.

Coolagad, Greystones SHD
Environmental Impact Assessment Report

Volume I – Non Technical Summary

March 2022

Prepared on behalf of

Cairn Homes Properties Ltd.

MacCabe Durney Barnes
Planning Environment Economics

www.mdb.ie

Document Control Sheet

Prepared by: RML	Checked by: RH	
Project Title: Coolagad Strategic Housing Development		
Project No:		
Rev No.	Comments	Date
0	Draft	23/02/2022
1	Draft 2	21/03/22
2	Final	31/02/22

MacCabe Durney Barnes
20 Fitzwilliam Place, Dublin 2
T:+353 1 6762594 F +353 1 6762310

W: www.mdb.ie

TABLE OF CONTENTS

1 INTRODUCTION 4

1.1 Introduction 4
1.2 Strategic housing application process and role of EIA 4
1.3 Format of EIAR 4
1.4 Format of non-technical summary report 5
1.5 Description of proposed development 5
1.6 Site Location, description and surrounding area 8
1.7 Wicklow County Development Plan 2016-2021 and Greystones Delgany and Kilcoole Local Area Plan 2013-2019 9

2 ALTERNATIVES CONSIDERED AND COMPARISON OF ENVIRONMENTAL EFFECTS 10

2.1 Introduction 10
2.2 Alternatives considered 10
2.3 Reasons for chosen option and comparison of environmental effects 14

3 POPULATION AND HUMAN HEALTH 15

3.1 Introduction 15
3.2 Methodology and receiving environment 15
3.3 Impact assessment and mitigation measures 15

4 BIODIVERSITY 16

4.1 Introduction 16
4.2 Methodology and receiving environment 16
4.3 Impact assessment and mitigation 17

5 LAND, SOIL AND GEOLOGY 19

5.1 Introduction 19
5.2 Methodology assessment and receiving environment 19
5.3 Impact assessment and mitigation 19

6 WATER 21

6.1 Introduction 21
6.2 Methodology and receiving environment 21
6.3 Impact assessment and mitigation 22

7 AIR AND CLIMATE 23

7.1 Introduction 23
7.2 Methodology and receiving environment 23
7.3 Impact assessment and mitigation 23

8 NOISE AND VIBRATION 25
8.1 Introduction 25
8.2 Methodology and receiving environment 25
8.3 Impact assessment and mitigation 25
9 LANDSCAPE AND VISUAL IMPACT 27
9.1 Introduction 27
9.2 Methodology and receiving environment 27
9.3 Impact assessment and mitigation 28
10 CULTURAL HERITAGE INCLUDING ARCHAEOLOGY 29
10.1 Introduction 29
10.2 Methodology and receiving environment 29
10.3 Impact assessment and mitigation 29
11 MATERIAL ASSETS – TRANSPORTATION AND TRAFFIC 30
11.1 Introduction 30
11.2 Methodology and receiving environment 31
11.3 Impact assessment and mitigation 32
12 MATERIAL ASSETS – WASTE 32
12.1 Introduction 32
12.2 Methodology and receiving environment 33
12.3 Impact assessment and mitigation 33
13 MATERIAL ASSETS –UTILITIES 34
13.1 Introduction 34
13.2 Methodology and receiving environment 34
13.3 Impact assessment and mitigation 35
14 MAJOR ACCIDENTS AND DISASTERS 36
14.1 Introduction 36
14.2 Methodology and receiving environment 36
14.3 Impact assessment and mitigation 37
15 SUMMARY OF INTERACTIONS AND CUMULATIVE EFFECTS 37
15.1 Introduction 37
15.2 Methodology and receiving environment 37
15.3 Impact assessment and mitigation 38
15.4 Cumulative Effects 38
16 SUMMARY OF MITIGATION MEASURES 39
16.1 Introduction 39

1 Introduction

1.1 Introduction

This document provides a non-technical summary (NTS) of the Environmental Impact Assessment Report (EIAR) submitted with an application for a seven-year permission for a Strategic Housing Development at a site of 26.03 ha in Coolagad, Greystones Co.Wicklow.

The proposed development in summary consists of 586 residential units in a mixture of houses and apartments, a community centre, a creche, a new road, open space and site infrastructure.

This NTS reflects the findings of the main chapters in the EIAR document that accompanies the planning application submitted to An Bord Pleanála. Environmental specialist consultants were responsible for the preparation of individual chapters of the EIAR. Each EIAR chapter outlines the receiving environment; the potential impacts of the proposed development; the mitigation measures deemed necessary; and the predicted impacts once the mitigation measures are implemented. The purpose of the NTS is to summarise in non-technical language, in so far as possible, the likely and significant effects to the environments arising from this project.

1.2 Strategic housing application process and role of EIA

An application is being made to An Bord Pleanála for a Strategic Housing Development (SHD). Environmental Impact Assessment (EIA) requirements originate from European legislation which has been transposed into Irish legislation. Certain applications for development (projects) require a mandatory EIAR to be carried out as the development meets or exceeds a stated threshold in Part 1 and Part 2 of Schedule 5 of the Planning and Development Regulations 2001, as amended. As the proposed development is for 586 no. residential units and on a site that is greater than 10 ha, this exceeds a threshold set out in Part 2 of Schedule 5 of the Regulations and an EIAR is mandatory.

1.3 Format of EIAR

The format of this report follows the broad structure of the EIAR Volume I and addresses the topics in the following order.

CHAPTER 1	INTRODUCTION
CHAPTER 2	DESCRIPTION OF PROPOSED DEVELOPMENT
CHAPTER 3	ALTERNATIVES CONSIDERED & COMPARISON OF ENVIRONMENTAL EFFECTS
CHAPTER 4	POPULATION AND HUMAN HEALTH
CHAPTER 5	BIODIVERSITY
CHAPTER 6	LAND, SOIL AND GEOLOGY
CHAPTER 7	WATER
CHAPTER 8	AIR AND CLIMATE
CHAPTER 9	NOISE AND VIBRATION
CHAPTER 10	LANDSCAPE AND VISUAL IMPACT
CHAPTER 11	CULTURAL HERITAGE INCLUDING ARCHAEOLOGY
CHAPTER 12	MATERIAL ASSETS – TRANSPORTATION AND TRAFFIC
CHAPTER 13	MATERIAL ASSETS – WASTE
CHAPTER 14	MATERIAL ASSETS – UTLITIES
CHAPTER 15	MAJOR ACCIDENTS AND DISASTERS
CHAPTER 16	SUMMARY OF CUMULATIVE IMPACTS

CHAPTER 17 SUMMARY OF MITIGATION MEASURES

A systematic structure is used for the main body of the report and the chapters are generally structured under the following headings.

- Introduction
- Assessment Methodology
- Characteristics of the Proposed Development
- Baseline Description
- Impact Assessment
- Cumulative Impacts
- Ameliorative, Remedial or Reductive Measures
- Residual Impacts (including worst case scenario)
- Do Nothing Scenario
- Monitoring
- Difficulties Encountered
- Bibliography

1.4 Format of non-technical summary report

In this non-technical summary (NTS) report, the aim is to provide a concise and comprehensive summary, easily understood by a lay member of the public not having a background in environmental matters or an in-depth knowledge of the proposed project.

The information is summarised under the following broad headings for chapters 4-16.

- Introduction
- Methodology and receiving environment
- Impact assessment and mitigation

1.5 Description of proposed development

The applicants, Cairn Homes Properties Ltd., are proposing an application for a seven-year permission for a development consisting of 586 residential units in a mixture of houses and apartments, a community centre, a creche, a new road, open space and site infrastructure.

The 586 residential units are broken down into the following types of accommodation.

- 351 two storey houses (207 no. 3 bed, 140 no. 4 bed, 4 no. 5 bed) comprising detached, semi-detached and terraced units
- 203 no. apartments (65 no. 1 bed, 123 no. 2 bed, 15 no. 3 bed) provided within 6 no. blocks ranging from three to four-storey (over basement) with residential amenity facilities .
- 32 no. duplex units within 2 no. three-storey blocks (16 no. 2 bed and 16 no. 3 bed units)
    - c. 5,192 sqm of communal open space is provided to serve the proposed apartment/duplex units;
    - Community building (single storey) of 392 sq.m. with 29 car parking spaces, including changing rooms and a multipurpose room.
    - Creche building of 734 sq.m. with 21 car parking spaces
    - A new vehicular entrance, with signalised junction and pedestrian crossings, will be provided off the R761 (Rathdown Road). The new junction will be linked to the existing signalised junction at Blacklion Manor Road / Redford Park which has a planned upgrade

by Wicklow County Council. Cycle lanes will be provided along this section of the R761 on both sides. A footpath will also be provided on its western side. Car parking will be provided to the east of the R761, in the front of Redford Cemetery.

- The new access will provide a distributor road as part of the long-term objective to provide a northern access route from Greystones to the N11.
- Car and bicycle parking spaces are provided as follows:
    - 702 on curtilage car parking spaces for the houses; 206 car parking spaces at basement level and 5 at surface level for the apartments; and 32 spaces for the duplex units and 10 visitor spaces at surface level;
    - 22 motorbike parking spaces;
    - 436 resident and 118 visitor bicycle parking spaces are proposed in a mix of basement and surface levels for the apartment blocks and duplex units; 12 bicycle spaces are proposed for the creche, 12 for the community centre and 10 at the sport field.
- The development also includes site development infrastructure, a hierarchy of internal streets including bridges, cycle paths & footpaths; new watermain connection and foul and surface water drainage; the development also provides for the construction of a new public foul sewer along the R761/R762 from the site entrance as far as the R762 in front of St. Kevin's National School, Rathdown Road, Greystones.
- c.10.43ha open space to include a sport field, a MUGA, private, communal and public open spaces incorporating an existing stream, formal and informal play areas, and new boundary treatments.
- ESB substations/switchrooms, lighting, site drainage works and all ancillary site development works above and below ground.

The following elements are also proposed.

The proposed landscape plan for the site is one of parkland, native woodlands, native hedgerows, large trees, copses of native trees, wetlands, formal clipped hedges, and meadow areas. The protection and enhancement of existing landscape features, notably large trees, the stream, wetland marsh and native hedgerows is integral to the overall strategy. The landscape is divided into several open space and transitional areas, each with a different character and range of uses. The Active Open Space which measures 3.05 hectares is designed as a public park. Linear parkland is to be provided on most perimeters of the site. Five landscape typologies are proposed for the site, with various functions and characteristics.

