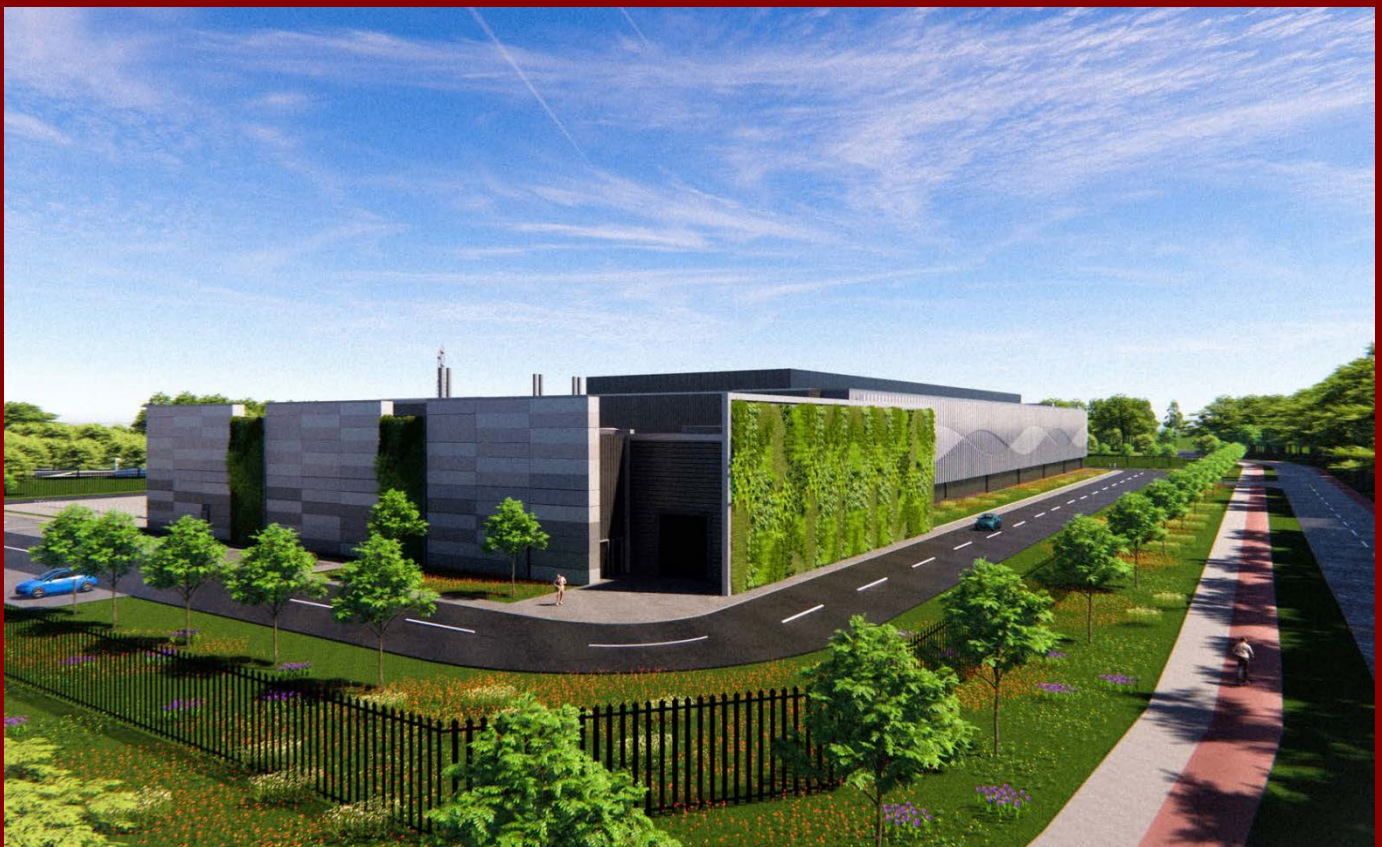


ENVIRONMENTAL IMPACT ASSESSMENT REPORT VOLUME 3 – NON- TECHNICAL SUMMARY (NTS)

KILDARE INNOVATION CAMPUS AT BARNHALL ROAD, LEIXLIP, COUNTY KILDARE.

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PREPARED FOR:

**THE DAVY PLATFORM ICAV FOR
AND ON BEHALF OF THE LIFFEY
SUB-FUND**

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1.0 INTRODUCTION

This is the Non-Technical Summary (NTS) of an Environmental Impact Assessment Report (EIAR) that accompanies a planning application for the development of an integrated masterplan proposal that includes for the phased expansion of the existing campus, allowing for a mix of Deep Tech, ICT and Innovation uses. The proposed development, the subject of the planning application, will include for the demolition of some of the existing buildings on site and construction of new buildings, an energy centre and replacement substation, significant public infrastructure including a new signalised intersection on Celbridge Road (R404), a new Public Link Road through the campus (between Barnhall Road and the new signalised intersection), a pedestrian/cycle overpass of the M4, pedestrian and cycle links through the site and along the designated protected view corridor, and supporting infrastructure. The project to which this EIAR relates also includes facilitation works which comprise uprating of existing 110kV power lines to the site and enhancement of the local gas network and connection to the site. The facilitation works which are described and assessed as part of the project in accordance with the requirement of the EIA Directive, do not form part of the development for which planning consent is sought. Future consents for the facilitation works will be required through EirGrid and GNI.

The development site which is subject to the application for consent measures c. 72.2 ha and is principally bounded by: the M4 Motorway and Barnhall Meadows to the north; Cellbridge Road to the east; Barnhall Rugby Football Club to the south; and by grounds associated with Castletown House to the west.

The site comprises the existing Kildare Innovation Campus, which was formerly the Hewlett Packard Campus originally permitted in 1995 under KCC Reg. Ref 95923. The development site also encompasses lands within the jurisdiction of Kildare County Council (KCC) and Transport Infrastructure Ireland (TII)

This NTS has been prepared by Tom Philips and Associates Town Planning Consultants in conjunction with a multi-disciplinary EIA team for the Davy Platform ICAV for and on behalf of the Liffey Sub Fund, (referred to as the Applicant throughout).

As per the requirements of the Directive, the NTS comprises an easily accessible summary of the EIAR, using non-technical language. It is formulated to be understandable to those without a prior background to the Project or particular environmental expertise.

1.1 EIA Process

The requirement for an environmental impact assessment (EIA) derives from, and is governed by, Directive 2011/92/EU of the European Parliament and Council of the 13th December 2011 on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU of the European Parliament and Council of the 16th April 2014 (EIA Directive). The primary objective of the EIA Directive is to ensure that certain public and private projects that are likely to have significant effects on the environment by virtue of their nature, size or location are subjected to an assessment of their likely impacts prior to development consent being given.

Where a proposed project is of a type identified in the EIA Directive an EIA forms part of the planning consent process and is carried out by the planning authority. An EIAR is prepared by



/ on behalf of a Developer in respect of a project seeking planning consent. The EIAR thus becomes an integral informing element in the planning authority's EIA. Directive 2014/52/EU introduced strict requirements in respect of the competency of experts responsible for the preparation of the EIAR (see Section 1. below for details on the experts involved in the preparation of this document).

The EIA Directive was transposed into national legislation through the European Union (Planning and Development) (Environmental Impact Assessment) Regulations, 2018. These Regulations amended the Planning and Development Act, 2000 with the insertion of a new part, Part X, into the Act, and the Planning and Development Regulations 2001 with the insertion of a new part, Part 10.

Section 171A of the Planning and Development Act, 2000, as amended, defines an EIA as follows:

'environmental impact assessment' means a process—

(a) consisting of—

(i) the preparation of an environmental impact assessment report by the applicant in accordance with this Act and regulations made thereunder,

(ii) the carrying out of consultations in accordance with this Act and regulations made thereunder,

(iii) the examination by the planning authority or the Board, as the case may be, of—

(I) the information contained in the environmental impact assessment report,

(II) any supplementary information provided, where necessary, by the applicant in accordance with section 172(1D) and (1E), and

(III) any relevant information received through the consultations carried out pursuant to subparagraph (ii),

(iv) the reasoned conclusion by the planning authority or the Board, as the case may be, on the significant effects on the environment of the proposed development, taking into account the results of the examination carried out pursuant to subparagraph (iii) and, where appropriate, its own supplementary examination, and

(v) the integration of the reasoned conclusion of the planning authority or the Board, as the case may be, into the decision on the proposed development, and

(b) which includes—

(i) an examination, analysis and evaluation, carried out by the planning authority or the Board, as the case may be, in accordance with this Part and regulations made thereunder, that identifies, describes and assesses, in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of the proposed development on the following:

(I) population and human health;



(II) biodiversity, with particular attention to species and habitats protected under the Habitats Directive and the Birds Directive;

(III) land, soil, water, air and climate;

(IV) material assets, cultural heritage and the landscape;

