

# Environmental Impact Assessment Report (EIAR) Volume 3 Non-Technical Summary (NTS) Strategic Housing Development at 'Barrington Tower', Brennanstown Road, Dublin 18.

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Prepared by



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## 1 INTRODUCTION

This is the Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) prepared in relation to a Strategic Housing development application to An Bord Pleanála for a new residential development on a gross site area of c.3.81ha on lands located at ‘Barrington Tower’, Brennanstown Road, Dublin 18.

Each EIAR Chapter outlines the receiving environment; the potential impacts of the proposed development; the mitigation measures deemed necessary; and the predicted impacts once the mitigation measures are implemented. The purpose of the NTS is to summarise 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 outlines the proposed 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 who include McGill Planning, Reddy Architecture, Howley Hayes Cooney Architecture, Modelworks, Altemar Environmental Consultants, Bat Eco Services, AWN Consulting Limited, Enviroguide, IAC Archaeology and Waterman Moylan Consulting Engineers to ensure that the possible effect on the environment has been examined through the process of an EIAR (detailed below) and the most appropriate form of development is delivered at this site.

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 2018 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 gross area of the application site is c. 3.81ha, which is below the 10ha threshold for a built-up area. The proposed development for 534 no. units which exceeds the 500 no. unit threshold and therefore it was necessary to prepare an EIAR.

## 2 SITE CONTEXT

The subject site is located within Dun Laoghaire Rathdown County Council administrative area. The application site is located south of Brennanstown Road, a long-established low density residential area, comprising mainly detached houses on generous sites. Such development occurs to the west, south west, and northern side of Brennanstown Road and to the north east of the site. To the south east is a burial ground and the LUAS track directly south of the site. Vehicular access to the site is available off Brennanstown Road. The site slopes steeply from north to south.

The existing Barrington Tower, is a protected structure (RPS No. 1729) will be preserved, restored and made a focal point within the heart of the new development.

To the southern and south-eastern side of the subject site there is a private burial ground (with mausoleum) and a pocket of woodland within the Valley of Glen Druid which extends east and includes the Giant's Tomb dolmen, c.200m east of the site.

The site is zoned under Objective A within DLRCC development plan which indicates that the area is zoned 'to protect and-or improve residential amenity.'

The site is located just north of the Cherrywood Planning Scheme area which is planned to provide c.8,700 residential units, a new town centre, village centres, schools, and significant public spaces.

There are two approved SHD applications in close proximity to the site which are Lands at Former Doyle's Nurseries and Brennanstown Wood Residential Development. These high-density developments will complement one another to form a population which will be served by the existing Luas green line south of the referenced sites which is a public transport corridor.



*Figure 1 Site Location. Note the red line shown is for indicative purposes only. Please refer to the architects' drawings for an accurate red line boundary.*

### 3 PROJECT DESCRIPTION

Cairn Homes Properties Limited intend to apply to An Bord Pleanála for planning permission for a strategic housing development at this site of c.3.81 ha at 'Winterbrook' and 'Barrington Tower', Brennanstown Road, Dublin 18. The application site contains a Protected Structure - 'Barrington Tower' (RPS No. 1729). The site is bounded by Brennanstown Road to the north, the Luas Green line to the south, Brennanstown Vale to the west and the Barrington cemetery, dwellings along Brennanstown Road and Druid's Glen to the east/southeast. A small area of the site (c.203sqm) falls within the Cherrywood Planning Scheme SDZ area providing access to the Brennanstown Luas stop and an existing ESB substation.

The development will include the demolition of an existing habitable dwelling "Winterbrook", and the derelict, former dwelling attached to Barrington Tower protected structure. 'Barrington Tower' itself will be retained and restored. It is also proposed to demolish the existing boundary wall to the north of the site along Brennanstown Road.

The development will provide a 'Build to Rent' (BTR) apartment development consisting of 8 no. blocks ranging in height up to 10 storeys (including lower ground floor) providing a total of 534 no. apartments. This will comprise of:

- 30 no. studio, 135 no. 1 -beds, 318 no. 2-beds & 51 no. 3-beds. All residential units provided with associated private balconies/terraces to the north/south/east/west elevations.
- Resident Support Facilities & Resident Services & Amenities (total floor area c.1,496 sq.m) including flexible spaces including entertainment rooms, meeting rooms, parcel rooms, media rooms, lounge and workspaces, gyms and studio, chef's kitchen and dining area.
- A creche (c.356.5 sq.m), and a retail unit (c.336.8 sq.m).
- Car and cycle parking at basement (2 levels) and at ground level. This will provide 419 no. car parking spaces, 1,266 no. cycle parking spaces and 17 no. motorcycle spaces.
- All associated site development works, open spaces and landscaping, boundary treatments, plant areas, waste management areas, cycle parking areas, and services provision (including ESB substations).

Vehicular/pedestrian/cyclist access from Brennanstown Road will be provided along with improvement works to the Brennanstown Road including a new junction and pedestrian crossing facilities. Pedestrian/cyclist access through the site to the Brennanstown Luas Stop will also be provided.

## 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 – Draft (Environmental Protection Agency, 2017)
- 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, 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.

#### *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, Draft August 2017).
- 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

A pre-survey biodiversity data search was carried out in August 2020 and updated in March 2022. This included examining records and data from the National Parks and Wildlife Service (NPWS), National Biological Data Centre (NBDC) and the Environmental Protection Agency (EPA), in addition to aerial, 6-inch maps and satellite imagery. A habitat survey of the site was undertaken within the appropriate seasonal timeframe for terrestrial fieldwork. Field surveys were carried out as outlined in the table below. All surveys were carried out in the appropriate seasons.

Area	Surveyors	Survey Dates
<b>Terrestrial Ecology/ Aquatic Ecology/Avian Ecology</b>	Bryan Deegan (MCIEEM) of Altemar	15 <sup>th</sup> September 2020 27 <sup>th</sup> August 2021
<b>Bat Survey</b>	Dr Tina Aughney of Bat Eco Services	Extensive bat assessments were carried out by Bat Eco Services in 2018, 2019, 2020 and 2021. Appendix 5.1.
<b>Mammal / Amphibian Survey</b>	Bryan Deegan (MCIEEM) of Altemar	17 <sup>th</sup> March 2020/ 3 <sup>rd</sup> March 2021, 2 <sup>nd</sup> March 2022
<b>Wintering Bird Assessment</b>	Hugh Delaney Ornithologist	18 <sup>th</sup> December 2021, 21 <sup>st</sup> January 2022, 11 <sup>th</sup> February 2022 & 10 <sup>th</sup> March 2022

Table 1 Biodiversity Field Survey Information

### *Proximity To Designated Conservation Sites and Habitats/Species Of Conservation Interest*

The designated conservation sites within 15km of the site and those with potential pathways to the proposed development site were examined for potential impact. No designated sites beyond 15km had direct or indirect pathways to the proposed development site. There were no recordings of protected species from any site beyond 15km onsite and the site was assessed as unsuitable foraging or nesting habitat for protected birds]. This assessment included sites of international importance; Natura 2000 sites (European sites) (Special Areas of Conservation (SAC), Special Protection Areas (SPA)) and Ramsar sites and sites of National importance ((Natural Heritage Areas (NHA), proposed Natural Heritage Areas (pNHA). Up to date GIS data (2022 NPWS data shapefiles) were acquired and plotted against the proposed development site. A data search of rare and threatened species within 5km of the proposed site (GIS shapefile) was provided by NPWS. Additional information on rare and

threatened species was researched through the National Biodiversity Data Centre maps. The Carrickmines Stream is proximate to the site. Works are proposed to the sloped site and as a result it is considered that there is a direct hydrological pathway to the Natura 2000 site (Rockabill to Dalkey Islands SAC), as the Carrickmines Stream outfalls to the marine environment that extends to the Rockabill to Dalkey Islands SAC. As a result, an AA Screening/Natura Impact statement was carried out for the project and is included with the supporting documentation for this application.

### *Terrestrial and Avian Ecology*

A pre-survey data search was carried out in August 2020 and updated in December 2021. This included a literature review to identify and collate relevant published information and ecological studies previously conducted and comprised of information from the following sources; the National Parks and Wildlife Service, NPWS Rare and Protected Species Database, National Biodiversity Data Centre, EPA WMS watercourses data, in addition to aerial, 6 inch, satellite imagery. Following the desktop study, walk-over assessments of the site were carried out as outlined in Table 5.1. Surveys were carried out by means of a thorough search within the potential ZOI. Habitat mapping was carried out according to Fossitt (2000) using ArcGIS 10.5 and displayed on Bing satellite imagery based on the 27<sup>th</sup> August 2021 site visit. Any rare or protected species or habitats were noted. A Wintering Bird Assessment was also carried out on 18<sup>th</sup> December 2021, 21<sup>st</sup> January 2022, 11<sup>th</sup> February 2022 & 10<sup>th</sup> March 2022 (Appendix II). As part of the fieldwork an invasive species assessment was carried out. Birds noted on site were classed based on the Birds of Conservation Concern in Ireland classification, of red, amber and green, which is based on an assessment of the conservation status of all regularly occurring birds on the island of Ireland.

