

Volume I – Non- Technical Summary of Environmental Impact Assessment Report



LARGE SCALE RESIDENTIAL DEVELOPMENT PLANNING APPLICATION

RESIDENTIAL & COMMERCIAL DEVELOPMENT

LANDS LOCATED OFF FLEMINGTON LANE, BALBRIGGANCO. DUBLIN

November 2023

SUBMITTED ON BEHALF OF:
Dean Swift Property Holdings
Unlimited Company,
5 Clarinda Park North,
Dun Laoghaire,
Co. Dublin

85 Merrion Square, Dublin 2, D02 FX60
+353 (0)1 539 0710 info@hpdc.ie www.hpdc.ie

HUGHES
PLANNING
& DEVELOPMENT CONSULTANTS

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1.0 INTRODUCTION

This Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) relates to a Planning Application by Dean Swift Property Holdings Unlimited Company (referred to as the Applicant throughout) for a proposed Large-scale Residential Development comprising the demolition of an existing residential dwelling and associated shed and outbuildings located off Flemington Lane to the north of the site, and the construction of a residential and commercial development scheme.

More specifically, the proposed development features **564 no.** dwelling units, comprising of **378 no. houses**; (127 no. two bedroom houses; 237 no. three- bedroom houses and 14 no. four-bedroom houses), **84 no. duplex** units (22 no. one-bedroom duplexes, 36 no. two-bedroom duplexes and 26 no. three-bedroom duplexes) and **102 no. apartments** (35 no. one bedroom apartments and 67 no. two bedroom apartments), 3 no. childcare facilities, 9 no. commercial units and 6 no. communal units, 927 no. car parking spaces (including set down spaces) and 2,552 no. bicycle spaces. The development also proposed the introduction of 2 no. primary vehicular access points, one from the southeast (upgrade of existing access from Boulevard Road) and one from the north (off Flemington Lane). A secondary access route is available from the east (access from Hamlet Lane) together with 5 no. tertiary access routes from neighbouring residential estates. The proposal features a large area of Class 1 Open Space located to the west, as well as a series of smaller Class 2 Open Space areas dotted throughout the site.

This EIAR has been revised on foot of a Further Information Request issued by Fingal County Council on 5th September 2023 under Reg. Ref. LRD0006/S3.

Article 5(1)(e) of the EIA Directive requires that an Environmental Impact Assessment Report (EIAR) is accompanied by a Non-Technical Summary of the EIAR and it is transposed into Irish law under article 94(c) of the Planning and Development Regulations 2001, as amended.

This NTS presents a general overview of the proposed residential development and of associated potential environmental impacts. The term 'non-technical' indicates that this summary is intended for the educated lay person but avoids the use of technical terms, the presentation of detailed data and complex scientific discussion, that detail is presented in Volume II of the EIAR.

2.0 ENVIRONMENTAL IMPACT ASSESSMENT REQUIREMENTS

The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, defines an EIAR as:

'A report of the effects, if any, which proposed development, if carried out, would have on the environment and shall include the information specified in Annex IV of the Environmental Impact Assessment Directive.'

The subject development is not of a type or size that would require mandatory EIA under Annex I. However, given the number of units proposed at 564 no. units on a site area of 22.62ha, the subject proposal would constitute an "infrastructure project" with respect to Class 10 Annex II and accordingly an EIA is required under Class 10(b)(i).

"Construction of more than 500 dwelling units."

In order to ensure that all potential impacts associated with the development proposal are identified and addressed, this EIAR provides a systematic and integrated evaluation of the direct, indirect and secondary effects of the project on the natural and socio-economic environment.

The aim of the approach is to identify and predict (for a given proposed development) any impacts of consequence; to describe the means and extent by which they can be avoided in the first instance or reduced or ameliorated; to interpret and communicate information about the impacts; and to provide an input into the decision making and planning process.

The aim of the EIAR is to:

- Describe the project using information on the site, design and size of the proposed development;
- Identify and predict any impacts on environmental features likely to be affected, having regard to the specific characteristics of the proposed development;
- Describe the measures envisaged in order to avoid, reduce and, where possible, remedy significant adverse effects;
- Provide the data required to identify and assess the main effects which the proposed development is likely to have on the environment; and
- Provide a Non-Technical Summary of the information.

2.1 EIAR Study Team

The EIAR was completed by a project team led by Hughes Planning and Development Consultants, who also prepared a number of the chapters.

The members of the team and their respective inputs are outlined below in Table 1.0 below.

In accordance with EIA Directive 2014/52/EU, we confirm that experts involved in the preparation of the EIAR are fully qualified and competent in their respective field. Each has extensive proven expertise in the relevant field concerned, thus ensuring that the information provided herein is complete and of high quality.

Chapter No.	Chapter Title	Contributor
Chapter 1	Introduction	Hughes Planning and Development Consultants (HPDC)
Chapter 2	Project Description and Alternatives Examined	HPDC
Chapter 3	Planning and Development Context	HPDC
Chapter 4	Population and Human Health	HPDC
Chapter 5	Biodiversity	Altemar Environmental Consultants
Chapter 6	Land and Soils	IE Consulting in conjunction with MPA Consulting Engineers
Chapter 7	Water (Hydrology & Hydrogeology)	IE Consulting in conjunction with MPA Consulting Engineers
Chapter 8	Noise and Vibration	AWN Consulting Limited
Chapter 9	Air Quality	AWN Consulting Limited
Chapter 10	Climate	AWN Consulting Limited
Chapter 11	Wind and Micro Climate	AWN Consulting Limited
Chapter 12	Material Assets – Transport	MPA Consulting Engineers
Chapter 13	Material Assets – Utilities	MPA Consulting Engineers
Chapter 14	Archaeology, Architectural and Cultural Heritage	Courtney Deery Heritage Consultancy Ltd.
Chapter 15	Landscape and Visual Amenity	Parkhood Landscape Architects
Chapter 16	Interactions Between Environmental Factors	HPDC in conjunction with above consultants
Chapter 17	Principle Mitigation and Monitoring Measures	HPDC in conjunction with above consultants

Table 1.0 EIAR Chapters and Contributors

3.0 PROJECT DESCRIPTION

3.1 Site Location and Description

The Site consists of a large parcel of land (c.22.62ha), with an area further to the west identified for the provision of Class 1 public open space. We note that development has taken place and infrastructure has been developed on and around the subject lands in recent years, following a number of planning permissions being issued for the Site and surrounding area (discussed further in Section 4.0 of this report below). This includes the construction of a water pumping station in the southern portion of the Phase 1 lands; the Castlemill Link Road south east of the site; Coláiste Ghlór na Mara School and St. Georges National School to the south east; the southern part of the 'Boulevard' Road (which when completed will run from the intersection with the proposed C-Ring Road south to Naul Road).

The topography of the land is undulating. The Site predominantly slopes gently from north to south. The subject land is associated with agricultural use and is comprised of a number of fields. The Site is located c. 600 metres from Castle Mill Shopping Centre and c. 1.5 km from Millfield Shopping Centre both of which provide a range of services and include a supermarket. The Site is also c. 2.4 km from Balbriggan town centre. With respect to public transport, the subject site is located 2.5 km from Balbriggan Train Station which provides frequent services into Dublin City as well as intercity services along the east coast. Balbriggan is also well connected to Dublin by bus services operated by Bus Éireann and Dublin Bus. Bus service is provided by Dublin Bus routes 33, 33A and 33X as well as Bus Éireann routes 101 (Dublin-Drogheda) and 104 (Balbriggan Town Service). A private bus service is provided from Millfield Shopping Centre to Dublin City Centre by Balbriggan Express. The M1 motorway is 1.3km from the subject site and provides vehicular access to Dublin and the national motorway network.

The images displayed overleaf outline the indicative site boundary in the context of its wider and immediate location.



Figure 1.0 Aerial image showing the subject site in the context of its wider environs.

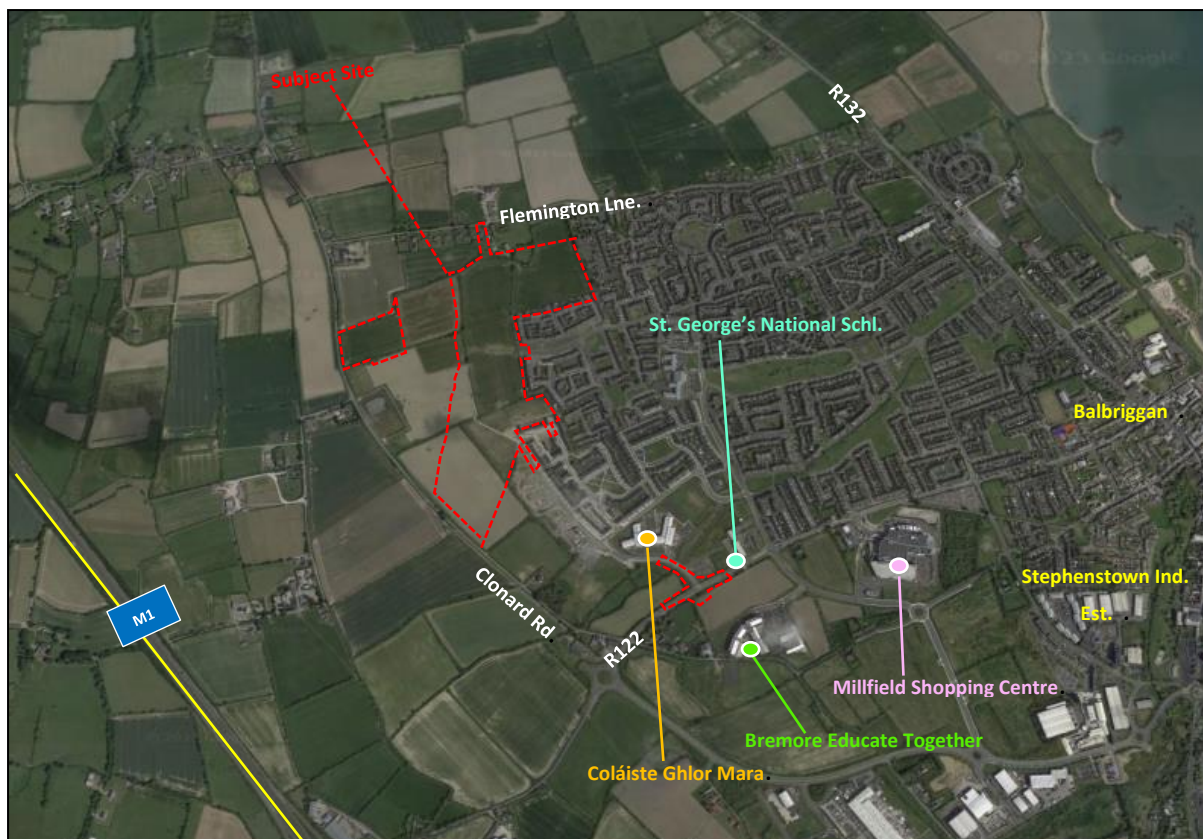


Figure 2.0 Aerial Image showing the subject site in the context of its more immediate surrounds.



View 1



View 2



View 3



View 4



View 5



View 6



View 7



View 8



Figure 3.0 Photographs of the current site from various viewpoints.



View 1



View 2



View 3



View 4



View 5



View 6



Figure 4.0 Photograph providing views of the neighbouring housing developments from the subject site.



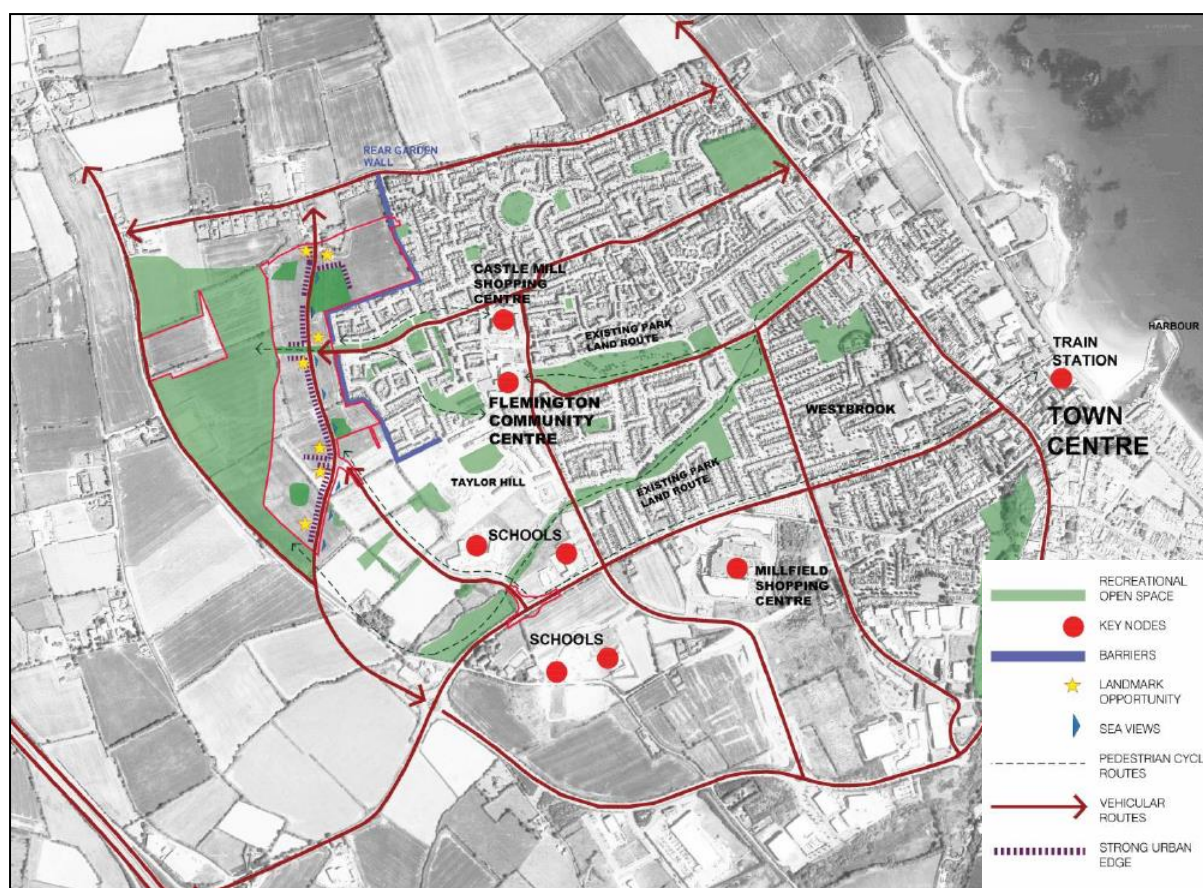


Figure 5.0 Context map demonstrating existing and proposed connections and key nodes within the wider area

3.2 Proposed Development

The proposed development, as designed by the Project Team, in summary, comprises the demolition of an existing single storey dwelling (c.151sq.m) and an associated storage shed located within its curtilage (14.9sq.m), and a larger agricultural shed outbuilding located further south of this dwelling (366sq.m), all of which are located to the immediate south of Flemington Lane; to facilitate the construction of a mix-use residential and commercial scheme comprising a total of **564 no.** dwelling units (378 no. houses, 84 no. duplex units and 102 no. apartments). The proposal also includes the provision of 9 no. commercial units, 6 no. communal units and 3 no. creche units.