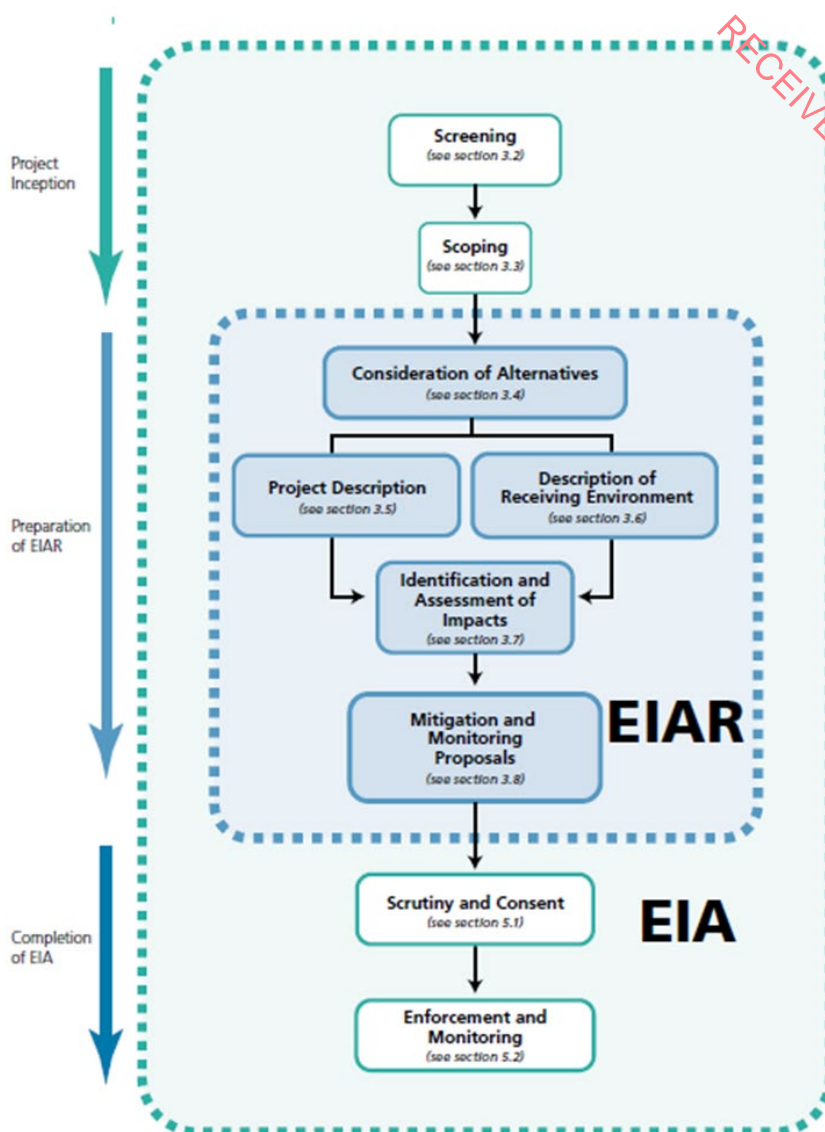
(V) the interaction between the factors mentioned in clauses (I) to (IV),

and

(ii) as regards the factors mentioned in subparagraph (i)(I) to (V), such examination, analysis and evaluation of the expected direct and indirect significant effects on the environment derived from the vulnerability of the proposed development to risks of major accidents or disasters, or both major accidents and disasters, that are relevant to that development;

The EIA process involves a number of steps which may be summarised as follows:

1. Screening – Is an EIA required?
2. Scoping – If an EIA is required, what aspects of the environment are likely to be significantly affected and should therefore be considered?
3. Preparation of an EIAR.
4. EIAR informs the EIA (as part of the consent process).



1.2 Need for EIA R

The EIA Directives list those projects for which an EIA is mandatory (Annex I) and those projects for which member states must provide a process to determine if it is likely to have significant effects on the environment (Annex II). This process may involve a case-by-case examination, the establishment of objective thresholds or other criteria, or a combination of these.

Annex I projects are listed in Part 1 of Schedule 5 of the *Planning and Development Regulations 2001* (as amended) (“the Regulations”).

The project, the subject of this EIA, is not of a type listed within Part 1 of Schedule 5 of the Regulations and therefore a mandatory EIA is not required in this instance.

Annex II projects are set out in Part 2 of Schedule 5, together with specified thresholds above which a project must be subject to an EIA. The following class of project listed in Part 2 of Schedule 5 is relevant to the present project [OR Project]:



Class 10(b)(iv):

*“Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and **20 hectares elsewhere.**”*

[Our emphasis.]

Having regard to the overall site area of the Project which is in excess of 73.95 ha, an EIA of the Project is therefore required.

1.3 Purpose of the Environmental Impact Assessment Report

An EIAR’s purpose is to predict and assess likely significant effects (direct and indirect), if any, that the proposed project, if carried out, would have on the environment, on its own and in combination with other existing and /or approved projects. It is used during the consent process to inform EIA.

Article 5(1) and Annex IV of the EIA Directive, specifies the information to be provided in an EIAR. These requirements have been transposed into Irish law through Article 94 and Schedule 6 of the Planning and Development Regulations, 2001 (as amended).

This EIAR has been prepared in accordance with the requirements of Article 5(1) and Annex IV of the EIA Directive as implemented in Ireland through Article 94 and Schedule 6 of the Planning and Development Regulations, 2001 (as amended).

1.4 EIAR Methodology and Format

In addition to the 2014 Directive, the subject EIAR has been informed by:

- Guidelines on the Information to be contained in Environmental Impact Statements (EPA, 2022);
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2003);
- Draft Guidelines On The Information To Be Contained In Environmental Impact Assessment Reports (EPA, draft August 2017);
- Draft Advice Notes for Preparing Environmental Impact Statements, Draft, (EPA draft September 2015a);
- Draft Revised Guidelines on the Information to be Contained in Environmental Impact Statements (EPA draft September 2015b);
- Environmental Impact Assessment of Projects: Guidance on Screening (European Commission, 2017);
- Environmental Impact Assessment of Projects: Guidance on Scoping (European Commission, 2017);
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, (August 2018);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, May 2022;



- Guidance of Integrating Climate Change and Biodiversity into Environmental Impact Assessment (European Commission, 2013);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Environment, Community and Local Government 2013);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Government of Ireland, 2018);
- Key Issues Consultation Paper on the Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems (Department of Housing, Planning, Community and Local Government 2017);
- Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (European Commission, 1999);
- Implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (European Commission, 2003);
- Circular PL 05/2018 -Transposition into Planning Law of Directive 2014/52/EU amending Directive 2011/92/EU on the effects of certain public and private projects on the environment (the EIA Directive) And Revised Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018)

The above is not a fully exhaustive list. The EIA contributors have referred to heading-specific legislation, policy, and/or guidelines within each in individual EIA Chapter.

EIAs require the assimilation, co-ordination, and presentation of a wide range of relevant information in order to allow for the overall assessment of a proposed development. To allow for ease of presentation, and consistency when considering the various environmental factors considered, a systematic structure is used for the main body of the Report. The structure of the EIA Chapters is outlined below.

1.5 EIA Study Team and Competency

This Environmental Impact Assessment Report was completed by a project team led by Tom Phillips + Associates, who also prepared a number of the chapters.

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

Chapter	Aspects of the Environment Considered	Contributor	Person Responsible
Chapter 1	Introduction and Methodology	Tom Phillips + Associates (TPA)	Brian Minogue
Chapter 2	Site Location and Context	TPA	Brian Minogue
Chapter 3	Description of the Proposed Development	TPA	Brian Minogue
Chapter 4	Key Alternatives Considered	TPA	Brian Minogue



Chapter 5	Population and Human Health	TPA	Gavin Lawlor
Chapter 6	Biodiversity	Ecology Ireland	Gavin Fennessy Maire Kearns
Chapter 7	Land, Soils and Ground Water & Hydrogeology	AWN	Teri Hayes Alan Wilson
Chapter 8	Hydrology	AWN	Teri Hayes Alan Wilson
Chapter 9	Air	AWN	Dr. Edward Porter
Chapter 10	Climate	AWN	Dr. Edward Porter
Chapter 11	Noise and Vibration	AWN	Mike Simms
Chapter 12	Material Assets – Waste (Construction and Demolition)	AWN	Chonail Bradley
Chapter 13	Material Assets –Traffic and Transportation	SYSTRA	Sheelagh McGuinness
Chapter 14	Material Assets – Site Services incl Energy Demand	TPA, CSEA, MDM Engineering, Ethos Engineering & H&MV Engineering	Brian Minogue
Chapter 15	Archaeology, Architecture & Cultural Heritage	Shanarc Archaeology & Mesh Architecture	Sean Shanahan / Tom McGimsey
Chapter 16	Heritage, Townscape, Landscape Visual Impact Assessment	AECOM	Joerg Schulze
Chapter 17	Major Accidents & Disasters	AWN	Matthew Michie
Chapter 18	Interactions and Cumulative Impacts	TPA	Brian Minogue
Chapter 19	Mitigation	TPA	Brian Minogue
	Non – Technical Summary	All Contributors outlined above - compiled by TPA	All Contributors outlined above - compiled by TPA

Table 1.2: EIAR Chapter Headings and Contributors

1.6 EIAR Team - Qualifications

Brian Minogue, (TPA Town Planning Consultants)

Qualifications: BSc in Spatial Planning.

Gavin Lawlor, (TPA Town Planning Consultants)

Qualifications: Master of Regional and Urban Planning – University College Dublin

Gavin Fennessy, (Ecology Ireland Wildlife Consultants Ltd.)

Qualifications: (BSc PhD MCIEEM)



Dr. Edward Porter, (AWN Consulting Limited)

Qualifications: BSc from the University of Sussex (Chemistry), and a PhD in Environmental Chemistry (Air Quality) in UCD

Mike Simms, (AWN Consulting Limited)

Qualifications: BE MEngSc MIOA MIET

Teri Hayes, (AWN Consulting Limited)

Qualifications: BSc MSc PGeol EurGeol

Chonail Bradley, (AWN Consulting Limited)

Qualifications: BSc

Sheelagh McGuinness, (SYSTRA Ltd.)

Qualifications: B.Eng (hons) MBA

Grace Fegan, (Shanarc Archaeology Ltd)

Qualifications: B.A. Archaeology, M.A. Museum Studies

Tom McGimsey, (Mesh Architecture)

Qualifications: BArch, MSc Historic Preservation, RIAI Conservation Grade 1

Joerg Schulze, (AECOM)

Qualifications: MChem and a MSc (Physical Chemistry)

Matthew Michie, (AWN Consulting Limited)

Qualifications: MChem and a MSc (Physical Chemistry)

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2.0 DESCRIPTION OF THE PROJECT

2.1 Characteristics of the Project

This chapter of the *Environmental Impact Assessment Report* has been prepared by Brian Minogue (BSc in Spatial Planning), Tom Phillips + Associates in conjunction with the project team. In accordance with Directive 2011/92/EU of the European Parliament and Council of the 13th December 2011 on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU of the European Parliament and Council of the 16th April 2014 (EIA Directive), it provides a detailed description of the project, together with details of the existing environment surrounding the site.

