heritage’ is defined as all structures and buildings (together with their settings and attendant grounds, fixtures and fittings, groups of such structures and buildings and sites), which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Architectural heritage is generally visible and has a presence in the landscape which requires assessment (Architectural Heritage Guidelines for Local Authorities 2006). The Record of Protected Structures (RPS) was set up to protect structures determined to be of special interest and its effect is to seek to retain the special character and features that make these structures significant. A direct impact is where a feature or site of architectural heritage merit is physically located in whole or in part within the footprint of a potential development site. Recommendations are based on the architectural heritage merit of a structure or building, and whether this necessitates its preservation, either by avoidance, or by carrying out a record of the past prior to removal or if possible, relocation.

The management and protection of architectural heritage in Ireland is achieved through a framework of European and international conventions and national laws and policies (Department of Arts, Heritage, Gaeltacht and the Islands, Framework and principles for the protection of the archaeological heritage 1999, 35). The Convention for the protection of Architectural Heritage in Europe (the Granada Convention, 1985) was ratified by Ireland in 1997. The Convention emphasises the importance of inventories in underpinning conservation policies. The National Inventory of Architectural Heritage (NIAH) was established to fulfil Ireland’s obligations under the Granada Convention.

Cultural Heritage

‘Cultural heritage’ is a general term used to describe aspects of the environment which are valued for their age, beauty, history or tradition. It encompasses aspects of archaeology, architecture, history, landscape and garden design, folklore and tradition and topography. Cultural heritage is expressed in the physical landscape in numerous and often interrelated ways. Cultural heritage is bound up with the beliefs and oral traditions of local populations, and any items of interest made known by local inhabitants during the course of site work will be duly considered, recorded and assessed. Site work was augmented by an examination of local publications and historic map sources, namely Ordnance

Survey six-inch maps. In terms of impact on cultural heritage the EIS only details the features that will be physically or socially (human beings' chapter) impacted by the scheme.

13.3 Receiving Environment

13.3.1 Archaeological and Historical Background

13.3.1.1 Introduction

The proposed development lands lie within the Oldtown Mooretown Local Area Plan (LAP) lands on the north-western outskirts of Swords town, Co. Dublin. The LAP lands are situated either side of the Rathbeale Road within the townlands of Rathbeal, Oldtown and Mooretown, in the parish of Swords and the barony of Nethercross. The Phase 3 application lands lie to the south of the Rathbeale Road (R125), in the southwest of the LAP lands, in the townland of Mooretown (Fig. 13.1).

Fingal has a wide range of recorded archaeological monuments (Record of Monuments and Places Sites (RMP Sites) and Sites and Monuments Record sites (SMR sites)), which is well attested in the archaeological record from the prehistoric period through to medieval and post-medieval times.

As part of the LAP process the lands have been subject to a succession of non-invasive and invasive archaeological investigations since 2003 comprising desk studies, field walkover surveys and licenced geophysical surveys, test excavations, archaeological monitoring and archaeological excavations (Figs. 13.3; listed in Appendix 13.1). The earlier archaeological investigations were carried out in order to provide a detailed archaeological assessment for consideration in the development of a planning strategy for the LAP lands. The archaeological investigations identified previously unknown subsurface archaeological sites and features that had no above ground representation and established the plan-form extent of these sites. The definition of these sites has led to a comprehensive understanding of the archaeological landscape within the receiving environment and has enabled a considered strategy for the preservation in situ and protection of significant archaeological remains to be put in place. These sites have since been added to the Sites and Monuments Record (SMR) and are scheduled for inclusion in the next revision of the Record of Monuments and Places (RMP). The Oldtown Mooretown Archaeological Conservation and Management Plan (2010) was a vital component in the LAP strategy for the lands, it has been instrumental in the Urban Design/Landscape Masterplan(s) for the lands which has led to the protection and preservation in situ of the significant subsurface archaeological remains at the site. More recent archaeological investigations within the LAP lands were in response to individual planning applications within the LAP area.

Within the Mooretown Phase 3 application lands a ringfort of probable early medieval date has been identified and its preservation in situ has been incorporated into the proposed development as a green area (RMPDU011-147). A burnt mound and possible ring-ditch have also been identified and are scheduled for full excavation resulting in preservation by record (RMPDU011-146001 & 002). An additional area of archaeological potential was highlighted as a result of testing in 2008 to the north of the burnt mound and ring-ditch above, however this was investigated when topsoil was stripped for the western distributor road in 2015 and found not to be of archaeological interest (McLoughlin, 2015, licence ref. 13E0366).

The archaeological findings within the Mooretown Phase 3 application area are considered within the context of an overall landscape perspective for the entire LAP lands. Therefore, the results of investigations that have been carried out in the proposed application area and the entire LAP area are examined together. The dominant archaeological periods represented within the LAP lands are the Bronze Age (2400-500BC), the early medieval (AD 400-1100), the medieval (c. AD 1100-1534) and the early post-medieval (c. AD 1534-1700) periods. This emerging multi-period landscape is described below by time period and is best understood when read in conjunction with Figure 13.3 below where geophysical survey interpretative results, the test trench locations and the archaeological areas are shown.

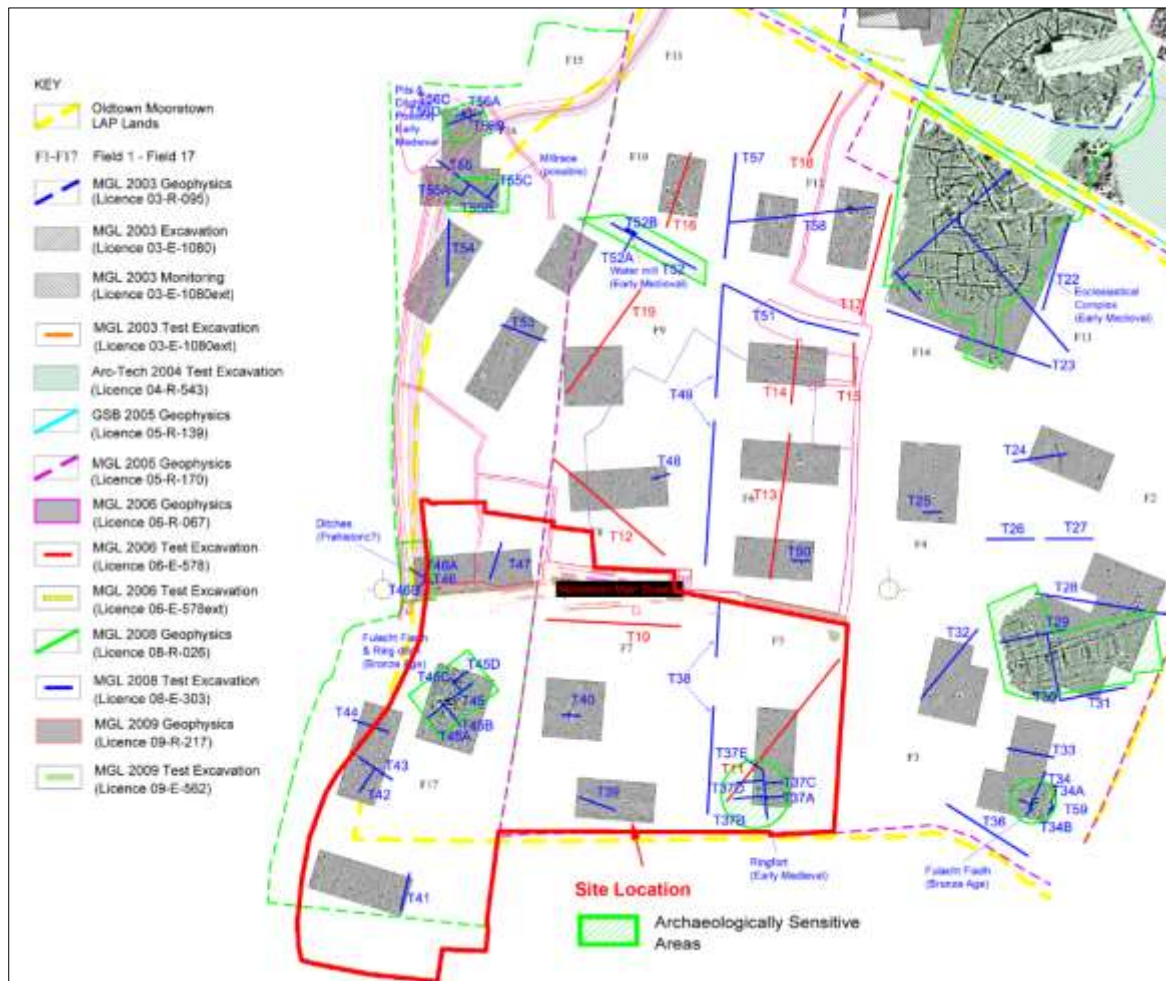


Figure 13.3 – Summary of previous geophysical survey and testing in the surrounding area, proposed development location and archaeologically sensitive areas marked in green.

13.3.1.2 Neolithic

The earliest evidence for prehistoric activity from the townlands of Mooretown, Oldtown and Rathbeal comprises two sherds of early Neolithic carinated bowl ceramics that were recovered from a pit in Oldtown, Phase 2 (Rice 2019).

A late Neolithic Grooved ware urn burial was also excavated in Mooretown on the site of the recently constructed Swords Community College, along with various fire pits and waste pits across the site

(McGlade, 2019 & pers comm). The urn burial comprised the truncated remains of an upright pot with packing stones.

13.3.1.3 Bronze Age / Iron Age

The Bronze Age is represented by two fulachta fiadh and a ring ditch which were identified in Mooretown during testing in 2008 (RMP no: DU011-146001, DU011-148) with one of the fulachta fiadh overlying a ring-ditch (RMP no: DU011-146002). During pre-development excavations for the Mooretown Phase 1 development a burnt mound with associated trough and possible waterhole was excavated and returned a radiocarbon date in the early Bronze Age (2402-2150 BC). Separately a pit containing sherds of Beaker pottery was also excavated. The pottery was identified as fragments of a Bell Beaker and All-Over-Ornamented Beaker which dates to c.2500/2400 (McLoughlin, 2021).

Fulachta fiadh ('burnt mounds', 'burnt spreads' or 'cooking sites') are made up of three main elements: a hearth in which stones were heated; a trough in which water was heated using the stones; and a low mound or flatter 'spread' of the stones, burnt and shattered after use. Besides cooking, a variety of functions have been suggested for these sites, including their use as saunas (Buckley 1990; Barfield and Hodder 1987; Brindley 1989–90), for the washing and dyeing of cloth or wool and for tanning/leatherworking (Brindley 1989–90). In instances where no confirmed trough has been located, the sites are usually assigned the moniker 'burnt mound'— indicating that there is some surviving depth of charcoal ash and fire-cracked stone and/or the site presents as a topographic feature—or 'burnt spread'—implying only a thin depth of surviving archaeology. These sites represent a basic and widely-used kind of technology—the heating of stones as a means of warming, heating or boiling water. They have been called the 'kitchen sinks' of the Irish Bronze Age (Quinn and Moore 2007), an indication of the variety of purposes for which they served. Increasingly, the absence of water at some of these sites may also suggest that heated stones were used for other purposes that did not involve water – for example cooking in an 'earth oven' or 'roasting pit'. Their use as open-air cooking sites has been interpreted as feasting and food-sharing sites among small family groups which was related to social bonding (Hawkes 2015). The majority of fulachta fiadh/burnt mounds/burnt spreads in Ireland that have been dated indicate use during the Mid–Late Bronze Age.

Other recent additions to the prehistoric record include a ditched enclosure located in the north of the Oldtown Phase 5 lands (DU011-150), which is being preserved in situ, and a recently excavated middle-late Bronze Age urn burial and a burnt spread, troughs and pits dated to the late Bronze Age, also in the Oldtown Phase 5 development lands (Rice & McLoughlin, 2021).

Evidence for the Iron Age has also been uncovered in Rathbeal and Oldtown, where as a result of the various phases of development six cereal drying kilns have been excavated, and of those five have returned Iron Age date ranges and one returned a date range in the late Iron Age / early medieval period transition. The earliest of these was a figure of eight shaped kiln and a charred barley grain from it returned a date range of 402—207 cal. BC (Moraghan and McLoughlin 2016, 21). In an area developed as a GAA pitch a charred grain of emmer/spelt type wheat from an oval kiln returned a date range of 149 BC—AD 118 (Clancy and McLoughlin 2018, 16). In the Oldtown phase 5 lands, three figure-of-eight kilns were excavated and two were dated to the late Iron Age (AD 132-327 and AD 132-324) and one dated to the late Iron Age/early medieval period transition (AD 433-571) (Rice &

McLoughlin, 2021). Further north, in the area around the GAA pitch another figure-of-eight shaped kiln was dated to AD 341–533 (Clancy and McLoughlin 2018, 24–5).

A penannular ring ditch containing cremated bone and pyre debris was also excavated in Rathbeal as part of the Oldtown Phase 2 development and was dated to the Iron Age 358 - 95 BC (Rice & Baldwin, 2021).

Ring-ditches are another widespread type of prehistoric site type, dating from the Bronze and Iron Ages (c. 2400BC–400AD). The term refers to the circular—or sometimes annular—shape in plan of an encircling ditch, sometimes surrounded by a low concentric bank ('ring-bank') or enclosing a low interior mound ('ring-barrow'). The distinction between the three types of related funerary monuments is often hard to discern, particularly after centuries of farming have truncated their remains. Ring ditches are usually associated with pits filled with cremated human burial remains. They seem often to be distributed along river valleys, frequently in topographical locations that mimic their shape or accent their prominence—on hillslope spurs or 'false crests' near to the summit of hills.

The Iron Age is thought to have been a period of climatic decline, with lower populations and woodland regeneration. Archaeological investigations are increasingly demonstrating, however, that significant agriculture and settlement was practiced in certain areas. The discovery of cereal drying kilns and a ring-ditch dating to this period in Oldtown demonstrates that there was settlement in the wider area at that time and suggests continuity between the Bronze Age and Early Medieval phases which are so evident in that landscape.

13.3.1.4 Early Medieval Period

Ecclesiastical Settlement

A significant early medieval ecclesiastical complex with burials - a previously unknown settlement and religious site dating from the first millennium AD- was identified in 2003 (Baker 2004)(DU011-144001). The complex is centred in the southern part of Oldtown townland and extends further south across the Rathbeale Road into Mooretown townland (Fig. 3). The southern extent of this site is located approximately 350m to the northeast of the Mooretown Phase 3 proposed development area.

A holy well (DU011-018) dedicated to St Cronan, the seventh-century-AD saint, is recorded within the southeast corner of the Mooretown LAP lands and 220m east of the proposed development area. Holy wells are a Christian adaptation of a pre-Christian tradition of sacred springs, which like their pagan predecessors, were often visited at certain times of the years, and often had a reputation for effecting cures. There is a growing acceptance among archaeologists that holy wells are often indicators of early ecclesiastical settlement. Even though this well is 455m south of the secular activity revealed in Mooretown and some 700m from the ecclesiastical complex at Oldtown it may well have been venerated and linked to this establishment. It is no longer venerated and no longer visible above ground. It was formerly a station well and local tradition thought of it as cure for sore eyes and chicken pox (G. Stout, in RMP files at the DHLGH). Test-trenching at the site of St. Cronan's holy well has identified the precise location of the spring. Beneath more than a metre of peat, a man-made streambed or path of metalled stones (stones pressed into the underlying soil) was found, associated with nineteenth–twentieth-century potsherds and ceramic drainpipe fragments. The route of the

metalled streambed/path corresponds with that represented on recent Ordnance Survey maps, indicating that the metalling and all of the overlying peat is recent/modern.

Nearby to St. Cronan's well, immediately east of the LAP lands are the reputed remains of Cronan's early medieval church, Glasmore Abbey (RMPDU011-019). Material evidence suggests that the building is not a church, and that it is post medieval in date. As such, the surviving structure is discussed in the post-medieval section below.

Further evidence of an early medieval landscape and the importance of the ecclesiastical site is the presence of a possible watermill in Mooretown (RMPDU011-145). Early medieval horizontal watermills were used to grind grain but were also a means through which local potentates could control agricultural production. Their construction, the engineering of the neighbouring landscape (millraces, ponds, etc.) and the sourcing of certain materials (millstones) all required specialist technical knowledge and significant resources. They also required a sizeable labour force, even if the labour was acquired via 'customary' payment-in-kind obligations rather than conscription or payment. As a result of all of these factors, mills of the era were invariably under the control of a significant local or regional power, and archaeology has increasingly demonstrated that power was often ecclesiastical. A similar situation also pertained later in the medieval period (twelfth–sixteenth century AD), and certain medieval monasteries—such as the Abbey of St Thomas in Dublin—were well-known for their control of milling activities. In practice, control over this aspect of grain production seems in most cases to have entailed the literal overseeing of the mill by an ecclesiastical or lay authority, and mills are usually found in close proximity to a monastery, a castle or similar site. The inference from recent evidence is that the mill, like the enclosure, should be seen as a characteristic component of the early Irish monastery (Mc Erlean & Crothers 2007, 433).

A possible watermill was identified in Mooretown, comprising the foundations of a sub-square building, in addition to a possible funnel-shaped flume channel and tail race, as well as metalled surfaces, drystone walls and other associated features (see Frazer and Eriksson, 2008). This site lies to the west of the Oldtown-Mooretown ecclesiastical centre, along a water course (DU011-145) and it is scheduled to be preserved in situ within parkland. Rice (2019), based on medieval remains identified in the vicinity of the watermill site during monitoring of topsoil stripping for the Mooretown Phase 1 development, has proposed that the remains identified in testing in 2008 may in fact represent a domestic dwelling or farmstead rather than a mill building. Two areas identified during monitoring by Rice in 2018, located 40m southeast and 50m northeast of the possible watermill site were excavated in 2020 and comprised agricultural and domestic activities dated to the 13th Century, and may support the idea of the possible watermill remains actually being a domestic dwelling dated to the later medieval period instead.

Secular Settlement

The most significant component of an early medieval secular settlement is the ringfort, the only domestic monument surviving in significant numbers from any period in Irish history. One possible ringfort has so far been identified within the Mooretown LAP lands (RMPDU011-147). The site in Mooretown was found to have a north-northeast entrance oriented towards the ecclesiastical complex and it is located within the Mooretown Phase 3 application lands. Ringforts are one of the

most widespread archaeological sites surviving in the Irish landscape. They generally comprise a circular shaped enclosure, although they can be a range of shapes, and generally measure between 20–50m diameter. The enclosure is typically a deep ditch outside of a bank (of earth, of earth and stone) or a drystone wall. They seem to have functioned as farmsteads and served to protect interior dwellings, their inhabitants and the farm's livestock. Often they have associated field systems and sometimes underground souterrains. Most that have been robustly dated were occupied between c. 500–1200 AD. They tend to be situated on, or near, particularly good agricultural land for both pasture and tillage, although in the latter case, they often demonstrate a preference for heavier soils than those that are today considered ideal for arable farming. Ringforts are usually sited on a gentle slope where they have a good, commanding view of the surrounding landscape and are often clustered relatively nearby in small groups. Such clusters typically demonstrate a morphological hierarchy, with a larger, often multivallate, ringfort in the best landscape position surrounded by smaller ringforts often oriented towards the main one.

Further ringfort sites are recorded c. 1.3km and 1.7km northeast in the townlands of Newtown and Broadmeadow (RMPDU011-078 and DU011-079). Both of these sites have been interpreted as levelled ringforts with associated field systems. In addition, a circular ditched enclosure was recently discovered and fully excavated in Rathbeal townland (Deery, 2020) within the Oldtown Phase 2 development lands. While scientific dating is awaited for this site, it is thought to date to the early medieval period.

Archaeological investigations in advance of adjacent development phases have revealed further evidence of Early Medieval activity in this area. In the Oldtown Phase 2 lands, a number of features were identified including a well that produced an iron billhook and quernstone fragment, as well as a series of ditches and gullies (Seaver 2017). The site of the GAA pitches and Attenuation area to the north was also the location of an enclosure site dating to cal. AD 777-1020 (Clancy and McLoughlin 2018; Licence no: 16E0342).

13.3.1.5 Later Medieval Period

Revenues for the principal archiepiscopal manor at Swords were generated predominantly from agriculture, through a manorial system that extracted payment in-kind from landless peasants who worked the land, and eventually also from slightly better-off tenants—freemen peasants and lesser nobles both—who leased farms and generally paid their rents in agricultural produce. In some cases, particularly with monastic lands, 'grange' manors were used to administer ecclesiastical lands more directly. These granges served as agricultural estates centred around a manor farm—often with a nearby mill, sometimes with fish ponds—run by a steward with either local labour or lay brothers. Their produce could be used directly or sold. Lands that had formerly been within the purview of some manner of early medieval ecclesiastical power and that were reassigned to a new Anglo-Norman ecclesiastical establishment by the late twelfth century may therefore also contain traces of the later medieval manorial system of tenant farms, granges and farm labourers' residences.

This appears to be the case in Mooretown, where most of the early medieval Oldtown/Mooretown ecclesiastical complex—certainly the southern annex of the complex which lies within the LAP lands—seems to have been disused or abandoned by the twelfth century. Instead, agricultural production

may have been administered from the medieval settlement identified south of the main ecclesiastical enclosure (RMPDU011-149). The archaeology identified there as a result of testing included medieval potsherds (dating from the twelfth–fourteenth century, and perhaps slightly later) and an iron riding spur, all of which may indicate the presence of a moderately-well-off tenant farm or grange farm. However, the ground plan of the settlement is more akin to the layout of a small village or hamlet, suggesting it formerly housed peasant labourers. In either case, settlement at the site seems to have persisted, in a reduced capacity, into the sixteenth–seventeenth centuries (on the basis of twenty early post-medieval potsherds also recovered). In addition, the recent excavations related to the Mooretown Phase 1 development lands in the vicinity of the possible watermill (RMPDU011-145) also revealed evidence for domestic and agricultural activity dated to the 13th Century (McLoughlin, 2021).

