Large Scale
Residential Development
at Dunboyne North, Co. Meath

Non-Technical Summary

Volume I

August 2023

McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

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1 Introduction

The Environmental Impact Assessment Report (EIAR) sets out the results of the environmental assessments which have been completed for the proposed development to inform the planning consent process.

The preparation of a Non-Technical Summary (NTS) is a requirement under the EIA directive as one of the fundamental objectives of the EIA process is to "ensure that the public are made aware of the environmental implications of any decisions about whether to allow new projects to take place".

This NTS provides a concise and comprehensive summary of the assessments carried out, description of the Project, its existing environment, the effects of the project on the environment, the proposed mitigation measures, and the proposed monitoring arrangements, where relevant.

The assessment has been completed as a statutory environmental assessment. The environmental impact assessment process has been completed in line with Directive 2014/52/EU, based on the draft guidance presented in Guidelines on the Information to be contained in Environmental Impact Assessment Reports, Draft (EPA 2017).

This NTS provides a concise and comprehensive summary of the assessments carried out, description of the development, the baseline environment, the effects of the project on the environment, any proposed mitigation/remediation measures, and proposed monitoring arrangements, where relevant.

Chapter 1 introduces the project and describes the scope and methodology of the EIA process. The consultation process which was undertaken is outlined and the environmental assessment team is also introduced. Chapter 2 provides details of the proposed development.

1.1 Characteristics of the Proposed Development

A full description of the proposed development is provided in Chapter 2 Project Description. In summary, the proposed development will consist of the construction 267 no. residential units, a creche, and all associated ancillary development works.

1.2 Background and Purpose of the EIAR

The proposed development falls within the class of development types requiring an EIA under Schedule 5 of the Planning and Development Regulations 2001 (as amended). The proposed development is subject to Part 2 of this Schedule (Section 10) which deals with infrastructure projects where EIA is required for:

> *10. b (iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectare in the case of other parts of a built up area and 20 hectares elsewhere*
>
> *(in this paragraph "business district" means a district within a city or town in which the predominant land use is retail or commercial).*

The proposed project comprises the construction of 267 no. residential units, on a gross site area of c. 14.17ha. An EIAR is therefore required as the LRD comprises urban development on a site area that exceeds the 10ha threshold for a mandatory EIAR.

1.3 Report Structure

The EIAR has been prepared according to the 'Grouped Format Structure'. This means that each topic is considered as a separate section and is drafted by the relevant specialists.

The EIAR is divided into three volumes as follows:

- Volume 1: Non-Technical Summary
- Volume 2: Main Environmental Impact Assessment Report
- Volume 3: Appendices

Volume 1, the Non-Technical Summary (NTS), provides an overview of the project and the EIAR in non-technical terms. The summary is presented similar to the grouped format structure and discusses each environmental topic separately.

Volume 2, the main EIAR, provides the detailed information on the proposed development and the relevant environmental topics, with technical and detailed investigations of the topic areas as appropriate. This volume is prepared in the grouped format structure as it allows specialist studies to be completed for environmental topics in chapters.

Volume 3, the Appendices, contains supporting documentation and information on the EIAR.

1.4 EIAR Team

McCutcheon Halley Planning Consultants (MH Planning) are the planning consultants and project coordinators of the EIAR. The EIAR structure and consultant responsible for each of the chapters are presented in Table 1.1.

Table 1.1 EIAR Structure

Chapter	Chapter Title	Consultant
1.	Introduction	MH Planning
2.	Site Location & Project Description	MH Planning
3.	Alternatives Considered	John Fleming Architects
4.	Population & Human Health	MH Planning
5.	Land, Soils & Geology	Atkins
6.	Hydrology & Hydrogeology	Atkins
7.	Air Quality	AWN Consulting
8.	Climate	AWN Consulting
9.	Noise & Vibration	AWN Consulting

Chapter	Chapter Title	Consultant
10.	Landscape & Visual Impact	JBA Consulting
11.	Material Assets – Traffic & Transport	Atkins
12.	Material Assets – Service Infrastructure & Utilities	Atkins
13.	Biodiversity	Enviroguide Consulting
14.	Cultural Heritage & Archaeology	John Cronin & Associates
15.	Significant Interactions of Impacts	MH Planning
16.	Summary of Mitigation Measures & Monitoring	MH Planning
17.	Screening for Major Accidents	MH Planning

The details of each consultancy within the EIAR team are provided in the table below. The qualifications of consultants responsible for each discipline is provided in the introduction to each chapter.

Table 1.2 Details of Each Consultancy

Consultancy	Address	Phone	Email
MH Planning	6 Joyce Square, Barrack House, Ballincollig, Cork.	021 4208710	info@mhplanning.ie
John Fleming Architects	The Tree House, 17 Richview Office Park, Clonskeagh, Dublin, D14 XR82.	01 6689888	info@jfa.ie
Atkins	Atkins House, 150 Airside Business Park, Swords, Co Dublin, K67K5W4	01 810 8000	info.ie@atkinsglobal.com
Enviroguide Consulting	Head Office, 3D, Core C, Block 71, The Plaza, Park West, Dublin 12.	01 5657430	info@enviroguide.ie
AWN Consulting	The Tecpro Building, Clonshaugh Business and Technology Park, Dublin 17	01 8474220	Ciara.nolan@awnconsulting.ie
John Cronin & Associates	3a, West Point Trade Centre, Ballincollig, Cork.	021 4810311	info@johncronin.ie
JBA Consulting	24 Grove Island, Corbally, Limerick, V94 312N	061 579400	info@jbaconsulting.ie

1.5 Consultation

The following prescribed bodies have been consulted in relation to the general scope of the EIAR.

- Department of Housing, Local Government, and Heritage
- Department of Tourism, Culture, Arts, Gaeltacht, Sport & Media
- Department of Education
- Geological Survey Ireland (Department of the Environment, Climate and Communications)

- The Heritage Council
- Office of Public Works (OPW)
- Transport Infrastructure Ireland (TII)
- The National Transport Authority (NTA)
- The Health and Safety Authority (HSA)
- The Health Service Executive (HSE)
- Inland Fisheries Ireland
- Bat Conservation Ireland
- Uisce Éireann
- An Taisce
- Bord Gais
- ESB
- Environmental Protection Agency
- Fáilte Ireland

Responses received are presented in Appendix 1.1

1.6 Cumulative Impacts

Projects considered for their potential cumulative impacts with the proposed development are identified in Chapter 1. Within the EIAR other disciplines may have identified further projects which are considered to be relevant to their assessments. No significant cumulative impacts have been identified.

2 Site Location and Project Description

According to the EIA Directive, an EIAR must provide a project description that includes information on the project's site, design, scale, and other relevant elements. The 2014 Directive stipulates in Recital 22 that:

> *"In order to ensure a high level of protection of the environment and human health, screening procedures and environmental impact assessments should take account of the impact of the whole project in question, including, where relevant, its subsurface and underground, during the construction, operational and, where relevant, demolition phases".*

This chapter complies with the EIA Directive's criteria by giving information about the proposed project's location, size, and features.

