Environmental Impact Assessment Report (EIAR)

Volume 3 Non – Technical Summary (NTS)

Large Scale Residential Development at Ruanbeg, Kildare Town, Co. Kildare

May 2023

In association with

PUNCH Consulting Engineers
Panther Ecology Limited
Bluerock Environmental Limited
Traynor Environmental Limited
Cunnane Stratton Reynolds Land Planning and Design
John Purcell Archaeological Consultancy
MANDE Consulting Engineers Limited
McCrossan O'Rourke Manning Architects

Prepared by

mcg
MCGILL PLANNING

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1. Introduction

This Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) has been prepared on behalf of our client MRP Oakland Ltd. to accompany a Large-Scale Residential Development (LRD) application to Kildare County Council for a new residential development on lands at "Ruanbeg" within the townlands of Kildare and Collaghknock Glebe, Kildare Town, Co. Kildare. The development lands are located to the north of the Dublin Road (R445), east/northeast of Heffernan Tyres and Ruanbeg Manor Estate and southeast of Coolaghknock Estate. The application site includes for works along the R445 and at Ruanbeg Park and Ruanbeg Avenue.

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 this NTS is to summarise and explain in non-technical language, the likely and significant effects to the environments arising from this project.

Section 2 of this EIAR NTS provides a brief site context and Section 3 summarises the development description. Section 4 outlines the data required for each EIAR chapter and Section 5 outlines the predicted impacts relating to each chapter.

This NTS is prepared with direct input from the design team including McGill Planning, McCrossan O'Rourke Manning Architecture, PUNCH Consulting Engineers, Panther Ecology Limited, Bluerock Environmental Limited, Traynor Environmental Limited, Cunnane Stratton Reynolds Land Planning and Design, John Purcell Archaeological Consultancy, and MandE Consulting Engineers Limited.

The EIAR has been prepared in accordance with the provisions of the Planning and Development Act (as amended) and the Planning & Development Regulations 2001(as amended), which give effect in national planning legislation to the EU Directives on EIA.

EIA requirements originate from Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 97/11/EC, 2003/35/EC and 2009/31/EC. The Directive and its amendments were subsequently codified and replaced by Directive 2011/92/EU, as amended in turn by Directive 2014/52/EU. This amending Directive was transposed into national planning consent procedures in September 2D18 through the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

The objective of the EIA Directive is to ensure a high level of protection of the environment and human health, through the establishment of minimum requirements for environmental impact assessment prior to development consent being given, of public and private developments that are likely to have significant effects on the environment.

An EIA is mandatory for certain projects and for other projects that meet or exceed a stated threshold as set out in Annex I and Annex II of the Directive (and Part 1 and Part 2 of Schedule 5 of the Planning and Development Regulations 2001, as amended). Projects that do not meet or exceed a stated threshold are subject to Screening for the requirement, or not, for 'sub-threshold' EIA.

The proposed development in this instance is for 295 no. units which is below the 500 no. unit threshold for automatic EIAR requirement. However the gross area of the application site is c. 10.3ha, which is above the 10ha threshold for a built-up area (Schedule 5, Part 2 of the Planning & Development Regulations, 2001-2023, and therefore it is considered necessary to prepare an EIAR.

2. Site Context

The subject site is greenfield and currently used for agricultural purposes. The southern, northern and eastern boundaries comprise mature vegetation, dense trees, and hedgerow of varying quality. The western boundary consists of a row of trees and a wall separating the site from the private gardens of the adjacent housing estate. Two hedgerows divide the site in an east/west direction.

The site is c. 1km east of Kildare Town Centre, c. 8km west of Newbridge Town Centre, 19km west of Naas, and 19km east of Portarlington. It is bounded to the north by Coolaghknock housing estate and to the west by the Ruanbeg housing estate. Dublin Road R445, Heffernan Tyres Limited, and one detached house, bound the site to the south.

The site is not located within a Conservation Area or Architectural Conservation Area and there are no protected structures/monuments on site or within the vicinity of the site. There are no Tree Protection Orders on the site.

The site falls predominantly within land zoned C New Residential in both the current LAP 2012-2028 and the draft LAP 2023-2029. A small L – Shaped area of the site, falls within the H zoned lands to the south, which allows for Industry and Warehousing and requires a planted buffer to be provided to separate the two uses.

Figure 1 Site location and context

3. Project Description

MRP Oakland Limited intend to apply for permission for a Large-Scale Residential Development at this site of c.10.3ha on lands at "Ruanbeg" within the townlands of Kildare and Collaghknock Glebe, Kildare Town, Co. Kildare. The development lands are located to the north of the Dublin Road (R445), east/northeast of Heffernan Tyres and Ruanbeg Manor Estate and southeast of Coolaghknock Estate. The application site includes for works along the R445 and at Ruanbeg Park and Ruanbeg Avenue.

The proposed development will comprise the construction of 295 no. residential units along with a two storey creche facility measuring c.472.7sqm. The residential units will include:

- 15 no. single storey, semi-detached/terraced houses (12 no. 1-beds and 3 no. 2-beds) provided as "age-friendly housing".
- 206 no. two storey, semi-detached/terraced houses (10 no. 2 beds, 160 no. 3 beds, 36 no. 4 beds).
- 74 no. three storey duplexes/apartments (37 no. 2 beds, 37 no. 3 beds) arranged within 6 no. blocks.

All residential units will be provided with associated private gardens/balconies/ terraces facing to the north/ south/ east/ west.

New vehicular and pedestrian/cyclist accesses will be via Dublin Road (R445) and Ruanbeg Avenue and a pedestrian only access via Ruanbeg Park, with upgrade to existing public road as necessary.

All associated site development works, including 571 no. car parking spaces (including EV parking), 236 no. cycle parking spaces, public and communal open spaces, landscaping, SuDs features, boundary treatments, plant areas, waste management areas/bin stores, and services provision (including ESB substations, pumping station) are also proposed.

An Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS) have been prepared in respect of the proposed development.

4. Data Required to Identify and Assess the Main Effects which the Proposed Development is Likely to have on the Environment

Data is required to identify and assess the main impacts which the proposed development is likely to have on the environment. The following is a synopsis of the data and information available and sourced for this Environmental Impact Assessment. This is in line with the following regulations and guidelines which were considered:

- The EU Directives and Irish regulations regarding Environmental Impact Assessment.
- Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017).
- Guidelines on the Information to be Contained in the Environmental Impact Assessment Reports (Environmental Protection Agency,2022).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018).

Population and Human Health

Population

To establish the existing receiving environment/baseline for the subject site, the methodology included site visits to evaluate the location and likely significant potential impact upon the human population in the area.

Desk based study included an analysis of the Central Statistics Office Census (CSO) data, the ESRI Quarterly Economic Commentary, and national, regional and local planning policy, and school and creche enrolment figures.

Different local catchment areas were established for analysing population data, creche demand and capacity, and school demand and capacity. These areas were chosen to gather the most relevant data for each factor. A general local catchment area of 1km from the subject site forms the basis of most areas of analysis.

The following datasets were used during the survey:

- 2011 CSO Statistics
- 2016 CSO Statistics
- 2023 Google Maps
- Kildare County Council website
- Department of Education
- HSE Facilities
- Pobal
- Information from schools in the area.
- Kildare Town Social Infrastructure Audit (January 2023)

Human Health

To establish an existing baseline of the human health of the area, desk-based study including an analysis of the Central Statistics Office Census (CSO) data was undertaken. As referenced in the Department of Housing, Planning and Local Government (2018) Guidelines for Planning Authorities and An Bord Pleanála, (taken from the European Commission's Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report (2017)), human health is;

> *"a very broad factor that would be highly Project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population."*

The WHO (World Health Organization) also define health as

> *"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."*

The following guidance was used in the preparation of this chapter:

- Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment (European Union, 2017).
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022).
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2002)
- United States (US) EPA Health Impact Assessment Resource and Tool Compilation (US EPA 2016);
- Institute of Public Health in Ireland (IPHI) Health Impact Assessment Guidance (IPHI 2009).
- IEMA's Health in Environmental Impact Assessment: a primer for a proportionate approach

Biodiversity

Field Survey

Site characterisation assessments were undertaken to examine the ecological context of the development site, by systematically walking the site, adjacent land and boundaries and determining the habitats present. The habitat survey was undertaken in accordance with the standard methodology outlined in Fossitt's *"A Guide to Habitats in Ireland"*, a hierarchical classification scheme based upon the characteristics of vegetation present. The Fossitt system also indicates when there are potential links with Annex I habitats of the E.U. Habitats Directive (92/43/EEC). Cognisance was also taken of the Heritage Council guidelines, *"Best Practice Guidance for Habitat Survey and Mapping"*, (Smith *et al.*, 2011).

Bird species and signs of fauna activity and dwellings were also noted. Particular attention was given to the possible presence of habitats and/or species, which are legally protected under Irish and European legislation and to assessing any potential ecological connectivity with Natura 2000 sites or supplementary or steppingstone habitats of relevance to Natura 2000 sites. While walking the development site, stops were undertaken on a regular basis during which time the area was scanned as far as the terrain or weather conditions allowed. Birds were identified by visual sightings and auditory identification of songs and calls. Birds flying overhead were also included as part of the survey.

Study Area/Zone of Influence

Following guidance set out by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) and the National Roads Authority (2009), a Zone of Influence should be determined, which identifies the area in which the development could potentially impact upon ecological receptors and aquatic environments. The zone of influence takes into consideration the assigned ecological value of the receptors, which ranges from international, national, county to local, and potential pathways for impacts to occur. The zone of influence also takes into consideration the any watercourse surrounding the proposed development.

Taking into consideration best practice guidance and the nature of the development, the study area for the assessment ranges from the site boundary for habitats, to buffers of 100m for specific species. However, it should be noted that these buffers were extended where required.

Survey Limitations

Every effort has been made to provide an accurate assessment of the situation pertaining to the site. However, an ecological survey can only assess a site at a particular time and is limited by various factors such as the season, timing of the survey, climatic conditions and species behaviour. Ecological surveys are therefore snapshots in time and should not be regarded as a complete study. Direct observations or evidence of protected species is not always recorded during ecological surveys. However, this does not indicate that the species is absent from the site.

The optimal habitat survey period runs from April to September, the growing season for the majority of plants (Smith *et al.*, 2011). Weather conditions were suitable for bat surveys and nocturnal animals. To ensure any limitations encountered did not significantly impact upon the findings of the ecological assessments, the ecological surveys undertaken also assessed the potential of the habitats to support protected species, and cognisance has been taken of available online baseline data (e.g. flora and fauna records from the NBDC and BSBI, reviewing BCI bat records, previous surveys undertaken by Wildlife Surveys) and a precautionary approach taken.

Field Surveys Methodology

Site assessments were undertaken on in June, August, November and December 2022 and January 2023 to examine the ecological context of the proposed development, as outlined in *Table 5.1* below. Any drainage ditches were also surveyed as part of the site assessment for aquatic flora and fauna.

Survey	Study Area	Survey Dates
Habitat Survey	Complete Site& Boundary Buffer	10th June 2022 and 9th November
Fauna Survey	Complete Site & Boundary Buffer	10th June 2022 and 9th November
Badger Survey	Complete Site & Boundary Buffer	10th June 2022 and 9th November
Bird Survey	Complete Site & Boundary Buffer	10th 30th June & 25th August 2022
Bat Survey	Complete Site & Boundary Buffer	21st 22nd 30th June & 25th August 2022
Wintering Bird Survey	Complete Site & Boundary Buffer & Curragh	9th November, 16th December 2022 and 19th January 2023

Table 0.1: Ecological Surveys

Badger and Other Fauna Survey

Fauna surveys were undertaken during bright and dry weather conditions. Direct observation methods were used for the survey of fauna. However, these methods may not be suitable for shy and nocturnal species. Therefore, indirect methods were also employed, focusing on evidence of fauna including tracks, burrows/setts/nests, droppings, food items and hair. The habitats on site were assessed for signs of usage by fauna, and the potential to support protected or red-listed species.

Badgers and their setts are protected under the provisions of the Wildlife Act, 1976, and the Wildlife Amendment Act, 2000. It is an offence to intentionally kill or injure a protected species or to wilfully interfere with or destroy the breeding site or resting place of a protected wild animal. The removal of badgers from affected setts and subsequent destruction of these setts must be conducted under licence by experienced badger experts or other suitably qualified personnel. The most frequent location of badger setts in the Irish countryside is within or close to hedgerows and treelines, as these provide cover and safety from disturbance from agricultural and other activities. Setts are also frequently located in deciduous woodlands and areas of scrub, and they do occur in urban areas as well as in the open countryside. Setts are used by generations of badgers and some setts may be of considerable antiquity. Typically, the main setts of a badger, which are the focus of the social groups, are usually larger than other setts, averaging seven entrances each (Smal, 1995). A badger sett is divided into different types with main setts used for breeding and have multiple entrances. With outliers usually have one entrance and lie towards the fringes of their territory (Lowen, 2016).

Invertebrate surveys (terrestrial)

Terrestrial habitats within the study area are considered unlikely to support any protected invertebrate species, as the study area does not support the food plants of the protected Marsh Fritillary (*Euphydryas aurinia*) or suitable habitat for protected Whorl snail species (*Vertigo* spp.).

Aquatic surveys

There were no drainage ditches or watercourses within or adjacent to the site with the potential to contain protected species or habitats.

Bat Survey

Areas within the site with the potential to support bat roosts and / or foraging / commuting routes, and which have the potential to be impacted upon by the proposed development were the main focus of the surveys outlined below.

The aims of the bat survey are to collect robust data following good practice guidelines to allow an assessment of the potential impacts of the proposed project on local bat populations. To facilitate the design of control measures, enhancement, and monitoring strategies for local bat populations recorded. Provide information to enable robust decisions with definitive outcomes that aid in the conservation of local bat populations. In order to assess bat activity at a site a survey can be carried out. An emergence dusk survey is carried out at dusk from 30 minutes prior to sunset and continues up to 120 minutes after sunset. Depending on the type of site or habitats contained within the survey can concentrate on areas of suspected or potential bat roots such as buildings (with accessible features) and trees with cracks and crevices as noted below. This survey is done to determine if the building/tree is a bat roost. Transect surveys are carried out by walking the site with a bat detector to determine the level and type of bat activity at a site. Other more detailed surveys are carried out if a bat roost is suspected and if knowledge on the type of roost is required to determine the best conservation methods.

All bat species are listed in Annex IV of the Habitats Directive while the Lesser Horseshoe (*Rhinolophus hipposideros*) is afforded additional protection through its inclusion on Annex II of the EU Habitats

Directive. As a result, SACs have been designated for this species throughout its European range, including in Ireland.

It is an offence under Section 23 of the Wildlife Act and under Section 51 of Habitat Regulations, 2011 to kill a bat or to damage or destroy the breeding or resting place of any bat species. Under the Habitat Regulations, 2011 actions that intentionally or unintentionally harm, damage or destroy a bat or its roosting site are considered to be an offence. According to Section 54(2) of the Habitats Regulations 2011, a derogation licence to disturb bats or the breeding or resting places may be granted 'where there is no satisfactory alternative, and the derogation is not detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range. The assessment comprised of an external inspection of trees to identify potential roost features (PRFs) and evidence of bat activity. Any cracks or crevices were further inspected visually with the aid of a strong torch to look for bat droppings, urine staining, grease marks (oily secretions from glands present on stonework) and claw marks. The criteria used to categorise the PRFs or suitability of trees as a potential roost are summarised in the table below, based upon the guidelines by Collins (2016) and Hundt (2012).

Examples of such features include;

- Natural holes;
- Cracks/splits in major limbs;
- Loose bark; and,
- Hollows/cavities.

Climbing trees to look for roosts, using appropriate equipment and safety precautions, is a possible approach for small numbers of trees with a high probability of bats, but the results of radiotracking studies of some species suggest that bats may use cracks or crevices that are far from obvious Kelleher & Marnell, (2006).

Furthermore, as a signatory to the EUROBATS Agreement (Agreement on the Conservation of Populations of European Bats, 1994), Ireland is required to protect their habitats and important feeding areas from damage or disturbance. All Irish bat species are listed in Appendix II of the Bern Convention (1979), as species requiring protection.

The IUCN Red List categories and criteria are used as an easily understood system for classifying species by their risk of global extinction (IUCN 2012). Irish bats have most recently been categorised in the updated IUCN red list of terrestrial mammals in Ireland. All bats normally occurring on the island are listed as "Least Concern" (Nelson et al., 2019). The status of the Greater Horseshoe Bat (*Rhinolophus ferrumequinum*) is not yet determined in Ireland as only one record has been confirmed.

Assessment of Bat Roost Potential

A daytime assessment of individual trees and hedgerows within the proposed development site potentially affected by the proposed development was undertaken on the 10th, 22nd, 30th June and 25th August and 9th November 2022. The assessment comprised of an external inspection of trees to identify potential roost features (PRFs) and evidence of bat activity, using close focusing binoculars. The criteria used to categorise the PRFs or suitability of trees and buildings as a potential roost are summarised in the table below, based upon the guidelines by Collins (2016) and Hundt (2012).