### *Bat Fauna*

Due to the presence of several bat species roosting on site a detailed survey methodology was put in place. As outlined in Appendix 5.1 of the EIAR, Daytime Inspections, building & structure Inspections, tree potential bat roost (PBRs) inspection, bat habitat & commuting routes mapping, night-time bat detector surveys, dusk & dawn bat surveys, walking transects and passive static bat detector surveys.

## **Land, Soil and Geology**

### *Regulations and Guidance*

The methodology adopted for the assessment takes cognisance of the relevant guidelines in particular the following:

- Environmental Protection Agency, August 2017. Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2017);
- Environmental Protection Agency, September 2015. Draft Advice Notes for preparing Environmental Impact Statements (EPA, 2015);
- Environmental Protection Agency, 2002. Guidelines on Information to be contained in Environmental Impact Statements (EPA, 2002);
- Environmental Protection Agency, 2003. Advice Notes on Current Practice in the preparation of Environmental Impact Statements (EPA, 2003);
- Environmental Protection Agency, 2006. Environmental Management Guidelines. Environmental Management in the Extractive Industry (non-scheduled minerals);
- Institute of Geologists of Ireland Guidelines, 2002. Geology in Environmental Impact Statements, A Guide (IGI, 2002); and



- Institute of Geologists of Ireland Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI, 2013).

### *Scope of Assessment*

A phased approach was adopted for this EIAR in accordance with Environmental Protection Agency (EPA) and Institute of Geologists of Ireland (IGI) guidelines as set out above and is described in the following sections.

**Element 1:** An Initial Assessment and Impact Determination stage was carried out to establish the project location, type and scale of the development, the baseline conditions, and the type of land, soil and geological environment, to establish the activities associated with the Proposed Development and to undertake an initial assessment and impact determination.

This stage of the assessment included a desk top study that comprised a review of published environmental information for the Site. The study area, for the purposes of assessing the baseline conditions for the Land, Soils and Geology Chapter of the EIAR, includes the Site and potential receptors within a 2.0km radius of the Site (IGI, 2013).

The desk study involved collecting all the relevant data for the Proposed Development Site and surrounding area including published information and details pertaining to the Proposed Development provided by the Applicant and design team.

A Site walkover survey visits to assess the physical conditions of the Site were carried out by Enviroguide Consulting (Fionnuala Joyce) on the 31st January 2022 to assess the general site conditions.

The Element 1 stage of the assessment was completed by Enviroguide and included the review of the following sources of information:

- Environmental Protection Agency (EPA) webmapping
- Geological Survey Ireland (GSI) Datasets Public Viewer and Groundwater webmapping
- Google Earth Mapping and Imagery
- Ordnance Survey Ireland (OSI) webmapping ;
- National Parks and Wildlife Services (NPWS) webmapping; and
- Information provided by the Applicant pertaining to the design proposals for the Proposed Development.

**Element 2:** The Direct and Indirect Site Investigation and Studies stage was carried out to refine the conceptual site model and undertake a detailed assessment and impact determination. Site investigations that have been completed at the Site include:

- Site Investigations Ltd., November 2020. Brennanstown Road – south Site, Cabinteely, Dublin 18 Site Investigation Report (Contract No. 5752) included: borehole drilling, trial pit excavation, infiltration testing and soil sampling;
- Site Investigations Ltd., May 2021. Brennanstown Road Additional Investigation. Cabinteely, Dublin 18 Site Investigation Report (contract No. 5831) including intrusive site investigation including borehole drilling and trial hole excavation at the Proposed Development Site (SIL, 2021);
- Minerex Geophysics Limited, April 2021. Brennanstown Road, Cabinteely, Dublin 18 Geophysical Survey (Project No.: 6548); and

- Priority Geotechnical Ltd., February 2022. Site Investigation at Barrington, Carrickmines, Dublin, (Reference: JMCS/Rp/P22023) included: borehole drilling, groundwater monitoring and sampling.

Details of the scope and methods for the site investigation and the results are provided in the respective site investigation reports included in SIL, 2020, SIL, 2021 MGL, 2021 and PGL, 2022.

**Element 3:** Mitigation Measures, Residual Impacts and Final Impact Assessment were based on the outcome of the information gathered in Element 1 and Element 2 of the assessment. Mitigation measures to address all identified adverse impacts that were identified in Element 1 and 2 of the assessment were considered in relation to the Operational and Construction phase of the development. These mitigation measures were then considered in the impact assessment to identify any residual impacts.

**Element 4:** Completion of this Land, Soils, Geology Section of the EIA was completed in this EIAR chapter and includes all the associated figures and documents.

## Hydrology and Water Services

### *Regulations and Guidance*

The methodology adopted for the assessment has regard to the relevant guidelines in particular the following:

- Council Directive 2000/60/EC, October 2000 Establishing a framework for Community action in the field of water policy. Council of European Communities and as amended (Water Framework Directive);
- Council Directive 80/68/EEC, 1979. On the protection of groundwater against pollution caused by certain dangerous substances. Council of European Communities;
- Council Directive 2006/118/EEC, 2006. On the protection of groundwater against pollution and deterioration. European Parliament and the Council of European Communities;
- Department of the Environment, Heritage and Local Government, Environmental Protection Agency and Geological Survey of Ireland, 1999. Groundwater Protection Schemes (Groundwater Protection Schemes, 1999);
- Environmental Protection Agency, August 2017. Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2017);
- Environmental Protection Agency, September 2015. Draft Advice Notes for preparing Environmental Impact Statements (EPA, 2015);
- Environmental Protection Agency, 2002. Guidelines on Information to be contained in Environmental Impact Statements (EPA, 2002);
- Environmental Protection Agency, 2003. Advice Notes on Current Practice in the preparation of Environmental Impact Statements (EPA, 2003);
- Institute of Geologists of Ireland Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI, 2013);
- Local Government, July 1990. No. 21.1990. Local Government (Water Pollution) (Amendment) Act, 1990;
- Local Government, March 1977. No. 01/1977. Local Government (Water Pollution) Act, 1977.
- National Roads Authority, 2009. Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA, 2009);

- S.I. No. 272/2009 - European Communities Environmental Objectives (Surface Waters) Regulations 2009 including amendments S.I. No. 327/2012, S.I. No. 386/2015 and S.I. No. 77/2019; and
- S.I. No. 9 of 2010 - European Communities Environmental Objectives (Groundwater) Regulations 2010 including amendments S.I. No. 149 of 2012 and S.I. No. 366 of 201.

### *Phased Approach*

A phased approach was adopted for this EIAR in accordance with the Environmental Protection Agency (EPA) and Institute of Geologists of Ireland (IGI) guidelines and is described in the following sections.

**Element 1:** An Initial Assessment and Impact Determination stage was carried out to establish the project location, type and scale of the Proposed Development, the baseline conditions, and the type of hydrological and hydrogeological environment, to establish the activities associated with the Proposed Development and to undertake an initial assessment and impact determination. This stage of the assessment included a desk top study that comprised a review of published environmental information for the Site. The study area, for the purposes of assessing the baseline conditions for the Hydrology and Hydrogeology Chapter of the EIAR, extends beyond the site boundaries and includes potential receptors within a 2.0km radius of the Site. The extent of the wider study area was based on the IGI, 2013 Guidelines which recommend a minimum distance of 2.0km from the Site.

The desk study involved collecting all the relevant data for the Proposed Development site and surrounding area including published information and details pertaining to the Proposed Development provided by the Applicant and design team.

Site walkover survey and inspections were carried out by Enviroguide Consulting on the 31st January 2022 to assess the general site condition.

The Element 1 stage of the assessment was completed by Enviroguide and included the review of the following sources of information:

- Environmental Protection Agency (EPA) webmapping;
- Geological Survey Ireland (GSI) Datasets Public Viewer and Groundwater webmapping;
- National Parks and Wildlife Services (NPWS) webmapping
- Ordnance Survey Ireland (OSI) webmapping ;
- Water Framework Directive Ireland (WFD) webmapping,;
- Office of Public Works (OPW) database on historic flooding and the Catchment Flood Risk Assessment and Management (CFRAM) maps,
- Met Eireann Meteorological Databases ([www.met.ie](http://www.met.ie));
- CFRAM Preliminary Flood Risk Assessment (PFRA) maps ([www.cfram.ie](http://www.cfram.ie)); and,
- Information provided by the Applicant

**Element 2:** The Direct and Indirect Site Investigation and Studies stage was carried out to refine the conceptual site model and undertake a detailed assessment and impact determination. All Direct and Indirect Site Investigation included:

- Site Investigations Ltd., November 2020. Brennanstown Road – south Site, Cabinteely, Dublin 18 Site Investigation Report (Contract No. 5752) included: borehole drilling, trial pit excavation, infiltration testing and soil sampling;
- Site Investigations Ltd., May 2021. Brennanstown Road Additional Investigation. Cabinteely, Dublin 18 Site Investigation Report (contract No. 5831) including intrusive site investigation including borehole drilling and trial hole excavation at the Proposed Development Site (SIL, 2021);

- Minerex Geophysics Limited, April 2021. Brennanstown Road, Cabinteely, Dublin 18 Geophysical Survey (Project No.: 6548); and
- Priority Geotechnical Ltd., February 2022. Site Investigation at Barrington, Carrickmines, Dublin, (Reference: JMcS/Rp/P22023) included: borehole drilling, groundwater monitoring and sampling.