This chapter of the EIAR has been prepared by Saoirse Kavanagh, Executive Planning Consultant of McCutcheon Halley Planning Consultancy.

2.1 Description of Existing Environment

The subject site is located within the townland of Bennetstown to the north of, and within the defined development boundary, of Dunboyne. The site area immediately south of the M3 Parkway Station,

west of the River Tolka and the Dublin-Maynooth railway line, and east of the R157. The centre of the site is located c. 1.45km north of Dunboyne town centre, which is a c. 2.5km driving distance when taking the R157.

The lands surrounding the subject site consist primarily of agricultural lands. The M3 Parkway Station to the north of the site provides a large surface car park adjacent to the train station.

The boundaries of the site consist of hedgerows and treelines and there is a ditch along the southern boundary of the site.

The red line boundary for the application extends from the main site area to include part of the R157 to the north and south, and over the River Tolka to the east.

The majority of the subject site is zoned 'A2 New Residential' in the Meath County Development Plan 2021-2027 and is located within the Dunboyne North Masterplan MP22 area. A portion of the site to the east is located on lands zoned F1 Open Space and is outside the masterplan boundary.

2.2 Description of Proposed Development

The proposed development consists of

- 267 no. residential units.
- A 280sqm creche with 65 no. childcare spaces.
- A new link road from the R157 to the Navan Road including the construction of a new bridge over the River Tolka.
- Road improvements and upgrade works to the R157.
- Landscaping and boundary treatments
- Reprofiling of the F1 lands to the east to accommodate flooding.
- All associated site development works.

2.3 Construction Process

2.3.1 Construction Site Establishment

A temporary site compound will be set up during the construction stage of the works.

Proposed works will include construction of a site compound, perimeter hoardings, provision of site security and access points, and erection of cranes as necessary. Safeguards will be put in place to protect the site, the works, materials and plant. Existing buildings, persons and access will be protected during the works.

2.3.2 Working Hours

The proposed construction working hours will be from 7am to 7pm Monday to Friday, and 7am to 2pm on Saturdays. No construction work will take place on Sundays or public holidays, except works necessary for health and safety reasons or to protect the environment

2.3.3 Earthworks

During construction of foundations, underground services and utilities, and flood attenuation tanks, site earthworks will be required. Site investigations will be carried out by the contractor prior to construction. Any contaminated soils will be segregated and removed off-site in accordance with relevant waste legislation.

2.3.4 Phasing

The proposed development will be constructed in three phases. Phase 1 will include 250 no. residential units, the creche, cut and fill works, the pump station, flood compensation measures, and the bridge works over the River Tolka. Phase 2 will include 62 no. units and Phase 3 will include the remainder of the infrastructural works.

2.3.5 Traffic Management

An outline Construction Traffic Management Plan has been completed by Paul McGrail Consulting Engineers and submitted with the application.

3 Alternatives Considered

This chapter of the EIAR has been prepared by Saoirse Kavanagh, Executive Planning Consultant of McCutcheon Halley Planning Consultancy.

The EIA Directive 2014/52/EU notes that the following is required in relation to the consideration of alternatives in the preparation of the EIAR:

> *'A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects".*

The objective is for the developer to present a representative range of the practicable alternatives considered. The alternatives should be described with 'an indication of the main reasons for selecting the chosen option'. It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account is deciding on the selected option.

Alternatives may also be described at six levels: do-nothing alternative, alternative locations, alternative layouts, alternative design, alternative processes, and alternative mitigation measures.

3.1 Alternative Location and Uses

As noted in Section 4.13 of the 2018 Guidelines "some projects may be site specific so the consideration of alternative sites may not be relevant."

We also refer to the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA. 2022), which states that in some instances alternative locations may not be applicable or available for a specific project which is identified for a specific location.

In the first instance, the Proposed Development is in accordance with the zoning and other relevant policies and objectives of the current MCC Development Plan 2021 – 2027 and the Masterplan MP22. The site is zoned as 'Zone A2 New Residential – 'To provide for new residential communities and ancillary community facilities, neighbourhood facilities as considered appropriate.'. The masterplan for Bennettstown provides a variety of Zones to allow for a diverse mix of uses such as Zone C1 (Mixed Use) E3 (Warehousing and distribution) and F1 (Open Space) along with A2 (New Residential) this will allow a diverse community to develop. Therefore, the Proposed Development represents alignment with the zoning goals of A2 – and will be the catalyst to initialise the development of the masterplan.

Having regard to the site-specific nature of both the Proposed Development and future developments, further consideration of alternative site locations is not considered essential in respect of the EIAR legislation and guidance.

Given the current zoning of the site, the surrounding proposed land uses, the future proximity to similar associated developments, and the future availability of necessary services and infrastructure, the Proposed Development is the most appropriate use for the site.

3.2 Alternative Layouts

A number of alternative layouts were considered for the proposed development; 8 of these are detailed in Chapter 3.

- Option A and B are two pre-planning design concepts that were explored.
- Option C developed from the first two options which was presented to Meath County Council at the S247 meeting.
- Options D and E were explored following the pre-planning meeting with Meath County Council.
- Option F was submitted to Meath County Council with the S32B meeting request.
- Option G was explored following the S32B meeting.
- Option H provides the chosen layout.

The alternative layouts demonstrates the design process that was undertaken during the preparation of the planning application.

3.3 Alternative Process

Due to the nature of the current proposal (i.e., a residential development greater than 100 dwellings) where the only option is to submit a large-scale Residential Development (LRD) planning application

to the planning authority, it is not considered necessary to consider alternative processes for the proposed development.

3.4 Alternative Flood Risk Management

The proposed residential site is located adjacent to an existing flood zone and as part of the development and as outlined in the LAP a new road and associated bridge over the river Tolka is to be constructed within the Flood Zone. A Stage 3 Flood Risk Assessment has been carried out to determine the quantitative analysis of potential flood events, the impact the proposed road and associated bridge would have on the flood events and mitigation measures required to ensure no increase in flood risk.

A large number of assessments were carried out to determine different scenarios in relation to alternative measures required including a review of the span of the proposed bridge over the river Tolka ranging in span from 8-meter to 15-meter span. The final and most efficient design is for a 13-meter span bridge. While the 13-meter span bridge is sufficient in size to accommodate the flow within the Tolka without having to undertake works within the river, the out-of-bank flooding required flood mitigation measures which includes an additional 3No. 13-meter span bridges to the west of the Tolka River, an 8 meter wide culvert to the east of the river along with Flood Compensation areas adjacent to the proposed development and the relocation of an existing earth berm within the applicant's lands.

Refer to the IE Consulting Flood Risk Assessment Report for further information.

4 Population and Human Health

This chapter of the EIAR was prepared by Saoirse Kavanagh, Executive Planning Consultant of McCutcheon Halley Planning Consultancy and assesses the potential impacts of the proposed development on population and human health that are not covered elsewhere in the EIAR. It also details the proposed mitigation measures where necessary.