CATEGORY	DESCRIPTION
High Trees / buildings that are suitable for use by large numbers of bats on a regular basis	Features include holes, cracks or crevices that extend or appear to extend back to cavities suitable for bats. In buildings, examples include eaves, barge boards, gable ends and corners of adjoining beams, ridge and hanging tiles, behind roofing felt or within cavity walls. In trees, examples include hollows and cavities, rot holes, cracks/splits and flaking or raised bark which could provide roosting opportunities. Any ivy cover is sufficiently well-established and matted so as to create potential crevices beneath. Further survey work would be required to determine whether or not bats are present, and if so, the species present. Appropriate mitigation and potential licencing requirements may then be determined.
Moderate Moderate potential is assigned to trees / structures with potential to support bat roosts but supports fewer features than a high potential building / tree and is unlikely to support a roost of high conservation value.	From the ground, building / tree appears to have features (e.g. holes, cavities, cracks or dense ivy cover) that may extend back into a cavity. However, owing to the characteristics of the feature, they are deemed to be sub-optimal for roosting bats. Further survey work would be required to determine whether or not bats are present, and if so, the species present. Appropriate mitigation and potential licencing requirements may then be determined.
Low Low potential is assigned to structures and trees with features that could support individual bats opportunistically.	If no features are visible, but owing to the size, age and/or structure, hidden features, sub-optimal for roosting bats, may occur that only an elevated inspection may reveal. In respect of ivy cover, this is not dense (i.e. providing PRF in itself) but may mask presence of PRF features. Further survey work may be required for buildings only or works may proceed using reasonable precautions (e.g. controlled working methods, under license or supervision of a bat worker)
Negligible	Trees have no potential for bat roost.

Table 0.2: Bat Roost Potential Categories

Bats use echolocation to hunt and navigate in their environs, echolocation calls are used to identify bat species and therefore bat detectors are the principal tool to aid bat surveys. Bat surveys of the site were carried out in June and August 2022 using an Anabat Walkabout Active Bat Detector with both heterodyne and frequency division. In addition, a data logger was used to record bat ultrasounds for analysis. The survey on the 21st and 30th June was a dusk survey and commenced at 9.30pm (approx. 30 minutes before sunset) and was approx. two and a half hours in duration, finishing at 00.00 (Midnight). The dawn survey on the 22nd June commenced at 2am (approx. 2 hours before sunrise) and was approx. two and a half hours in duration, finishing at 4.30am. The dusk survey on the 30th August 2022 commenced at 8pm (approx. 30 minutes before sunset) and was approx. two hours in duration finishing at 10pm.

The proposed development site was assessed during the day for potential bat activity with an emphasis on the mature treelines, hedgerows (there are no waterbodies within site). Weather

conditions were suitable for bat activity during the survey, with calm, partly cloudy and dry conditions (temperatures of +18°C to +12°C during the dusk/dawn surveys). Bat surveys should be carried out with air temperature of 8°C or greater. Moth/insect activity was noticeable during the assessments.

Bird Surveys

Bird usage of the development site was assessed on the 10th, 30th June & 25th August. Wintering bird usage of the development site and surrounding fields was assessed on 9th of November, 16th of December 2022 and 19th of January 2023. Vantage Point (VP) Surveys were undertaken. These surveys comprise a series of watches from a fixed location to quantify the flight activity of birds at a proposed development site. In addition, while walking the development site, stops were undertaken on a regular basis during which time the area was scanned as far as the terrain or weather conditions allowed. Birds were identified by visual sightings and auditory identification of songs and calls. Birds flying overhead were also included as part of the survey. Birds observed while undertaking habitat and specific fauna surveys were also noted. Priority habitat/features such as trees, dense hedgerows or shrubs, reed beds, or small bodies of water are areas that surveying can concentrate on for shy species with low detection. Disturbance to the site should be kept to a minimum while undertaking a bird survey.

Target species will be limited to those species which are afforded a higher level of legislative protection. Some species may also be selected as a result of their behaviour which makes them more likely to be subject to impact from the proposed development. There are three important species lists from which target species may be drawn;

- Annex I of the EC Birds Directive;
- Schedule 1 of the Wildlife Act;
- Red & Amber listed Birds of Conservation Concern.

In addition, species identified locally as of conservation concern within Local Biodiversity Action Plans.

If surveys are carried out in less-than-ideal conditions, this should be noted as limitation in the report, with justification and a consideration of potential impacts. However, all bird surveys were carried out on bright warm days with low wind conditions. The Wintering Bird Survey were carried out on clear dry days.

Where areas within a site cannot be accessed, this should be noted in the report as a constraint to the survey. The site at Ruanbeg was fully assessable. There were no waterbodies within or outside the redline boundary that would have the potential to support waterfowl.

The Curragh Plains were also assessed on the 9th of November 2022 and 19th of January 2023 for the presence of wintering birds of note such as Golden Plover (*Pluvialis apricaria*) and Lapwing (*Vanellus vanellus*). In addition, Pollardstown Fen was generally assessed on the 19th January 2023 for the presence of wintering birds of note.

Land, Soil & Geology

The assessment of the potential impact of the activity on water and hydrology was carried out according to the methodology specified in the following documents:

1. Environmental Protection Agency (EPA) Guidelines on the Information to be Contained in Environmental Impact Statements (2022);

The principal attributes (and impacts) to be assessed include the following:

1. Geological heritage sites in the vicinity of the perimeter of the subject site;
2. Landfills, industrial sites in the vicinity of the site and the potential risk of encountering contaminated ground;
3. The quality, drainage characteristics and range of agricultural uses of soil around the subject site;
4. Quarries or mines in the vicinity, the potential implications (if any) for existing activities and extractable reserves;
5. The extent of topsoil and subsoil cover and the potential use of this material on site or requirement to remove it off-site as waste for disposal or recovery;
6. High yielding water supply springs/ wells in the vicinity of the subject site to within a 2 km radius and the potential for increased risk presented by the proposed development;
7. Classification (regionally important, locally important) and extent of aquifers underlying the study area perimeter and increased risks presented to them by construction and operation related activities associated with aspects such as for example removal of subsoil cover, removal of aquifer (in whole or part), drawdown in water levels, alteration in established flow regimes, change in groundwater quality;
8. Natural hydrogeological/ karst features in the area and potential for increased risk presented by the activities at the proposed development site; and
9. Groundwater-fed ecosystems and the increased risk presented by the construction and operational phases of the proposed development both spatially and temporally.

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

1. The Geological Survey of Ireland (GSI) online well card and groundwater records for the area were inspected, with reference to hydrology and hydrogeology;
2. EPA water quality monitoring data in the area;
3. EPA Geoportal website;
4. Ground Investigation, Causeway Geotech, Ruanbeg, Report Reference No. 22-0819, dated 10th October 2022.
5. Ground Investigation, Causeway Geotech, Ruanbeg Phase 2, Report Reference No. 22-1436, dated 27th January 2023.
6. Hydrogeological Site Assessment Report, BlueRock Environmental Ltd, Ruanbeg Residential Development, Report Reference No. BRE22014Rp01A02, dated 3rd May 2023.

From the GSI/ EPA website, the following information was obtained:

1. Soil Map;
2. Bedrock Geology Maps;
3. Quaternary (Subsoils) Maps;
4. Well Card Database (Groundwater Wells);
5. Historical Geological 6 inch:1-mile maps;
6. Database of Site Investigations/Surveys;
7. Waste sites, mine sites and industrial locations;
8. Geological heritage locations; and
9. Water features.

Hydrology and Water Services

The assessment was undertaken to assess potential environmental impacts on the hydrological and hydrogeological environments by undertaking the following:

- A desk-based study of all available hydrological and hydrogeological information in relation to the site and its general environs;
- A review of the spatial layout and characteristics of the proposed development;
- An assessment of construction and operational phase activities associated with the proposed development; and,
- Details of appropriate mitigation measures to demonstrate no significant adverse impact on the hydrological and hydrogeological environments.

This chapter was undertaken in accordance with the following guidelines and guidance documentation:

- Geology in Environmental Impact Statements, A Guide, (IGI, 2002),
- Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes, NRA Document.
- Guidelines for the preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI, 2013),
- EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports, (EPA, 2022).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (published in August 2018).
- Guidelines on Environmental Impact Assessment issued by the European Commission in 2017.

The following sources of information were used in the compilation of this assessment:

- Ordnance Survey of Ireland (OSI), Discovery Series, Sheet 55;
- Ordnance Survey of Ireland online historical maps and aerial photographs;
- Geology Kildare - Wicklow, Geological Survey of Ireland (GSI) (1:100,000), Sheet 16;
- GSI - On-line Geology Database. Aquifer Classification, Aquifer Vulnerability;
- GSI - GWDTE-Pollardstown Fen (SAC000396) and Curragh Gravels West (GWB);
- GSI - Groundwater Source Protection Zones - Rathangan PWS, MONASTEREVIN PWS and Curragh Camp PWS;
- Soil Map of Ireland (Second Edition, 1980), National Soil Survey of Ireland, An Foras Talúntais;
- National Parks and Wildlife Service (NPWS) on-line database (www.npws.ie);
- Environmental Protection Agency (EPA) online water quality mapping; (https://gis.epa.ie/EPAMaps/);
- Water Framework Directive (WFD) http://wfdireland.ie/maps.html;
- OPW hydro-data (http://www.opw.ie/hydro-data);
- Flood Hazard Maps and flooding information for Ireland, www.floodmaps.ie - Office of Public Works (OPW);
- CFRAM/ PFRA Maps (OPW);
- The Planning System and Flood Risk Management – Guidelines for Planning Authorities - Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW);
- Public Foul Drainage (Irish Water and KCC Records);
- Public Water Main Networks (Irish Water and KCC Records);
- Public Surface Water Drainage (Irish Water and KCC Records);
- Office of Public Works flood mapping data (www.floodmaps.ie).

- Met Eireann monthly climatological data (https://www.met.ie/);
- Previous Site Investigation reports as detailed in Section 7.3.3;
- Punch Consulting Engineers Site Specific Flood Risk Assessment 222143-PUNCH-XX-XX-RP-C-0004 April 2023; and,
- Ruanbeg Residential Development, Hydrogeological Site Assessment, BRE22014Rp01A01, 3rd May 2023 (Appendix 7.1).

Noise and Vibration

Typical ambient noise levels across the local area were measured, and these were used to identify appropriate construction phase noise criteria. Likely construction plant was identified, and their noise emissions data used to predict likely noise levels at surrounding receptors. Predicted levels were assessed in the context of identified criteria, and mitigation measures identified where required. Potential sources of vibration during the construction phase were identified, and impacts assessed by reference to commonly applied criteria.

Noise sources associated with the operational phase of the Proposed Development were reviewed, and potential impacts assessed. Such impacts relate predominantly to traffic and industry. An assessment of inward noise impacts was undertaken, and the requirement for enhanced façade treatments was assessed.

The assessment was undertaken having regard to guidance set out in Guidelines on The Information To Be Contained In Environmental Impact Assessment Reports (Environmental Protection Agency, 2022).

Documents consulted:

- British Standard BS 7385-2:1993 Evaluation And Measurement For Vibration In Buildings - Part 2: Guide To Damage Levels From Ground borne Vibration (1993).
- Guidelines On Community Noise (World Health Organisation, 1999).
- Directive 2002/49/EC Of The European Parliament And Of The Council Relating To The Assessment And Management Of Environmental Noise (2002), Transposed Into Irish Law By The European Communities (Environmental Noise) Regulations 2018 (SI No. 549/2018).
- NANR116: Open/Closed Window Research – Sound Insulation Through Ventilated Domestic Windows (prepared by the Napier University Building Performance Centre for DEFRA, 2007).
- Guidance Note For Noise Action Planning (Environmental Protection Agency, 2009).
- Night Noise Guidelines For Europe (World Health Organisation, 2009).
- Design Manual For Roads And Bridges (UK Highways Agency, 2011).
- Measurement And Assessment Of Ground borne Noise And Vibration (Association Of Noise Consultants (2012).
- Specialist Services Health Technical Memorandum 08-01: Acoustics (UK Department of Health, 2013).
- British Standard BS 4142:2014 Methods For Rating And Assessing Industrial And Commercial Sound (2014).
- British Standard BS 5228-1:2009+A1:2014 Code Of Practice For Noise And Vibration Control On Construction And Open Sites – Part 1: Noise (2014).
- British Standard BS 5228-2:2009+A1:2014 Code Of Practice For Noise And Vibration Control On Construction And Open Sites – Part 2: Vibration (2014).

- British Standard BS 8233:2014 Guidance On Sound Insulation And Noise Reduction For Buildings (2014).
- Good Practice Guidance For The Treatment Of Noise During The Planning Of National Road Schemes (National Roads Authority (Now Transport Infrastructure Ireland), 2014).
- Technical Guidance Document TGD-021-5: Acoustic Performance In New Primary & Post Primary School Buildings (Department of Education & Skills, 2015).
- NG4 Guidance Note For Noise: License Applications, Surveys And Assessments In Relation To Scheduled Activities (Environmental Protection Agency, 2016).
- ProPg Planning & Noise: Professional Practice Guidance On Planning & Noise – New Residential Development (Association Of Noise Consultants, Institute Of Acoustics & Chartered Institute Of Environmental Health, 2017).
- Environmental Noise Guidelines For The European Region (World Health Organisation, 2018).
- Third Noise Action Plan 2019-2023 (Kildare County Council, 2019).
- Guidelines On The Information To Be Contained In Environmental Impact Assessment Reports (Environmental Protection Agency, 2022).
- Kildare County Development Plan

Guidance And Criteria - Construction Phase Noise

There are no national mandatory noise limits relating to the construction phases of projects. In granting planning permission, a local authority may stipulate construction phase noise limits applicable to daytime, evening, night-time, and weekend hours as appropriate. There are no national guidelines available regarding the selection of such limits. Many local authorities chose to apply a 65 dB LAeq T limit.

The chief noise guidance document applied in Ireland and the UK in construction phase noise assessments is British Standard BS 5228:2009+A1:2014 Code of Practice for Noise And Vibration Control On Construction And Open Sites Part 1: Noise (2014). Annex E of the document sets out several methods to draw up suitable noise criteria applicable to the construction phase of a project. The most appropriate method here is the 'ABC method,' which provides for the selection of criteria based on existing ambient noise data. On the basis of noise data recorded locally, as discussed below, a daytime $LA_{eq\ 1\ h}$ criterion of 65 dB is identified. This criterion is identical to that typically applied by local authorities and is thus applied in this assessment. The $LA_{eq\ 1\ h}$ parameter describes the total noise emissions from all construction sources occurring during any 1 h period, averaging over that hour.

BS 5228:2009+A1:2014 states that the 65 dB criterion is applicable to the periods Monday-Friday 0700 - 1900 h and Saturday 0700-1300 h. Construction operations will not be undertaken during evening or night-time hours, or on Sundays or Bank holidays. This assessment therefore applies the 65 dB criterion in respect of all construction works.

The 65 dB criterion is considered applicable to surrounding receptors, in their immediate curtilage. In this regard, the Environmental Protection Agency (EPA) document NG4 Guidance Note For Noise: License Applications, Survey And Assessments In Relation To Scheduled Activities (2016) defines a noise sensitive location as:

> *'Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires absence of noise at nuisance levels.'*

As construction projects tend to be relatively short, and as construction works areas are usually localised and mobile, the 65 dB limit is usually not subject to any additional criteria such as tone and impulse restrictions.

Guidance And Criteria - Construction Phase Vibration

As with noise, there are no national limits relating to ground borne vibration, and reference is usually made to guidance set out in British Standard BS 5228-2:2009+A1:2014 Code Of Practice For Noise And Vibration Control On Construction And Open Sites – Part 2: Vibration (2014). Table 8-1 presents guidance included in the document with respect to human perception of peak particle velocity (PPV), the most commonly applied descriptor of ground borne vibration.

PPV	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mm/s	Vibration might be just perceptible in residential environments.
1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.
10.0 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level.

Table 0.3: Human perception of vibration, from BS 5228-2:2009+A1:2014

During construction projects, reference is usually made to criteria relevant to buildings, in order to avoid potential cosmetic or structural damage. The National Roads Authority document identified above has seen increasing application to non-road projects due to the absence of any other Irish guidance. National Transport Authority criteria, listed in Table 8-2, are informed by documents such as British Standard BS 7385-2:1993 Evaluation and Measurement for Vibration in Buildings – Part 2: Guide to Damage Levels from Ground borne Vibration (1993).5 The criteria apply to the closest part of any relevant building or structure.

Frequency	<10 Hz	10-50 Hz	>50Hz
PPV	8 mm/s	12.5 mm/s	20 mm/s

Table 0.4: Building vibration criteria, from the National Roads Authority (2014)

Limits set out above are considerably lower than criteria presented in Table 8-3. The criteria presented are those below which cosmetic damage (hairline cracking, etc.) to buildings is unlikely to occur. Limits relating to structural damage are significantly higher.