The proposed scheme is divided into 5 no. key Character Areas as follows; Hampton Park South (occupying the southern-most portion of the site), Hampton Park Central (occupying the central-western portion of the site), Tanners Lane (occupying the central-eastern portion of the site), Hampton Park North (occupying the north-western portion of the site) and Flemington Park (occupying the north-eastern portion of the site). The number of units comprised within each of these Character Areas is detailed as follows:

- **Hampton Park South Character Area** - containing a total of 103 no. dwelling units, consisting of 71 no. houses (16 no. two-bedroom houses and 55 no. three-bedroom houses), 18 no. duplex units (5 no. one-bedroom duplexes; 9 no. two-bedroom duplexes and 4 no. three-bedroom duplex) and 14 no. apartments (6 no. 1-bedroom units; 8 no. 2-bedroom units)
- **Hampton Park Central Character Area** - containing a total of 142 no. dwelling units, consisting of 88 no. houses (36 no. two-bedroom houses and 52 no. three-bedroom houses), 18 no. duplex units (2 no. one-bedroom duplexes, 9 no. two-bedroom duplexes and 7 no. three-bedroom duplexes) and 36 no. apartments (17 no. 1-bedroom units and 19 no. 2-bedroom units) and 1 no. 379sqm childcare facility

- Tanners Lane Character Area** - containing a total of 54 no. dwelling units, consisting of 36 no. houses (6 no. two-bedroom houses and 30 no. three-bedroom houses), 12 no. duplex units (1 no. one-bedroom duplex, 6 no. two-bedroom duplexes and 5 no. three-bedroom duplexes) and 6 no. apartments (6 no. 2-bedroom units)
- Hampton Park North Character Area** - containing a total of 128 no. dwelling units, consisting of 84 no. houses (28 no. two-bedroom houses and 56 no. three-bedroom houses), 24 no. duplex units (7 no. one-bedroom duplexes; 9 two-bedroom duplexes and 8 no. three-bedroom duplexes) and 20 no. apartments (6 no. 1-bedroom units and 14 no. 2-bedroom units) and 1 no. 494.6 sqm childcare facility
- Flemington Park Character Area** - containing a total of 137 no. dwelling units, consisting of 99 no. houses (41 no. two-bedroom houses; 44 no. three-bedroom houses and 14 no. four-bedroom houses), 12 no. duplex units (7 no. one-bedroom duplexes, 3 no. two-bedroom duplexes and 2 no. three-bedroom duplexes) and 26 no. apartments (6 no. 1-bedroom units and 20 no. 2-bedroom units) and 1 no. 379sqm childcare facility.

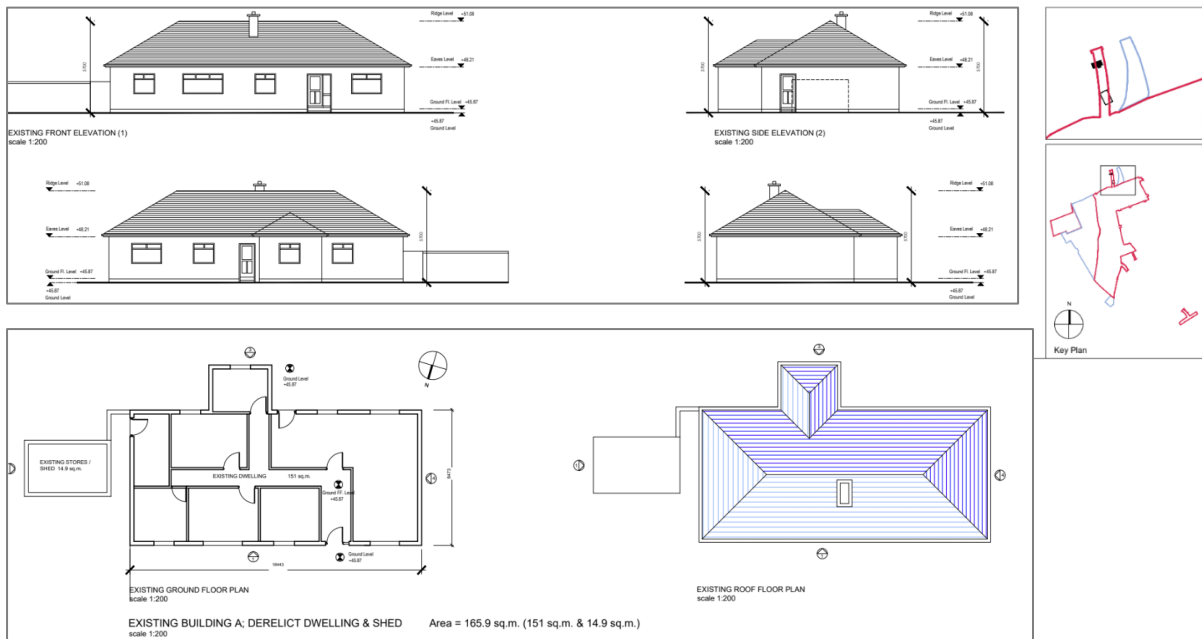


Figure 6.0 Drawing extracts showing the existing dwelling located off Flemington Lane which is proposed for demolition.

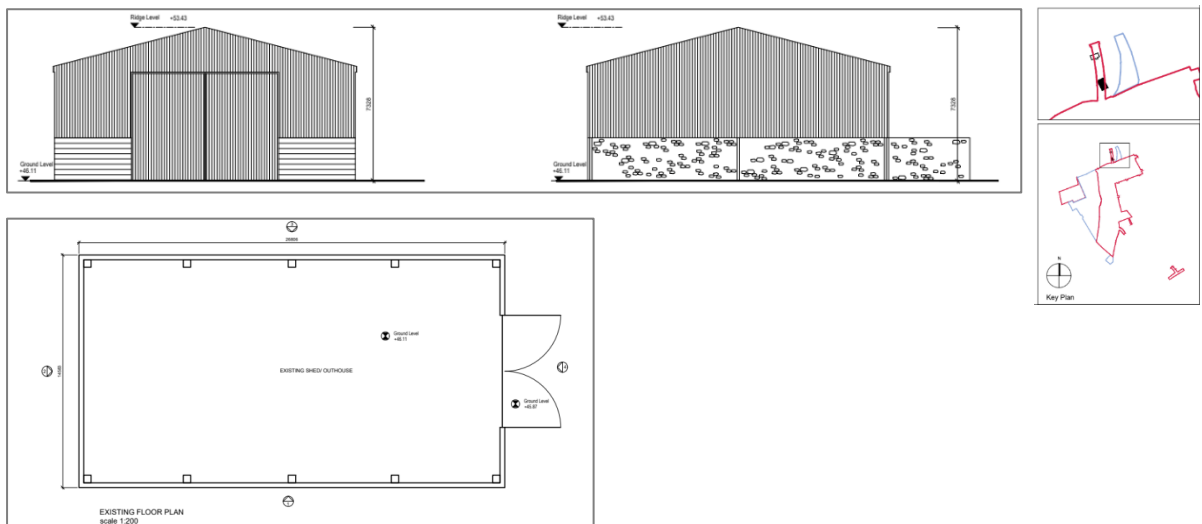


Figure 7.0 Drawing extract showing the existing shed outbuilding located off Flemington Lane which is proposed for demolition.

Also included as part of the scheme is the creation of a link road from Flemington Lane to the north, through the central portion of the site, running in a north south direction. This link road provides a central access route to serve all units within the proposed development. It is also noted that the Boulevard road is constructed and operational with the redline proposed only around the areas where connections are possible.

In terms of car parking and bicycle parking provision, the proposal includes a total of 927 no. car parking spaces, which is inclusive of 806 no. resident spaces, 89 no. visitor spaces, 11 no. disabled parking spaces (numbers include 185 no. EV points), 7 no. spaces allocated to the creche facilities and 9 no. set-down spaces. A total of 2,552 no. bicycle parking spaces are proposed, including 1,956 no. resident spaces, 596 no. visitor spaces, which includes 48 no. spaces allocated to the proposed creche facilities.

The key development statistics of the proposal are outlined below for ease of reference:

Key Development Statistics					
Site Area	Total Site Area – 22.62ha				
	Residential Site Area – 19.28ha				
Demolition	Derelict House and Shed – 165.9sq.m				
	Large Outhouse/Shed = 366sq.m				
	Total Demolition – 531.9sq.m				
Total No. of Residential Units	546 no.(Total)				
	<i>House Units</i>	<i>Duplex Units</i>		<i>Apartment Units</i>	
	378 no.	84 no.		102 no.	
No. of Units Per Character Area	<i>Flemington Park</i>	<i>Hampton Park North</i>	<i>Hampton Park Central</i>	<i>Hampton Park South</i>	<i>Tanners Lane</i>
	137 no.	128 no.	142 no.	103 no.	54 no.
Total No. of Commercial Units Proposed	9 no. (574.4sq.m)				
Creche Units	3 no. (1,252.6sq.m)				
Proposed Building Heights	2-5 storeys				
Public Open Space	Class 1 Public Open Space – 2.86ha				
	Class 2 Public Open Space – 2.268ha				
Car Parking Provision	927 no. car parking spaces (806 no. resident spaces, 94 no. visitor spaces, 11 no. disabled parking spaces, 7 no. spaces for creches and 9 no. set-down spaces)				
Bicycle Parking Provision	2,552 no. bicycle spaces (1,956 no. resident spaces, 596 no. visitor spaces inclusive of 48 no. spaces for proposed creches)				
Density	Net Density – c. 35.13 dph				
Plot Ratio	Plot Ratio as % of 19.28ha (Residential Site Area) – 0.2843				
Site Coverage	Site Coverage as a % of 19.28ha (Residential Site Area) – 16.36%				

As illustrated in the proposed site layout plan overleaf, as prepared by Ferreira Architects in support of this application, greenspaces in the form of pocket parks have been included throughout the proposed development, with Class 1 open space being provided to the west of the site, Class 2 public open space being provided at various locations throughout the site, and communal open spaces being provided to serve the proposed duplex and apartment units. The proposed Class 1 Public Open Space area is located to the west of the site and comprises an overall area of c. 2.86ha, and will accommodate a new sports pitch. A full description of the proposed development is included within Chapter 2.0 of this EIAR.

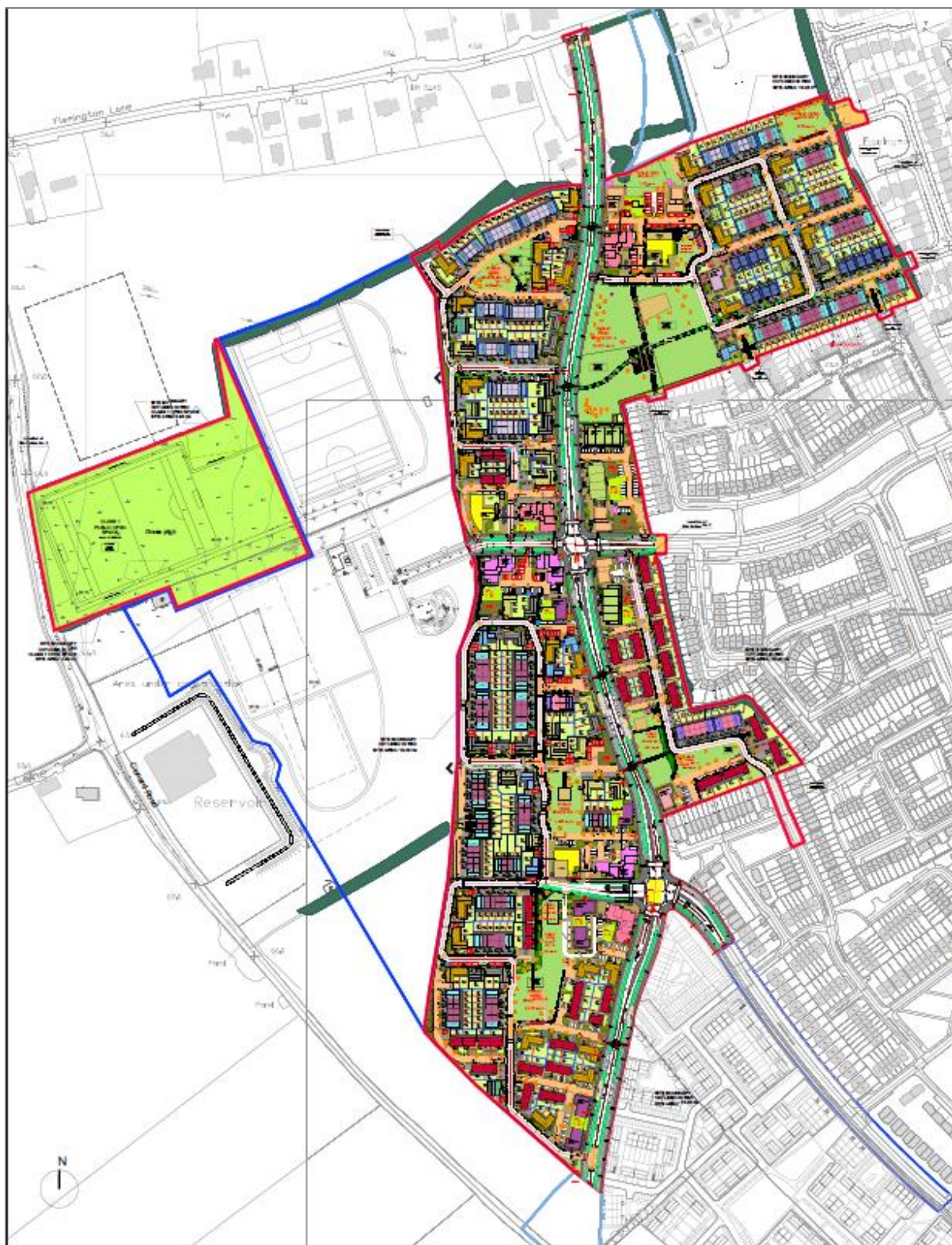


Figure 8.0 Extract from the Proposed Site Layout Plan as prepared by Ferreira Architects.



Figure 9.0 CGI view showing the main landmark buildings within the Flemingington Park Node (Upper Node No. 3)



Figure 10.0 CGI view looking south along the Hampton Park Node (Central Node No. 2)



Figure 11.0 CGI view looking north along the Hampton Park Node (Central Node No. 2)



Figure 12.0 CGI view looking north-east at the Boulevard Node (Lower Node No. 1)

3.3 Alternatives Considered

The Planning and Development Regulations, 2001, as amended, require:

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

Reasonable alternatives may include project design proposals, location, size and scale, which are relevant to the proposed development and its specific characteristics.

With regards to alternative locations, given the zoning objectives of the subject site as a 'RA' – Residential Area, in the Fingal Development Plan 2023-2029, and having regard to the projects objectives, no alternative locations were considered.