The lands zoned active open space are proposed to accommodate a range of activities to include;

- 6,800 sqm playing field
- 715 sqm Multi Use Games Area (MUGA)
- 1000 sqm kickabout area
- 1,375 sqm of mix natural and equipped play; and
- 888 sqm equipped playground.

Bulk excavation will be required for the construction of the basement beneath the apartment block in the northwest and to achieve the proposed Site levels. Excavations will also be required for foundations for buildings, roads and paths, infrastructure, ESB substation and drainage. Cut of up to 8-9m will be required in the western portions of the Site and of 4-5m of fill will be required

in the southeast and north. Cut of up to 8-9m will be required and a net surplus of 101,904 cu.m of soil arising from groundworks will require offsite removal for reuse or recovery.

Site won material arising from the bulk excavation will be used where suitable for fill material. Surplus soil will require offsite removal for reuse or recovery in accordance with appropriate statutory consents and approvals. Foundation solutions will be designed to suit the ground conditions and will include raft foundations, pad or strip foundation and piled foundations.

Ground improvement measures together with appropriate foundation solutions will also be considered to facilitate the retention of excavated soil for reuse on Site. Aggregates and other construction materials will be imported for use during the Construction Phase of the Proposed Development

It is proposed to supply the development via a new watermain network that connects to the existing network along the R761. The proposed foul sewers will fall by gravity into the existing 375mm combined sewer via a new 300mm pipe to be laid along the R761 and Victoria Road roadways. Existing ESB infrastructure will be undergrounded.

The proposed development construction is for a period off three years and the development will be developed in phases. The proposed net density is c.35.88 units per hectare.

Figure 1: Proposed development (source:MCORM Fig. 9 Design Statement)

Fig 2. Image of proposed dwellings facing amenity open space

The Design Statement that accompanies the planning application sets out a number of urban design principles. An interconnected network of landscaped open spaces is integrated within an overall proposed public realm. A proposed hierarchical street network layout is provided. An accessible and active public realm is designed as an integrated soft (parkland and greenways) and hard (streets) landscaped spaces. Four character areas are proposed to create distinctive environments, each focused on a cluster of streets and integrated into the landscape plan. The proposed phasing of the development is as follows.

- Phase 1A – 106 Houses and completion of Distributor Road and Access Road and Foul and Water Works - October 2022- November 2023
- Phase 1B - 88 Houses -August 2023 - November 2024
- Phase 2 40 Houses and 32 Duplex with zoned open space and zoned active open space - November 2023 to November 2024
- Phase 3 91 Houses with creche and community buildings - August 2024 to November 2025
- Phase 4 203 Apartments and 26 Houses January 2024 to November 2025

The expected construction staging provides for 5 phases over approximately 3 years, and potentially extending to 7 years. While the pace and timing of this phasing is highly dependent on unpredictable market conditions, the overall site design and phasing strategy takes account of the infrastructure and open space provisions associated with each phase, together with the proportional provision of Part V dwellings, creche and community facility. However, it is feasible that market conditions (and international socio, economic and political events) would require alterations to any programme which is specified at this time and it is likely that it will be reviewed in the course of construction, if required.

1.6 Site Location, description and surrounding area

The application site consists of a site c. 26.03 ha in Coolagad located on the northern side of Greystones and east of the Kindlestown Hill (c. 210m summit) and woodlands. The application is irregular in shape and consists of sloping gradients ranging from the 93.5m contour at the north west to the 40m contour at the regional road (east). The site also slopes down from north to south in the centre of the site and then the site rises gradually to the southern boundary. The site consists of a number of agricultural fields mainly bordered by hedges and trees with the exception of the north west boundary of the site.

A stream flows in an east-west direction centrally on the site along the northern boundary of the largest field discharging into the sea at Greystones. Several springs are located within the subject site.

Opposite the existing entrance on the R761 is Redford Cemetery to the east. The application lands wrap around new schools (Temple Carrig School, Gaelscoil na gCloch Liath and Greystones Educate Together National School), two detached properties, farm buildings and new residential estates to the southeast known as Waverly and Sea Green. To the south-east is the built-up area of Blacklion which has a number of shops including Lidl.

The red line of the application site extends into Greystones to allow for connection to the public sewer pipe under the R761 Rathdown Road. The red line also includes lands within the control of Wicklow Co.Council in the vicinity of the proposed site entrance.

Figure 2: Site location shaded and surrounding area context (Source: MCORM Architects)

1.7 Wicklow County Development Plan 2016-2021 and Greystones Delgany and Kilcoole Local Area Plan 2013-2019

The Wicklow County Development Plan 2016-2021 applies. The Greystones Delgany and Kilcoole Local Area Plan 2013-2019 provides that the site is zoned for residential use, open space and community use. A density of 22 units per ha in part and 17 units per ha in part is provided for in the Local Area Plan.

2 Alternatives Considered and Comparison of Environmental Effects

2.1 Introduction

An EIAR requires information to be provided of a "a description of the reasonable alternatives" for example in terms of project design, technology, location, size and scale, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects. This chapter presents the main reasons for selecting the chosen alternative.

2.2 Alternatives considered

A number of reasonable alternative layouts were assessed for the residential zoned lands on the site. Each alternative was assessed and compared by the EIAR consultants. The proposed final chosen layout and detailed design have been directly informed by feasibility and environmental considerations, consultations with Wicklow County Council, the Opinion of An Bord Pleanála and the feedback of the EIAR team.

2.2.1 Alternative locations

The site is zoned for development. It is therefore considered that the consideration of alternative sites was not required as the uses proposed are aligned with those zoned by the Local Area Plan and County Plan which have been the subject of strategic environmental assessment (higher level early environmental assessment) by the local authority.

A comprehensive Strategic Environmental Assessment (SEA) was undertaken in preparation of the Greystones – Delgany and Kilcoole Local Area Plan 2013-2019. The location of development proposed is predicated on strategic plan preparation and environmental analysis of appropriate locations for development. This is also the case with land 'uses'; the plan preparation process deemed the subject lands at Coolagad as appropriate for residential, amenity open space /recreation, childcare and community uses. Uses and location are not considered as standalone alternatives as this has been considered and assessed at a strategic level.

2.2.2 Alternative Processes

Given the zoning objectives for the site, the rationale for the project and the nature of the proposed development including residential, active open space and open space, no reasonable alternative processes were considered appropriate.

2.2.3 Alternative Mitigation Measures

Measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment are described in the EIAR Report. These measures are commonly referred to as 'Mitigation Measures', with the exception of the last action, offsetting, which can be considered to be a Compensation Measure.

The EIAR outlines mitigation measures under the topics assessed. These are considered to be appropriate to the location, nature and extent of the proposed development and to its potential impacts. Therefore, no alternative mitigation measures have been considered.

2.2.4 *Do nothing approach*

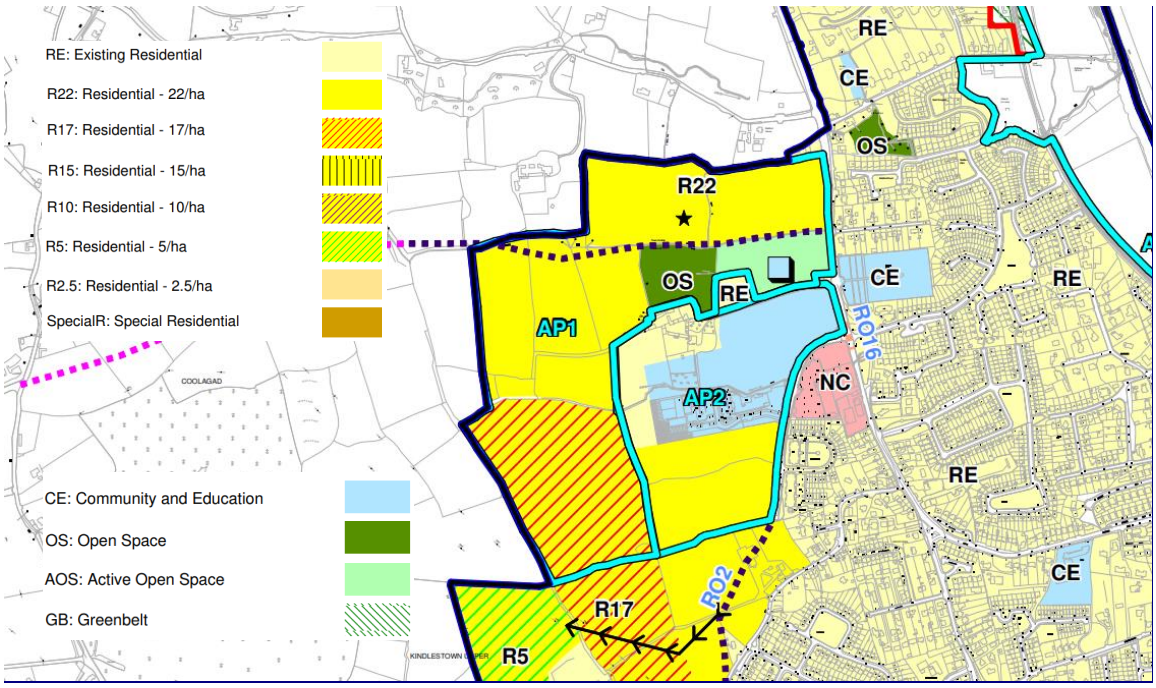
A 'do-nothing' scenario where the site remains undeveloped was considered as **Alternative 1**. It would have a neutral impact on receiving environment with the maintenance of pasture fields and hedgerows in their current condition. In terms of air, climate, water the potential impact is therefore likely to be neutral. However, is considered an inappropriate and unsustainable approach that would result in the inefficient use of a strategically located and serviced landbank of zoned residential lands beside a school and neighbourhood area. A 'do nothing' scenario would frustrate the delivery of the residential, community and open space planning objectives for the area.

2.2.5 *Alternative layouts considered and iteration of design*

Alternative 2: Indicative uses location within the AAP 1 – Coolagad

This alternative presents the indicative location of zoning objectives as set out in the AAP 1 Coolagad under the Local Area Plan (LAP). The densities considered under AAP 1 Coolagad are relatively low and do not put forward the best use of land, a finite resource. The site is located close to an established neighbourhood centre with a number of key community facilities located within close proximity. The densities considered under the AAP 1, namely 22 units per hectare under R22 and 17 units per hectare under R17 do not constitute the best use of lands and resources. This relatively low density framework would be contrary to minimum densities set out under Ministerial Guidelines.