Structure	Lower frequencies	Higher frequencies	Source
Modern dwellings	<40 Hz: 19 mm/s	>40 Hz: 51 mm/s	1
Older dwellings	<40 Hz: 12.7 mm/s	>40 Hz: 51 mm/s	1

Industrial & heavy commercial	4-15 Hz: 50 mm/s	>15 Hz: 50 mm/s	2&3
Residential & light commercial	4-15 Hz: 15-20 mm/s	>15 Hz: 20-50 mm/s	2&3

Table 0.5: Recommended vibration limits

Guidance And Criteria - Operational Phase Noise

General

There are no national mandatory noise limits applicable to operational developments. Two elements of the commissioned development may give rise to noise emissions (outside of those associated with external residential activities such as children playing and grass cutting): specifically, the proposed non-residential elements (termed 'commercial' for the purposes of this assessment), and traffic. These are typically assessed differently.

Traffic Emissions

Local offsite receptors are currently subject to existing traffic noise levels on the surrounding road network and background noise levels from the existing Kildare Chilling Meat factory. The Proposed Development will increase traffic volumes locally, with a consequent increase in traffic noise levels. The Design Manual for Roads and Bridges (UK Highway Agency, 2011) notes that the resulting noise impact is linked to the magnitude of the noise increase. Table 8-4 sets out the DMRB guidance. Included in the table are impact categories listed by the EPA in their 2022 document Guidelines on The Information to be Contained in Environmental Impact Assessment Reports.

Noise level increase	Subjective reaction	DMRB impact	EPA impact
0 dB	None	No change	Neutral
0 – 3 dB	Imperceptible	Negligible	Imperceptible to not significant
3 – 5 dB	Perceptible	Minor	Not significant to slight
5 – 10 dB	Up to a doubling of loudness	Moderate	Slight to moderate
>10 dB	Doubling of loudness or greater	Major	Significant to profound

Table 0.6: DMRB assessment guidance

Non-Residential Emissions

Most environmental noise guidance documents issued across Europe ultimately derive limits from guidance issued by the World Health Organisation (WHO). The WHO document Guidelines on Community Noise (1999) sets out guideline values considered necessary to protect communities from environmental noise. With respect to residential settings, the document notes that an outdoor $L_{Aeq\ 16\ h}$ level of 55 dB is an indicator of serious annoyance during daytime and evening hours, with 50 dB being an indicator of moderate annoyance. The 55 dB criterion was first suggested by the WHO in their 1980 document Environmental Health Criteria 12.

Since 1980, the 55 dB criterion has become the de facto daytime limit applied by most Irish regulatory authorities to commercial and industrial operators. Although the WHO criterion applies to daytime

periods of 16 hours, authorities typically specify shorter periods, and thus limits as $L_{Aeq\ 15\ min}$, $L_{Aeq\ 30\ min}$ and $L_{Aeq\ 1\ h}$ are variously applied. In issuing licences to industrial facilities, the EPA typically specifies a daytime LAeq T limit of 55 dB at receptors. The EPA currently considers daytime to refer to 0700-1900 h. A similar daytime limit is usually included in noise conditions attached to planning permission issued by local authorities. Kildare Chilling are required to carry out a noise survey of the site operations annually to ensure their activities are not causing noise issues off site. Kildare Chilling are required to comply with their EPA licence (P170-01) in full which includes noise and air emissions.

Noise Emissions Limits Relating to Kildare Chilling

Daytime dB Lar,T (30 minutes)	Evening Time dB Lar,T (30 minutes)	Night- Time dB Lar,T (30 minutes) Note1
55	50	45

Note 1: During Night time hours, there shall be clearly audible tonal component or impulsive component in the noise emission from the activity at any noise sensitive location.

The WHO's 1999 guidance document recommends an external night-time criterion of 45 dB to prevent sleep disturbance. Although the WHO document Night Noise Guidelines For Europe (2009) refers to a 40 dB night-time criterion, this relates to the L_{night}, outside parameter, which is the long-term average measured throughout a whole year. The 45 dB criterion is considered more appropriate to short term measurement intervals. As before, $L_{Aeq\ 15\ min}$, $L_{Aeq\ 30\ min}$ and $L_{Aeq\ 1\ h}$ intervals are variously applied by regulatory authorities, rather than the 8-hour period to which the WHO's 45 dB criterion applies. The EPA considers that night-time refers to 2300-0700 h.

Neither of the WHO documents identified above refers to evening periods, and indeed their 1999 document assumes that daytime extends to 2300 h. However, a trend towards the separate assessment of evening impacts is currently evident, partly driven by EPA document NG4 Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (2016). The original 2012 version of the document introduced the evening period 1900-2300 h. The NG4 document recommends an evening criterion of 50 dB, applicable externally at receptors.

Many authorities require that a penalty be added to measured noise levels where emissions are tonal and/or impulsive. NG4 specifies the addition of a 5 dB penalty to site specific $L_{Aeq\ T}$ levels measured during daytime or evening hours. During night-time hours, the EPA prohibits tones and impulses entirely, stating that such characteristics should not be 'clearly audible or measurable'. With respect to short term impulsive sources, the WHO recommends a night-time L_{Amax} limit of 60 dB outside bedroom windows during night-time hours. No L_{Amax} limit is recommended for daytime periods.

The above criteria, summarised in Table 8-5, are considered relevant to commercial sources at the Proposed Development. A measurement interval of 15 minutes is considered appropriate. Rather than allowing daytime and evening levels to be rated for tonal or impulsive features, the table assumes that such features are avoided at all times. Criteria apply externally at receptors.

Period	Parameter	Limit
0700 - 1900h	$L_{Aeq\ 15\ min}$	55dB
1900 – 2300h	$L_{Aeq\ 15\ min}$	50dB
2300 – 0700h	$L_{Aeq\ 15\ min}$	45dB
2300 – 0700h	L_{AFmax}	60dB

Table 0.7: Noise criteria appropriate to commercial emissions

The WHO document Environmental Noise Guidelines for The European Region (2018) updates their guidance with respect to certain sources. Of relevance here are updated guidelines in relation to traffic. In this regard, the document states:

> *'For average noise exposure, the GDG (Guideline Development Group) strongly recommends reducing noise levels produced by road traffic below 53 decibels (dB) L_{den}, as road traffic noise above this level is associated with adverse health effects. For night noise exposure, the GDG strongly recommends reducing noise levels produced by road traffic during night-time below 45 dB Lnight, as night-time road traffic noise above this level is associated with adverse effects on sleep.'*

It is noted that the 53 A_{lden} and 45 dB L_{night} criteria recommended in the 2018 document are lower than criteria set out in other documents. In this regard, the 2018 guidelines are considered aspirational, and are likely to form the basis of national and local policy over the next two decades.

In addition to the absolute criteria above, the impact of noise emissions from non-residential sources may be assessed by reference to relative criteria. The most commonly applied standard here is British Standard BS 4142:2014 Methods for Rating and Assessing Industrial and Commercial Sound (2014) which provides for the comparison of specific $L_{Aeq\,T}$ levels (i.e., noise levels attributable to the source in question) with background levels and provides an indication of impact depending on the difference. Specific levels may be rated to take tonal, impulsive, and other characteristics into account. The standard notes that the background noise environment may include existing industrial emissions unrelated to the specific source.

BS 4142:2014 states that a difference between specific and background levels of 10 dB or more is indicative of a significant adverse impact. A difference of 5 dB suggests an adverse impact, with lower differences suggesting reduced impacts. The standard adds that the perception of impact will be increased or reduced depending on local context.

Inward Noise Impacts

Inward noise

The assessment of inward noise impacts on proposed residential developments is a relatively new feature in the Irish planning system, and no national guidance has been issued to date. In the absence of Irish guidance, assessments are typically undertaken in accordance with UK guidance. Most UK assessments are now carried out using Propg Planning & Noise: Professional Practice Guidance On Planning & Noise – New Residential Development (2017), jointly issued by the Association of Noise Consultants, the Institute of Acoustics, and the Chartered Institute of Environmental Health. ProPG provides for good acoustic design through a five-step process:

- Stage 1: Initial noise risk assessment of the proposed development site.
- Stage 2 element 1: Demonstrating a good acoustic design process.
- Stage 2 element 2: Observing internal noise level guidelines.
- Stage 2 element 3: Undertaking an external amenity area noise assessment.
- Stage 2 element 4: Consideration of other relevant issues.

Internal noise guidelines recommended by ProPG, drawn from British Standard BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings (2014), are presented in Table 8-6.

Activity	Location	(07:00 to 23:00)	(23:00 to 07:00)
Resting	Living room	35 dB $L_{Aeq,16hr}$	-

Dining	Dining room / area	40 dB $L_{Aeq,16hr}$	-
Sleeping or daytime resting	Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq\ 8hr}$

Table 0.8: Recommended internal criteria from BS 8233:2014 and ProPG

BS 8233:2014 adds that:

> *'Regular individual noise events can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values.'*

ProPG adds further advice here:

> *'In most circumstances in noise-sensitive rooms at night (e.g., bedrooms) good acoustic design can be used to that individual noise events ta not narmally exceed 45 dB L_{AmaxF} more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability, and regularity of noise events.'*

With respect to external amenity areas such as gardens in the curtilage of dwellings, BS 8233:2014 states:

'For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external naise level does not exceed 50 dB $L_{Aeq\ T}$, with an upper guideline value of 55 dB $L_{Aeq\ T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher naise areas, such a city centres or urban areas

adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces but should not be prohibited.'

With respect to the proposed creche, there are no specific creche criteria in force. Reference may be made to Technical Guidance Document TGD-021-5: Acoustic Performance In New Primary & Post Primary School Buildings (Department of Education & Skills, 2015). The document recommends an indoor ambient $L_{Aeq\ 30\,min}$ level of 35 dB. This criterion is applied in this assessment. The document adds that where the external $L_{Aeq\ 30\,min}$ level does not exceed 51-55 dB (range dependent on ventilation type) at the façade, opening windows and vents may be suitable.

BS 8233:2014 includes recommendations regarding noise levels in office buildings. An internal LAeq T level of 45-50 dB is recommended with respect to open plan offices.

Specialist Services Health Technical Memorandum 08-01: Acoustics8 (UK Department of Health, 2013) recommends several noise criteria for healthcare room types. The strictest daytime criterion is 40 dB $L_{Aeq\ 1\,h}$. The lowest night-time criterion is 35 dB $L_{Aeq\ 1\,h}$, with an L_{AFmax} recommendation of 45 dB.

Achieving compliance with the above recommendations in internal spaces at the Proposed Development will require consideration at detailed design stage, particularly in relation to internal

transmission between rooms. The chief consideration with respect to the planning application stage is to identify if external noise levels due to road traffic are elevated, thus indicating that enhanced building fabric treatments including glazing will be required.

Kildare Noise Action Plan

The Third Noise Action Plan 2019-2023 (Kildare County Council 2019) refers to 'arbitrary threshold values' taken from Guidance Note For Noise Action Planning (EPA, 2009) as follows:

- 70 dB $L_{den.}$
- 57 dB $L_{night.}$

The plan also states:

'In the scenario where new residential properties or other noise sensitive premises are introduced into an existing climate of environmental noise, there is currently no clear national planning guidance on noise from the Department of Housing, Planning and Lacal Government. Kildare Local Authority may develop and publish its own set of guidance on noise assessment and control which would be applicable throughout the county. In the interim, Kildare Local Authority shall require quantifiable noise assessments to be carried where any part of the residential developments is located with 150m of a rail corridor or adjacent to the 'Major Roads' within the county. The quantifiable assessment of environmental noise shall include, inter alia, the situation internally with open windows and externally in the amenity areas of development.'

Whilst the control of external levels of environmental noise constitutes one aspect of noise management within planning and aims to provide benefit to amenity spaces, the control of noise levels within residential properties and other noise sensitive premises also plays an important role. In the scenario where new noise sensitive premises are introduced to locations already exposed to significant levels of long-term environmental noise as set out in the Environmental Noise Regulations, i.e., 70 dB (A) L_{den} and 57 dB (A) L_{night}, it is considered appropriate to consider aiming to achieve target internal noise levels within noise sensitive rooms, such as living rooms and bedrooms.'

Summary of Criteria

Noise and vibration criteria relevant to the construction phase are summarised in Table 8-7.

Type	Parameter	Criterion	Period	Comment
Noise	LAeq 1 h	General: 65 dB	M-Sa working hours	Externally at offsite receptors
Vibration	PPV	<10 Hz: 8 mm/s 10-50 Hz: 12.5 mm/s >50 Hz: 20 mm/s	Working hours	Offsite buildings & structures

Table 0.9: Summary of construction phase noise and vibration criteria

Noise criteria relevant to the operational development are listed in Table 8-7. Vibration criteria are not relevant as the Proposed Development once operational will not result in any increased vibration impacts.

Type	Parameter	Criterion	Period	Comment
Traffic	$L_{Aeq\,T}$	Minimal increase over existing	All periods	Externally at offsite receptors
Inward	$L_{Aeq\,16\,h}$	35 dB	0700-2300 h	Internally in proposed living rooms
Inward	$L_{Aeq\,16\,h}$	40 dB	0700-2300 h	Internally in proposed dining areas
Inward	$L_{Aeq\,16\,h}$	35 dB	0700-2300 h	Internally in proposed bedrooms
Inward	$L_{Aeq\,8\,h}$	30 dB	2300-0700 h	Internally in proposed bedrooms
Inward	L_{AFmax}	45 dB	2300-0700 h	Preferably <10 such events in proposed bedrooms at night
Inward	$L_{Aeq\,16\,h}$	50 - 55 dB	0700-2300 h	External amenity areas
Inward	$L_{Aeq\,30\,min}$	35 dB	Daytime	Internal creche rooms
Inward		51 – 55 dB	Daytime	External creche facade
Inward	L_{den}	70 dB	24 h	Noise action plan mitigation external criterion for road noise
Inward	L_{night}	57 dB	2300-0700 h	Noise action plan mitigation external criterion for road noise
Traffic	$L_{Aeq\,T}$	Minimal increase over existing	All periods	Externally at offsite receptors
Non-Residential	$L_{Aeq\,15\,min}$	55 dB	0700-1900 h	Externally at offsite receptors
Non-Residential	$L_{Aeq\,15\,min}$	50 dB	1900-2300 h	Externally at offsite receptors
Non-Residential	$L_{Aeq\,15\,min}$	45 dB	2300-0700 h	Externally at offsite receptors

Non-Residential	L_{AFmax}	60 dB	2300-0700 h	Externally at offsite receptors
Non-Residential	$L_{Aeq\,T}$	Minimal increase over existing	All periods	Externally at offsite receptors

Table 0.10: Summary of operational phase noise criteria

Climate and Air Quality

The general assessment methodology of the potential impact of the proposed development on air quality and climate has been devised in accordance with:

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (May 2022)
- EPA Guidelines on information to be contained in Environmental Impact Assessment Reports 2017
- Guidelines on Information to be Contained in an Environmental Impact Statement (EPA 2002).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DoHPLG, August 2018).
- Advice Notes on Current Practice (in preparation of Environmental Impact Statements) (EPA 2003).
- Environmental Protection Agency, 2015. Revised Guidelines on the Information to be Contained in Environmental Impact Statements.
- Environmental Protection Agency, 2015. Draft Advice Notes for Preparation of Environmental Impact Statements.
- Environmental Impact Assessment (EIA), Guidance for Consent Authorities Regarding Sub-Threshold Development (DoEHLG 2003).
- Development Management Guidelines (DoEHLG, 2007).
- European Union (Planning & Development) (Environmental Impact Assessment Regulations 2018).
- Design Manual for Roads and Bridges (DMRB).

Landscape and Visual

Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity.

The methodology for assessment of the landscape and visual effects is informed by the following key guidance documents, namely:

- Guidelines for Landscape and Visual Impact Assessment, 3rd Edition 2013, published by the UK Landscape Institute and the Institute of Environmental Management and Assessment (hereafter referred to as the GLVIA).

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, May 2022, published by the Environmental Protection Agency (EPA) (hereafter referred to as the 'EPA guidelines');
- Kildare County Development Plan 2023-2029.
- Kildare Town Local Area Plan 2012-2018
- Draft Kildare Town Local Area Plan 2023-2029.

Key Principles of the GLVIA

Use of the Term 'Effect' vs 'Impact'

The GLVIA advises that the terms 'impact' and effect' should be clearly distinguished and consistently used in the preparation of an LVIA.

'Impact' is defined as the action being taken. In the case of the proposed development, the impact would include the construction of the buildings and associated boundaries and external areas.

'Effect' is defined as the change or changes resulting from those actions, e.g. a change in landscape character, or changes to the composition, character and quality of views in the receiving environment. This report focusses on these effects.

Assessment of Both 'Landscape' and 'Visual' Effects

Another key distinction to make in a LVIA is that between landscape effects and the visual effects of development.

'Landscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create distinctive character of landscape in different places. 'Landscape character assessment' is the method used in LVIA to describe landscape, and by which to understand the potential effects of a development on the landscape as 'a resource'. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of landscape that make a place distinctive.