With respect to alternative land-uses, we note that there are a number of other land-uses which are permissible on 'RA' – Residential Area zoned lands, according to the Fingal Development Plan 2023-2029. However, it is not considered that an alternative development comprising one of these alternative land-uses would result in the best or most efficient use of the subject lands, particularly having regard to the general acknowledged need for housing.

Following on from the foregoing, the main alternatives studied during the development of this application comprise of alternative design and layout options for a largely residential development at the subject site. Alternative site layouts and siting progressed throughout the design process in order to minimise the impact on the receiving environment at the earliest opportunity. The initial stage involved a constraints analysis of the land with the proposed development site to identify all high-level constraints and aggregate them against the site to allow a suitable layout to be developed.

The alternative development options considered for the site are set out in Chapter 2.0 of this EIAR, starting with layout 'Option 1' which was presented to the Planning Authority (Fingal County Council) at an informal pre-planning meeting in May 2019, and then describing the evolved design options and changes which were incorporated to the scheme as the proposals progressed through a very extensive and thorough pre-application process with Fingal County Council and An Bord Pleanála as part of the earlier Strategic Housing Development (SHD) proposal, and in response to input from the appointed EIAR team. For clarity, we note that the decision was made by the applicant to proceed with a Large-scale Development (LRD) application, as opposed to an SHD application. The principal considerations

and amendments to the design of the scheme, having regard to and comparing the key environmental issues, are set out and discussed in Chapter 2.0 of this EIAR.

A series of plan excerpts illustrating the design and layout changes that occurred during the extensive consultation process are included in the figures below and overleaf. Section 2.4.4 in Chapter 2.0 of this EIAR includes a more extensive discussion on alternative design and layout options explored. Further to this, the Design Statement, prepared by Ferreira Architects, the Landscape Design Report, prepared by IS Design Landscape Architects, the Engineering Reports as prepared by MPA Consulting Engineers, and the Statement of Consistency and Planning Report, prepared by Hughes Planning and Development Consultants, which accompany the full LRD planning application also provide a detailed rationale for the development of the final layout.



Figure 13.0 Indicative site layout tabled at the first informal pre-planning meeting with Fingal County Council in May 2019.



Figure 14.0 Extract from the site layout plan discussed with Fingal County Council at a formal S. 247 meeting in August 2019.



Figure 15.0 Extract from the site layout plan discussed with Fingal County Council at a formal S. 247 meeting on 7th December 2020.



Figure 16.0 Extract from the site layout plan discussed with Fingal County Council at an informal pre-planning meeting in December 2021.

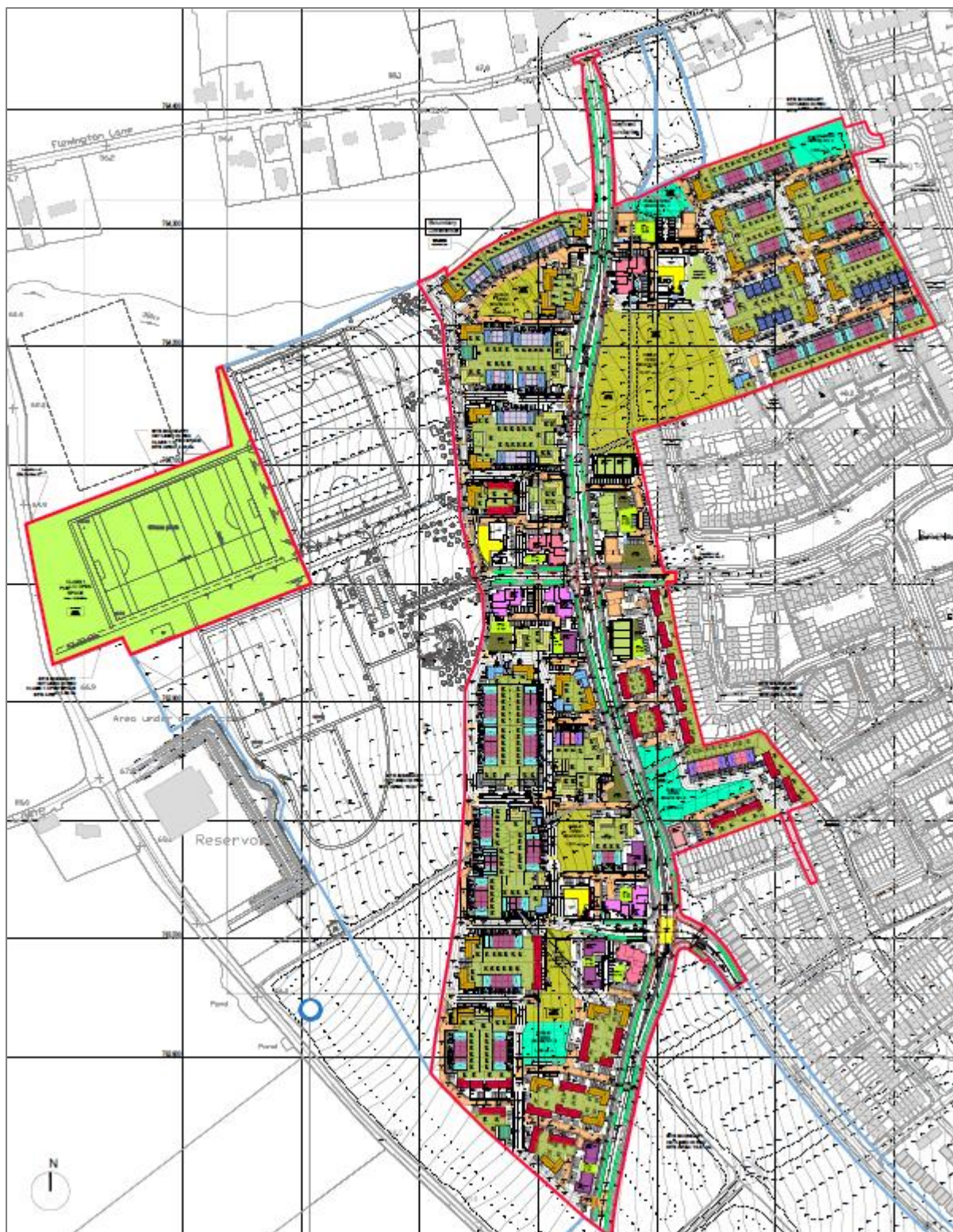


Figure 17.0 Extract from the site layout plan tabled at a formal S. 247 pre-planning meeting with Fingal County Council on 12th August 2022 (LRD).

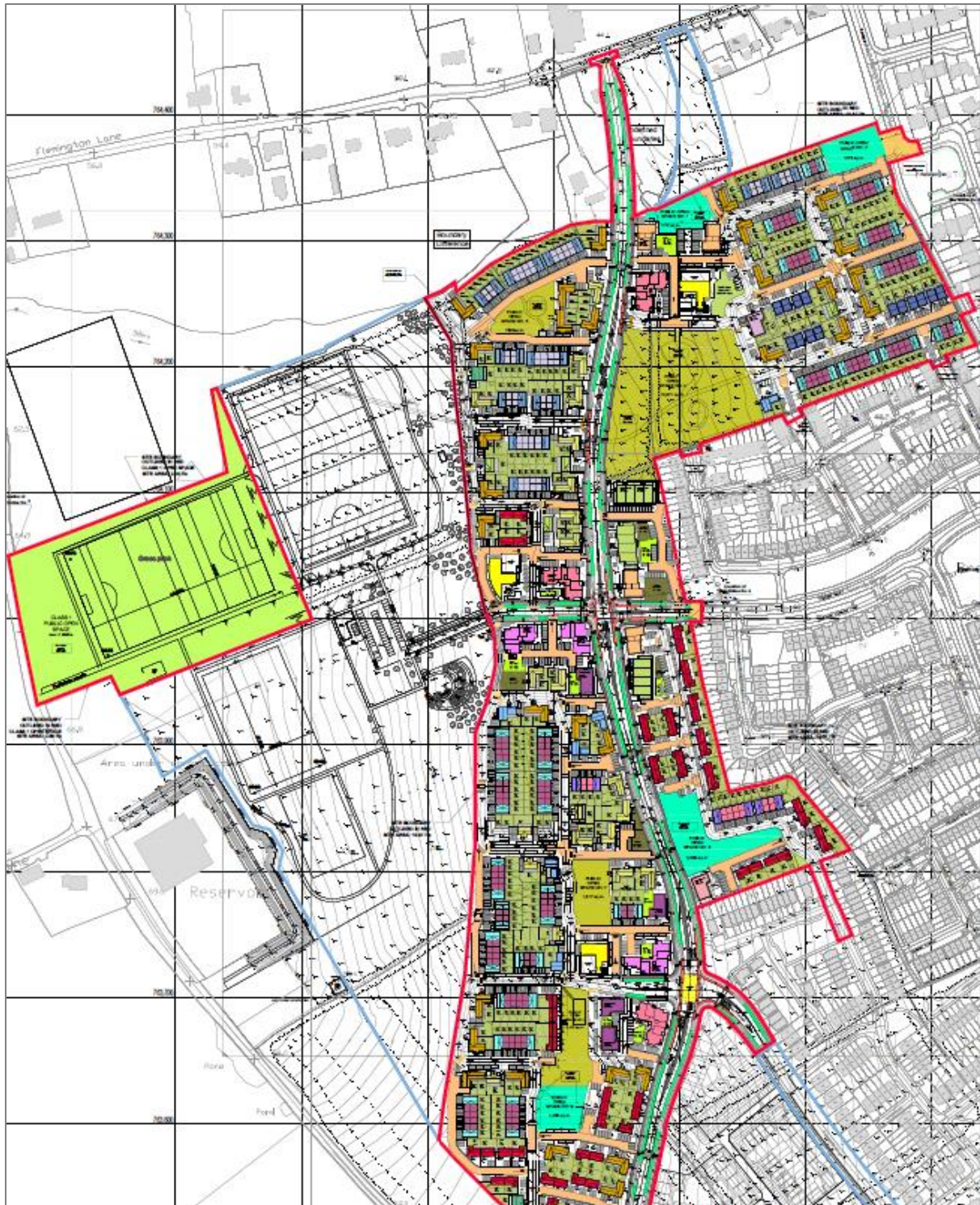


Figure 18.0 Extract from the site layout plan tabled at the formal Stage 2 LRD meeting with Fingal County Council on 26th January 2023.



Figure 19.0 Visualisations discussed with Fingal County Council as part of the formal Stage 2 LRD meeting on 26th January 2023.

As is documented above, the scheme proposed in this current LRD application for permission has evolved from its original form and the consideration of alternative designs has resulted in significant environmental improvements in terms of the landscape and visual contribution that the proposed development will have on this area. Having examined various reasonable alternative design options, through an iterative design process and having engaged in extensive and detailed consultations with Fingal County Council, dating back to 2019, and An Bord Pleanála in the course of the design evolution of the current scheme, it is considered that the proposed design as set out in the subject LRD application is a preferable option in terms of the sustainable development of the subject site and the creation of a sustainable community neighbourhood insofar as it achieves a mixed-use development, including 564 no. units and achieving a net residential density of 35.13 units per hectare. The current design provide a suitable range of house, apartment and duplex units, all of which vary in size and design, whilst also providing adequate open space, active ground floor uses and achieving a strong urban edge and passive surveillance.

Full details in respect of the Alternative Design Options explored is included in Chapter 2.0 of this EIAR.

4.0 POPULATION AND HEALTH

The Population and Health chapter of this EIAR was prepared by Hughes Planning and Development Consultants and assess the potential impacts of the proposed mixed-use (residential and commercial) development on lands at north-west Balbriggan, Co. Dublin on population and human health. The assessment of the effects of the proposed development focuses on population levels; employment and economic activity; land use and settlement patterns; housing; community infrastructure and social facilities; health and safety; and risk of major accidents and disasters. In considering the impacts of the proposed development on the above noted key items, the chapter will assess the impacts of the proposal both during the construction phase and operational phase.

In order to assess the likely significant impacts of the proposed development on population and human health, an analysis of the most recent census data (2016) was undertaken. Data relating to the Electoral Divisions of Balbriggan Rural (No. 04002) and Balbriggan Urban (No. 04003), Fingal County Council and the State, were examined.

The construction phase of the proposed development is likely to result in a positive net improvement in employment and economic activity particularly in the construction sector and in associated and secondary building services industries. From a review of the census figures, it can be concluded that the population in the vicinity of the proposed development has increased over recent intercensal periods. Within the surrounding area, the population growth levels have been very disparate, however the population levels of the wider Dublin area have remained relatively similar.

The construction phase of the proposed development should not have any direct impact on the population of the area as no additional persons will be housed on site. The operational phase of the proposed development will have a direct impact on the population of the area and the subject lands. With a total of 564 no. residential units proposed to be built, the anticipated increase in population for the site can be expected to be c. 1,512 based on the average household size of 2.68 in the Balbriggan Rural electoral division. This is based on average household numbers for one, two, three and four-bedroom residential units. The impacts of an increase in the population within the site will be gradual during the completion of the development. The population of the development will therefore be significant and positive particularly in the context of current housing demand and taking account of the subject site's location in close proximity to public transport links and access to areas of employment

The construction phase of the proposed development will also provide a positive improvement to the economy and employment prospects within Balbriggan and the surrounding area more broadly, particularly within the wider construction sector for a 36 month period (estimated construction period). The construction phase will have secondary and indirect 'spin-off' impacts on ancillary support services in the area of the site, such as retail services, together with wider benefits in the aggregate extraction (quarry) sector, building supply services, professional and technical professions etc.

The operational phase of the proposed development will result in an increase in population. This increase in population in the area will enhance local spending power and will assist with the delivery of a critical mass of population which will support a wide range of additional local businesses, services, transport infrastructure and employment opportunities. This will play a role in the future growth of the area and the improvement of local amenities and infrastructure.

The construction phase of the project may have some short-term negative impacts on local residents during the construction phase, associated with construction traffic and possible nuisances associated with noise impact due to construction activity. However, such impacts will be short term and the implementation of the range of remedial and mitigation measures included throughout this EIAR document have been included to limit any likely adverse environmental impacts of the construction and operational phase of the proposed development on population and human health. In the longer term, the completed scheme will have long-term beneficial impacts for local businesses, residents and the wider community.

Once constructed, the proposed development will result in a positive alteration to the existing underutilised residentially zoned site in terms of the provision of high quality well designed residential dwellings, commercial and communal units and significant areas of open space to serve the growing need for quality housing in the area in accordance with local, regional and national planning policy guidance. The proposed development will bring about an increase in population in the wider area, which has experienced strong population growth during the 2011-2016 intercensal period.

Overall, it is anticipated that the proposed development will realise significant positive overall economic and social benefits for the local community and the wider Balbriggan area.

Strict adherence to the mitigation measures recommended in this EIAR will ensure that there will be no negative residual impacts or effects on Population and Human Health from the construction and operation of the proposed scheme. Indeed, the delivery of much needed housing will realise a likely significant positive effect for the local area.

The only the cumulative impact of the proposed development will be a further increase in the population of the wider area. This impact is likely to be long term and is considered to be positive, having regard to the zoning objective for the subject lands, and their strategic location in close proximity to high quality, high frequency public transport, and the high level of demand for new housing in Dublin.