The appraisal of the likely significant effects of the proposed development on population and human health was conducted by reviewing the current socio-economic environment in the EIAR study area. This comprised site visits and visual assessments of the proposed site and the surrounding area, as well as an analysis of aerial photography and Ordnance Survey (OS) mapping.

The Study Area for the assessment of potential impacts on Population and Human Health includes the Electoral Divisions (EDs) of Dunboyne (Meath).

4.1 Population

The Development Plan notes that the town of Dunboyne had a population of 7,272 in 2016, which was a 4.5% increase on the 6,959 population of the town in 2011. The Development Plan projects that the town will have a population of 10,572 in 2027 and estimates that 2,002 no. housing units will be required for the town.

The population detail referenced in the Development Plan is based on the Dunboyne Settlement Area as defined in the 2016 census. The subject site is located outside this settlement boundary, to the north. For the purposes of this detail demographic assessment the Dunboyne (Meath) ED has been used. This ED includes the subject site and the rural area surrounding Dunboyne area, therefore encompassing a larger population than the town.

The Dunboyne (Meath) ED had a population of 10,094 in 2016. The population pyramid below demonstrates an even population profile with c. 7% to 8% of the population in age groups 0-4, 5-9, 10-14, 15-19, 30-34, 35-39, 40-44, 45-49, and 50-54. There is a noticeable break in this trend with just c. 6% of the population aged 20-24, 25-29. This is seen in towns throughout the country and likely represents these age groups moving to larger cities for further education and employment. The population beings to drop off after 55 as the population ages, but c. 10% of the population are aged over 65.

4.2 Impact Assessment

In identifying potential impacts and receptors, consideration was given to the proposed residential scheme and the identified receiving environment. The principal potential receptors that will be affected by the development proposals have been identified in the following sections.

- Residential Areas in Proximity;
- Community Facilities and Services including schools and creches;
- Local Amenity
- Economic Activities

4.3 Do Nothing Scenario

If the development were not to proceed there would be no immediate impact on the existing population, economic activity, or community services and facilities in the town. However, if the development does not occur there will be a shortfall in housing supply in the area which may negatively impact the continued sustainable growth of the town.

The site is zoned for residential development and the provision of housing on the subject site will support the core strategy and objectives of the Meath County Development Plan and the Dunboyne North Masterplan. If the development does not occur the zoning and objectives of the local planning policy will not be realised in the short term

4.4 Construction Phase Impacts

The construction of the proposed development is expected to be completed within 3 years. The potential impacts arising during the construction phase relate to short term impacts to quality of life, including visual impact/amenity, noise, air quality, and transport. The construction phase is anticipated to result in a temporary boost to the local economy as workers employed at the site can be expected to make use of local retail facilities and other services. As with any construction site, there

will be potential risk to health and safety in terms of injury or death of construction personnel on-site due to the usage of large, mobile machinery as well as heavy equipment and materials.

4.5 Operational Phase

Due to the nature of the development, there will be few hazards associated with the operational phase of the project and therefore no potential significant negative impact in terms of health and safety.

The proposed development is projected to provide an additional population of c. 732 no. people. The local creches, schools and facilitates have been found to have sufficient capacity to cater for this increase in population.

4.6 Mitigation and Monitoring

4.6.1 Construction Phase

Health and safety risks are the primary concern during the construction phase. These will be managed in accordance with Safety, Health, and Welfare at Work (Construction) Regulations, 2013. The design of the proposed development will be subject to safety design reviews to ensure that all requirements of the project are safe. A project supervisor for construction stage (PSCS) will be appointed and a contractor safety management program will be implemented to identify potential hazards associated with the proposed works. When issues are identified, corrective actions will be implemented to amend design issues prior to the issuance of final design for construction.

Temporary contractor facilities and areas under construction will be fenced off from the public with adequate warning signs of the risks associated with entry to these facilities. Entry to these areas will be restricted and they will be kept secure when construction is not taking place. Site lighting and camera security may be used to secure the site and any lighting will be set up with consideration of the adjoining property.

Measures to ensure public safety, with respect to construction traffic and the construction phase have been included in the included in the Construction Traffic Management Plan and the Construction and Environment Management Plan submitted with the application. A final CTMP and CEMP will be agreed with the Planning Authority prior to commencement of development.

No specific monitoring is proposed.

4.6.2 Operational Phase

Measures to avoid potential negative impacts on Population and Human Health have been fully considered in the design of the project and are integrated into the final layout and design. Compliance with the layout and design will be a condition of the permitted development. As such no mitigation measures are required.

No specific monitoring is proposed.

5 Land, Soils and Geology

This section addresses land soils and geology in the vicinity of the proposed residential development, the potential effects of the proposed development and mitigation where required.

The site is currently greenfield however a small portion of the northern section of the site may have been used as a construction compound. There is a railway line to the north and east of the site with an associated carpark immediately to the north.

The development site is generally flat but slopes gently from approximately 73m AOD in the north to approximately 69m AOD in the south and east of the site close to the Tolka River, with the level of the Tolka River itself measured at approximately 67.8m AOD.

According to the GSI public data viewer (GSI, 2023), the primary superficial / quaternary sediments underlying the vicinity of the Site include: Till derived from limestone, and Alluvium located in the south-east portion of the site and the northern extents of the access road and route for the rising main associated with the River Tolka. A ground investigation was carried out by GII in 2022 and 2023 which encountered topsoil to a depth of 0.3m bgl and firm to very stiff sandy gravelly clay to a depth of 6m bgl. Exploratory boreholes were terminated on possible boulders or bedrock. No made ground was encountered during the ground investigation or no potential evidence of contamination was reported.

There is a very low risk of contamination particularly adjacent to the railway and at the location of the previous temporary construction compound. The environmental testing indicated that barium exceeded the soil guidance value for residential land use with consumption of homegrown vegetables. This exceedance is likely to be naturally occurring. No soils should be reused onsite in areas which may be used to produce homegrown vegetables (i.e. private gardens, creche garden) in the absence of further environmental testing and verification of suitability for reuse.

The excavation of material will be minimised as much as possible to reduce the effect on soils and geology. No material excavated from the former compound area at the north of the site shall be reused onsite.

The effect on land take is likely to have a slight negative permanent effect on the environment of the area; however, this change is consistent with existing and emerging trends.

The proposed development has the potential to result in moderate negative effect on receiving soils and/or bedrock during the construction phase; however, any effects are considered to be short-term and localised. The development will have an imperceptible, permanent effect on localised portions of soil and bedrock during the operational phase.

Mitigation measures will be implemented during both the construction phase and operational phase to avoid these potential effects. Site specific mitigation measures are detailed within Chapter 5 and Chapter 16.

Taking account of proposed mitigation measures, no significant adverse effects are anticipated to the receiving land soils and geology environment arising from the proposed development during the construction or operational phases. Taking account of proposed mitigation measures, no significant human health risks as a result of land soils and geology effects are likely to occur.

In summary, there are no anticipated significant residual adverse effects to land soils and geology, provided mitigation measures proposed during the construction and operational phases are implemented.