2.2 Characteristics of the Project

The project, subject to this EIAR includes two separate but interrelated streams of proposed works:

- A. The 'principal' works subject to the development consent being sought from Kildare County Council, i.e. the proposed development; and
- B. 'Facilitation works' required to support the development which do not form part of the development consent being sought from Kildare County Council. The facilitation works include a mix of works that will be required to be undertaken for or on behalf of statutory undertakers such as Gas Networks Ireland and EirGrid.

The principal works include the proposed expansion of the existing innovation campus and all those works included within the redline boundary and described on the statutory notices accompanying the application. The facilitation works are those known works that are required to facilitate the proposed development over the life of the permission being sought.

Further details relating to both the 'Principal' and 'Facilitation' works can be found in Chapter 2 of the Main EIAR.

2.3 Location of the Project Site

2.3.1 Principal Works Site (Works within Planning Application Red Line Boundary)

The development site is located in County Kildare close to the border with County Dublin and measures approximately 72.2 ha, inclusive of 1.83 ha of lands within the ownership of KCC.

The campus is principally bounded by: the M4 Motorway (and Barnhall Meadows and Wonderful Barn lands) to the north; Cellbridge Road to the east; Barnhall Rugby Football Club and recently completed DB Schenker logistics facility to the south; and by grounds associated with Castletown House to the west.

The site comprises the existing Kildare Innovation Campus, which was formerly the Hewlett Packard Campus originally permitted in 1995 under KCC Reg. Ref 95923.



2.3.2 Facilitation Works Site (Works outside Planning Application Red Line Boundary)

'Facilitation works' have been identified as being required to support the development consent being sought from Kildare County Council. The planning application to KCC does not encompass a request for development consent in relation to the facilitation works.

The facilitation works include a mix of works that will be required to be undertaken for or on behalf of statutory undertakers such as Gas Networks Ireland and EirGrid. The location of the facilitation works are described as follows:

GNI Gas Upgrades

The GNI upgrades will be delivered through a local upgrade of the gas network over a length of approximately 1.5km through predominantly residential areas. The route of the upgrades will be along Ryevale Lawns along Station Road, Old Hill and Celbridge Road (R404) up to the entrance of Barnhall Meadows (Figure 2.4, Chapter 2). The pipe will run under the existing road pavement. The route will run along Celbridge Road to Station Road running adjacent to entrances to Barnhall Meadows, Leixlip Park, Elton Ct., Sycamore Avenue, Forest Park, Castletown, Wogansfield, Highfield Park, Knockaulin, Ryevale lawns and Cedar Park residential areas. Celbridge road also serves Barnhall Shopping Centre, Maxol garage, Colaiste Chiarain school and Scoil Chearbhaill Uí Dhálaigh. It will also run under Station Road which serves Leixlip Garda station. At the entrance to Barnhall Meadows, the pipe will run underground through the Barnhall Meadows lands (adjacent to the existing haul road, east of the Wonderful Barn allotments) and will then cross the M4 Motorway through Horizontal Directional Drilling and enter the Kildare Innovation Campus then connecting to the proposed Gas Skid. The route will not pass through any environmental features. The nearest watercourse to the route is the river Liffey which runs parallel to the route approx. 860m to the east and joins Leixlip Reservoir which is located approx. 320m to the south of the pipeline.

EirGrid Uprating

Upon completion of Phase 1 of the KIC Masterplan, including the development of the proposed replacement 110kV Substation, uprating of existing overhead lines (OHLs) from the replacement 110kV Rinawade substation to Derryiron/Maynooth and Dunfirth/Kinnegad will be required to facilitate commencement of Phase 3 of the KIC Masterplan. The uprating will be carried out to existing lines along established wayleaves primarily traversing agricultural lands.



3.0 PLANNING AND DEVELOPMENT CONTEXT

3.1 Introduction

This chapter of the Environmental Impact Assessment Report has been prepared by Brian Minogue (BSc in Spatial Planning), Tom Phillips + Associates. In accordance with Directive 2014/52/EU, this chapter addresses the Planning Policy Context of the Project and the plans and projects which have the potential to act in cumulation with the project.

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3.2 Project Site and Surrounding Land Zoning Objective

3.2.1 Principal Works Site

The Principal Works site is zoned 'H' - Industry and Warehousing – in the Leixlip LAP and, accordingly, the County Development Plan. The provision of employment generating uses on land zoned for development and within an existing business campus is strongly supported by the County Development Plan and the LAP.

The development has been designed ensuring that the proposed building will complement the existing campus buildings as well and tying in with the future vision for the surrounding environs.

The Proposal adheres to the land use zoning objectives identified in the LAP, including *inter alia* protecting views, and introducing link roads and pedestrian connections from Leixlip to Celbridge.

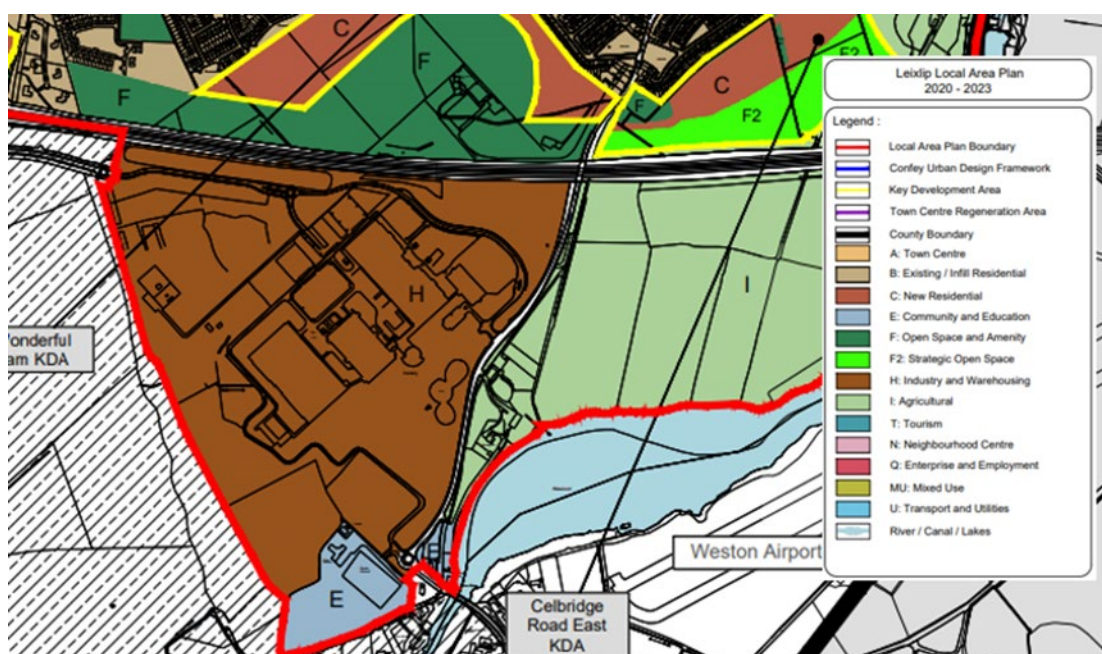


Figure 3.1: Extract Map Ref 4 Land Use Zoning Objectives Map, Leixlip LAP.

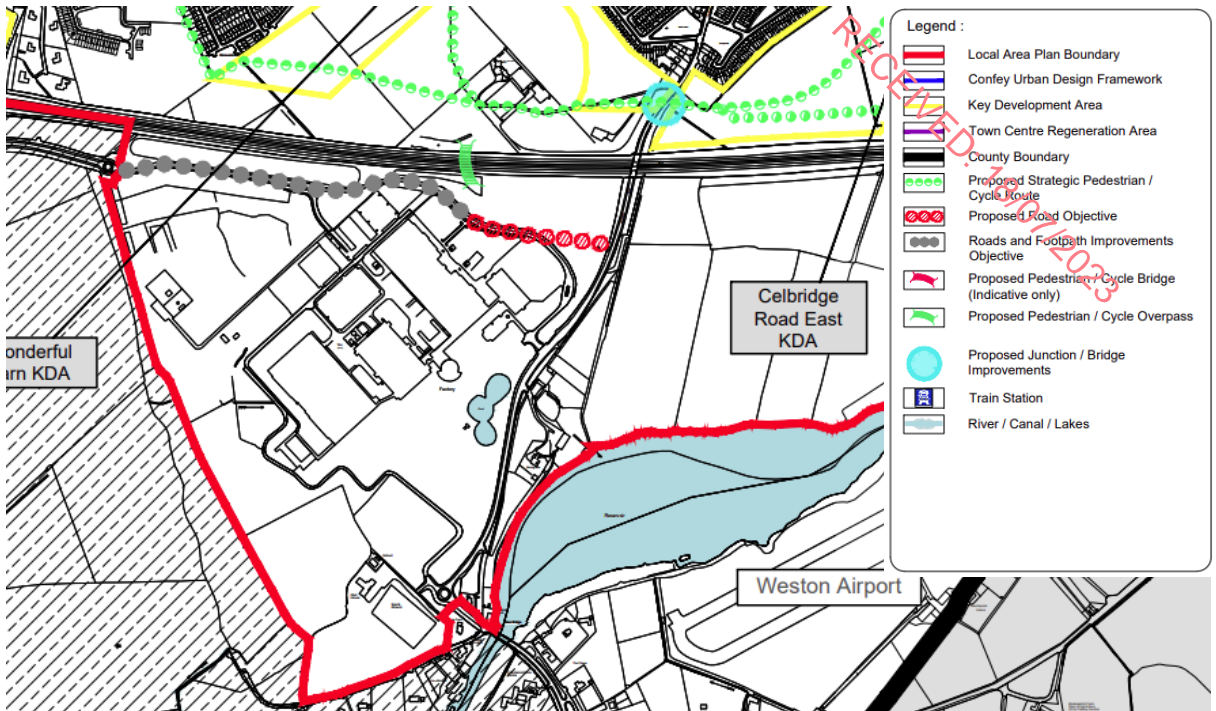


Figure 3.2: Extract Map Ref 4 Land Use Zoning Objectives Map, Leixlip LAP.