Details of the scope and methods for the site investigation and the results are provided in the site investigation reports included in Appendix 6-1.

**Element 3:** Mitigation Measures, Residual Impacts and Final Impact Assessment were based on the outcome of the information gathered in Element 1 and Element 2 of the assessment. Mitigation measures to address all identified adverse impacts that were identified in Element 1 and 2 of the assessment were considered in relation to the Operational and Construction phase of the development. These mitigation measures were then considered in the impact assessment to identify any residual impacts.

**Element 4:** Completion of the Hydrology and Hydrogeology Chapter EIAR chapter

## Noise and Vibration

The study has been undertaken using the following methodology:

- Baseline noise monitoring has been undertaken across the development site to determine the range of noise levels at existing noise-sensitive locations (NSLs) in the vicinity of the site (See Figure 8.3);
- A review of the most applicable standards and guidelines has been conducted in order to set a range of acceptable noise and vibration criteria for the construction and operational phases of the proposed development, this is summarised in the following sections;
- Predictive calculations have been performed to estimate the likely noise emissions during the construction phase of the project at the nearest NSLs to the site;
- Predictive calculations have been performed to assess the potential impacts associated with the operation of the development at the nearest NSLs to the development site;
- A schedule of mitigation measures has been proposed, where relevant, to control the noise and vibration emissions associated with both the construction and operational phases of the proposed development, and;
- The inward impact of noise in the surrounding environment on the proposed buildings has also been assessed to determine the requirements for additional noise mitigation to provide suitable residential amenity for the occupants of the site

## Air and Climate

### Criteria for Rating of Impacts *Ambient Air Quality Standards*

In order to reduce the risk to health from poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or “Air Quality Standards” are health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set (see Table 9.1 and Appendix 9.1).

Air quality significance criteria are assessed on the basis of compliance with the appropriate standards or limit values. The applicable standards in Ireland include the Air Quality Standards Regulations 2011, which incorporate EU Directive 2008/50/EC, which has set limit values for a number of pollutants. The limit values for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>, are relevant to this assessment as these are traffic related pollutants (see Table 9.1). Although the EU Air Quality Limit Values are the basis of legislation, other thresholds outlined by the EU Directives are used which are triggers for particular actions (see Appendix 9.1 of the EIAR).

With regards to larger dust particles that can give rise to nuisance dust, there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction phase of a development in Ireland. Furthermore, no specific criteria have been stipulated for nuisance dust in respect of this development.

With regard to dust deposition, the German TA-Luft standard for dust deposition (non-hazardous dust) (German VDI, 2002) sets a maximum permissible emission level for dust deposition of 350 mg/(m<sup>2</sup>\*day) averaged over a one year period at any receptors outside the site boundary. Recommendations from the Department of the Environment, Heritage & Local Government (DEHLG, 2004) apply the Bergerhoff limit of 350 mg/(m<sup>2</sup>\*day) to the site boundary of quarries. This limit value can also be implemented with regard to dust impacts from construction of the proposed development.

Pollutant	Regulation <sup>Note 1</sup>	Limit Type	Value
Nitrogen Dioxide	2008/50/EC	Hourly limit for protection of human health - not to be exceeded more than 18 times/year	200 µg/m <sup>3</sup>
		Annual limit for protection of human health	40 µg/m <sup>3</sup>
		Critical level for protection of vegetation	30 µg/m <sup>3</sup> NO + NO <sub>2</sub>
Particulate Matter (as PM <sub>10</sub> )	2008/50/EC	24-hour limit for protection of human health - not to be exceeded more than 35 times/year	50 µg/m <sup>3</sup>
		Annual limit for protection of human health	40 µg/m <sup>3</sup>
Particulate Matter (as PM <sub>2.5</sub> )	2008/50/EC	Annual limit for protection of human health	25 µg/m <sup>3</sup>

<sup>Note 1</sup> EU 2008/50/EC – Clean Air For Europe (CAFE) Directive replaces the previous Air Framework Directive (1996/30/EC) and daughter directives 1999/30/EC and 2000/69/EC

Figure 2 Air Quality Standards Regulations

### Climate Agreements

Ireland is party to both the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. The Paris Agreement, which entered into force in 2016, is an important milestone in terms of international climate change agreements and includes an aim of limiting global temperature increases to no more than 2°C above pre-industrial levels with efforts to limit this rise to 1.5°C. The aim is to limit global GHG emissions to 40 gigatonnes as soon as possible whilst acknowledging that peaking of GHG emissions will take longer for developing countries. Contributions to GHG emissions will be based on Intended Nationally Determined Contributions (INDCs) which will form the foundation for climate action post 2020. Significant progress was also made in the Paris Agreement on elevating adaption onto the same level as action to cut and curb emissions.

## Landscape and Visual

The chapter was prepared with reference to the Landscape Institute's *Guidelines for Landscape and Visual Impact Assessment*, 2013 (GLVIA) and the EPA draft *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*, 2017. The methodology, terminology and assessment criteria are explained below.

### Key Principles of the GLVIA

#### *Use of the Term 'Effect' vs 'Impact'*

The GLVIA requires that the terms 'impact' and 'effect' be clearly distinguished and consistently used. 'Impact' is defined as the action being taken, e.g. the introduction to the landscape of buildings, infrastructure or landscaping. 'Effect' is defined as the change resulting from those actions, e.g. change in landscape character or the visual amenity experienced at a vantage point.

#### *Assessment of Both 'Landscape' and 'Visual' Effects*

The GLVIA prescribes those effects on views and visual amenity should be assessed separately from the effects on landscape, although the two topics are inherently linked.

'Landscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations and spatial distribution of these elements create variations in landscape/townscape character. 'Landscape character assessment' is the method used in LVIA to describe landscape/townscape and by which to understand the effects of development on the landscape/townscape as a resource.

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 Assessment of Landscape Effects

Assessment of potential landscape effects involves (a) classifying the sensitivity of the receiving environment, and (b) identifying and classifying the magnitude of landscape change which would result from the development. These factors are combined to arrive at a classification of significance of the landscape effects.

#### *Landscape Sensitivity*

The sensitivity of the landscape is a function of its land use, patterns and scale, visual enclosure and the distribution of visual receptors, and the value placed on the landscape. The nature and scale of the development in question is also taken into account, as are any trends of change, and relevant policy. Five categories are used to classify sensitivity.

Sensitivity	Description
Very High	Areas where the landscape exhibits very strong, positive character with valued elements, features and characteristics that combine to give an experience of unity, richness and harmony. The landscape character is such that its capacity to accommodate change is very low. These attributes are recognised in 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 landscape character is such that it has limited/low capacity to accommodate change. These attributes are recognised in policy or designations as being of national, regional or county value and the principle management objective for the area is the conservation of 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, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. These areas may be recognised in 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 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 the principle management objective may be 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 is such that its capacity to accommodate change is high; where development would make no significant change or would make a positive change. Such landscapes include derelict industrial lands, 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 2 Categories of Landscape Sensitivity*

*Magnitude of Landscape Change*

Magnitude of change is a factor of the scale, extent and degree of change imposed on the landscape by a development, with reference to its key elements, features and characteristics (also known as 'landscape receptors'). Landscape receptors include individual aspects of the landscape, e.g. the topography, urban grain or mix of building typologies, which may be directly changed by the development. The surrounding landscape character areas are also receptors whose character may be altered by these changes. Five categories are used to classify magnitude of 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, and/or introduction of elements that are characteristic of the context. Such development results in no change to the landscape character.