13.3.1.6 Post-Medieval Period

Mooretown is mentioned in the mid-seventeenth-century Civil Survey (1654-56AD). At that time the proprietor of Mooretown was ‘Sir Edward Bolton, knight of Brazeil, Protestant’. Several structures including a house, a barn and eight cabins are noted within the townland. Furthermore, it is recorded that ornamental ash trees, an orchard and a garden plot were also established by this time (after Bolger 2006). The latter features imply that the house was occupied by someone of middling station, in other words not Bolton ‘of Brazeil’ who resided in Brazil House (RMP no: DU011-086) in the townland of the same name, but rather his tenant. In the hearth money roll of 1664, the heads of eight households are listed in ‘Murrtowne’: Patrick Wales, John Kerrygane, James Gaffney, James Byrne, Christopher Comers, Nicholas Wales, Patrick Crane and John Ash (Anon. 1930–3: 418) all reside in homes with a single hearth, except Patrick Wales who possessed two hearths.

The reputed remains of Glasmore Abbey church (RMPDU011-019) lie c. 300m to the east of the Mooretown Phase 3 lands. The site is said to have a 7th century AD origin, but there is some uncertainty as to whether the location is that of Glasmore or another similar site for which the name has been forgotten. The surviving remains of a building (RMP no: DU011-019) of coursed limestone with dressed quoins set on their narrow sides, stands to a single storey. At the northern end of the structure there is a (reused?) window of fifteenth–sixteenth-century date. The structure is likely to be of seventeenth–eighteenth-century date (i.e., post-medieval), but it is of vernacular construction and not readily dateable by its architectural features. It is traditionally held that the early medieval Glasmore Abbey church was founded by St Cronan before the mid-seventh century AD (he is also said to have been martyred here). However, the building does not at all resemble a church. It could be a folly except that it is not in the grounds of a large estate. The structure also lacks a fireplace, such as might be expected in a house, although early post-medieval dwellings sometimes lacked proper chimneys and possessed instead a simpler firehood or even just a central hearth (with either a smokehole or a permeable thatched roof). The structure underwent a programme of conservation in 2001, in which loose stone was collected and inserted into the structure. In 1999 nearby archaeological work relating to the adjacent development revealed nothing of archaeological significance (Swan 1999), in particular no burials or any enclosure, both of which would normally be expected nearby an early medieval–medieval church. The small amount of early post-medieval pottery found nearby may be a clue as to the real origin of this building: it could be the surviving part of the house or barn (or a related outbuilding) owned by Edward Bolton in the mid-seventeenth-

century, perhaps with some of the cottier 'cabins' mentioned in the Civil Survey built over the medieval settlement in the southeastern corner of the Mooretown lands. Local tradition holds that James II was brought to the nearby townland of Rathbeal while on the way to the Battle of the Boyne (1690). The site of possible fortifications associated with this tradition (RMP DU011-016) is located approximately 400m northwest the Mooretown Phase 3 lands. The site consists of a series of gullies running northeast–southwest across a field. Considerable quantities of cut stone have been exposed during ploughing (after Bolger 2006).

13.3.2 Recorded Archaeological Monuments

Before the extensive archaeological investigation at the LAP lands there was a paucity of known archaeological material in these areas. This possibly is a testimony to the fertile soils, which led to an intensive agricultural regime which can denude upstanding earthen features. As a result of the various archaeological investigations within the LAP lands since 2003 several previously unknown archaeological sites that have no surface appearance have been discovered. These sites have been added to the Sites and Monuments Record (SMR) and are scheduled for inclusion in the next revision of the Record of Monuments and Places. They are listed below in Table 13.1.

Table 13.1 Recorded archaeological sites within the LAP Lands (RMP sites)

Area	Site Type and RMP no.	Possible date	Location
Area 1	Ecclesiastical complex, burials, field system DU011-144, DU001-003	Early Medieval	Oldtown, Field 1
Area 2	Ecclesiastical complex (secular and agricultural activity) part of the site located in Oldtown DU011-144004	Early Medieval	Mooretown, Field 13
Area 3	Medieval settlement (in the vicinity of recorded monument DU011-019, Abbey, Church site) DU011-149	Medieval	Mooretown, Field 2
Area 4	Natural spring source for the St Cronan's holy well (DU011-018) and a Fulacht fiadh (DU011-148)	Early Medieval and Bronze Age	Mooretown, Field 3
Area 5	Ringfort DU011-147	Early Medieval	Mooretown, Field 5
Area 6	Fulacht fiadh (DU011-146001) and ring-ditch (DU011-146002)	Bronze Age	Mooretown, Field 17
Area 8	Water mill DU011-145	Early Medieval	Mooretown, Field 9
Area 11	Ditched enclosure site DU011-150	Possibly early medieval	Oldtown, Field 4

Two recorded archaeological monuments (RMP/SMR site) are located within the Mooretown Phase 3 application lands and comprise a ringfort and a burnt mound overlying a possible ring-ditch (Fig. 13.4). These sites were discovered during testing carried out in 2008 to inform the LAP. The ringfort is of probable early medieval date and comprises a circular ditched enclosure 30m in diameter with a north-northeast facing entrance. The preservation in situ of this monument has been incorporated into the development plans as a green space (RMP DU011-147). The burnt mound and possible ring-ditch (RMP DU011-146001 & 002) are scheduled for full excavation (resulting in preservation by record).

There are no monuments recorded at the proposed storage tank and overflow outfall gravity sewer to the Broadmeadow River and associated manholes on lands at the junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road.



Figure 13.4– RMP/SMR sites and site location

Recorded archaeological sites within the overall LAP lands are described above in the context of their time periods and a full description of the investigations at each site is provided in Appendix 2. The protection of the significant subsurface sites was a major consideration in the development of a planning strategy for the LAP lands as well as for the Masterplan for the development of the present application area. As such, sensitive zones indicating the extent of each site has been established in consultation with the DCHG around each site which is published in the Conservation and Management Plan (Courtney, 2010).

13.3.3 Archaeological investigations within the proposed planning application area

Geophysical Survey

Two phases of geophysical survey have been undertaken within the Mooretown Phase 3 application lands (Figs 13.5). The first was undertaken in 2005 in the eastern part of the Mooretown LAP lands (Leigh, 2005; Licence no: 05R0170), while the second was undertaken in 2008 along the western side of the Mooretown LAP lands (Thébaudeau, 2008, Licence no: 08R0026).

In the 2005 survey, Areas 15, 16 and 17 are relevant to the application area. Of these, only Area 17 contained responses of potential archaeological interest. There was no clear archaeological pattern evident, and it was thought that it may represent plough damaged archaeology. In the 2008 survey Areas 22, 23, 24 and 25 are relevant to the application area. Of these, one clear area of archaeological potential was identified in Area 23 and was thought to represent burnt mound activity. Otherwise isolated positive responses were identified in Areas 24 and 25, possibly representing isolated archaeological pits.

Test Excavation

The geophysical surveys were followed by test excavation to establish the nature and the significance of the features identified (Fig. 13.5).



Figure 13.5 – Geophysical survey and test trench locations and associated RMP designations

Test Excavations 2006 (Bolger 06E0578)

A programme of test excavations was undertaken in 2006 (Bolger, 06E0578) which included two trenches within the Mooretown Phase 3 application lands (T10 and T11). These trenches were placed randomly, and no archaeological features or deposits were identified (Fig. 13.5).

Table 13.2 Summary of 06E0578 test trenches within Phase 3 application area

Trench No.	Length	Width	Depth	Description/archaeological features
T10	138m	2.2m	0.5m	No archaeological features, deposits or finds
T11	187m	2.2m	0.6m	No archaeological features, deposits or finds

Test Excavations 2008 (Frazer & Eriksson 08E0303)

A further eleven trenches (T37 – T47) were excavated in 2008 within the Phase 3 application lands. These trenches were mostly located in order to examine anomalies identified within the geophysical surveys (05R0170 and 08R0026) and to establish the nature, extent and character of any such remains. One trench (T38) was excavated to test the area adjacent to a north-south field boundary as requested by heritage authorities (Fig. 13.5).

Archaeological features were identified in two locations and possible archaeology was identified in one location. In T37 a ringfort was identified, measuring c.30m in diameter with an entrance facing north-northeast. In T45 a burnt mound overlying a possible ring-ditch was identified and in T46 a curvilinear ditch of uncertain but possibly prehistoric date was identified. It was thought possible that it could have been an outlying feature associated with the burnt mound identified in T45.

No features or finds of archaeological significance were identified in trenches T38, T39, T40 – T44 and T47.

Table 13.3 Summary of 08E0303 test trenches within Phase 3 application area

Trench	Length	Width	Depth	Description/archaeological features
T37	50m + 5 offsets, (total 171m)	2.15m	0.55m	Ringfort, 0.3m diameter, entrance to NNE. Ditch 2.3m wide, metalling around entrance, postholes suggesting internal palisade and entrance gate structure.
T38	195m	2.15m	0.4m – 0.55m	No archaeological features, deposits or finds
T39	40m	2.15m	0.4m	No archaeological features, deposits or finds
T40	20m	2.15m	0.35m	No archaeological features, deposits or finds
T41	40m	2.15m	0.35m – 0.4m	No archaeological features, deposits or finds
T42	30m	2.15m	0.35m – 0.4m	No archaeological features, deposits or finds
T43	44m	2.15m	0.35m – 0.4m	No archaeological features, deposits or finds
T44	40m	2.15m	0.35m – 0.4m	No archaeological features, deposits or finds
T45	60m + 4 offsets (total 148m)	2.15m	0.35m – 0.4m	Two spreads of burnt mound material, overlying a possible ring-ditch. Three troughs / pits & a further possible trough. Possible ring-ditch 11-12m diameter, 0.8m wide x 0.33m deep. Several postholes.
T46	40m + 2 offsets (total 58.5m)	2.15m	0.4m	Curvilinear ditch, uncertain date, width 0.8m – 1.3m, depth 0.5m, containing three fills. Exposed for 8m
T47	20m	2.15m	0.45m	No archaeological features, deposits or finds

13.3.4 Topographical files of the National Museum of Ireland

A stone mortar from Mooretown (NMI Reg. No 1958.80), is recorded in the topographical files in the National Museum of Ireland and has been variously interpreted as a holy water font possibly associated with Glasmore Abbey or a mortar from the medieval or late medieval period which would correspond with the recent findings in the area. The files do not record any stray finds for Oldtown or Rathbeal townlands.

13.3.5 Cultural Heritage

Townland Boundaries

Townlands are land divisions that form a unique feature in the Irish landscape, their origins can be of great antiquity, and many are of pre-Norman date. They existed well before the establishment of parishes or counties. Townland boundaries can take the form of natural boundaries or routeways as well as artificially constructed earthen banks and ditch divisions. They are predominantly formed of substantial boundaries which are usually distinguishable from standard field division boundaries. There are 62,000 townlands in Ireland, grouped into civil parishes, baronies, then counties and finally provinces.

The Phase 3 application area is located within the townland of Mooretown and the west and part of the southern limit of the application area comprises part of the townland boundary between Mooretown and Rathbeal, it will not be impacted by the development.

Townland Names

Townland names/ the toponymy of an area can be a valuable indicator of the type of cultural heritage within the local area. They are an invaluable source of information not only on the topography, land ownership, and land use within the landscape, but also on its history, the archaeological monuments and the folklore. Where a monument has been forgotten or destroyed, a place name may still refer to it, and may indicate the possibility that the remains of certain sites may survive below the ground surface. A variety of place names, whether of Irish, Viking, Anglo-Norman, and English origin and the appearance of the different languages is often a good indicator of the cultural heritage, and therefore the archaeological record of the area. The townland names in this part of Dublin reflect both the Anglo-Norman/English heritage and are dominated by the English language and are derived from family names such as in Mooretown. The nearby townland names of Oldtown and Rathbeal are likely to relate to the surviving tradition of settlement in the area, with Oldtown being an anglicisation of the Irish 'Seanbaile' and Rathbeal indicating a fort (rath), with an opening or entrance (beal).

13.3.6 Architectural Heritage

Scattered throughout the Fingal area is an extensive stock of historic buildings dating to mainly from the 18th to 20th century. These include, for example, cottages, houses, shops, farm complexes, outbuildings, mills, forges and inns. These structures built by local people for local people with local material are known as 'vernacular' buildings and contribute positively to the landscape and help to establish a distinctive character for a particular area.

There are no structures within the Mooretown Phase 3 application area and no protected structures are listed in the record of protected structures (RPS sites) in the Fingal Development Plan or in the National Inventory of Architectural Heritage (NIAH) within the bounds of the LAP area. The nearest protected structures are Rathbeale Hall, located approximately 1km northwest of the application area and Newton House located approximately 1.65m to the east-northeast in Newtown townland. The historic centre of Swords located approximately 1.7km to the east-southeast, contains a number of protected structures including the Swords Castle, Court House, Carnegie Library, the Old Borough School, Sexton's House, Old Vicarage, St. Columba's Church and St. Columcille's Church.

13.3.7 Cartographic Analysis

Down Survey, Barony Map of Nethercross, 1656 (Fig. 13.6)

Mooretown is recorded on the Down Survey Map of 1656 as being in the possession of Lord Chief Baron, protestant. No features are indicated within the lands.



Figure 13.6 – Down Survey Map of Nethercross 1656

Rocque's Map of County Dublin, 1760 (Fig. 13.7)

John Rocque's map of County Dublin in 1760 clearly depicts Mooretown to the west of Swords. The existing Rathbeale Road was in existence by this time and appears to divide Mooretown from Oldtown, north of the road. A cluster of buildings is depicted in Mooretown to the east of the Mooretown Phase 3 development lands and appears to represent a farmstead. These buildings could be on the site of the sub-surface medieval remains identified in geophysical survey in 2005 (Leigh 2006) or in the area of Glasmore Abbey, which is not marked on this map. The Mooretown Phase 3 application area is depicted as open farmland, with no structures depicted.

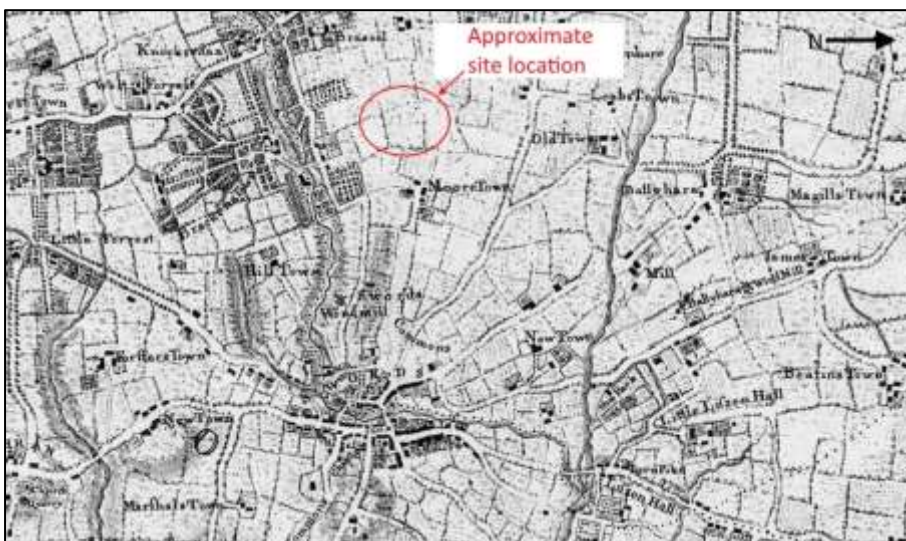


Figure 13.7 – John Rocque's map of County Dublin 1756

Taylor's Map of County Dublin, 1816 (Fig. 13.8)

Taylor records little additional detail on his 1816 map of Swords. Mooretown is named, as is *Rabaille* which appears to represent modern day Rathbeale and Oldtown is further to the north. The modern day Rathbeale road is depicted as it is on Rocque's map and there is a cluster of buildings at a junction

on the road to the northeast of the application lands named Holy studs. There do not appear to be any structures or features depicted within the Mooretown Phase 3 lands.



Figure 13.8 – Taylor's map of Dublin 1816

First edition Ordnance Survey map, scale 1:10560, 1837 (Fig. 13.9)

This is the first detailed map of the Mooretown Phase 3 lands which are depicted as open greenfield, with the townland boundary between Rathbeal and Mooretown forming the boundary of the application lands to the southwest. Glasmore Abbey and Cronan's well are depicted to the east. The only other feature of note within Mooretown is a path or trackway which leads from the vicinity of Glasmore Abbey, or more likely from the location of the later medieval settlement discovered in that area, northwest and then north into Oldtown where it joins a roadway leading to a cluster of buildings in the north of Oldtown, close to the Broadmeadow River. Holystuds, which was named on Taylor's earlier map is again depicted to the northeast of the lands but there are no buildings depicted at the location.



Figure 13.9 – First edition OS six-inch map 1837

Ordnance Survey map, scale 1:2500, 1906 (not shown)

Only very minor changes appear to have occurred to the townland between 1837-46 and 1906, with just a small number of field boundaries either being added or removed. The pathway leading from the vicinity of Glasmore Abbey is not depicted on this map and appears to have fallen out of use by this time. Glasmore Abbey is annotated 'in ruins'. There are no features depicted within the application area.

13.4 Characteristics of the Proposed Development

The proposed Strategic Housing Development consists of the construction of 650 no. residential units (265 no. houses, 187 no. apartments, 6 no. triplex units, and 192 no. duplex units), all with associated car parking; a childcare facility with associated car parking; 5 no. retail units and 1 no. café/restaurant; landscaping including play equipment; boundary treatments; public lighting; and all associated engineering and site works necessary to facilitate the development including proposed vehicular accesses onto Main Street and the Mooretown Distributor Road (Western Distributor Link Road) [under construction], and a proposed stormwater storage tank (with proposed vehicular/service access onto Balheary Road) and overflow outfall gravity sewer to the Broadmeadow River with associated manholes on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road.

The Oldtown-Mooretown Local Area Plan (LAP) and Masterplan have been prepared for the lands and the development of the LAP lands is taking place in a number of phases. The application lands are bounded by agricultural land to the east, west and partially to the south by agricultural land. Abbeyvale housing estate lies to the south and to the north is the recently completed Mooretown School Campus and the future Mooretown Phase 2 development lands which has been granted planning.

Ringfort site RMP DU011-147 which is located in the southeast of the Mooretown Phase 3 application area is to be preserved in situ and maintained as an open-space which is being integrated into the development proposals. Conservation measures will include protection of the underlying archaeological remains with a layer of terram and soils, the enhancement of the topographical setting through mounding and naturalised bulb planting to demarcate the location of the belowground remains. This will be part of the green space strategy for the LAP lands involving footpaths, open spaces and Archaeology Parks. Signage and seating will be provided as part of a network of historic information throughout the LAP lands.

A burnt mound and ring-ditch site (DU011-146001 & 002), located in the northwest of the application lands are scheduled for full archaeological excavation (resulting in their preservation by record).

13.5 Potential impact of the proposed Development

13.5.1 Archaeological Heritage

Two recorded (RMP/SMR) archaeological sites have been identified within the Mooretown Phase 3 lands, a ringfort site (DU011-147) site, and a burnt mound and ring-ditch site (DU011-146001, DU011-146002).

The proposed development has been designed to incorporate the ringfort (DU011-147) to preserve it in situ into the landscaping plans for the development in accordance with the Oldtown Mooretown LAP.

There will be a negative, direct and significant impact direct a burnt mound and ring-ditch (DU011-146001, DU011-146002).

The proposed storage tank and overflow outfall gravity sewer to the Broadmeadow River and associated manholes on the junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road will not impact on any recorded archaeological heritage sites.

13.5.2 Architectural and Cultural Heritage Impacts

The Mooretown Phase 3 application area includes approximately 730m of the Mooretown/Rathbeal townland boundary which appears as a mature tree-lined boundary. This boundary is being retained and will therefore not be impacted by the development.

The proposed Mooretown Phase 3 development will have no direct or indirect impact on any features of architectural or cultural heritage within or in the vicinity of the application area

13.6 Remedial and Reductive Measures

13.6.1 Conservation Plan and Mitigation Strategy – Preservation in-situ of RMP DU011-147

Ringfort site (RMP DU011-147) will be preserved in situ within the proposed development. The discovery of the ringfort site (RMP no: DU011-147) as a result of testing in 2008 (Frazer & Eriksson) has ensured that the development layout has been designed to avoid impacting the monument. The ringfort has been integrated into an open space area in the development enabling its preservation *in-situ*. A summary of the significance of the site and a mitigation strategy for the site is as follows:

Status

The site is recorded in the Record of Monuments and Places, RMP DU011-147. The site is entirely subsurface in nature and comprises a circular ditched enclosure c.30m in diameter with an entrance to the north-northeast.

Date

The site has not been scientifically dated, however based on its siting, morphology and the nature of the fills within the ditch, it is thought to be early medieval in date (c.500-1200 AD) (Frazer & Eriksson, 2008).

Significance

This site is a significant addition to the record. It adds further information to the knowledge of early medieval occupation in the wider area which appears to have had the ecclesiastical enclosure complex to the north-northeast (DU011-144) as its focus, which is being preserved in situ in Rathbeal Archaeological Park.

Issues / vulnerability

Buried archaeological remains are vulnerable to ground disturbance and inadvertent damage due to development in the area.

Mitigation strategy

In line with Oldtown-Mooretown Conservation Plan Policies for the preservation in-situ of archaeological remains the following strategy has been developed for RMP DU011-147:

- A protection zone will be placed around the recorded extent of this feature, by way of a robust fence erected in advance of development. The protection zone will encircle the area with a buffer zone of 20m beyond the extent of the monument (as agreed with the DHLGH) to protect it from any construction related activities. The site will be maintained as an open space and has integrated into the development proposals.
- The landscape design incorporates the below-ground remains into the development, retaining it as an amenity area in the landscape. The landscaping proposals serve both as a protective measure and to facilitate interpretation of the site.
- The site will be covered in a geo-textile layer and soils will be introduced to protect the underlying archaeological remains which are at least 0.30m below the existing ground level. Naturalised bulb planting will demarcate the location of the belowground remains.
- Provision of signage to interpret the below-ground remains for the general public will be placed adjacent to the site. It will form part of a network of historic information throughout the LAP lands.