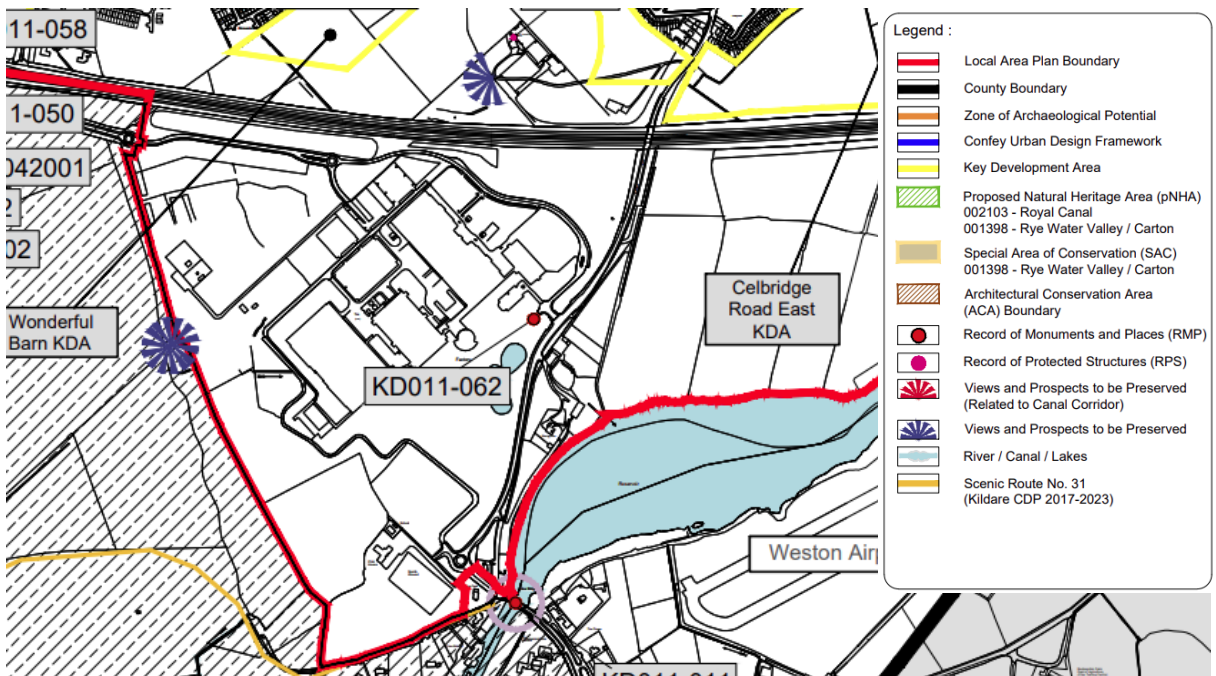


Figure 3.3: Extract Map Ref 4 Land Use Zoning Objectives Map, Leixlip LAP.

3.2.2 Facilitation Works Site

GNI Gas Upgrades

The pipeline works are all located within the Kildare County Council administrative area, the works will be within lands covered by the Leixlip LAP. The majority of the works will be under road and the lands are unzoned.



Prior to the pipeline entering the principal site, the works will enter the Barnhall Meadows Lands which are zoned 'F: Open Space and Amenity' under the Leixlip LAP which has the land-use zoning objective "to protect and provide for open space, amenity and recreation provision". The gas upgrade works would not contravene the applicable land use zoning objective as while they constitute works, they have no effect of changing the current or any future potential land use. Furthermore, 'utility structures' are 'open for consideration' within the above zoning.

EirGrid Upgrading

The works will primarily occur within unzoned – 'default agricultural' – land, which generally considers utilities and public service works as 'open for consideration' uses. The works will involve upgrading of existing lines, which will mean that any prospective land use objective – if within the path of the works – will unlikely be impinged by its operation.

3.3 Relevant Objectives & Policies

3.3.1 National Planning Framework (NPF)

The aims and objectives of the NPF with regard to the Eastern and Midland region are clear in their focus on the importance of sustainable employment provision.

3.3.2 Regional Spatial & Economic Strategy (RSES)

The *Regional Spatial & Economic Strategy (RSES)* for the Eastern and Midland Region outlines the Strategic Vision for the region which is:

"To create a sustainable and competitive Region that supports the health and wellbeing of our people and places, from urban to rural, with access to quality housing, travel and employment opportunities for all."

3.3.3 Kildare County Development Plan 2023-2029

At a county and local level, the lands are governed by the Kildare County Development Plan 2023-2029, complemented by the Leixlip LAP 2020-2023 (extended to 2026).

The subject Hewlett Packard site is identified as a "Strategic Development Area", identified as an important area specifically zoned for knowledge-based economy focusing on high tech/biotechnology, research and development, ICT and manufacturing.

3.3.4 Leixlip LAP (extended to 2026)

The Leixlip LAP came into effect on 5th February 2020 and sets out an overall strategy for the proper planning and sustainable development of Leixlip in the context of the Kildare County Development Plan 2017-2023 (now the 2023-2029 Plan).

3.4 Projects for Cumulative Assessment

Cumulative effects consider the impacts of other undeveloped permitted or planned projects within the vicinity and context of the project. This will include other projects planned by the developer, and any known permitted or planned projects by third parties. The following



section details the process followed to identify those plans or projects with the potential to result in significant cumulative effects when considered in combination with the proposed Project.

The cumulative impact of the planned projects on site, the project and the potential future development of the surrounding environment has been considered in Chapter 18 (Interactions & Cumulative Impact), to the extent possible having regard to the nature of the relevant plans and projects.

TPA have used GIS planning application data to obtain a list of all projects within 5 km of the site that have been granted planning permission in the last 10 years and which either are unbuilt and have extant permission or are under construction. The list has been filtered down to exclude minor projects that are unlikely to interact with the Project to any level of significance. The final list provided to each consultant is included as Appendix 1.1.



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4.0 EXAMINATION OF ALTERNATIVES

4.1 Introduction

This chapter of the *Environmental Impact Assessment Report* was prepared by Tom Phillips + Associates and examines the alternative development options that were considered for the subject site during the design development process.

The requirement to consider alternatives within an EIAR is set out in Annex IV (2) of the EIA Directive (2014/52/EU) and in Schedule 6(1)(d) of the *Regulations*, which require the following information to be included:

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

[Our emphasis.]

Reasonable alternatives may relate to project design, technology, location, size and scale which were studied in the preparation of the EIAR relevant to the proposed development and its particular characteristics, together with an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

4.2 Alternatives Studied

EIA legislation and prevailing guidelines and best practice require that Environmental Impact Assessment Reports consider the following aspects for EIA projects with regard to their environmental effects;

- Do Nothing alternative;
- Alternative project locations;
- Alternative designs/layouts;
- Alternative processes;
- Alternative mitigation measures.

The main alternatives studied during the development of the project comprise alternative site layouts and design solutions (as well as processes) for the redevelopment of the former HP lands to provide *inter alia* employment development on the site, in accordance with national, regional and local planning policy.

4.3 “Do-Nothing” Alternative

In the “Do-Nothing” scenario, the former HP lands would continue to operate as an innovation campus and the potential to maximise development opportunities for the site to provide for *inter alia* a strengthened employment base for North Kildare, in accordance with national, regional and local planning policy, would not be realised. The “Do-Nothing” alternative would not meet the projects objective to provide for the redevelopment/regeneration of an underutilised business and innovation campus to encourage Foreign Direct Investment and



employment generation in Ireland and Kildare, was not considered a reasonable alternative and was not therefore considered further.

4.4 Alternative Site Location

The developers are primarily property investors who invested in KIC for its existing portfolio of tenants and to improve and expand the potential of the site, encourage investment and the maximisation of the economic return.

Prior to the purchase of the site by the current landowners a wide variety of general environmental and economic criteria were considered, the key criteria for the location of the proposed development were;

- Availability of a high-quality telecommunications fibre network;
- Accessibility to the natural gas network (to provide dispatchable energy in line with government policy);
- Availability of a high-quality and existing electricity network (to provide direct connection to the national grid and mix of renewables);
- Availability of a suitably large site with suitable development zoning;
- A site in proximity to existing high density of US and global tech companies;
- Existing campus development with potential to expand with high-tech and ICT uses;
- Low natural disaster risk particularly in relation to flooding.

Given the project comprises the redevelopment of the former HP lands and an existing campus, which national, regional and local planning policy specifically promotes as being ripe for redevelopment, the further consideration of alternative locations for employment generating uses is not considered relevant in this instance.

4.5 Alternative Site Layout and Land Use

Prior to the purchase of the site by the existing landowner, the then project team commenced a master planning process, so that the future development of the campus could be delivered in an integrated manner. The master planning process has been one that has evolved over several years and one that has involved numerous meetings and discussions with relevant stakeholders including the local planning authority.

4.6 Alternative Designs

In addition to the above iterative process for site layout design, alternative building designs were considered by the project team through the evolution of the masterplan.