Figure 3: AP1 Lands - Map A (Source:Greystones Delgany and Kilcoole Local Area Plan 2013-2019)



The LAP/Action Plan does not support an ecological corridor around the Greystones Stream or recognise it as an important natural amenity. The AAP also does not provide for any setback from the existing residential area of Waverly along the eastern boundary. Overall, this is considered this alternative is slightly positive in the longterm, in that while it does support population growth and community facilities, it does not provide for a sustainable level of density in the long term.

Alternative 3: Layout submitted as part of the pre-application process to Wicklow Co. Co. and An Bord Pleanála

Preliminary design layouts for proposed development at the site of 576 units and 607 units were submitted to Wicklow Co. Co. in August 2020 and to An Bord Pleanála in December 2020 as part of the pre-application consultation process.

Figure 4: Layout 2 pre- application consultation to planning authority, August 2020 (source: MCORM Architects)

Figure 5: Layout 3 pre- application consultation to An Bord Pleanála, December 2020 (source: MCORM Architects)

As evidenced from the evolution of the designs from August 2020 to December 2020 (Figures 4 and 5), the scheme underwent considerable evolution in response to WCC's feedback. While the initial proposal had design merits in presenting an medium-density scheme based around an attractive street layout, it is clear the proposal evolved to present a more nuanced response to the environmental characteristics of the site (topography, hedgerows, tree stands and water courses), with distinctive residential 'cells' and a more integrated landscape design.

Alternative 4: Proposed Scheme

This alternative is in effect the development proposal as described in Chapter 2 of the EIAR. The evolution of the preferred alternative was informed by consultations with the Board and WCC, ABP, further detailed analysis of the characteristics of subject site by the EIAR team and interaction with the design team having regard to the potential environmental impacts of the project. In summary, the scheme consists of 586 residential units (351 houses; 203 apartments and 32 duplex units) at a site c. 26.03 ha. The development will also include the provision of a community building , a creche, a sport field and a MUGA. A proposed new vehicular entrance with signalised junction from the R761 Rathdown Road.

Figure 6 illustrates the layout design response prepared by the design team led by MCRORM Architects from August 2021. It displays notable changes from the final scheme illustrated in Figure 5 which illustrates the overall site plan of the Alternative layout as proposed. Most notable in the final scheme is the introduction of a linear park adjoining the eastern boundary with the Waverly residential neighbourhood. In response to environmental baseline analysis of the evolving design, it was found the significant rise in levels along this boundary led to unacceptable impacts on residential amenity of the existing residential area.

Figure 6: Proposed layout (source: MCORM)

2.3 Reasons for chosen option and comparison of environmental effects

The site presents a number of challenges. It is located on a hill and therefore cut and fill is required to accommodate development. The site is visually prominent. The site higher than the Waverly estate and therefore needs to avoid environmental impacts or impacts on residential amenities. Geophysical and test trenching surveys identified a number of archaeological features on site. Road gradients have to work with a challenging topography. ABP noted in their opinion that the layout was too linear and this had to be factored into the road design. A stream crossing had to be provided and biodiversity (streams, tree groups, ecological corridors) had to be maintained and enhanced as far as practical.

Accordingly, the reasons for the chosen layout are as follows:

- Site Layout 1 which represents a density of 22 units per ha and 17 units per ha was agreed in 2016 in accordance with the Local Area Plan action plan for Coolagad. Since that action plan was agreed, a higher-level government policy in the form of the National Planning Framework 2040 (2018) which seeks compact growth and appropriate densities on serviced land applied. Other government guidelines also issued since the adoption of the Local Area Plan and County Plan encourage higher densities on serviced lands. An Bord Pleanála in the SHD process on other applications encourages appropriate densities to be applied on serviced land. Furthermore, the persons who agreed the 2016 action plan subsequently sold the lands and the applicant has control over the majority but not all of the action plan areas. The agreed Action Plan does not support an ecological corridor around the Greystones Stream, provide for any setback from Waverly along the eastern boundary or have regard to the topography of the southern portion of the lands

- Site Layouts 2 and 3 were amended so that no housing would back onto the Waverly estate reducing the cut and fill required, the creation of retaining structure and protecting the residential amenity of that estate.

- Site layouts 2 and 3 had a dominant road network. Site layout 3 significantly alters the road layout removing the linear nature highlighted in consultation with ABP.

- The location of the creche and community facility were altered after the pre application consultation with the planning authority who did not want development on each side of the access road as layout 1. The creche and community building were proposed as one building structure at the pre application with ABP in layout 3. The planning authority wished for a separate community building and the layout was amended as per layout 3 after ongoing discussions with the community section of the Council.

- An archaeological feature centrally within the site was identified in the archaeological assessment . The location is also proximate to an existing laneway, tree groupings and the stream and is also therefore ecologically sensitive. Consultations were held with the National Monument Service and 60% of the feature is now proposed for preservation in situ as part of open space no.1. of the feature in Archaeological Area 1. The open space was increased in this are in Layout 3.

3 Population and Human Health

3.1 Introduction

The purpose of this chapter is to identify and assess the potential health and wellbeing effects of the proposed development on the surrounding population, and to deliver evidence-based recommendations.

3.2 Methodology and receiving environment

A desktop study was carried out of base line population and other data, including national, regional and local planning policy, school and creche enrolment figures. A social infrastructure audit and report was carried out which accompanies the planning application. A local catchment area was established for analysing population data, creche demand and capacity, and school demand and capacity. A general local catchment area of 2km from the subject site forms the basis of most areas of analysis.

The receiving environment is described in the previous section.

3.3 Impact assessment and mitigation measures

This section in the EIAR chapter provides assessment of all the potential and predicted impacts of the Proposed Project on population and human health.

Generally, the potential impacts arising during the construction phase relate to quality of life including visual impact / amenity, noise, air quality and transport. Where relevant, these impacts have been considered in the relevant chapters of the EIAR and will be minimised or mitigated where appropriate. The construction phase will generate increased employment and capital spend on materials and services, which will benefit the local economy. It is estimated that the number of workers employed during the construction phase will average between 190 and 200 people, up to a maximum of 250.

The operational phase is considered to have likely significant positive long-term impacts in relation to the provision of additional residential units, open space, community facilities, active open space (sports field) childcare provision, to cater for the demands of a growing population in accordance with the residential zoning objectives pertaining to the site.

The proposed development will introduce a new residential population on a greenfield site and based on the average household size for Greystones of 2.89, the development would create a new population of the order of 1,694 persons. The proposed layout provides for linkages to designated zoned residential lands north of the distributor link road as well as lands to south facilitating future development. The provision of social infrastructure is integral to the scheme with the provision of amenities, childcare, community and sports facilities.

Potential impacts on population and human health also include inadequate water and wastewater infrastructure, contamination of soils, excessive noise, flooding due to non-control of surface water, poor air quality in areas where there are large volumes of traffic and the health impacts associated with the storage of hazardous materials during the construction stage. These issues are addressed within the relevant discipline of the EIAR. It is considered that the greatest health and safety risks will be posed during the construction phase of the proposed development.

Overall, the development supports the sustainable long-term development of Greystones in accordance with strategic plans for the area. The cumulative impact is considered to be moderate, long-term and positive.

Mitigation measures relating to those factors under which human health effects might occur are addressed elsewhere in the EIAR, under the environmental factors of traffic and transportation, air quality and climate, noise and vibration, townscape and visual and utilities.

The following reports are included with the SHD application material.

- Construction and Environmental Management Plan (CEMP) (outline}
- Construction Waste Management Plan (CWMP)
- Construction Demolition and Waste Management Plan (CDWMP) (outline)

The proposed mitigation measures will avoid, prevent, or reduce impacts on the human environment during the construction and operational phases of the proposed development. Following implementation of the detailed mitigation measures outlined in relevant sections of the EIAR, the residual impact on population and human health is considered to be positive, moderate, and long term in delivering the residential population for Greystones and consistent to the Council's development objectives.

4 Biodiversity

4.1 Introduction

This chapter of the EIAR assesses the biodiversity of the proposed project area and the potential impacts of the proposed project on the ecology of the surrounding area within the potential Zone of Influence (ZOI). This chapter also outlines, the potential impact of the proposed development (in the absence of mitigation), the standard construction, operational and monitoring measures that are proposed to minimise potential impacts and to improve the biodiversity potential of the site. The residual impacts (post mitigation) and cumulative impacts are also assessed.

The proposed development will involve the removal of terrestrial habitats on site, re-profiling the site, excavations, and the construction of roads, dwellings and associated services. The proposed development also proposes to cross the Greystones Stream and landscape the riparian corridor.

4.2 Methodology and receiving environment

A desktop study and field surveys were carried out. The assessment was carried out in accordance with the best practice methodology in accordance with a suite of relevant guidelines and guidance.

Two sections of stream and two ponds are present on the site. There are a number of sites located within a 15km radius of the site that are identified as Special Areas of Conservation (SAC), Special Protection Area (SPA) and proposed Natural Heritage Areas (pNHA). The site of the proposed project is not wholly or partly within a designated conservation site. The closest European site is Bray Head SAC, which is 667 m from the proposed development. The nearest SPA is the Murrough SPA, which is located 5.3 km from the site.

There is potential for a direct hydrological pathway from the proposed development to the Bray Head SAC via the watercourses proximate to the proposed development. Both the Greystones

Stream that flows directly through the site and the Kilruddery/Deerpark Stream (offsite) are susceptible to potential impact. Both streams ultimately outfall to the marine environment approximately 452 m and 188 m, from the Bray Head SAC. Surface water along the R762 and R762 also ultimately discharges to the marine environment,

Biodiversity records were consulted in order to determine the extent of biodiversity and species of interest in the area. An assessment of the Site-specific area was carried out and it recorded no species of interest. Records of rare and protected species and grid references for sightings of these species, was carried out. Sika Deer was recorded proximate to the site boundary in 2004. Outside the site boundary, Common Frog and Viviparous Lizard (Lacerta vivipara) were recorded outside of the site. No other species of conservation importance were noted within 1 sqm based.

The vast majority of the proposed development site consists of agricultural grassland which forms part of an active farm.

4.3 Impact assessment and mitigation

Various Flora species are recorded. A series of native hedgerows are located within and around the boundary of the site. These appeared to have been unmanaged for several years and has a bramble scrub at their base. Various hedgerow species are recorded. The north eastern boundary of the site consists of a tall treeline. Tree species in this area are recorded. In the central portion of the western boundary of site a small area contained scrub. Areas of the site had begun to recolonise following site works in the past.