*Table 3 Categories of Magnitude of Landscape Change*

### Significance of Effects

To classify the significance of effects the magnitude of change is measured against the sensitivity of the landscape using Table 10.3 and Figure 10.1 as a guide. The significance classification matrix (Table 10.3) is derived from the EPA's *Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2017* (specifically Figure 3.5 of the Guidelines - Figure 10.1 below). In addition to this guidance the assessor uses professional judgement informed by their expertise, experience and common sense to arrive at a classification of significance that is reasonable and justifiable. 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/View				
		Very High	High	Medium	Low	Negligible
Magnitude of Change to the Landscape/View	Very High	<i>Profound</i>	<i>Profound to Very Significant</i>	<i>Very Significant to Significant</i>	<i>Moderate</i>	<i>Slight</i>
	High	<i>Profound to Very Significant</i>	<i>Very Significant</i>	<i>Significant</i>	<i>Moderate to Slight</i>	<i>Slight to Not Significant</i>
	Medium	<i>Very Significant to Significant</i>	<i>Significant</i>	<i>Moderate</i>	<i>Slight</i>	<i>Not Significant</i>
	Low	<i>Moderate</i>	<i>Moderate to Slight</i>	<i>Slight</i>	<i>Not significant</i>	<i>Imperceptible</i>
	Negligible	<i>Slight</i>	<i>Slight to Not Significant</i>	<i>Not significant</i>	<i>Imperceptible</i>	<i>Imperceptible</i>

Table 4 Guide to Classification of Significance of Landscape and Visual Effects

The impact significance classifications are taken from the EPA Draft Guidelines, which define the classifications as follows (Table 10.4)

Sensitivity	Description
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics.

Table 5 Impact Significance Classifications



## Methodology for Assessment of Visual Effects

Assessment of visual effects involves identifying a number of key/representative viewpoints in the site's receiving environment, and for each one of these: (a) classifying the viewpoint sensitivity, and (b) classifying the magnitude of change which would result in the view. These factors are combined to arrive at a classification of significance of the effects on each viewpoint.

### *Sensitivity of the Viewpoint/Visual Receptor*

Viewpoint sensitivity is a function of two main considerations:

- Susceptibility of the visual receptor to change. This depends on the occupation or activity of the people experiencing the view, and the extent to which their attention is focussed on the views or visual amenity they experience at that location. Visual receptors most susceptible to change include residents at home, people engaged in outdoor recreation focused on the landscape (e.g. trail users), and visitors to heritage or other attractions and places of community congregation where the setting contributes to the experience. Visual receptors less sensitive to change include travellers on road, rail and other transport routes (unless on recognised scenic routes), people engaged in outdoor recreation or sports where the surrounding landscape does not influence the experience, and people in their place of work or shopping where the setting does not influence their experience.
- Value attached to the view. This depends to a large extent on the subjective opinion of the visual receptor but also on factors such as policy and designations (e.g. scenic routes, protected views), or the view or setting being associated with a heritage asset, visitor attraction or having some other cultural status (e.g. by appearing in arts).

Five categories are used to classify a viewpoint's sensitivity (see Table 10.5).

Sensitivity	Description
Very High	Iconic viewpoints (views towards or from a landscape feature or area) that are recognised in policy or otherwise designated as being of national value. The composition, character and quality of the view are such that its capacity for change is very low. The principle management objective for the view is its protection from change.
High	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 focused on the landscape). The composition, character and quality of the view may be such that its capacity for accommodating change may or may not be low. The principle management objective for the view is its protection from change that reduces visual amenity.
Medium	Views that may not have features or characteristics that are of particular value, but have no major detracting elements, and which thus provide some visual amenity. These views may have capacity for appropriate change and the principle management objective is to facilitate change to the composition that does not detract from visual amenity, or which enhances it.

Low	Views that have no valued feature or characteristic, and where the composition and character are such that there is capacity for change. This category also includes views experienced by people involved in activities with no particular focus on the landscape. For such views the principle management objective is to facilitate change that does not detract from visual amenity or enhances it.
Negligible	Views that have no valued feature or characteristic, or in which the composition may be unsightly (e.g. in derelict landscapes). For such views the principle management objective is to facilitate change that repairs, restores or enhances visual amenity.

Table 6 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 view, or in glimpses). It also takes into account the geographical extent of the change, as well as the duration and reversibility of the visual effects. Five categories are used to classify magnitude of change to a view (Table below) 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 dominant in 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 7 Categories of Magnitude of Visual Change

### *Significance of Visual Effects*

As for landscape effects, 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 10.3 above.

### **Quality of Effects**

In addition to predicting the significance of the effects, EIA methodology requires that the quality of the effects be classified as positive/beneficial, neutral, or negative/adverse.

For landscape to a degree, but particularly for visual effects, this is an inherently subjective exercise. This is because landscape and visual amenity are *perceived* by people and are therefore subject to variations in the attitude and values – including aesthetic preferences - of the receptor. One person's attitude to a development may differ from another person's, and thus their response to the effects of a development on a landscape or view may vary.

Additionally, in certain situations there might be policy encouraging a particular development in an area, in which case the policy is effectively prescribing landscape change. If a development achieves the objective of the policy the resulting effect might be considered positive, even if the landscape character is profoundly changed. The classification of quality of landscape and visual effects should seek to take these variables into account and provide a reasonable and robust assessment.

### **Traffic and Transportation**

The following methodology has been adopted for this assessment:

- Review of relevant available information including the Dun Laoghaire Rathdown County Council Development Plan 2016-2022, existing traffic information which included traffic counts commissioned as part of this application which were carried out by IDASO on 10<sup>th</sup> June 2021 together with traffic assessments undertaken as part of nearby recent planning permissions (Brennanstown Wood ABP 301614-18 and Doyle Nursery Site ABP 305859-19) and other relevant studies (Brennanstown Road Traffic Management Scheme by DLRCC dated August 2016);
- Site visits to gain an understanding of the site access and observe the existing traffic situation. were undertaken on 22 May 2020 and 12 June 2020. The visits were general observation visits to get an appreciation/understanding of the current road conditions, footpath conditions, traffic flows, traffic speeds, pedestrian and cyclist movements.;
- Consultations with Dún Laoghaire-Rathdown County Council to agree the site access arrangements and determine the scope of the traffic analysis required to accompany a planning application. These consultations were undertaken as part of the pre-planning process and included a formal S247 meeting with DLRCC and a tri-partite meeting with both DLRCC and An Bord Pleanála. Following the S247 meeting DLRCC issued an opinion on the pre-application submission and following the Tri-partite meeting, An Bord Pleanála issued an opinion. Both opinions provided guidance on the scheme from a traffic and transportation point of view which primarily related to connectivity to the LUAS and connectivity to the public footpath infrastructure towards Brennanstown Wood;
- Detailed estimation of the transport demand that will be generated by the development. The morning and evening peak times will be addressed as well as an estimation of the construction stage traffic; and

- Assessment of the percentage impact of traffic on local junctions, car parking requirements and accessibility of the site by sustainable modes including walking, cycling and public transport.

## Material Assets

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

- A desktop review of Irish Water Utility Plans, ESB Networks Utility Plans, Gas Networks Ireland Service Plans, EIR E-Maps and Virgin Media Maps;
- Consultation with Irish Water and Dún Laoghaire-Rathdown County Council;
- Submission of a Pre-Connection Enquiry Application to Irish Water;
- Review of ESB Network Utility Plans & Site meetings with ESB Network
- Review of Gas Networks Ireland exiting network maps;
- Review of EIR Telecommunications exiting network maps;
- Site Inspections / Walkover;

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

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

## 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 as covered in Appendix 13.1 and 13.2.

This chapter is based on the proposed project, as described in Chapter 3 (Description of the Development) and considers the following aspects:

- Legislative context;
- Construction Phase (including excavation and site preparation); and
- Operational Phase

A desktop 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 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 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 the National Waste Reports and National Waste Statistics, data recorded from similar previous developments, Irish and US EPA waste generation research as well as other available research sources.

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. This information is presented in Section 13.7.

A detailed review of the existing ground conditions on a regional, local and site-specific scale are presented in Chapter 6 (Land, Soils and Geology). Chapter 6 also discusses the environmental quality of any soils which will have to be excavated to facilitate construction of the proposed development.

### **Cultural Heritage – Archaeology**

Research for this report was undertaken in three phases. The first phase comprised a paper survey of all available archaeological, historical and cartographic sources. The second phase involved a field inspection of the site. A third phase comprised geophysical survey and subsequent targeted archaeological test trenching.

#### Desktop Resources

The following resources were consulted as part of the desk-based assessment of the proposed development area;

- Record of Monuments and Places for County Dublin;
- Sites and Monuments Record for County Dublin;
- National Monuments in State Care Database;
- Preservation Orders List;
- Topographical files of the National Museum of Ireland;
- Cartographic and written sources relating to the study area;
- Dun Laoghaire-Rathdown County Development Plan 2022–2028;
- Aerial photographs;
- Excavations Bulletin (1970–2021).

**Record of Monuments and Places (RMP)** is a list of archaeological sites known to the National Monuments Section, which are afforded legal protection under Section 12 of the 1994 National Monuments Act and are published as a record.