4.7 Conclusion

Having examined various reasonable alternative designs, layouts, uses, and processes, it is considered that the project is the preferred option in terms of the sustainable development of the subject site.



5.0 POPULATION AND HUMAN HEALTH

5.1 Introduction

This chapter of the Environmental Impact Assessment Report has been prepared by Gavin Lawlor of Tom Phillips + Associates and examines the likely impacts of the proposed development on population and human health.

Gavin Lawlor is a Director of Tom Phillips + Associates. He holds a BA (Social Science) from University College Dublin, where he graduated in 1995 with a Masters in Regional and Urban Planning (MRUP) Degree and is a Full Member of the Irish Planning Institute (IPI) with 25 years' experience.

The scope of the work includes an evaluation of the likely direct and indirect effects on population and human health (the impacts on human health has been assessed, by proxy, through the other chapters of this EIAR that are likely to impact on human health).

5.2 Methodology

5.2.1 Population

The method employed for scoping and identification of the relevant environmental topics for this Chapter has been based off our professional town planning and sociological knowledge/expertise.

The headings and/or topics scoped into this Chapter's population assessment are:

1. Economy
 - a. National economy
 - b. Local economy
2. Employment
 - a. Jobs
 - b. Commuter patterns
3. Housing
 - a. Current housing stock
 - b. Future housing stock
4. Social infrastructure and amenities

The above headings were chosen because they represent the aspects of the environment likely to have possible significant impacts caused by the project: the Economy is likely to be impacted inter alia by the increased FDI and the increased demand for products and services from third party local suppliers once the scheme is operational; employment is likely to be impacted inter alia by the construction and the establishment of multinational companies, which will require employees to run operations; housing is likely to be impacted inter alia by the increased number of employees in the area; and social infrastructure and amenities are likely to be positively impacted inter alia by the provision of a pedestrian and cyclist overpass



over the M4 connecting Leixlip to the campus and its internal amenities and providing a pedestrian and cyclist route to Celbridge.

5.2.2 Human Health

The EPA Guidelines, 2022, state that:

*“In an EIAR, the assessment of impacts on population & human health should refer to the **assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc..**”*

[Our emphasis.]

As such, the scoping of headings/topics is based off other environmental factors impacts on human health addressed in this EIAR.

Therefore, the headings and/or topics scoped into this Chapter’s human health assessment are:

1. Air
2. Climate
3. Noise and Vibration
4. Land and Soils
5. Water
6. Traffic
7. Visual Impact
8. Major accidents and/or disasters

For gathering a baseline for human health in Ireland, we used the headings of life expectancy, mortality, and perceived health status; for baselines of the above headings, please see each individual Chapter, respectively.

5.3 Baseline scenario Analysis Methodology

5.3.1 Population

In order to assess the likely significant impacts of the proposed development on population, for both the principal works and facilitation works, an analysis of the baseline (the current state of the environment) was first performed. Data relating to the economic, demographic and social characteristics of the Local Authority (LA) area, within which the subject sites are located, were examined.

5.3.2 Human Health

The baseline for human health was gathered from a review of the Department of Health’s latest policy report *Health in Ireland: Key Trends 2022* provides statistical analysis on health in Ireland over the last 10 years and deals specifically with issues such as life expectancy, mortality, and perceived health status within the country. For baselines of the headings outlined in section 5.3.1.2, please see each individual Chapter, respectively. Census figures were also gathered to provide a breakdown of the ‘general health’ of the local population.



5.4 Impact Assessment Methodology

5.4.1 Population

The analysis of the predicted impacts of the proposed development on population during construction and operation are presented in this Chapter. The assessment considered population features, identified in Section 5.3.1, above, within the project site and the surrounding vicinity in accordance with the methodology outlined above and below, to determine the significance of the impacts. Where likely significant impacts are highlighted, mitigation and monitoring are proposed, and any residual impacts are assessed.

The impact assessment for this Chapter has been undertaken in accordance with the *EPA Guidelines on the Preparation of an EIAR* (EPA, May 2022) and all other documents outlined above. Assessment methods quantify and predict the magnitude and significance of impacts.

To predict the impact of the proposed development on the baseline environmental headings/topics, we have *inter alia*: reviewed the Grant Thornton *Economic Impact Assessment*, dated April 2023 (prepared in association with this EIAR) to determine the overall economic impact of the project; calculated the number of jobs likely to be generated by the project using the Homes & Communities Agency's (UK Government Agency) (2015) *Employment Density Guide (3rd Edition)*; calculated the housing demand likely to be generated from the permanent employment increase; and identified the social infrastructure and amenities provided or impinged by the project. In addition, we have used our professional town planning and sociological knowledge/expertise and inductive reasoning to assess/evaluate the significance of those predicted impacts.

Regarding the cumulative impacts resulting from other developments in the surrounding area, we have reviewed the Strategic Environmental Assessment prepared for the *Kildare County Development Plan 2023-2029* (including a review of the Development Plan itself). According to the EPA Guidelines, 2022, this can reduce the number of cumulative effects that need to be considered in an EIAR.

We have also utilised the list of planning permissions/applications within a 5 km radius (listed in the appendices of Chapter 1), identified using Geospatial Analysis, and have assessed whether those developments, in combination with the project, are likely to have significant impacts on the population.

5.4.2 Human Health

The impacts recorded within other Chapters of this EIAR associated with Human Health, for both the principal works and facilitation works, and have been collated within this Chapter.

The methodologies for those individual environmental factor impact assessments can be found in each relevant Chapter of this EIAR.



6.0 BIODIVERSITY

The Biodiversity Chapter of the Environmental Impact Assessment Report (EIAR) was prepared by Ecology Ireland Wildlife Consultants Ltd (Ecology Ireland). It describes the habitats, flora and fauna present in the receiving environment and presents an assessment of potential impacts arising from the project, with consideration given to appropriate mitigation measures to minimise and/or avoid potential negative impacts. The project comprises both the proposed development which is subject to the development consent being sought from Kildare County Council, and the proposed facilitation works *i.e.*, the uprating of existing Eirgrid transmission lines and the GNI upgrade works.

The studies included detailed desktop reviews and field surveys to inform the assessment of the potential ecological impacts. The project will be delivered over several stages over a prolonged period. Field surveys included botanical studies and habitat mapping, breeding and winter season bird surveys, non-volant mammal and bat studies (including ground-level roost potential assessments and emergence checks).

The existing surface-water drainage network servicing Kildare Innovation Campus flows into the retention ponds before discharging to the Leixlip Reservoir and the River Liffey. There are no uncovered watercourses within the proposed development site. The Kilmacredock Stream flows beneath the site along a diverted path through a 1.5m culvert before entering Leixlip Reservoir. The existing surface-water drainage network discharges to the ponds and does not discharge directly to the culverted Kilmacredock Stream. Discharge from the ponds is released following confirmation of water quality through electronic monitoring mechanisms inclusive of shut-off valves, upstream of the existing Retention Ponds near the existing site entrance off the Celbridge Road. For the proposed development, the surface-water drainage network will be re-designed in order to accommodate the increase in hardstanding area. For the proposed surface-water drainage system, the proposed development site has been divided into four catchment areas where the surface-water run-off from each catchment is attenuated within its own pond and/or wetland area. Each catchment will release water to the two existing retention ponds, and the surface-water drainage network for the proposed development will continue to discharge from these ponds to Leixlip Reservoir and the River Liffey.

There are no new requirements for new foul connections outside of the overall landholding. There are no proposed process water emissions as part of the operational phase of the proposed development. Leixlip WWTP discharges treated wastewater at the primary emission point into the River Liffey, upstream of the proposed development site and Leixlip Reservoir. Therefore, there is a hydrological link between the proposed development and the aquatic environment downstream of Leixlip WWTP primary emissions point.

The proposed development site is not located within any designated Natura 2000 sites or nationally designated conservation sites. There are two Natura 2000 sites and ten pNHA sites located within 15km of the proposed development site boundary. There are an additional four Natura 2000 sites located outside of the 15km buffer but with a distant hydrological connection to the proposed development site.

No legally protected or red-listed plant species have been previously recorded in the NBDC database for the 2km grid square (N93X) within which the study area is located. No habitats listed on Annex I of the EU Habitats Directive, or botanical species protected under the Flora



(Protection) Order 2022, listed in Annex II or IV of the EU Habitats Directive (92/43/EEC), or Red listed in Ireland were recorded within the project study area.

The campus section of the study area consists of an existing group of industrial buildings that form the Kildare Innovation Campus and associated car parking and access roads (BL3). The areas immediately surrounding these built areas consist of formal landscaping such as amenity grassland (GA2), ornamental shrubbery (WS3), ornamental hedges (WL1) and treelines (WL2). Scattered trees and parkland (WD5) with amenity grassland beneath was also recorded. A series of ornamental ponds (FL8) are also located nearby. The campus is surrounded by semi-mature, landscaping of mixed broadleaved woodland (WD1) and treelines (WL2) which provides screening from adjacent roadways. A number of areas of unmanaged dry meadow and grassy verge (GS2) semi-natural grassland areas are located around the site where immature trees and scrub (WS1) are developing. Smaller areas of wet grassland (GS4) were also recorded.

Eleven confirmed non-volant mammal species were recorded during ecological surveys and by the trail cameras. No setts or holts were recorded within the proposed development site. Otters were not recorded on site at any time and there were few records of Badger occurring within the KIC site.

From the analysis of the bat call registrations recorded by passive detectors, the presence of five bat species was confirmed at the site. Soprano Pipistrelle, Leisler's Bat and Common Pipistrelle were the most commonly recorded species, with Soprano Pipistrelle accounting for 40% of all registrations. No confirmed bat roosts were identified in natural or man-made features at the site. The buildings to be demolished to facilitate the development are not attractive for, or used by, roosting bats. All trees scheduled to be felled as part of the proposed project were subject to assessment. 56 no. trees were assessed as having 'Moderate' to 'High' roosting suitability for bats and were located throughout the campus, particularly within the more semi-natural hedgerow and treeline habitats to the west and northwest. These trees were typically mature/over-mature deciduous species such as Oak, Lime and Beech, characterised by the presence of multiple PRFs, often quite pronounced, such as wounds, tear-outs, pruning cuts, cracks and/or strong ivy cover often partially detached from the trunk in places.