6 Hydrology and Hydrogeology

This section addresses hydrology (i.e. surface water) and hydrogeology (i.e. groundwater) in the vicinity of the proposed residential development, the potential impacts of the proposed development (including potential flood risk), and mitigation where required.

The site is currently greenfield however a small portion of the northern section of the site may have been used as a construction compound.

A drainage channel is located to the south of the site. The drainage channel runs in a southeasterly direction towards the River Tolka which adjoins the site to the east and further intersects with a portion of the easterly extents of the site in an areas designated for open space.

There are potential hydrological linkages to a number of SPAs/ SACs/ pNHAs through the River Tolka however these will not likely be effected by the proposed development.

The River Tolka and associated tributary streams have been assigned '*Poor*' surface water quality status by the EPA, for the 2013 to 2018 monitoring period (EPA, 2023).

Groundwater vulnerability (in the bedrock aquifer) is predominantly Low (L) in the western and southern portion of the Site, and Moderate (M) in the eastern portion of the Site with a small area of high vulnerability to the very east of the site

Groundwater is likely to be encountered within ca. 5-8.5m bgl. Groundwater flow is likely to follow topography in a south easterly direction towards the River Tolka, and in a southerly direction towards the Naulswood Stream.

Regional baseline groundwater quality within the general vicinity of the Site, is of '*Good*' status for the 2013 to 2018 period (EPA, 2023).

There are 31no. wells and springs located within the general vicinity of the Site. Part of the site overlies the Inner Source Protection Zone for the Dunboyne PWS.

Piling will be required for part of the proposed development.

A potential flood risk is associated with the site from the River Tolka. A Flood Risk Assessment including modelling has been prepared by IE Consulting (2023) and is submitted as part of this planning application.

Given the scale, nature and location of the proposed development, there is the potential for likely effects on groundwater, Dunboyne Public Water Supply (PWS) and water quality in the River Tolka (and hydraulically connected European sites located ca. 20km Southeast of the Site, namely North Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA; and North Bull Island SPA).

During the construction phase there is potential for degradation in groundwater, and surface water quality resulting from potential pollution caused by construction activities including cement handling,

accidental spillages / leaks, temporary dewatering, poor site management, piling works and bridge construction works. This is likely to result in temporary, significant adverse reversable effects to groundwater and surface water.

During the operational phase groundwater, surface water may be at risk of becoming impacted through occasional fuel / oil leaks; unplanned events (traffic collision, emergency onsite fuel / oil spill, fire water arising from a property fire); or routine site maintenance; and subsequent storm water discharge. This is likely to result in temporary slight adverse effects to groundwater and surface water quality with negligible impacts on offsite protected sites.

Mitigation measures will be implemented during both the construction phase and operational phase to avoid these potential effects. Site specific mitigation measures are detailed within Chapter 6 and Chapter 16.

Taking account of proposed mitigation measures and design measures in relation to potential flood risk and groundwater protection, no significant adverse effects are anticipated to the receiving water environment arising from the proposed development during the construction or operational phases. No significant human health risks as a result of groundwater or surface water effects are likely to occur.

In summary, there are no anticipated significant residual adverse effects to groundwater, or surface water, or associated designated European sites and National sites, provided mitigation measures proposed during the construction and operational phases are implemented. No residual flood risk, once design measures are constructed, has been identified.

7 Air Quality

AWN Consulting Limited has been commissioned to conduct an assessment of the likely impact on air quality associated with the proposed residential development at Bennetstown, Dunboyne, Co. Meath.

In terms of the existing air quality environment, baseline data and data available from similar environments indicates that levels of nitrogen dioxide, particulate matter less than 10 microns and less than 2.5 microns and are generally well below the National and European Union (EU) ambient air quality standards.

Impacts to air quality can occur during both the construction and operational phases of the proposed development. With regard to the construction stage the greatest potential for air quality impacts is from fugitive dust emissions impacting nearby sensitive receptors. In terms of the operational stage air quality impacts will predominantly occur as a result of the change in traffic flows on the local road links near the proposed development.

Any potential dust impacts can be mitigated through the use of best practice and minimisation measures which are outlined in this report. Therefore, dust impacts will be short-term, negative and imperceptible at all nearby sensitive receptors. The local air quality modelling assessment concluded that levels of traffic-derived air pollutants resulting from the development will not exceed the ambient air quality standards either with or without the proposed development in place. Using the assessment criteria outlined in Transport Infrastructure Ireland's 2022 guidance document 'Air Quality Assessment

of Specified Infrastructure Projects – PE-ENV-01106' the impact of the development in terms of NO2, PM10 and PM2.5 emissions is long-term, direct, neutral and imperceptible.

The best practice dust 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 the construction of the proposed development will be short-term, negative and imperceptible with respect to human health. Operational phase predicted concentrations of pollutants are predicted to be significantly below the EU standards, the impact to human health is predicted to be long-term, direct, neutral and imperceptible.

No significant impacts to air quality are predicted during the construction or operational phases of the proposed development.

8 Climate

AWN Consulting Limited has been commissioned to conduct an assessment of the likely impact on climate associated with the proposed residential development at Bennetstown, Dunboyne, Co. Meath.

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). The EPA estimate that Ireland had total GHG emissions of 60.76 Mt CO2e in 2022. This is 3.72 Mt CO2e higher than Ireland's annual target for emissions in 2022. EPA projections indicate that assuming full implementation of the Climate Action Plan and the use of the flexibilities available Ireland can achieve an emissions reduction of 30% by 2030.

There is the potential for release of a number of greenhouse gas emissions to atmosphere during the full lifecycle of the proposed development including construction and operation. GHG emissions associated with the proposed development are predicted to be a small fraction of Ireland's total 2022 GHG emissions which is the baseline scenario.

The changes in traffic volumes associated with the operational phase of the development were substantial enough the meet the assessment criteria requiring a detailed climate modelling assessment, as per Transport Infrastructure Ireland (TII) 2022 guidance "PE-ENV-01104: Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document". The proposed development is not predicted to significantly impact climate during the operational stage. Increases in traffic derived levels of CO2 have been assessed against Ireland's obligations under the EU 2030 non-ETS target and Ireland's carbon emission ceilings. Impacts to climate are deemed imperceptible and long-term with regard to CO2 emissions.

The proposed development has been designed to reduce the impact on climate where possible during operation. The proposed development will comply with the NZEB standards and has aims to achieve an energy efficient design. Once mitigation measures are put in place, the effect of the proposed development in relation to GHG emissions is considered long-term, minor adverse and not significant in EIA terms.

An assessment was conducted to determine the vulnerability of the proposed development to climate change once operational, as per the TII 2022 guidance. This involves an analysis of the sensitivity and exposure of the development to future climate hazards which together provide a measure of vulnerability. Overall the proposed development has a worst-case low vulnerability to the various climate hazards and therefore no significant risk was identified.

Overall, no significant impacts to climate are predicted during the construction or operational phases of the proposed development.

9 Noise and Vibration

AWN Consulting Limited has been commissioned to conduct an assessment of the noise and vibration impacts associated with the proposed residential development at Bennetstown, Dunboyne, Co. Meath.