**Sites and Monuments Record (SMR)** holds documentary evidence and field inspections of all known archaeological sites and monuments. Some information is also held about archaeological sites and monuments whose precise location is not known e.g. only a site type and townland are recorded. These are known to the National Monuments Section as ‘un-located sites’ and cannot be afforded legal protection due to lack of locational information. As a result, these are omitted from the Record of Monuments and Places. SMR sites are also

listed on a website maintained by the Department of Housing, Local Government and Heritage (DoHLGH) – [www.archaeology.ie](http://www.archaeology.ie).

**National Monuments in State Care Database** is a list of all the National Monuments in State guardianship or ownership. Each is assigned a National Monument number whether in guardianship or ownership and has a brief description of the remains of each Monument. The Minister for the DoHLGH may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

**Preservation Orders List** contains information on Preservation Orders and/or Temporary Preservation Orders, which have been assigned to a site or sites. Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

**The topographical files of the National Museum of Ireland** are the national archive of all known finds recorded by the National Museum. This archive relates primarily to artefacts but also includes references to monuments and unique records of previous excavations. The find spots of artefacts are important sources of information on the discovery of sites of archaeological significance.

**Cartographic sources** are important in tracing land use development within the development area as well as providing important topographical information on areas of archaeological potential and the development of buildings. Cartographic analysis of all relevant maps has been made to identify any topographical anomalies or structures that no longer remain within the landscape. The following historic maps were consulted as part of this assessment;

- Sir William Petty, Down Survey Map, 1654–56, Barony of Rathdown
- John Rocque's Exact survey of Dublin County, 1760
- John Taylor's Map of the Environs of Dublin, 1816
- Ordnance Survey maps of County Dublin (1837-1940)

**Documentary sources** were consulted to gain background information on the archaeological, architectural and cultural heritage landscape of the proposed development area. A full list of references used is included in Section 14.4 of Chapter 14 of the report.

**Development Plans** contain a catalogue of all the Protected Structures and archaeological sites within the county. The Dun Laoghaire-Rathdown County Development Plan (2022-2028)

was consulted to obtain information on cultural heritage sites in and within the immediate vicinity of the proposed development area.

**Aerial photographic coverage** is an important source of information regarding the precise location of sites and their extent. It also provides initial information on the terrain and its likely potential for archaeology. A number of sources were consulted including aerial photographs held by the Ordnance Survey (1995–2013), Google Earth (2005–2021).

**Excavations Bulletin** is a summary publication that has been produced every year since 1970. This summarises every archaeological excavation that has taken place in Ireland during that year up until 2010 and since 1987 has been edited by Isabel Bennett. This information is vital when examining the archaeological content of any area, which may not have been recorded under the SMR and RMP files. This information is also available online ([www.excavations.ie](http://www.excavations.ie)) from 1970–2021.

#### Field Inspection

Field inspection is necessary to determine the extent and nature of archaeological and historical remains, and can also lead to the identification of previously unrecorded or suspected sites and portable finds through topographical observation and local information.

The archaeological field inspection entailed –

- Walking the proposed development and its immediate environs.
- Noting and recording the terrain type and land usage.
- Noting and recording the presence of features of archaeological or historical significance.
- Verifying the extent and condition of any recorded sites.
- Visually investigating any suspect landscape anomalies to determine the possibility of their being anthropogenic in origin.

#### Geophysical Survey

Geophysical survey is used to create ‘maps’ of subsurface archaeological features. Features are the non-portable part of the archaeological record, whether standing structures or traces of human activities left in the soil. Geophysical instruments can detect buried features when their electrical or magnetic properties contrast measurably with their surroundings. In some cases, individual artefacts, especially metal, may be detected as well. Readings, which are taken in a systematic pattern, become a dataset that can be rendered as image maps. Survey results can be used to guide excavation and to give archaeologists insight into the pattern of non-excavated parts of the site. Unlike other archaeological methods, the geophysical survey is not invasive or destructive.

A geophysical survey was undertaken to inform this assessment in May 2017 within the proposed development in Brenanstown townland (Leigh 2017, Licence 17R0025). A summary of the geophysical report is presented in chapter 14 of the EIAR and the full text included in Appendix 14.1 of the EIAR.

### Archaeological Testing

Archaeological Test Trenching can be defined as ‘a limited programme... of intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land or underwater. If such archaeological remains are present test trenching defines their character and extent and relative quality’ (CifA 2014a, 4). A program of archaeological testing based on the results of the geophysical survey was carried out within the proposed development area in 2018. This was undertaken by David McIlreavy of IAC under licence 17E0181. Detailed results of the archaeological testing are included in Section 14.4.9 of Chapter 14 and Appendix 14.2 of the EIAR.

### Cultural Heritage – Cultural Heritage

A desktop study of the site was carried out using the sources listed below, along with a visual survey across several site visits. Survey drawings of the existing Mount Errol house and adjacent stable block buildings was commissioned and completed by an independent surveyor. Howley Hayes Architects carried out an inspection of the buildings to determine the condition and historic significance of the structures, ahead of completion of the report.

Desktop study referencing the following sources:

- Record of Protected Structures (RPS) and Architectural Conservation Areas (ACAs), Dun Laoghaire Rathdown County Development Plan (2016-2022).
- The Record of Monuments and Places (RMP) and Sites and Monuments Record (SMR).
- The Trinity Map Library – topographical files of the site.
- The Irish Architectural Archive.
- Aerial imagery including OSi imagery from 1995 onwards.

The study referenced the following documents:

- The Architectural Heritage Protection Guidelines for Planning Authorities
- Advice Notes For Preparing Environmental Impact Statements Draft (September 2015)
- Guidelines on the Information to be contained In Environmental Impact Assessment Reports Draft (August 2017).
- Guidelines for Planning Authorities and ABP for carrying out EIA (2018).

### Definitions

UNESCO define the term cultural heritage as encompassing several aspects of heritage:

Tangible cultural heritage:	movable cultural heritage (artefacts)
	immovable cultural heritage (monuments, archaeological sites, and so on)
	underwater cultural heritage (shipwrecks, underwater ruins and cities)
	Intangible cultural heritage: oral traditions, folklore etc.

The ‘Guidelines on the information to be contained in environmental impact assessment reports’ (DRAFT August 2017) refer to Cultural Heritage as:

Archaeology	Known archaeological monuments
	Areas of archaeological potential (including unknown archaeology)
	Underwater archaeology



Architectural heritage

Designated architectural heritage  
Other significant architectural heritage

Folklore and history

Designations or sensitivities

## 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 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, retail units 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.

Chapter 11 Traffic and Transportation notes that from the analysis results as summarised above, the proposed Junction 5 is expected to 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 assessment year of 2041.

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

## **Biodiversity**

### **Construction Phase**

The construction of the proposed development would impact on the existing ecology of the site, the surrounding area and may impact downstream of the proposed works. The proposed development involves the ground clearance, re-profiling, groundworks and construction, with potential for runoff, dust, light and noise impacts that could impact on trees to be retained, and other biodiversity due to potential for downstream impacts. It should be noted that there is potential for significant effects on the qualifying interests of the designated site in the absence of mitigation measures. Construction phase mitigation measures are required on site particularly in relation to the protection of the water quality entering the watercourses. There is potential for silt laden runoff and contamination to enter the watercourse with potential for downstream impacts on the Rockabill to Dalkey Island SAC, as the watercourse outfalls to the marine environment approximately 1.4 km from this SAC.

### **Operational Phase**

Once the proposed development is complete and in the operational phase, the surface water run off will discharge to the Carrickmines Stream, after on site attenuation and foul water from the site will be discharged to Shanganagh WwTP where it will be treated and discharged to the Irish Sea. There will be no impacts from the proposed development during the operational phase.

## **Land, Soil and Geology**

Predicted or residual impacts are defined as 'effects that are predicted to remain after all assessments and mitigation measures. They are the remaining 'environmental costs' of a project and are the final or intended effects of a development after mitigation measures have been applied to avoid or reduce adverse impacts.

### **Residual Impacts**

Mitigation measures in place during Construction Phase and for excavation works prevent 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.

The predicted impacts and identified residual impacts are outlined in the table below.