Views and 'visual amenity' refer to the interrelationship between people and the landscape. The GLVIA prescribes that effects on views and visual amenity should be assessed separately from landscape, although the two topics are inherently linked. Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

Methodology for Landscape Assessment

The landscape effects of the development are assessed within the Predicted Impacts section of this report. The nature and scale of changes to the landscape elements and characteristics are identified, and the consequential effect on landscape character and value are discussed. Trends of change in the landscape are taken into account. The assessment of significance of the effects takes account of the sensitivity of the landscape resource and the magnitude of change to the landscape which resulted from the development.

Sensitivity of the Landscape Resource

Landscape sensitivity is a function of its land use, landscape patterns and scale, visual enclosure and distribution of visual receptors, scope for mitigation, and the value placed on the landscape. It also

relates to the nature and scale of development proposed. It includes consideration of landscape values as well as the susceptibility of the landscape to change.

Landscape values can be identified by the presence of landscape designations or policies which indicate particular values, either on a national or local level. In addition, a number of criteria are used to assess the value of a landscape.

Landscape susceptibility is defined in the GLVIA as the ability of the landscape receptor to accommodate the proposed development without undue consequences for the maintenance of the baseline scenario and/or the achievement of landscape planning policies and strategies. Susceptibility also relates to the type of development – a landscape may be highly susceptible to certain types of development but have a low susceptibility to other types of development.

For the purpose of assessment, three categories are used to classify the landscape sensitivity of the receiving environment.

Sensitivity is therefore a combination of Landscape value and Susceptibility.

Sensitivity	Description
Very High	Areas where the landscape exhibits a very strong, positive character with valued elements, features and characteristics that combine to give an experience of unity, richness and harmony. The character of the landscape is such that its capacity for accommodating change in the form of development is very low. These attributes are recognised in landscape policy or designations as being of national or international value and the principle management objective for the area is protection of the existing character from change.
High	Areas where the landscape exhibits strong, positive character with valued elements, features and characteristics. The character of the landscape is such that it has limited/low capacity for accommodating change in the form of development. These attributes are recognised in landscape policy or designations as being of national, regional or county value and the principle management objective for the area is conservation of the existing character.
Medium	Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong or has evidence of alteration to / degradation / erosion of elements and characteristics. The character of the landscape is such that there is some capacity for change in the form of development. These areas may be recognised in landscape policy at local or county level and the principle management objective may be to consolidate landscape character or facilitate appropriate, necessary change.
Low	Areas where the landscape has few valued elements, features or characteristics and the character is weak. The character of the landscape is such that it has capacity for change; where development would make no significant change or would make a positive change. Such landscapes are generally unrecognised in policy and where the principle management objective is to facilitate change through development, repair, restoration or enhancement.
Negligible	Areas where the landscape exhibits negative character, with no valued elements, features or characteristics. The character of the landscape is such that its capacity for accommodating change is high; where development would make no significant change or would make a positive change. Such landscapes include derelict industrial lands or extraction sites, as well as sites or areas that are designated for a particular type of development. The principle management objective for the area is to facilitate change in the landscape through development, repair or restoration.

Table 0.11: Categories of Landscape Sensitivity

Magnitude of Landscape Change

The magnitude of change is a factor of the scale, extent and degree of change imposed on the landscape with reference to its key elements, features and characteristics (also known as 'landscape receptors'). Four categories are used to classify magnitude of landscape change.

Magnitude of Change	Description
Very High	Change that is large in extent, resulting in the loss of or major alteration to key elements, features or characteristics of the landscape and/or introduction of large elements considered totally uncharacteristic in the context. Such development results in fundamental change in the character of the landscape.
High	Change that is moderate to large in extent, resulting in major alteration to key elements features or characteristics of the landscape and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the landscape.
Medium	Change that is moderate in extent, resulting in partial loss or alteration to key elements features or characteristics of the landscape, and/or introduction of elements that may be prominent but not necessarily substantially uncharacteristic in the context. Such development results in change to the character of the landscape.
Low	Change that is moderate or limited in scale, resulting in minor alteration to key elements features or characteristics of the landscape, and/or introduction of elements that are not uncharacteristic in the context. Such development results in minor change to the character of the landscape.
Negligible	Change that is limited in scale, resulting in no alteration to key elements features or characteristics of the landscape key elements features or characteristics of the landscape, and/or introduction of elements that are characteristic of the context. Such development results in no change to the landscape character.

Table 0.12: Categories of Landscape Change

Significance of Effects

In order to classify the significance of effects (both landscape and visual), the predicted magnitude of change is measured against the sensitivity of the landscape/viewpoint, using the following guide. There are seven classifications of significance, namely: (1) imperceptible, (2) not significant, (3) slight, (4) moderate, (5) significant, (6) very significant, (7) profound.

		Sensitivity of the Landscape Resource				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Magnitude of Change	**Very High**	*Profound*	*Profound-Very Significant*	*Very Significant-Significant*	*Moderate*	*Slight*
	High	*Profound-Very Significant*	*Very Significant*	*Significant*	*Moderate-Slight*	*Slight-Not Significant*
	Medium	*Very Significant-Significant*	*Significant*	*Moderate*	*Slight*	*Not Significant*
	Low	*Moderate*	*Moderate-Slight*	*Slight*	*Not significant*	*Imperceptible*

Negligible	*Slight*	*Slight-Not Significant*	*Not significant*	*Imperceptible*	*Imperceptible*

Table 0.13: Guide to Classification of Significance of Landscape Effects

The matrix above is used as a guide only. The assessor also uses professional judgement informed by their expertise, experience and common sense, to arrive at a classification of significance that is reasonable and justifiable.

Landscape effects are also classified as positive, neutral or negative/adverse (See definitions in Quality and Timescale section at the end of the methodology). Development has the potential to improve the environment as well as damage it. In certain situations, there might be policy encouraging a type of change in the landscape, and if a development achieves the objective of the policy the resulting effect might be positive, even if the landscape character is profoundly changed.

Methodology for Visual Assessment

The report assesses the visual effects of the development. Visual assessment considers the changes to the composition of views, the character of the views, and the visual amenity experienced by visual receptors. The assessment is made for a number of viewpoints selected to represent the range of visual receptors in the receiving environment. The significance of the visual effects experienced at these locations is assessed by measuring the viewpoint sensitivity against the magnitude of change to the view resulting from the development.

Sensitivity	Description
Very High	Viewers at iconic viewpoints - towards or from a landscape feature or area - that are recognised in policy or otherwise designated as being of high value or national value. This may also include residential viewers who are focussed to a large extent on the view.
High	Viewers at viewpoints that are recognised in policy or otherwise designated as being of value, or viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features) and views which are highly valued by the local community. This may also include tourist attractions, and heritage features of regional or county value, and viewers travelling on scenic routes.
Medium	Viewers considered of medium susceptibility, such as locations where viewers are travelling at slow or moderate speeds through or past the affected landscape in cars or on public transport, where they are partly but not entirely focused on the landscape, or where the landscape has some valued views. The views are generally not designated, but which include panoramic views or views judged to be of some scenic quality, which demonstrate some sense of naturalness, tranquillity or some rare element in the view.
Low	Viewers at viewpoints reflecting people involved in activities not focused on the landscape e.g. people at their place of work or engaged in similar activities such as shopping, etc. The view may present an attractive backdrop to these activities but there is no evidence that the view is valued, and not regarded as an important element of these activities. Viewers travelling at high speeds (e.g. motorways) may also be generally considered of low susceptibility.
Negligible	Viewpoints reflecting people involved in activities not focused on the landscape e.g. people at their place of work or engaged in similar activities such as shopping where the view has no relevance or is of poor quality and not valued.

Table 0.14: Categories of Viewpoint Sensitivity

Magnitude of Change to the View

Classification of the magnitude of change takes into account the size or scale of the intrusion of development into the view (relative to the other elements and features in the composition, i.e. its relative visual dominance), the degree to which it contrasts or integrates with the other elements and the general character of the view, and the way in which the change will be experienced (e.g. in full view, partial or peripheral, or glimpses). It also takes into account the geographical extent of the change, the duration and the reversibility of the visual effects.

Five categories are used to classify magnitude of change to a view:

Magnitude of Change	Description
Very High	Full or extensive intrusion of the development in the view, or partial intrusion that obstructs valued features or characteristics, or introduction of elements that are completely out of character in the context, to the extent that the development becomes the dominant the composition and defines the character of the view and the visual amenity.
High	Extensive intrusion of the development in the view, or partial intrusion that obstructs valued features, or introduction of elements that may be considered uncharacteristic in the context, to the extent that the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity.
Medium	Partial intrusion of the development in the view, or introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity.
Low	Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity.
Negligible	Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.

Table 0.15: Categories of Visual Change

Significance of Visual Effects

As for landscape effects, in order to classify the significance of visual effects, the magnitude of change to the view is measured against the sensitivity of the viewpoint, using the guide in Table 3 above.

Quality and Timescale

Qualitative Impacts

The predicted impacts are also classified as beneficial, neutral or adverse. This is not an absolute exercise; in particular, visual receptors' attitudes to development, and thus their response to the impact of a development, will vary. However, the methodology applied is designed to provide robust justification for the conclusions drawn. These qualitative impacts/effects are defined as:

- **Adverse** – Scheme at variance with landform, scale, pattern. Would degrade, diminish or destroy the integrity of valued features, elements or their setting or cause the quality of the landscape(townscape)/view to be diminished;
- **Neutral** - Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality;

- **Beneficial** – improves landscape(townscape)/view quality and character, fits with the scale, landform and pattern and enables the restoration of valued characteristic features or repairs / removes damage caused by existing land uses.

Timescale of the Impacts

Impacts/effects are also categorised according to their longevity or timescale:

- **Temporary** – Lasting for one year or less;
- **Short Term** – Lasting one to seven years;
- **Medium Term** – Lasting seven to fifteen years;
- **Long Term** – Lasting fifteen years to sixty years;
- **Permanent** – Lasting over sixty years.

A statement is made as to the appropriateness of the proposed development based on the combined assessment of the predicted landscape and visual effects. This methodology, in accordance with the various guidelines for LVIA, results in a conclusion as to the appropriateness of the proposed development based on objective assessment of its likely landscape and visual impacts.

Traffic and Transportation

The purposed of this assessment is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of transport impact generated as a resuit of the proposed development. The scope of the assessment covers transport and sustainability issues including pedestrian, cyclist, and public transport connectivity.

Recommendations contained within this chapter are based on existing and proposed road layout plans, site visits, traffic observations and historic junction vehicle turning count data. Our methodology incorporated a number of key stages, including;

- Site Audit: A site audit was undertaken to quantify existing road network issues and identify local infrastructure characteristics, in addition to establishing the level of accessibility to the site in terms of walking, cycling and public transport. An inventory of the local road network was also developed during this stage of the assessment.
- Traffic Counts: Junction turning count surveys were undertaken by IDASO Ltd. on Thursday, 9th June 2022 at the R445 and Kildare Chilling Company Junction and on Thursday 30th June 2022 at the R445 and Ruanbeg Manor Junction. The results of these surveys were analysed with the objective of establishing local traffic characteristics in the immediate area of the proposed development.
- Trip Generation: A trip generation exercise has been carried out to establish the potential level of future person trips and subsequently vehicle trips as potentially produced by the proposed development.
- Network Impact: The specific level of influence generated by the proposed development upon the local road network was ascertained.
- Network Analysis: Computer simulations were used to assess the operational performance of key junctions in the post development 2026, 2031 and 2041 development scenarios in accordance with the NRA/TII document 'Traffic and Transport Assessment Guidelines' (2014).

The assessment of effects of the proposed development on material assets are assessed in terms of quality (positive, neutral or negative effects), significance (imperceptible, not significant, slight, moderate, significant, very significant or profound effects), extent, context, probability (likely,

unlikely effects) and duration (momentary, brief, temporary, short term, medium term, long term, permanent or reversable effects) in line with the criteria set out in Table 3.4 'Description of Effects' of the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, May 2022).

Material Assets

The potential impact of this development in relation to material assets utilities was assessed in accordance with:

- Environmental Protection Agency (EPA) Guidelines on the Information to be Contained in Environmental Impact Statements (2022);
- Environmental Protection Agency (September 201S): Draft - Advice Notes on current Practice (in the preparation of Environmental Impact Statements);
- Environmental Protection Agency (2003): Advice Notes on Current Practice (in the Preparation on Environmental Impact Statements);
- Environmental Protection Agency (2002): Guidelines on the Information to be contained in Environmental Impact Statements

Economic assets of natural origin, which include biodiversity, land & soil and water, are addressed elsewhere in this EIAR, in particular Chapter 5, 6 and 7 respectively. Cultural Assets of a Physical Type and Cultural Heritage of a Social Type are addressed in Chapter 13 of this EIAR.

A desktop study was carried out on existing material assets associated with the site of the proposed development. Projections of resource use were undertaken for both the construction and operational phases of the proposed development, and the impacts assessed. Mitigation measures are proposed where appropriate.

Consultations

Consultations were held with the following for the purposes of preparing this chapter:

- A pre-application enquiry was made to Irish Water for a 3S0-unit development. At that time, Irish Water confirmed that a connection could be facilitated for the water, and wastewater subject to upgrades.
- A pre-application enquiry was made to ESBN for a 3S0-unit development. ESBN confirmed that with the diversion of the existing overhead being routed through the development, this would allow for the upgrading of the local infrastructure for future electrical supplies.

Waste Management

The assessment of the impacts of the proposed development arising from the consumption of resources and the generation of waste materials, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

The primary legislative instruments that govern waste management in Ireland and applicable to the project are:

- Waste Management Act 1996 (No. 10 of 1996) as amended. Sub-ordinate legislation includes:

- European Communities (Waste Directive) Regulations 2011 (SI 126 of 2011) as amended
- Waste Management (Collection Permit) Regulations (S.I No. 820 of 2007) as amended
- Waste Management (Facility Permit and Registration) Regulations 2007, (S.I No. 821 of 2007) as amended
- Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) as amended
- Waste Management (Packaging) Regulations 2014 (S.I. 282 of 2014) as amended
- Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997)
- Waste Management (Landfill Levy) Regulations 201S (S.I. No. 189 of 201S) amended by S.I. 182 of 2019.
- European Union (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
- European Union (Batteries and Accumulators) Regulations 2014(S.I. No. 283 of 2014) as amended
- Waste Management (Food Waste) Regulations 2009 (S.I. S08 of 2009), as amended
- European Union (Household Food Waste and Bio-waste) Regulation 2015 (S.I. No. 191 of2015)
- Waste Management (Hazardous Waste) Regulations, 1998 (S.I. No. 163 of 1998) as amended
- Waste Management (Shipments of Waste) Regulations, 2007 (S.I. No. 419 of 2007) as amended
- Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998)
- European Communities (Transfrontier Shipment of Waste) Regulations 1994 (SI 121 of 1994)
- European Union (Properties of Waste which Render it Hazardous) Regulations 201S (S.I. No. 233 of 2015)

- Environmental Protection Act 1992 (No. 7 of 1992) as amended.
- Litter Pollution Act 1997 (No. 12 of 1997) as amended.
- Planning and Development Act 2000 (No. 30 of 2000) as amended.

This Chapter is based on the proposed development and considers the following aspects:

- Legislative context.
- Demolition phase.
- Construction phase (including site preparation, excavation, and levelling); and,
- Operational phase.

A desk study was carried out which included the following:

- Review of applicable policy and legislation which creates the legal framework for resource and waste management in Ireland.
- Description of the typical waste materials that will be generated during the demolition, construction, and operational phases; and
- Identification of mitigation measures to prevent waste generation and promote management of waste in accordance with the waste hierarchy.

Estimates of waste generation during the demolition, construction and operational phases of the proposed development have been calculated. The waste types and estimated quantities are based on published data by the EPA in *National Waste Reports*, data recorded from similar previous

developments, Irish and US EPA waste generation research, other available research sources and waste collection data from the current facilities on site.

Since 1998, the Environmental Protection Agency (EPA) has produced periodic 'National Waste (Database) Reports detailing, among other things, estimates for household and commercial (municipal) waste generation in Ireland and the level of recycling, recovery, and disposal of these materials. The 2020 National Waste Statistics web resource, which is the most recent study published, along with the national waste statistics web resource (December 2022) reported key statistics for 2020.

Mitigation measures are proposed to minimise the effect of the proposed development on the environment during the construction and operational phases, to promote efficient waste segregation and to reduce the quantity of waste requiring disposal.

Legislation and Guidance

Waste management in Ireland is subject to EU, national and regional waste legislation which defines how waste materials must be managed, transported, and treated. The overarching EU legislation is the Waste Framework Directive (2008/98/EC) which is transposed into national legislation in Ireland. The cornerstone of Irish waste legislation is the Waste Management Act 1996 (as amended).

In addition, the Irish government issues policy documents which outline measures aimed to improve waste management practices in Ireland and help the country to achieve EU targets in respect of recycling and disposal of waste. The most recent policy document *A Resource Opportunity – Waste Management Policy in Ireland* was published in 2012 and stresses the environmental and economic benefits of better waste management, particularly in relation to waste prevention.

The strategy for the management of waste from the construction and demolition phase is in line with the requirements of the *Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects* published in 2006 and the *2021 draft Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects.* The guidance document *Construction and Demolition Waste Management: A handbook for Contractors and Site Managers* was also consulted in the preparation of this assessment.