The Greystones Stream travels through the site and spring is noted further uphill

The stream passing through the site is small, fast flowing and is heavily tunnelled. The bed of the stream consists of gravel and rocks. No instream biodiversity was noted. This section of the EIAR notes however, that this stream is of little fisheries value, as it is heavily tunnelled, culverted downstream (under the Lidl shopping centre, sections of Redford Park and proximate roads), and descends a very steep gradient into the marine environment Notwithstanding this, the watercourse provides an important biodiversity corridor through the site.

On the south eastern corner of the site is a small pond area in what appears to be a small disused quarry.

Located in the centre of the site is a small area of the habitat of wet woodland, fed by a spring. This area would be considered to be a locally important wetland area due the potential for the habitat to support frogs and a nesting habitat for breeding birds. No invasive plant or animal were noted on site.

Mammal assessments, bat surveys and wintering bird assessments were carried out. No mammal species of conservation importance or amphibians or reptiles have been noted on site. It is highly likely that frogs are present on site. A number of bird species were recorded on site and the qualifying interests of designated sited were not noted on site. No evidence of definitive bat roosts were found in any of the onsite trees. However, several trees of bat roosting potential were noted.

Prior to the design of the proposed project, discussions took place between the applicant and the Ecologist to retain the hedgerow and sensitive habitat integrity and biodiversity corridors/features on site. This included the retention of the existing hedgerows proximate to the watercourse, perimeter hedgerows and two of the three north south hedgerows on the site, in addition to all springs, the willow woodland area and the pond on site. The layout of the

proposed project was designed around the retention of the majority of hedgerows and habitats of importance to local biodiversity on site.

The construction of the proposed development, would potentially impact on the existing ecology of the site and the surrounding area. In the absence of mitigation, runoff during site clearance, re-profiling, could impact on the Greystones Stream, Killruddery/Deerpark stream and surface water network, with water quality or downstream impacts on the marine environment. Impacts on these indirect pathways would be seen as the primary vector for impacts on conservation sites.

No mammals of conservation importance would be impacted by the proposed development. There is potential for the works to impact on the habitats on site that could potentially support frogs. No significant negative impacts on bats are expected to result from the proposed development. Removal of the mature trees and hedgerows would result in a nesting and foraging resource loss for the bird species. In the absence of mitigation, the construction and operation of project elements could impact on the Greystones Stream, Killruddery/Deerpark stream and surface water network, with water quality within these watercourses with potential downstream impacts on the marine environment. Mitigation measures will be incorporated as are outlined of within the EIAR and specific mitigation in relation to biodiversity will be implemented.

Once constructed, the biodiversity value of the site would be expected to improve as the landscaping matures. It would be expected that the ecological impacts in the long term would be neutral, once landscaping has established due to the implementation of a reduction in tunnelling which would encourage instream biodiversity. In the absence of standard operational mitigation, there is potential silt and petrochemicals to enter the onsite watercourse or surface water networks that lead to the marine environment and potentially the Bray Head SAC. Landscaping on site will improve the biodiversity value of the site. There is potential for bat foraging and birds to be impacted by the artificial lighting on site. The proposed lighting strategy has been discussed and modified to reduce the potential impact. In the absence of standard operational mitigation, there is potential silt and petrochemicals to enter the onsite watercourse or surface water networks.

No projects are proposed or currently under construction that could potentially cause significant cumulative effects on biodiversity. During construction an Ecologist will monitor the site from pre-construction surveys, during Construction Phases and Post Construction.

Mitigation measures will be incorporated into the proposed development and as are outlined within the Land Soil and Geology (Chapter 6), Water (Chapter 7), and the Air and Climate (Chapter 8) of the EIAR. In addition to these mitigation measures mentioned, specific mitigation in relation to biodiversity will be implemented including that a project ecologist will be appointed prior to works or site clearance commencing on site. A project ecologist will oversee the project from prior to the commencement to the completion of the project including all landscaping, construction and drainage connections. Based on the implementation of the mitigation measures, there will be no significant impact on biodiversity as a result of the proposed development.

In summary, the proposed development has satisfactorily addressed the potential impacts on biodiversity on site and within the potential zone of influence. It is considered that the retention of key habitats on site and the robust mitigation and enhancement measures proposed significantly reduces the possible impact of the proposed development on biodiversity. The overall impact on the biodiversity of the proposed development is a ‘long term’, ‘neutral’, residual impact on the existing biodiversity. However, the implementation of the proposed landscaping would provide significant on-site biodiversity enhancement features and provide long term positive benefits to the biodiversity on site.

5 Land, Soil and Geology

5.1 Introduction

This chapter details the results of an assessment of the potential impacts of the proposed development on land, soils and geology and sets out any required mitigation measures where appropriate.

The proposed development as Section 2.1 above indicates, includes bulk excavation and cut of up to 8-9m. A surplus of 101,904 cu.m of soil will arise. Foundation solutions will be designed to suit the ground conditions and will include raft foundations, pad or strip foundation and piled foundations. Aggregates and other construction materials will be imported for use during the Construction Phase.

5.2 Methodology assessment and receiving environment

The methodology adopted is in accordance with the relevant guidelines as listed in the EIAR chapter.

The study area, for the purposes of assessing the baseline conditions extends beyond the site boundaries and includes potential receptors within a 2.0km radius of the site. After an initial assessment and impact determination, direct and indirect site investigation and studies were carried out including borehole drilling and trial pit excavations.

The highest elevation at the Site is 93.5m OD in the south-western area the lowest is 39.5m OD along the eastern Site boundary. Details of the soil, subsoil (Quaternary Deposits), bedrock, groundwater and ground conditions are provided in this chapter.

The soils and geology underlying the site would be rated as an attribute of 'medium' importance.

5.3 Impact assessment and mitigation

Mitigation measures, residual impacts and final impact assessment were based on the outcome of the information gathered in the assessment. Mitigation measures will be adopted as part of the construction works and will address the main activities of potential impact which include:

- Groundworks including excavation and management and control of soil during bulk excavation and export from the Proposed Development;
- Management and control of imported soil and aggregates from off-site sources;
- Fuel and Chemical handling, transport and storage; and
- Accidental release of contaminants

A change of land use from agricultural lands to residential and amenity land uses that will result in a negative, significant, permanent impact due to the loss of agricultural lands and removal of soil. The proposed development will result in an unavoidable direct, negative, moderate to significant, long-term loss of soil and subsoil from the Site.

There is a potential risk for instability and during excavations (temporary supports in the ground would also be required). There is a high risk of instability during excavations and other groundworks with a potential for a negative, significant, long-term impact occurring during construction work.

Detailed design will be specified to ensure that ground stability is engineered and controlled appropriately. Where appropriate, suitable batters or retained vertical walls will need to be

maintained on excavation faces to ensure stability and temporary slope protection measures. Piling may be required or other method of supports. During the operational phase, there is limited to no potential for any direct adverse impact taking account of the detailed design and therefore the potential impacts on land, soil and geology associated will be neutral, imperceptible and 'permanent'. No public health issues associated with the land, soil, geology conditions have been identified for the construction or operational phases.

Topsoil will be stockpiled in a controlled manner and retained for future re-use in landscaping with a potential for impact on soil structure described as direct', long-term, slight, negative impact on the natural strength of the subsoil.

It is anticipated that the importation of aggregates identified for use on-site will have an indirect, neutral, imperceptible and permanent impact on the source site taking account of the fact that the statutory consent process.

Segregation and storage of soils for re-use onsite or removal offsite and waste for disposal off site will be segregated and temporarily stored on-site in accordance with the CEMP (AECOM, 2022) and the CDWMP (Enviroguide Consulting, 2022). All surplus materials and any waste will be removed off-site in accordance with the aforementioned management plans. Fuel, oils and chemicals used during construction are classified as hazardous and will be managed in accordance with the details provided in the main EIAR chapter. Risk assessment for wet concreting shall be completed prior to works being carried out.

Excavated soils and other surplus materials could potentially be directed to authorised destination locations. All surplus materials will be managed in compliance with legislation and directed to facilities operated in compliance with the relevant statutory consents. Accordingly, it is considered that any cumulative impact on the land, soils and geology associated with the Proposed Development would be neutral, imperceptible and permanent.

There are no significant residual impacts on land, soils and geology anticipated.

6 Water

6.1 Introduction

This chapter details the results of an assessment of the potential impacts of the proposed development on hydrology and hydrogeology (water) and sets out any required mitigation measures where appropriate.

Due to capacity issues in the foul water network, the proposed development will avoid the existing 300mm foul water sewer located in the R761 and discharge to the Irish Water 375mm combined sewer at Victoria Road via a new 300mm sewer to be laid along the R761 and Victoria Road.

It is proposed to provide water supply via a new watermain network connecting to the existing 100mm watermain on the R761. As part of the proposal approximately 200m of the existing watermain section require upgrading up to 200mm watermain in line with the recommendations issued as part of the Irish Water Confirmation of Feasibility.

A new surface water drainage system will be constructed to collect runoff from all impermeable surfaces, together with any additional runoff from landscaped areas that do not percolate to ground and designed in accordance the Greater Dublin Strategic Drainage Strategy (GDSDS). An Infrastructure Report (AECOM, 2022b) accompanies the planning application. The sustainable drainage systems (SuDS) are proposed to minimise the impact of the runoff on water quality and quantity and maximise the amenity and biodiversity opportunities. Owing to the topography of the site, it is identified that an interceptor ditch will be required along the western boundary to intercept water flows from Kindlestown Hill.

6.2 Methodology and receiving environment

The methodology adopted for the assessment has regard to the relevant guidelines and legislation as detailed in the bibliography of the EIAR. The Greystones area is currently serviced by the Greystones Wastewater Treatment Plant (WWTP) at Woodlands, Greystones.

The receiving environment and characteristics of the proposed development are described above in section 6.2. Additionally, the groundwater body quality status for the Wicklow GWB has been classified by the EPA as 'good'. The WFD status of the Greystones Stream and Kilruddery_Deerpark Stream are classified as 'moderate' status. The coastal water body at the Irish Sea has a 'good' status.

The Greystones Stream flows across the central part of the site. It rises from a drainage ditch to the west, flows south, and then turns to the east and is then culverted in a 750mm diameter pipe and from there offsite. Groundwater flow across the Site is towards the east. Other watercourses, ponds and springs are described in detail in this chapter.

There are 6 No. sites located within a 15km radius of the site that are identified as Special Areas of Conservation (SAC), 3 No. Special Protection Area (SPA) and 14 No. sites that are identified as proposed Natural Heritage Areas (pNHA). There is a potential hydraulic connection as the Greystones Stream discharges at the coast 0.4km south of the Bray Head SAC and the Murrough SPA and Murrough Wetlands SAC are located approximately 5km southeast.