A total of 55 bird species were recorded during breeding and winter bird survey transects, 48 of which were recorded during the breeding survey period and 43 that were recorded during the winter survey period. These included five Red-Listed species, Kestrel, Meadow Pipit, Redwing, Snipe and Swift.

A range of invertebrate fauna was also recorded on site over the course of field surveys in 2022 and 2023.

The potential impacts on designated sites, flora, fauna and habitats are considered. The potential for impacts in the absence of appropriate environmental controls and monitoring is first considered. A Screening for Appropriate Assessment (AA) was prepared and accompanies the EIAR. It is objectively concluded that there is no likelihood of significant effects on any of the Natura 2000 located in the wider area.

A number of habitats that occur within the study area are considered to be common and widespread throughout Ireland, contain low botanical diversity and are considered to be of little to no ecological value to protected flora and fauna. As a result of the proposed development, there will be an increase in hard standing areas (*i.e.*, artificial habitat - Buildings and artificial surfaces (BL3)) within the boundary of the proposed development site which will



have a permanent slight negative impact on habitats and flora, particularly on the more semi-natural grassland and hedgerow/treeline habitats. The removal of trees, a proportion of these mature broadleaved trees, will result in a permanent significant negative impact on habitats and flora during the construction phase.

The proposed development site contains habitats with ecological importance of lower to higher value for a range of protected faunal species. The phased construction of the entire facility will mean that works will be staged over a prolonged period and ongoing construction related disturbance across the development area has the potential to cause localised disturbance, displacement and mortality effects to the faunal species that occur locally.

The construction and associated habitat clearance will permanently decrease the areas with the site that are available to burrowing and foraging non-volant mammals. The non-volant mammal community at the existing site is not particularly diverse or abundant, but it is important in a local context. In the absence of adequate mitigation and biodiversity enhancement measures it is likely that the proposed development would have a significant negative impact on the non-volant mammal community present at the site. However, the impact is likely to be highly localised in extent and occur in the short-to-medium term.

The loss of hedgerows and trees will also decrease the amount of available attractive habitat for many of the species that were recorded at the site (including birds and mammals). In the absence of mitigation, the vegetation clearance associated with the construction of the project has the potential to disturb, displace and cause mortality of breeding and roosting mammals and birds. The vegetation clearance is likely to reduce the foraging, breeding and roosting potential of the site for many of the species that currently use the site. The hedgerow and tree removal must be seen in the context of the retention of large numbers of trees on the campus and the availability in the wider area of similar suitable nesting habitat.

The project includes a detailed and comprehensive landscaping plan and maturing landscape features including 1,400m of linear hedgerow and 22,500m² of woodland will provide cover for fauna species. The larger footprint of the built areas on site and associated increases in site traffic (and noise and lighting) is likely to be offset by the maturing landscape features in the long-term. However, in the absence of appropriate mitigation the loss of mature trees had the potential to disturb, displace or cause mortalities of species such as bats that may use these trees from time to time.

Through an iterative design process opportunities to reduce the potential for impacts on the local biodiversity were explored. This included reducing the number of mature higher value trees to be removed insofar as possible and seeking to implement tree protection measures as part of the CEMP. Direct impacts on areas where there are existing bird and bat boxes within the campus were successfully avoided. The lighting design has also taken the guidance on impacts of artificial lighting on bats into account.

The Biodiversity Chapter describes detailed mitigation and monitoring commitments to address the potential impacts on flora, fauna and habitats identified in relation to the proposed development. This includes for the appointment of a suitably qualified Ecological Clerk of Works for each phase of the construction of the project to ensure the full and proper implementation of the mitigation strategy. Biodiversity enhancement measures are also presented including for the installation of bird nest boxes including those for Swifts and Barn Owls. In addition, a nesting raft will be installed on one of the water attenuation ponds at the site. Bat boxes will be installed and maintained throughout the lifetime of the project. A biodiversity audit of the site will be carried out every five years and the findings will inform a



Biodiversity Management Plan for the site for the following 5-year period. This will capture the elements of the landscaping and ecological mitigation, monitoring and enhancement (including the measures undertaken as part of the All-Ireland Pollinator Plan) and set goals and objectives for the next plan. The audit will examine the biodiversity on site and the progress towards previously stated objectives. The BMP and biodiversity audit will be published and feedback will be welcomed.

With the implementation of the environmental controls, mitigation and landscaping commitments it is likely that the overall impacts on biodiversity at the site will be locally slight to moderate negative in the short to medium term but that with the maturation of the landscaping measures and ongoing commitment to biodiversity management that it is predicted that the longer term impacts on local biodiversity arising from the proposed development will be locally moderate positive.



7.0 LAND, SOILS, GEOLOGY & HYDROGEOLOGY

This chapter of the Environmental Impact Assessment Report (EIAR) has been prepared by AWN Consulting and assesses and evaluates the potential for significant impacts on the land, soil, geological and hydrogeological aspects of the site and surrounding area associated with the proposed development.

This assessment considers the following:

- A. The 'principal' works subject to the development consent being sought from Kildare County Council, i.e. the proposed development; and
- B. 'Facilitation works' required to support the development which do not form part of the development consent being sought from Kildare County Council. The facilitation works include a mix of works that will be required to be undertaken for or on behalf of statutory undertakers such as Gas Networks Ireland and EirGrid.

The principal works include the proposed expansion of the existing innovation campus and all those works included within the redline boundary and described on the statutory notices accompanying the application. The facilitation works are those known works that are expected to be required to facilitate the proposed development over the life of the permission being sought.

In assessing likely impacts, account is taken of both the importance of the existing land, soils, geological and hydrogeological attributes and the predicted scale and duration of the likely impacts.

7.1 Receiving Environment

The receiving environment is discussed in terms of land geology, soils, hydrogeology, and site history including potential for existing and historical contamination. The principal site, Kildare Innovation Campus (KIC), is located in north east Kildare, in the administrative district of Kildare County Council. The site is an existing underdeveloped business campus, zoned for 'Industry and Warehousing' in the *Leixlip Local Area Plan 2020-2023 (extended to 2026)*. Leixlip town is located 4km to the north and Dublin city centre is located approximately 21km to the east.

7.2 Principal Works

The site is principally bounded by: the M4 Motorway to the north; Cellbridge Road to the east; Barnhall Rugby Football Club to the south; and by grounds associated with Castletown House to the west. The River Liffey flows in a north-easterly direction on the opposing side of Celbridge Road to the east of the site where the Liffey Reservoir is also located. To the immediate west and east of the site agricultural lands are located - refer to Figure 8.1 below.

The site has an overall area of c. 72.23 ha. The planning application site covers the majority of the existing business campus, with a 5.7-hectare parcel of land known as the DB Schenker (DBS) site being excluded as it has recently been developed in accordance with a separate planning permission (KCC Reg. Ref.: 20-873). The planning application site also includes a portion of Celbridge Road along the eastern boundary of the site which will cater for a new access to the campus.



7.3 Facilitation Works

The facilitation works include a mix of works that will be required to be undertaken for or on behalf of statutory undertakers such as Gas Networks Ireland and EirGrid.

GNI Upgrades

The GNI upgrades will be delivered through a local upgrade of the gas network over a length of approximately 1.5km through predominantly residential areas. The route of the upgrades will be along Ryevale Lawns along Station Road, Old Hill and Celbridge Road for a distance of approximately 1.5km up to the entrance of Barnhall Meadows running underground through the Barnhall Meadows lands (adjacent to the existing haul road) before crossing the M4 Motorway through Horizontal Directional Drilling and enter the Kildare Innovation Campus then connecting to the proposed Gas Skid.

EirGrid Uprating

Upon completion of Phase 1 of the KIC Masterplan, including the development of the proposed replacement 110kV Substation, uprating of existing overhead lines from the replacement 110kV Rinawade substation to Derryiron/Maynooth and Dunfirth/Kinnegad will be required to facilitate commencement of Phase 3 of the KIC Masterplan. The uprating will be carried out to existing lines along established wayleaves primarily traversing agricultural lands.

Due to the nature of the proposed EirGrid works being minimal and comprising only minor line and structural replacement, they have been scoped out of this assessment as the interaction between land, soils, geology and hydrogeology with the proposed works is negligible.

The surrounding environment for both the principal and facilitation works can be described as a mix of agricultural and residential. The site location map for the proposed development is presented in presented in Figure 8.1 below.

A detailed description of the project is outlined in Chapter 2 of this EIAR.

7.4 Likely Impacts of the Proposed Development

Construction Phase

In absence of mitigation measures, the construction phase would present potential impacts associated to the following activities:

- Excavations for foundations, services and landscaping; and
- Accidental spills and leaks.

The magnitude of the impact for the construction phase without mitigation and design measures will likely have a **negative, short-term** and **moderate** impact.

However, with the implementation of design and mitigation measures for the Proposed Development site the impact of the construction phase is **short-term** in duration with an **Imperceptible** effect rating.



Operational Phase

In absence of mitigation measures, the construction phase would present potential impacts associated to the following activities:

- Increase in hardstanding; and
- Fuel and other accidental spills.

Without the consideration of mitigation measures, the operational phase of the proposed development will likely have a **Neutral, Long-Term** and **Slight** impact.

The residual cumulative impact on land, soils, geology and hydrogeology for the construction and operation phases is anticipated to be **Long-Term, Neutral** in terms of quality and **Not Significant**, once appropriate mitigation measures are implemented in accordance with the CEMP and in compliance with the legislative requirements for each development.