13.6.2 Archaeology – excavation and monitoring

Archaeological test trenching in the Mooretown Phase 3 application lands in 2008 (Frazer & Eriksson) also identified a burnt mound or *fulacht fiadh* (RMP DU011-146001) overlying a possible ring-ditch (RMP DU011-146002). Full excavation of these features in advance of development, under licence to

the DHLGH, is recommended. Excavation will result in preservation by record of the sites, adding to the archaeological record of the area in the prehistoric period, which until recently was largely unknown in the surrounding area.

Topsoil removal/earthworks within the Mooretown Phase 3 lands or any other excavation work associated with the development be monitored by a suitably qualified archaeologist. In the event of the discovery of archaeological remains, the area will be cordoned off and protected until the archaeologist has made a decision on how best to deal with the remains in consultation with the DHLGH. This could be in the form of preservation in situ or full archaeological excavation (preservation by record).

All recommendations are subject to approval from the National Monuments Section of the Heritage and Planning Division, Department of Housing, Local Government and Heritage.

13.6.3 Architectural and Cultural Heritage

No protected structures or properties recorded in the Record of Protected Structures of Fingal County Council or within the National Inventory of Architectural Heritage will be impacted by the proposed Mooretown Phase 3 development.

13.7 Predicted Impact of the Proposed Development

In the case of the ringfort (DU011-147), which is being preserved in situ as an open space, the landscaping proposals for the monument serve both as a protective measure and to facilitate interpretation of the site. As such the proposed development will have a positive impact on the archaeological remains.

In the case of the burnt mound (DU011-146001) and ring-ditch (DU011-146002), their removal will result in a negative, direct and significant impact, however this will be mitigated by the full excavation and recording of the sites which will result in their preservation by record and the addition of valuable information to the archaeological record.

No predicted impacts are envisaged regarding architecture or cultural heritage.

13.8 Interactions and Cumulative Impacts

There is an interaction with the landscape consultant to integrate Ringfort site DU011-147 into the landscaping design. No interactions or cumulative impact are predicted.

13.9 Monitoring

Archaeological monitoring is not required as all archaeological, architectural and cultural heritage issues have been resolved at the pre-construction stage of the development.

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14.0 MATERIAL ASSETS - UTILITIES AND WASTE

14.1 Introduction

This section examines the material assets serving the subject lands relating to surface water drainage, water supply, foul sewerage, electricity, gas, and telecommunications.

14.2 Study Methodology

The methodology followed for this section is in accordance with the EPA “Environmental Impact Assessment Reports, Draft Guidelines 2017”. Information on built assets in the vicinity of the development lands was assembled from the following sources:

- A desktop review of Irish Water Utility Plans, ESB Networks Utility Plans, Gas Networks Ireland Service Plans, Eir E-Maps and Virgin Media Maps;
- Consultation with Irish Water and Fingal County Council;
- Submission of a Pre-Connection Enquiry Application to Irish Water;
- Review of ESB Network Utility Plans & Site meetings with ESB Network
- Review of Gas Networks Ireland exiting network maps;
- Review of EIR Telecommunications exiting network maps;
- Site Inspection / Walkover.

As part of assessing the likely impact of the proposed development, surface water runoff, foul drainage discharge and water usage calculations were carried out in accordance with the following guidelines:

- Greater Dublin Strategic Drainage Study (GDSDS);
- IS EN752, “Drain and Sewer Systems Outside Buildings”;
- Irish Water’s Code of Practice (water demand and foul water loading);

14.3 Existing Receiving Environment (Baseline)

14.3.1 Surface Water Drainage

The subject site is predominantly greenfield in nature and slopes from a height of 58m in the southwest corner to 37m in the north-east. The site lies within the catchment of the Broadmeadow River which outfalls to the Malahide estuary. The estuary is a Special Protection Area (SPA), a candidate Special Area of Conservation (cSAC) a proposed National heritage Area (pNHA) and a RAMSAR site.

The site is drained by surface ditches as shown in the figure below, which in turn flow to the Mooretown Mill Stream, on the eastern border of the Mooretown LAP lands. This Mill Stream flows north to the Rathbeale Road where it is culverted by 1200mmØ pipes which traverses the eastern boundary of the oldtown lands before ultimately discharging to the Broadmeadow River.

Neither the Oldtown/Mooretown Lands nor the adjacent Broadmeadow River are part of the SPA or SAC site, however, any development immediately upstream is required to maintain, or improve the quality of surface water to status objectives, as set out in the Water Framework Directive (WFD). These

requirements are in place in order to protect and enhance the status of the aquatic ecosystems of the SAC or SPA site. This will require the implementation of SuDS, which are intended to be utilised as part of the development.

Mooretown Phase 1's parent planning permission (F15A/0183) and the adjacent Mooretown Road Extension (F14A/0012) were designed to accommodate the attenuation volumes for the entire Mooretown LAP lands including the subject application site: Mooretown Phase 3, within the Watermill Park and Mooretown Road detention basins and ponds, before discharging at restricted greenfield rates to the Mill Stream to the north. The Mill Stream traverses the Mooretown site, west to east as indicated in Figure 14.1 below.

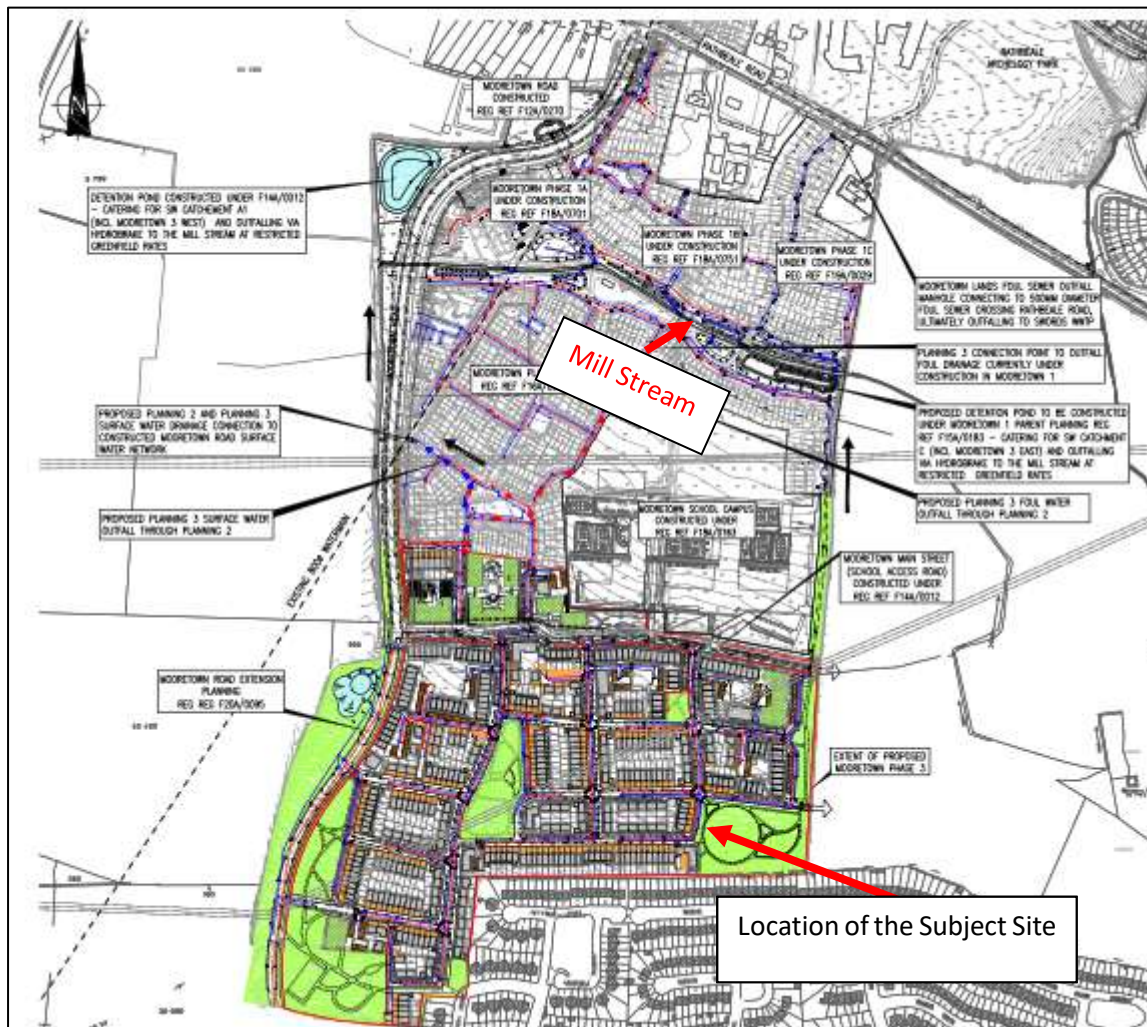


Figure 14.1 –Proposed Surface Water Drainage Network

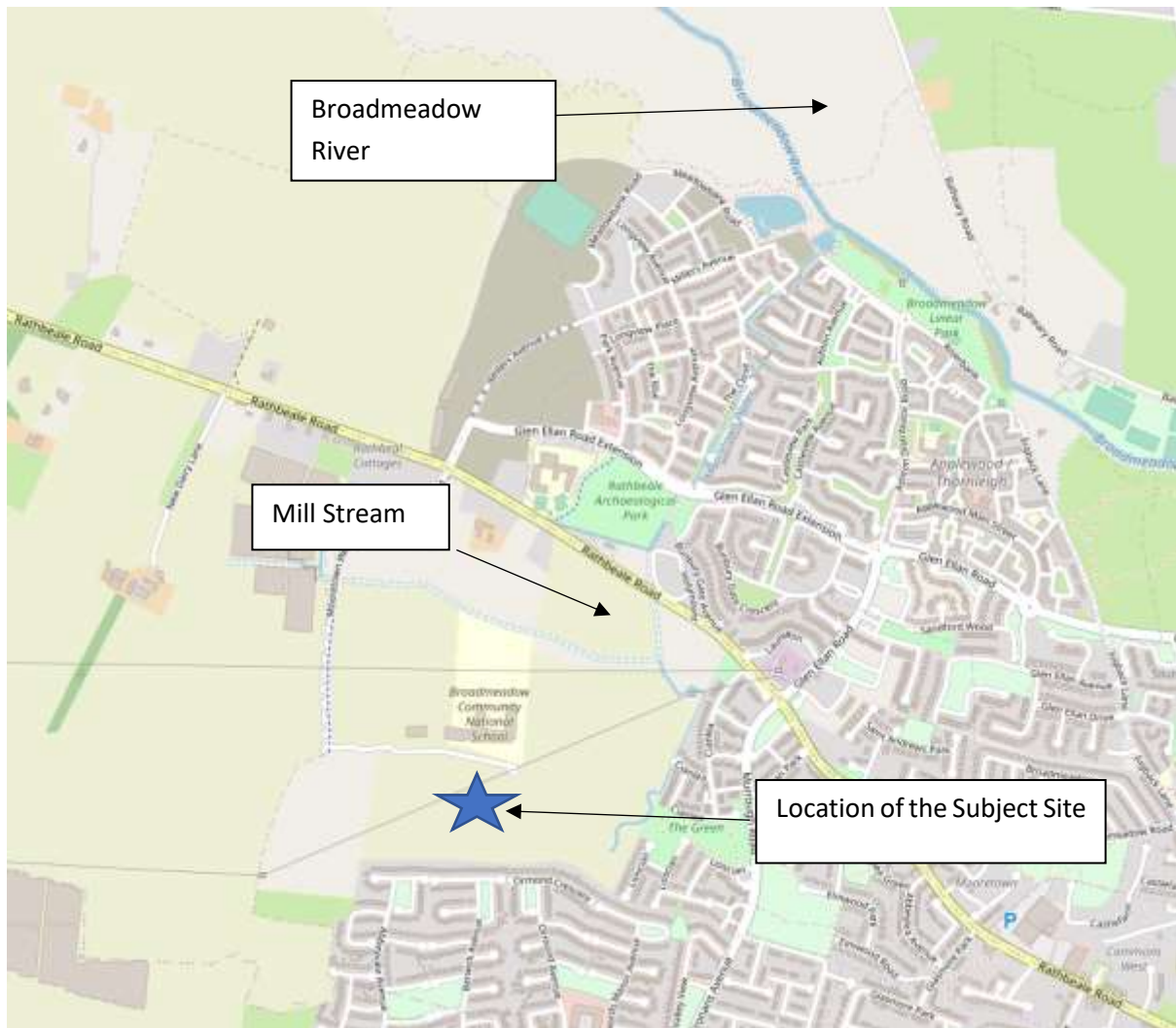


Figure 14.2 – EPA Watercourses Map

Also refer to Chapter 7.0 –Water of this EIAR for further information on the surface water infrastructure impacts and mitigation measures.

14.3.2 Foul Sewers

It is proposed to drain wastewater in a north-easterly direction through a series of 150mm and 225mm sewers. There are 7 No. connection points, 1 No. to the foul network in the Mooretown distributor road extension (planning permission granted F20A/0095) and 4 no. to the foul network in the Mooretown school access road (construction completed). The remaining 2 No. Connections will be for the Phase 3 lands north of the School Access Road, which will connect to the permitted phase 2 drainage network.

The foul network in the Mooretown Distributor Road Extension will flow north and connect to the foul network in the Mooretown School Access Road which in turn flows easterly and then northerly along the eastern boundary of the School Campus. It then connects to the foul network in Mooretown Phase 1 (currently under construction) before outfalling to the 500mmØ foul sewer crossing the Rathbeale Road.

It is similarly proposed to install a storage tank on the on the public foul network is to alleviate constraints within the public foul network during times of heavy rainfall events, whereby stormwater enters the public foul network temporarily reducing available capacity. The proposed stormwater storage tank has been designed in conjunction with Irish Water and will not only facilitate the connection requirement of this subject application but will also have capacity to allow for continued development in the Oldtown/Mooretown catchment. The storage tank is proposed to be located at the junction of the Glen Ellan Road and the Balheary Road, as indicated in Figure 14.4

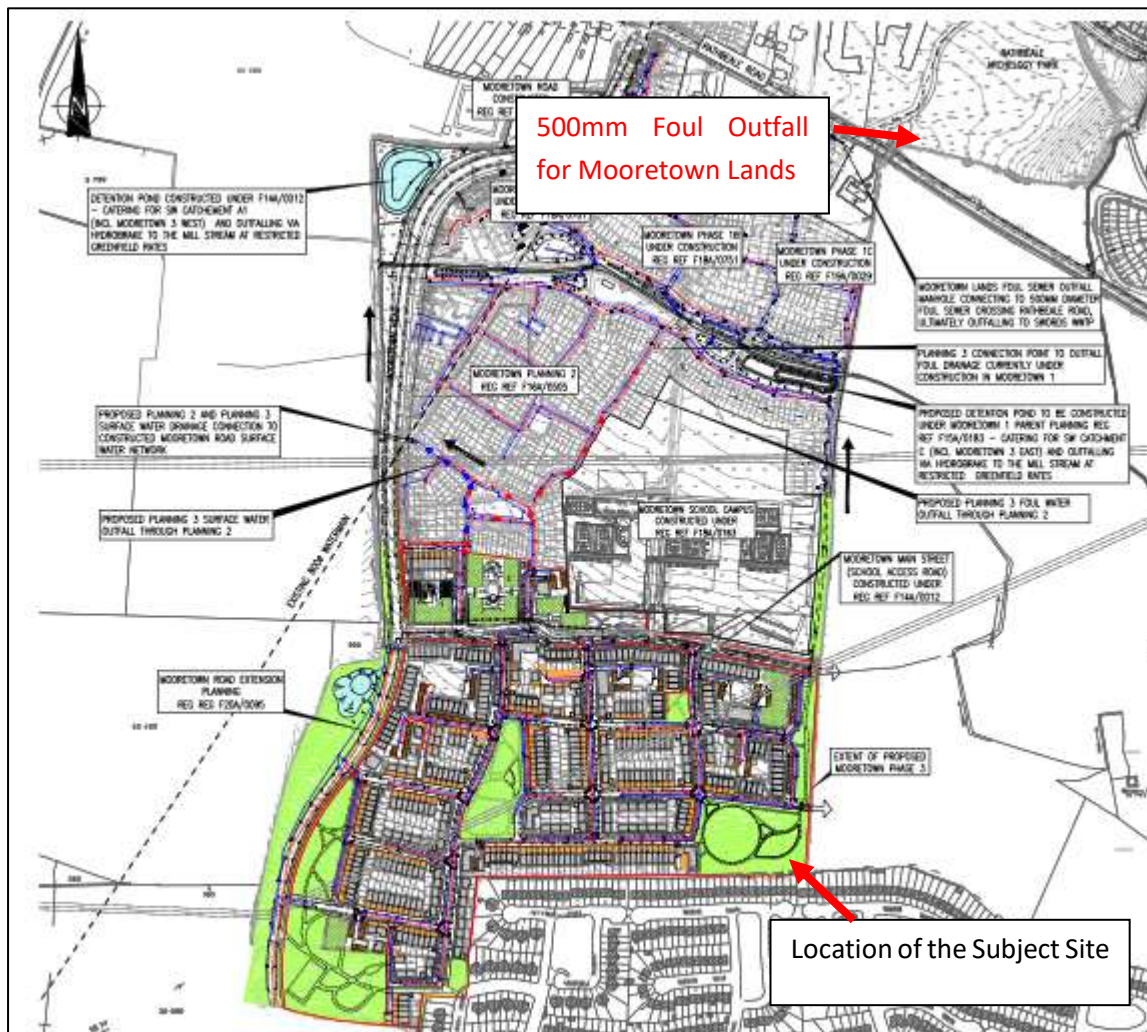


Figure 14.3 –Proposed Foul Drainage Network

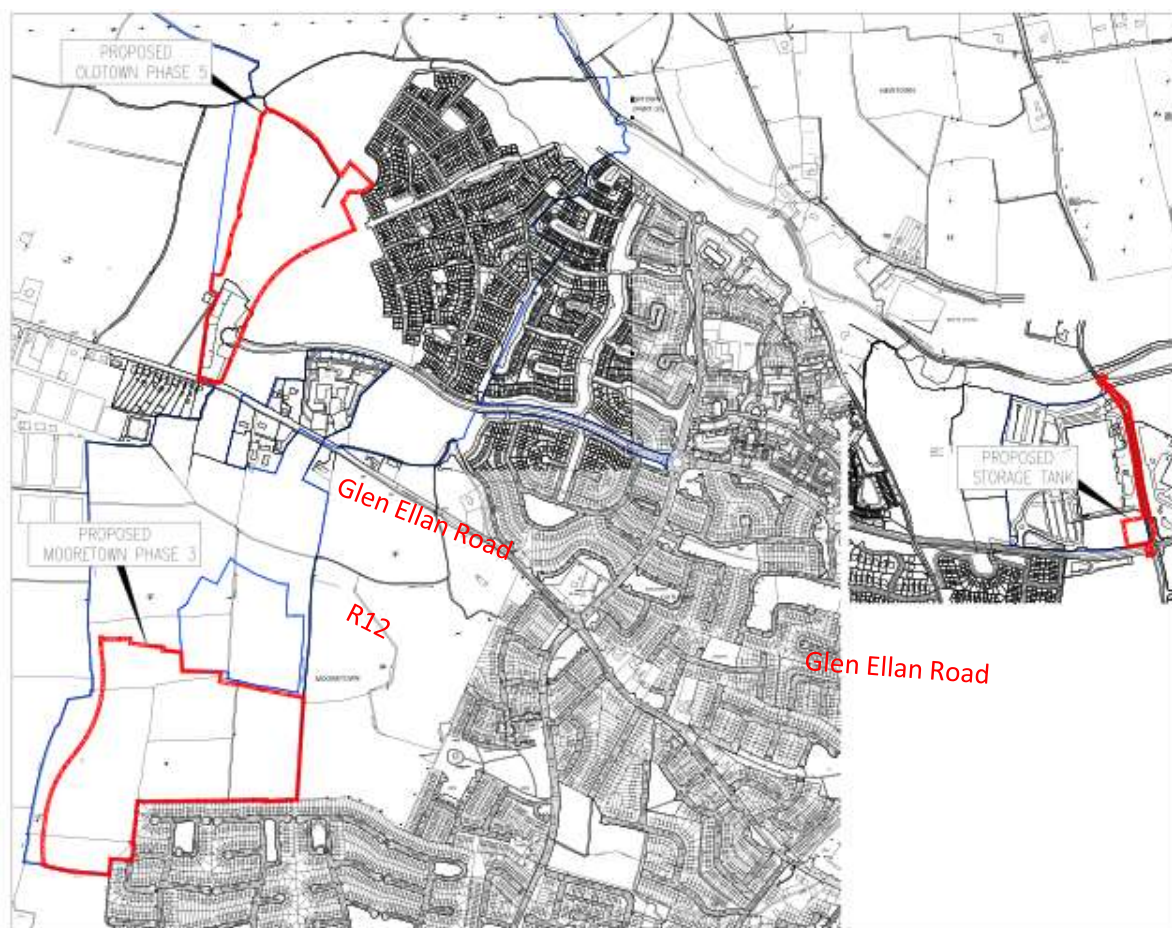


Figure 14.4 – Subject Application including Tank

14.3.3 Water Supply

The Swords area, including the subject lands, is supplied from Leixlip Water Treatment Plant.

There is an 800mm diameter ductile iron trunk watermain crossing the Oldtown lands, north of Mooretown. This main connects Kingston to Lissenhall. The trunk main has a 16-metre wayleave through the lands which has been incorporated into Oldtown Avenue, the main spine road of the Oldtown development, in accordance with the LAP. A spur has been provided from the 800mm diameter water main to serve the Oldtown/Mooretown LAP lands, located just south of the Glen Ellan Road.

The Mooretown Lands, including those that are the subject of this application, will connect to the existing 300mmØ watermain that traverses the Rathbeale Road at the junction between the Rathbeale Road and Mooretown Distributor Road. This 300mm diameter main extends south along eastern side of Mooretown Distributor Road to the Mooretown 3 lands.

It is proposed to serve the site by utilising a series of 100mm and 150mm diameter mains. The internal Mooretown Phase 3 water network is proposed to connect to the adjacent 300mm diameter main within Mooretown Distributor Road Extension, to the 150mm diameter main within the Mooretown School Access Road, and also as specifically requested by Irish Water, to the 150mm diameter main within the Abbeyvale residential development.