The existing noise climate in the vicinity of the proposed development has been surveyed. Prevailing noise levels are primarily attributed to aircraft, road and rail traffic. The Dublin Airport noise contours have also been taken into account for this assessment.

The noise impact assessment has focused on the potential outward impacts associated with the construction and operational phases of the proposed development on its surrounding environment, as well as the potential inward impacts on the development itself during the operational stage.

During construction phase the assessment has concluded that construction noise and vibration is predicted to be within the criteria at all receptors. A negative, slight to moderate and short-term noise impact will be experienced at these locations. Given the distance to local receptors the residual vibration impacts are predicted to be negative, short-term and not significant.

During the operational phase, the outward noise impact to the surrounding environment will be due to additional traffic on surrounding roads and plant noise. Additional traffic from the proposed development is predicted to cause a negative, imperceptible and long-term impact. Suitable criteria have been selected for plant noise emissions that will be adhered to at the design stage to ensure the impact is negative, not significant and long-term.

The operational phase inward impact assessment has taken account of the Dublin Airport noise contours, Maynooth rail line upgrades and road traffic increases. The assessment provides upgraded glazing and ventilation specifications that are required in order to mitigate the inward noise impact on the development itself.

10 Landscape and Visual Impact Assessment

10.1 Methodology

The assessment is based on the recommendations in the Guidelines for Landscape and Visual Impact Assessment (GLVIA) as published by the Landscape Institute (UK) and the Institute of Environmental

Management and Assessment (3rd Edition, 2013). The assessment also considers the landscape character assessment within the Westmeath County Development Plan 2021-2027.

The LVIA, which was carried out during the Summer of 2023, was undertaken through a combination of desk studies and field surveys. The desk studies involved assessment of satellite imagery, Google Street View, historic and ordnance survey mapping, background search of the relevant policies from the local council and analysis of the Zone of Theoretical Visibility (ZTV). The site-work stage involved the verification of nearby views from the initial desk-based study. Field notes were recorded in relation to the likes of topography, land use, significant landscape features, sensitive visual receptors and overall landscape character.

When assessing the potential impacts on the landscape and visual amenity resulting from a proposed development, the criteria considered include, landscape character sensitivity, magnitude of likely impacts, significance of landscape effects.

10.2 Receiving Environment

Dunboyne is in the southeastern corner of County Meath. It has strong transport links and has been identified in the Metropolitan Strategic Area Plans of the National Planning Framework and Regional Spatial and Economic Strategy as an important location for population growth and economic development. Several business parks and industrial areas surround the development site within 1km radius. The landscape character area (LCA, "LCA 10. The Ward Lowlands", has low value, high sensitivity, low capacity for multi-house developments, and regional importance. The landform is gently undulating with overgrown hedgerows and trees lining the local roads.

There are no protected views, prospects, scenic routes or national trails in the surrounding environment.

10.3 Potential Effects

10.3.1 Construction Phase

Construction of the development is expected to have a temporary, moderate at the highest negative impact to the landscape and visual amenity with the removal of vegetation and increased construction activity, cranes and hoarding to only one residential receptor directly north of the proposed development. No significant impacts are expected.

10.3.2 Operational Phase

In the operational phase, the highest negative landscape impacts are expected to be permanent and moderate deriving from the change of view to the residential receptor directly to the north of the proposed development. This is expected to further reduce as existing and proposed vegetation reach maturity. At the same time the removal of the O/H cables and enhancement of the local visual focal points will positively impact the local landscape character. No significant impacts are expected.

10.4 Mitigation Measures

10.4.1 Construction Phase

No significant impacts are expected to derive from the proposed development; therefore, no mitigation measures are necessary. Nevertheless, the developer is proposing temporary hoarding to be put in place to reduce visual intrusion of works to the surrounding area.

10.4.2 Operational Phase

No significant impacts are expected to derive from the proposed development; therefore, no mitigation measures are necessary.

10.5 Mitigation Measures

No residual impacts are expected to derive from the proposed development.

11 Material Assets: Traffic and Transportation

11.1 Introduction

Marina Quarter Ltd ('the Applicant') is applying to Meath County Council (MCC) for permission to develop the initial area which forms part of Phase 1A of the masterplan located east of the R157 between the proposed new road which links to the Old Navan Road and M3 Parkway access road. Two accesses are proposed for the initial phase from the proposed new link road. Both access roads junctions will be priority junctions. This report assesses the impact that the Proposed Development will have on the surrounding road network.

11.2 Baseline Environment

The roads in the immediate vicinity of the Proposed Development include the M3 Motorway, R147, R157, L2228 (Summerhill Rd) & Old Navan Rd. The east of Dunboyne is well served by public transport options, including trains and buses with train stations located within Dunboyne itself as well as a large park & ride at the M3 Parkway station to the north of the town centre. Existing pedestrian infrastructure in the immediate vicinity of the development is poor but is anticipated to be developed in line with the Masterplan.

11.3 Potential Impacts of the Proposed Development

11.3.1 Construction Phase

A Design Process Traffic Management Plan has been developed as part of the planning application. The plan has been completed in full compliance with the Department of Transport Document

'Guidance for the Control and Management of Traffic at Road Works". The main focus of the plan is as follows:

- Minimising risk and delay to commuters and road users
- Minimising impacts on surrounding businesses
- Minimising impacts on surrounding dwellings
- Minimising risks imposed on road workers.

The following measures will be put in place during the construction works:

- Securely fencing off the site;
- Adequate signage defining the access and egress routes for the development;
- Adequate signage & Fencing of road works;
- Controlling traffic generated by the construction by phasing works & scheduling deliveries
- Accommodating parking requirements for employees and visitors
- Street cleaning programme

11.3.2 Operational Phase

The proposed infrastructure outlined within the Transportation Study at Dunboyne & Environs report is anticipated to be adequate to support the proposed development within the Dunboyne area.

In the proposed development scenario, the average delay throughout the network was anticipated to be in order of 20-40 seconds for both AM and PM peaks. The impact for the additional trips due to the initial phase is minimal with the network performing well within capacity for both AM and PM peaks.

11.4 Mitigation and Residual Effects (Post-Mitigation)

11.4.1 Construction Phase

No residual impacts are anticipated as a result of the development during the construction phase.

11.4.2 Operational Phase

No residual impacts are anticipated as a result of the development during the operational phase.

11.5 Cumulative Impact of the Proposed Development

11.5.1 Construction Phase

No cumulative impacts are anticipated as a result of the development during the construction phase.

11.5.2 Operational Phase

The full build-out of the Dunboyne North Masterplan Lands (MP 22) was assessed as the cumulative impact of the proposed development.

The full build-out results in some congestion along the R157 at the new Northern Access Road and the approach to M3 Junction 5. However, the overall delay and queues around the network are typical of busy urbanised areas and are temporary in nature, clearing within the peak hours. The congestion is primarily as a result of traffic generated by the non-residential developments in Dunboyne North.

There is no impact on the M3 mainline in any modelled scenario with queues on off-ramps remaining reasonably short in all cases.