There are currently no Irish guidelines on the assessment of operational waste generation and guidance is taken from industry guidelines, plans and reports, British Standards and other relevant studies and reports including BS S906:2005 Waste Management in Buildings – Code of Practice, the Eastern-Midland Region Waste Management Plan 2015 – 2021, the EPA National Waste Database Reports 1998 – 2012 and the EPA National Waste Statistics Web Resource.

Cultural Heritage

This chapter has been prepared having regard to the following guidelines:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)

- National Monuments Acts, 1930-2014
- The Planning and Development (Strategic Infrastructure) Bill, 2006
- Heritage Act 1995
- Frameworks and Principles for the protection of Archaeological Heritage 1999
- Architectural Heritage (National Inventory) and Historic Monuments and the Local Government (Planning and Development) Act 2000

Study Methodology – Desktop Study

This assessment consists of a paper survey identifying all recorded sites within the vicinity of the proposed development and a site inspection. The methodology has been conducted based on the guidelines from the Department of Culture, Heritage and the Gaeltacht (DAHG).

The desktop survey undertaken consisted of a document and cartographic search utilising a number of sources including the following:

- Record of Monuments and Places (RMP); The RMP records known upstanding archaeological monuments, the original location of destroyed monuments and the location of possible sites identified through, documentary, cartographic, photographic research and field inspections.
- The RMP consists of a list, organised by county and subdivided by 6" map sheets showing the location of each site. The RMP data is compiled from the files of the Archaeological Survey.
- National Inventory of Architectural Heritage; The inventory of architectural heritage lists all post 1700 structures and buildings in the country. This includes structures of architectural, historical, archaeological, artistic, cultural, social, scientific or technical importance.
- County Development Plans; The Development plan was consulted to ascertain if any structures listed in the Record of Protected Structures (RPS) and/or any Architectural Conservation Areas (ACAs). The Record of Protected Structures lists all protected structures and buildings in Meath. This includes structures of architectural, historical, archaeological, artistic, cultural, social, scientific or technical importance.
- Cartographic Sources; The following maps were examined: Down Survey, 1st edition Ordnance Survey Maps (1836-1846) and 2nd edition Ordnance Survey Maps (1908), Rocque Map and the Cassini Map.
- Literary Sources; Various published sources, including local and national journals, were consulted to establish a historical background for the proposed development site. Literary sources are a valuable means of completing the written record of an area and gaining insight into the history of the environs of the proposed development. Principal archaeological sources include: The Excavations Bulletin; Local Journals; Published archaeological and architectural inventories; Peter Harbison, (1975). Guide to the National Monuments of Ireland; and O'Donovan's Ordnance Survey Letters.

- Previous archaeological assessments and excavations for the area were reviewed. This includes the 2009 geophysical survey and the subsequent archaeological testing undertaken in 2010.

A comprehensive list of all literary sources consulted is given in the bibliography/references section of this Chapter below.

Site Inspection

An archaeological field inspection survey seeks to verify the location and extent of known archaeological features and to record the location and extent of any newly identified features. A field inspection should also identify any areas of archaeological potential with no above ground visibility. Many monument types do not leave surface markers. Wooden sites such as prehistoric house or burials may only be recorded through excavation works.

Site visits were undertaken in August 2022.

Assessment Criteria

The criteria used to assess the significance of the impact of a development on an archaeological landscape, site, feature, monument or complex are defined as follows:

- **Profound:** Applies where mitigation would be unlikely to remove adverse effects. Reserved for adverse, negative effects only. These effects arise where an archaeological site is completely and irreversibly destroyed by a proposed development.
- **Significant:** An impact which, by its magnitude, duration or intensity, alters an important aspect of the environment. An impact like this would be where part of a site would be permanently impacted upon, leading to a loss of character, integrity and data about the archaeological feature/site.
- **Moderate:** A moderate direct impact arises where a change to the site is proposed which though noticeable, is not such that the archaeological integrity of the site is compromised, and which is reversible. This arises where an archaeological feature can be incorporated into a modern-day development without damage and that all procedures used to facilitate this are reversible.
- **Slight**: An impact which causes changes in the character of the environment which are not significant or profound and do not directly impact or affect an archaeological feature or monument.
- **Imperceptible:** An impact capable of measurement but without noticeable consequences.

5. Predicted Impacts of the Proposed Development

Population and Human Health

Construction Phase

Any adverse likely and significant environmental impacts will be avoided by the implementation of the remedial and mitigation measures proposed throughout this EIAR.

Chapter 8 Noise and Vibration notes during the construction phase of the project there is the potential for short-term noise effects on nearby noise sensitive properties due to noise emissions from site activities. The application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum as far as practicable. Likely noise and vibration effects during the construction phase will be local, negative, short-term and moderate.

Chapter 9 Climate and Air Quality notes that once the dust minimisation measures outlined in Chapter 9 and Appendix 9.2 are implemented, the impact of the proposed development in terms of dust soiling will be short-term, negative, localised and imperceptible at nearby receptors.

Chapter 11 Traffic and Transportation notes that provided the mitigation measures and management procedures outlined in the Construction Environmental Management Plan are incorporated during the Construction Phase, the residual impact upon the local receiving environment is predicted to be temporary in the nature and slight in terms of effect.

Positive impacts are likely to arise due to an increase in employment and economic activity associated with the construction of the proposed development.

The overall predicted likely and significant impact of the construction phase will be short-term, temporary and neutral.

Operational Phase

The proposed development will contribute to further growth and expansion of the neighbourhood contributing to the existing and future populations.

Chapter 8 Noise and Vibration notes that the predicted impact, once mitigation measures are implemented, of additional traffic, the mechanical plant, and the creche will be of neutral, imperceptible, and long-term impact.

Chapter 9 Climate and Air Quality notes that the air dispersion modelling has shown that emissions of air pollutants are significantly below the ambient air quality standards which are based on the protection of human health, impacts to human health are long-term, negative and imperceptible.

Overall, the predicted impacts of the Operational Phase are considered to be long term and positive to population and human health.

Biodiversity

Terrestrial Biodiversity Protection Protocol

Assuming all mitigation measures are put in place, there would be no significant residual impacts to the terrestrial ecology from the proposed development.

Badger

The proposed development would limit foraging habitat for badgers if active in the vicinity of the site. The site is on the edge of the town with residential/industrial developments surrounding most of the site to the west and south. Badgers in the area could forage in agricultural land/hedgerows to the north west of the site. No sett was found, or evidence of badger activity noted during the site. Therefore, any badgers active to the north east of the site will likely not be disturbed during the operation phase of the proposed development.

Bats

Three species of bat were detected within the site with bat activity concentrated along the mature treelines and hedgerows in particular Hedge 1. Bat activity was high along the R445 boundary. The light pollution was high here given the main and road and industrial development across the road. Insect activity is likely to be high in this area given the abattoir across the road. Removal of linear habitats and loss of foraging and commuting habitat will be a minor local impact as only boundary hedgerow and treelines along the R445 and southwest section (at proposed site entrance) will be removed. Other trees will be removed within the development but will not break linear lines. Additional landscaping along the boundary of the site will include mature trees and native species. As part of the drainage plans at the site, attenuation ponds will be incorporated into the design. These ponds are to enable the development to be compliant with SuDS but also enable the development to increase the ecological value of the site. A pond can significantly increase invertebrate activity at a site and in turn this will increase foraging areas for bats. The ponds are located in areas of open amenity greens however they are also in close proximity to the boundary hedgerows, or the treeline located within the middle of the development. The installation of sympathetic lighting in the vicinity of the proposed attenuation ponds and along the boundary hedgerows/treelines will enable these landscape features to become foraging areas for bats or continue to be used by bats, post construction. In addition, bat boxes can be placed on mature trees along the site boundary.

Birds And Other Fauna

Assuming all mitigation measures are put in place, there would be no significant residual impacts to any other protected fauna from the proposed development. Bird surveys were carried out in Summer and Winter with no rare or Annex 1 species observed within or along the boundary of the site. Golden Plover (*Pluvialis apricaria*) and Lapwing (*Vanellus vanellus*) were not observed within the site boundary or within the Curragh pNHA during the site assessment. Vantage point surveys of the Curragh were done to determine if wintering birds such as the Golden Plover and Lapwing were elsewhere on the Curragh plains. Areas observed were the Little Curragh, Racecourse, Donnelly's Hollow, Cemetery and around McGuire's Hill. The only wintering bird of note was Redwing. The majority of birds observed at the site are common species and the development would not significantly impact on their range. The large amenity grasslands areas and additional meadow and wetland areas will ensure that there is a mixture of habitats for bird species within the development site. The addition of ponds to the development can also extend the range of birds not currently found within the site and may potentially offer suitable habitat for waterfowl.

Invasive Species

The proposed development includes a landscape plan that will use native and non-invasive ornamental species. It is an offence to transport Third Schedule invasive species and in the unlikely

event an invasive species is found at the site during the operation phase an Invasive Species Management Plan will be put in place.

Aquatic Ecology

Assuming all mitigation measures are put in place, there would be no significant residual impacts to any other protected fauna from the proposed development.

Ground Water

Assuming all mitigation measures are put in place, there would be no significant residual impacts to the groundwater from the proposed development.

Impact	Development Phase	Significance	Mitigation Measures	Residual Significance	Residual Impact Type
Habitat Loss	Construction & Operational	Slight significance	• The inclusion of less intensively managed areas (meadows and wetlands) will allow for increased biodiversity within the proposed development; • The landscaping plan for the development take into consideration the outer urban setting and use of native species. • The hedgerow along the north east boundary will largely remain intact with significant planting of native trees and understory shrubs to screen the Curragh Buffer Zone;	Minor	Neutral
Introduction of Invasive Flora Species	Construction	Slight significance	• Construction plant would be inspected and washed prior to arriving onsite; • Regular site inspections for the presence of invasive species would be undertaken; • Should invasive species appear onsite, works would immediately cease until the plant was appropriately treated and disposed of; • Only qualified personnel to used herbicides on any invasive species; • Excavated soils would be segregated into subsoil and topsoil and reused in reinstatement and landscaping works. Where possible, seeding of stockpiled topsoil to ensure stability and limit the potential for invasive flora seeding; • If an Third Schedule invasive species is found within the site then an Invasive Species Management Plan will be in place by the Contractor;	Minor	Neutral
Fauna Disturbance	Construction	Moderate significance	• Where possible, no construction works would be conducted outside of normal working hours;	Moderate	Minor

Impact	Development Phase	Significance	Mitigation Measures	Residual Significance	Residual Impact Type
			• All plant machinery and equipment would be maintained in good working order and regularly inspected • Where possible, vehicles would be equipped with mufflers to suppress noise • As a minimum, the construction work contractor would comply with all legislative provisions relating to hedgerow / tree removal • Should a protected fauna species be found during the construction phase, the NPWS would be notified prior to the resumption of construction works; • If a Badger Sett is found during construction then guidelines by NPWS and NRA must followed. • Fencing to limit access to the site.		
	Operational	Not significant	None required	Imperceptible	Neutral
Fauna Mortality	Construction	Moderate significance	• As a minimum, the construction work contractor would comply with all legislative provisions relating to hedgerow / tree removal • Where hedgerow / tree removal works are required during the bird nesting season (1st March to 31st August), the sections / trees for removal would be inspected by an ecologist for the presence of breeding birds. Where nests are present, a decision would be made as to whether a licence is required from the NPWS, or whether a suitable buffer zone could be established around the active nest with removal works rescheduled until chicks have fledged. • Before site clearance works a preconstruction badger survey must be carried out to ensure badgers are not active within the site.	Minor	Minor

Impact	Development Phase	Significance	Mitigation Measures	Residual Significance	Residual Impact Type
Bats – Disturbance / Severance of Habitat	Construction	Moderate significance	• Landscape plan has taken into consideration the mature treelines and hedgerows and enhance this boundary with suitable additional planting; • Lighting measures have been implemented to reduce the potential for light pollution; • Construction works in the hours of darkness would be kept to a minimum; • Mature trees should be felled between late August to late October/early November; • Felled trees will be left for 48 hours, to allow for any potential bats to escape.	Minor	Neutral
	Operational	Moderate significance	• Lighting design measures to be implemented to reduce the potential for light pollution along hedgerows/treelines; • The inclusion of ponds will increase foraging habitats for bats.	Minor	Neutral
Groundwater Quality Deterioration	Construction	Moderate significance	• Standard construction control measures for the protection of groundwater would be implemented; • Concrete works would be supervised; • Appropriate storage and handling of fuels and oils; • Provision of spill kits	Minor	Neutral
	Dperational	Not significant	• Ensure maintenance of drainage system	Minor	Neutral
Designated Sites	Construction	Moderate significance	• Standard construction control measures for the protection of groundwater would be implemented; • Concrete works would be supervised; • Appropriate storage and handling of fuels and oils; • Provision of spill kits	Minor	Neutral
	Operational	Not significant	None required	Imperceptible	Neutral

Table 0.16: Summary of Residual Impacts Post-Mitigation

Land, Soil & Geology

Construction Phase

The predicted impact on land, soil and geology at construction phase is limited to the excavations required to construct the foundations and install the proposed works. If mitigation elements are implemented, then the risk of impact is negligible.

Operational Phase

As long as relevant impact mitigation measures are implemented, the impact on the operational phase would be limited.

Hydrology and Water Services

Construction Phase

Implementation of the best practice construction measures in addition to the mitigation measures detailed in Table 7-7 will ensue any impacts on the hydrogeological and hydrological environments will be imperceptible.

Operational Phase

All mitigation measures outlined in Table 7-8 shall be implemented to ensure any impacts during the operations phase of the development are minimised and considered to be imperceptible.

Noise and Vibration

Construction Phase

During the construction phase of the project there is the potential for significant and moderate impacts on nearby noise sensitive properties due to noise emissions from site activities. The application of binding noise limits, hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact will have a negative, moderate, and short-term impact on the surrounding environment.

Operational Phase

Additional Vehicular Traffic

The predicted change noise levels associated with additional traffic is predicted to be of imperceptible impact along the existing road network. In the context of the existing noise environment, the overall contribution of induced traffic is considered to be of neutral, imperceptible, and long-term impact to nearby residential locations.

Mechanical Plant & Creche

Noise levels associated with operational plant are expected to be well within the adopted day and night-time noise limits at the nearest noise sensitive properties considering the site layout, the nature and type of units proposed and distances to nearest residences. Assuming the operational noise levels do not exceed the adopted design goals, the resultant residual noise impact from this source will be of neutral, Imperceptible, long-term impact.

Population & Human Health

The assessment of impacts on human health is typically undertaken by reference to WHO guidance, which has been revised over the last four decades according as noise and health studies have been published. The WHO currently recommends the following:

- In residential settings, a daytime/evening LAeq 16 h level of 50 dB is an indicator of moderate annoyance.
- A night-time LAeq 8 h level of 45 dB is recommended to prevent sleep disturbance.
- With respect to short term impulsive sources, the WHO recommends a night-time LAmax limit of 60 dB outside bedroom windows during night-time hours.

Impacts assessed above may be reviewed in light of the WHO recommendations, as follows:

- Following completion and occupation of the completed development, daytime, and night-time WHO criteria are not expected to be exceeded at any offsite receptor as a result of onsite emissions.
- Traffic noise arising from public roads in the vicinity will increase slightly as a result of the proposed development. The increase will be slight, and unlikely to be higher than 3 dB at local receptors outside the site boundary.
- With respect to inward impacts, external noise levels will be generally satisfactory in the context of WHO. However, residential units close to the R448 will be exposed to LAeq 16 h and LAeq 8 h levels which exceed WHO criteria. Nonetheless, internal noise levels at these units will be satisfactory, subject to installation of marginally enhanced glazing required to attenuate LAeq 16 h, LAeq 8 h as well as LAFmax events.

On this basis, it is considered that there will be no adverse noise impact on the local population or on human health.

Overall Residual Impacts

Following completion, noise emissions arising within the completed development will be identical in character to emissions arising across the nearby fringes of Kildare. Emissions will be urban residential in character and will not give rise to offsite impacts.

Noise impacts at offsite receptors attributable to vehicle movements on roadways within the completed site will be imperceptible. While increases in traffic on the surrounding road network will arise as a result of the development, much of the increase will be attributable to traffic using the R448 which will benefit the wider town. Increases associated with onsite traffic directly will be less than 2 dB, resulting in noise impacts at nearby receptors which are imperceptible.

At the completed development, inward noise emissions will arise from the surrounding road network. The future noise risk is low across most of the site when assessed using ProPG guidance, increasing to medium at units directly fronting the R448. These properties will benefit from moderately enhanced glazing on units facing these roads.

Noise levels in amenity areas and at the proposed creche will be lower than relevant criteria. Residents will benefit from onsite green spaces.

EPA document Guidelines On The Information To Be Contained In Environmental Impact Assessment Reports (2022) sets out a scheme by which environmental noise impacts may be assessed. Operational phase environmental impacts are assessed in this regard in Table 8.21. This assessment scheme is not applicable to inward noise impacts, which are assessed separately through the ProPG procedure set out above.