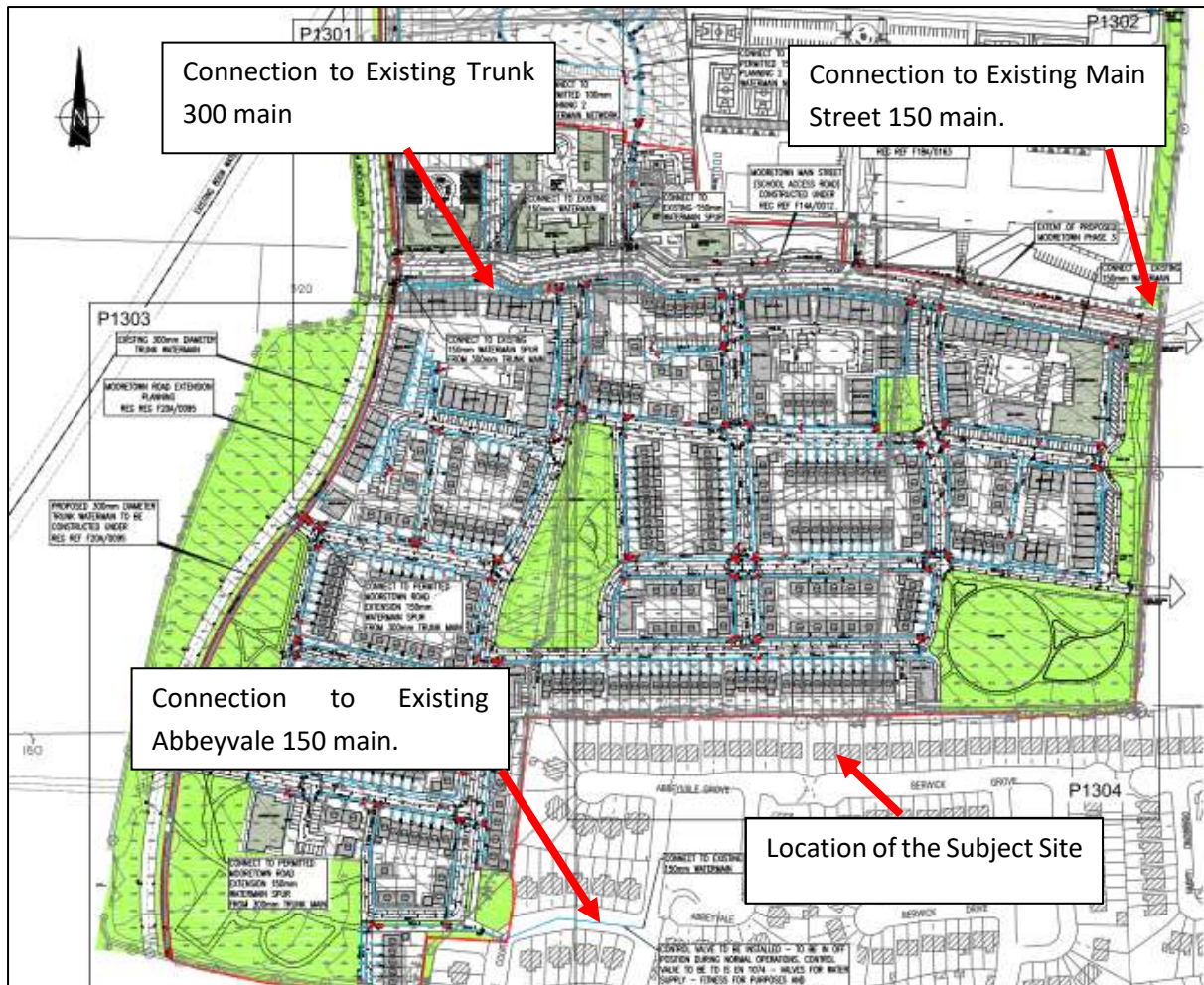


Figure 14.5 – Proposed Watermain Network

14.3.4 Gas

Gas Networks Ireland have been contacted and an existing gas network map for the area surrounding the proposed development has been obtained, refer to Figure 14.6 overleaf showing an extract. There are existing gas pipes adjacent on Main Street, to facilitate Mooretown Phase 3.

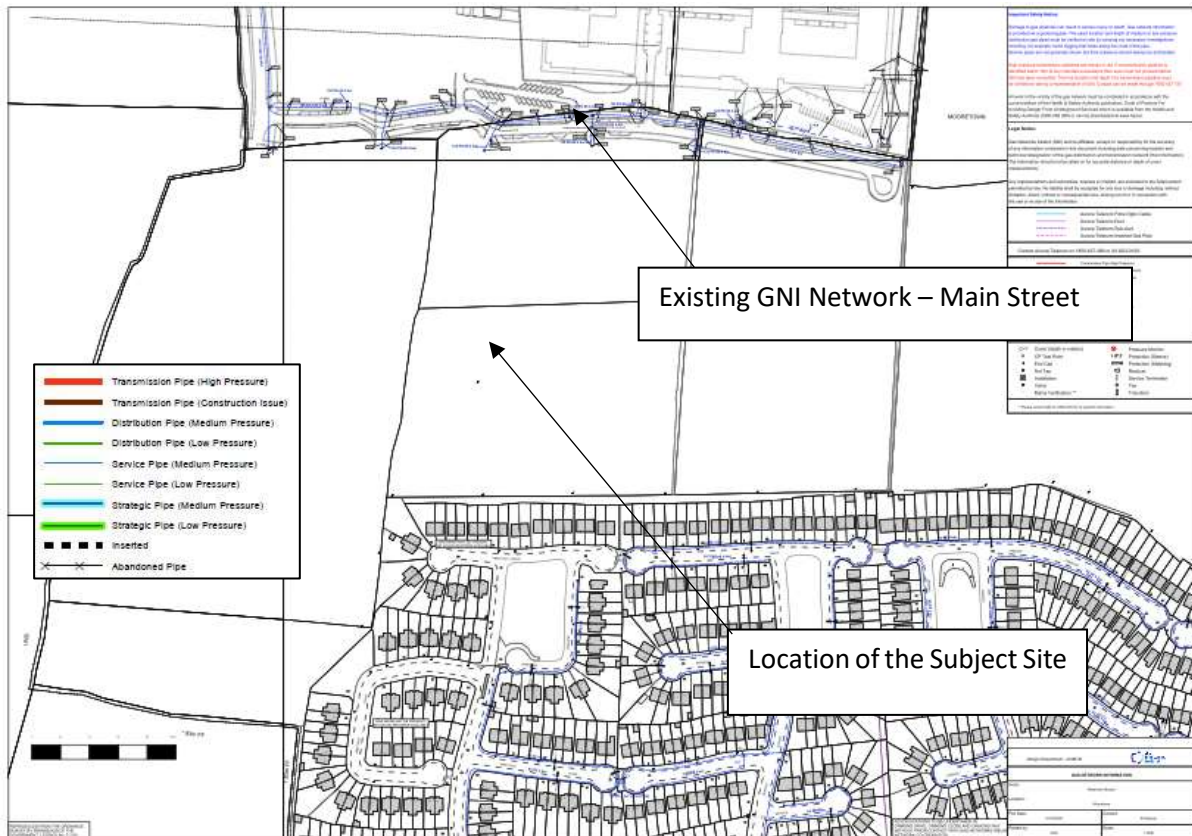


Figure 14.6 - Gas Network Map

14.3.5 ESB Supply

ESB Networks have been contacted and an existing ESB network map for the area surrounding the proposed development has been obtained, refer to Figure 14.7 overleaf. ESB infrastructure exists in Rathbeale Road to the north, which will extend south via Mooretown Road, to facilitate Mooretown Phase 3. High Voltage overhead lines traverse the site, which will be undergrounded as part of the overall Mooretown development



Eir have been contacted and an existing Eir network map for the area surrounding the proposed development has been obtained. Figure 14.8 overleaf. There is existing EIR infrastructure adjacent on Main Street traversing the site, to facilitate Mooretown Phase 3.



Figure 14.8 - EIR Network Map Extract

14.4 Characteristics of the Proposal

The proposed development will consist of 650 no. residential units (265 no. houses, 187 no. apartments, 6 no. triplex units, and 192 no. duplex units [comprising 113 no. duplex 'house' units and 79 no. duplex 'apartment' units]), 1 no. childcare facility, 5 no. retail units and 1 no. café/restaurant, will also be constructed as part of the development. The site is 18,378 ha gross area and is located 2km west of Swords town centre.

The developer will construct all associated infrastructure to service the development including a network of foul water and surface water drains, a stormwater storage tank on the public foul network, watermain, access roads and footpaths.

It is similarly proposed to install a storage tank on the on the public foul network is to alleviate constraints within the public foul network during times of heavy rainfall events, whereby stormwater enters the public foul network temporarily reducing available capacity. The proposed stormwater storage tank has been designed in conjunction with Irish Water and will not only facilitate the connection requirement of this subject application but will also have capacity to allow for continued development in the Oldtown/Mooretown catchment. The storage tank in proposed to be located at the junction of Glen Ellan Road and Balheary Road.

14.4.1 Surface Water Drainage

Mooretown Phase 1's parent planning permission (F15A/0183) and the adjacent Mooretown Road Extension (F14A/0012) were designed to accommodate the attenuation volumes for the entire

Mooretown LAP lands including the subject application site: Mooretown Phase 3, within the Watermill Park and Mooretown Road detention basins and ponds, before discharging at restricted greenfield rates to the Mill Stream. The Mill Stream traverses the Mooretown site, west to east. In this regard, we refer you to the catchment drawing submitted and permitted as part of the Mooretown 1 parent planning permission.

The western portion of Mooretown Phase 3 forms part of Mooretown Catchment A1 and is attenuated within the attenuation pond in the north-western corner of Mooretown Lands, before discharging through Mooretown 1 at greenfield rates ultimately outfalling at the Mill Stream. The eastern portion of Mooretown Phase 3 forms part of Catchment C is attenuated in attenuation pond/basin C at the eastern end of the Mill Stream. It is not proposed to deviate from this permitted strategy. It is noted that the pond for Catchment A1 has been constructed as part of the Mooretown Road and School Access Road works (F14A/0012) and the construction of pond/basin for Catchment C, will be constructed under Mooretown Phase 1, which has recently commenced.

The local surface water piped network within Phase 3 will be designed to accommodate flows from the 1 in 5-year storm. The 1 in 100 storm events (plus 20% to accommodate climate change) shall be catered for in the permitted Watermill Park and Mooretown Road detention basins and ponds constructed under parent planning permission F15A/0183 and the adjacent Mooretown Road planning permission F14/0012.

Similar to the approved Mooretown Phase 1 Strategy, Phase 3 will also incorporate similar SuDS features as an integral part of the surface water strategy and design process. This strategy is based upon recommendations in the Greater Dublin Strategic Drainage Study (GDSDS) and in the Ciria SuDS Manual. The approved Mooretown Phase 1 design incorporates a storm water management approach across the entire development through the use of various SuDS techniques.

14.4.2 Foul Sewers

It is proposed to drain wastewater in a north-easterly direction through a series of 150mm and 225mm sewers. There are 7 No. connection points, 1 No. to the foul network in the Mooretown distributor road extension (planning permission granted F20A/0095) and 4 no. to the foul network in the Mooretown school access road (construction completed). The remaining 2 No. Connections will be for the Phase 3 lands north of the School Access Road, which will connect to the permitted phase 2 drainage network. The foul network in the Mooretown Distributor Road Extension will flow north and connect to the foul network in the Mooretown School Access Road which in turn flows easterly and then northerly along the eastern boundary of the School Campus. It then connects to the foul network in Mooretown Phase 1 (currently under construction) before outfalling to the 500mmØ foul sewer crossing the Rathbeale Road as discussed in Section 2.1.

A pre-connection enquiry was submitted to Irish Water. The subsequent confirmation of feasibility letter dated February 3rd, 2022, advises of the downstream constraints and the requirement of a storage tank.

The required storage tank has been designed in conjunction with Irish Water input on volumetric storage capacity and was lodged as a planning application to Fingal County Council by the subject applicant. The application was registered under planning Reg. Ref. F21A/0476 and is currently a live

application at Additional Information stage which is due for decision in mid-April 2022 (current status at the time of writing this report). Thus, it was deemed appropriate to propose the tank and the associated works as part of this SHD application.

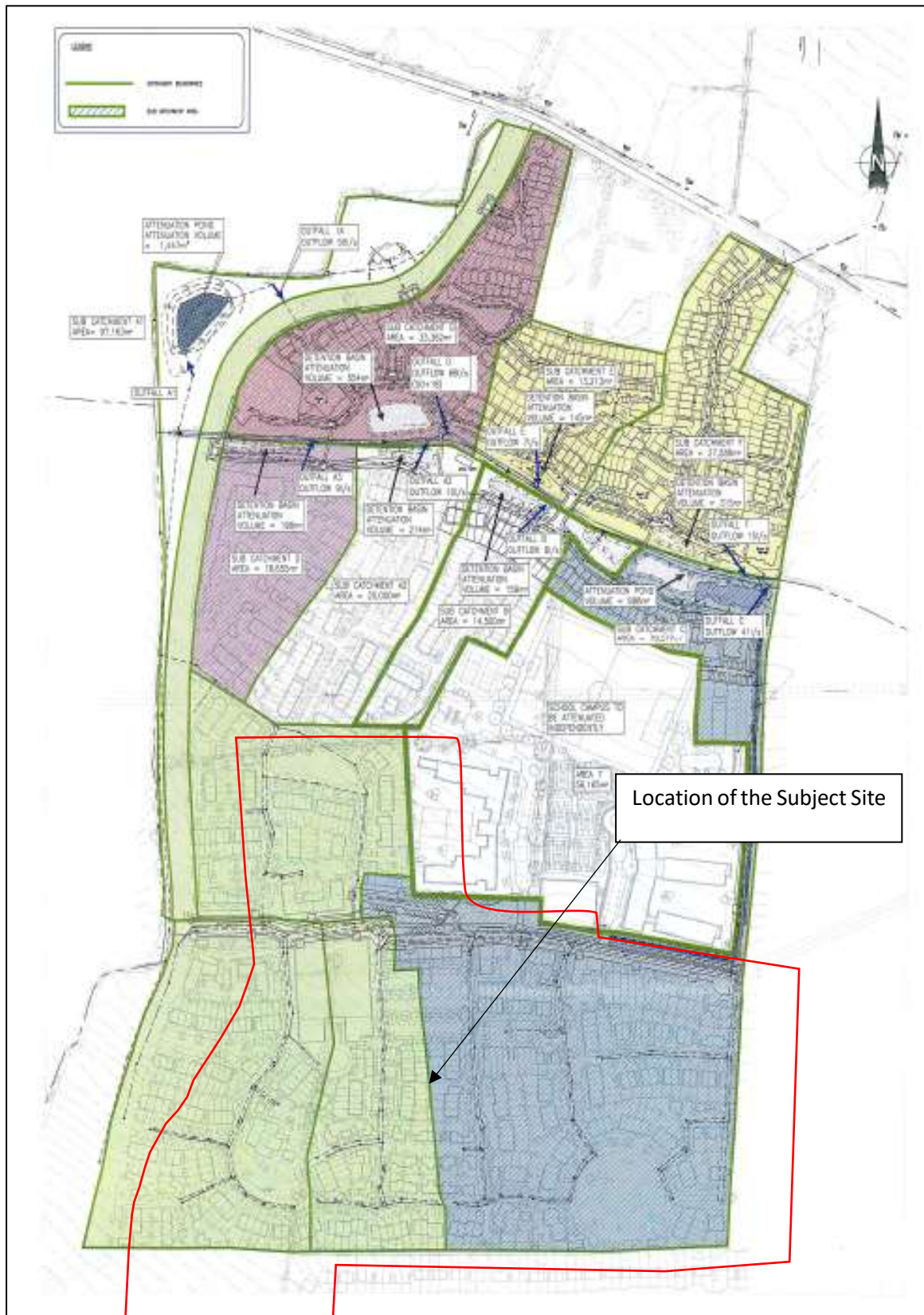


Figure 14.9 – Surface Water Catchment Map

This stormwater storage tank on the public foul network forms part of the subject application and is designed to alleviate constraints within the public foul network during times of heavy rainfall events, whereby stormwater enters the public foul network temporarily reducing available capacity. The proposed stormwater storage tank has been designed in conjunction with Irish Water and will not only facilitate the connection requirement of this subject application but will also have capacity to allow for continued development in the Oldtown/Mooretown catchment. The storage tank is proposed to be sited at the junction of the Glen Ellan Road and the Balheary Road, as indicated in Figure 14.4.

The calculated foul water flows at the subject development are set out in the table overleaf. Domestic wastewater loads have been calculated based on 2.7 persons per unit with a daily per capita wastewater flow of 150 litres with a 10%-unit consumption allowance, in line with Section 3.6 of the Irish Water Code of Practice for Wastewater Infrastructure. A peak flow multiplier of 3 has been used, as per Section 2.2.5 of Appendix B of the Code of Practice.

Description	Total Population	Load per Capita	Daily Load	Total DWF	Peak Flow
	No. People	l/day	l/day	l/s	l/s
265 Houses	715.5	150	118,057	1.366	4.10
119 Duplex/triplex	321.3	150	53,015	0.614	1.842
266 Apartments	718.2	150	118,503	1.372	4.116
Commercial units	-		3,973	0.046	0.138
Crèche	117	90	11,583	0.134	0.402
Total	1872	-	305,131	3.532	10.596

Table 14.1 - Foul Water Calculations

The total dry weather flow from the development is 3.532 l/s, with a peak flow of 10.596l/s.

14.4.3 Water Supply

An application has been made to Irish Water, requesting a Confirmation of Feasibility letter. This application has a reference number of: CDS21002769 and the subsequent Confirmation of Feasibility Letter was issued dated 3rd February 2022. This letter does not note any local upgrades required but does request the location of 2 No. connection points to serve the Phase 3 development.

It is proposed to serve the site by utilising a series of 100mm and 150mm diameter mains. The internal Mooretown Phase 3 water network is proposed to connect to the adjacent 300mm diameter main within Mooretown Distributor Road Extension, to the 150mm diameter main within the Mooretown School Access Road, and as specifically requested by Irish Water, to the 150mm diameter main within the Abbeyvale residential development.

The calculated water demand at the subject development is set out in the table overleaf. The average domestic demand has been established based on an average occupancy ratio of 2.7 persons per dwelling with a daily domestic per capita consumption of 150 litres and with a 10% allowance factor.

The average day/peak week demand has been taken as 1.25 times the average daily domestic demand, while the peak demand has been taken as 5 times the average day/peak week demand, as per Section 3.7.2 of the Irish Water Code of Practice for Water Infrastructure.

Description	Total Population	Water Demand	Average Demand	Average Peak Demand	Peak Demand
	No. People	l/day	l/s	l/s	l/s
265 Houses	715.5	150	1.366	1.708	8.540
119 Duplex/triplex	321.3	150	0.614	0.768	3.840
266 Apartments	718.2	150	1.372	1.715	8.575
Commercial units	-	3,973	0.046	0.057	0.287
Crèche	117	11,583	0.134	0.168	0.840
Total	1872		3.532	4.416	22.082

Table 14.2 - Water Supply Calculations

The average demand for the development is 4.4 l/s, with a peak demand of just over 22 l/s. This water demand will come online as the development is built out and occupied.

14.4.4 ESB Network

A new connection will be made to the existing ESB network at the eastern boundary of the site at Millers Avenue. The exact extent and location of these connections will be agreed with ESB during the design stage of the project.

All works on the ESB supply infrastructure will be carried out in accordance with ESB relevant guidelines.

14.4.5 Gas

A new gas connection will be made at Mooretown Distributor Road to the west of the subject site, or at Main Street, traversing the site. The exact extent and location of these connections will be agreed with Gas Networks Ireland during the design stage of the project.

All works on the gas supply infrastructure will be carried out in accordance with Gas Networks Ireland relevant guidelines. All gas infrastructure will be below ground with the possible exception of a gas pressure reduction station if required by Gas Networks Ireland.

14.4.6 Telecommunications- Eir

A new connection will be made to the existing Eir network at Mooretown Distributor Road to the west of the subject site, or at Main Street, traversing the site. The exact extent and location of these connections will be agreed with Eir during the design stage of the project.

All works on the Eir supply infrastructure will be carried out in accordance with Eir's relevant guidelines. All Eir infrastructure will be below ground with the possible exception of a Fibre Cabinet if required by Eir.

14.5 Potential Impact of the Proposed Development During the Construction Phase

The following potential impacts from the construction of the proposed development may occur:

14.5.1 Surface Water

- There is a risk that once topsoil has been stripped from the site there will be higher runoff rates from the lands with increased amount of silt to existing watercourses in the runoff.
- There is a risk of pollution of groundwater / watercourses / soils by accidental spillage of oils / diesel from temporary storage areas or where maintaining construction equipment.
- There is a risk of damage to existing buried utilities during excavations works resulting in temporary loss of supply to existing properties.
- There is a possibility of a temporary Increase in traffic due to deliveries of materials and other construction related traffic.
- Cross Connection between surface water and foul pipes.

14.5.2 Foul Water

- There is a risk of the ingress of ground/surface water to the foul water network.
- There is a risk of damage to existing buried utilities during excavations works resulting in temporary loss of supply to existing properties.
- There is a possibility of a temporary Increase in traffic due to deliveries of materials and other construction related traffic.
- Cross connection between foul and surface water pipes.

14.5.3 Water Supply

- There is a risk of contamination of the existing water supply during construction of the development when connection of the proposed development watermain to the public water supply is being made.
- There is a risk of damage to watermain fittings due to high pressure in the existing watermain.
- There will be a minor water demand for site offices.
- There is a possibility of a temporary increase in traffic due to deliveries of materials and other construction related traffic.
- There is a risk of damage to existing buried utilities during excavations works resulting in temporary loss of supply to existing properties.
- The proposed development will not give rise to any significant long term adverse impact. Negative impacts during the construction phase will be short term only.

14.5.4 ESB Network

The installation of the ESB utilities for the development will be conducted in parallel with the other services. This will mainly involve excavation of trenches to lay ducting, construction/installation of

access chambers and backfilling of trenching. The trenching and backfilling works will be carried out in conjunction with the construction of the roads and footpaths throughout the scheme.