With regard to human health, the cumulative impact of the proposed development in conjunction with other nearby developments will provide for the introduction of high quality new neighbourhoods in the area with a high level of accessibility and amenity. The overall cumulative impact of the proposed development will therefore be long term and positive with regard to human health, as residents will benefit from a high quality, visually attractive living environment, with ample opportunity for active and passive recreation and strong links as well as access to commercial/retail facilities within the development.

The development of the site will likely have a positive cumulative impact on Balbriggan in helping the area contribute to the projected growth for Fingal and north Dublin more broadly. The economy will benefit both during the construction phase and operation phase increasing the economic activity within the town.

Having assessed the residual effects (post-mitigation), it is considered that the proposed development will not result in any significant negative effects on population and human health. It is anticipated that the proposed development will instead significantly improve the existing area, including the quality of the existing environment and have very beneficial effects on population and human health, through the creation of a mixed use, high quality, neighbourhood and by means of the delivery of residential accommodation at a time of national housing crisis.

5.0 BIODIVERSITY

The Biodiversity assessment has been undertaken 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). Standard construction and operational phase control measures, in addition to monitoring measures are proposed, to minimise potential impacts of the proposed development and to improve the biodiversity potential of the proposed development site post construction.

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. Terrestrial Ecology, Mammal, Breeding Birds, Bat Fauna and Wintering Bird Surveys were carried out.

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 Natura 2000 sites, Annex species or Annex habitats. It concludes that *“Following the implementation of the mitigation measures outlined, the construction and operation of the proposed development would not be deemed to have a significant impact on the North-West Irish Sea SPA. No significant adverse effects are likely on Natura 2000 sites, alone in combination with other plans and projects based on the implementation of mitigation measures*

This 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 this 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 Natura 2000 sites, their features of interest or conservation objectives. The proposed project will not will adversely affect the integrity of European sites.”

There are two Natura 2000 sites (North-West Irish Sea SPA and River Nanny Estuary and Shore SPA) within 5km and two National conservation sites (Knock Lake pNHA and Bog Of The Ring pNHA, and Liffey Valley pNHA) within 5km of the proposed development site.

There is an indirect hydrological pathway to designated conservation sites located within Irish Sea via the proposed foul and surface water drainage strategy. After consultation with Martin Peters Associates Consulting Engineers, it was outlined that, after attenuation on-site, surface water drainage will be directed to the arterial drainage network currently servicing the existing housing estate to the east of the site, which in turn outfalls to the Bremore Stream and, ultimately, the marine environment. Foul wastewater drainage will ultimately be discharged to an existing foul drainage network. Foul wastewater will be treated along this network at the Balbriggan / Skerries Wastewater Treatment Plant. Given excavation and construction works are proposed in close proximity to surface water drainage networks that outfall to the Bremore Stream, there is the potential for dust and contaminated surface water to enter the proximate watercourse and impact on downstream aquatic biodiversity and the North-West Irish Sea SPA (located immediately downstream of the Bremore Stream).

It should be noted that no species of conservation importance were noted on site, based on NPWS and NBDC records as fine resolution. The most recent site assessments were carried out on the 12th May 2023 and 27th June 2023. Habitats within the proposed development site were classified according to Fossitt (2000) and the species noted within each habitat are described. Habitats included, Arable crops BC1, ED3 Recolonising Bare Ground, GS2-Dry meadows and grassy verges, WL1- Hedgerows and BL3- buildings and artificial surfaces. The proposed development site consists primarily of arable crops with grassland, recolonising bare ground, derelict structures and hedgerows. No habitats of conservation importance were noted on site. Bat foraging was noted on site and noted to be particularly active in the vicinity of ash treelines located to the north of the site. Several bird species of conservation importance have been noted on site. Site clearance will result in the loss of a barn swallow nesting site and areas that are currently being used by yellowhammer and meadow pipit. As outlined in the wintering bird assessment *“Birds observed at the Flemington Lane site are typical of the habitats present. The species assemblage is a reflection of the agricultural fields, hedgerows and overgrown waste ground habitats within and around the site and the birds observed are typical of birds occurring in these habitats in North County Dublin in Winter.”*

In the absence of mitigation these birds could be displaced off site. It is important to note that similar agricultural fields are immediately to the north of the site and these extend to the Gormanstown and the displacement of yellowhammer and meadow pipit would be off the site but they would be expected to remain locally. Hedgerows will be lost on site. The construction of the proposed development would impact on the existing ecology of the site and the surrounding area. These potential construction impacts would include impacts that may arise during the site clearance, re-profiling, excavations, and the building phases of the proposed development.

Construction phase mitigation measures are required on site particularly as reprofiling of the site is proposed which will remove/alter existing terrestrial habitats and can lead to silt laden and contaminated runoff to proximate surface water drainage networks that ultimately outfall to the Bremore Stream. In the absence of mitigation measures, there is the potential for contaminated surface water runoff to enter proximate surface water drainage networks with the potential for downstream impacts on the Bremore Stream and aquatic biodiversity. In addition, habitats of local importance are on site and need to be protected. Bats are noted on site and need to be protected during the construction stage. Barn swallows were noted nesting on site. Meadow Pipit (*Anthus pratensis*) and Linnet (*Carduelis cannabina*) were also noted on site.

Once developed, the site would be seen as a stable ecological environment. Appropriate measures should be taken to prevent contaminated surface water run-off and silt into adjacent habitats. Light spill should be avoided during operation of the site particularly treelines. The construction of new drainage networks will have to comply with SUDS and County Council requirements and as a result would have negligible impact on habitats and species surrounding proposed development site.

Landscaping will increase flora diversity on site. This will include 994 linear metres of native hedgerow and 829 trees. Landscaping has been designed to include a substantial portion of replanting of hedgerows on site.

Lighting on site during construction will be subject to approval of the ecologist and will not involve the lighting of the hedgerows. It should be noted that discussions took place with Sabre and the lighting in

residential areas is set to 2700°K (in compliance with bat lighting guidelines). Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) in relation to the removal of trees and timing of nesting birds will be followed e.g. do not remove trees or shrubs during the nesting season (1st March to 31st August). Should this not be possible, vegetation will be inspected by an ecologist for nesting birds prior to removal. Barn swallows are noted nesting on site and the demolition of all buildings on site and the timing of works will be subject to approval of the project ecologist. If nesting barn swallows are on site and works will be carried out within the bird nesting season, NPWS will be consulted prior to works commencing within 20m of the buildings and no works will proceed without the formal approval of NPWS. 20 x 10B Schwegler Swallow Nests will be placed in the vicinity of the apartments to the north of the site in the location of the existing barn, in consultation with and subject to the approval of the project ecologist. Upon moving in, residents within the apartment blocks in the vicinity of the apartments will be provided with an information pack in relation to the sensitivities of the swallows.

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on the sensitive receptors through the design and the application of construction and operational phase controls. The overall impact on the ecology of the proposed development will result in a low adverse / Negative/ site/ not significant / long term impact on the ecology of the area and locality overall. This is primarily as a result of the loss of terrestrial habitats including arable land and hedgerows on site, supported by the creation of additional biodiversity features, standard construction, mitigation in relation to nesting birds, and operational controls and a sensitive native landscaping strategy.

6.0 LAND AND SOILS

The Land and Soil Chapter has been prepared by Jaqueline McHugh a Chartered Engineer by IE Consulting Engineers a specialist Water Environment and Civil Engineering Consultancy.

In addition to the 2022 EPA guidelines on the information to be contained in an EIAR, a 2013 guide on EIAR specifically for Geology and Hydrogeology published by the Institute of Geologists in Ireland was referred to guide the approach to the study. The understanding of the existing pre-construction land and soil related environment of the site was primarily developed using reference to a combination of national databases such as GSI.ie and EPA.ie, reference to site specific information obtained by drilling and sampling of soils and subsoils and a walk-over of the site by the author.

The historical and current landuse of the site is agriculture, so there is unlikely to be any residual contamination in the ground, that might create an environmental hazard as might occur on former industrial sites for instance.

The slightly domed topography of the site creates runoff mainly to the east but some to north and south. Whilst there are no surface water features on the site, there are three minor streams close by, namely the Bremore, Clogheder and Clonard Brook, that all eventually join and flow to the Sea. Of the three, the Bremore and Clogheder are closer to the site, but are culverted through housing developments, so are less vulnerable to contamination from any activities on the proposed site. The Clonard Brook is approximately 600m south of the site. Records show that the Clonard Brook was fed from a Spring to the west, but it appears that agricultural field drains make more of a contribution currently than the spring.

The topsoil and soil are described as primarily Till derived from the underlying rocks. The underlying bedrock comprises mainly volcanic rock and is considered to comprise a Locally Important Aquifer, which has a moderate resource value. There is no recorded economic exploitation of the soil and rock resources on the site. There are some records of historical subsoil workings, which were small scale but do not encroach on the site. Samples of soils from the site were tested in a laboratory and did not indicate and signs of contamination. The risk of further contamination is therefore low from existing materials.

The amount of material excavated will not match the amount of fill material required to construct the development, so there will be a need to import fill material. This will only come from registered sources to ensure quality. Taking into account unsuitable material encountered during the excavation (that will need to be taken off-site), the fill volume is estimated to be about 55,000m³.

The loss of productive agricultural land is compensated by the generation of much needed housing. All of the stripped topsoil will be used productively to create landscaped areas and gardens.

The most likely recharge area for Lady's Well spring and the aquifer beneath the site is the higher ground to the west, where the subsoil cover becomes thinner. The groundwater flow moves east with the topography but appears to be hindered by a fault that runs across the site from north to south, creating an upward pathway for groundwater flow to the spring and other springs noted in historical maps.

The on-site ground investigation only encountered some perched groundwater, and there was not enough groundwater to measure a water-table on the site. It is considered that the bedrock water table is at a depth of more than 5m. The need for construction below the water table is not anticipated.

The characteristics of the development relevant to land and soil resources mainly relates to the disturbance of ground through excavation for services, foundations and roads. Excavation by its nature removes a protective topsoil and subsoil layer, exposing the rock aquifer to a higher risk of contamination. This knowledge should create a heightened awareness during construction to properly manage potential contaminants. Haulage and stockpiling of soils can create situations from which sediment run-off could originate during rainfall events. For this reason protective measures such as choosing the safest locations on site and the use of silt fencing is the optimal mitigation.

Lady's Well is a singular potential receptor, and so needs to be protected from ingress of sediment or water borne contaminants. Sealing of feeder drains and the erection of a soil bund or silt fence will be required to protect the well, during and after construction. Similarly run-off from the southern part of the site could make its way via field ditches to the open channel Clonard Brook. For this reason a barrier will need to be created to eliminate the risk of any sediment or contaminants making their way to the ditches.

When the development is constructed, the main risks to soil will be from sewer leaks or oil leaks from vehicles. These risks have been considered in the Sustainable Urban drainage design (Suds) proposed for this development. Examination of this design by the author in the context of the risk to soil features indicates that the design is robust and as such the risk is considered to be low.

Adoption and implementation of a CEMP (Construction and Environmental management plan) will formalise the need to protect water features during construction, cognisant of the enhanced vulnerability and the topography of the site. This plan will also reach towards management of fuels and building materials in such a way as to avoid any contamination of soils.

Monitoring of groundwater and surface water is recommended for the construction phase to demonstrate compliance.

7.0 WATER (HYDROLOGY & HYDROGEOLOGY)

The Water Chapter has been prepared by IE Consulting Engineers a specialist Water Environment and Civil Engineering Consultancy.

In addition to the 2022 EPA guidelines on the information to be contained in an EIAR, a 2013 guide on EIAR specifically for Geology and Hydrogeology published by the Institute of Geologists in Ireland was referred to guide the approach to the study. The understanding of the existing pre-construction water related environment of the site was primarily developed using reference to a combination of national databases such as GSI.ie and EPA.ie, site specific information obtained by drilling and sampling of groundwater and surface waters and a walk-over of the site by the author.

The current land-use of the site is agriculture, so there is unlikely to be any residual contamination in the ground that might create an environmental hazard.

The slightly domed topography of the site creates runoff mainly to the east but also to the north and south. Whilst there are no surface water features on the site, there are three minor streams close by,

namely the Bremore, Clogheder and Clonard Brook, that all eventually join and flow to the Sea. Of the three, the Bremore and Clogheder are closer to the site, but are culverted through housing developments, so are less vulnerable to contamination from any activities on the proposed site.

The Clonard Brook is approximately 600m south of the site. Records show that the Clonard Brook was fed from a Spring to the west, but it appears that agricultural field drains make more of a contribution currently than the spring. The underlying bedrock is considered to comprise Locally Important Aquifer, which has a moderate resource value. There are no current recorded abstractions from the aquifer on site, but a historic spring is noted just off the northern end of the proposed development, known as Ladys Well. The records show that the well has become overgrown and it appears that a number of land drains have been directed towards it.

The most likely recharge area for this spring and the aquifer beneath the site is the higher ground to the west, where the subsoil cover becomes thinner. The groundwater flow moves east with the topography but appears to be hindered by a fault that runs across the site from North to South, creating an upward pathway for groundwater flow to the spring and other springs noted in historical maps.

The on-site ground investigation only encountered some perched groundwater, and there was not enough groundwater to measure a water-table on the site. It is considered that the bedrock water table is at a depth of more than 5m. The baseline groundwater quality was sampled and found to be good, apart from naturally occurring Manganese and Iron, which are related to the nature of the subsoil. Similarly a sample was taken from the Clonard Brook to define the surface water quality, which was also found to be of good quality when compared to Water Quality standards.

The risk of flooding on the site was examined and found to be low, mainly because of the elevation and domed topography of the site.

The characteristics of the development relevant to water resources mainly relate to the disturbance of ground through excavation for services, foundations and roads. Excavation by its nature removes a protective topsoil and subsoil layer, exposing the rock aquifer to a higher risk of contamination. This knowledge should create a heightened awareness during construction to properly manage potential contaminants.

Haulage and stockpiling of soils can create situations from which sediment run-off could originate during rainfall events. For this reason protective measures such as silt fencing and choosing the safest locations on site is the optimal mitigation measure.

Lady's Well is a singular potential receptor, and so needs to be protected from ingress of sediment or water borne contaminants. Sealing of feeder drains and the erection of a soil bund or silt fence will be required to protect the well, during and after construction. Similarly run-off from the southern part of the site could make its way via field ditches to the open channel Clonard Brook. For this reason a barrier will need to be created to eliminate the risk of any sediment or contaminants making their way to the ditches.

When the development is constructed, the main risks to water will be from sewer leaks or oil leaks from vehicles.

These risks have been considered in the Sustainable Urban drainage design (Suds) proposed for this development. Examination of this design by the author in the context of the risk to water features indicates that the design is robust and as such the risk is considered to be low.

Adoption and implementation of a CEMP (Construction and Environmental Management Plan) will formalise the need to protect water features during construction, cognisant of the enhanced vulnerability and the topography of the site. This plan will also reach towards management of fuels and building materials in such a way as to avoid any contamination of waters.