The proposed traffic management measures along the new proposed link road between the R157 and Old Navan Road deter the vast majority of through traffic from utilising this route. This traffic will utilise the new link through the Dunboyne Business Park to access the town centre.

12 Material Assets: Services, Infrastructure and Utilities

This section addresses the Material Assets in the vicinity of the proposed residential development, the potential effects of the proposed development and mitigation where required.

The site is currently greenfield however a small portion of the northern section of the site may have been used as a construction compound. There is a railway line to the north and east of the site with an associated carpark immediately to the north.

The site is not currently serviced by gas, water, foul water or communication infrastructure.

A complete set of all utility / service plans received is presented in Appendix 12.1 of the EIAR. Based on the proposed engineering design, which has been developed in consultation with the engineering and water services section of Meath County Council and other key stakeholders including Uisce Éireann, given the phased nature of the proposed development, along with proposed mitigation measures (set out in Chapter 12 of the EIAR) no residual significant effects are anticipated with regards to existing or proposed utilities associated with the proposed development.

Soils beneath the Site may exceed the Soil Guidance Values for barium for residential developments with consumption of homegrown vegetables. No soils shall be reused in areas where there will be such land use without further environmental testing. Imported topsoil shall be used in these residential gardens / creche open space areas as required.

The proposed residential development will be designed, planned, constructed and operated to minimise waste generation at every stage. The management of waste generated during the construction of the proposed development will be in accordance with the Outline CEMP submitted as part of this planning application. The following waste streams will be generated during the construction phase: native non-contaminated soils, mixed C&D waste, wood / timber, metal, paper, plastics and packaging, canteen / office waste, and other waste (comprising soiled paper, cardboard, plastics, cloth, insulation and plasterboard). However all waste streams will be managed in accordance with statutory waste management and environmental requirements, regional waste related policy, best practice waste management guidance, and a project specific CEMP. As with any construction project, there is potential for nuisance issues to arise during the construction phase, associated with mud or waste materials impacting roads and footpaths adjacent to the proposed development. Mitigation measures will be implemented to manage these potential effects.

The Contractor will be responsible for monitoring waste documentation for the full duration of the construction phase. The Contractor will track and monitor all waste volumes to be transported offsite. All waste records will be maintained onsite throughout the project and will be made available for viewing by the Client, Employer's Representative and statutory consultees (MCC, EPA) as required.

During the operational phase, the proposed residential development has been designed to provide adequate domestic refuse storage areas for individual dwellings, within a paved collection area at the entrance to each home zone, and within communal waste collection areas for the apartment units. The following primary waste streams will be generated during the operational phase: residual waste, dry recyclables and organic waste. In addition, the following waste streams will occasionally be generated by the residents of the proposed development: WEEE, batteries, fluorescent tubes, furniture, chemicals and textiles. However, communal waste collection areas will be clearly identified, secure, have adequate lighting and drainage, and will be easily accessible for bin collection crews. Each communal waste collection area will provide the following capacity for family households: 1100L residual waste, 1100L recyclable waste and 240L organic waste. During the operational phase waste shall be collected on a regular basis. Therefore, all waste generated during the operational phase will be managed in accordance with statutory waste management and environmental requirements, regional waste related policy, and best practice waste management guidance. As with all residential developments, there will be potential for litter pollution within the proposed housing estate and surrounding areas.

Mitigation measures will be implemented to manage these potential effects. Given the nature and location of the proposed development, along with proposed mitigation and monitoring measures (set out in Chapter 12, Volume 2 - EIAR) no residual significant effects are anticipated with regards to waste management associated with the proposed development

13 Biodiversity

This Biodiversity Chapter details the Ecological Impact Assessment (EcIA) of the Proposed Development, which assesses the potential effects of same on habitats and species; particularly those protected by National and International legislation or considered to be of particular nature conservation importance. This describes the ecology of the Site and surrounding area, with emphasis on habitats, plants, and animals, and will assess the potential effects of the Construction and Operational Phases of the Proposed Development on these ecological receptors.

A detailed desk study, in combination with a suite of field surveys, was carried out regarding the Proposed Development. Field surveys included: habitat/flora (including invasive plants) surveys, breeding bird surveys, wintering bird surveys, mammal surveys, amphibian surveys, Otter and Kingfisher surveys and bat surveys. All surveys were carried out at the appropriate time of year, and no limitations were encountered in the preparation of this Chapter.

Eight protected designated sites/areas were considered to fall within the precautionary zone of influence (ZOI) of the Proposed Development, all associated with Dublin Bay downstream along the River; the Dublin Bay UNESCO Biosphere, North Dublin Bay SAC (000206), South Dublin Bay and River Tolka Estuary SPA (004024), North Bull Island SPA (004006), two Ramsar sites: Sandymount

Strand/Tolka Estuary (832) and North Bull Island (406), and two pNHAs; South Dublin Bay pNHA (000210) and North Dublin Bay pNHA (000206).

These protected sites/areas all overlap and are all linked to the Site of the Proposed Development via one weak hydrological pathway in the form of the Tolka which runs through the Site. The potential impacts to the SAC and SPA are assessed in detail in the Appropriate Assessment (AA) Screening and Natura Impact Statement (NIS) that accompany this application under separate covers. Dublin Bay UNESCO Biosphere, as well as the pNHAs and RAMSAR sites assessed in this Chapter are covered by proxy by the mitigation detailed in the NIS; as the potential impacts and necessary mitigation identified are the same as those detailed for the SAC/SPA, due to the similarities in the impact pathways (pollution of the Tolka and Dublin Bay) important features for which all four sites are designated (i.e., coastal/wetland habitats and waterbirds). Therefore, no designated Sites are considered further as key ecological receptors (KERs) in this Chapter.

The Site is made up of a set of fields used as livestock pasture with low species diversity. An area of wet grassland is present in the east, where the Tolka's flood plain is located. Mature, hedgerows and treelines separate the fields. Only one invasive plant was recorded; Sycamore, (*Acer pseudoplatanus*) located within the hedgerows at the Site. The River Tolka runs through the east of the Site and a clear-span bridge is proposed to cross it as part of the Proposed Development. The Tolka and the fish species it supports were considered as part of the EcIA.

The Site is considered to be of local importance breeding birds due to the number of species recorded and the presence of 2 red-listed species within or over the Site. The Site provides suitable foraging and nesting habitat for the majority of species recorded; through its various hedgerows. The Site supported only one target species foraging on the Site during the winter bird surveys; a Common snipe (*Gallinago gallinago*), and is not considered to be an important *ex-situ* site for wintering birds. Kingfisher (*Alcedo atthis*) were recorded during a survey of the Tolka, and likely forage along the river. No suitable nesting habitat or nest holes were observed during the survey although suitable perching habitat is present along the river.

Signs of Badger (*Meles meles*) were recorded along the hedgerow in the south of the Site, with a latrine, hair and possibly disused sett recorded in the drainage ditch. An Otter (*Lutra lutra*) spraint was recorded downstream of the proposed bridge crossing during the survey of the Tolka, and the river provides suitable habitat, although no holts or couches were found. Hedgehog (*Erinaceus europaeus*) habitat exists on Site in the form of the hedgerows, although none were observed during surveys. No evidence of Common Frog (*Rana temporaria)* was recorded, however some suitable habitat occurs in the drainage ditches on Site.