The relocation or diversions of the existing overhead ESB lines may lead to 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 ESB Networks to minimise impact on neighbouring properties.

The site compound will require a power connection. This likely adverse impact will be temporary and negligible.

14.5.5 Gas

The installation of the gas utilities for the development will be conducted in parallel with the other services. This will mainly involve excavation of trenches to lay ducting, construction/installation of access chambers and backfilling of trenching. The trenching and backfilling works will be carried out in conjunction with the construction of the roads and footpaths throughout the scheme.

Potential loss of connection to the Gas Networks Ireland infrastructure while carrying out works to provide service connections. This likely adverse impact may be characterised as a temporary, regionally short term, moderate impact.

14.5.6 Telecommunications - Eir

The installation of the telecommunications utilities for the development will be conducted in parallel with the other services. This will mainly involve excavation of trenches to lay ducting, construction/installation of access chambers and backfilling of trenching. The trenching and backfilling works will be carried out in conjunction with the construction of the roads and footpaths throughout the scheme.

Potential loss of connection to the telecommunications infrastructure while carrying out works to provide service connections. This likely adverse impact may be characterised as a temporary, regionally short term, moderate impact.

The site compound will require a telecommunications connection. This likely adverse impact will be temporary and negligible.

14.6 Potential Construction/ Demolition Waste from the Construction Phase

The main sources of construction waste arising from this project will be:

- Topsoil and subsoil
- Packaging and general waste from construction activities
- General site clearance waste, roots, etc.

It is practical that as much as possible topsoil and subsoil generated remains on site and is used for landscaping and engineering purposes as appropriate.

14.6.1 Policy and Legislation

The principles and objectives to deliver sustainable waste management for this project have been incorporated in the preparation of this report and are based on the following strategic objectives: -

- National Policy: The Waste Management Acts 1996 to 2005.
- Local Policy: Waste Management Plan for the Dublin Region 2005 – 2010, November 2005.

This Waste Management Plan is also in accordance with the following guidance note published by the Department of the Environment, Heritage and Local Government in July 2006: -

- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition (C&D) Projects.

The hierarchy of waste management sets out the guiding principles in order of importance as follows:

1. Reduction of the amount of waste generated by the construction process.
2. Segregation of waste is a key concept that will be implemented during the course of the construction phase of the development to enable ease of re-use and recycling, wherever appropriate.
3. Recycle waste material where feasible, including the use of excess excavations as fill material, recycling of various waste fractions such as metals, packaging etc.

14.6.2 On site Waste Management

An estimate of the quantities of surplus construction and demolition (C&D) waste and materials which will arise during the course of the construction phase shall be created by the main contractor.

The Purchasing Manager shall ensure that materials are ordered so that the quantity delivered, the timing of the delivery and the storage is not conducive to the creation of unnecessary waste.

14.6.3 Off Site Waste Management Licensing/Permitting

All waste materials (where necessary, after in-situ reuse and recycling options have been fully considered) shall be disposed of off-site, under the appropriate Duty of Care and subject to approvals/consents from the relevant statutory bodies. It is the responsibility of the Main Contractor to ensure that any company to whom waste is transferred is legally permitted to do so and that the facility they bring the waste to is licensed to handle that type of waste as outlined in the Waste Management Acts 1996-2005. The Waste Collection Permit Register, in accordance with the Waste Management (Collection Permit) Regulations 2001 will be consulted to ensure that waste carriers hold the appropriate permit.

It is anticipated that there is the possibility that waste materials will have to be moved off-site. It is the intention to engage specialist waste service contractors, who will possess the requisite authorisations, for the collection and movement of waste off-site, and to transport the material to a facility which currently holds a Waste Licence, Waste Permit, or Certificate of Registration. Details of waste service contractors and demolitions are not confirmed at the time of writing. The following waste authorisations will be arranged specifically for the project:

Authorisation Type	Specific Need for Project (Yes / No?)
Waste Licence	Yes
Waste Permit	Yes
Waste Collection Permit	Yes
Transfrontier Shipment Notification	Not expected
Movement of Hazardous Waste Form	Not expected

Table 14.3 Specific Waste Authorisation Necessary for the Scheme

Any wastes that have to be disposed/recycled off site will be transported to the nearest appropriate facility in order to comply with the proximity principle and reduce the associated emissions from the transportation of waste. The Environmental Protection Agency holds details of waste facilities, which will be consulted where necessary.

An inspection of the site shall be made by the Main Contractor for hazardous substances, gas cylinders and the like. If such substances are encountered during the course of construction, then works must be halted. The project supervisor for construction stage (PSCS) and the responsible Statutory Authority shall be informed immediately.

The Contractor shall prepare a detailed inventory of construction based hazardous waste generated, such as tars, adhesives, sealants, and other dangerous substances, and these will be kept segregated from other non-hazardous waste to prevent possible contamination. Arrangements shall be made for such substances for disposal in a safe manner to an authorized disposal site or by means acceptable to the relevant Authority.

Certificates and licenses of waste hauliers and recycling/ disposal facilities shall be held by the main contractor for inspection as part of the contractor's own construction waste management plan

The Contractor shall ensure that the excavation works are carried out in accordance with best standard practice and excavation materials are well segregated to minimize any potential cross-contamination.

In the unlikely case of a soil/topsoil surplus the Contractor shall carry out appropriate environmental chemistry testing in order to determine the waste classification of the soils that are to be excavated and that shall include Waste Acceptance Criteria testing. The test regime shall be agreed with the receiving landfill operator and the testing shall be carried out by an accredited laboratory.

Should excavation materials be assessed to be hazardous, the Contractor shall carry out pre-treatment of the waste soils to a methodology that is agreed with the receiving landfill operator and in accordance with Environmental Protection Agency guidance.

The Main Contractor is encouraged to reuse and recycle any waste materials as far as is reasonably practicable.

The Main Contractor shall manage and carry out the works in accordance with best environmental practice and in accordance with the requirements of Local Authority, EPA and all requirements as specified in this document.

14.6.4 Estimate and Details of C&D Waste Quantities and generation

The following is an estimate of the construction and demolition waste generated from this development. These figures are high level estimates only and shall be confirmed by the appointed contractor in the Final Construction, Environmental and Demolition Waste Management Plan.

As far as is practical, cut and fill and excavation operations shall be balanced in terms of quantities. In this regard, Phase 3 is proposed to balance in terms subsoil.

It is envisaged that surplus excavated subsoil material from the proposed storage tank works will amount to ~3,660m³. Export of this subsoil material shall be carried out to the nearby housing development works. Subsoil transfer such as this shall require an article 27 application and associated licence grant.

A breakdown of the generated subsoil calculations allowing for a 10% factor of safety follows below:

Storage Tank – accounting for tank wall and base widths: 35.5m long x 35.5m wide x 2.35m deep + ~10% Factor of safety = 3000m³

Drainage Outfall – 400m long x 1m wide x 1.5m deep = 600m³ + 10% factor of Safety = 660m³

In conjunction with subsoil, there shall be stone and asphalt generated from the excavation of the drainage outfall line.

A breakdown of the generated stone and asphalt calculations allowing for a 10% factor of safety is provided below:

Drainage Outfall Stone – 400m long x 1m wide x 300mm deep = 120m³

Drainage Outfall Asphalt - 400m long x 1m wide x 200mm deep = 80m³

In the case of stone & asphalt material generated from the drainage outfall excavation, careful planning and on-site storage can ensure that these resources are reused on-site as much as possible, with temporary storage afforded adjacent the site compound. Any surplus of stone or asphalt not reused on site can be sold or disposed of at an appropriately licensed facility.

It is anticipated that waste concrete and masonry will either be stored on site and crushed and used for development site haul roads or disposed of at an appropriately licensed facility. It is estimated that there will be approximately 150-170 tonnes of this material generated.

Most of the wood will come in the form of wooden pallets that are used for transport of construction materials. There will be 35m³ roll-on skips provided for this type of waste. This waste will then be disposed by a licensed waste service provider, to be confirmed by the contractor. It is estimated there will be 60-70 tonnes of this material generated.

Other waste coming from packaging and running of site offices will be collected in separate 15m³ roll on skips, and similarly collected by a licensed waste service provider. It is estimated there will be 20-30 tonnes of this material generated.

Waste Material	Waste Quantity
Subsoil	3,660m ³ – Refer Section 6.8
Concrete and Masonry	150-170 tonnes
Stone	120m ³
Asphalt	80m ³
Wood	60-70 tonnes
Packaging	40-30 Tonnes

Table 14.4 | Estimate of C&D Waste Quantities

14.6.5 Topsoil

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

- It is important that topsoil is kept completely separate from all other construction waste as any cross-contamination of the topsoil can render it useless for reuse.
- It is important to ensure that topsoil is protected from all kinds of vehicle damage and kept away from site-track, delivery vehicle turning areas and site plant and vehicle storage areas.
- The required inspections and analysis of topsoil (also applicable to subsoil) properties will be undertaken to accompany any Article 27 applications.

If topsoil is stored in piles of greater than two metres in height the soil matrix (internal structure) can be damaged beyond repair. It should also be kept as dry as possible and used as soon as possible to reduce any deterioration through lengthy storage and excess moving around the site.

Records of topsoil storage, movements and transfer from site should be kept by the C&D Waste Manager. It is projected that topsoil will be reused on-site for landscaping purposes. Any excess/surplus material shall transfer through the Article 27 application process and associated licence grant.

14.6.6 Earthworks (Subsoil) – Cut and Fill Policy

Earthworks for tank structure and outfall line form a major part of the quantity of waste that will be generated by the construction phase of this project. In order to optimise the impact of the generation of surplus material due to excavation the following principles has been considered during the detail design and construction phase:

- The quantity of excavated materials to be removed from or imported into the site has been reduced by establishing levels of the proposed structure which optimise the volume of cut and

fill. It is envisaged that surplus excavated subsoil material from these works will amount to ~3,000m³ for the tank itself and 660m³ for the outfall drainage line. As far as is practical arisings from excavations will be retained and reused on site. Should any import or export of subsoil material be required to/from the nearby housing development works, subsoil transfer such as this shall require an article 27 application and associated licence grant.

- Unsuitable sub-soils generated by excavations on site will be reviewed for reuse as landscaping or non-engineering fills on adjoining or other construction sites within the region.
- Careful separation of builder's rubble packaging and contaminated waste from re-usable material will result in the minimisation of the disposal of material to landfill.

14.7 Potential impact of the Proposed Development during Operational Phase

14.7.1 Surface Water

- There is a potential impact from increased surface water flows that could lead to downstream flooding.
- There is a potential impact for the discharge of contaminants from the proposed development and road surfaces to the surrounding drainage sewers. These would include particulates, oil, soluble extracts from the bitumen binder etc. The quality of runoff from the site would be dependent on the time of year, weather, particulate deposition from the atmosphere and any gritting or salting carried out by the Local Authority. The time of year has a major bearing on the quality of storm water run-off - in particular the first rains after a prolonged dry period where accumulated deposits of rubber, particulates, oils, etc. are, washed away.
- Stagnation of the water and siltation within the attenuation areas may occur.

14.7.2 Foul Water

- Blockages may occur within the pipe network and the wastewater could become septic.
- Foul water could be connected to the surface water drainage network.
- Increased flows to the wastewater network and the Swords wastewater treatment plant.

14.7.3 Water Supply

There will be an increased demand for water once the development is occupied.

14.7.4 ESB Network

There will be an increased demand for power once the development is occupied.

14.7.5 Gas

There will be an increased demand for gas once the development is occupied.

14.7.6 Telecommunications - Eir

The impact of the operational phase of the proposed development on the telecommunications network would be to increase the demand on the existing network.

14.8 Potential Cumulative Impacts

In the event of future development adjacent to the proposed development, there are no predicted cumulative impacts arising from the construction or operation phase related to the material assets – built services provided that the other developments implement appropriate mitigation measures.

14.8.1 Existing Mooretown Development

There are no additional impacts to those noted in section 14.6 on the Utilities.

14.8.2 Future Development

The applicant is in control of the adjacent Oldtown & Mooretown lands to provide a consolidated development in north Swords. This current application relates to Phase 3 of the Mooretown lands south of Rathbeale Road and the stormwater storage tank at the junction of the Glen Ellan Road and Balheary Road. This Phase is the final Phase of Masterplan development within the Mooretown lands. There has been a carefully considered design approach to development to ensure that the subject application can be delivered to enhance and improve upon existing amenity.

The Oldtown Masterplan development successfully integrates and enhances the existing built fabric in north Swords.

There are no additional impacts to those noted in section 14.6 on the Utilities.

14.9 Do Nothing Scenario

No change of use of the greenfield lands and therefore no further impact to the material assets.

14.10 Mitigation Measures- Construction Phase

14.10.1 Surface Water

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject site.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area. The system is cleaned and starts working again.
- All fuels and chemicals will be banded, and where applicable, stored within double skinned tanks / containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a minimum distance of 50 m from any watercourse or other water conducting features, including the cut off trenches.
- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- Surface Water pipes will be carefully laid so as to minimise the potential for cross connections.

No.	Risk	Possible Impact	Mitigation	Result of Mitigation
1	Hydrocarbons from carparking area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Designated parking at least 50m from any watercourse.	Ensures no soil disturbance or hydrocarbons leak near aquatic zone
2	Pollutants from site compound areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	The site compound will be located at least 50m from any watercourse.	Prevents pollution of the aquatic zone from toxic pollutants
3	Pollutants from material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Fuels, oils, greases and other potentially polluting chemicals will be stored in bunded compounds at the Contractor's compound or at a location at least 50m from any body of water. Bunds are to be provided with 110% capacity of storage container. Spill kits will be kept on site at all times and all staff trained in their appropriate use. Method statements for dealing with accidental spillages will be provided the Contractor for review by the Employer's Representative.	Prevents contamination of aquatic zone by toxic pollutants
4	Concrete/cementitious materials entering the watercourse from washdown.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	A designated wash down area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off site

5	Concrete/cementitious materials entering the watercourse from concrete pours.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Pouring of cementitious materials will be carried out in the dry.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off site
6	Leaching of contaminated soil into groundwater.	Water quality impacts Reduction in habitat quality Mortality of aquatic key Ecological receptors/qualifying interests	Spill kits will contain 10 hr terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent leaching to ground water	Prevents contamination of aquatic zone by petrochemicals
7	Pollutants from equipment storage/refuelling area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Any refuelling and maintenance of equipment will be done at designated bunded areas with full attendance of plant operative(s) within contained areas at least 50m from any watercourse	Prevents contamination of aquatic zone by petrochemicals
8	Runoff from exposed work areas and excavated material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Contractor to prepare a site plan showing the location of all surface water drainage lines and proposed discharge points to the sewer. The plan will include the location of all surface water protection measures, including monitoring points and treatment facilities.	Prevents contamination of aquatic zone by suspended solids or pollutants.

Table 14.7 | Construction mitigation

14.10.2 Foul Water

- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- Foul water pipes to be laid with sufficient falls to ensure self-cleansing velocity
- Foul pipes will be carefully laid so as to minimise the potential for cross connections.

14.10.3 Water Supply

- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- All water mains will be cleaned, sterilised, and tested to the satisfaction of the Irish Water/Local Authority prior to connection to the public water main.

- All connections to the public water main will be carried out under the supervision of the Irish Water/Local Authority.

14.10.4 ESB Network

Where possible backup network supply to any services will be provided should the need for relocation or diversion of existing services be required otherwise, relocation or diversion works will be planned with the service provider to incur minimal impact, with users notified in advance of any works.

14.10.5 Gas

- Where possible backup network supply to any services will be provided should the need for relocation or diversion of existing services be required, otherwise relocation or diversion works will be planned with the service provider to incur minimal impact, with users notified in advance of any works.
- Connections to the existing gas networks will be coordinated with the relevant utility provider and carried out by approved contractors.

14.10.6 Telecommunications - Eir

- Where possible backup network supply to any services will be provided should the need for relocation or diversion of existing services be required, otherwise relocation or diversion works will be planned with the service provider to incur minimal impact, with users notified in advance of any works.
- Connections to the existing telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.

Construction Management Plans have been prepared for this application (for both the Phase 3 development site and the storage tank) and are included under a separate cover. It is considered that the Construction Management Plans (CMP) will be updated by the appointed contractor. In order to minimise the potential impact of the construction phase of the proposed development on the surrounding surface water and groundwater environs, the following construction stage mitigation measures are to be included in the plan and be implemented in full.

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.
- 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 site.
- Site stripping will be minimised as far as practicable.
- Settlement ponds / silt traps will be provided to prevent silt runoff into the existing sewers / watercourses during the drainage works.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject lands. The location for testing and trigger levels for halting works will be agreed between the project ecologist and the site foreman at the commencement of works.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area. The project ecologist will review and agree alternative pollution control

measures, such as deepening or redirecting trenches as appropriate, before works may recommence.

- All fuels and chemicals will be bunded, and where applicable, stored within double skinned tanks / containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a suitable distance from any watercourse or other water conducting features, including the cut off trenches.
- Foul and surface water pipes will be carefully laid so as to minimise the potential for cross connections which results in contamination of receiving watercourses.
- Site personnel inductions are to be conducted such that all site personnel are made aware of the procedures and best practice in relation to the management of surface water runoff and ground water protection.
- Where possible, precast concrete units are to be used to avoid on-site “wet” mix concrete usage. In situ concrete pours are to be managed in accordance with best practice to avoid overspills
- Concrete truck and wheel wash down facilities are to be provided in designated areas. Discharge from these areas is to be directed into the settlement ponds / silt traps.
- Topsoil for landscaping will be located in such a manner as to reduce the risk of washing away into local drainage or watercourses.
- Details of the headwall outfall construction methods, to prevent pollution of the Broadmeadow River during construction, are included in the Preliminary Construction Environmental and Waste Management Plan, which has been submitted under a separate cover.

14.10.7 Construction and Demolition Waste

Appointment of C&D Waste Manager

A C&D Waste Manager shall be appointed from the Contractor’s Staff and have overall responsibility for the implementation of the project Waste Management Plan (WMP) during the construction phase. The C&D Waste Manager will be appropriately trained and assigned the authority to instruct all site personnel to comply with the specific provisions of the WMP. At the operational level, a designated person from the main contractor and from each sub-contractor on the site shall be assigned the direct responsibility to ensure that the operations stated in the WMP are performed on an on-going basis.

Copies of the WMP will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the WMP and informed of the responsibilities which fall upon them as a consequence of its provisions. Where source segregation, selective demolition and material reuse techniques apply, each member of staff will be given instructions on how to comply with the WMP. Posters will be designed to reinforce the key messages within the WMP and will be displayed prominently for the benefit of site staff.

C&D Record Keeping

Details of all arisings, movement and treatment of C&D waste shall be recorded as part of the Waste Auditing regime.

It is the duty of the C&D Waste Manager to ensure that necessary licenses have been obtained as needed. Each consignment of C&D waste taken from the site will be subject to documentation which

will conform with *Table 2* along with Transportation Dockets to ensure full traceability of the material to its final destination.

Detail	Particulars
Project of Origin	Mooretown Phase 3 including Stormwater Storage Tank (Celestica Site), Swords, Co. Dublin
Material being Transported	Soil, Construction waste
Quantity of Material	TBC by Contractor prior to starting works
Date of Material Movement	TBC by Contractor prior to starting works
Name of Carrier	TBC by Contractor prior to starting works
Destination of Material	TBC by Contractor prior to starting works
Proposed Use	TBC by Contractor prior to starting works

Table 14.5 | Details of Materials Taken from Site

14.11 Mitigation Measures – Operational Phase

14.11.1 Surface Water

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

- The surface water drainage network has been designed in accordance with the CIRIA SUDS Manual and the Greater Dublin Strategic Drainage Scheme. The appropriate interception mechanisms and treatment train process has been incorporated into the design.
- Surface water outflow will be restricted to the equivalent greenfield runoff rate from the existing Oldtown attenuation ponds.
- Flow restrictors with attenuation storage will be used to slowdown and store surface water runoff from discharging above green field rates to the Broadmeadow River.
- Sustainable urban drainage measures, including green roofs, permeable paving and filter strips/ swales will be provided to improve water quality.
- A petrol interceptor will be installed to prevent hydrocarbons entering the local drainage system.
- Regular inspection and maintenance of the drainage network, including petrol interceptor.
- Water metering via district meters will be installed to Irish Water requirements. Monitoring of the telemetry data will indicate any excessive water usage which may indicate the potential for a leak in the watermain network. Early identification of potential leaks will lead a faster response in determining the exact location of leaks and completion of remedial works.
- The outfall headwall to the Broadmeadow River will be fitted with a tide-flex (or similar approved) non-return valve to ensure surcharge from the Broadmeadow River will not backfill into the proposed pipe and tank during extreme weather events.

- The outfall volumes from the stormwater storage tank to the Broadmeadow River shall be metered to record the frequency and duration/volumes of overflows.

14.11.2 Foul Water

The foul network will be inspected annually and maintained.

14.11.3 Water Supply

It is not envisaged that any other remedial or reductive measures will be necessary upon the completion of the development.

14.11.4 ESB Network

On completion of the construction phase no further mitigation measures are proposed in relation to the electrical infrastructure.

14.11.5 Gas

On completion of the construction phase no further mitigation measures are proposed in relation to the gas infrastructure.

14.11.6 Telecommunications - Eir

On completion of the construction phase no further mitigation measures are proposed in relation to the telecommunications infrastructure.

14.12 Predicted Impacts of the Proposed Development During Construction Phase

14.12.1 Surface Water

Due to the proposed mitigation measures outlined above no significant impact will arise during the construction phase of the proposed development on a surface water quality.

14.12.2 Foul Water

Due to the proposed mitigation measures outlined above, the impact of the foul network construction will be not significant.

14.12.3 Water Supply

Due to the proposed mitigation measures outlined above, the impact on the water supply infrastructure during the construction phase of the proposed development is slight.

14.12.4 ESB Network

Implementation of the measures outlined in Section 14.9 will ensure that the potential impacts of the proposed development on the site's material assets do not occur during the construction phase and that any residual impacts will be short term.

14.12.5 Gas

Implementation of the measures outlined in Section 14.9 will ensure that the potential impacts of the proposed development on the site's material assets do not occur during the construction phase and that any residual impacts will be short term.