The site is not considered at risk of fluvial (river) flooding and the Infrastructure Report (AECOM 2022a) notes that Wicklow Co. Co. identified that surface runoff and spring discharges are conveyed to the culverts piped through Redford Park and Rathdown Park and that the culvert is at limited capacity and poor construction resulting in flooding at Redford Park.

6.3 Impact assessment and mitigation

The flood risk assessment concludes that the proposed surface water and SuDS strategy will mitigate flood potential. This includes proposed interception drainage will be required along the western boundary of the subject site to collect excess surface water and to intercept water from the Kindlestown Hill area and this will be discharged to the existing stream at controlled rates to avoid increased discharge rates that could cause flooding downstream.

The design for stream crossings (bridge) includes the use of pre-fabricated structures thereby reducing the risk of any direct impact to water quality in the streams. There is a potential risk to the receiving water quality associated with works near watercourses. A 10m buffer is to be retained on either side of any watercourses, with the exception of the localised points where works for the construction of crossings of watercourses is necessary. The proposed design for the construction of stream crossing does not require temporary diversions of water courses. There is the potential for some disturbance of the stream banks and increased suspended solids content of the water downstream of the works area. This may result in a 'negative', 'moderate', 'short to medium-term' impact on the receiving water environment.

There will be no direct discharge to groundwater during construction. Similarly, surface runoff will also be managed during construction and discharges to ground or to any water course during the Construction Phase of the Proposed Development will not be permitted.

There will be no risk to water quality including groundwater and surface water associated with the Operational Phase of the Proposed Development. It is considered that the design of the Proposed Development is in line with the objectives of the Water Framework Directive (2000/60/EC) to prevent or limit any potential impact on water quality.

As shallow groundwater beneath the site ultimately discharges as springs to local streams, it is considered there will be no net impact on the groundwater flow regime. Overall, it is considered that any impact on the groundwater flow regime is unavoidable however will be 'negative', 'slight to moderate', 'long-term' within a very localised zone of the aquifer and this will be managed through appropriate design.

Overall, the foul and surface water drainage incorporating the SuDS will result in an overall 'neutral', 'imperceptible' 'long-term' impact on receiving surface water quality and groundwater quality and associated receptors compared to the baseline conditions.

There will be no cumulative impacts on the receiving water environment associated with discharges and no potential other cumulative impacts associated with the proposed development. Ameliorative, Remedial or Reductive Measures, will ensure that there will be no significant impact on the receiving groundwater and surface water environment.

There will be no discharges to groundwater or surface water during the Construction Phase. Groundwater will be encountered during the construction works and robust dewatering methodologies will be developed as part of the detailed design minimise the potential impact on the local groundwater flow (e.g. springs, water courses and habitats). Any erosion control measures (i.e. silt-traps, silt-fencing and swales) will be regularly maintained during the Construction Phase. There will be no direct discharge of surface runoff or groundwater from the Proposed Development Site to surface water. Water from the works will be discharged into the public sewer in accordance with the necessary consent from Irish Water.

There are no significant residual impacts on water anticipated for the Proposed Development.

7 Air and Climate

7.1 Introduction

Chapter 8 in the EIAR describes and assesses the potential impacts on air quality and climate associated with the Proposed Development.

7.2 Methodology and receiving environment

Taking into account Ambient Air Quality Standards, the baseline air quality of the Site is examined using EPA monitoring data. Air quality impacts from the Proposed Development are then determined by a qualitative assessment of the nature and scale of dust generating activities associated with the construction phase of the project in accordance with relevant guidance. Construction and Operational Phase traffic impact assessment involves air dispersion modelling using the UK Design Manual for Roads and Bridges Screening Model.

A desktop study of national and international documents on climate change and analysis of synoptic meteorological data from the nearest Met Eireann station (Dublin Airport) was also carried out. Attention is focused on Ireland's obligations under the Kyoto Protocol (including the Doha Amendment) and the Paris Agreement in the context of the overall climatic impact.

The site falls into an air quality zone which is described by the EPA as 'Other cities and large towns' (Zone C). It is expected that existing ambient air quality in the vicinity of the site is characteristic of a suburban location with the primary source of air emissions such as particulate matter, Nitrogen Dioxide (NO_2), and hydrocarbons likely to be of traffic, combustion and agriculture, and domestic fuel burning. When assessing air quality, the EPA focuses on two main pollutants: particulate matter and nitrogen oxides. Bray monitoring station is in closest proximity to the Site (ca. 4km); monitoring is carried out at this station for concentrations of ozone (O_3) and particulate matter ($PM_{2.5}$). Though the Proposed Development is within 'Zone C', the Dun Laoghaire monitoring station is the closest station to the Site (ca. 14km) which continuously monitors for concentrations of nitrogen oxides (NO_2) and particulate matter (PM_{10}). Similar to Greystones, Dun Laoghaire is considered a suburban coastal town and air quality monitoring carried out at this location is likely to be broadly representative of conditions that may be experienced at the Site. Based on the data recorded at these stations, existing baseline air quality for the area in which the subject site is located (Zone C) may be characterised as being of good quality with no exceedances of the Air Quality Regulations limit values of specific pollutants.

7.3 Impact assessment and mitigation

The Construction Phase of the Proposed Development has the potential to generate short-term and temporary dust emissions during excavation, ground preparations, and construction. The greatest potential impact on air quality during this phase is from construction dust emissions and the potential for nuisance dust.

There are a number of high-sensitivity receptors such as residential dwellings and schools located within 100m of the site boundary. Therefore, in the absence of mitigation, it is considered that there is potential for dust impacts to occur at these locations. Appropriate mitigation measures have been recommended and will be implemented at the Site in order to minimise the risk of dust emissions arising during the Construction Phase. These mitigation measures have been outlined in the Construction Environmental Management Plan (CEMP) for the Site and will be adhered to for the entire duration of the Construction Phase; therefore, it is not considered that significant effects on air quality will occur.

Construction vehicles and machinery during this phase will temporarily and intermittently generate exhaust fumes and consequently traffic-related air emissions. According to relevant guidance, experience from the assessment of exhaust emissions from on-site machinery and Site traffic suggests that they are unlikely to cause a significant effect on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed. The assessment of traffic-related emissions during the Construction Phase has been carried out in-combination with the Operational Phase traffic emissions assessment. The assessment considers the overall impact of the Proposed Development is insignificant in terms of ambient air quality standards

Due to the size and duration of the Construction Phase, and the mitigation measures proposed, the effect on national greenhouse gas (GHG) emissions will be insignificant in terms of Ireland's obligations under the Kyoto Protocol and the Paris Agreement and therefore will have no considerable impact on climate. During the Operational Phase, increased traffic flow is likely to contribute to increases in GHG emissions such as carbon dioxide (CO_2) and Nitrous Oxide (N_2O), however, these contributions are likely to be marginal, and therefore unlikely to have an adverse effect on climate. Furthermore, it is widely anticipated that CO_2 emissions for passenger cars will reduce substantially in future years due to the increasing prevalence of electric or hybrid vehicles.

The Proposed Development during the Operational Phase is likely to result in a long-term increase in traffic on the roads surrounding the Proposed Development Site; however, air dispersion modelling has concluded that this increase in traffic will have an overall negligible impact in terms of local air quality. Furthermore, the increase in traffic has been determined as marginal with regard to climatic impacts. Therefore, no adverse residual impacts are anticipated from the proposed scheme in the context of air quality and climate.

All construction phase monitoring will be carried out in line with the Construction Environmental Management Plan (CEMP) for the Site. Due to the negligible impact on air quality and climate from the Operational Phase of the Proposed Development, no specific monitoring is recommended during this stage.

A Microclimate Report has been prepared by IES Consulting and is available in Appendix 8-1 of the EIAR. This assessment studies the impact of wind around the Proposed Development and has concluded that the site is still generally safe for pedestrians, and it meets the Lawsons's Walking criteria requirements. It generally meets requirements of Lawsons's Standing and Sitting criteria

in conjunction with each other; however, some residents will be expected to use their own discretion in judging the comfortable weather conditions on their respective balconies.

8 Noise and Vibration

8.1 Introduction

This chapter identifies and assesses the potential noise and vibration impacts and related potential effects arising from both the construction and long-term operational phases of the proposed Development.

8.2 Methodology and receiving environment

The subject site is located in an emerging suburban area to the northwest of the centre of Greystones. Currently, the site is mainly grassed and in partial use for agricultural purposes.

The receiving sound environment has been characterised by both field survey and desk-based study. Ambient sound monitoring was undertaken at the Noise Sensitive Receptors (NSRs) and also to evaluate typical existing transportation noise affecting the proposed Development Site for the purposes of determining the noise exposure risk of future residents.

The methodology adopted is in accordance with the relevant guidelines as listed in the EIAR chapter and in particular the guidance and standards in the setting of suitable noise and vibration criteria and assessment of impacts and effects on human beings.

The site is on the outskirts of Greystones in an emerging suburban area. It is generally quiet and semi-rural in nature. The nearest Noise Sensitive Receptors (NSR) are typically located in a similar sound environment with the exception of those located on or within close proximity to the R761.

Based on the monitoring undertaken, the site, in general, falls within the WHO Guidelines for road traffic noise with the marginal exception of some land very close to the eastern boundary with the R761. In terms of noise risk assessment, for future residents, the site is classified as of negligible risk across the majority of the landbank with the risk increasing to low approaching the R761 with a medium risk rating for the lands directly adjoining the R761 (<30m).

There are no potential sources of vibration affecting the site.

8.3 Impact assessment and mitigation

Site development and construction works can potentially give rise to temporary to short term noise and vibration impacts and effects through the use of mobile and non-mobile heavy machinery and equipment. Saturday, Sunday, public holidays, evening (19.00-23.00hrs) and night-time (23.00 - 07.00 hrs) works are not proposed.

Assuming piling will occur at the proposed apartment blocks and at a portion of the site close to the southern boundary, it is assessed that it will be below the threshold or limit values set for construction noise and is therefore not significant. It is further noted that this element of the works will be short i.e. temporary in duration. Other than piling, the earthworks phase, when excavation will occur across the site, is likely to potentially give rise to the highest increases in noise levels especially when works take place in close proximity to existing NSRs. Similarly, limits will not be exceeded, however mitigation measures to minimise the impact of site development

and construction noise on the nearest NSRs and to fully ensure compliance with construction noise criteria will be implemented. A list of noise and vibration management measures shall apply to the proposed project to ensure the threshold values are complied with. It should be noted that as works move away from NSRs and/or as new buildings provide screening, it is expected that construction noise levels will reduce to well below standard limit values for the majority of the duration of the total works.