Criterion	Impact at offsite receptors
Quality of effects	Activities within the development: Neutral effects
	Onsite traffic: Imperceptible effects
Significance of effects	Activities within the development: Imperceptible effects
	Onsite traffic: Imperceptible effects
Extent & context of effects	Activities within the development: Minimal extent, as almost all onsite sources will be inaudible offsite. Effects will conform with baseline environment which is urban-fringe in character.
	Onsite traffic: Extent extends throughout surrounding area. Effects will conform with baseline soundscape which is dominated by road traffic.
Probability of effects	Activities within the development: Effects likely to occur
	Onsite traffic: Effects likely to occur
Duration & frequency of effects	Activities within the development: Permanent, irreversible, daily
	Onsite traffic: Permanent, irreversible, daily
Types of effects	Indirect effects: None identified at offsite receptors
	Cumulative effects: Discussed below
	Do-nothing effects: None identified at offsite receptors
	Worst case effects: None identified at offsite receptors
	Indeterminable effects: None identified at offsite receptors
	Irreversible effects: Effects will be irreversible
	Residual effects: None identified at offsite receptors
	Synergistic effects: None identified at offsite receptors

Table 0.17: Assessment of offsite noise impacts from completed development.

Climate and Air Quality

Construction Phase

Air Quality

When the dust management measures detailed in the mitigation section of this Chapter (Section 9.7) are implemented, fugitive emissions of dust from the site will be neutral effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.

Climate

Impacts to climate during the construction phase are considered imperceptible and therefore residual impacts are not predicted. However, due to short-term and temporary nature of these works, the impact causes noticeable changes in the character of the environment but without significant consequences.

Operational Phase

Various elements associated with the construction phase of the proposed development have the potential to impact local ambient air quality, however the potential construction phase impacts shall be mitigated as detailed in Section 9.7 above to ensure there is a minimal impact on ambient air quality for the duration of all construction phase works. It is predicted that the operational phase of the development will not generate air emissions that would have an adverse impact on local ambient air quality or local human health. Air emissions can be further reduced by using operational mitigation measures and detailed in Section 9.7.

The results of the air dispersion modelling study indicate that the impacts of the proposed development on air quality and climate is predicted to be imperceptible with respect to the operational phase for the long and short term.

Landscape and Visual

Zone of Visual Influence and Potential Visual Receptors

Based on the assessment of the landscape characteristics, values and sensitivities, 12 representative viewpoints were selected to assess visual impacts and effects.

The assessed viewpoints are shown on Figure 10.20 and 10.21 overleaf and are listed in Table 10.6 below. A sensitivity rating has been ascribed to each visual receptor based on the definitions provided in Table 10.4. A rationale for the sensitivity rating is provided under the description of each existing view below.

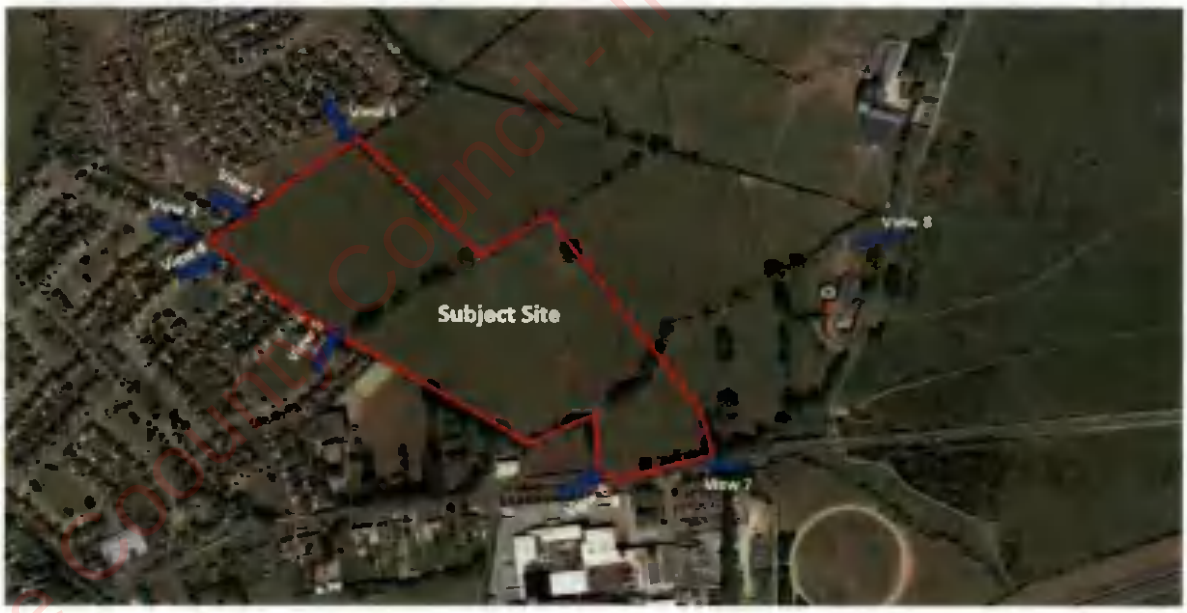

Figure 0.2: Viewpoint Locations Map – short and medium distance (Indicative red line boundary, refer to Ch.3 for accurate site boundary)

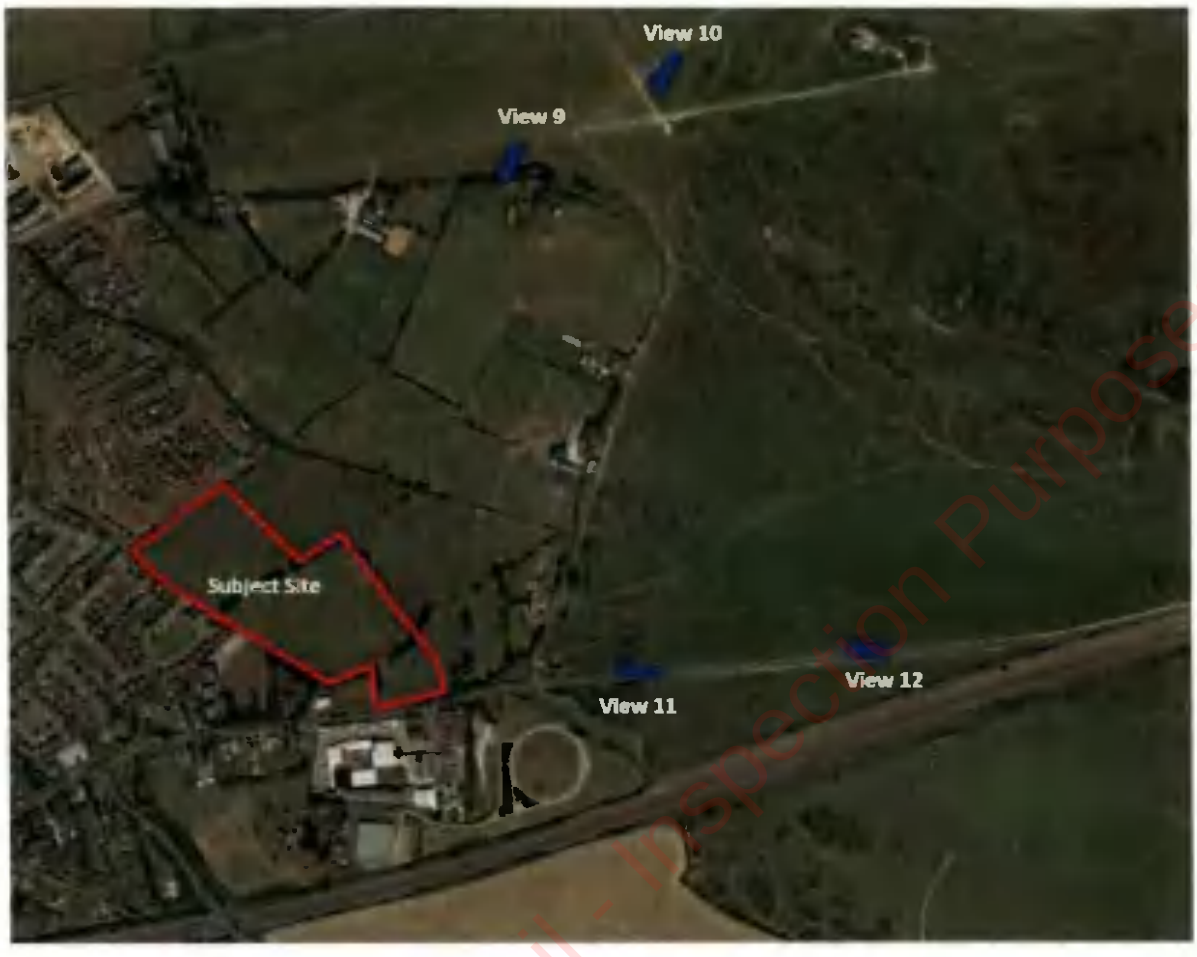

Figure 0.3: Viewpoint Locations Map - Long-distance views (Indicative red line boundary, refer to Ch.3 for accurate site boundary)

VP	Location / Description	Rationale for Selection	Expected Visibility	Sensitivity Rating
01	Coolaghknock Close	Representing residential receptors and road users	Visible	High
02	Coolaghknock Gardens	Representing residential receptors and road users	Partially	High
03	Ruanbeg Crescent	Representing residential receptors and road users	Partially	Medium
04	Ruanbeg Avenue	• Representing residential receptors and road users • Open space users	Partially	High
05	Ruanbeg Park	• Representing residential receptors and road users • Open space users	Partially	High
06	Dublin Road (R445)	• Representing road users • Representative of views from Scenic Route 3	Partially	High
07	Dublin Road (R445)	• Representing road users • Representative of views from Scenic Route 3	Partially	High

08	Curragh View / Curragh Plains	• Representing views from Curragh View and local road users • Representative of Curragh Plain Unique Landscape	Limited / No visibility	High
09	Melitta Road (R413)	• Representing road users • Representative of views from Scenic Route 4	Limited / No visibility	High
10	Melitta Road (R413)	• Representing road users • Representative of views from Scenic Route 4	No visibility	High
11	Dublin Road (R445)	• Representing road users • Representative of views from Scenic Route 3	No visibility	High
12	Dublin Road (R445)	• Representing road users • Representative of views from Scenic Route 3	No visibility	High

Table 0.18: Viewpoint Locations

Photography and presentation of viewpoints

Each Viewpoint is illustrated by a photograph showing the existing view and the photomontage showing the proposed development.

Photomontages have been produced by Urban 3D and are presented in **Appendix 10.1** with a map of their locations. Verified photographs and photomontages have been taken with a fixed prime lens of 50mm FL view, which is broadly equivalent to the c.40-degree Horizontal Field of View (HfoV) and is representative of what the human eye perceives and reflects the requirements of the Landscape Institute Technical Guidance Note on Visual Representation 2019.

To correctly view the photomontage at the correct scale the extents of the 50mm lens or 40-degree angle of view should be extended to A3 in size and viewed at arm's length. This can be done by printing a hard copy or, more easily, digitally on screen.

Viewpoint Descriptions

Each viewpoint is described below in its existing condition and the effects of the proposed development. The descriptions, including of the change / effects, focus primarily on the extent of the 50mm image, and the winter (worst case scenario) view, but refer to the context, as appropriate, to inform analysis. The potential temporary effects during the Construction Phase are briefly described while effects during the Operational Phase are described in more detail.

Viewpoints Assessment

Viewpoint 1 - Coolaghknock Close

Existing View

The view is looking south from Coolaghknock Close. This is a close distance view of the site from a local road in a residential neighbourhood by the edge of open space. The views would be representative of views enjoyed by residential receptors, road users and pedestrians. The subject site is visible from this location, through gaps in the hedgerow which runs along the edge of the open space and site's northern boundary. During winter months there are partial views of the Kildare

Chilling Company factory buildings and some houses in the existing Ruanbeg estate to the west of the Site.

The viewpoint sensitivity is High - *viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features)*

Visual Impacts and Effects

Construction Phase

Views of the construction phase will be greatest along the Site's northernmost field. The present of the hedgerows, trees and site hoarding help to partially restrict views of the ground level activity while upper-level activity will be visible. These views will be slightly increased views in winter when the hedgerow and trees are lacking vegetation coverage.

The magnitude of change would be Low, the significance of effect would be Moderate-Slight Adverse Temporary.

Operational Phase

The proposed development is partially screened by the existing hedgerow and the full extent of the development is hidden from this location. The view will contain the set of duplexes along the site's eastern edge and some roofs of the nearest houses, with views greatest in the winter months.

Views will be greatest around the open spaces, while views from most residences are facing out onto Coolaghknock Close away from the proposed development some may experience partial views from windows located in upper storeys and frontages of residential dwellings located at higher elevations. It is expected that the proposed development would be a minor intrusion and would not be uncharacteristic in the context.

The Magnitude of change would be Low- *Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity*

The significance of effect would be Moderate-Slight the Short, Medium and Long Term.

Qualitatively the impact would be Neutral i.e. *Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality;*

Viewpoint 2 - Coolaghknock Gardens

Existing View

The view is looking south from Coolaghknock Gardens. This is a close distance view of the site from a local road in a residential neighbourhood. The views are representative of views enjoyed by residential receptors, road users and pedestrians. Most of the site is hidden or screened from this location of the viewpoint by the hedgerow which adjoins the Site's northern boundary.

The viewpoint sensitivity is High - *viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features)*

Visual Impacts and Effects

Construction Phase

The existing hedgerow will help restrict views of the site works, although there maybe partial views above the hedgerow and hoarding from windows located in upper storeys and residential dwellings located at higher elevations, particularly during the winter months when the hedgerow are lacking vegetation coverage.

The magnitude of change would be Low, the significance of effect would be Moderate-Slight Adverse Temporary.

Operational Phase

There will be partial views of the proposed development's housing along its' northern end above and through gaps in the existing boundary hedgerow, with the full extent of the proposed development hidden from this location. Views from most residences are facing out onto the street away from the proposed development, however some may experience partial views from windows located in upper storeys and frontages of residential dwellings when facing south-easterly, being greatest during the winter months. It is expected that the proposed development would be a minor intrusion and would not be uncharacteristic in the context.

In addition, a future potential pedestrian connectivity linkage with Coolaghknock would slightly alternate this view with a new footpath, break in hedgerow and passing of people to/from both estates. The narrow break in hedgerow would provide some additional partial views of the frontage of the nearest new housing.

The Magnitude of change would be Negligible to Low- *Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity*

The significance of effect would be Slight the Short, Medium and Long Term.

Qualitatively the impact would be Neutral i.e. *Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality;*

Viewpoint 3 - Ruanbeg Cresent

Existing View

The view is looking south-east from Ruanbeg Cresent. This is a close distance view of the site from a local road in a residential neighbourhood. The views are representative of views enjoyed by residential receptors, road users and pedestrians. There are no views of the site available from this location due to existing developments, boundary walls and hedgerows in the view.

The outlook of the view is poor i.e., looking at existing developments or backs of existing houses. Lack of long-distance views or valued features.

The viewpoint sensitivity is Medium - Although a residential setting would suggest high susceptibility, the value of the view or outlook is low, leading to a Medium Sensitivity.

Visual Impacts and Effects

Construction Phase

The various walls, buildings and dense hedgerow trees screen out views of the site works.

The magnitude of change would be None, the significance of effect would be None.

Operational Phase

The proposed development is not visible from this location.

The magnitude of change would be None, the significance of effect would be None.

Viewpoint 4 - Ruanbeg Avenue

Existing View

The view is looking east from Ruanbeg Avenue. This should be a close distance view of the site from a local road in a residential neighbourhood. The views would be representative of views enjoyed by residential receptors, road users and pedestrians, and also the open space users.

Visibility of the site from this point is mostly screened by the high boundary walls and residential properties, with only a section of the site's northern hedgerow visible above the estate's wall. Some of the residential properties in the neighbourhood backs on to the proposed site, there may be views from private spaces from windows located at upper storeys.

The viewpoint sensitivity is High *-viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features)*

Visual Impacts and Effects

Construction Phase

Views of the site works at ground level from this point are contained by the boundary wall, with views being limited to upper levels of the works to the nearest new houses and upper portions of machinery. Some residential backing onto the site will have extended elevated views of the siteworks from their upper floors. Such views would be increased with the removal of the boundary wall for the new access road.

The magnitude of change would be Low, the significance of effect would be Moderate-Slight Adverse Temporary.

Operational Phase

The removal of the existing boundary wall will open views into the northern edge of the proposed development. Here, views will be of additional housing which isn't uncharacteristic of the surroundings. The openness means there is little change between summer and winter months view. Some of residence backing onto the site will have views of the nearest new housing from their upper floors. There will also be views of the movement of vehicles and pedestrians/cyclist passing this point as they come/go from the new estate through the new access point.

The Magnitude of change would be Low-Medium *Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity..* and *.....introduction of*

elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity

The significance of effect would be Moderate the Short, Medium and Long Term.