14.12.6 Telecommunications - Eir

Implementation of the measures outlined in Section 14.9 will ensure that the potential impacts of the proposed development on the site's material assets do not occur during the construction phase and that any residual impacts will be short term.

14.13 Predicted Impacts of the Proposed Development During Operational Phase

14.13.1 Surface Water

Due to the proposed mitigation measures outlined above many of the potential impacts will not arise during the operation phase of the proposed development on surface water quality.

Surface water discharge from the site will be restricted by means of attenuation, therefore, no adverse impact in respect of flooding downstream will arise from the proposed development.

14.13.2 Foul Water

There will be increased flows in the existing foul water drainage network, resulting in a moderate impact in terms of demand on the receiving foul water network. This impact is proposed to be managed through the construction of a storage tank on the foul network as part of this application, to alleviate constraints within the network. Otherwise, consultation with Irish Water will be carried out as standard, to ensure any necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

14.13.3 Water Supply

There will be an increased demand for water supply due to the development resulting in a moderate impact in terms of demand on the water supply infrastructure. This impact will be managed through consultation with Irish Water to ensure necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

14.13.4 ESB Network

The demand on power supply will increase due to the development of the lands. The development of the lands will be constructed in phases, with the final phase being completed circa 2025.

14.13.5 Gas

The demand on gas supply will increase due to the development of the lands. The development of the lands will be constructed in phases, with the final phase being completed circa 2025.

14.13.6 Telecommunications - Eir

The demand on telecommunications supply will increase due to the development of the lands. The development of the lands will be constructed in phases, with completion anticipated in circa 2025.

14.14 Monitoring and Reinstatement

The proposed monitoring of the various built services during the operation stage will include:

- Surface water drainage and SUDS features will be monitored and maintained by the Developer.
- The water usage within the proposed development will be monitored via the bulk water meters. Records will be maintained by Irish Water to ensure any excess usage is identified and investigated as necessary.
- Irish Water will monitor the operation of the foul drainage network including the receiving environment.
- The construction and waste management plans will be adhered to.
- The provision of utility services including electricity, gas and broadband will be monitored by the relevant utility provider.

14.15 Interactions

The main interactions relating to this EIAR Chapter are Water (Hydrology and Hydrogeology), Population and Human Health, and Traffic and Transport.

During construction stage, the connection of wastewater services has the potential to impact the local surface water from a hydrology and hydrogeology perspective. There are potential implications for the local populations if there is a disruption to utility services during the connection of the new services to the proposed development. The construction of the various services will also interact with construction traffic as outlined in the Traffic and Transport Chapter.

During the operation stage, the water supply and foul drainage services have a potential interaction with the available water supply and with potential pollution to natural water bodies.

14.16 Difficulties Encountered

There were no particular difficulties encountered compiling this chapter of the EIAR.

14.17 References

- Code of Practice for Water Infrastructure Connections and Developer Services, Irish Water
- Code of Practice for Wastewater Infrastructure Connections and Developer Services, Irish Water
- Eircom Emaps
- Environmental Impact Assessment Reports Draft Guidelines, (2017), EPA
- ESB Networks
- Gas Networks Ireland – Cork Design Department
- Greater Dublin Strategic Drainage Study (GDSDS), (2015), Dublin Drainage
- Irish Building Regulations – Part H 2010 – Drainage and Wastewater Disposal

15.0 INTERACTIONS AND CUMULATIVE EFFECTS

15.1 Introduction

The matrix incorporated in Table 15.1 below, inter-relates Chapters 4.0 to 14.0 of the Environmental Impact Assessment Report to the various impacts referred to in the relevant Environmental Impact Assessment Regulations.

The EIAR has identified potential for interactions between a range of factors identified in Table 15.1. These interactions require the implementation of suitable mitigation measures to ameliorate the impact of the development on the environment. This EIAR has found that subject to the full implementation of the various mitigation measures specified by the EIAR team and summarised in Chapter 16, the development will have no significant negative impact on the environment.

15.2 Summary of Interactions

The following sub-sections provide an overview of the interactions identified within the EIAR chapters. Such interactions include the following:

No.	Heading	Population and Human Health	Biodiversity	Land, Soils & Geology	Water	Air Quality	Noise & Vibration	Climate	Landscape & Visual Impact	Transportation	Cultural Heritage	Material Assets – Utilities & Waste
4	Population and Human Health				X	X	X			X		
5	Biodiversity											
6	Land and Soils											
7	Water		X	X								
8	Air Quality	X								X		
9	Noise & Vibration	X								X		
10	Climate	X								X		
11	Landscape											
12	Traffic and Transport	X				X	X		X			
13	Cultural Heritage											
14	Utilities & Waste	X			X					X		

Table 15.1 Interactions Identified in the EIAR

15.3 Cumulative Effects

The potential for cumulative effects exists in combination with the remaining Moortown lands which are zoned RA (new residential communities subject to the provision of the necessary social and physical infrastructure) under the Fingal County Development Plan 2017-2023 and were subject to the Oldtown-Moortown Local Area Plan 2010 before it expired in July 2020. Planning permissions for development on the lands broadly followed the phasing plan in the Local Area Plan, and this is the final planning application for development on the Moortown lands.

15.4 Population and Human Health (Chapter 4.0)

Interactions

The main interactions relating to population and human health are water, air quality, noise, and traffic during the construction phase. Construction activities will have a temporary impact the landscape of the area by way of visual disturbance. These impacts are not considered to be significant. During the operational phase, the main interactions relating to population and human health are water, air quality, noise, and traffic. These impacts are not considered to be significant. Please refer to the associated chapters for further information on these interactions.

Cumulative effects

The assessment has considered cumulative impacts of construction and operational phases of the proposed project, in conjunction with surrounding developments.

Multiple sites under construction at the one time may result in cumulative impacts in terms of noise and vibration during the construction period for human beings. However, such impacts are short-term, and the implementation of appropriate mitigation measures will ensure that noise and vibration impact is kept to a minimum. Please refer to Chapter 9.0 for further details in this regard.

During the operational phase of the development, there will be residential, recreational, and commercial developments in proximity to the proposed project which will generate a synergy of uses. This will increase population, increase employment opportunities, and increase community facilities such as childcare facilities, and as such the long-term effect will be a positive and permanent impact for Broomfield and the overall town.

15.5 Biodiversity (Chapter 5.0)

Interactions

The biodiversity elements of this EIAR have involved consultation with a wide section of the Project Team particularly in relation to the Construction Management, design, drainage, lighting and landscape elements of the proposed Project. Enhancement measures were put in place where possible, particularly in the vicinity of the open space and riparian areas. There are numerous inter-related environmental topics described in detail throughout this EIAR document which are of relevance to the biodiversity chapter. There is potential for interaction between the biodiversity and other chapters outlined in the EIAR, during construction and operation. The mitigation measures that will be put in place for the proposed development will ensure that the impact on biodiversity would be negligible following the implementation of mitigation measures.

Cumulative effects

There are several proposed developments located in the area immediately surrounding the subject site. The following is a list of planning applications as identified on the Department of Housing, Local Government and Heritage's 'National Planning Application Database' portal¹:

¹ <https://housinggov.ie/maps.arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de>

Planning Ref.	Address	Proposal
F20A/0096	Lands at Moortown, Swords, Co. Dublin	A c. 400m long southerly extension to the newly constructed Moortown Distributor Road including verges, cycle paths, footpaths, water supply, foul and surface water drainage, surface water attenuation, utilities and ancillary works. The Moortown Distributor Road is part of the Swords Western Distributor Road which connects the Rathbeale Road to the Moortown Local Area Plan lands. Add Info received 16th February 2021. Add Info deemed Significant 17th February 2021. Revised Notices received 2nd March 2021.
F20A/0095	Lands at Moortown and Abbeyvale Court, Swords, Co. Dublin.	A c. 185m long pedestrian and cycle path with ancillary works to provide a new east-west connection from Abbeyvale Court to the proposed Moortown Distributor Road extension and a new school campus. The Moortown Distributor Road is part of the Swords Western Distributor Road, which connects the Rathbeale Road to the Moortown Local Area Plan lands. Add Info received 16th February 2021. Add Info deemed Significant 17th February 2021. Public Notices received 2nd March 2021.
F19A/0029	Lands south of the Rathbeale Road, And east of the Swords Western Distributor Link Road, And north of Watermill Park, Moortown, Swords, Co. Dublin	Revisions to part of previously permitted development Reg. Ref. F15A/0183 to omit a crèche and 69 no. houses comprising 23 no. 4-bedroom 2-storey houses and 46 no. 3-bedroom 2-storey houses and two 3-storey with penthouse level blocks of 15 apartments comprising 8 no. 1-bedroom apartments and 22 no. 2-bedroom apartments (99 units in total) and to now provide 81 no. 3-bedroom 2-storey houses and 13 no. 4-bedroom 2-storey houses (94 units in total). The development includes 188 car parking spaces and all associated and ancillary site works. This application is referred to as 'Phase 1C and is the third of 3 planning applications to revise the house types, apartments and crèche permitted in the parent permission F15A/0183. Add Info received 6th September 2019. Add Info deemed Significant 12th September 2019. Revised Public Notices received 25th September 2019.
F18A/0701	Lands south of the Rathbeale Road, And east of the	Permission to omit 43 no. houses comprising 18 no 4-bedroom 2-storey houses, 23 no. 3-bedroom 2-storey houses, 2 no. 3-bedroom 3-storey houses and a single 3 storey with penthouse level block of

Planning Ref.	Address	Proposal
	Swords Western Distributor Link Road, And north of the Watermill Park, Mooretown, Swords, Co. Dublin.	15 apartments comprising 4 no. 1-bedroom apartments and 11 no. 2-bedroom apartments (58 units in total) and to now provide 2 no. 2-bedroom 2-storey houses, 33 no. 3-bedroom 2-storey houses and 4 no. 4-bedroom 2-storey houses. It also proposes 2 no. 3-storey with penthouse level apartment blocks comprising 40 no. 2-bedroom apartments and 20 no. 1-bedroom apartments (99 units in total) and a 352m² crèche. The development includes 153 car parking spaces and all associated and ancillary site works. The application is referred to as 'Phase 1A' and is the first of 3 planning applications to revise the house types and apartments permitted in the parent permission F15A/0183. Add Info received 7th March 2019. Clarification of Add Info received 21st May 2019. Clarification of Add Info deemed Significant 24th May 2019. Revised Public Notices received 6th June 2019.
F18A/0163	Lands at Mooretown, Off Rathbeale Road, Swords, Fingal, Co. Dublin.	2 new school buildings with a total floor area of 15,913 sq.m. incorporating: (A) Swords Community College (RN76475D), consisting of a new, part 3-storey, part 2-storey, 11,397 sq.m. post primary school, including a 2-classroom Special Needs unit and Sports Hall with all ancillary pupil and staff facilities; and (B) new Primary School consisting of a new 2-storey, 24-classroom, 4,516 sq.m. primary school with a 2-classroom Special Needs unit, including all ancillary pupil and staff facilities; GP hall; and (C) all associated site works, including a substation, with a total of 104 number car parking spaces (40 spaces for primary and 64 spaces for post primary) including all landscaping, ball courts and soft play areas.
F16A/0505	Three parcels of land adjacent to the approved Watermill Park, at lands south of Rathbeale Road, Mooretown, Swords, Co. Dublin.	The construction of 188 houses and 50 apartments. The proposed houses comprise 72 no. four-bedroom two storey houses, 19 no. three-bedroom three storey houses and 97 no. three-bedroom two storey houses. The proposed apartments are in two blocks (A & B). Core A1 comprises 3 no. one-bedroom apartments, 17 no. two-bedroom apartments and 1 no. three bedroom apartment in four storeys plus penthouse. Adjoining Core A2 comprises 3 no. one-bedroom apartments, 14 no. two-bedroom apartments and 1 no. three-bedroom apartment in three storeys plus penthouse. Block B comprises 2 no. one-bedroom apartments and 9 no. two-bedroom apartments in three storeys plus penthouse. The site area includes minor amendments to the site area of adjacent permission Reg. Ref. F15A/0183. The development includes all associated site works and

Planning Ref.	Address	Proposal
		infrastructure which includes landscaped open space, internal roads, paths, cycle-paths, public lighting, utilities, a reserved site for future ESB mast, drainage and surface water attenuation. This site is accessed from previously approved Swords Western Distributor Link Road (approved under Reg. Ref. F12A/0270, PL 06F.241634) and roads permitted under previously approved residential development Reg. Ref. F15A/0183. The application is accompanied by an Environmental Impact Statement (EIS) which will be available for inspection or purchase for a fee not exceeding the reasonable costs of making a copy at the offices of Fingal County Council during its public opening hours. Additional Information lodged 15/06/2017 Deemed Significant. Revised Public Notices lodged 28/06/2017 - Irish Independent 26/06/2017
F15A/0183	Lands South of the Rathbeale Road, Mooretown, Swords, Co. Dublin.	The construction of 190 houses and 60 apartments. The proposed houses comprise 72 no. four bedroom two storey houses, 15 no. three bedroom three storey houses and 103 no. three bedroom two storey houses. The proposed apartments are within four blocks of 15 apartments each comprising 4 no. one bedroom apartments and 11 no. two bedroom apartments in three storey plus penthouse. The development includes all associated site works and infrastructure which includes landscaped open space, internal roads, paths, cycle-paths, public lighting, utilities, drainage and surface water attenuation. This application is accompanied by an Environmental Impact Statement (EIS), which will be available for inspection or purchase for a fee not exceeding the reasonable costs of making a copy at the offices of Fingal County Council during its public opening hours.
F14A/0012	LAP Lands at Mooretown, Swords, Co. Dublin.	Access road and services enabling works to serve the future school campus. The access road shall form the main street of the future local centre at Mooretown and includes a civic plaza area, street parking, cycle paths and footpaths. The new access road shall connect the future schools campus to the approved section of the Swords Western Distributor link road within Mooretown that connects to the Rathbeale Road (approved under Reg. Ref. F12A/0270; PL 06F.241634). The application includes water supply, foul water drainage connecting to the existing sewer on the Rathbeale Road, surface water attenuation and ancillary works.

Planning Ref.	Address	Proposal
F11A/0436	Glen Ellan Road, Oldtown, Swords, Co. Dublin	Construction of 245 dwellings and a 316m ² two-storey creche. The residential development comprises 104 four-bedroom houses, 113 three-bedroom houses, 12 two-bedroom houses, 8 three-bedroom maisonettes and 8 one-bedroom apartments in two and three storeys. The development includes all associated site works and infrastructure which includes landscaped open space, internal roads, paths, cycle paths, public lighting, utilities, drainage, surface water attenuation and a temporary emergency access road.

In relation to Planning Ref. F18A/0163, a Report for the purposes of Appropriate Assessment Screening has been prepared by Moore Group – Environmental Services to accompany this application. This report concludes with the following:

‘Potential source vector pathways were addressed in considering the hydrological connectivity between the site and the Broadmeadow River leading to Malahide Estuary. There would be no direct impact on the Estuary and so potential indirect impacts are then considered. The potential for a large-scale pollution event is unlikely and by employing construction management included in the Construction Management Plan for the overall Mooretown development there would be no significant indirect impacts on the Malahide Estuary European sites.

It has been objectively concluded by Moore Group Environmental Services that:

- 1. The project is not directly connected with, or necessary to the conservation management of the European sites considered in this assessment.*
- 2. The proposed development is unlikely to indirectly, significantly affect the Qualifying interests or Conservation Objectives of the European sites considered in this assessment.*
- 3. The project, alone or in combination with other projects, is not likely to have significant effects on the European sites considered in this assessment in view of their conservation objectives.*
- 4. It has been determined by Moore Group – Environmental Services that it is possible to rule out likely significant impacts on any European sites considered in this assessment.*
- 5. It is possible to conclude that there would be no adverse effects on site integrity resulting from the project and that there would be no significant effects, no potentially significant effects and no uncertain effects if the projects were to proceed.*

It is the view of Moore Group Environmental Services that it is not necessary to undertake any further stage of the Appropriate Assessment process.’

In relation to Planning Ref. **F16A/0505**, an Appropriate Assessment Screening Report has been prepared by OPENFIELD Ecological Services to accompany this application. This report concludes with the following:

‘This proposed development is not located within or directly adjacent to any SAC or SPA but pathways do exist to a number of these areas. An assessment of the aspects of this project has shown that

significant negative effects are not likely to occur to these areas with regard to their conservation objectives, either alone or in combination with other plans or projects.’

Furthermore, there are several development proposals located within close proximity to the proposed site. The following is a planning history as identified in the Department of Housing, Local Government and Heritage’s ‘National Planning Application Map’ portal²:

Table 5.7 (Chapter 5). Development proposals located in close proximity to the proposed development site

Planning Ref.	Address	Proposal
F11A/0436/E1	Glen Ellan Road, Oldtown, Swords, Co. Dublin.	Construction of 245 dwellings and a 316m ² two-storey crèche. The residential development comprises 104 four-bedroom houses, 113 three-bedroom houses, 12 two-bedroom houses, 8 three-bedroom maisonettes and 8 one-bedroom apartments in two and three storeys. The development includes all associated site works and infrastructure which includes landscaped open space, internal roads, paths, cycle paths, public lighting, utilities, drainage, surface water attenuation and a temporary emergency access road.
F16A/0091	Lands at Glen Ellan Road, Oldtown, Swords, Co. Dublin.	Revisions to approved development (Reg. Ref. F11A/0436), to omit 7 two bedroom apartments in a 3-storey plus penthouse block, 5 three bedroom triplex units and 2 two bedroom duplex units and now provide 2 four bedroom 3-storey houses, 4 one-bedroom apartments and 10 two bedroom apartments in a 3-storey plus penthouse block and a 253 sq.m. crèche. The development includes 28 no. car parking spaces, and all associated ancillary and site works.

No significant projects are proposed or currently under construction that could potentially cause in combination effects on European sites.

Given this, it is considered that in combination effects with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant and localised. It is concluded that no significant effects on European sites will be seen as a result of the proposed development alone or combination with other projects.

No significant cumulative impacts are likely in relation to the proposed development.

15.6 Land and Soils (Chapter 6.0)

Interactions

²

<https://housinggov.ie/maps/arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de>

Any potential rock breaking will generate noise and excavations on site will give rise to dust. From review of the ground investigations discussed in section 6.3, it is not anticipated that rock breaking will be necessary.

Cumulative effects

It is not anticipated that potential cumulative impacts will be generated on land, soils and geology during the construction or operation phases or in the event of future developments adjacent to the site should they implement the appropriate mitigation measures.

15.7 Water (Chapter 7.0)

Interactive effects

The main interactions relating to this EIAR Chapter are Land & Soils, Biodiversity and Utilities.

During construction stage, the connection of wastewater services has the potential to impact ground water if wastewater were to leak from the network during the construction process. There are potential implications for the local populations if there is a disruption to utility services during the connection of the new services to the proposed development. The construction of the various services will also interact with construction traffic as outlined in the Traffic and Transport Chapter.

During the operation stage, the water supply and foul drainage services have a potential interaction with the available water supply and with potential pollution to natural water bodies.

In respect of Land & Soils, interaction between surface and ground water and the bedrock geology is feasible. Any impact will be negligible as the aquifer is at low risk and is not considered to be regionally important. The implementation of the mitigation measures outlined in this chapter will reduce the potential of surface contaminants into the underlying geology.

In respect of Biodiversity, there is interaction between hydrology and the downstream habitats present along the Broadmeadow River. The mitigation measures ensure that surface water runoff is treated to the required standards so that downstream habitats are not negatively impacted.

Cumulative effects

Existing Mooretown Development

There are no anticipated cumulative impacts arising from the existing Mooretown Development in relation to water other than those noted in section 7.5 above.

Future Development

The applicant is in control of the adjacent Oldtown & Mooretown lands to provide a consolidated development in north Swords. This current application relates to Phase 3 of the Mooretown lands south of Rathbeale Road. This Phase is the final Phase of Masterplan development within the Mooretown lands. There has been a carefully considered design approach to development to ensure that the subject application can be delivered to enhance and improve upon existing amenity.

The Masterplan development successfully integrates and enhances the existing built fabric in north Swords.

There are no additional impacts to those noted in section 7.5 above.

15.8 Air Quality (Chapter 8.0)

Interactive effects

The main interactions relating to air quality are population and human health and transportation which are not significant.

Cumulative effects

Construction phase

There is the potential for cumulative dust emissions to impact the nearby sensitive receptors. The dust produced from construction activities tends to be deposited within 200m of a construction site and the majority of the deposition occurs close to the source, typically within the first 50m. The dust mitigation measures outlined in section 8.5 along with the Dust management plan will be applied throughout the construction phase of the proposed development, which will avoid significant cumulative impacts on air quality. With mitigation measures in place and adhered to, the predicted cumulative impacts on air quality associated with the construction phase of the proposed development are deemed short-term and not significant.

Operational phase

The cumulative effects during the operational phase were assessed from changes in traffic flows during the operational phase due to the additional residents. The traffic data used to assess the impacts included the traffic associated with the new proposed development as well as Phase 1 and Phase 2 Moortown / under construction developments. Therefore, the cumulative impact is included within the operational stage impact for the proposed development. Modelled results show that concentrations of ambient air pollutants will remain well within the limit values for air quality which are based on the protection of human health. The predicted cumulative impacts on air quality is negligible and would not result in a perceptible change in the existing local air quality environment.

15.9 Noise and Vibration (Chapter 9.0)

Interactive effects

The main interactions relating to air quality are population and human health and transportation which are not significant.

Cumulative effects

Construction phase

The construction noise/vibration assessment in the previous sections represents the worst-case scenario and it is very unlikely that the same noise/vibration event would happen to coincide at the same time of other potential developments giving rise to a theoretical increase in predicted noise levels. However, the impact of any predicted cumulative noise or vibration levels on nearby sensitive

receptors is assumed not to exceed the worst-case scenario and is temporary and deemed not significant.