The magnitude of noise impact arising from construction traffic on the local road network will be short term and negligible.

With regards to vibration effects, existing sensitive receptors are considered to be sufficiently distant from the proposed piling works so as to be unaffected by vibrations from piling. However, precautionary vibration monitoring is proposed to ensure compliance with the limit values at sensitive receptors and shall be included in the CEMP as a preventative measure.

Additional traffic, arising from the completed SHD can give rise to potentially increased traffic noise impact at existing NSRs in the long term. The new Coolagad Link Road serving the development will introduce a new road traffic source to a small number of existing NSRs currently located at distance from the R761 e.g. especially at one receptor, NSR3 where a conservative estimate of the magnitude of increase in traffic noise from the new Link Road is 'long term' 'moderate' 'negative'. The effect on NSR3 has been assessed as a worst-case scenario The predicted noise level is below the value which mitigation for road schemes would apply. Also, in terms of actual effect on residents, the context of the increase can be considered. A new transport link is likely to be expected as the area is emerging suburban but also because the link road is part of the long-term plan for a link to the N11 motorway. The change will be gradual over a period of 3 years as a result of the proposed development. Therefore, in the long-term, the effect on NSR3 as a result of the proposed development is not expected to be significant.

The boundary of NSR2 is located within 10-15m from the proposed multi use games area (MUGA). The dwelling is set back 40m from the boundary and the recommended internal recommended daytime resting conditions are not expected to be exceeded. However, the criterium for external will be exceeded close to the boundary but not throughout the property external areas. Mitigation is proposed in the form of a 2-3m high berm to ensure that external criteria for outdoor amenity is complied with. Notwithstanding this, it is important to note that the estimate of noise levels from the MUGA are a worst-case scenario.

With regard to noise exposure risk for future residents and good acoustic design, the following is noted:

- Residential development is set back from the existing busy R761;
- The vast majority of public and all private external amenity space will be below the range 50 -55 dB $L_{Aeq,16hr.}$ The landscape strategy for the proposed development provides areas with natural features that qualitatively enhance the soundscape especially in proximity to the link road. Accordingly, the requirements of Pro-PG are complied with.
- All units will achieve good to reasonable internal noise criteria based on the assessment undertaken with open/partially open windows with the exception of facades within <10m of the new Coolagad Link Road. This equates to 5 units or <1% of the whole development. At a minimum, moderate sound insulation glazing and acoustic attenuation of ventilation grilles shall be provided with high performance sound insulation glazing for units facing the Coolagad Link Road to future proof the development in the event that the long-term objective of linking this route to the N11 is achieved.

9 Landscape and Visual Impact

9.1 Introduction

The Landscape and Visual Impact Assessment (LVIA) has been undertaken to assess the landscape and visual impact of the proposed development. Landscape and visual impact assessments are separate but closely related topics.

9.2 Methodology and receiving environment

Site assessments and desktop studies undertaken to evaluate the existing site conditions such as topography, vegetation, settlement patterns, contiguous land use, drainage, landscape character as well as overall visibility of the site from surrounding areas.

An accurate digital 3D model of the proposed development was produced, and baseline photographs established. Verified View Montages (VVM) were prepared by using the correct insertion of accurate 3d models in the existing landscape (photo) providing a photorealistic view of the planned model in the intended location. The views were chosen to accurately represent the likely visual impact from all directions with views from the public domain as priority, as well as those of special amenity value or interest and protected views and prospects.

The baseline receiving environment presents as an irregular, doglegged shape, sloping moderately from west to east, comprising several agricultural fields measuring approximately 23ha in total which are separated by a network of tall mature hedgerows and tree lines. The highest point in the development site is 93.5m O.D. located on the eastern slopes of Kindlestown Hill and the lowest point (approximately 830m from the highest point) is 39.5m O.D. at Rathdown Road (R761). While most of the site can be described as moderately sloping from west down to east, there is a noticeable change in topography within one of the fields centrally located in the northern portion of the site. This field which is mostly level and gently sloping has a depression in the centre with standing water and vegetation. No tree protection orders are placed on the site but one is located on lands to the north of the site. The western boundary of the site is shared with eastern slopes of Kindlestown Hill.

The majority of the site comprises fields of grass being used for pasture, or fields that were used as arable land or for pasture, which have been left fallow and are now somewhat overgrown. The landscape quality of the site is considered moderate given the rural setting of fields with dividing hedgerows and ditches but with elements of high-quality landscape in locations associated with the mature tree lines, pines, willow scrubland and remnant. A moderate landscape quality also lies in the pockets of intervening layers of scrub, grasses and wildflowers present throughout the site adding to the seasonal colour within this landscape setting.

The site lies within an 'Urban Area' category that has been designated as 'Low' vulnerability with regard to development pressures in the Wicklow County Development Plan 2016-2022.

Thirty viewpoints were chosen for the purposes of this visual assessment and include relevant views and prospects in the County Plan and Local Area Plan which include:

- Protected View No. 13 N11 Glen of the Downs
- Protected View No. 14 N11 at Kilmullin
- Protected View No. 35 Glen of the Downs
- Protected View No. 36 L5529 Templecarrig, southern slopes of Little Sugar Loaf
- V1: From the Harbour Area

- V6: From the R761, Windgates

9.3 Impact assessment and mitigation

From outside the site, the site present as an open site, sloping moderately from west to east site in an agricultural setting. From within the site, the landscape presents differently as the individual and compartmentalised nature of each field is clearly recognised as tall hedgerows and tree lines along each field boundary and create a sense of enclosure. Views towards the site from the east and south are obscured significantly by the built environment of Greystones town. The town is located on a west-east slope that contributes to concealment of the site from the east in particular. Due to the rising topography towards the west, the site is generally more visible when viewed from the west, particular from high vantage points located close by such as Kindlestown Hill. Generally, views into the site from other locations at similar elevations back towards the site are obscured by distance, intervening topography, tall, dense hedgerows and trees. Fourteen views are illustrated in this chapter of the EIAR.

The existing topography has informed the design, arranging the buildings and road alignments according to the ground contours and mitigating the visual impact on the receiving environment and maximising the preservation of existing natural assets such as hedgerows, trees, streams, and wetland areas. In addition, the existing neighbouring residential development informs the proposed site design, using a similar design in terms of scale and architectural style, including form and materials; this allows the proposed development to blend in within its surrounding context, reducing its overall impact on the landscape. The precedent which has been set by the construction of these new residential developments, namely Waverly and Seagreen, will reduce the magnitude of the impact the proposed development. Additionally, the overall impact of the proposed development on the receiving environment will be reduced due to its proximity to with the adjacent town of Greystones which is of much greater scale.

There will likely be some local biodiversity loss that arises from the removal of vegetation to facilitate development, e.g., removal of some trees, hedgerows, and fields. However, this biodiversity loss will be reduced and offset by incorporating existing and proposed ecological features within proposed developments which has been outlined by the landscape proposals. In addition, although some archaeological features will be disturbed during the construction and operational phase, a large portion of a bi-vallate enclosure and associated archaeology will be preserved in-situ beneath a carefully constructed public greenspace, the ongoing protection of this archaeology will be enacted through a bespoke Monument Management Plan, and all archaeological features outside of this area will be subject to full preservation by record.

Following on from the visual assessment of the thirty photomontages, the overall visual impact during demolition and construction works will be significant, negative but short-term. Implementation of best practice during constructions works will assist in reducing negative impacts at the construction stage of the project. These negative impacts will cease once construction works are complete and the proposed development is opened and occupied.

It is anticipated that the presence of a high-quality mixed-use development combined with substantial landscape proposals within and around the boundaries of the scheme, will reduce the visual impacts to moderate and neutral in the long term once all landscape works have been implemented and trees and planting have established.

10 Cultural Heritage including Archaeology

10.1 Introduction

This chapter identifies and assesses the archaeological and cultural heritage arising from both the construction and operational phases of the proposed development.

The northern half of the proposed development area is located within the former demesne landscape associated with Coolagad House. Modern residential and educational development has impacted the south eastern corner of the demesne, while the remainder of the demesne remains largely unchanged.

10.2 Methodology and receiving environment

The assessment was carried out in a number of stages which include a desk-based assessment, geophysical survey and archaeological test excavations.

A total of twelve sites are recorded in the Sites and Monuments Record within a 500m radius of the area.

The geophysical survey was undertaken in December 2020 within the proposed development area and a program of archaeological testing was carried out in April 2021.Testing revealed eight areas of archaeological significance, which have been designated as Archaeological Areas (AA)1–8.

AA1 confirmed the presence of a partially disturbed, plectrum-shaped enclosure and a smaller central, possibly oval enclosure was also identified. Testing also confirmed the presence of internal features including slot trenches, pits, postholes and hearths. The form of AA1 is suggestive of early medieval date, however, an earlier origin cannot yet be ruled out. Areas of the enclosure appear to have been heavily disturbed/truncated.

The other AAs include troughs and pits, burnt spread, burnt bone and charcoal inclusions, prehistoric pottery shards, a field system of possible prehistoric date and pit and linear feature of possible prehistoric date.

10.3 Impact assessment and mitigation

Throughout the design process, due regard was given to the archaeological resource of the site and how best to preserve and integrate this, where possible. Also, topography, ecology, visual impact, road layouts, and adjoining property influenced the design layout. The design process resulted in a redesign of certain areas of the development and the expansion of un-landscaped ecological zones to allow for the preservation in-situ of the northern portion of AA1.

The proposed layout provides for the preservation in-situ of c. 60% of the double-ditched enclosure at Archaeological Area 1 (northern portion and associated features) while all other Archaeological Areas identified during testing, as well as c. 40% (southern portion) of Archaeological Area 1, will be directly impacted by the proposed development layout by being removed and preserved by record. Ground disturbances associated with the proposed development will have a direct negative impact upon the majority of Archaeological Areas. Installation of a public amenity greenspace along with landscaping and planting across the northern 60% enclosure at AA1 has the potential to impact upon subsurface remains and have the potential to result in a direct moderate or significant negative impact.

The investigations that have taken place have identified the archaeological resource on site and whilst elements of the resource will be directly impacted, the works have resulted in an overall indirect significant positive impact in the content of how the sites will inform the archaeological record and context of this part of the landscape.

There are no cumulative impacts from the permitted developments in the vicinity upon the archaeology of the application lands.