Monitoring of groundwater and surface water is recommended for the construction phase to demonstrate compliance.

8.0 NOISE AND VIBRATION

AWN Consulting Ltd. have carried out an assessment of the potential noise and vibration impacts associated with the proposed development on lands located at Balbriggan, Co. Dublin. The assessment identifies potential noise and vibration impacts on the environment, during both the short-term construction and the longer-term operational phases. The assessment was conducted in the context of current relevant standards and guidance and used to specify appropriate limit values and mitigation measures to ensure that the impact of the proposal is minimised.

Environmental noise surveys have been conducted at the site in order to quantify the existing noise environment. These surveys were conducted in general accordance with ISO 1996: 2017 *Acoustics – Description, measurement and assessment of environmental noise* at 6 specific locations and were undertaken during periods in April 2019 and May 2023. During the attended noise survey at the proposed development site, noise contributors included distant road traffic from the M1, intermittent local road traffic, occasional aircraft, typical residential sources, and birdsong.

In terms of the potential impact of the proposed development, it is noted that the largest noise and vibration impact of the proposed development will occur during the construction phase due to the operation of various plant machinery and HGC movements to, from and around the site. However, the construction phase can be classed as a short-term phase (approximately three years in duration). The nearest noise sensitive locations to the proposed development site are the residential properties to the east of the site, the nearest of which is 10m from the closest point of the site boundary. The results from the noise survey indicate that there is potential for the maximum permissible daytime noise level to be exceeded at distances up to 30m from the works. This indicates that additional mitigation measures will be required to prevent likely significant impacts at the residential properties to the east. These mitigation measures are detailed in full in Chapter 8.0 of this EIAR.

Based on the noise assessment undertaken, the potential impact due to construction noise within 30m of the works is considered to be temporary, negative and significant to very significant. Beyond 30 m from the works, the impact is considered to be short-term, negative and slight to moderate. It should be noted that due to the size of the site, typically work will be undertaken at distances greater than 30m from residential locations, hence, it is expected that typically the construction work will generate a negative, slight to moderate, short-term effect.

Chapter 11 *Material Assets – Transport* predicts that peak construction traffic will consist of 80 HGV trips and 160 car/van trips per day, a total of 240 trips resulting in an increase of approximately 1.8% on Clonard Road which is adjacent to the proposed site entrance.

The Transport Infrastructure Ireland document '*Traffic and Transport Assessment Guidelines*' states that the impact of any proposed development on the local road network is considered material when the level of traffic it generates increases flows by more than 10% on normal networks or 5% on congested networks. Both Clonard Road and Boulevard Road are considered to be normal networks and therefore the flow increase during the construction phase is not considered material. From a noise perspective this level of increase to traffic flow would result in an imperceptible increase in noise.

In terms of potential vibration impact during the construction phase, site activities will be managed so as not to exceed the vibration limits set out in British Standard BS 5228-2 and summarised in Table 8.2, Chapter 8.0 of this EIAR. Furthermore the mitigation measures outlined in Chapter 8.0 will be employed to further reduce the likelihood of significant effects.

With regards operational noise, the main potential sources of outward noise from the development during the operational phase will be traffic flows to and from the development via public roads, mechanical and electrical plant used to service the buildings, and deliveries and waste collection. In this regard, plant items will be selected, designed and located so that there is no negative impact on sensitive receivers within the development itself. Taking into account that sensitive receivers within the development are much closer than off-site sensitive receivers, then once the relevant noise criteria is achieved within the development it is expected that there will be no negative impact at sensitive receivers off site.

Further to the above, waste collection from the apartment buildings within the proposed development will be organised and facilitated by the management company responsible for the upkeep of the proposed development's communal areas. Waste collection from the dwelling houses within the

proposed development will be the responsibility of the individual householders who will engage an authorised waste collector for this purpose. As such, waste collection will follow a similar pattern to that of the existing surrounding area (e.g. weekly collections) and is not expected to result in a significant noise impact. It is not expected that deliveries and waste collections are likely to cause a significant impact. Therefore, no mitigation measures are necessary in this case.

Due to the expected frequency of waste collection and deliveries to the proposed development, based on the number of residents, and since the proposed development has been designed to accommodate these services, deliveries and waste collection will not result in a significant noise impact on the surrounding area. It's noted that there are several plots within the development available for commercial enterprises. During the design stage these plots will be designed so that the noise impact from deliveries will be not significant on local receptors, this may be through a combination of measures such as screening and location of delivery spaces. It is considered that the changes to traffic flows for this development will not result in a significant increase in noise levels in the surrounding environment. Therefore, no mitigation measures are necessary in this case.

In relation to additional traffic flows during the operational phase, the Traffic Impact Assessment undertaken by MPA Consulting Engineers as part of this application predicts the following changes to Annual Daily Traffic (AADT) in the opening year (2025). This is shown in the table below (also Table 8.15 of Chapter 8.0) along with the approximate corresponding changes to noise levels. Note that all figures take account of committed developments in the area:

Road Link	24 Hour AADT for Opening Year (2025)		
	Without Development	With Development	Increase
The Park (S)	4100	4560	11% (+0.5 dB)
Hamlet Lane (W)	3462	4075	18% (+0.7 dB)
Morlaragh Road	3385	3845	14% (+0.6 dB)
Boulevard Road	4159	6610	59% (+2.0 dB)
Naul Road (W)	10640	12393	16% (+0.7 dB)
Clonard Road (E)	9113	10867	19% (+0.8 dB)

As is explained in full in Chapter 9.0, an increase in noise level of less than 3 dB is considered negligible and not significant. As already set out above, a 3 dB increase in noise level would require approximately a doubling of traffic volumes. Based on these small increases to AADT it is considered that the impact from additional traffic on surrounding roads as a result of the proposed development will be not significant.

In terms of cumulative impacts, due to the proximity and adjacency of other construction projects within the area there is the potential for cumulative effects should projects proceed simultaneously. Elevated construction noise emissions due to cumulative noise are likely to occur at receptor locations proximate to two or more construction sites as well as a potential increase in the length of time that the receptor will be exposed to construction noise. Hence, cumulative construction impacts will need to be considered and managed during the construction phase. It is recommended that liaison between construction sites is on-going throughout the duration of the construction phase. Contractors should schedule work in a co-operative effort to limit the duration and magnitude of potential cumulative impacts on nearby sensitive receptors. Cumulative construction noise impacts are expected to be negative, significant and short-term at receptors proximate to two or more construction sites (e.g. within 30m – 40m of a site), for those further away the impacts will be slight to moderate and short-term.

A preliminary review of cumulative increases in road traffic indicate that there is a potential significant increase in noise levels on two routes, Taylor's Hill Way and Boulevard Road. For these roads a more detailed assessment has been undertaken as part of Chapter 8.0 of this EIAR, the results of which indicate that a negative, slight to moderate, long-term effect will occur on receptors located along Boulevard Road, At Taylor's Hill Way a negative, significant and long-term effect is predicted for receptors located along the road, however, this effect should be considered in context with the overall predicted noise level of 50 dB which is considered to be a desirable noise level in the Fingal County

Noise Action Plan, hence the properties along this route will experience a significant increase in noise level, however overall noise levels are predicted to remain within the desirable range.

A number of remedial and mitigation measures relating to the construction phase and operational phase (building services and plant noise) are detailed in Chapter 8.0 of this EIAR. Provided that the relevant mitigation measures are employed during the construction phase, it is anticipated that impacts will be short-term, negative and moderate. Residual impacts during the operational phase are anticipated to be long-term, neutral and imperceptible.

9.0 AIR QUALITY

AWN Consulting Ltd has assessed the likely air quality and climate impacts associated with the construction and operational phases of the proposed development located at Balbriggan Co. Dublin.

As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones have been identified in Ireland for air quality management and assessment purposes as outlined within the EPA document titled 'Air Quality In Ireland 2021' (EPA 2022). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000 is defined as Zone D.

In terms of air monitoring, the area of the proposed development in Balbriggan is categorised as Zone C. In terms of the baseline air quality environment, data available from similar environments indicates that the air quality in Zone C locations is generally good, with concentrations of the key pollutants generally well below the relevant limit values. However, the EPA have indicated that road transport emissions are contributing to increased levels of NO₂ with the potential for breaches in the annual NO₂ limit value in future years at locations within urban centres and roadside locations. In addition, burning of solid fuels for home heating is contributing to increased levels of particulate matter (PM₁₀ and PM_{2.5}). The EPA predict that exceedances in the particulate matter limit values are likely in future years if burning of solid fuels for residential heating continues (EPA, 2022).

With regards to the sensitivity of the receiving environment, both receptor sensitivity and proximity to proposed works areas are taken into consideration. For the purposes of this air quality assessment included as part of this EIAR, high sensitivity receptors are regarded as residential properties where people are likely to spend the majority of their time. Commercial properties and places of work are regarded as medium sensitivity while low sensitivity receptors are areas where people are present for short periods or where the public would not expect a high level of amenity.

In terms of receptor sensitivity to dust soiling, there are more than 100 no. high sensitivity residential properties within 20 m of the proposed development site boundary (see Figure 9.3, Chapter 9.0). Therefore, the overall sensitivity of the area to dust soiling impacts is considered high based on the IAQM criteria outlined in Table 9.7, Chapter 9.0.

In addition to sensitivity to dust soiling, the IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to human health impacts. The criteria take into consideration the current annual mean PM₁₀ concentration, receptor sensitivity based on type (residential receptors are classified as high sensitivity) and the number of receptors affected within various distance bands from the construction works. A conservative estimate of the current annual mean PM₁₀ concentration in the vicinity of the proposed development is 15 µg/m³. There are over 100 no. residential properties within 20 m of the proposed development boundary (see Figure 9.3, Chapter 9.0). Based on the IAQM criteria outlined in Table 9.8, Chapter 9.0, the worst-case sensitivity of the area to human health is considered medium.

The IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to dust-related ecological impacts. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability of the plant as well as other effects. The guidance states that dust impacts to vegetation can occur up to 50m from the site and 50m from site access roads, up to 500m for the site entrance. There are no designated ecological sites within 50m of the site or 500m of the site entrance. Therefore, there is no potential for impacts.

Impacts to air quality can occur during both the construction and operational phases. During the construction phase, the main source of air quality impacts will be as a result of fugitive dust emissions from site activities. The risk of dust impacts as a result of the proposed development is summarised in Table 9.13 of Chapter 9.0.

There is at most a high risk of dust soiling impacts and a medium risk of human health impacts associated with the proposed works. Therefore, dust mitigation measures associated with high risk sites will be implemented to ensure there are no significant impacts at nearby sensitive receptors. Additionally, the site will be developed on a phased basis and as such works will not take place on the entirety of the site at one time which will reduce the potential for dust emissions impacting nearby receptors. In the absence of mitigation, dust impacts are predicted to be short-term, direct, negative and moderate.

There is also potential for traffic emissions to impact air quality in the short-term over the construction phase. However, as the construction stage traffic did not meet the screening criteria a detailed air quality assessment of construction stage traffic emissions was screened out. It can be concluded that construction phase traffic emissions will have a short-term, localised, neutral and non-significant impact on air quality.

The primary sources of air emissions in the operational context are deemed long term and will involve the change in traffic flows in the local areas which are associated with the development. As part of the air quality assessment, the potential impact of the proposed development has been assessed by modelling emissions from the traffic generated as a result of the proposed development. The impact of NO₂, PM₁₀ and PM_{2.5} emissions for the Opening and Design Years was predicted at the nearest sensitive receptors to the development. This assessment allows the significance of the development, with respect to both relative and absolute impacts, to be determined. The results indicate that, overall the impact of the proposed development on ambient air quality in the operational stage is considered long-term, localized, neutral, imperceptible and non-significant.

Traffic air related emissions also have the potential to impact human health if they do not comply with the ambient Air Quality Standards detailed in Chapter 9.0 of this EIAR. However, air dispersion modelling of traffic emissions has shown that levels of all pollutants are below the ambient air quality standards set for the protection of human health, and therefore it can be determined that the impact to human health during the operational stage is long-term, localised, neutral, imperceptible and non-significant.

With regards to cumulative impacts, according to the IAQM guidance (2014), should the construction phase of the proposed development coincide with the construction phase of any other development within 350m, then, there is the potential for cumulative construction dust impacts. However, a high level of dust control will be implemented across the site which will avoid significant dust emissions. Provided these mitigation measures are in place for the duration of the demolition and construction phase, cumulative dust related impacts to nearby sensitive receptors are not predicted to be significant. Cumulative impacts to air quality will be short-term, localised, negative and imperceptible.

There are no significant cumulative impacts to air quality predicted for the construction phase. The traffic data reviewed for the operational stage impacts to air quality included the cumulative traffic associated with other existing and permitted developments in the local area. Specific cumulative developments included in the traffic data for the assessment include committed developments Taylors Hill Phase 1 (Planning Ref. F15A/0437) and Phase 2 (Planning Ref. F15A/0550) and Ladyswell (Planning Ref. F21A/0055). Traffic associated with a number of schools in the area that are not currently at full capacity was also included. Further details of the committed developments can be found in the Traffic and Transport Assessment prepared by MPA Consulting Engineers and submitted with this planning application. Therefore, the cumulative impact is included within the operational stage impact for the proposed development. The impact is predicted to be long-term, localised, neutral, imperceptible and non-significant.

A number of remedial or reductive measures are outlined for the construction phase if the proposed development in relation to Air Quality in Chapter 9.0. When these measures are implemented, the residual effect of fugitive emissions of dust and particulate matter from the site will be short term, direct, negative, and slight in nature, posing no nuisance at nearby receptors. These construction mitigation measures will also ensure that the impact of the proposed development complies with all ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the proposed development is likely to be negative, short-term and imperceptible with respect to human health. During the construction phase, monitoring of dust deposition along the site boundary to nearby sensitive receptors during the ground works phases of the proposed development is required to ensure mitigation measures are working satisfactorily.

Air dispersion modelling of operational traffic emissions associated with the proposed development was carried out using the TII REM tool. The modelling assessment determined that the change in emissions of NO₂, PM₁₀ and PM_{2.5} at nearby sensitive receptors as a result of the proposed development will be neutral. Therefore, the operational phase impact to air quality is long-term, localised, neutral, imperceptible and non-significant. No mitigation or monitoring is therefore proposed for the operation phase of the proposed development as it is predicted to have a neutral and imperceptible impact on Air Quality and Human Health.

10.0 CLIMATE

AWN Consulting Ltd. have carried out an assessment of the potential impacts to climate associated with the proposed development at Balbriggan, Co. Dublin.

As per the EU guidance document *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment* (European Commission, 2013) the climate baseline is first established with reference to EPA data on annual GHG emissions (see Section 10.3, Chapter 10). The impact of the proposed development on climate is determined in relation to this baseline. As per the IEMA guidance (2022) where expected emissions will not increase by over 1% compared with the baseline scenario then no further assessment is required as there is no potential for significant impacts to climate. The construction stage activities and potential for GHG emissions have been reviewed as part of the construction stage climate assessment and a quantitative assessment conducted.