Qualitatively the impact would be Neutral i.e. *Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality;*

Viewpoint 5 - Ruanbeg Park

Existing View

The view would be looking east from Ruanbeg Park. This would be a close distance view of the site from a local road in a residential neighbourhood. The views would be representative of views enjoyed by residential receptors, road users and pedestrians, and also open space users.

Views of the site form this point is limited to the upper tips of some hedgerows and trees along short sections of the site's northern and eastern boundaries, as it is otherwise screened by walls and houses. Some of the residential properties in the neighbourhood back onto the proposed site and have elevated views into the site from windows located at first floor level. The upper floors of a few houses within the Coolaghknock estate are visible further to the north against the background.

The viewpoint sensitivity is High *-viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features)*

Visual Impacts and Effects

Construction Phase

As with the previous view, inward views of the siteworks are hindered by the high wall and adjoining housing, with some partial views of the upper levels of works and jibs of machinery. Some residential backing onto the site will have extended elevated views of the siteworks from their upper 1st floor. Any potential inwards views as a result of the removal of a section of the boundary are likely to be curtailed by site's boundary hoarding.

The magnitude of change would be Low, the significance of effect would be **Moderate-Slight Adverse** Temporary.

Operational Phase

The site layout means that this group of existing residents on the south-eastern corner of Ruanbeg Park are looking out onto the Proposed Development's open space including around the pump house and pond, with the new housing set further back within the site. Helping to reduce the potential prominence of the new housing, which are not uncharacteristic of their surroundings. Such views will be greatest from elevated first floors with some views of the new housing upper floor and rooflines possible from the rear grounds of the existing residences. Some views will be reduced and softened over time as the new boundary hedgerow increases in height and with the growth of the proposed trees. There will be little change being the winter and summer views until the proposed vegetation has matured.

The view will be further altered by the removal of the existing boundary wall at the end of the road junction and its replacement with new hedgerow planting and a footpath. This would provide

greater visual connectivity between the existing and proposed housing estates, when viewed from this point and from some of the frontages of houses and eastern end of the public open space within Ruanbeg Park. The new path would allow for pedestrians/cyclists to pass through both housing estate, creating greater interaction between the two developments.

The Magnitude of change would be Low-Medium *Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity.. .....introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity*

The significance of effect would be Moderate the Short, Medium and Long Term.

Qualitatively the impact would be Neutral i.e. *Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality;*

Viewpoint 6 - Dublin Road (R445) / Scenic Route 3

Existing View

The view is looking north-east from Dublin Road (R445), also designated Scenic Route 3 in the development plan. The view is representative of viewers travelling along the R445 and the scenic route. The existing hedgerow and vegetation along the northern section of the R445 fully screens the views enjoyed from the route. The proposed site is partially visible from gaps in the vegetation.

The viewpoint sensitivity is High - *Viewers at viewpoints that are recognised in policy or otherwise designated as being of value. This may also include tourist attractions, and heritage features of regional or county value, and viewers travelling on scenic routes.*

Visual Impacts and Effects

Construction Phase

There will be a notable change to this view with the result of the hedgerow and tree removal along the site's roadside southern boundary edge to accommodate the works. Hoarding will run the length of this boundary which will help contain most views of the site's ground level activity while views of the upper level activity above the hoarding will be possible. There will also be views of construction site traffic coming onto/off the main road from the new site entrance.

The magnitude of change would be Medium, the significance of effect would be **Significant Adverse Temporary.**

Operational Phase

The proposed development includes removal of the existing site boundary hedgerow and 8 no. trees along the northern section of the road. These elements will be replaced by the new landscaping along the boundary edges of the proposed development. The proposed development would introduce new housing and activity around the new entrance and a shared public footpath/cycle path (on both side of the road). These alternations would initially represent change to the view and character of the existing road. Over time as the proposed landscaping and new boundary treatment establish this change would reduce.

The magnitude of change would be Medium – *introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity*

The significance of the effect is Significant and would remain so in the Short Term.

Qualitatively the impact would initially be to **Adverse in the short term**:- *Scheme at variance with landform, scale, pattern. Would degrade, diminish or destroy the integrity of valued features, elements or their setting or cause the quality of the landscape(townscape)/view to be diminished.*

Before reducing to **Neutral in the Medium and Long Term**.

Viewpoint 7 - Dublin Road (R445) / Scenic Route 3

Existing View

The view is looking north-west from Dublin Road (R445), also designated Scenic Route 3 in the development plan. The view is representative of viewers travelling along the R445 and the scenic route. The existing hedgerow and vegetation along the northern section of the R445 fully screens the views enjoyed from the route. The proposed site is partially visible from gaps in the vegetation.

The viewpoint sensitivity is High - *Viewers at viewpoints that are recognised in policy or otherwise designated as being of value. This may also include tourist attractions, and heritage features of regional or county value, and viewers travelling on scenic routes.*

Visual Impacts and Effects

Construction Phase

The changes to this view are very similar to viewpoint above, as a result of the removal of the site's roadside boundary trees and hedgerows.

The magnitude of change would be Medium, the significance of effect would be **Significant Adverse Temporary**.

Operational Phase

The proposed development includes removal of the existing site boundary hedgerow and 8 no. trees along the northern section of the road. The proposed changes to the existing views will be similar to viewpoint 6, but viewed in the opposite direction of travel. Here the boundary vegetation is replaced by the new landscaping, new footpaths/cycleways and new housing located along the southernmost end of the proposed development. The street trees helping to break up the form of the new housing.

These alternations would initially represent change to the view and character of the road. Over time as the proposed landscaping and new boundary treatment establish this change would reduce.

The magnitude of change would be Medium – *introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity*

The significance of the effect is Significant and would remain so in the Short, Medium and Long Term.

Qualitatively the impact would initially be to **Adverse in the short term**:- *Scheme at variance with landform, scale, pattern. Would degrade, diminish or destroy the integrity of valued features, elements or their setting or cause the quality of the landscape(townscape)/view to be diminished.*

Before reducing to **Neutral in the Medium and Long Term**.

Viewpoint 8 – Local Road L7022 / Curragh View / Curragh Plains

Existing View

The view is looking west from a local road connecting R445 and R413. The viewpoint is located about 400m east from the site boundary. The viewpoint is representative of views experienced by the residents of Curragh View, local road users and from the Curragh Plains.

Although this route is not classified as a 'scenic route', one can enjoy the unique Curragh Plains landscape from this location. The Curragh Plains is exactly opposite to the proposed view, that is looking east from the viewpoint and not west towards the site. The site is partially visible or is not visible from this location due to existing vegetation and undulating topography. Where there are gaps in the vegetation along the local road, the site is partially visible.

The viewpoint sensitivity is High - *Viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features) and views which are highly valued by the local community.*

Visual Impacts and Effects

Construction Phase

Views of the site works will be barely visible through minor gaps in the intervening hedges and trees. There will be some minor views of upper level activity along the site's southeastern corner between a clear gap in the vegetation.

The magnitude of change would be Negligible, the significance of effect would be **Not Significant** Neutral Temporary.

Operational Phase

The proposed development's visibility from this point is largely screened out by the intervening vegetation. A small portion of the end buildings on the site's southeastern end may be visible but heavily filtered through minor gaps in the intervening vegetation during the winter months, occurring as only a minor instruction and not necessarily uncharacteristic in the view.

The magnitude of change would be Negligible – *Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.*

The significance of effect would be Slight-Not Significant in the Short, Medium and Long Term.

Qualitatively the impact would be Neutral i.e. *Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality;*

Viewpoint 9 - Melitta Road (R413)

Existing View

The view is looking south-west from Melitta Road (R413), also designated Scenic Route 4 in the development plan. The viewpoint is located about 750m north from the site boundary. The view is representative of viewers travelling along the R413 and the scenic route.

The Scenic Route offers splendid views of the Curragh Plains. There is thick woodland running parallel along the south of the scenic route stretching from local road L7022 towards the edge of the town. The woodland area effectively screens any long distance views oriented towards south and south-west, that is towards Kildare Town and the site respectively, from the scenic route. The site is not visible from this viewpoint.

The viewpoint sensitivity is High - *Viewers at viewpoints that are recognised in policy or otherwise designated as being of value. This may also include tourist attractions, and heritage features of regional or county value, and viewers travelling on scenic routes.*

Visual Impacts and Effects

Construction Phase

The site works will be barely visible through minor gaps in the intervening hedgerows, trees and fenceline during winter months.

The magnitude of change would be Negligible, the significance of effect would be **Not Significant** Neutral Temporary.

Operational Phase

The proposed development is not clearly visible from this location due to being heavily screened by the intervening trees and hedgerows. Any limited views of the proposed development will be of its uppermost portions of the eastern end buildings and only appearing as a very minor instruction in the winter months and not necessarily uncharacteristic in the view.

The magnitude of change would be Negligible – *Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.*

The significance of effect would be Slight-Not Significant in the Short, Medium and Long Term.

Qualitatively the impact would be Neutral i.e. *Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality;*

Viewpoint 10 - Melitta Road (R413)

Existing View

The view is looking south-west from Melitta Road (R413), also designated Scenic Route 4 in the development plan. The viewpoint is located about 1.2km north from the site boundary. The view is representative of viewers travelling along the R413 and the scenic route.

The Scenic Route offers splendid views of the Curragh Plains. There is thick woodland vegetation running parallel along the south of the scenic route stretching from local road L7022 towards the edge of the town. The woodland area effectively screens any long distance views oriented towards south

and south-west, that is towards Kildare Town and the site respectively, from the scenic route. The site is not visible from this viewpoint.

The viewpoint sensitivity is High - *Viewers at viewpoints that are recognised in policy or otherwise designated as being of value. This may also include tourist attractions, and heritage features of regional or county value, and viewers travelling on scenic routes.*

Visual Impacts and Effects

Construction Phase

Views toward the proposed development will be restricted by the intervening field boundary hedgerow vegetation.

The magnitude of change would be None, the significance of effect would be None.

Operational Phase

There will be no impacts or effects on this view as the proposed development will be screened by the intervening field boundary vegetation in the summer months. Some very minor views of the uppermost portions of housing nearest the site entrance maybe visible above the intervening and backdropped by the factory buildings.

The magnitude of change would be None to Negligible – *Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.*

The significance of effect would be Slight-Not Significant in the Short, Medium and Long Term.

Qualitatively the impact would be Neutral i.e. *Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality;*

Viewpoint 11 - Dublin Road (R445) / Scenic Route 3

Existing View

The view is looking west from Dublin Road (R445), also designated Scenic Route 3 in the development plan. The viewpoint is located 300m east from site boundary. The view is representative of viewers travelling along the R445 and the scenic route.

The Scenic Route offers splendid views of the Curragh Plains, viewing north from the route. The topography of the landscape is slightly undulating at this location. The existing hedgerows and trees in between the site and the viewpoint effectively screens views towards the town and the site from this location. Where there are gaps in the vegetation the ridges of the residences in the Coolaghknock neighbourhood (north of the site) is clearly visible.

The viewpoint sensitivity is High - *Viewers at viewpoints that are recognised in policy or otherwise designated as being of value. This may also include tourist attractions, and heritage features of regional or county value, and viewers travelling on scenic routes.*

Visual Impacts and Effects

Construction Phase

Views toward the proposed development will be restricted by the intervening field boundary hedgerow vegetation, with some potential limited views during the winter months but being barely perceptible.

The magnitude of change would be None to Negligible, the **significance of effect would be None to Slight-Not Significant.**

Operational Phase

Any potential views are limited to the winter months, as views are heavily screened by the intervening mature field boundary hedgerows and trees.

During the winter months there will be some limited heavily filtered views of the buildings on the eastern end of the proposed development through minor gaps in the intervening mature field boundaries. Some views will be further reduced as the proposed boundary treatment matures overtime. The buildings are set lower down and do not affect views of the Kildare skyline from this point. Where visible, it is expected that the proposed development would be a minor intrusion and would not be uncharacteristic in the context. The existing more elevated residential development of Coolaghlnock remaining more prominent within this view.

The magnitude of change would be None to Negligible – *Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.*

The significance of effect would be Slight-Not Significant in the Short, Medium and Long Term.

Qualitatively the impact would be Neutral i.e. *Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality;*

The magnitude of change would be None, the significance of effect would be None.

Viewpoint 12 - Dublin Road (R445) / Scenic Route 3

Existing View

The view is looking west from Dublin Road (R445), also designated Scenic Route 3 in the development plan. The viewpoint is located 800m east from site boundary. The view is representative of viewers travelling along the R445 and the scenic route.

The Scenic Route offers splendid views of the Curragh Plains, viewing north from the route. The topography of the landscape is mostly flat at this location.

The existing hedgerows and trees in between the site and the viewpoint effectively screens views towards the site and the town.

In the middle of the background, the town's 'Landmarks'; Round Tower, spire of St. Brigid's Cathedral, spire of White Abbey Church and spire of St. Brigid's RC Church are visible towering over the landscape. Where there are gaps in the vegetation the ridges of the residences in the Coolaghknock

neighbourhood (north of the site), Curragh Plains neighbourhood and other residential areas of the town are partially visible.

The viewpoint sensitivity is High - *Viewers at viewpoints that are recognised in policy or otherwise designated as being of value. This may also include tourist attractions, and heritage features of regional or county value, and viewers travelling on scenic routes.*

Visual Impacts and Effects

Construction Phase

Views toward the proposed development will be restricted by the intervening field boundary hedgerow vegetation.

The magnitude of change would be None, the significance of effect would be None.

Operational Phase

As with previous viewpoint no. 11 the proposed development will be fully screened by the intervening field boundary vegetation during the summer months. Similarly, potential views of the proposed development will be very limited during the winter months, with some very minor views of buildings along the eastern end of the proposed development possible but heavily filtered through the various intervening mature field boundaries hedgerows and trees. Where visible, it is expected that the proposed development would be only a minor intrusion and would not be uncharacteristic in the context. The lower setting ensures any limited views do not affect the views from this point towards the historic buildings set against the town's skyline.

The magnitude of change would be None to Negligible – *Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.*

The significance of effect would be Slight-Not Significant in the Short, Medium and Long Term.

Qualitatively the impact would be Neutral i.e. *Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality;*

Viewpoint Assessment Summary

The following table summarises the results of the assessment of the effects of the Proposed Development on the visual resource in the construction and operational phase.

VP No.	Location	Sensitivity	Degree of Change	Significance and Quality
				Short
VP01	Coolaghknock Close	High	Low	Moderate-Slight Adverse
VP02	Coolaghknock Gardens	High	Low	Moderate-Slight Adverse
VP03	Ruanbeg Cresent	Medium	None	None
VP04	Ruanbeg Avenue	High	Low	Moderate-Slight Adverse

VP05	Ruanbeg Park	High	Low	Moderate-Slight Adverse
VP06	Dublin Road (R445)	High	Medium	Significant Adverse
VP07	Dublin Road (R445)	High	Medium	Significant Adverse
VP08	Curragh View / Curragh Plains	High	Negligible	Not Significant Adverse
VP09	Melitta Road (R413)	High	Negligible	Not Significant Adverse
VP10	Melitta Road (R413)	High	None	None
VP11	Dublin Road (R445)	High	None to Negligible	None to Not Significant Adverse
VP12	Dublin Road (R445)	High	None	None

Table 0.19: Summary of Visual Effects - Construction Phase

VP No.	Location	Sensitivity	Degree of Change	Significance and Quality		
				Short	Medium	Long
VP01	Coolaghknock Close	High	Low	Moderate-Slight and Neutral		
VP02	Coolaghknock Gardens	High	Negligible to Low	Slight and Neutral		
VP03	Ruanbeg Cresent	Medium	None	None		
VP04	Ruanbeg Avenue	High	Low-Medium	Moderate and Neutral		
VP05	Ruanbeg Park	High	Low-Medium	Moderate and Neutral		
VP06	Dublin Road (R445)	High	Medium	Significant and Adverse	Moderate and Neutral	
VP07	Dublin Road (R445)	High	Medium	Significant and Adverse	Moderate and Neutral	
VP08	Curragh View / Curragh Plains	High	Negligible	Slight-Not Significant and Neutral		
VP09	Melitta Road (R413)	High	None to Negligible	Slight-Not Significant and Neutral		
VP10	Melitta Road (R413)	High	None to Negligible	Slight-Not Significant and Neutral		

VP11	Dublin Road (R445)	High	None to Negligible	Slight-Not Significant and Neutral
VP12	Dublin Road (R445)	High	None to Negligible	Slight-Not Significant and Neutral

Table 0.20: Summary of Visual Effects - Operation Phase

The proposed development is expected to have a temporary adverse effect on the visual resource during construction. Upon operation and into the future, the development is expected to have a neutral long term / permanent effect on the visual resource.

Cumulative

The potential for cumulative views of the proposed Ruanbeg development with that of the Former Magee Barracks Site are heavily limited due to the intervening built-up area of Ruanbeg Manor, slight variations in the underlying topography between the two developments, and proposed heights of the Ruanbeg development.

There will be some limited sequential cumulative partial views of both the construction and operation phases of the two developments, as experienced by pedestrians, cyclists and vehicle users, when travelling along the R445 road. Views being most prevalent as one directly passes by the road entrances to either development, where one experiences an increase of the built environment within the immediate area. Some distant views like viewpoint no. 12 will allow some limited combined winter views of both developments, although both being heavily filtered by the intervening vegetation with the taller buildings of the Former Barracks Site development more prevalent.