7.5 Mitigation Measures and Monitoring of Impacts

Construction Phase

In order to reduce impacts on the soils, geological and hydrogeological environment, a number of mitigation measures will be adopted as part of the construction works on site. The measures will address the main activities of potential impact which include:

- Implementation of a Construction & Environmental Management Plan (CEMP);
- Sources of fill and aggregates for the Proposed Development;
- Fuel and chemical handling, transport and storage; and
- Control of water during construction.

Operational Phase

A number of design measures will be put in place to minimise the likelihood of any spills entering the groundwater environment. An existing bypass petrol interceptor is located upstream of the outfall from the site, and it is proposed to retain this interceptor. Furthermore, it is a requirement for car parking areas with 10 spaces or more as outlined in Section 20.1 of the Greater Dublin Regional Code of Practice.

There is potential for surface water and condensate to accumulate in the exhaust stacks which serve the generators. Gullies which serve the exhaust stacks will discharge to a dedicated surface water drainage pipe which will be connected to a Class 1 full retention separator. Two full retention interceptors will be required, per data centre building, to serve the exhaust stacks. In the event of an accidental leakage of oil from the parking areas, this will be intercepted by the drainage infrastructure proposed.

The following mitigation measures will be undertaken at the operational stage to manage any leaks from vehicles resulting in soil and/or groundwater quality impacts:

- Provision of spill kit facilities and training of operatives in use of same;
- Where mobile fuel bowsers are used the following measures will be taken:
 - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;



- The pump or valve will be fitted with a lock and will be secured when not in use;
- All bowsers to carry a spill kit;
- Operatives must have spill response training; and
- Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

No further mitigation measures are to be required during the operational phase.

7.6 Likely Cumulative and Interaction Impacts of the Proposed Development

Construction Phase

In relation to the potential cumulative impact on the geological or hydrogeological environment during the construction phases, the key engineering works which would have additional impacts above are:

- Construction works will require additional removal of topsoil and subsoil cover and will further increase the vulnerability of the underlying bedrock. Although this is minimised due to the underlying clayey overburden. Capping of significant areas of the sites by hardstand/ buildings following construction and installation of drainage will minimise the potential for contamination of groundwater.

Operational Phase

In relation to the potential cumulative impacts from the operational stages, the following would apply:

- Overall increase in hardstanding: Cumulatively these developments will result in localised reduced recharge to ground and increase in surface run-off. The aquifer underlying the site is a locally important aquifer which is moderately productive only in local zones. The proposed development will have a relatively small footprint in comparison to the underlying aquifer size. As such, the impact is considered to be Low.
- Accidental releases from fuel storage/unloading could contaminate groundwater or soil environments unless mitigated adequately. Localised accidental discharge of hydrocarbons could occur in car parking areas and along roads unless diverted to surface water drainage system with petrol interceptors. However, all developments are required to ensure they do not have an impact on the receiving water environment in accordance with the relevant legislation (primarily the Local Government (Water Pollution) Act, 1977 and 1990 as amended and Groundwater Threshold Value (Groundwater Directive S.I. No. 9 of 2010 and amendment; S.I. No. 366 of 2016) and EPA Interim Guidelines for groundwater where available) such that they would be required to manage runoff and fuel leakages.
- There will be a further loss of greenfield area locally however, the area of development is small in the context of the overall agricultural land available in the region. It is likely that the land use will change over time based on the current zoning of the proposed land in the vicinity as EE. The site is an existing underdeveloped business campus, zoned for 'Industry and Warehousing' in *the Leixlip Local Area Plan 2020-2023 (extended to 2026)*.



The residual cumulative effect on land, soils, geology and hydrogeology for the construction and operation phases are anticipated to be **long-term, neutral** in terms of quality and of **not significant**, once the appropriate mitigation measures are put in place for each development.

7.7 Interaction Impacts with Hydrology

Construction Phase

The construction phase of the proposed development has the potential to result in increased sediment runoff which has the potential to interact negatively on surface water quality. The proposed construction phase mitigation means that the proposed development will not result in significant negative impact on surface water quality in the local area.

Taking into account the design and mitigation measures set out in Chapter 6 and 7 of this EIA Report, there is a residual negative interaction between land, soil, and hydrology during the construction phase. The interaction is considered to be **neutral, not significant, and short term**.

Operational Phase

Taking into account the design and mitigation measures set out in 6 (Hydrology) and Chapter 7 (Land, Soils and Hydrogeology) of this EIA Report there are no potentially significant interactions identified between land, soils and hydrogeology, and hydrology during the operational phase.

7.8 Interaction Impacts with Biodiversity

Construction Phase

In the absence of standard mitigation measures to control the construction phase there is potential for silt laden material or pollution to enter the watercourse and impact on local biodiversity and European sites downstream from the works. Furthermore, dust emissions from exposed earthworks have the potential to settle on plants causing impacts to local ecology.

Taking into account the design and mitigation measures outlined in this Section 7.6.2, there still remains a residual negative interaction between land, soils, geology and hydrogeology and biodiversity during the construction phase. The interaction is considered to be **negative, not significant, and short term**.

Operational Phase

There are no potentially significant interactions identified between land, soils and hydrogeology, and biodiversity during the operational phase.

7.9 Interaction Impacts with Air Quality and Climate

Construction Phase

Demolition and construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils and the water environment (hydrology) in the form of dust emissions. With the appropriate



mitigation measures to prevent fugitive dust emissions, it is predicted that interactions between air quality and land and soils and hydrology will be **short-term** and **imperceptible**.

Operational Phase

There are no potentially significant interactions identified between land, soils and hydrogeology, and air quality and climate during the operational phase

7.10 Interaction Impacts with Noise and Vibration

Construction Phase

There are no potentially significant interactions identified between land, soils and hydrogeology, and noise and vibration during the construction phase.

Operational Phase

There are no potentially significant interactions identified between land, soils and hydrogeology, and noise and vibration during the operational phase.

7.11 Interaction Impacts with Landscape and Visual Impacts

Construction Phase

There are no potentially significant interactions identified between land, soils and hydrogeology, and landscape and visual impacts during the construction phase.

Operational Phase

There are no potentially significant interactions identified between land, soils and hydrogeology, and landscape and visual impacts during the operational phase.

7.12 Interaction Impacts with Archaeological, Architectural and Cultural Heritage

Construction Phase

There are no potentially significant interactions identified between hydrology, and archaeological, architectural and cultural heritage during the construction phase.

Operational Phase

There are no potentially significant interactions identified between land, soils and hydrogeology, and archaeological, architectural and cultural heritage during the operational phase.

7.13 Interaction Impacts with Material Assets, including Utilities, Waste, and Transport

Construction Phase

There are no potentially significant interactions identified between land, soils and hydrogeology, and material assets during the construction phase.

Operational Phase



There are no potentially significant interactions identified between land, soils and hydrogeology, and material assets during the operational phase.

7.14 Mitigation Measures and Monitoring of Impacts

As has been identified in the receiving environment section, all cumulative developments that are already built and in operation contribute to the characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational developments has been assessed in the preceding sections of this chapter.

There are no relevant other permitted or proposed developments within the immediate vicinity of the proposed development site.

Construction Phase

During construction phase the following monitoring measures will be implemented:

- Implementation of a Construction & Environmental Management Plan (CEMP);
- Sources of fill and aggregates for the Proposed Development;
- Fuel and chemical handling, transport and storage; and
- Control of water during construction.

As a result, there will be minimal cumulative potential for change in the natural geological and hydrogeological regime. The cumulative impact is considered to be **short-term, neutral** and **imperceptible**.

Operational Phase

A number of design measures will be put in place to minimise the likelihood of any spills entering the groundwater environment. An existing bypass petrol interceptor is located upstream of the outfall from the site, and it is proposed to retain this interceptor. Furthermore, it is a requirement for car parking areas with 10 spaces or more as outlined in Section 20.1 of the Greater Dublin Regional Code of Practice.

There is potential for surface water and condensate to accumulate in the exhaust stacks which serve the generators. Gullies which serve the exhaust stacks will discharge to a dedicated surface water drainage pipe which will be connected to a Class 1 full retention separator. Two full retention interceptors will be required, per data centre building, to serve the exhaust stacks. In the event of an accidental leakage of oil from the parking areas, this will be intercepted by the drainage infrastructure proposed.

The following mitigation measures will be undertaken at the operational stage to manage any leaks from vehicles resulting in soil and/or groundwater quality impacts:

- Provision of spill kit facilities and training of operatives in use of same;
- Where mobile fuel bowsers are used the following measures will be taken:
 - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
 - The pump or valve will be fitted with a lock and will be secured when not in use;



- All bowsers to carry a spill kit;
- Operatives must have spill response training; and
- Portable generators

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7.15 Residual Impacts

The proposed development with mitigation will have no significant impact on the natural groundwater regime either qualitatively or quantitatively.

Construction Phase

Following the implementation of mitigation measures detailed in Section 5.6.1 above, the predicted impact on the geological and hydrogeological environment during the construction phase is **neutral, imperceptible** and **short-term**, the magnitude of impact is considered **negligible**.

Operational Phase

Following the implementation of mitigation measures detailed in Section 5.6.2 above, the predicted impact on the geological and hydrogeological environment during the construction phase is **neutral, imperceptible** and **long-term**, the magnitude of impact is considered **negligible**.



8.0 HYDROLOGY

This chapter of the Environmental Impact Assessment Report (EIAR) has been prepared by AWN Consulting and assesses and evaluates the potential for significant impacts on the surrounding hydrological environment associated with the proposed development.