The climate assessment included in Chapter 10.0 of this EIAR outlines that impacts to climate can occur during both the construction and operational stages of the development. During the construction stage the main source of climate impacts will be as a result of GHG emissions and embodied carbon associated with the proposed construction materials and activities for the proposed development. During the operational phase vehicle emissions from traffic accessing the site has the potential to release CO₂ and other GHGs which will impact climate. In addition, the vulnerability of the proposed development in relation to future climate change must be considered during the operational phase.

With regards to the potential impact of the construction phase of the proposed development, there is the potential for release of a number of greenhouse gas emissions to the atmosphere during the construction of the proposed development.

In relation the potential impacts of climate change of the proposed development, the Contractor will be required to mitigate against the effects of extreme rainfall/flooding through site risk assessments and method statements. The Contractor will also be required to mitigate against the effects of extreme wind / storms, temperature extremes through site risk assessments and method statements. All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures. Temperatures can affect the performance of some materials, and this will require consideration during construction.

During construction, the Contractor will be required to mitigate against the effects of fog, lightning and hail through site risk assessments and method statements.

In order to determine the vulnerability of the operational phase of the development to climate change, the sensitivity and exposure of the development to various climate hazards must first be determined.

The following climate hazards have been considered in the context of the proposed development: flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; wildfire; drought; extreme wind; lightning, hail, landslides and fog. The sensitivity of the proposed development to the above mentioned climate hazards is assessed irrespective of the project location. The results of the vulnerability assessment included in Chapter 10.0 of this EIAR demonstrate that the proposed development has only low vulnerabilities to the identified climate hazards. The Stage 1 and Stage 2 Flood Risk Assessment (FRA) prepared by MPA Consulting Engineers indicates that flooding is not a risk at the project location. The site is contained within Flood Zone C. Adequate attenuation and drainage have been incorporated into the design of the development which allows for additional rainfall as a result of climate change thereby reducing the risk for the site.

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

There is also the potential for increased traffic volumes to impact climate during the operational phase. The predicted concentrations of CO₂ for the future years of 2025 and 2040 are detailed in Table 10.7 of Chapter 10.0 of this EIAR. These concentrations are significantly less than the 2025 and 2030 targets set out under EU legislation. It is predicted that in 2025 the proposed development will increase CO₂ emissions by 0.00024% of the EU 2025 target. Similarly low increases in CO₂ emissions are predicted to occur in 2040 with emissions increasing by 0.00024% of the EU 2030 target.

With respect to Operational Energy Use, the proposed development has been designed to reduce the impact to climate where possible. A number of measures have been incorporated into the design to ensure the operational phase emissions are minimised. These are outlined fully within the Energy Statement and Building Lifecycle Report prepared in relation to the development. The design approach for the development has followed the “Be Lean, Be Clean, Be Green” objectives. This involves using less energy, Be Lean; supply energy efficiently, Be Clean; and using renewable energy, Be Green. The development will be a Nearly Zero Energy Building (NZEB) in accordance with the 2022 Part L requirements. Overall, these measures will aid in reducing the impact to climate during the operational phase of the proposed development.

With respect to the requirement for a cumulative assessment PE-ENV-01104 (TII, 2022a) states that “for GHG Assessment is the global climate and impacts on the receptor from a project are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable.”

However, by presenting the GHG impact of a project in the context of its alignment to Ireland’s trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland’s ability to meet its national carbon reduction target. Therefore, the assessment approach is considered to be inherently cumulative.

In relation to remedial or reductive measures, a number of best practice measures during the construction phase have been detailed in Chapter 10.0 to prevent significant GHG emissions and reduce impacts to climate. In addition a number of measures as specified in Chapter 10.0, have been incorporated into the design of the development in order to mitigate against the impacts of future climate change. These measures will aid in reducing the impact to climate during the operational phase of the proposed development in line with the goals of the Climate Change Action Plan.

In terms of the predicted impact of the proposed development, Chapter 10.0 concludes that the proposed development will result in some impacts to climate through the release of GHGs. TII state that the crux of assessing significance is “not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050”. The proposed development has proposed some best practice mitigation measures and is committing to reducing climate impacts where feasible. As per the assessment criteria in Table X.3 the impact of the proposed development in relation to GHG emissions is considered long-term, minor adverse and not significant.

In relation to climate change vulnerability, it has been assessed that there are no significant risks to the proposed development as a result of climate change. There is no monitoring required for the construction or operational phases of the development in relation to climate.

11.0 WIND AND MICROCLIMATE

AWN Consulting Ltd has assessed the potential microclimate impacts associated with the construction and operational phases of the proposed development located at Balbriggan, Co. Dublin.

This assessment includes a description of the receiving environment in the vicinity of the subject site and an assessment of the potential microclimate impact associated with the proposed development during both the short-term construction phase and the long-term operational phase on its surrounding environment. The assessment of direct, indirect and cumulative impacts on the surrounding environment have been considered as part of the assessment.

To reiterate, the subject site is located off Flemington Lane, Balbriggan, Co. Dublin. The surrounding environment in the vicinity of the development site is a mixture of agricultural land and 2-storey residential development. It was determined that the site typically experiences Beaufort 3/Beaufort 4 (B3/B4) wind conditions for much of the time.

Given the short term nature of the construction phase there are no expected microclimatic impacts during the construction phase. Buildings under construction remain substantially open to the elements for much of the construction period (windows and door openings remain open for example) and tend to be surrounded by scaffolding – which is also mostly void space. These openings tend to ensure that wind passes through these structures under construction ensuring that the buildings under construction tend to have no impact on wind flow.

In relation to the operational phase, it is noted that the area downwind of the proposed development is dominated by mainly two storey residential development which is currently exposed to the wind flows across the open farmland, given that the proposed development does not have any tall buildings, minimal disturbance to wind-flow is expected and no significant impacts on microclimate are predicted.

No mitigation measures have been deemed necessary during the construction or operational phases and it is predicted that the construction activity will have a neutral, slight and short-term microclimatic impact, whilst it is predicted that the operational phase of is neutral, imperceptible and permanent.

12.0 MATERIAL ASSETS - TRAFFIC

Chapter 12.0, of the Environmental Impact Assessment Report, as prepared by MPA Consulting Engineers, assesses the likely impact of the proposed housing development in terms of vehicular, pedestrian and cycle access during both the construction and operational phases.

The chapter describes the methodology used; the receiving environment at the application site and surroundings; the characteristics of the proposed development; the potential impact which proposals of this kind would be likely to produce during both the construction and operational phases; the remedial or reductive measures required to prevent, reduce, or offset any significant adverse effects; and any residual impacts that may remain. This chapter is based on the outcome of a series of traffic and transport reports and documents prepared to support the development site.

Study Methodology

The study has been prepared by obtaining baseline traffic and transport information for the site and surrounding. Based on the development proposals, traffic generation has been calculated for the development. The impact of the proposed development has been determined on the local road and transport network. A package of mitigation and remedial measures have been identified to off-set any traffic and transport issues that may arise as a result of the development.

Baseline Conditions

The proposed development site is located on the western side of Balbriggan and measures some 22.62 hectares (including Residential Site Area: 19.28ha & Class 1 Open Space - 2.8667ha).

The site is approximately 2.0km northwest of the town centre and has good transport links to the town centre and Junction 6 of the M1 motorway.

Traffic surveys were undertaken at a number of junctions on the road network surrounding the site between 2018 and 2022 (excluding COVID lockdown years) to establish baseline traffic conditions.

The site and the wider Balbriggan area benefits from good sustainable transport infrastructure, namely walking and cycling routes, bus provision, and rail links to central Dublin.

A review of traffic collision data obtained from the Road Safety Authority demonstrates the local road network has a good safety record with no identifiable collision clusters or other notable safety issues.

Proposed Development

The proposed development comprises the construction of 564 dwellings across five character areas across four development phases. The development also includes the construction of 9 commercial units (totalling 575sqm) and 6 communal units (totalling 330sqm).

The development incorporates a main spine road (Flemington Link Road / Street) which runs north to south through the development. This spine road is designed to be incorporated as part of the Balbriggan 'C' ring road linking Clonard Road and Flemington Lane. The works to connect to Clonard Road will be undertaken by others in the future. In the short term, primary access to the site will be via an extension of Boulevard Road. A secondary vehicular access will be created from an extension of Hamlet Lane. A third access, from Flemington Lane will also be provided. A number of pedestrian and cycle accesses will be created to provide good sustainable transport permeability to adjacent residential areas.

The principal roads through the development will include segregated footways / cycleways and cycle friendly infrastructure throughout.

Appropriate levels of residents and visitors' car and cycle parking will be provided through the development, including electric vehicle charging points and accessible parking.

Potential Impact of the Proposed Development

Construction Phase

Construction traffic would be most intensive during the initial few months of site clearance and establishment. This will include approximately 80 two-way HGV movements per day and a similar number of car and van movements. A Construction Traffic Management Plan (CMTP) has been prepared to limit and control the number of construction vehicle movements to and from the site, including timings and access routes. The impact of construction traffic on the local transport network is considered to be insignificant.

Operational Phase

The traffic impact of the proposed development has been assessed based on future traffic conditions. This includes traffic generated by known committed developments (i.e. schemes that have received planning permission or likely to receive planning permission), and background traffic growth calculated using Transport Infrastructure Ireland (TII) growth factors. The future year assessments are based on a 2025 year of opening and a 2040 future design year.

Traffic generation, also known as trip generation, has been calculated using the industry recognised TRICS database and in agreement with the Local Authority. The proposed development will generate 344 and 370 two-way trips in the morning and evening peak hours respectively and 3,158 two-way trips per day.

These trips have been assigned to the local road network based on a first principals approach informed by local conditions and existing flows.

Where these development trips result in a 2.5% / 5% increase in traffic volumes, additional detailed junction modelling has been undertaken.

The junction assessments, conclude that the majority of the existing road network and nearby junctions would continue to operate in a satisfactory manner. However, Junction 4 (Clonard Road / Boulevard Road) and Junction 13 (Chapel Street / Harry Reynolds Road) would operate over capacity in 2025 and 2040 with Committed Development. These two junctions would need some form of improvement regardless of the Malincross development being implemented.

Assessment Summary

This Environmental Impact Assessment Report chapter has been prepared by MPA Consulting Engineers. This chapter has:

- detailed the assessment methodology;
- evaluated the baseline conditions for traffic, junction capacity and accidents;
- assessed the impact and significance of increased traffic flow due to the proposed development; and
- identified suitable mitigation measures.

This chapter has demonstrated that existing baseline conditions, namely traffic flows and accidents, are broadly typical for such a location. There are no link capacity issues and any delays are primarily associated with the operation of the junctions. Junction assessments identified that all junctions, apart from Junction 4 (Clonard Road / Boulevard Road) and Junction 13 (Chapel Street / Harry Reynolds Road); operate with sufficient capacity in 2025 and 2040 without the proposed development.

Accident frequency is also typical and mainly associated with the various junctions.

Overall, the proposed development would have minor adverse impacts in terms of driver delay, pedestrian delay, accidents/road safety and severance.

Where required, proposed junction improvements have been identified, which will have a moderate beneficial impact for driver delay and safety. The development will be accompanied by a Construction Traffic Management Plan and Mobility Management Plan. The former seeks to limit the impact of construction phase of the development. The latter includes measures to encourage more sustainable modes of transport and less single occupancy vehicle use.

Residual Environmental Effects

The transport impact of the proposed development has been undertaken based the full occupancy of the development and maximum traffic generation. As the traffic generation will not differ from that of full occupation, the residual effects will remain unaffected. This includes driver delay, pedestrian/cyclist delay and accidents. Nevertheless, the proposed junction improvements for Junctions 1 and 2 would greatly improve traffic movement and flow of these junctions and provide improved facilities for pedestrian and cyclist movements.

Once construction of the development has been completed, there will be no need for large construction vehicles (lorries) to visit the site. This would result in a similar proportion of heavy vehicles on the highway network as existing levels. The residual effects of the construction phase are therefore neutral.

13.0 MATERIAL ASSETS - UTILITIES

This chapter has been prepared by MPA Consulting Engineers and assesses the potential impacts of the proposed development on Material Assets (Utilities) currently in the area.

The proposed development site is located to the west of Balbriggan urban centre. It is classified in the Sheet 4 of the Balbriggan Development Plan 2017 – 2023 as being land zoned for residential use subject to the provision of the necessary social and physical infrastructure. It is currently in use as agricultural land. All lands associated with the housing element of the development are currently in the ownership of Dean Swift Property Holdings Limited, a small portion of land for the Flemington Link Road connection to Flemington Lane is in the ownership of FCC.

The proposed development is located in the north-west of Balbriggan in the townland of Clonard or Folkstown Great. It lies to the approximately 1.2km to the east of the M1 motorway. Flemington Lane with detached dwelling lies to the north of the site. To the north east, east and southeast of the site are residential developments. The south of the site is Clonard / Naul Road, R122. There is construction also happening in the area at Taylors Hill. There is the proposed demolition of two. Unoccupied buildings currently in the ownership of Fingal County Council associated with this project.

The proposed development is mixed residential with landscaping and public open space and Will take place in four phases.

Material assets are assessed in Chapter 13.0 as either economic assets of natural origin or economic assets of human origin. This application is for 564 no. Residential units and is accompanied by a Traffic & Transport Assessment (TTA-01 & TTA-02) prepared by MPA Consulting Engineers and is submitted as an appendix to Chapter 11.0 of this EIAR. The proposed development will take due consideration of the “National Smarter Travel Initiatives”. In addition, it will link to existing neighbouring cycle and pedestrian route ways to Balbriggan Village. A total of 2,552 no. Bicycle spaces are proposed, this includes 1,956 No. resident bicycle spaces, 596 no. Visitor spaces inclusive of 48 No. spaces allocated to creche bicycle parking. There are 185 no. Electric Vehicle (EV) charging points proposed for the development, 162 in communal residential parking and 23 visitor parking.

The surface water/storm water management system proposed for the development is a sustainable stormwater management system in accordance with the Greater Dublin Strategic Drainage Study and incorporates many nature-based solutions.

There are eight proposed catchment areas (as shown on the Storm Drainage Layout Overall Drawing No. 191004/C/008.0 Rev PL3) serviced by either Sustainable Urban Drainage Systems (SUDs) or by traditional drainage methods. These will discharge via flow control devices such as hydrobrake to the existing storm sewer network.

A pre-connection enquiry response from Irish Water dated 24th November 2022 regarding the development Ref: No. CDS22007645 provides Confirmation of Feasibility (CoF) for water and waste water connections. This states that the following is required:

- Approximately 10m of the existing 150mm MoPVC main (amber line below) in Hamlet Lane to be upgraded to 225mm ID pipe
- The spine main of the new DMA shall be of 200mm ID pipe minimum (green line below) to provide capacity for fire and daily peak. A DMA meter with associated telemetry to be installed at the line.
- The branch mains shall be 150mm ID to accommodate daily peak demand and fire capacity. Connection mains shall be 100mm ID.
- An onsite booster pump to provide pressure to the Development is required
- Bulk meter to be installed on the site development side of each connection main and linked up with telemetry online

It also states that the Developer has to demonstrate that proposed structures and works will not inhibit access for maintenance or endanger structural or functional integrity of existing on-site Irish Water assets during and after the works.