Activity	Predicted Impact	Mitigation	Residual Impact
<b>Construction Phase</b>			
Construction of the Proposed Development.	Landuse and Land-take: A land-take of 3.81Ha with change from undeveloped/derelict to residential landuse.	The Site is within lands zoned for residential amenity which will be improved as a result of the Proposed Development.	Positive
Excavation and Removal of Soil	The proposed design will require the unavoidable removal of soil and bedrock from the Site.	Suitable soils will be retained and re-used within the Proposed Development Site for engineering fill and landscaping. Surplus soil and subsoil, which is clean and inert, will be re-used off site in accordance with appropriate statutory consent procedures including Article 27 to prevent the loss of the valuable soil resource to landfill.	Moderate
Groundworks and ground stability	Bulk excavations for basements and infrastructure could result in temporary stability issues.	Measures outlined in the geotechnical report (SIL, 2020, SIL 2021) will be implemented where required by the contractor to ensure ground conditions are engineered and controlled appropriately.	Negligible
Removal of surplus soil to offsite lands (facility or site for re-use)	Soil will be removed to an authorised (facility or under Article 27 Notification for appropriate re-use in accordance with all statutory obligations and consents.  Control procedures will be in place to prevent the unauthorised removal of materials to	None required.	Imperceptible

Activity	Predicted Impact	Mitigation	Residual Impact
<b>Construction Phase</b>			
	unauthorised offsite lands/sites/facilities.		
Use of cementitious materials.	Potential release of cementitious material during construction works for foundations, pavements and other structures could result in a localised impact to soil quality.	The cementitious materials used during construction will avoid any contamination of soil and geology through the use of appropriate design and methods implemented by the Contractor and in accordance with industry standards and the CEMP for the works.	Imperceptible
Accidental release of deleterious materials including fuel and other materials being used on-site.	Potential (albeit low) for uncontrolled release of deleterious materials including fuels and other materials being used on-site, through the failure of secondary and tertiary containment or a materials handling accident, to the land, soil and geological environment.	All works will be carried out in accordance with a CEMP that will take cognisance of the requirements for use and containment of fuels and other hazardous materials.	Imperceptible
Import of required aggregates	The potential impacts may include importation of unsuitable or contaminated materials	Contract and procurement procedures will ensure that all imported aggregates meet with industry conformity/compliance standards and statutory obligations	Imperceptible
Import of required aggregates and the loss of resource at the source site	The potential impacts may include loss of attribute and changes in the geological attribute at the source site. Only certified materials from authorised sources will be used.	None required.	Imperceptible

Activity	Predicted Impact	Mitigation	Residual Impact
<b>Construction Phase</b>			
<b>Operational Phase</b>			
Use of the Proposed Development.	Impact on Land Soil and Geology	None	Imperceptible

Table 8 Land Soil & Geology Predicted Impacts, mitigation and residual impacts

### Hydrology and Water Services

Predicted or residual Impacts are defined as ‘effects that are predicted to remain after all assessments and mitigation measures. They are the remaining ‘environmental costs’ of a project and are the final or intended effects of a development after mitigation measures have been applied to avoid or reduce adverse impacts.

Taking account of the proposed mitigation and avoidance measures there are no identified significant adverse impacts associated with the Proposed Development.

Based on the design of the proposed development and identified mitigation measures that will prevent or limit impact and deterioration of water bodies the identified potential impact on WFD status of water bodies will be prevented. There will be no impact to the existing WFD status of water bodies associated with the Proposed Development Site including the Carrikmines Stream, Shanganagh River, Southwestern Irish Sea – Killiney Bay and the Wicklow GWB as a result of the Proposed Development.

The predicted and residual impacts together with the proposed avoidance and mitigation measures are provided in the table below.

Activity	Predicted Impact	Mitigation	Residual Impact
<b>Construction Phase</b>			
Dewatering during basement and drainage construction and management of water	Dewatering will be carried out following construction of the secant pile walls.  However, the extent of the impact is considered to be localised to the immediate area surrounding the basement and attenuation tank area.	Dewatering and management of dewatering water will be undertaken in accordance with Construction Environmental Management Plan (CEMP)	Imperceptible

Activity	Predicted Impact	Mitigation	Residual Impact
<b>Construction Phase</b>			
Instream works for the construction of crossings	Potential for disturbance of the stream bed and bank sediment resulting in an increased suspended solids content of the water.	<p>All instream works or works carried out adjacent to the Greystones Stream will follow relevant guidelines published by Inland Fisheries Ireland (IFI) and The National Roads Authority (now Transport Infrastructure Ireland) regarding instream works and river crossings.</p> <p>A 10m buffer will be maintained around water courses for any works other than necessary in-stream works.</p> <p>Stockpiles will not be stored within this 10m buffer and will be managed to prevent sediment in runoff.</p>	Imperceptible
Management of water quality including dewatering during dewatering	There will be no discharges to water courses. Water may be required to be discharged to ground in accordance with the robust dewatering strategy.	All works will be carried out in accordance with a Construction Environmental Management Plan (CEMP) that will take cognisance of the requirements for handling, use and containment of fuels and other hazardous materials.	Imperceptible
Excavation and removal of surplus soil and potential impact of moving material to unauthorised destinations	Soil will be removed to an authorised (facility or under Article 27 Notification for appropriate re-use in accordance with all statutory obligations and consents.	<p>Contract and procurement procedures will ensure compliance statutory obligations.</p> <p>All materials will be managed in accordance with the Construction</p>	Imperceptible

Activity	Predicted Impact	Mitigation	Residual Impact
<b>Construction Phase</b>			
	Control procedures will be in place to prevent the removal of materials to unauthorised offsite lands/sites/facilities.	Resource and Waste Management Plan (RWMP) for the Proposed Development	
Use of cementitious materials.	Potential release of cementitious material during construction works for instream works, adjoining water courses and during groundworks (foundations, pavements ) to result in water quality impacts	The cementitious materials used during construction will avoid any contamination of soil and geology through the use of appropriate design and methods implemented by the Contractor and in accordance with industry standards and the CEMP for the works.	Imperceptible
Accidental release of deleterious materials including fuel and other materials being used on-site.	Potential (albeit low) for uncontrolled release of deleterious materials including fuels and other materials being used on-site, through the failure of secondary and tertiary containment or a materials handling accident, to the water environment.	All works will be carried out in accordance with a CEMP that will take cognisance of the requirements for handling, use and containment of fuels and other hazardous materials.	Imperceptible
Import of required aggregates for the construction of the Proposed Development.	The potential impacts may include importation of unsuitable or contaminated materials	Contract and procurement procedures will ensure that all imported aggregates meet with industry conformity/compliance standards and statutory obligations	Imperceptible
Construction activities including basement construction	Potential Impact on WFD Status of receiving water bodies. in the absence of design avoidance measures,.	The design of the proposed development and identified mitigation measures that will prevent or limit impact	Imperceptible

Activity	Predicted Impact	Mitigation	Residual Impact
<b>Construction Phase</b>			
and works adjoining the Carrickmines Stream		and deterioration of water bodies there will be no impact to the WFD status of water bodies. The required mitigation measures will be incorporated in the CEMP that will prepared by the contractor.	

Table 9 Hydrology & Water Services Predicted Impacts, mitigation and residual impacts during Construction Phase

<b>Operational Phase</b>			
Discharges of foul and surface water from the Site and potential impact on water quality.	<p>There will be no adverse impact on water quality.</p> <p>All foul water will be discharged in accordance with appropriate consents from Irish Water.</p> <p>Surface water runoff will be managed in accordance with SuDS and any entrained contaminants will be removed prior to discharge from the Site to the Carrickmines Stream</p>	None Required	Imperceptible
Groundwater Flow Regime and Interaction with Surface Water	Any impact will be within a localised zone immediately around the underground structures and no associated impact on stream flows where springs discharge to streams. There is no anticipated impact on regional groundwater flows.	Detailed groundwater drainage design will ensure that local groundwater flow across the site is maintained.	Imperceptible



Operational Phase			
Drainage and SuDS	There is no identified flood risk at the Site or elsewhere	None Required	Imperceptible
Site Drainage and occupancy as BTR development	Potential Impact on WFD Status of receiving water bodies in the absence of design avoidance measures.	The design of the proposed development and identified mitigation measures including SUDS will prevent or limit impact and deterioration of water bodies there will be no impact to the WFD status of water bodies.	Imperceptible

Table 10 Hydrology & Water Services Predicted Impacts, mitigation and residual impacts during Operational Phase

## Noise and Vibration

### Construction Phase

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.

### Operational Phase

#### Building Services Plant

Noise levels associated with operational plant will be designed to be within the adopted day and night-time noise limits at the nearest noise sensitive properties once the design criteria set out in chapter 8 are adopted. Assuming the operational noise levels do not exceed the adopted design goals, the resultant residual noise effects from this source will be of negative, not significant, long-term impact.

#### Additional Vehicular Traffic on Surrounding Roads

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 effects from noise contribution of increased traffic is considered to be of neutral, imperceptible and long-term effect to nearby noise sensitive locations.

## **Climate and Air Quality**

### **Construction Phase**

#### *Air Quality*

Once the dust minimisation measures outlined in Section 9.7 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.

#### *Climate*

According to the IAQM guidance (2014) site traffic, plant and machinery are unlikely to have a significant impact on climate. Therefore the predicted impact is short-term, neutral and imperceptible.

#### *Human Health*

Best practice mitigation measures are proposed for the construction phase of the proposed development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the proposed development is likely to be negative, short-term and imperceptible with respect to human health.