Operational phase

The anticipated noise impacts from the development during the operational phase will mainly be as a result of increased vehicle traffic flows along the incoming and outgoing routes into the proposed development site. It is anticipated that additional road traffic noise attributable to the overall masterplan will result in an increase in the baseline noise environment. The change in noise levels and the significance of such changes can be categorised by the Guidelines for Noise Impact Assessment, Institute of Environmental Management and Assessment. Based on these guidelines the anticipated increase in noise levels can be categorised as 'Slight' at the worst case. The increase in traffic associated with the proposed development scheme together with other potential developments is therefore not expected to give rise to any significant noise nuisance in the area. We note that as part of the Government Climate Change action plan that petrol and diesel passenger vehicles are being phased out and potentially replaced by quieter electric vehicles eventually leading to less operational noise.

Traffic/transportation has been identified as the only likely source of vibration during the operational phase of the scheme. In the case of nominally continuous sources of vibration, such as traffic, vibration is perceptible at around 0.5 mm/s PPV and may become disturbing or annoying at higher magnitudes. There may, in theory, be a small increase (+/-10%) in vibration levels as a result of increased traffic from the other potential developments, however, it would still be appropriate to assume that negligible vibration impacts will occur during the operation and no further assessment is deemed to be required. The cumulative noise / vibration impact is determined to be not significant.

15.10 Climate (Chapter 10)

Interactive effects

The main interactions relating to air quality are population and human health and transportation which are not significant.

Cumulative effects

It could be assumed that the dwellings constructed at this point would be included in the national greenhouse gas emission data of 2022 which leaves us to add the units in neighbouring projects to be added. For ease of calculation for the national impact we have assessed the commercial element as residential units also as the CO₂ emissions would be similar for this report purpose.

Project CO ₂ emission impact on National emissions	National	Cumulative	fraction
	emissions	units	
	Mt-CO ₂ /year	emissions	
		Mt-CO ₂ /year	%

2022	60	0.02693	0.04488
2030	58	0.00422	0.00728
2030 with additional measures	48	0.00422	0.00889

The national impact; The impact of the cumulative development/phases of 0.02693 Mt-CO₂ on Ireland's current emissions (2022) @ 60 Mt-CO₂/year represents an increase of 0.04488%. The impact of this 1139 unit development is 0.00422 Mt-CO₂ on Ireland's projected 2030 emissions @ 58 Mt-CO₂/year represents an increase of 0.00728%.

Based on the above findings we note the cumulative impacts on the national CO₂ emission at worse to be very fractional. CO₂ emissions from the construction and operational phase have been reduced to a minimum. The impact on National emissions for the construction phase are therefore deemed to be short term and imperceptible. For the operational phase it is deemed long term and imperceptible both in 2022 and 2030. Any new development in essence will increase CO₂ emissions to the national and global environment however by introducing the reduction measures at design stage the increase has been kept to a reasonable minimum.

15.11 Landscape and Visual Impact (Chapter 11)

Cumulative effects

The Guidelines for Landscape and Visual Impact Assessment (3rd Ed.) defines cumulative visual impacts as the effects on views and visual amenity enjoyed by people, which may result from adding to the effects of the project to the effects of the other projects on the baseline conditions or from their combined effect. This may result from changes in the content and character of the views experienced due to the introductions of new elements or removal of or damage to existing ones. The residents to the south of the proposed development lands have experienced a gradual change to the landscape to the north with the construction of the Community School and construction activities at Cronan's Well, part of the Moortown Phase 1. This development will be the culmination of development in the zoned lands to the north of their estates and while there would be a cumulative landscape and visual impact on these estates it would be moderate.

15.12 Traffic and Transport (Chapter 12)

Interactions

Construction Stage

Temporary negative impacts to human health may be likely during the Construction Phase due to noise, dust, air quality and visual impacts which are discussed in the relevant chapters of this EIAR. Temporary traffic management will be required to facilitate connections to existing utilities in the existing roads.

The traffic impacts, which would be temporary in duration are not considered to be significant due to the implementation of the mitigation measures identified in Section 13.10.

Operational Stage

Noise generated by increased traffic flows have been assessed in the Air and Noise Chapters.

15.13 Cultural Heritage (Chapter 13)

Interactions and cumulative effects

There is an interaction with the landscape consultant to integrate Ringfort site DU011-147 into the landscaping design. No interactions or cumulative impact are predicted.

15.14 Utilities and Waste (Chapter 14)

Interactions

The main interactions relating to this EIAR Chapter are Water (Hydrology and Hydrogeology), Population and Human Health, and Traffic and Transport.

During construction stage, the connection of wastewater services has the potential to impact the local surface water from a hydrology and hydrogeology perspective. There are potential implications for the local populations if there is a disruption to utility services during the connection of the new services to the proposed development. The construction of the various services will also interact with construction traffic as outlined in the Traffic and Transport Chapter.

During the operation stage, the water supply and foul drainage services have a potential interaction with the available water supply and with potential pollution to natural water bodies.

Cumulative effects

In the event of future development adjacent to the proposed development, there are no predicted cumulative impacts arising from the construction or operation phase related to the material assets – built services provided that the other developments implement appropriate mitigation measures.

16.0 SUMMARY OF MITIGATION & MONITORING MEASURES

16.1 Mitigation and Monitoring Measures

The sections provided 1 below, contains the mitigation and monitoring measures proposed to ensure no significant residual, significant effects arise from the proposed development, which have been set out in Chapters 4.0 to 14.0 of the Environmental Impact Assessment Report to the various impacts referred to in the relevant Environmental Impact Assessment Regulations. Listed below are the mitigation and monitoring measures proposed for the proposed development.

16.2 Population and Human Health

16.2.1 Mitigation Measures

Construction Phase

Measures to mitigate potential impacts arising from the construction phase of the proposed development such as noise are set out in relevant chapters of this EIAR.

Operation Phase

The proposed development will have a positive impact on the local community and will positively contribute to the vitality and viability of the local area, as well as passive amenity and open space provision.

16.2.2 Monitoring Measures

There is no requirement for community monitoring. In terms of population and human health, measures to avoid negative impacts have been a key consideration in the design evolution of the buildings and overall layout of the proposed project. Conditions will be attached to any grant of planning permission to ensure compliance in this regard. Building Regulations will also be adhered to during the construction phase to ensure a fully compliant development is constructed. Health & Safety requirements, which are site specific to the proposed project, will be carried out by the Project Manager on site. Impacts from Air Quality, Noise and Vibration, Climate, and Traffic and Transport and monitoring measures in this regard are addressed in the relevant chapters of this EIAR.

16.3 Biodiversity

16.3.1 Mitigation Measures

Construction and operational Mitigation Measures will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (Zoi) including the onsite drainage ditches, the adjacent watercourses (Mill Stream and Broad Meadow River) and the downstream European sites, Malahide Estuary SAC and SPA. Construction phase mitigation measures are required on-site, particularly as significant reprofiling of the site is proposed which will remove all existing terrestrial habitats and can lead to silt-laden and contaminated runoff. In addition, there are existing drainage ditches on site which will be impacted by the development of the site. There is potential for silt-laden runoff and contamination to enter the

watercourse with potential for downstream impacts. Mitigation measures are required to prevent downstream impacts. These mitigation measures are described in Table 5.8 below.

16.3.2 Monitoring Measures

Monitoring of the project by a project ecologist will be undertaken to oversee the implementation of the surface water management, ensure that frogs, mammals, and birds are not impacted.

Table 5.8. Sensitive Receptors/Impacts and mitigation measures.

Sensitive Receptors	Designed-in Mitigation
Malahide Estuary SAC Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Malahide Estuary SPA Qualifying Interests Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	A Preliminary Construction, Demolition and Waste Management Plan has been prepared by Waterman Moylan Consulting Engineers to accompany this planning application. The report outlines the following in relation to runoff pollution and sediment control: '13. Runoff Pollution and Sediment Control 13.1 Runoff Pollution Control <i>Significant quantities of waste and potential pollutants can be generated during construction. Controls will be put in place to prevent these pollutants from washing into the local storm water system during storm events.</i> <i>The Inland Fisheries Ireland document: Guidelines on Protection of Fisheries During Construction Works In and Adjacent to Waters 2006, outlines the following areas to be considered for the protection of adjacent water courses during the construction stage</i> • <i>Damage to the aquatic and associated riparian habitat due to loss of vegetation, damage to banks & changes in watercourse morphology & hydrology.</i> • <i>Pollution of waters due to construction materials.</i> • <i>Introduction of non-native species such as plants, algae, fish & shellfish.</i> • <i>Interference to the movement of aquatic life.</i> • <i>Timing of in-stream works on seasonal salmonid activity.</i> • <i>Temporary crossing structures in waters.</i> • <i>Permanent crossing structures in waters.</i> • <i>Construction impacts such as cast in-situ concrete, sediment laden surface water, hydrocarbon leaks & water abstraction. (Also discussed in section 13.2)</i> <i>In consideration of the above list the following methods listed, but not limited to, will be implemented on site as appropriate:</i>

Sensitive Receptors	Designed-in Mitigation
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Pintail (<i>Anas acuta</i>) [A054] Goldeneye (<i>Bucephala clangula</i>) [A067] Red-breasted Merganser (<i>Mergus serrator</i>) [A069] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162] Wetland and Waterbirds [A999] Watercourses	• <i>Fuels, oils, greases and hydraulic fluids will be stored in bunded compounds well away from the watercourse/ditches. Refuelling of machinery, etc., will be carried out in bunded areas.</i> • <i>Runoff from machine service and concrete mixing areas will not enter the watercourse.</i> • <i>Stockpile areas for sands and gravel will be kept to minimum size, well away from the watercourse.</i> • <i>Runoff from the above will only be routed to the watercourse via suitably designed and sited settlement ponds/filter channels.</i> • <i>Settlement ponds will be inspected daily and maintained regularly.</i> • <i>Temporary crossings will be designed to the criteria laid down for permanent works.</i> • <i>Watercourse banks will be left intact if possible. If they have to be disturbed, all practicable measures should be taken to prevent soils from entering the watercourses.'</i> '13.2 Sediment Control <i>Construction runoff is heavily laden with silt which can block road gullies and reduce the hydraulic capacity in pipes and watercourses, contributing to ponding and flooding. Continued development without appropriate controls will ultimately keep maintenance costs elevated, whether that be in cleaning gullies, jetting pipes or dredging. Sediment control plans can be implemented on-site to mitigate these issues.</i> <i>Sediment basins and traps should be installed before any major site grading takes place. Additional sediment traps and silt fences should be installed as grading takes place to keep sediment contained on site at appropriate locations.</i> <i>Key runoff-control measures should be located in conjunction with sediment traps to divert water from planned undisturbed areas away from the traps and sediment-laden water into the traps. Diversions should be installed above the areas to be disturbed before any grading operations. Any perimeter drains should be installed with stable outlets before opening major areas for development.</i> <i>Any additional facilities needed for runoff control should be installed as grading takes place.</i> <i>During grading operations temporary diversions, slope drains, and inlet and outlet protection installed in a timely manner can be very effective in controlling erosion and sediment build up.'</i>

Sensitive Receptors	Designed-in Mitigation
Drainage Ditches Aquatic flora Fauna	<i>The main run-off conveyance system with inlet and outlet protection measures should be installed early and used to convey stormwater run-off through the development site without creating gullies or channels. Install inlet protection for storm drains as soon as the drain is functional to trap sediment on site in shallow pools and to allow the flood flows to enter the storm drainage system safely. Install outlet protection at the same time as the conveyance system to prevent damage to the receiving watercourse.</i> <i>During the final stages of construction unstable sediment from sediment basins and traps should be removed and if possible incorporated into the topsoil, not just spread on the surface.</i> 13.2.1 Sediment Control Measures <i>Sediment entrapment facilities are necessary to reduce sediment discharges to downstream properties and receiving waters. All run-off leaving a disturbed area should pass through a sediment entrapment facility before it exits the site and flows downstream.</i> <u><i>Straw Bales:</i></u> <i>Straw bales can be placed at the base of a slope to act as a sediment barrier. These are not recommended for use within a swale or channel. Straw bales are temporary in nature and may perform for only a period of weeks or months. Proper installation and maintenance are necessary to ensure their performance.</i> <u><i>Silt Fencing</i></u> <i>A silt fence is made of a woven synthetic material, geotextile, and acts to filter run-off. Silt fencing can be placed as a temporary barrier along the contour at the base of a disturbed area but is not recommended for use in a channel or swale. The material is durable and will last for more than one season if properly installed and maintained. Silt fencing is not intended to be used as a perimeter fence or in area of concentrated flow. If concentrated flow conditions exist, a more robust filter should be considered.</i> <u><i>Silt Barriers</i></u>

Sensitive Receptors	Designed-in Mitigation
	<i>Silt barriers can also be temporarily installed in any road gullies of partially constructed roads to prevent sediment movement into downstream drainage systems or SUDS components.</i> <i>When the catchment area is greater than that allowed for straw bale barriers or silt fences, runoff should be collected in diversion drains and routed through temporary sediment basins.</i> <u><i>Diversion Drains</i></u> <i>Diversion drains are simple linear ditches, often with an earth bund, for channelling water to a desired location. If the drains are being eroded, they can be lined with geotextile fabric or large stones or boulders.'</i> Operational Mitigation Petrochemical interception will be in place on the surface water network.
Birds	- Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) will be followed. Should the removal of potential nesting habitats outside of bird breeding season not be possible, a pre-works check by a qualified ecologist will be undertaken to ensure nesting birds are absent. 30 Nest boxes will be placed on site to compensate for temporary resource loss. These will be located within the compensatory hedgerow.
Bats	- Lighting at all stages will be done sensitively on site with no direct lighting of hedgerows, treelines and drainage ditch, swale and buffer zone. 6 bat boxes will be placed on site. - A pre-construction inspection of trees of bat roosting potential will be carried out.
Mammals	A pre-construction inspection of the site will be carried out
Amphibians	A pre-construction inspection of the drainage ditches will be carried out and frogs removed under NPWS licence if found.

16.4 Land and Soils

16.4.1 Mitigation Measures

Construction Stage

The provision of wheel wash facilities at the construction entrance to the development will minimise soils deposited on the road network. The adjoining road network will be cleaned on a regular basis, if required, to prevent the build-up of soils from the development site on the existing blacktop roads.

Measures will be implemented throughout the construction stage to prevent contamination of the soil and adjacent watercourses from oil and petrol leakages and significant siltation. Suitable bunded areas will be installed for oil and petrol storage tanks. Designated fuel filling points will be put in place with appropriate oil and petrol interceptors to provide protection from accidental spills. Spill kits will be provided by the Contractor to cater for any other spills.

Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works. Noise attenuation will be used on rock breakers to reduce noise levels. After implementation of the above measures the proposed development will not give rise to any significant long-term adverse impact. Negative impacts during the construction phase will be short term only in duration.

Operational Stage

Within the development, landscape areas will be topsoiled and planted in accordance with the proposed landscaping plan. Following completion of these reinstatement works, no significant adverse impacts on the soils and geology of the subject lands are envisaged.

A comprehensive drainage network will be constructed to ensure that the lands drain effectively following their reshaping / re-profiling. The drainage system shall incorporate sustainable urban drainage methods to clean flows prior to discharge.

16.4.2 Monitoring Measures

Monitoring as outlined below, during the construction phase will be undertaken; -

- Adequate protection of the topsoil stockpiled for reuse.
- Monitoring of surface water discharged to existing sewers.
- Monitoring cleanliness of the adjoining road network.
- Monitoring measures for prevention of oil and petrol spillages.
- Dampening down measures close to the boundaries of the site in dry weather.

16.5 Water

16.5.1 Mitigation Measures

Construction Stage

A Construction Management Plan has been prepared for this application and is included under a separate cover. It is considered that the Construction Management Plan (CMP) will be updated by the appointed contractor. In order to minimise the potential impact of the construction phase of the

proposed development on the surrounding surface water and groundwater environs, the following construction stage mitigation measures are to be included in the plan and be implemented in full.

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.
- 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 site.
- Site stripping will be minimised as far as practicable.
- Settlement ponds / silt traps will be provided to prevent silt runoff into the existing sewers / watercourses during the drainage works.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject lands. The location for testing and trigger levels for halting works will be agreed between the project ecologist and the site foreman at the commencement of works.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area. The project ecologist will review and agree alternative pollution control measures, such as deepening or redirecting trenches as appropriate, before works may recommence.
- All fuels and chemicals will be bunded, and where applicable, stored within double skinned tanks / containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a suitable distance from any watercourse or other water conducting features, including the cut off trenches.
- Foul and surface water pipes will be carefully laid so as to minimise the potential for cross connections which results in contamination of receiving watercourses.
- Site personnel inductions are to be conducted such that all site personnel are made aware of the procedures and best practice in relation to the management of surface water runoff and ground water protection.
- Where possible, precast concrete units are to be used to avoid on-site “wet” mix concrete usage. In situ concrete pours are to be managed in accordance with best practice to avoid overspills
- Concrete truck and wheel wash down facilities are to be provided in designated areas. Discharge from these areas is to be directed into the settlement ponds / silt traps.
- Topsoil for landscaping will be located in such a manner as to reduce the risk of washing away into local drainage or watercourses.
- Details of the headwall outfall construction methods, to prevent pollution of the Broadmeadow River during construction, are included in the Preliminary Construction Environmental and Waste Management Plan, which has been submitted under a separate cover.

The implementation of the following operation stage mitigation measures will minimise the impact on the hydrology and hydrogeology aspects of the development lands, Celestica Storage Tank .

All works will be undertaken with reference to the following guidelines:

- CIRIA C532: Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters-Williams et al., 2001).
- CIRIA C692: Environmental Good Practice on Site, (Audus et al., 2010)

- BPGCS005: Oil Storage Guidelines.
- CIRIA C648: Control of Water Pollution from Linear Construction Projects: Technical Guidance (Murnane et al., 2006a)
- CIRIA C648: Control of Water Pollution from Linear Construction Projects: Site Guide (Murnane et al., 2006a)
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI 2016)
- Guidelines for Planning Authorities – Architectural Heritage Protection – Guidance on Part IV of the Planning and Development Act 2000. (Part 2, Chapter 7) and ICOMOS Principles.

The schedule of mitigation presented within Table 7.6 summarises measures that will be undertaken in order to reduce impacts on ecological receptors within the zone of influence of the proposed development.

No.	Risk	Possible Impact	Mitigation	Result of Mitigation
1	Hydrocarbons from carparking area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Designated parking at least 50m from any watercourse.	Ensures no soil disturbance or hydrocarbons leak near aquatic zone
2	Pollutants from site compound areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	The site compound will be located at least 50m from any watercourse.	Prevents pollution of the aquatic zone from toxic pollutants
3	Pollutants from material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Fuels, oils, greases and other potentially polluting chemicals will be stored in bunded compounds at the Contractor's compound or at a location at least 50m from any body of water. Bunds are to be provided with 110% capacity of storage container. Spill kits will be kept on site at all times and all staff trained in their appropriate use. Method statements for dealing with accidental spillages will be provided the Contractor for review by the Employer's Representative.	Prevents contamination of aquatic zone by toxic pollutants
4	Concrete/cementitious materials entering the watercourse from washdown.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	A designated wash down area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off site
5	Concrete/cementitious materials entering the watercourse from concrete pours.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Pouring of cementitious materials will be carried out in the dry.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off site

6	Leaching of contaminated soil into groundwater.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Spill kits will contain 10 hr terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent leaching to ground water	Prevents contamination of aquatic zone by petrochemicals
7	Pollutants from equipment storage/refuelling area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Any refuelling and maintenance of equipment will be done at designated bunded areas with full attendance of plant operative(s) within contained areas at least 50m from any watercourse	Prevents contamination of aquatic zone by petrochemicals
8	Runoff from exposed work areas and excavated material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Contractor to prepare a site plan showing the location of all surface water drainage lines and proposed discharge points to the sewer. The plan will include the location of all surface water protection measures, including monitoring points and treatment facilities.	Prevents contamination of aquatic zone by suspended solids or pollutants.

Table 7.6 Schedule of Surface Water Mitigation Measures

Operational Stage

The implementation of the following operation stage mitigation measures will minimise the impact on the hydrology and hydrogeology aspects of the development lands, Mooretown Phase 3.

- The surface water drainage network has been designed in accordance with the CIRIA SUDS Manual and the Greater Dublin Strategic Drainage Scheme. The appropriate interception mechanisms and treatment train process has been incorporated into the design.
- Surface water outflow will be restricted to the equivalent greenfield runoff rate from the existing Oldtown attenuation ponds.
- Flow restrictors with attenuation storage will be used to slowdown and store surface water runoff from discharging above green field rates to the Broadmeadow River.
- Sustainable urban drainage measures, including green roofs, permeable paving and filter strips/ swales will be provided to improve water quality.
- A petrol interceptor will be installed to prevent hydrocarbons entering the local drainage system.
- Regular inspection and maintenance of the drainage network, including petrol interceptor.
- Water metering via district meters will be installed to Irish Water requirements. Monitoring of the telemetry data will indicate any excessive water usage which may indicate the potential for a leak in the watermain network. Early identification of potential leaks will lead a faster response in determining the exact location of leaks and completion of remedial works.
- The outfall from the stormwater storage tank headwall to the Broadmeadow River will be fitted with a tide-flex (or similar approved) non-return valve to ensure surcharge from the Broadmeadow River will not backfill into the proposed pipe and tank during extreme weather events.
- The outfall volumes from the stormwater storage tank to the Broadmeadow River shall be metered to record the frequency and duration/volumes of overflows.

16.5.2 Monitoring Measures

Construction Stage

Implementation of the Construction Management Plan is required to protect the hydrology and groundwater elements of the subject lands during the construction stage. Maintenance of the mitigation measures and monitoring of the management process is required to ensure best practice.

The monitoring measures to be implemented include:

- Monitoring of the management and storage of dangerous chemicals and fuel.
- Monitoring and maintenance of the wheel wash facilities.
- Regular maintenance and monitoring of the sediment control measures.
- Monitoring and maintenance of the watermain telemetry, SUDS features, road gullies and, attenuation ponds during the construction phase of the development.

Operational Stage

Monitoring and maintenance of the water metering telemetry, SUDS features, road gullies, attenuation and flow control devices are imperative during the operation phase of the development.

Monitoring of the frequency and volume/duration of overflows from the proposed storage tank.