Overall, the significance of the cumulative impact would be **Slight to Not Significant and Neutral**

Traffic and Transportation

Construction Phase

All traffic associated with the Construction Phase will be subject to a Construction Environmental Management Plan (CEMP). The scope of the CEMP will be agreed in advance Kildare County Council. The objective of the plan is to minimise traffic disruption in the vicinity of the site and ensure the safety of both residents and construction staff.

Operational Phase

The traffic associated with the Operational Phase of the proposed development is described in Table 0-21 below.

Table 0-21: Operational Phase: Description of Impacts / Effects

Junction	Location	Environment Character	Quality / Scale of Impact	Impact Significance	Duration
1	Proposed Development Junction on the R445	The proposed primary access point to the site is located on R445. R445 is the link between Kildare Town to the west and the M7 motorway (Jct 12) and the Curragh Racecourse located to the east. R445 is a single lane two-way carriageway with footpaths on both sides of the carriageway and no existing designated cycle lanes. The proposed junction is a priority (non-signalised) junction and includes a westbound right turning lane, cycle lanes and padestrian footpaths on both sides of the carriageway.	From the modelling results of the Traffic & Transport Assessment the surrounding road network and adjacent existing junctions will have **neutral effects** on the current operational capacity of the surrounding network of roads and junctions.	The proposed changes to the site include a right turning lane for westbound traffic; new road markings and signage; the addition of cycle lanes. The effect will cause noticeable changes in the character of the environment. However due to the neutral quality of impact it is expacted that the significance of impact will be **not significant.**	The junction has been designed and modelled for a Design Year of 2041. However, it could be assumed that the junction will remain in use beyond that year. Thus, duration of effects is **long term.**
2	Existing Ruanbeg Manor/ R445	The proposed secondary point is located further west on the R445 at Ruanbeg Manor. it is the link with the R445 and the Ruanbeg existing residential housing development. Ruanbeg Manor is a single lane two-way carriageway with wide footpaths and grassed verges on both sides of the carriageway and no existing designated cycle lanes. Alterations to this junction are not included as part of the scope of this submission.	From the modelling results of the Traffic & Transport Assessment the surrounding road network and adjacent existing junctions will have **neutral impact** on the current operational capacity of the surrounding network of roads and junctions.	There are no proposed changes to the junction. Junction modelling shows that the junction has capacity for increased traffic up to the design year. Thus, significance of impact will be **imparceptible.**	The junction has been designed and modelled for a Design Year of 2041. However, it could be assumed that the junction will remain in use beyond that year. Thus, duration of effects is **long term.**

Material Assets

Summary of Impacts

Section **Error! Reference source not found.** above details the potential impacts of the proposed development on existing material assets – utilities. Following the implementation of the mitigation measures described above the following impacts are predicted for the proposed development.

- There is potential for some short-term construction stage impacts to existing foul and water services due to works to facilitate connecting the development to the existing public networks. This could lead to minor disruption in supply to nearby buildings for short periods. Constructing of these connections should be completed at off-peak times. The impact on the local public water supply network would be short term and imperceptible.

- The proposed surface water drainage is to discharge to and be mitigated by site SUDS measures and 3 no. below ground geocellular infiltration tanks. Sections of the site discharges directly into the soakaways, with alternative pipe runs discharging into ponds with overflows which then discharge into the soakaway structures. Refer to Chapter 7 for further details regarding water and flooding impacts. The surface water operational impact of the proposed development is expected to be long term and low.
- The development will increase the demand on existing service providers including foul, water, electricity and Telecoms. The impact from this is likely to be long term and low.

Cumulative Impacts

Cumulative Impacts – Other Developments

A number of significant infrastructure projects are proposed for the surrounding area. These have been discussed in Section **Error! Reference source not found.**. The cumulative impacts of the proposed developments and the adjacent developments proceeding at the same time are likely to have an imperceptible impact on the local material assets, built services provided the mitigation measures outlined below are incorporated during the works.

Cumulative Impacts – Future Potential Development, Construction

Future potential development will require similar construction mitigation to the proposed development. Future connections will be via the services constructed as part of this initial planning application development. As a result, there will be reduced impact on the surrounding area, and the impact will be reduced relative to the initial development.

The specific impact of this construction is not yet known, however will be developed once the future developments are further determined.

Cumulative Impacts – Future Potential Development, Access

Future potential developments to the north will increase the loadings and infrastructural requirement for the area. Access is covered within Chapter 11 of the EIAR.

Cumulative Impacts – Adjacent and Future Potential Development, Foul Sewerage

Future foul sewer connections for a proposed 88 no. unit dwelling to the north has been accounted for within the foul loadings for the current Ruanbeg development as shown in **Error! Reference source not found.**. The proposed pumping station is to be deigned to accommodate future connections from Coolaghknock Glebe Wastewater Pump Station and Coolaghknock Gardens Wastewater Pump Station.

The cumulative impact of this future development is expected to be long term and low.

Cumulative Impacts – Future Potential Development, Surface Water

Future potential developments to the north of the site will be proposed to have surface water treated prior to entry into the development site. Surface water from these potential future sites will transverse through the Ruanbeg site towards a pond structure located to the south west of the site. Overflow from the pond will outfall to future drainage on Ruanbeg Manor to the southwest of the site. This downstream new/ upgraded drainage to service pond and upstream areas will be by others.

There is no increase in surface water to be treated by the proposed development site. As such there is no cumulative impact to consider.

The cumulative impact of this future development is expected to be neutral.

Cumulative Impacts – Future Potential Development, Potable Water Supply

Future water supply connections for a proposed 88 no. unit dwelling to the north has been accounted for within the water supply loadings for the current Ruanbeg development as shown in **Error! Reference source not found.**.

The cumulative impact of this future development is expected be long term and low.

Cumulative Impacts – Future Potential Development, Natural Gas Supply

With the use of gas as a form of home heating beginning to wane, the impact on any future developments will be neutral.

Cumulative Impacts – Future Potential Development, Electrical Supply

The construction of future housing developments around the proposed site can be more easily served by ESBN because of the installation of new substations within the current application. The impact would be considered positive.

Cumulative Impacts – Future Potential Development, Information and Communications Technology

The construction of future housing developments around the proposed site can be more easily served by a main telecoms providers because of the installation of infrastructure within the current application. The impact would be considered positive.

Residual Impacts

Residual impacts from on built services during the operational phase, given the new infrastructure and upgrades to the existing networks, is considered to be permanent with a positive impact to all end users.

Waste Management

The implementation of the mitigation measures outlined in Section 13.7 will ensure that a high rate of reuse, recovery and recycling is achieved at the development during the construction phases as well as during the operational phase. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

Construction Phase

A carefully planned approach to waste management as set out in Section 13.7 and adherence to the RWMP during the construction phase will ensure that the impact on the environment will be *short-term, neutral,* and *imperceptible.*

Operational Phase

During the operational phase, a structured approach to waste management as set out in Section 13.7 will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted impact of the operational phase on the environment will be *long-term, neutral,* and *imperceptible.*

Cultural Heritage

Construction Phase

Should mitigation strategies be enacted there is no predicted impact on the archaeological resource of the site at construction phase. Should mitigation not be implemented the impact on as yet unrecorded archaeological deposits at the site would be profound.

Operational Phase

It is expected that all archaeological issued will be resolved in advance of construction. As a result there is predicted impacts at operational phase.

6. Interactions

Where an interaction is likely, it is given a reference number in the matrix and detail of the interaction is recorded below. The significance, quality – whether it is positive, negative or neutral – and the duration of the interaction is assessed. The interactions are listed in numerical sequence, purely for referencing purposes. Each of these interactions have been addressed in the relevant EIAR chapters.

	Population	Biodiversity	Soil	Hydrology	Noise	Air and Climate	Landscape	Traffic	Waste	Cultural Heritage	Material Assets
Population											
Biodiversity											
Soil	1	10									
Hydrology	2	11	16								
Noise	3	12									
Air and Climate	4	13	17								
Landscape	5	14	18								
Traffic	6										
Waste	7										
Cultural Heritage	8										
Material Assets	9	15									

Table 0.22: Table of interactions (Below Table)

1. Population & Human Health / Soils

There is potential for dust generation during construction works, which under dry and windy conditions could lead to localised dust impacts for the small number of properties proximate to the development site. However, the implementation of dust management and dust control measures will ensure that the proposed development will not give rise to the generation of any significant quantities of dust. As a result, the impact will be temporary, imperceptible and neutral/ negative.

2. Population & Human Health / Hydrology

Failure or mismanagement of the potable water supply could lead to its contamination during the construction phase. A range of mitigation measures, as outlined in Chapter 7, will be put in place during the construction phase of the development to ensure this does not occur. The correct implementation of these mitigation measures will ensure that the potential impacts on hydrology and water services during the construction phase will be imperceptible and short term.

3. Population & Human Health / Noise

Increased noise levels during the construction phase will be temporary and are not expected to have a long-term significant adverse effect upon the local population. The application of binding noise limits, hours of operation, along with implementation of the mitigation measures, as identified in Chapter 8 and the CEMP, will ensure that noise and vibration impact will have a negative, moderate, and short-term impact on the surrounding environment.

The impact due to the increased traffic associated with the operational development is expected to be neutral, imperceptible, and long-term.

4. Population & Human Health / Air

The completed development will generate additional emissions to the atmosphere due to traffic associated with the development. However, air quality in the vicinity of the site is expected to remain within air quality standards, and the impact is expected to be imperceptible.

During construction, there may be potential for slight dust nuisance in the immediate vicinity of the site. However, dust control measures, such as wheel washes, covering of fine material etc. will minimise the impacts on air quality. As a result, the impact will be temporary, imperceptible and neutral/ negative.

5. Population & Human Health / Landscape

Existing residents and visitors to the "Ruanbeg" and Dublin Road area interact with the landscape, such that they will be aware of a significant change at this site from a vacant greenfield site to a new residential development with a mix of unit types, building heights, open spaces etc.

6. Population & Human Health / Traffic

Chapter 11 notes that, provided the mitigation measures and management procedures outlined in the Construction Environmental Management Plan are incorporated during the Construction Phase, the residual impact upon the local receiving environment is predicted to be temporary in the nature and slight in terms of effect.

Once complete, the proposed development will operate well within capacity during the AM and PM peak hours in the 2026 + Proposed Development (Opening Year) scenario and would continue to do so for the future assessments.

7. Population & Human Health / Waste

As noted in Chapter 13, a carefully planned approach to waste management as set out in the mitigation measure, and adherence to the Resource Waste Management Plan (which include mitigation) during the construction phase will ensure that the effect on the environment will be *short-term, imperceptible* and *neutral.*

During the operational phase, a structured approach to waste management as set out in Chapter 13 and adherence to the OWMP (which include mitigation) will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be long-term, imperceptible and neutral.

8. Population & Human Health / Cultural Heritage

There are no protected structures on site or any areas of architectural conservation in the area so these will not be impacted. Prior to commencement it is recommended that an archaeological assessment is carried out in line with the recommendations in chapter 14. With the implementation of the mitigation measures in Chapter 14 the impact of the proposed development on cultural heritage will be minimal, if any.

9. Population & Human Health / Materials Assets

There is the potential for contamination of potable water supply, gas leaks or explosions, loss of supply of services. With the implementation of the mitigation measures in Chapter 12 the impact of the proposed built services on human health is likely to be imperceptible.

10. Biodiversity / Soils

With the protective measures noted in Chapter 5 in place during Construction Phase and for excavation works, any potential impacts on soils and geology at the Site and surrounding area will be avoided and there will be no significant adverse impacts on the land, soils and geology of the subject lands are envisaged. There are no predicted significant adverse impacts are predicted on land, soils or geology associated with the Operational Phase of the Proposed Development.

11. Biodiversity / Hydrology

A deterioration in water quality would impact upon aquatic flora and fauna, would negatively affect the fishery industry and in very severe cases, may impact upon any water-based leisure activities and amenities of the area. A deterioration in water quality could occur during construction works through the release of suspended solids during soil disturbance works, the release of uncured concrete and hydrocarbon spillages, and during the operational phase due to the discharge of treated effluent. Suspended solids potentially entrained in surface water run-off during construction works can impact upon aquatic habitats through deposition, reducing clarity and by potentially increasing nutrients which are bound to the suspended solids. An increase in sediments has the potential to impact upon fish by damaging gravel beds required for spawning, smothering fish eggs and in extreme cases, by interfering with the gills of fish. Consequently, an impact on fish would affect fauna, such as the otter (*Lutra lutra*), who prey on fish.

During construction works, there would be a potential risk to water quality from releases of uncured concrete and hydrocarbons from the operation of heavy construction plant and associated equipment. Uncured concrete has the potential to alter the pH of waters locally, while hydrocarbons can lead to potentially toxic and / or de-oxygenating conditions within waters. The proposed development would not be anticipated to have a significant impact on aquatic flora and fauna due to a deterioration in water quality of any nearby watercourses (See Figure 5.8 in Chapter 5) during either the construction or operational phase. During the construction phase, ground water quality would be protected through the implementation of mitigation measures, which include the use the regular maintenance and inspection of construction plant and the appropriate storage of potentially polluting substances.

During the operational phase, no impact on water quality is anticipated as wastewater will flow to the existing main municipal sewer (Kildare D0178-01). The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive (Irish Water, 2021). Surface/stormwater run-off will flow through a drainage system and attenuation system within the site to prevent any sediments or hydrocarbons impacting on groundwater. During the operational phase the site will not have an impact on watercourses given the lack of a direct hydrological connection.

12. Biodiversity / Noise

During the construction phase, noise may be generated due to increased vehicle movements and the operation of construction plant. It is anticipated that there would be a moderate impact, for a limited period of time, on any fauna within the vicinity of the development. Control and mitigation measures would be implemented to reduce noise, including measures relating to equipment operation and maintenance and timing of activities. Given the transient nature of construction works, and provided mitigation measures are implemented, noise from construction would not be considered to pose a significant impact upon fauna.

During the operational phase noise would be typical of an urban residential development. There would be would no significant impact on fauna within the vicinity of the proposed development.

13. Biodiversity / Air

An adverse impact on air quality has the potential to cause dust nuisance and cause disturbance to fauna. The risk to air quality as a result of the proposed development would not be considered significant, both at the local community level and on a broader national / global scale. Air emissions would be typical of residential buildings, being primarily from heating and therefore low impact in-and-of-itself. In-combination residential impacts would be controlled by national energy policies and grant schemes. While there would be increased dust emissions during the construction phase, these would not be considered to pose a significant risk owing to the transient nature of construction works and the construction timeframe.

During the construction phase of the development, there would be potential for dust emissions, which could impact upon fiora and fauna in the surrounding area. The potential impact of dust would be temporary, given the transient nature of construction works. Dust control would be an integral part of construction management practices, with mitigation measures implemented where required,

including sweeping of roads and hardstand areas, appropriate storage and transport of material and dust suppression measures where required.

14. Biodiversity / Landscape

The changes to the landscape of the subject site are predicted to have a neutral imperceptible effect on biodiversity.

The proposed landscape masterplan includes the planting of native trees and other vegetation along with the introduction of ponds throughout the site. This will have a positive, moderate, likely and permanent on biodiversity.

15. Biodiversity / Material Assets

The proposed development would alter flora cover and the species of fauna supported due to land take and soil disturbance works. This impact would be minor due to the low ecological value of the habitats present at the proposed development. The habitats of note at the development site are hedgerows and treelines with the majority of hedgerows to be maintained and trees removed will be replanted. The landscape plan includes areas that are less intensively managed such as meadows and wetland planting schemes that will provide a more diverse range of habitats within the proposed development.

16. Soils / Hydrology

The construction phase could result in uncontrolled sediment erosion, contaminated silty run-off, and pollution of surface waters by mobilised suspended solids. Mitigation measures, as outlined in Chapter 7 and the CEMP, will be implemented during construction to prevent these potential impacts. As a result the impact will be imperceptible and short-term.

17. Soils / Air

Exposed soil during the construction phase of the proposed scheme will give rise to increased dust emissions. Chapter 9 notes that when the dust management measures, as outlined in Chapter 9, are implemented, fugitive emissions of dust from the site will be neutral effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.

18. Soils/Landscape

Residual soils arising as a result of excavation at the development site will be used in landscaping works in the proposed public open spaces as much as possible rather than transporting off-site. This impact will be imperceptible and long-term.

7. Conclusion

In conclusion, the subject site exceeds the thresholds set out in set out in Annex I and Annex II of the EIA, Directive and therefore an EIAR is required for the proposed development. The methodology is informed by the available guidance, legislation and directives.

A Natura Impact Statement has also been submitted as part of this application, following the implementation of the mitigation measures outlined, the construction and presence of this development would not be deemed to have a significant impact on the integrity of European sites.

The implementation of the mitigation measures outlined in each EIAR chapter will reduce the potential negative impacts of the proposed development in both the construction and operational phases of the development.