Bat surveys in 2021, 2022 and 2023 recorded a total of 4 bat species/species groups; Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*), Leisler's Bat (*Nyctalus leisleri*), and an unidentified *Myotis* bats species. Bat activity was associated with the vegetated boundaries of the Site, with several hot spots recorded. Bats use the southern and northern field boundaries as commuting/foraging routes, linking in with the adjoining lands. Bats were recorded using the Tolka to forage and commute during both the transect surveys and the static monitoring survey. The trees at the Site provide little to no roosting potential, apart from a mature Sycamore with moderate potential that is being retained in the west of the Site.

The following habitats and species were considered as KERs as part of the EcIA of the Proposed Development:

- Hedgerows (WL1), Treelines (WL2) and Drainage Ditches (FW4).
- River Tolka (FW2).
- Hedgehog, Badger and Otter.
- Breeding Bird Assemblage.
- Bat Assemblage.
- Common Frog.
- Fish Assemblage of the Tolka.

Potential impacts were identified and can be summarised as potential Construction Phase impacts via habitat loss or damage, habitat fragmentation, increases in noise and dust emissions; direct mortality or disturbance of breeding birds, small mammals or amphibians during vegetation clearance; runoff of sediment or other water borne pollutants into the Tolka and designated sites located downstream, and light pollution impacts to nocturnal species e.g., bats. The Proposed Development of the Site will result in the loss of approx. 68% of the existing hedgerows to facilitate its footprint and that of the proposed link road along its southern edge. Operational Phase impacts can be summarised as light pollution impacts to nocturnal species e.g., bats, and general habitat loss until the proposed landscape planting becomes established.

The integrated design features and mitigation measures recommended to address the above potential impacts include the preparation of, and adherence to, a robust and comprehensive Construction Environmental Management Plan (CEMP) by the contractor for the duration of the Site works. This will bring together and set out all of the environmental control measures (including those detailed in the NIS) required to minimise, and control adverse environmental impacts associated with the Proposed Development. The timing of the various construction works will follow a predetermined construction timeline that will ensure that certain works e.g., the construction of the bridge over the Tolka and the excavation works within the floodplain in the east of the Site, will be conducted between July and September; to ensure impacts to salmonid fish species during their spawning season are avoided.

The above timing of works must also take into account the breeding bird season, and the breeding season for Common Frog. Pre-commencement surveys for Badger and Otter are recommended to confirm whether any change has occurred to the status of both species at or near the Site since the original surveys were carried out and to ensure potential impacts to both species are avoided if so.

Specific Construction Phase mitigation measures are also recommended for the bridge construction, for mammals to become trapped/injured within the construction site, to minimise noise and dust impacts to local animals/the Rive Tolka, and for retained trees to be damaged during the Construction Phase. Operational Phase impacts are mitigated by way of bat friendly lighting design and a Hedgerow Management Plan to maximise the ecological value of the hedgerows at the Site.

Enhancement measures recommended for the Site include features, such as bird boxes and log piles; to be located at suitable locations around the Site, as well as measures such as the use of wildflower seeds that are Irish Provenance Certified Seed from a reputable source such as Design by Nature

(Wildflowers.ie); and the adoption of a low-intervention hedgerow management plan to create new wildlife corridors in the east of Site; which will maintain the outer boundary vegetation in this area in as wild a state as possible to maximise the biodiversity value provided by these features at the Site and link them with the Tolka's riparian corridor.

The monitoring proposed of the Proposed Development includes: Construction Phase monitoring of dust control measures and surface/ground water control measures; and Operational Phase monitoring including the standard maintenance works required to ensure the proposed Sustainable Urban Drainage System (SUDS) measures are working effectively, and the preparation of a Biodiversity Monitoring Plan by an ecologist detailing the continued monitoring (three years) of the recommended enhancement measures e.g., bird boxes, to assess whether they are effective.

No significant cumulative impacts involving the Proposed Development and other developments were identified. Any potential cumulative effects are largely linked to loss of habitats to development and combined water quality degradation in the River Tolka, in the absence of appropriate mitigation. In terms of residual impacts, the construction mitigation measures detailed in this Chapter, along with the design features to be adopted to minimise adverse impacts to animals at the Site, will be sufficient to reduce any identified potential impact to KERs associated with the Site to 'not-significant'. It is considered that provided the mitigation measures proposed are carried out in full, there will no significant negative impact to any valued habitats, designated sites or species.

14 Cultural Heritage and Archaeology

The chapter assesses the effects of the proposed development on the cultural heritage resource, including archaeological and architectural heritage. The recorded and potential cultural heritage resource within a study area encompassing the lands within the proposed residential development site and the surrounding lands extending for 1km in all directions, was reviewed during the desktop study in order to compile a comprehensive cultural heritage baseline context.

The Record of Monuments and Places (RMP) does not list any recorded archaeological sites within the proposed development site. The Sites and Monuments Record (SMR) does list two sites within the section of the redline boundary that extends within the road-take of the Dunboyne link road (R157) to the north of the green field area of the proposed development. Both of these were identified during archaeological excavations carried out in advance of the construction of the link road. One of these sites (ME050-057---) comprised a series of postholes and pits and the second example (ME050-058----) formed part of a burnt spread which extended outside the north end of the road-take. Radiocarbon dating indicated that both of these sites dated to the Bronze Age. All archaeological features at the locations of these sites contained within the road-take were fully excavated and, therefore, no longer remain in situ within the redline boundary.

The RMP/SMR list an additional 12 recorded archaeological sites, none of which have extant above ground remains, within the surrounding 1km study area and these include seven examples listed in the SMR which were identified and fully excavated in advance of the construction of sections of the M3 motorway and Dunboyne link road within the study area. As the archaeological sites which have been subject to full archaeological excavation no longer remain in situ, they are deemed to be of negligible value, while the examples that likely retain sub-surface remains are of potential high value.

The Archaeological Survey of Ireland inventory descriptions for each of the archaeological sites within the study area are presented in Appendix 14.1, which contains information sourced from reports on the excavated examples.

There are no protected structures located within the proposed development site or within the surrounding 1km study area. In addition, the proposed development site is not located within, or the close environs of, an Architectural Conservation Area. The National Inventory of Architectural Heritage (NIAH) also does not list any structures or historic gardens/landscapes within the proposed development site. It lists one structure within the surrounding study area, and this comprises a 19th century railway bridge (NIAH 14405001) located c.60m outside the east end of the proposed development site.

A review of historic mapping, as well as modern aerial, satellite and LiDAR imagery, revealed no evidence for the presence of unrecorded archaeological sites within the proposed development site and no surface traces of any potential archaeological sites or structures of architectural heritage interest were identified during field inspections. The only feature of cultural heritage interest identified within the proposed development site during the desktop study and field inspections was a field boundary which form sections of the townland boundaries between Bennetstown and Dunboyne.