16.6 Air Quality

16.6.1 Mitigation Measures

Construction phase

Full details of the dust management plan can be found in Appendix 8.1 At all times, the procedures within the plan will be monitored and assessed. Summary of mitigation measures include:

- Avoid unnecessary vehicle movements and limit speeds on-site so as to minimise the generation of airborne dust.
- Use of rubble chutes and receptor skips during construction activities.
- Site roads shall be regularly cleaned and maintained as appropriate, especially during dry and/or windy conditions. Any unsurfaced roads shall be restricted to essential site traffic only.
- A mobile wheel wash unit shall be installed at the site exit to wash down the wheels of all trucks exiting the site.
- The overloading of tipper trucks exiting the site shall not be permitted and aggregates will be transported to and from the site in covered trucks.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind, stockpiles holding fine or dusty elements including topsoils shall be covered with tarpaulins. Water misting or sprays will be used as needed if particularly dusty activities are necessary during dry or windy periods.
- Where drilling or pavement cutting operations are taking place, measures to control dust emissions will be used to prevent unnecessary dust emissions by the erection of windbreaks or barriers.

- All vehicles which present a risk of spillage of materials, while either delivering or removing materials, will be loaded in such a way as to prevent spillage.
- A complaints log shall be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated.

Operational phase

No additional mitigation measures are required for the operational phase of the proposed development as it is predicted the operational phase will not generate air emissions that would have an adverse impact on local ambient air quality. The government aims to promote sustainability by enhancing public transport with regular and ongoing increases in the public transport capacity, both road and rail and to reduce dependency on the use of the private car. The operational phase includes mitigation by design measures to minimise the impact of the development on air quality are as follows:

- Inclusion of electric car charging points to encourage electric vehicle ownership
- Proximity to public transport will reduce private vehicle use.

16.6.2 Monitoring Measures

Construction phase: If the construction contractor adheres to good working practices and the mitigation measures are in place, the levels of emission generated are assessed to be minimal and are unlikely to cause an impact on air quality during the construction phase, there is no monitoring recommended.

Operational phase: There is no monitoring recommended for the operational phase of the development as impacts to air quality are predicted to be negligible.

16.7 Noise and Vibration

16.7.1 Mitigation Measures

This EIAR does not anticipate the requirement of any remedial measures but list the following recommendations mainly for the construction sites;

- Ensure that the local authority guidelines or planning directives to noise levels and operational times are adhered to.
- Prepare a construction phase operational plan with regards to limiting noise nuisance.
- Ensure all construction vehicles and plant are regularly maintained including any noise control measures such as attenuators, filters etc.
- Limit any construction noise spreading to neighbouring site by erecting temporary noise barriers (site boundary hoarding).
- Schedule particular high-level noise activities for times when increased noise levels are less sensitive or notify neighbouring residents or any sensitive sites.

16.7.2 Monitoring Measures

No noise monitoring is deemed necessary for the operational phase however noise monitoring will most likely be a requirement as directed by the local authority for the construction phase based on

the local authorities imposed limits on the hours of operation and noise limits. No vibration monitoring is deemed necessary for both the operational and construction phase.

16.8 Climate

16.8.1 Mitigation Measures

There are no particular mitigation measures noted. All the recommended reduction measures at design stage and as applied in the CO₂ reduction tables are for the greater part mandatory to comply to the relevant regulations and standards. As each development/building can only be certified for compliance under the Building Control Amendment Regulations (BCaR) if the minimum criteria set at design stage is met in full it is very unlikely that noncompliance i.e., mitigation occurs.

16.8.2 Monitoring Measures

Construction phase

No CO₂ monitoring is deemed necessary for the construction phase as the CO₂ output / emission is relatively small and the duration of the construction phase is short-term.

Operational phase

No CO₂ monitoring is deemed necessary for the operational phase as the current and future mandatory CO₂ reduction requirement (BER) are a secure process to ensure compliance.

16.9 Landscape and Visual Impact

16.9.1 Mitigation Measures

There are a number of measures that have and can be taken to ensure that the impacts of the proposed development are minimised during construction and subsequent occupation.

Design Phase

Consideration of the impact on landscape and visual aspects has been integral in the design and layout of the scheme. A number of mitigation measures have been addressed including:

- Provision of new public open spaces for future interaction of the said and adjoining developments;
- Addressing and adopting the requirements stipulated within the Oldtown Mooretown LAP 2010.
- The use of high quality hard and soft landscape materials befitting of a new residential scheme and suitable to the existing landscape.
- Creating a green buffer space to the west beside the Mooretown Western Distributor Link Road which provides an extensively planted separation to the rural character lands to the west.

Construction Phase

Consideration shall be made to limit potential adverse construction-related effects during construction stage.

Whilst considering the above, the operation of a well-managed organised and planned construction site, with adequate control of construction traffic and working activity is key to avoiding or minimising impact. Other measures shall include:

- Use of hoarding for screening works as appropriate.
- Directing site lighting away from the adjoining properties where applicable.

Operational Phase

Consistent and effective maintenance of hard and soft landscape areas, (in particular entrance areas, streetscapes, semi-public areas and pocket parks) together with quality construction and building management are key to avoiding or minimising negative landscape and visual impacts arising from the operation of the proposed development.

The landscape proposals which accompany this application in scaled format note the detailed general landscape proposals as in the Landscape Masterplan as shown in figure 11.6 and which forms part of the planning application package of drawings.

16.9.2 Monitoring Measures

Soft landscape works will be monitored to check establishment during the first 12 months post-planting. Plant failure during this defects liability period shall be replaced within the following planting season (i.e. November to March) as necessary.

Aftercare to a high standard of both hard and soft landscape elements throughout the scheme will form part of the annual management/maintenance programme which shall be adopted as part of the scheme.

16.10 Traffic and Transport

16.10.1 Mitigation Measures

In order to eliminate or reduce the potential impacts described in Chapter 16, remedial and mitigation measures will be implemented as set out below and in the Construction Management Plan included under a separate cover with this application.

Construction Stage

- Adequate signposting will be located on site to ensure safety of all road users and construction workers.
- Due to the proximity of the proposed site along well serviced bus routes and being well served by cycle lanes, it is intended to limit construction staff parking and to encourage the use of public transport. A limited number of car parking spaces may be provided for senior construction managers within the development site. Suitable locations in the surrounding area may be identified where staff can park and link to public transportation.
- The main contractor as part of their site set up arrangements, shall appoint a Coordinator responsible for the implementation of a Construction Stage Mobility Management Plan and shall carry out the following tasks as part of their role:

- Provide an extensive information service for public transport options and routes at public location(s) within the development for construction workers;
- Update the public transport information adjacent to the development on on-going basis; and
- Advise company staff of tax incentives for public transport and bicycles.
- For those wishing to cycle to and from the development, dedicated cycle parking will be provided for the duration of the works within the site. Shower facilities and lockers will also be provided.
- A dedicated “construction site” access/egress system will be implemented during the construction phases.
- Hoarding will be set up around the perimeter to prevent pedestrian access.
- Dedicated construction haul routes will be identified and agreed with the local authority prior to the commencement of constructions activities onsite.
- A material storage zone will also be provided in the Construction Compound area. This storage zone will include material recycling areas and facilities.
- A detailed Construction and Traffic Management Plan will be prepared by the contractor and agreed with the Local Authority prior to commencing works on site.

Operational Stage

- To reduce traffic impact and to promote more sustainable modes of transport a Mobility Management Plan will be prepared for the development
- A management company will be appointed by the developer to manage the development. A senior member of staff from the management company who supports the philosophy of the Plan will be appointed as the Co-ordinator. The Co-ordinator will be responsible for:
 - Implementation and maintenance of the Plan;
 - Monitoring progress of the Plan
 - Liaison with public transport operators and officers of the Planning and Highway Authorities;
 - Production of information reports for the Developer, the occupier(s) and the Planning and Highway Authorities; and
 - Ongoing assessment of the objectives of the Plan.
- Up to date local bus timetables will be maintained within the tenant amenity area and other fixed points within the buildings on the site. Residents will be advised of their location. In addition, internet access to travel information will be provided. The developer will provide all new residents with a travel pack showing alternative modes of travel to the development. Where possible, the developer will advise visitors to the site of alternative modes of travel to that of the car.
- Secure parking facilities will be provided for residents, visitors and Creche users. Local cycle route information will be provided in the tenant amenity area and at other fixed points within the development and residents will be advised of their location. Details of cycle parking provided is included in the Traffic and Transport Assessment provided with the planning submission.
- 5 No go Car spaces will be initially provided and details of how to join the scheme will be provided to all residents when they move into their apartment. Information will also be displayed within the resident amenity area and updated when required.

- The Co-ordinator will be responsible for the management of inappropriate parking within the development. This parking management will ensure that spaces are reserved for those who have rented the space and will be accessible only to those users.

16.10.2 Monitoring Measures

Construction Stage

Traffic management and deliveries will be carefully monitored during the construction stage as part of the Construction Management Plan. The appointed contractor will monitor their mobility management plan to ensure that is operating effectively. Local residents will be kept fully informed of construction activities through mail shots, email and site notices.

Operational Stage

During the operational stage the Mobility Management Plan will be monitored by the Co-ordinator. The travel survey will establish the initial modal split of travel by residents.

The Co-ordinator, in consultation with the Developer, the Occupiers, and the Local Authority or its agents, will agree annual targets, following completion and analysis of the travel survey, for increasing the percentage of non-car modes.

The Co-ordinator will:

- Meet with officers of the Local Authorities or its agents within a period of 6 months following occupation of the building(s) and thereafter every 12 months to assess and review progress of the Plan and agree objectives for the next 12 months, and
- Prepare and submit to senior management of the Developer, the Occupier(s) and the Local Authorities or its agents, an annual Monitoring Report.

16.11 Cultural Heritage

16.10.1 Mitigation Measures

Conservation Plan and Mitigation Strategy – Preservation in-situ of RMP DU011-147

Ringfort site (RMP DU011-147) will be preserved in situ within the proposed development. The discovery of the ringfort site (RMP no: DU011-147) as a result of testing in 2008 (Frazer & Eriksson) has ensured that the development layout has been designed to avoid impacting the monument. The ringfort has been integrated into an open space area in the development enabling its preservation *in-situ*. A summary of the significance of the site and a mitigation strategy for the site is as follows:

- *Status:* The site is recorded in the Record of Monuments and Places, RMP DU011-147. The site is entirely subsurface in nature and comprises a circular ditched enclosure c.30m in diameter with an entrance to the north-northeast.
- *Date:* The site has not been scientifically dated, however based on its siting, morphology and the nature of the fills within the ditch, it is thought to be early medieval in date (c.500-1200 AD) (Frazer & Eriksson, 2008).

- *Significance:* This site is a significant addition to the record. It adds further information to the knowledge of early medieval occupation in the wider area which appears to have had the ecclesiastical enclosure complex to the north-northeast (DU011-144) as its focus, which is being preserved in situ in Rathbeal Archaeological Park.
- *Issues/vulnerability:* Buried archaeological remains are vulnerable to ground disturbance and inadvertent damage due to development in the area.
- *Mitigation strategy:* In line with Oldtown-Mooretown Conservation Plan Policies for the preservation in-situ of archaeological remains the following strategy has been developed for RMP DU011-147:
 - A protection zone will be placed around the recorded extent of this feature, by way of a robust fence erected in advance of development. The protection zone will encircle the area with a buffer zone of 20m beyond the extent of the monument (as agreed with the DHLGH) to protect it from any construction related activities. The site will be maintained as an open space and has integrated into the development proposals.
 - The landscape design incorporates the below-ground remains into the development, retaining it as an amenity area in the landscape. The landscaping proposals serve both as a protective measure and to facilitate interpretation of the site.
 - The site will be covered in a geo-textile layer and soils will be introduced to protect the underlying archaeological remains which are at least 0.30m below the existing ground level. Naturalised bulb planting will demarcate the location of the belowground remains.
 - Provision of signage to interpret the below-ground remains for the general public with be placed adjacent to the site. It will form part of a network of historic information throughout the LAP lands.

Archaeology – excavation and monitoring

Archaeological test trenching in the Mooretown Phase 3 application lands in 2008 (Frazer & Eriksson) also identified a burnt mound or *fulacht fiadh* (RMP DU011-146001) overlying a possible ring-ditch (RMP DU011-146002). Full excavation of these features in advance of development, under licence to the DHLGH, is recommended. Excavation will result in preservation by record of the sites, adding to the archaeological record of the area in the prehistoric period, which until recently was largely unknown in the surrounding area.

Topsoil removal/earthworks within the Mooretown Phase 3 lands or any other excavation work associated with the development be monitored by a suitably qualified archaeologist. In the event of the discovery of archaeological remains, the area will be cordoned off and protected until the archaeologist has made a decision on how best to deal with the remains in consultation with the DHLGH. This could be in the form of preservation in situ or full archaeological excavation (preservation by record).

All recommendations are subject to approval from the National Monuments Section of the Heritage and Planning Division, Department of Housing, Local Government and Heritage.

Architectural and Cultural Heritage

No protected structures or properties recorded in the Record of Protected Structures of Fingal County Council or within the National Inventory of Architectural Heritage will be impacted by the proposed Mooretown Phase 3 development.

16.10.2 Monitoring Measures

Archaeological monitoring is not required as all archaeological, architectural, and cultural heritage issues have been resolved at the pre-construction stage of the development.

16.11 Utilities and Waste

16.11.1 Mitigation Measures

Construction phase

Surface Water

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject site.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area. The system is cleaned and starts working again.
- All fuels and chemicals will be bunded, and where applicable, stored within double skinned tanks / containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a minimum distance of 50 m from any watercourse or other water conducting features, including the cut off trenches.
- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- Surface Water pipes will be carefully laid so as to minimise the potential for cross connections.

No.	Risk	Possible Impact	Mitigation	Result of Mitigation
1	Hydrocarbons from carparking area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Designated parking at least 50m from any watercourse.	Ensures no soil disturbance or hydrocarbons leak near aquatic zone

2	Pollutants from site compound areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	The site compound will be located at least 50m from any watercourse.	Prevents pollution of the aquatic zone from toxic pollutants
3	Pollutants from material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Fuels, oils, greases and other potentially polluting chemicals will be stored in bunded compounds at the Contractor's compound or at a location at least 50m from any body of water. Bunds are to be provided with 110% capacity of storage container. Spill kits will be kept on site at all times and all staff trained in their appropriate use. Method statements for dealing with accidental spillages will be provided the Contractor for review by the Employer's Representative.	Prevents contamination of aquatic zone by toxic pollutants
4	Concrete/cementitious materials entering the watercourse from washdown.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	A designated wash down area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off site
5	Concrete/cementitious materials entering the watercourse from concrete pours.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Pouring of cementitious materials will be carried out in the dry.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off site

6	Leaching of contaminated soil into groundwater.	Water quality impacts Reduction in habitat quality Mortality of aquatic key Ecological receptors/qualifying interests	Spill kits will contain 10 hr terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent leaching to ground water	Prevents contamination of aquatic zone by petrochemicals
7	Pollutants from equipment storage/refuelling area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Any refuelling and maintenance of equipment will be done at designated bunded areas with full attendance of plant operative(s) within contained areas at least 50m from any watercourse	Prevents contamination of aquatic zone by petrochemicals
8	Runoff from exposed work areas and excavated material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Contractor to prepare a site plan showing the location of all surface water drainage lines and proposed discharge points to the sewer. The plan will include the location of all surface water protection measures, including monitoring points and treatment facilities.	Prevents contamination of aquatic zone by suspended solids or pollutants.

Table 14.7 | Construction mitigation

Foul Water

- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- Foul water pipes to be laid with sufficient falls to ensure self-cleansing velocity
- Foul pipes will be carefully laid so as to minimise the potential for cross connections.

Water Supply

- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their position accurately identified before excavation works commence.
- All water mains will be cleaned, sterilised, and tested to the satisfaction of the Irish Water/Local Authority prior to connection to the public water main.
- All connections to the public water main will be carried out under the supervision of the Irish Water/Local Authority.

ESB Network

Where possible backup network supply to any services will be provided should the need for relocation or diversion of existing services be required otherwise, relocation or diversion works will be planned with the service provider to incur minimal impact, with users notified in advance of any works.

Gas

- Where possible backup network supply to any services will be provided should the need for relocation or diversion of existing services be required, otherwise relocation or diversion works will be planned with the service provider to incur minimal impact, with users notified in advance of any works.
- Connections to the existing gas networks will be coordinated with the relevant utility provider and carried out by approved contractors.

Telecommunications - Eir

- Where possible backup network supply to any services will be provided should the need for relocation or diversion of existing services be required, otherwise relocation or diversion works will be planned with the service provider to incur minimal impact, with users notified in advance of any works.
- Connections to the existing telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.

Construction Management Plans have been prepared for this application (for both the Phase 3 development site and the storage tank) and are included under a separate cover. It is considered that the Construction Management Plans (CMP) will be updated by the appointed contractor. In order to minimise the potential impact of the construction phase of the proposed development on the surrounding surface water and groundwater environs, the following construction stage mitigation measures are to be included in the plan and be implemented in full.

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.
- 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 site.
- Site stripping will be minimised as far as practicable.
- Settlement ponds / silt traps will be provided to prevent silt runoff into the existing sewers / watercourses during the drainage works.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject lands. The location for testing and trigger levels for halting works will be agreed between the project ecologist and the site foreman at the commencement of works.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area. The project ecologist will review and agree alternative pollution control measures, such as deepening or redirecting trenches as appropriate, before works may recommence.
- All fuels and chemicals will be bunded, and where applicable, stored within double skinned tanks / containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a suitable distance from any watercourse or other water conducting features, including the cut off trenches.
- Foul and surface water pipes will be carefully laid so as to minimise the potential for cross connections which results in contamination of receiving watercourses.

- Site personnel inductions are to be conducted such that all site personnel are made aware of the procedures and best practice in relation to the management of surface water runoff and ground water protection.
- Where possible, precast concrete units are to be used to avoid on-site “wet” mix concrete usage. In situ concrete pours are to be managed in accordance with best practice to avoid overspills
- Concrete truck and wheel wash down facilities are to be provided in designated areas. Discharge from these areas is to be directed into the settlement ponds / silt traps.
- Topsoil for landscaping will be located in such a manner as to reduce the risk of washing away into local drainage or watercourses.
- Details of the headwall outfall construction methods, to prevent pollution of the Broadmeadow River during construction, are included in the Preliminary Construction Environmental and Waste Management Plan, which has been submitted under a separate cover.

Construction and Demolition Waste

Appointment of C&D Waste Manager

A C&D Waste Manager shall be appointed from the Contractor’s Staff and have overall responsibility for the implementation of the project Waste Management Plan (WMP) during the construction phase. The C&D Waste Manager will be appropriately trained and assigned the authority to instruct all site personnel to comply with the specific provisions of the WMP. At the operational level, a designated person from the main contractor and from each sub-contractor on the site shall be assigned the direct responsibility to ensure that the operations stated in the WMP are performed on an on-going basis.

Copies of the WMP will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the WMP and informed of the responsibilities which fall upon them as a consequence of its provisions. Where source segregation, selective demolition and material reuse techniques apply, each member of staff will be given instructions on how to comply with the WMP. Posters will be designed to reinforce the key messages within the WMP and will be displayed prominently for the benefit of site staff.

C&D Record Keeping

Details of all arisings, movement and treatment of C&D waste shall be recorded as part of the Waste Auditing regime.

It is the duty of the C&D Waste Manager to ensure that necessary licenses have been obtained as needed. Each consignment of C&D waste taken from the site will be subject to documentation which will conform with *Table 2* along with Transportation Dockets to ensure full traceability of the material to its final destination.

Detail	Particulars
Project of Origin	Mooretown Phase 3 including Stormwater Storage Tank (Celestica Site), Swords, Co. Dublin
Material being Transported	Soil, Construction waste

Quantity of Material	TBC by Contractor prior to starting works
Date of Material Movement	TBC by Contractor prior to starting works
Name of Carrier	TBC by Contractor prior to starting works
Destination of Material	TBC by Contractor prior to starting works
Proposed Use	TBC by Contractor prior to starting works

Table 14.5 | Details of Materials Taken from Site

Operational Phase

Surface Water

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

- The surface water drainage network has been designed in accordance with the CIRIA SUDS Manual and the Greater Dublin Strategic Drainage Scheme. The appropriate interception mechanisms and treatment train process has been incorporated into the design.
- Surface water outflow will be restricted to the equivalent greenfield runoff rate from the existing Oldtown attenuation ponds.
- Flow restrictors with attenuation storage will be used to slowdown and store surface water runoff from discharging above green field rates to the Broadmeadow River.
- Sustainable urban drainage measures, including green roofs, permeable paving and filter strips/ swales will be provided to improve water quality.
- A petrol interceptor will be installed to prevent hydrocarbons entering the local drainage system.
- Regular inspection and maintenance of the drainage network, including petrol interceptor.
- Water metering via district meters will be installed to Irish Water requirements. Monitoring of the telemetry data will indicate any excessive water usage which may indicate the potential for a leak in the watermain network. Early identification of potential leaks will lead a faster response in determining the exact location of leaks and completion of remedial works.
- The outfall headwall to the Broadmeadow River will be fitted with a tide-flex (or similar approved) non-return valve to ensure surcharge from the Broadmeadow River will not backfill into the proposed pipe and tank during extreme weather events.
- The outfall volumes from the stormwater storage tank to the Broadmeadow River shall be metered to record the frequency and duration/volumes of overflows.

Foul Water

The foul network will be inspected annually and maintained.

Water Supply

It is not envisaged that any other remedial or reductive measures will be necessary upon the completion of the development.

ESB Network

On completion of the construction phase no further mitigation measures are proposed in relation to the electrical infrastructure.

Gas

On completion of the construction phase no further mitigation measures are proposed in relation to the gas infrastructure.

Telecommunications - Eir

On completion of the construction phase no further mitigation measures are proposed in relation to the telecommunications infrastructure.

16.11.2 Monitoring Measures

The proposed monitoring of the various built services during the operation stage will include:

- Surface water drainage and SUDS features will be monitored and maintained by the Developer.
- The water usage within the proposed development will be monitored via the bulk water meters. Records will be maintained by Irish Water to ensure any excess usage is identified and investigated as necessary.
- Irish Water will monitor the operation of the foul drainage network including the receiving environment.
- The construction and waste management plans will be adhered to.
- The provision of utility services including electricity, gas and broadband will be monitored by the relevant utility provider.