A suite of measures designed to mitigate the impacts of the proposed development have been drafted in consultation with the National Monuments Service particularly around the northern 60% of AA1 which will be preserved in-situ beneath public amenity greenspace within the development. The southern 40% of AA1 1 and the other AA areas will be preserved by record (archaeological excavation) in advance of construction activity. Archaeological monitoring of the topsoil stripping across the site will be undertaken. Mitigation measures will be enshrined in and implemented through the construction management plan.

A Monument Management Plan has been drafted in consultation with the National Monuments Service to ensure that the archaeology preserved in-situ beneath the public amenity greenspace be protected during the operational phase of the development. Mounded areas of imported topsoil will be planted with copses of trees and the area surrounding AA1 will be allowed to grow naturally as meadow. Maintenance of the space will be low interaction. Appropriate information signage and wayfinding will be erected within the public amenity greenspace at AA 1 in order to inform the public of the significant nature of the enclosure site and the surrounding landscape. The form and content of such should be agreed in advance with the National Monuments Service of the DoHLGH. The line of the enclosure ditches will be referenced on the surface by mown grass paths through the meadow. These will be maintained throughout the year.

Following the completion of the construction stage mitigation measures, there will be an indirect slight negative (short term) impact on the preserved remains of the double-ditched enclosure (AA1). Following the completion of operation stage mitigations, there will be an indirect slight positive (long term) impact on the archaeological resource due to the ongoing preservation of a significant portion of the double-ditched enclosure (AA1) as a green space.

Archaeological monitoring will be carried out.

11 Material Assets – Transportation and Traffic

11.1 Introduction

The chapter describes the transportation impacts of the proposed development and further information is also available within the Traffic and Transportation Assessment (TTA) submitted with this planning proposal.

A Coolagad Link Road is proposed from the R761 Rathdown Road along the northern boundary (within the site). The R761 / Coolagad Link Road junction is proposed to be signalised to benefit active travel users. Pedestrians and cycle crossing facilities are proposed as part of the proposed R761 / Coolagad Link Road junction.

11.2 Methodology and receiving environment

The methodology adopted for this report includes collation of data on existing transport infrastructure, data on existing traffic flow assessment, anticipated trip generation, impact analysis and considering the development proposals integration with existing and proposed networks.

The R761 is a single carriageway road, of variable width in proximity to the site, with no hard shoulders or dedicated facilities for cyclists. There is a 2m wide footpath on the eastern side of the road for pedestrians running parallel to the site boundary and is continuous along the R761 to the south. An additional footpath is provided on the western side of the R761, along the frontage of the Templecarrig School and Lidl Store. In proximity to the proposed R761 / Coolagad Link Road junction there is no footpath provided on the western side of the R761. To account for this, pedestrians and cycle crossing facilities would be proposed as part of the proposed R761 / Coolagad Link Road junction. A letter of consent from WCC has been provided by Wicklow County Council to agree to works to be undertaken as part of this planning proposal.

A further signalised crossing point will be provided by Wicklow Council at the R761 / Black Lion Manor Road / Redford Park junction, under the R761 Redford Park upgrade scheme which aims to upgrade sections of the R761 North as far as the Redford Cemetery.

Black Lion Manor Road provides access to adjacent residential development and access to Templecarrig School. To the south it connects with Chapel Road and at its northern end connects with the R761 Rathdown Road and Redford Park at a signalised crossroads junction. There are footways on the eastern boundary of the site proposed to allow for future permeability to the surrounding road network if required at a future date but direct access to Waverly Avenue of Blacklion Manor Road will not be provided for within this application.

Walking and cycling facilities on Black Lion Manor Road are well placed and convenient for active travel users travelling to and from the site, which will connect to pedestrian facilities along R761 providing pedestrians with routes to various modes of public transport and local amenities. The Green Route Delgany Heritage Trail connects between Chapel Road and Bellevue Hill Road providing pedestrian Linkages to the Kindlestown Woods and Kindlestown Hill walking routes.

Cyclist provision within Greystones is limited, however Wicklow County Council has several proposed upgrades to deliver key cycle infrastructure.

The site benefits from good bus transport connections allowing residents to travel by this sustainable mode. The closest bus stops are located along the R761 Rathdown Road approximately 800 m distance (6 min walk) from the centre of the site. Two stops are located to the south of the R761 / Black Lion Manor Road / Redford Park junction adjacent to the Lidl store. These bus stops are operated by Dublin Bus, Go Ahead and Aircoach, who provide services to Dublin Airport. A further two bus stops are located approximately 70m north of the proposed R761 / Coolagad Link Road junction, although these are not serviced by the Aircoach service to Dublin Airport illustrates the location of the bus stops in relation to the development.

The existing bus network's current occupancy and reserve capacity has been assessed as part of this proposal and has shown that there is adequate spare capacity within the North Wicklow bus network and further sensitivity tests were carried out to confirm this capacity. The NTA's BusConnects proposals will also further enhance the bus capacity and frequencies available for the proposed development site.

Greystones Station is located approximately 2 km from the site to the southeast and also connects to the Irish Rail network, providing an interchange location for commuters to and from Dublin City Centre.

11.3 Impact assessment and mitigation

A comparison was made between the pre-development and post-development scenarios, to identify the percentage impact of the development on the R761.

The projected percentage impact of operational traffic on the surrounding road junctions in the year of opening and the year of opening (2023) and the year of completion (2025) for any subsequent phases of the proposed development has been identified. The junction 1 – R761 / Coolagad Link Road junction with the scheme completed percentage impact in the morning peak is 34.6 % and evening peak of 28.4 %.

On the basis of the TII Traffic and Transport Assessment Guidelines (May 2014), given the impact that the proposed development has on the site access junction modelling is required as it achieves an impact greater than the 10% threshold outlined with the Guidelines.

Further modelling of the junction to assess the traffic volumes for the peak periods and future assessment years with and without the development in place at the R761 / Coolagad Link Road was carried out. The modelling indicates that the inclusion of the junction along the R761 and addition of full development traffic would not result in unsatisfactory operation of the local road network. The junction will continue to operate within capacity throughout the 2023 (opening year) to the 2038 (opening year + 15) assessment with the development in place. The existing signalised R761 / Black Lion Manor Road / Redford Park junction has also been assessed for its proposed updated layout. The inclusion of the development traffic would not result in unsatisfactory operation. Both junctions will continue to operate within capacity throughout the 2023 (opening year) to the 2038 (opening year + 15) assessment with the development in place.

During construction, is not anticipated there will be an impact the operational performance of the local road network therefore no mitigating measures are necessary, however it is good practice to prepare a construction traffic management plan (CEMP) which sets out steps to manage construction traffic. An outline CEMP for the proposed development sets out such measures and accompanies the application. A detailed CTMP will subsequently be prepared by the appointed contractor which will be agreed with WCC.

No mitigating or reductive measures are necessary from an operational perspective as the proposed development can accommodate the traffic associated with the SHD and completion of the Coolagad Link Road.

12 Material Assets – Waste

12.1 Introduction

The chapter describes and assesses the impact of waste of the Proposed Development which is described in section 2 of this non-technical summary. The subject site is currently a greenfield site and therefore has no waste management requirements at present.

12.2 Methodology and receiving environment

The methodology adopted for the assessment takes account of the national guidelines, National and European legislation.

12.3 Impact assessment and mitigation

The Construction Phase will give rise to the requirement to remove and bring quantities of various materials to and from the site and construction and demolition related wastes will be created. The potential impact from the Construction Phase on waste recovery and disposal is likely to be short-term and moderate.

An Outline Construction Environmental Management Plan (OCEMP) has been prepared for the Proposed Development by AECOM (March 2022) and a full CEMP will be prepared in advance of development commencing. A Construction and Demolition Waste Management Plan (CDWMP) has been prepared for the Proposed Development by Enviroguide Consulting (January 2022).

It is intended, where possible, to maximise the reuse of soil for back-filling, construction of the site and landscaping to avoid importing raw materials. Excavated material pending reuse will be temporarily stockpiled in designated areas.

Predicted volumes of soils and subsoils generated as part of the site clearance works have been quantified in Chapter 6, Land Soils and Geology. The Cut and Fill Analysis (AECOM, 2022) has indicated that there will be a surplus of 101,904.631m3 of soil and stone that will require removal from the site, the majority of which will be moved offsite for re-use. Offsite removal of soils will be undertaken in accordance with the CDWMP, the CEMP and relevant waste management legislation. The re-use of soil offsite will be undertaken in accordance with all statutory requirements and obligations including where appropriate re-use as by-product in accordance with Article 27. Any surplus soil not suitable for re-use as a by-product and other waste materials arising from the Construction Phase will be removed offsite by an authorised contractor and sent to the appropriately authorised (licensed/permitted) receiving waste facilities. As only authorised facilities will be used, the potential impacts at any authorised receiving facility sites will have been adequately assessed and mitigated as part of the statutory consent procedures. Accordingly, it is considered that offsite removal of surplus soil will have an indirect, neutral, imperceptible, long-term impact on the receiving sites and facilities.

Waste will be generated during the construction of the dwelling units and the ancillary infrastructure at the Site. The waste materials shall be segregated at source and transferred offsite for appropriate processing, recycling and recovery and those that are unsuitable for reuse or recovery shall be separately collected. Disposal of construction generated wastes will be considered a last resort once recycling or recovery options have been ruled out. It is not envisaged that there will be any hazardous waste generated throughout the construction works however if generated, on-site storage of any hazardous wastes produced (i.e., waste fuels/chemicals) will be kept to a minimum, with compliant removal off-site organised on a regular basis. Waste will also be generated from construction workers and will be sent for recycling, recovery, or disposal to a suitably licensed or permitted waste facility.

The Operational Phase of the Proposed Development will result in an increase in the production of municipal waste in the region and will increase demand on waste collectors and treatment facilities. An Operational Waste Management Plan (OWMP) has been prepared and is being submitted with the planning application. Specifically, the OWMP aims to achieve waste

prevention, maximum recycling and recovery of waste with a focus on diversion of waste from landfill wherever possible.

With regard to other developments under construction and proposed in the in the vicinity of the Site of the Proposed Development, there will be a greater demand on existing local waste management services and on regional waste acceptance facilities. The capacity of waste collection companies and waste management facilities in the Eastern Midlands Region have been designed with forward planning and expansion in mind to cater for a growing population. The likely cumulative effect of the development will be neutral and not significant on waste management facilities in the area in the long term.

Provided that the mitigation measures described in the CDWMP, the OWMP and the OCEMP are implemented; that the conditions for Article 27 are met for the excavated soil and stone; and a high rate of reuse, recycling and recovery is achieved in both the Construction and Operational Phases, the likely effect of the residual impacts of the Proposed Development on the environment will be neutral and imperceptible to slight in the long term.