Water supply for the proposed site is to have six connections for the proposed development as per the Proposed Watermain Layout -Drawing No. 191004/C/009.0 Rev PL6.

A Statement of Design Acceptance (SODA) has also been issued by Irish Water.

The existing gas distribution network off site comprises a high-pressure supply pipe along the Clonard/Bridgefoot Road. There is a 180mm diameter medium-pressure (4bar) distribution main at Flemington Lane to the north, and a 250mm diameter medium-pressure (4bar) distribution main at Hamlet Lane to the east. Gas Networks Ireland (GNI) have confirmed that these pipes have ample capacity to supply the development.

Electricity Supply Board Networks drawings show a number of assets on and adjacent to the site. It is the intention that the proposed residential development be served by Medium Voltage Sub-stations located within the development. The final details will be subject to agreement with the ESB networks.

The proposed residential development will be serviced by ducting/cables and chambers for utilities to cater for the different utility providers. Postal services to the area will be provided by An Post. There are existing Eir service points adjacent to the site associated with the residential ribbon development along Flemington Lane and the largescale residential developments to the east of the site. Virgin Media have telecommunication assets serving the housing areas adjacent to Hamlet Lane and Bremore.

The waste management strategy is based on a dedicated bin/waste storage area for apartments and with private detached and semi-detached dwellings being serviced by waste management companies.

The lands proposed for development are currently in agricultural use. Fingal Development Plan however has shown that the lands have been zoned for residential development since 2005, and possibly earlier.

Potential impacts of the proposed development are outlined in section 12.5 of this chapter. These are considered in relation to the baseline/receiving environment for both the construction and operation phase of the development. The following factors were assessed urban settlements, ownership and access, transport infrastructure (this is assessed in greater detail in chapter 11), foul water disposal, foul and surface water, water supply, natural gas supply, electrical supply, information and communication technology (ICT), municipal waste, agriculture, Demolition of buildings.

The cumulative effects of the proposed development on material assets have been assessed taking into consideration other planned, existing and permitted developments in the surrounding area into account. Adjacent developments include Taylors Hill 2No. phases of which have been completed to date and phases are yet to be completed, as well as Ladywell which has been granted permissions but yet to commence. In addition, other developments are proposed for the area but are not at the planning application stage at the time of writing this EIAR.

With all these in mind it is predicted that that proposed development will contribute to the overall urban structure of Balbriggan and the Greater Dublin area in terms of provision of much needed housing development.

It will have positive cumulative effects on urban settlements, transports infrastructure and access by allowing movements to the R122 and M1 and providing access to public open spaces and cycle/pedestrian routes.

If the proposed development does not take place then there would be no additional demand or loading on material assets of natural or human origin.

Mitigation and remedial measures for both the construction and operations phases of the development are discussed in section 13.6 of chapter 13.0. Worst case impacts are assessed in section 13.7.3 of chapter 13.0 and it was found that in respect of the proposed development these were negligible.

Residual impacts are discussed in section 13.8 of Chapter 13.0, and it is anticipated that there will be none, therefore residual impacts are assessed as being negligible.

Monitoring is discussed in section 13.9 of chapter 13.0. Monitoring measures will be in accordance with provisions outlined elsewhere in this EIAR document. Surface water drainage works should be overseen by Fingal County Council relative departments.

Foul sewer construction works will be monitored by Irish Water connections department. Water supply construction works will be monitored by Irish Water connections department.

Execution of the construction and environmental management plan during the construction phase must be monitored by the local authority. Execution of the operation and maintenance requirement outlined in the operation and maintenance manual for the development must be monitored by the local authority.

Reinstatement is assessed in section 13.10 of chapter 13.0, and it is states that this is not applicable.

14.0 ARCHAEOLOGY, ARCHITECTURAL AND CULTURAL HERITAGE

The Archaeology, Architectural and Cultural Heritage Chapter was prepared by Courtney Deery Heritage Consultancy, and assesses the archaeological, cultural and architectural heritage of the subject lands located off Flemington Lane, Balbriggan, Co. Dublin. This chapter describes the archaeological findings as a result of investigations undertaken to assess the potential of the application lands, including geophysical survey, test excavation and excavation which have been undertaken across the site for the previous phases of works.

The assessment of the likely significant effects on the environment resulting from the construction and/or operation of the proposed development relies on a combination of qualitative and quantitative assessment. Cultural heritage sites/landscapes are considered to be a non-renewable resource and cultural heritage material assets are generally considered to be location sensitive. In this context, any change to their environment, such as construction activity and ground disturbance works, could affect these sites. The likely significance of all effects is determined in consideration of the magnitude of the effects and the baseline rating of the cultural heritage asset (i.e. its sensitivity or value). Having assessed the magnitude of effect with respect to the sensitivity/value of the asset, the overall significance of the effect is then classified as imperceptible, not significant, slight, moderate, significant, very significant or profound. A glossary of impact assessment terms, including the criteria for the assessment of impact significance, is contained in Appendix 13.2 Assessment Methodology of this EIAR.

The statutory record (RMP / SMR), previous investigations (O’Carroll 2005; Nicholls 2005; Elliott 2007a) and archaeological testing undertaken to inform this report (McLoughlin 2021) have indicated a number of cultural heritage receptors which are considered within this EIAR. A summary of receptors outlined in the table below and they are depicted on the cultural heritage mitigation maps in Appendix 14.5 of this EIAR.

Cultural heritage receptors

CH ref.	Description
<i>DU001-004 (RMP site)</i>	<i>Holy well known as Lady’s Well adjacent to PO1 and outside of proposed development. Site inspection in 2023 found the well to appear as a hollow of approximately 4m by 5m containing some water, but much clogged with earth and mud. Wheel ruts indicate recent disturbance. An earthen bank contains the site on the east and south, and some stones were noted which may have formed a slight revetment. Mature trees and hedgerow along the bank create the setting of the monument. A hydrogeologist (See Chapter 7.0 of this EIAR) concludes that the well is a discharge area for groundwater with some surface recharge via shallow subsoil flows from higher ground to west and southwest. A watercourse which leads to this well on historic mapping forms the boundary with F2.</i>
<i>DU001-015 (SMR site)</i>	<i>An early medieval enclosure which was discovered during pre-development investigations in the Hastings development in 2005 (Bolger 2006a; 2006b; 2009; Licence no.: 05E0663). Bolger concluded that it extended into the proposed development site where the field system (SMR DU001-023) is located within PO4.</i> <i>*This site will be assessed with the field system (SMR DU001-023) as they overlap and cannot be distinguished from each other in the geophysical survey results.</i>
<i>DU001-022001 (SMR site) / Site 2/2</i>	<i>A cluster of pits with charcoal-rich fills and burnt bone inclusions in PO1 which was identified by Elliott (2007a; Licence no.: 07E0057; Site 2/2).</i>
<i>DU001-022002 (SMR site) / Site 2/1</i>	<i>A cluster of pits and a series of possibly curving ditches in PO1 which was identified by Elliott (2007a; Licence no.: 07E0057; Site 2/1) across an area measuring 45m by 50m.</i>

CH ref.	Description
DU001-023 (SMR site)	A field system in PO4 which was identified by geophysical survey (Nicholls 2005; Licence no.: 05R0137) and confirmed with archaeological testing (McLoughlin 2021; Licence no.: 21E0298). This is possibly a continuation of the early medieval activity associated with the enclosure in adjacent lands which was excavated by Bolger (2006; Licence 05E0663) and extends into this area (DU001-015).
DU001-024 (SMR site)	An site recorded as an enclosure in PO5 which is depicted at the incorrect location outside of the proposed development in the Hastings housing estate. Geophysical survey (Nicholls 2005; 05R0137) identified a potential sub-square enclosure, but testing undertaken as part of this EIAR (McLoughlin 2021; Licence no.: 21E0298) did not reveal any archaeological features. The SMR record also refers to ditches identified by Elliott (2007a; Licence no. 07E0057; Site 4/1, 4/2) which were thought at the time to correspond with the potential enclosure. The relevant test trenches and the locations of these discoveries do not correspond with this anomaly. They are therefore discussed as separate receptors.
DU001-025 (SMR site) / Site 6/1	An enclosure outside of the proposed development but within the land ownership boundaries which was detected as a series of conjoined enclosures with several pit-type anomalies by geophysical survey (Nicholls 2005; Licence no.: 05R0137). Test excavation confirmed the presence of a cluster of pits and related linear and curvilinear features (Elliott 2007a; Licence no.: 07E0057; Site 6/1). The site is in the incorrect location on the HEV where the ZoN is depicted extending into the compound area. Consultation of the geophysical results and Elliott's findings show that the site is outside of the compound area. Part of Site 6/1 was stripped by Connell (2008; Licence no. 07E1155) to further investigate the area in the course of the Parkway Water Main investigations but no features of an archaeological nature were identified.
DU001-026 (SMR site) / Site 7/1	A cluster of pits and possible structural features under redeposited natural within an area of 30m x 60m which was identified by Elliott (2007a; Licence no.: 07E0057; Site 7/1). The site is in the incorrect location on the HEV and is located approximately 80m to the south. Part of Site 7/1 was stripped by Connell (2008; Licence no. 07E1155) to further investigate the area in the course of the Parkway Water Main investigations but no features of an archaeological nature were identified.
DU001-027 (SMR site)	An enclosure site of probable stone origin which was detected by geophysical survey outside of the proposed development site. The site is in the incorrect location 35m to the southwest of the geophysical anomaly. A series of potentially archaeological anomalies within the ZoN of the monument extend into the development site and they may be related to the enclosure.
DU001-033 (SMR site)	An enclosure site which is visible as a double-ditched cropmark on Google Earth imagery (24/6/18) and confirmed by archaeological testing (McLoughlin 2021; Licence no.: 21E0298). The enclosure appear to extend into the compound area where the ground level has already been reduced by another developer.
Site 3/1	A series of linear and curvilinear features of archaeological potential identified by Elliott (2007a; Licence no.: 07E0057). The site has been disturbed by the construction compound.
Site 3/2	A large pit with charcoal-rich fills identified by Elliott (2007a; Licence no.: 07E0057) which is partially within the grass pitch area.
Site 4/1	A series of ditches identified by Elliott (2007a; Licence no.: 07E0057) which was thought at the time to represent the sub-square anomaly detected by Nicholls (2005; Licence no.: 05R0137).
Site 4/2	Two ditches and a pit identified by Elliott (2007a; Licence no.: 07E0057) which was thought at the time to represent the sub-square anomaly detected by Nicholls (2005; Licence no.: 05R0137).
Site 5/1	Linear and curvilinear features identified by Elliott (2007a; Licence no.: 07E0057). They may represent peripheral features associated with the main cluster of activity in the field system (DU001-023).
Site 8/1	A widely dispersed area of features with burnt and charcoal fills identified by Elliott (2007a; Licence no.: 07E0057).
Site 9/2	A large pit identified by Elliott (2007a; Licence no.: 07E0057). Part of Site 9/2 was stripped by Connell (2008; Licence no. 07E1155) to further investigate the area in the course of the Parkway Water Main investigations but no features of an archaeological nature were identified.
Test trenches 4, 5, 6 & 8	Ditch-/gully-type features were identified by McLoughlin (2021; Licence no.: 21E0298) in these test trenches which were located within the proposed Distributor Road. They may represent peripheral features associated with the main cluster of activity in the field system (DU001-023).

CH ref.	Description
<i>Test trenches 10 & 11</i>	<i>One shallow gully-type feature was identified in T10 and five gully-/ditch-type features were identified in T11 which are of archaeological interest. Geophysical survey also detected a number of gully-/ditch-type anomalies. They may represent peripheral features associated with the main cluster of activity in the field system (DU001-023).</i>
<i>BH1</i>	<i>A two-storey stone-built vernacular farm building which is located in F1 to the west of the proposed Distributor Road. The walls are of uncoursed random rubble, with render on the north wall and red brick details on the corners and window openings. The roof has collapsed.</i>
<i>BH2</i>	<i>A large farm shed within the proposed course of the Distributor Road in F1. The lower portions are constructed of roughly coursed limestone with large dressed quoin stones on the corners and narrow slit windows surrounded by red brick. The upper portion and roof are composed of corrugated iron. The structure is an altered version of an L-shaped building which appears in historic mapping dating to 1908.</i>
<i>Townland boundaries</i>	<i>The field boundaries which separate Field 6 from Field 8 and Field 7 from Field 9 also function as the Flemingtown / Clonard or Folkstown Great townland boundary. A short part of the east boundary of Field 9 where it borders the adjacent Bremore Pastures housing development also forms part of this townland boundary. Field boundaries in the Clonard / Folkstown Great portion of the proposed development site were more defined than in Flemingtown, with more species present. In Flemingtown, by comparison, the hedgerows were often overgrown with bramble. The townland boundary is a wide hedgerow dominated by gorse.</i>

In relation to the potential impact of the proposed development during the construction phase, this chapter outlines that construction activities which are likely to cause an effect include excavation and ground reducing works which will be required for the preparation of foundations, road construction, landscaping, drainage, substations etc. as set out in Chapter 2.0 of this EIAR. The assessment methodology is set out in Appendix 14.2 of this EIAR.

Remedial or Reduction Measures: Mitigation

Construction

In summary, all surviving archaeological areas which have been identified in Chapter 14.0 of this EIAR and depicted on the cultural mitigation maps in Appendix 14.5 of this EIAR will be protected from construction activities with the provision of fencing and signage. These areas will not be used for compounds, storage or material or spoil, or any other construction related activity which could impact the below-ground remains. They will be integrated into completed conservation plans.

It should be noted, however, that Site 3/1 (linear and curvilinear features) extends outside of the proposed development site to what is now a park, and has consequently already been disturbed. Similarly, Site 9/2 has been disturbed by the haul road from Boulevard Road.

Although the holy well (RMP DU001-004) is outside of the proposed development, it occupies a narrow space between the proposed Distributor Road and PO1. Robust fencing (post and wire) and signage will be required in this location to protect it from demolition activities and construction traffic.

The construction programme will allow sufficient time for excavation of sites and features which cannot be avoided.

Preservation in-situ

Identified in-situ field system (SMR DU001-023) and enclosure (SMR DU001-015) on-site will be preserved in-situ beneath a public open space area on site. The main concentration of features of this complex will be preserved with a buffer zone of 10-20m extending from the edge of the archaeology. Consultation with the design team has taken place to develop a methodology for the landscaping of this park which will not impact the subsurface features. Archaeological features will be protected with the use of geotextile over the existing ground surface, with made ground across the area and low mounding for tree planting. Any works in this area will be under archaeological supervision (See Section 13.7.1.5). Signage describing the archaeological remains will also enhance the public amenity.

The impact from the proposed Distributor Road to peripheral features on the southwest corner of this complex cannot be avoided. Similarly, geophysical survey detected peripheral anomalies to the north of the main concentration. These areas will be preserved by record (See Section 13.7.1.3).