### **Operational Stage**

#### *Air Quality*

Air dispersion modelling of operational traffic emissions associated with the proposed development was carried out using the UK DMRB model. The modelling assessment determined that the change in emissions of NO<sub>2</sub> at nearby sensitive receptors as a result of the proposed development will be imperceptible. Therefore, the operational phase impact to air quality is long-term, localised, negative and imperceptible.

#### *Climate*

Modelling of operational phase CO<sub>2</sub> emissions as a result of the traffic associated with the proposed development was carried out to determine the impact to climate. It was found that emissions of CO<sub>2</sub> will increase by an imperceptible amount as a result of the proposed development and are significantly below the EU 2026 and 2030 GHG targets. The operational phase impact to climate is long-term, negative and imperceptible. In addition, the proposed development has been designed to reduce the impact to climate where possible during operation (see Section 9.5 and Energy & Sustainability Statement).

#### *Human Health*

As 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.

## **Landscape and Visual**

## Construction Phase – Landscape Effects

During construction the site and immediate environs would be heavily disturbed by construction activity and the incremental growth of the buildings on site. The magnitude of landscape change would be high, although temporary. Overall, the sensitivity of the landscape can be classified medium. Taking these factors into account, the construction phase effects on the landscape are predicted to be ‘moderate’ and negative.

## Operational Phase – Landscape Effects

### *Landscape Character and Sensitivity to Change*

**The sensitivity of the receiving environment to change of the type proposed can be classified ‘medium’** (definition: *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, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. 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.*).

### *Magnitude of Landscape Change*

Landscape character is the product of a number of elements/factors, including (a) topography, (b) urban grain and movement patterns, (c) the land use mix, (d) plot and building typologies, scale and architecture, (e) public realm/green infrastructure, and (f) perceptual factors. The higher the magnitude of change that a development would cause to one or more of these factors, the greater the significance of its landscape effects is likely to be.

**Taking account of the impacts on the above elements/factors, the predicted magnitude of landscape change is ‘high’** (definition: *Change that is moderate to large in extent, resulting in major alteration to key elements, features or characteristics of the townscape, and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the townscape).*

### *Significance of Landscape Effects*

Measuring the potential magnitude of change against the sensitivity of the receiving environment, **the significance of the landscape effects is predicted to be ‘significant’**. The transition in character would be pronounced particularly the in the southern part of the site where a dense cluster of tall buildings (for the context) is proposed. However, there are persuasive drivers for this change (proximity to the Luas, public open space and the Priorsland Development Area) and national policy encourages compact growth. The implementation of compact growth policy will unavoidably result in changes in landscape character as high density development typologies are introduced to previously low density areas. The quality of the development would be commensurate with the character of the area. **Therefore, the quality of the effect is classified neutral.**

## Construction Phase – Visual Effects

The construction phase effects are classified in Table 10.7 below, along with the operation and residual effects. Construction is inherently and unavoidably unsightly, therefore the effects on visual amenity would be negative, although temporary.

### Operational Phase – Visual Effects

Since no mitigation measures are recommended the predicted visual impacts are the same as the potential impacts described in Section 10.6 above. The predicted impacts are summarised in the table below.

Viewpoints	Viewpoint Sensitivity	Magnitude of Change	Significance & Quality of Visual Effects		
			Construction (Temporary)	Operation (Permanent)	Residual (Permanent)
01 – Brennanstown Road 200m east of the site	Medium	None	No effect	No effect	No effect
02 – Brennanstown Road 70m east of the site	Medium	Low-Medium	Slight-Moderate negative	Slight-Moderate neutral	Slight-Moderate neutral
03 – Brennanstown Road near north east corner of the site	High	High	Significant negative	Very significant neutral	Very significant neutral
04 – Brennanstown Road opposite proposed pedestrian entrance	Medium	Very high	Significant negative	Significant positive	Significant positive
05 – Brennanstown Road near north west corner of the site	Medium	High	Moderate negative	Moderate positive	Moderate positive
06 – Brennanstown Road 300m west of the site	Medium	None	No effect	No effect	No effect
07 – Brennanstown Vale, distant view to west, upslope	High	None	No effect	No effect	No effect
08 – Brennanstown Vale, mid-distant view to west	High	None	No effect	No effect	No effect
09 – Brennanstown Vale, distant view to west, lower road	High	Negligible	Not significant negative	Imperceptible neutral	Imperceptible neutral
10 – Brennanstown Vale, close-up to west, lower road	High	Low-High	Significant negative	Significant neutral	Significant neutral
11 – Carrickmines Luas car park (future Priorsland development plot)	Low	Low	Not significant negative	Not significant neutral	Not significant neutral
12 – Brennanstown Luas stop	Medium	Negligible	Not significant negative	Not significant neutral	Not significant neutral

Viewpoints	Viewpoint Sensitivity	Magnitude of Change	Significance & Quality of Visual Effects		
			Construction (Temporary)	Operation (Permanent)	Residual (Permanent)
13 – Lehaunstown Luas stop	Medium	Low	Moderate negative	Moderate neutral	Moderate neutral
14 - Beckett Park, Castle Street, Cherrywood	Medium	Medium	Moderate negative	Moderate neutral	Moderate neutral
15 – Tully Church	Medium	None	No effect	No effect	No effect
16 – Lehaunstown Lane M50 overpass	Medium	Negligible-Low	Slight negative	Slight neutral	Slight neutral
17 – Heronford Lane	Medium	Negligible-Low	Slight negative	Slight neutral	Slight neutral
18 – Golf Lane	Medium	Medium	Moderate negative	Moderate neutral	Moderate neutral
19 – Glenamuck Road bridge over the M50	Low	Low	Slight negative	Slight neutral	Slight neutral
20 – Druid’s Glen Road off the N11	Medium	Negligible	Imperceptible negative	Imperceptible neutral	Imperceptible neutral
21 – Killiney Hill	Medium	None	No effect	No effect	No effect

Table 11 Summary of predicted visual effects.

## Traffic and Transportation

### Construction Phase

Provided the mitigation measures and management procedures outlined in the Construction 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.

### Operational Phase

In order to assess the potential impact arising from the proposed development during the operational phase, a Traffic and Transport Assessment has been prepared and is included in the SHD application under a separate cover. The traffic modelling carried out as part of the Traffic and Transport Assessment includes the analysis of 5 no. Junctions of the surrounding network as set out below.

- **Junction 1 (Signalised):** Brennanstown Road / Claremont Road / Glenamuck Road North.
- **Junction 2 (Priority):** Brennanstown Road / Carrickmines Wood.
- **Junction 3 (Priority):** Brennanstown Road / Brennanstown Vale
- **Junction 4 (Roundabout):** Brennanstown Road / Brennanstown Wood
- **Junction 5 (Signalised):** Brennanstown Road / Barrington Tower / Apollo/Appledore.

## Traffic Growth Factors

These junctions were assessed for the estimated opening year of 2026 and future design years of 2031 (Opening Year +5 Years) and 2041 (Opening Year +15 Years). The background traffic growth factors used to factor up the baseline traffic movements are in accordance with the 'Table 6.1: Link-Based Growth Rates: Metropolitan Area Annual Growth Rates' within the TII Publications – Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (May 2019). These are:

- 1.084 (Central Growth) growth factor from 2021 to 2026
- 1.162 (Central Growth) growth factor from 2021 to 2031.
- 1.222 (Central Growth) growth factor from 2021 to 2041

## Material Assets

### Construction Phase

#### Surface Water

Due to the proposed mitigation measures outlined above no significant impact will arise during the construction phase of the proposed development on a surface water quality.

#### Foul Water

Due to the proposed mitigation measures outlined above, the impact of the foul network construction will be not significant.

There may be short term disruption to local traffic on connection of the foul sewers from the proposed development to the existing foul sewers.

#### Water Supply

Due to the proposed mitigation measures outlined above, the impact on the water supply infrastructure during the construction phase of the proposed development is slight.

There will be disruption to local traffic during the connection of the watermains from the proposed development to the existing watermains on Brennanstown Road.

#### ESB Network

Due to the proposed mitigation measures outlined above, the impact on the ESB network infrastructure during the construction phase of the proposed development is slight.

There may be disruption to local traffic during the connection of the ESB mains for the proposed development from the existing ESB mains on Brennanstown Road.

#### Gas

Due to the proposed mitigation measures outlined above, the impact on the water supply infrastructure during the construction phase of the proposed development is slight.

There will be disruption to local traffic during the connection of the Gas main from the proposed development to the existing watermains on Brennanstown Road.

### **Telecommunications – EIR**

Due to the proposed mitigation measures outlined above, the impact on the EIR network infrastructure during the construction phase of the proposed development is slight.

There may be disruption to local traffic during the connection of the ESB mains for the proposed development from the existing EIR network on Brennanstown Road.