The management of waste during the Construction Phase will be monitored by the Construction Environmental Site Manager, and/or an appointed Waste Officer, and the management of waste during the Operational Phase of the apartments/duplexes will be monitored by the building management company and the nominated waste contractor(s).

13 Material Assets –Utilities

13.1 Introduction

This chapter describes the material assets in the form of utilities that could potentially be impacted by the Proposed Project in the vicinity of the subject site. The purpose of this chapter is to assess the impacts of the proposed utilities on the existing utility network which includes the following infrastructure:

- Water Supply;
- Foul Water Drainage;
- Surface Water Drainage;
- Telecommunications ;
- Natural Gas, and;
- Electricity Supply.

The proposed development in relation to water supply, foul and surface drainage has been described in previous sections. Additionally, the existing overhead services on the site will be undergrounded and will be diverted as required.

13.2 Methodology and receiving environment

A desktop study was carried out in relation to the material assets associated with the proposed development and their capacities. Projections of the resources were made for the construction and operational phase of the development. The impacts are estimated in terms of the duration of the works and their significance in relation to the site context.

There is an existing 100mm watermain running along the R761 to the east of the proposed development. It is proposed supply the development via a new watermain network that connects

to the existing network along the R761. As part of the proposal approximately 200m of the existing 4 inches watermain section is required to be upgraded up to 200mm in diameter.

No foul water drainage has been identified within the boundary of the subject site.

Several springs are located within the subject site and a stream drains across the centre of the subject site in an easterly direction.

Regarding surface water drainage infrastructure, a 750mm diameter culvert, approximately 6.1m long, appears to facilitate access between the existing fields either side of the stream and is located approximately 9.9m from the eastern boundary of the subject site. A surface water pipe drains from a natural depression located in the south eastern corner in a northerly direction discharging into the existing stream. The design and intended purpose of this pond and drain are unknown and potentially collects both shallow groundwater and surface runoff. It is noted that this drain does not form part of the Proposed Development and will not be altered or amended.

There are existing Openeir and Virgin Media Networks in the foot path along the main road R761 at the north east quadrant of the site.

There are existing gas pipe networks in the vicinity of the site.

There are existing ESB Networks (ESBN) infrastructure within the development site in the form of High Voltage and Medium Voltage (38kV) and (10kV/20kV) overhead power lines. An overhead (OH) low voltage line traverses the subject site marginally at the eastern boundary of the site, near the site entrance. The existing overhead services on the site will be undergrounded and will be diverted as required. The exact extent and location of the connections/diversion will be agreed with ESB Networks during the design stage of the project.

13.3 Impact assessment and mitigation

The installation of the utilities has the potential to cause some local impacts at construction phase such as noise, traffic, dust etc. to the surrounding built environment. These construction impacts are local and can be mitigated appropriately as per the mitigation measures identified in the other chapters of this EIAR. Top-soil removal and associated works will be required and any adverse environmental impacts mitigated as per Chapter 6 of this EIAR.

It is considered unlikely that the development in the operational phase will adversely affect the built environment in the local area.

Due to the lack of existing surface water networks identified within the site area or along the R761 roadway, it is proposed to maintain the current flow paths from the site. A series of swales along the topographical lines to connect into the existing watercourse is proposed. The development has been assessed in relation to the Sustainable Urban Drainage Systems (SuDS) and measures proposed include permeable paving, filter drain, swales, bio-retention areas.

The proposed foul water network will fall by gravity to the existing 375mm combined sewer via a new 300mm pipe to be laid along the R761 and Victoria Road roadways. It is proposed supply the development via a new watermain network that connects to the existing network along the R761.

An air source heat pump is the choice for the heating systems in this scheme as an alternative to a gas boiler and therefore, no gas infrastructure will be required for this new development.

The existing ESB overhead will be undergrounded and will be diverted as required. The relocation or diversions may lead to loss of connectivity to and / or interruption of the supply from the

electrical grid to the surrounding areas. Any loss of supply will be managed by ESB Networks to minimise impact on neighbouring properties.

The risk of potential adverse impacts occurring during the construction phase of the subject site (in the absence of adequate management and mitigation measures) could arise but a range mitigation measures are proposed which relate to the following

- Procedures for dewatering the site during construction works
- Prevention of silt pollution from the subject site
- Mud shall be controlled at entry and exits to the site using wheel washes and/or road sweepers, and tools and plant must be washed out and cleaned in designated areas.
- Visual checks will be undertaken of the stream;
- Drip trays will be utilised on site for pumps situated within 25m of the watercourse and drip trays will be used underneath mobile plant and drums whilst in use on site;
- Refuelling of plant and machinery
- Spill kits
- Care shall be taken whilst using shuttering oils when preparing formwork.
- Liaison with ESB regarding the connection/diversion and when construction is taking place close to or in the vicinity of ESB network overhead power lines.

No additional mitigation measures to those outlined in other chapters are considered necessary during the operational phase of the development as it is considered to have a neutral to positive effect on material assets including services and infrastructure.

Residual impacts for the construction and operational phase are considered to be neutral and the significance of the impact has been assessed as not significant.

14 Major Accidents and Disasters

14.1 Introduction

This chapter describes likely effects on the environment arising from the vulnerability of the proposed development to risks of major accidents and/or disasters.

14.2 Methodology and receiving environment

The methodology has regard to the relevant European legislation and Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA Draft, August 2017). Specifically, the EPA Guidelines state that the EIAR must take account of "the vulnerability of the project to risk of major accidents and /or disasters relevant to the project concerned and that the EIAR therefore explicitly addresses this issue." The Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the "COMAH Regulations") also applies to this Chapter. Reference has been made to the Department of the Environment, Heritage & Local Government (DoEHLG) Publication 'Guide to Risk Assessment in Major Emergency Management 2010' and the Office of Emergency Planning, Department of Defence (DOD) Publication 'A National Risk Assessment for Ireland 2020'. A desk study was undertaken. The assessment reviewed the vulnerability of the project to major accidents or disasters and the potential for the project to cause risks to human health, cultural heritage and the environment, as a result of that identified vulnerability.

The proposed development is for residential and community uses and associated site development works including a new road. The site consists generally of a number of agricultural fields (sandstone and shale till) and mainly bordered by hedges and trees. The adjacent land uses are education, sporting, agricultural and residential.

14.3 Impact assessment and mitigation

A Consolidated List of National Hazards was used to identify a preliminary list of potential major accident and disasters. The list was screened and major events such as volcanoes were not included given the unlikely event of one occurring. There are no industrial processes (including SEVESO II Directive sites (96/82/EC & 2003/105/EC) in the vicinity of the Site of the Proposed Development which would be likely to result in a risk to human health and safety. In the event that mitigation measures included did not mitigate against the risk, then, the potential impacts on receptors are identified in the relevant chapter.

With the implementation of the proposed mitigation measures and monitoring, no plausible major accidents or disaster hazards were identified, to which the proposed development will be vulnerable. No plausible potential risks were identified which would result in the proposed development causing a major accident or disaster on or outside the site of the proposed development during construction, operation.

15 Summary of Interactions and Cumulative Effects

15.1 Introduction

This chapter of the EIAR analyses the Interrelationships and cumulative effects and main interactions between different aspects of the environment likely to be significantly affected by the Proposed Development.

All environmental factors are interlinked to a degree such that interrelationships exist on numerous levels. Interactions within the study area can be one-way interactions, two-way interactions and multiple-phase interactions which can be influenced by the proposed development.

15.2 Methodology and receiving environment

The overall objective of this assessment is to identify, through a review of these issues, whether additional mitigation is required that would not otherwise have been identified in the individual study areas for these interacting or cumulative effects.

Interactions of the EIA topic areas are displayed in a matrix table which identifies potential interactions which are likely to occur between the various disciplines. This table from Chapter 16 of the EIAR is shown below. Boxes with an 'X' identify the potential interacting disciplines where a relationship exists.

Key Environmental Interaction Matrix	Population and Human Health	Biodiversity	Land, Soil and Geology	Water	Air and Climate	Noise and Vibration	Landscape and Visual Impact	Cultural Heritage, including Archaeology	Material Assets – Transportation	Material Assets – Waste	Material Assets – Utilities	Major Accidents and Disasters
Population and Human Health		X	X	X	X	X	X	X	X			
Biodiversity												
Land, Soil and Geology								X				
Water	X	X						X	X		X	
Air and Climate	X								X			
Noise and Vibration	X								X			
Landscape and Visual Impact	X	X						X				
Cultural Heritage, including Archaeology	X		X	X			X					
Material Assets – Transportation and Traffic	X			X	X	X	X	X		X	X	
Material Assets – Waste	X								X			
Material Assets – Utilities	X			X					X			
Major Accidents and Disasters												

15.3 Impact assessment and mitigation

Mitigation measures have been proposed to avoid, remedy or reduce identified impacts. This assessment of interactions arising concluded that the proposed development will not result in any significant synergistic interactions or cumulative adverse impacts on the environment. In all instances, mitigation measures have been proposed to avoid, remedy or reduce identified impacts.

Mitigation measures are proposed and outlined within individual EIAR chapters to ensure that any potential adverse impacts that may arise as a result of the proposed development are minimised/neutralised

15.4 Cumulative Effects

The assessment of cumulative impacts considers the total impact associated with the Proposed Project when combined with other past, present and reasonably foreseeable future developments.

An examination of the potential for other projects to contribute cumulatively to the impacts from this Proposed Project was undertaken during the preparation of this EIAR.

No likely significant cumulative effects have been identified with regards to the Proposed Development.

16 Summary of Mitigation Measures

16.1 Introduction

This chapter presents a summary of the key mitigation measures identified within Chapters 4 to 15 of the Environmental Impact Assessment Report (EIAR). Mitigation describes the measures proposed in order to avoid, reduce and where practicable remedy significant adverse effects. It is also a means by which design decisions for the Proposed Project are modified to avoid, reduce or remedy the adverse environmental effects that are identified.

Mitigation measures have been incorporated into the design of the Proposed Project and will be applied during the construction and operation of the Proposed Project. The mitigation measures for both the construction and operational phases are detailed as appropriate.

Monitoring will take place after the consent is granted for the Proposed Development to provide assurance that aspects of the design, operation and management are functioning as intended and therefore not giving rise to significant effects.

20 Fitzwilliam Place
Dublin 2
D02 YV58

t: + 353 1 6762594
f: + 353 1 6762310
e: planning@mdb.ie
w: www.mdb.ie