The proposed development site has been redesigned to move the grass pitch which will facilitate preservation in-situ of the double-ditched enclosure (SMR DU001-033). The site will be preserved under geotextile in a green space with a buffer zone of 10m from the outer edge of the monument. Signage describing the archaeological remains will enhance the public amenity.

Preservation by Record

Excavation (preservation by record) will take place for all subsurface archaeological features which cannot be avoided by the proposed development. This includes the southwest periphery of the field system (SMR DU001-023) where impact from the proposed Distributor Road cannot be avoided, and an area to the north of the main concentration where Test Trenches 10 and 11 and the geophysical survey results suggest further peripheral features are located.

It is also proposed to excavate two SMR sites (DU001-022001, Pits; DU001-022002, ditches) which will be impacted by the development.

The SMR record DU001-026 (Excavation – miscellaneous) is actually Elliott's Site 7/1 which comprises pits and possible structural features. It appears to have been a small scale site as Connell (2008; Licence no.: 08E1155) did not identify any features on stripping part of the site. The entirety of the site will be stripped and excavated, which will allow a fuller understanding of the nature of the site.

All other sites are dispersed and ephemeral comprising pits and ditch-/gully-type features (Site 3/2, Site 4/1, Site 4/2, Site 5/1, Site 8/1, Site 8/2). They are depicted on the cultural heritage mitigation maps in Appendix 13.5 of this EIAR and will be similarly excavated in advance of development.

All excavations will be carried out under licence from the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH).

Written and photographic records will be made of the townland boundaries and of the farm shed (BH2) prior to any construction or demolition works.

Further Investigation

There are two areas within the site which merit further archaeological investigations to determine a suitable mitigation strategy. These comprise the ditch-/gully-type features which were identified in Test Trenches 4, 5, 6 and 8 by McLoughlin (2021; Licence no.: 21E0298), and an area of geophysical anomalies which were detected by Nicholls (2005; Licence no.: 05R0137) within the ZoN of an enclosure (SMR DU001-027).

These areas will be topsoil stripped under archaeological supervision and under licence from the DHLGH. This will determine the nature and extent of any potentially archaeological features. If they are established to be archaeological, they will be appropriately excavated or preserved by record under licence from the DHLGH.

Archaeological Monitoring

Archaeological monitoring of all topsoil stripping will be undertaken across the development, and under licence from the DHLGH. This will include the vicinities of Sites 3/1 and 9/2 which have been partly or wholly destroyed by previous construction-related activities. Given the quantity of sites identified through testing of this area, it is likely that archaeological monitoring will reveal further dispersed and small scale sites and / or features which have not been detected through previous investigations. Programming will allow for appropriate monitoring and any subsequent mitigation required. This could be in the form of preservation in-situ or full archaeological excavation (preservation by record).

Although they will be preserved in-situ, works will be required to lay geotextile and create made ground at the field system and enclosure (SMR DU001-023, DU001-015) and the double-ditched enclosure

(SMR DU001-033). Works will also take place adjacent to the holy well (RMP DU001-004). All works in these areas will be subject to archaeological monitoring.

All recommendations in this chapter are subject to approval of the National Monuments Service of the DHLGH and the National Museum of Ireland.

Operational Phase

Archaeological Mitigation

All archaeological heritage issues will be resolved by mitigation during the early construction or construction phase, in advance of the operational phase, through one or more of the following:

- Preservation by record (archaeological excavation);
- Preservation in situ;
- Preservation by design; and
- Archaeological monitoring.

Where preservation in situ is proposed, i.e. preservation by design where the subsurface archaeological remains are protected by a geotextile layer and buried within a green/ landscaped area on site. This activity will take place under archaeological supervision. These areas will require ongoing maintenance and oversight by an archaeologist to ensure that no inadvertent damage occurs to the in-situ protected archaeological features. This is where signage is useful to alert people to the location and nature of in situ remains so they are fully understood and no inappropriate activity take place in the future. Consultation with the Heritage Officer for Fingal will provide advice as to the necessary archaeological measures required if these areas have to be disturbed/ excavated in the future.

Re-use of Stone

The archaeology chapter of this EIAR also recommends that the stone from the demolition of the existing stone shed on site, be re-used within the development.

Predicted Impact of Proposed Development

Archaeological features that will be preserved in-situ have been integrated into the design to protect the remains. Ongoing management strategies will ensure that no unintentional damage is caused by unrelated construction/ excavation/ change of use/ additional landscaping activities.

The proposed development site has been designed to facilitate preservation in-situ of the field system (SMR DU001-023), enclosure (SMR DU001-015) and a double-ditched enclosure (SMR DU001-033). It is predicted that as the design has been developed to protect the sites within landscaped areas of the development and are designated archaeological features, the probability of any inadvertent damage taking place during the operational stage of the development is low, therefore their continued preservation can be maintained and is secure. Signage in the form of information panels will enhance the knowledge of the below ground remains during the operational stage of the residential development.

Where mitigation comprises preservation by record, this will remove any in-situ remains and features of cultural heritage significance. These sites will no longer be present during the operational phase and there will therefore be no impact. Preservation by record will ultimately add to the available information on the sites and complete the archive.

There will be no requirement for archaeological monitoring post-construction.

15.0 LANDSCAPE AND VISUAL AMENITY

This chapter was prepared by Parkhood Landscape Architects and assesses the landscape and visual impacts associated with the proposed mixed-use development, on lands located off Flemington Lane, Balbriggan, Co. Dublin.

The objective of the LVIA is to evaluate the likely significance of landscape character and visual amenity effects to the Application Site and study area to assist the determining authority in considering the acceptability of this proposal. It is based on the interpretation of the physical and aesthetic characteristics following criteria and terminology partially drawn from Principles and Overview of Processes (Chapter 3) within the GLVIA. The LVIA focuses on key effects and issues as follows:

- The effect of the proposed development upon the landscape resource;
- The effect of the proposed development on the perception of the landscape; and
- The effects arising from the proposed development on visual amenity.

The LVIA methodology can be summarised as undertaking the following key tasks:-

- Site Visits between August and October 2021;
- Assessing the baseline Landscape and Townscape Setting and Conditions;
- Evaluation of key components of the proposed development based on site layouts, plans and elevations;
- Consideration of Mitigation and Enhancement Measures including those shown on the landscape plans and proposals as set out on plans and drawings by IS Design;
- Assessment of Landscape and Landscape Effects;
- Assessment of Visual Effects; and
- Summary of Significance of Landscape and Visual Amenity Effects.

To support the visual assessment, photomontages, wirelines and graphics have been prepared from ten representative viewpoints by 3D Design Bureau to allow assessment of its potential scape and nature in these views and these are contained in Appendix 15B. The viewpoint selection process and photomontage methodology is based on *Landscape Institute Technical Guidance Note 06/19: 'Visual Representation of Development Proposals (2019)*.



The application site is assessed as in Chapter 15.0 as having a Medium rating in terms of landscape character. In visual amenity terms, the site is rates as having Low sensitivity on account of a limited visual envelope due to a combination built-up townscape towards Balbriggan and the low rolling topography and accumulation of mature hedgerows in other directions. Longer views are afforded from elevated or exposed areas to the south of the town, but these are of a distant or partial nature and, in overall terms the Application Site is well concealed from public vantage points. From the majority of areas in west Balbriggan, it would be considered that the site has a good ability to absorb changes without significant detriment to landscape and townscape character or the visual amenity of this area.

The Application Site comprises a rural landscape set on the urban periphery, which is largely managed farmland and, in broad terms, the landscape value and quality would be categorised as Medium based on its “everyday” character and undesignated status in landscape or amenity terms. The gently rolling landscape, while attractive in its own right does not possess many notable features other than hedgerows and (low quality) trees which would not be considered unique or rare in this part of Ireland. The cores of the fields are intensely managed arable lands and there is little in the way of any species or landscape diversity away from hedgerows and ditches that would result in a higher category of value.

Selected representative viewpoints for the visual assessment are taken from the following locations:-



Figure 20.0 Viewpoint Locations Map as prepared by 3D Design Bureau

Existing View	Resultant View
VM1 – Flemington Park	
 <p>A photograph showing the existing view from viewpoint VM1. It depicts a wide, grassy field in the foreground, with a line of trees and a residential building in the background under a cloudy sky. A white car is visible on the left. A white rectangular box is overlaid on the field, indicating the area shown in the resultant view.</p>	 <p>A photograph showing the resultant view from viewpoint VM1. The scene is identical to the existing view, but with a new, larger building structure added behind the trees in the background, partially visible within the white rectangular box.</p>

Existing View	Resultant View
VM2 – R132 Road, Coney Hill	
	
VM3 – Balbriggan Harbour	
	
VM4 - Hastings Green	
	

VM5 – Taylors Hill



VM6 – Taylor Hill Boulevard



VM7- Clonard Road, Clogheder





Figure 21.0 Thumbnail of Viewpoints (included in appendix 15B)

Representative Viewpoint Location	Viewpoint Sensitivity	Predicted Change	Significance Summary
VM1: Flemington Park	Medium	Moderate	Moderate Neutral
VM2: R132 Road, Coney Hill	Medium	Slight	Minor Neutral
WM3: Balbriggan Harbour	Medium/High	Negligible	Negligible
VM4: Hastings Green	Medium	Moderate	Moderate Neutral
VM5: Taylors Hill	Medium	Moderate	Moderate Neutral
VM6: Taylors Hill Boulevard	Medium	Moderate	Moderate Neutral
VM7: Clonard Boulevard Road	Medium	Moderate	Moderate Neutral
VM8: Clonard Road, Clogheder	Medium	Moderate	Moderate Neutral
VM9: Clonard Road	Medium	Moderate	Moderate Neutral
VM10: Balbriggan WWS and Reservoir	Medium	Moderate	Moderate Neutral

Table 2: Summary of Predicted Visual Amenity Effects

Area	Sensitivity	Summary of Landscape Effects	Magnitude Significance Significant (Yes / No)		
Application Site	Medium	Loss of vegetation and change of baseline setting from predominantly open fields to townscape and associated open space.	Major	Slight Adverse	Major Significant
Flemington Lane	Medium	Changes to local sense of place with additional townscape	Slight / Moderate	Slight Adverse	Medium Not Significant
West Balbriggan	Medium	Changes to local sense of place but development mostly screened from these areas	Slight / Moderate	Slight Adverse	Medium Not Significant
Balbriggan	Medium / High	Change of peripheral town edge area to townscape	Neutral / Negligible	Neutral / Negligible	Low to Negligible Not Significant

LCA Coastal Character Type	Medium / High	Change of peripheral town edge area to townscape	Neutral / Negligible	Neutral / Negligible	Low to Negligible Not Significant
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Table 3: Summary of Predicted Landscape Effects

In terms of the potential impact of the proposed development on landscape and visual amenity There is likely to be **temporary Moderate Adverse** effects during the initial construction period with the new access and hedgerow removal to facilitate key access points from Flemington Lane and the adjacent residential areas initially being the most evident change in public perception terms. There would be an associated increase in traffic associated with construction and materials delivery off Flemington Lane, Hamlet Lane and Taylor Lane Boulevard comparative to the existing situation.

The nature of groundworks, construction activity, house building and associated infrastructure will mean that the Application Site will be subject to a **Major** alteration rated as **Significant** on account of re-grading and profiling works for a temporary period. While effects will be lessened due to distance, intervening vegetation, built form and topography across neighbouring housing estates, those areas and properties abutting the Application Site lands will experience **Slight to Moderate Adverse** effects during this temporary period.

Due to the short term nature of the construction period and limited visual envelope, the LVIA assesses that these impacts will be acceptable with mitigation measures set in place. This will include hoarding and fences will assist in limiting views from public amenity / open space areas while retained vegetation, peripheral built form and topography ensure any effects during this time to the broader Balbriggan area will not be of a significant nature.

During the operational phase, the landscape and visual effects deriving from this proposed development are deemed to be permanent changes (i.e. effects lasting over twenty five years and irreversible).

The proposed development is regarded as being permanent or long term in landscape and visual terms. The residual impacts are muted in terms of significance and magnitude on account of the site’s medium quality and condition rating and this equating to a general low sensitivity rating.

The most appreciable effects relate to the scale and nature of the proposed development which will result in houses and apartments occupying the majority of the site footprint although in excess of 10% is to be set out as public open space with further landscape or green areas being part of a wider landscape development. While substantial, the proposed development, associated parklands, open space and public realm landscapes will include positive and significant elements that will contribute to the amenity, character and broader environment of this part of Balbriggan.

The proposals include for planting over 800 standard trees and 994 linear metres of native hedgerows. In conjunction with the more general landscape works and planting, this will contribute to far more significant vegetation cover on this site than it has at present.

The low-lying topography and existing vegetation ensure the majority of areas within the Balbriggan area will experience no effects or negligible effects due to the proposal being visually obscured or not being a significant factor in any view or association with any visual amenity provision.

While recognising that there are localised significant landscape and visual impacts, the proposed development, while sizeable, can be accommodated and absorbed into this part of Balbriggan without causing significant detrimental or unacceptable landscape or visual effects.

Regular monitoring will be undertaken to determine success of landscape operations and ensure they are behaving in the manner anticipated at design stage. If required, elements of the design can be adapted to accommodate changes required by actual field experience.

16.0 INTERACTIONS BETWEEN ENVIRONMENTAL FACTORS

This section describes interactions between impacts on various environmental factors. A summary matrix showing interdependencies between these environmental factors is presented below for the proposed development.

Interactions	Chapter 4.0 Population and Health	Chapter 5.0 Biodiversity	Chapter 6.0 Land and Soils	Chapter 7.0 Water	Chapter 8.0 Noise & Vibration	Chapter 9.0 Air Quality	Chapter 10.0 Climate	Chapter 11.0 Wind and Microclimate	Chapter 12.0 Material Assets (Transport)	Chapter 13.0 Material Assets (Utilities)	Chapter 14.0 Archaeology, Architectural and Cultural Heritage	Chapter 15.0 Landscape and Visual Amenity
Chapter 4.0 Population and Health												
Chapter 5.0 Biodiversity												
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Chapter 13.0 Material Assets (Utilities)												
Chapter 14.0 Archaeology, Architectural and Cultural Heritage												
Chapter 15.0 Landscape and Visual Amenity												

Table 4.0 Summary matrix showing interdependencies between various environmental factors

All potential interactions have been addressed as required throughout the EIAR. During each stage of the assessment contributors have liaised with each other (where relevant) to ensure that all such potential interactions have been addressed. The various interactions between environmental topics considered within the EIAR are further discussed in Chapter 16.0 included in Volume 2 of the EIAR.

17.0 MITIGATION AND MONITORING MEASURES

A summary of mitigation and monitoring measures has been prepared, for ease of reference and clarity, and to facilitate enforcement of all environmental mitigation and monitoring measures specified within Chapters 4.0 to 12.0 of the EIAR. All mitigation and monitoring commitments detailed within the EIAR have been included in a separate compendium and are presented in Chapter 17.0 included in Volume II of the EIAR.

Further to those outlined in the EIAR, a Construction Management Plan (CMP) will be agreed with the Planning Authority, prior to the commencement of construction activities on the site, and will incorporate provision for the primary construction mitigation measures.