## **Operational Phase**

### **Surface Water**

Due to the proposed mitigation measures outlined above many of the potential impacts will not arise during the operation phase of the proposed development on surface water quality. Surface water discharge from the site will be restricted by means of attenuation to greenfield runoff rates, therefore, no adverse impact in respect of flooding downstream will arise from the proposed development.

The installation of a Sustainable Urban Drainage System will ensure surface water runoff will be of high quality before discharge to the receiving stream to the north of the site and will not have an impact on the receiving watercourse.

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

### **Foul Water**

There will be increased flows in the existing foul water drainage network, resulting in a moderate impact in terms of demand on the receiving foul water network. This impact will be managed through consultation with Irish Water to ensure any necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

### **Water Supply**

There will be an increased demand for water supply due to the development resulting in a moderate impact in terms of demand on the water supply infrastructure. This impact will be managed through consultation with Irish Water to ensure necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

### **ESB Network**

There may be an increased demand for electricity supply due to the development resulting in a moderate impact in terms of demand on the electricity supply infrastructure. This impact will be managed through consultation with ESB to ensure necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

## Gas

There will be an increased demand for water supply due to the development resulting in a moderate impact in terms of demand on the gas supply infrastructure. This impact will be managed through consultation with GNI to ensure necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

## Telecommunications - EIR

There may be an increased demand for due to the development resulting in a moderate impact in terms of demand on the telecommunication infrastructure. This impact will be managed through consultation with EIR personnel to ensure necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

## Waste Management

The implementation of the mitigation measures will ensure that the high rate of reuse, recovery and recycling is achieved at the development during the excavation and 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 (which include mitigation) during the construction phase will ensure that the effect on the environment will be **short-term, imperceptible** and **neutral**.

### Operational Phase

During the operational phase, a structured approach to waste management as set out in Section 13.7 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.

## Cultural Heritage – Archaeology

Following the completion of all mitigation measures, there will be no significant residual impacts upon the archaeological or cultural heritage resource.

## Cultural Heritage – Architectural Heritage

There are a number of predicted impacts, post mitigation, on Barrington's Tower due to the proposed development works at this site. These are unavoidable due to the proposed works to and around the protected structure located within the site.

Several of these impacts have also been initially addressed under the Potential impacts and mitigation measures will or have been employed to minimise the impacts.



**Construction Phase**

A summary of the predicted impacts is outlined in the table with the assessed likely impacts also noted in the right-hand column.

Proposed Works	Impact Type	Likely Effects
Demolition of modern extension (house) to Barrington’s Tower	<u>Significant.</u> The demolition and removal works will significantly change the character and nature of the existing arrangement at Barrington’s Tower	<u>Positive</u> Will facilitate the repair and conservation of the historically significant Barrington’s Tower.
Insertion of new stair to Barrington’s Tower	<u>Moderate</u> The insertion of a new stair will result in significant visual impact to the interior of the structure	<u>Positive</u> Removal of the badly damaged and decayed internal fixtures and fittings and insertion of a new stair will allow for the internal masonry walls and windows to be fully conserved and repaired. Construction method statements for works to be submitted to conservation architect for review.
Conservation and repair of Barrington’s Tower	<u>Slight</u> The proposed conservation works are contained within the historic structure, where much original fabric is already lost. Windows will be repaired, masonry repointed and a new roof, not visible externally, will be added behind the parapet	<u>Positive</u> Repair and conservation of this protected structure on site, to reinstate it as a prospect tower is a positive effect. This present opportunities for conservators to repair this structure and keep it intact and safeguard it for the future.

Table 12 Summary of predicted impacts during construction

**Operational Phase**

The operational phase predicted impacts are noted in the table below with the likely effects outlined in the right hand column.

Impact	Impact Type	Likely Effects
Demolition works – removal of house extension, and insertion of a new stair within the tower.	<u>Significant</u>	<u>Significant</u> The demolition works will have a significant positive impact on the character and nature of Barrington’s Tower as it will result in the removal of inappropriate extensions at the site. The new stair will have minimal impact on the exterior

Impact	Impact Type	Likely Effects
		of the tower but will allow for occasional access to the tower. These works will result in an improvement in current amenities on the site. At present Barrington's Tower is not used and in a state of ongoing decay.
Impact on Setting – Barrington's Tower	<u>Significant</u>	<u>Moderate</u> Position of Blocks AB and CD, and Block E in particular – closest to Barrington's Tower – will have a visual impact on the setting of Barrington Tower. However this impact has been mitigated by design, with the inclusion of open views, and the stepping down of Block E to respond to the tower, and this impact is now considered moderate and acceptable.
Impact on views to Barrington's Tower	<u>Significant</u>	<u>Moderate</u> Sightlines to Barrington's Tower will be affected by the new buildings, but a number of primary sightlines to the structure will be maintained, due to the proposed mitigation measures. A new view of Barrington's Tower will be provided from Brennanstown Road.
Impact on setting of adjacent historic structures and protected structures	<u>Slight</u>	<u>Imperceptible</u> Views from the surrounding protected structures will not be adversely impacted by the development.
Impact on the character of Barrington's Tower due to change of use	<u>Moderate</u>	<u>Moderate</u> The tower was last used for residential purposes, incorporated into a large house extension to the side of the tower. This change of use will in fact change it back to its original function, that of a prospect tower, or folly within a landscape. The character of the tower will be restored, though the landscape into which it once stood is lost.

Table 13 Summary of predicted impacts during operation

## 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	9									
Hydrology	2	10	13								
Noise	3	11									
Air and Climate	4		14								
Landscape	5	12	15								
Traffic	6										
Waste	7										
Cultural Heritage							16				
Material Assets	8										

Figure 13 Interaction Matrix

### 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 / Water

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 Brennanstown Road area interact with the landscape, such that they will be aware of a significant change at this site from a vacant site to a new residential development with a mix of unit types, building heights, open spaces etc. Chapter 10 notes that this change is neutral as the site has a key role in the consolidation of the area.

#### **6. Population & Human Health / Traffic**

Chapter 11 notes that, provided the mitigation measures and management procedures outlined in the Construction 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 Recourse 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 Section 13.7 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 / 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 14 the impact of the proposed built services on human health is likely to be imperceptible.

#### **9. Biodiversity / Soils**

With the protective measures noted above 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.

#### **10. Biodiversity / Water**

As noted in chapter 5, the proposed site is uphill of the Carrickmines Stream. In the absence of mitigation runoff, the construction elements of the project could impact negatively on the biodiversity within the watercourses and within the shallow marine environment. Following the implementation

of the mitigation measures, it is expected that no significant residual effects are likely to arise to biodiversity.

As concluded in the Natura Impact Assessment submitted with the 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.

#### **11. Biodiversity / Noise**

Increased noise levels during the construction phase will only be temporary and are not expected to have a long-term significant adverse effect upon remaining fauna within the wider landscape.

Operational noise will be audible at a low level in the ambient noise and the impact is predicted to be neutral, imperceptible and long-term.

#### **12. 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. This will have a positive, moderate, likely and permanent on biodiversity.

#### **13. Soils / Water**

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.

#### **14. 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.

#### **15. 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.

#### **15. Landscape / Cultural Heritage**

In conservation terms, the potential impact of the proposed development during construction phase will be positive. The demolition and removal works will significantly change the character and nature of the existing arrangement at Barrington's Tower will facilitate the repair and conservation of the historically significant Barrington's Tower.

The insertion of a new stair will result in significant visual impact to the interior of the structure removal of the badly damaged and decayed internal fixtures and fittings and insertion of a new stair will allow for the internal masonry walls and windows to be fully conserved and repaired. This will have a moderate – positive impact.

The proposed conservation works are contained within the historic structure, where much original fabric is already lost. Windows will be repaired, masonry repointed and a new roof, not visible externally, will be added behind the parapet repair and conservation of this protected structure on site, to reinstate it as a prospect tower is a positive effect. This presents opportunities for conservators to repair this structure and keep it intact and safeguard it for the future. This will have a slight – positive impact.

During the operational phase of the development, the position of Blocks AB and CD, and Block E in particular – closest to Barrington’s Tower – will have a visual impact on the setting of Barrington Tower. However, this impact has been mitigated by design, with the inclusion of open views, and the stepping down of Block E to respond to the tower, and this impact is now considered moderate and acceptable.

Sightlines to Barrington’s Tower will be affected by the new buildings, but a number of primary sightlines to the structure will be maintained, due to the proposed mitigation measures. A new view of Barrington’s Tower will be provided from Brennanstown Road.

The tower was last used for residential purposes, incorporated into a large house extension to the side of the tower. This change of use will in fact change it back to its original function, that of a prospect tower, or folly within a landscape. The character of the tower will be restored, though the landscape into which it once stood is lost.

## 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.