The potential for the presence of unrecorded, sub-surface archaeological remains within the proposed development site was noted and a non-intrusive geophysical survey of all suitable green field areas, under licence by the National Monuments Service, was carried to inform the assessment. This survey revealed sub-surface remains of two enclosure features of unknown date, as well as potential associated features, within the proposed development site. The results of the survey are summarised within the chapter and a full copy of the geophysical survey report is presented in Appendix 14.3.

The construction and operational stages of the proposed development would have no predicted effect on any archaeological sites listed in the SMR or RMP or on any recorded architectural heritage structures. Ground excavation works during the construction phase will have the potential to result in permanent, direct, moderate to significant, negative effects on the sub-surface features identified during the geophysical survey and this will require mitigation. The construction phase would also result in a permanent, direct, slight, negative effect on the sections of the townland boundary extending within the proposed development site. No potential significant cumulative impacts on the cultural heritage resource were noted during an appraisal of the proposed development in combination other developments in the area.

A programme of archaeological test trenching of the features identified during the geophysical survey will be carried out in advance of the construction phase under licence by the National Monuments Service (NMS). All sub-surface archaeological features identified during these investigations will be cordoned off, recorded in situ and described in a report submitted to the NMS. Any required additional mitigation measures, which may include total/partial preservation in situ by avoidance or preservation by record by archaeological excavation, would be formulated and enacted in consultation with the NMS. Preservation in situ would allow for a negligible magnitude of impact resulting in a potential imperceptible significance of residual effect on the unrecorded archaeological resource. Preservation by record would result in a high magnitude of effect, albeit ameliorated by the creation of a full and

detailed archaeological record, the results of which shall be publicly disseminated. This would result in a potential slight to moderate range of significance of effect in the context of residual effects on the unrecorded archaeological resource.

15 Significant Impact of Interactions

The construction, operational and cumulative impacts of the proposed development have been assessed within each chapter of the EIAR. This chapter describes the significant interactions of impacts identified in the previous chapters.

All potential inter-relationships impacts between the various areas covered in the EIAR are listed and the key interactions and interrelationships are summarised. Mitigation measures outlined where required. With mitigation measures in place, no significant residual negative impacts are predicted.

A schedule of proposed mitigation measures and monitoring measures is presented in Chapter 15.

16 Summary of Mitigation Measures

Chapter 16 of the Environmental Impact Assessment provides a summary of the mitigation and remediation measures proposed for each discipline throughout the EIAR document.

Some disciplines have proposed monitoring following their assessment of impacts and implementation of proposed mitigation measures. Monitoring will take place after consent is granted in order to demonstrate that the project in practice conforms to the predictions made during the EIA process. Monitoring provides assurance that proposed systems are operating as intended. This allows adjustments of operations to be made to ensure continued compliance with consent conditions such as emission limit values, conditions of operation, performance criteria/ indicators and detection of unexpected mitigation failures.

17 Screening for Major Accidents

This chapter of the EIAR has been prepared by Saoirse Kavanagh, Executive Planning Consultant of McCutcheon Halley Planning Consultancy and provides a review of the characteristics of the proposed development and of the project location to consider potential accident scenarios.

17.1 Description of Existing Environment

The description of the proposed development is presented in detail in Chapter 2 – Project Description. The subject site is surrounded by established residential areas and It is located in close proximity to Dunboyne town.

It is proposed to construct a Residential Development with associated services, access roads and carparking at the proposed site. The site is currently greenfield and is situated off the R157 to the north of Dunboyne. The proposed construction is envisaged to consist of conventional foundations and pavement make up with some local excavations for services and plant.

17.1.1 Site Description

The site is a greenfield site, located to the north of Dunboyne town centre and south of the M3 Parkway train station and car park. The R157 bounds the site to the west and the River Tolka flows through the site to the east. The surrounding lands comprise primarily agricultural lands which have been zoned for development.

17.1.2 Flood Risk

A Site Specific Flood Risk Assessment of the site was carried out by IE Consulting (2023). The primary potential flood risk to the proposed development site can be attributed to an extreme fluvial flood event in the River Tolka, the Drainage Channel and the Naulswood Stream located in the vicinity of the site. Secondary flood risk can be attributed to surcharge due to potential blockage of the bridge on the River Tolka 240m downstream of the site

The information reviewed during the Site Specific Flood Risk Assessment identifies that the primary flood risk to the proposed site is fluvial flooding on the eastern area of the development site. In order to ensure a sustainable development of the site and to reduce flood risk to the site itis proposed to limit any highly vulnerable development (residential dwelling houses, crèche, etc.) to within Flood Zone 'C'. It is not proposed to undertake any highly vulnerable development within Flood Zone 'A' or Flood Zone 'B'. It is also proposed to raise the proposed development access road above the predictive 0.1% AEP (1 in 1000 year flood) levels in the southern area of the site. he proposed development is considered to comply with the requirements of the Justification Test for development management. In consideration of the proposed development scenario, flood risk to and from the development is considered to be LOW. The development as proposed is not expected to result in an adverse impact to the hydrological regime of the area or increase flood risk elsewhere.

17.1.3 Seismic Activity

In Ireland, seismic activity is recorded by the Irish National Seismic Network. As per the measures of seismic movements, Dunboyne is not at risk nor in immediate vicinity of large seismic events/activities.

17.1.4 COMAH/SEVESO sites

The Seveso Directive (Directive 82/501/EEC, Directive 96/82/EC, Directive 2012/18/EU) was developed by the EU after a series of catastrophic accidents involving major industrial sites and dangerous substances. There are six Seveso sites located in the Damastown Industrial Park and Westport Business Park in Mulhuddart which is in the administrative area of Final County Council. The closest to the subject site is the Astellas Ireland Co., Ltd. site which is located c. 3.7km from the subject site. This is a 'lower tier establishment' and has a consultation distance of 1,000m. Given the distances between the subject site and these Seveso sites, it is not considered a concern for the proposed development at construction or operational phase

The proposed development has been designed in accordance with the Safety, Health and Welfare at Work Act 2005 as amended.

17.2 Predicted Impacts

17.2.1 Do Nothing Scenario

The site will remain as underutilized greenfield area.

17.2.2 Construction Phase

No scenarios of concern have been identified during the construction phase.

17.2.3 Operational Phase

The red line boundary includes a portion of land located within the flood zone. None of the proposed residential units or the creche are located within this area and mitigation works will be carried out as part of the proposal to minimise the potential for future flooding events at the subject site as a result of climate change

Therefore, the impact is considered to be long term, imperceptible and neutral.

17.2.4 Cumulative

Cumulative impacts are considered imperceptible and neutral.

17.3 Mitigation Measures

17.3.1 Construction Phase Mitigation

No mitigation measures necessary.

17.3.2 Operational Phase Mitigation

Mitigation measures have been designed into the proposal. No further mitigation measures necessary.

17.3.3 Monitoring

No monitoring is proposed.

17.3.4 Residual Impacts

Residual impacts are considered imperceptible and neutral.