This assessment considers the following:

- A. The 'principal' works subject to the development consent being sought from Kildare County Council, i.e. the proposed development; and
- B. 'Facilitation works' required to support the development which do not form part of the development consent being sought from Kildare County Council. The facilitation works include a mix of works that will be required to be undertaken for or on behalf of statutory undertakers such as Gas Networks Ireland and EirGrid.

The principal works include the proposed expansion of the existing innovation campus and all those works included within the redline boundary and described on the statutory notices accompanying the application. The facilitation works are those known works that are expected to be required to facilitate the proposed development over the life of the permission being sought.

In assessing likely impacts, account is taken of both the importance of the existing hydrological attributes and the predicted scale and duration of the likely impacts.

8.1 Receiving Environment

The receiving environment is discussed in terms of hydrology, flood risk and water quality. The principal site, Kildare Innovation Campus (KIC), is located in north east Kildare, in the administrative district of Kildare County Council. The site is an existing underdeveloped business campus, zoned for 'Industry and Warehousing' in *the Leixlip Local Area Plan 2020-2023 (extended to 2026)*. Leixlip town is located 4km to the north and Dublin city centre is located approximately 21km to the east.

8.2 Principal Works

The site is principally bounded by: the M4 Motorway to the north; Cellbridge Road to the east; Barnhall Rugby Football Club to the south; and by grounds associated with Castletown House to the west. The River Liffey flows in a north-easterly direction on the opposing side of Celbridge Road to the east of the site where the Liffey Reservoir is also located. To the immediate west and east of the site agricultural lands are located - refer to Figure 8.1 below.

The site has an overall area of c. 72.23 ha. The planning application site covers the majority of the existing business campus, with a 5.7-hectare parcel of land known as the DB Schenker (DBS) site being excluded as it has recently been developed in accordance with a separate planning permission (KCC Reg. Ref.: 20-873). The planning application site also includes a portion of Celbridge Road along the eastern boundary of the site which will cater for a new access to the campus.



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8.3 Facilitation Works

The facilitation works include a mix of works that will be required to be undertaken for or on behalf of statutory undertakers such as Gas Networks Ireland and EirGrid.

GNI Upgrades

The GNI upgrades will be delivered through a local upgrade of the gas network over a length of approximately 1.5km through predominantly residential areas. The route of the upgrades will be along Ryevale Lawns along Station Road, Old Hill and Celbridge Road for a distance of approximately 1.5km up to the entrance of Barnhall Meadows running underground through the Barnhall Meadows lands (adjacent to the existing haul road) before crossing the M4 Motorway through Horizontal Directional Drilling and enter the Kildare Innovation Campus then connecting to the proposed Gas Skid.

EirGrid Upgrading

Upon completion of Phase 1 of the KIC Masterplan, including the development of the proposed replacement 110kV Substation, upgrading of existing overhead lines from the replacement 110kV Rinawade substation to Derryiron/Maynooth and Dunfirth/Kinnegad will be required to facilitate commencement of Phase 3 of the KIC Masterplan. The upgrading will be carried out to existing lines along established wayleaves primarily traversing agricultural lands.

Due to the nature of the proposed EirGrid works being minimal and comprising only minor line and structural replacement, they have been scoped out of this assessment as the interaction between land, soils, geology and hydrogeology with the proposed works is negligible.

The surrounding environment for both the principal and facilitation works can be described as a mix of agricultural and residential. The site location map for the proposed development is presented in presented in Figure 8.1 below.

A detailed description of the project is outlined in Chapter 2 of this EIAR.

8.4 Likely Impacts of the Proposed Development

Construction Phase

In absence of mitigation measures, the construction phase would present potential impacts associated to the following activities:

- Increased sediment loading in run-off;
- Excavations for foundations, services and landscaping; and
- Accidental spills and leaks.

The magnitude of the impact for the construction phase without mitigation and design measures is **Temporary** in duration with **Slight** effect rating to the hydrological environment present.



However, with the implementation of design and mitigation measures for the Proposed Development site the impact of the construction phase is **short-term** in duration with an **Imperceptible** effect rating.

Operational Phase

In absence of mitigation measures, the construction phase would present potential impacts associated to the following activities:

- Increase in hardstanding;
- Surface water run-off; and
- Fuel and other accidental spills.

Without the consideration of mitigation measures, the operational phase of the proposed development will likely have a **Neutral, Long-Term** and **Slight** impact.

With the implementation of the appropriate mitigation measures outlined in Section 8.6.2, the operational phase of the proposed development will likely be **Long-Term, Neutral** in terms of quality and **Not Significant**.

8.5 Mitigation Measures and Monitoring of Impacts

Construction Phase

In order to reduce impacts on the hydrological environment, a number of mitigation measures will be adopted as part of the construction works on site.

- Implementation of a Construction & Environmental Management Plan (CEMP);
- Surface water management during construction;
- Fuel and chemical handling; and
- Soil removal and compaction.

Operational Phase

A number of design measures will be put in place to minimise the likelihood of any spills entering the groundwater environment. In the event of an accidental leakage of oil from the site, this will be intercepted by the drainage infrastructure proposed.

The proposed surface water drainage system comprises infiltration areas which operate at a feasible rate. A number of design measures will be put in place. A number of attenuation measures will be implemented to minimise the likelihood of any spills entering the water environment to such as Swales, Tree pits, Green roofs, Filter drains, Permeable paving, Rainwater Harvesting system, Bio-Retention ponds, Hydrocarbon interceptors, Silt Traps and Attenuation facilities.

The Operator of the proposed data centre buildings implements an Environmental Management System at each of its facilities. Prior to operation of the Proposed Development, a comprehensive set of operational procedures will be established (based on those used at other similar facilities) which will include site-specific mitigation measures and emergency



response measures as outlined below, similar procedures will be developed for the DeepTech buildings and energy infrastructure

No further mitigation measures are to be required during the operational phase.

8.6 Likely Cumulative and Interaction Impacts of the Proposed Development

Construction Phase

In relation to the potential cumulative impact on hydrology during the construction phase, the construction works which would have potential cumulative impacts include:

- Surface water run-off during the construction phase may contain increased silt levels or become polluted from construction activities. Run-off containing large amounts of silt can cause damage to surface water systems and receiving watercourses.
- Contamination of local water sources from accidental spillage and leakage from construction traffic and construction materials unless project-specific CEMPs are put in place for each development and complied with.

Operational Phase

In relation to the potential cumulative impact on hydrology during the operational phase, operational works which would have potential cumulative impacts include:

- Increased hard standing areas (171,641.88 m²) will reduce local recharge to the ground and increase surface water run-off potential if not limited to the green field run-off rate from the site.
- Increased risk of accidental releases from fuel storage/delivery unless mitigated adequately i.e. bunded tank.
- Increased risk of accidental discharge of hydrocarbons from car parking areas and along roads and unless diverted to surface water system with petrol interceptor; and
- Any additional foul discharges should be treated where appropriate and/or diverted to the foul sewer system and not directly to ground.

All developments will be required to manage any discharges to water and operate in compliance with relevant legislation (European Communities Environmental Objectives (Surface Waters); Regulations, 2009 (S.I. No. 272 of 2009 as amended by SI No. 77 of 2019)). As such there will be no likely cumulative impact on water quality.

Increase in wastewater loading and water supply requirement is an impact of all developments: Each development will require approval from the IW confirming available capacity in the water and wastewater infrastructure. The surface water and foul drainage infrastructure and water supply requirements for the proposed development has been designed and assessed to accommodate the requirements of the proposed development.

Development will result in an increase in hard standing which will result in localised reduced recharge to ground and increase in run-off rate. However, each permitted development is required by the Local Authority and IW to comply with the Greater Dublin Strategic Drainage Strategy (GSDSDS) and Local Authority and IW requirements by providing suitable attenuation



on site to ensure greenfield run-off rates and ensure that there is no increase in offsite flooding as a result of development.

The residual cumulative impact on hydrology for the construction and operation phases is anticipated to be **Long-Term, Neutral** in terms of quality and **Not Significant**, once appropriate mitigation measures to manage water quality runoff in compliance with legislative requirement are put in place for each development.

8.7 Interaction Impacts with Biodiversity

Construction Phase

Dust emissions have the potential to settle on plants causing impacts to local ecology. Mitigation measures during the construction phase of the proposed development will ensure that dust generation is minimised and the effect on biodiversity will be short term, imperceptible and neutral.

There is potential for impacts to biodiversity associated with uncontrolled discharges to surface waters. In this instance the site discharges its surface water runoff directly into the Leixlip Reservoir via an outfall pipe following confirmation of water quality through electronic monitoring mechanisms inclusive of shut off valves, upstream of the existing retention ponds near the existing site entrance off the Celbridge Road.

There is an indirect hydrological connection with a number of nationally and internationally important habitats located within Dublin Bay. However due to the hydrological distance of removal and volume, there are no adverse effects anticipated (c. 22km to the east). The use of standard demolition and construction control measures as provided in the CEMP and the standard sustainable urban drainage systems implemented on-site will result in no potential for impact on biodiversity downstream of the site. The impact upon biodiversity from hydrological impacts would be long-term and neutral.

Taking into account the design and mitigation measures set out in Chapter 6 of this EIA Report, there remains a residual negative interaction between hydrology, and biodiversity during the construction phase. The interaction is considered to be **negative, not significant, and short term**.

Operational Phase

There is potential for impacts to biodiversity associated with uncontrolled discharges to surface waters. In this instance the site discharges its surface water runoff directly into the Leixlip Reservoir via an outfall pipe following confirmation of water quality through electronic monitoring mechanisms inclusive of shut off valves, upstream of the existing retention ponds near the existing site entrance off the Celbridge Road.

There is an indirect hydrological connection with a number of nationally and internationally important habitats located within Dublin Bay. However due to the hydrological distance of removal and volume, there are no adverse effects anticipated (c. 22km to the east). The use of standard demolition and construction control measures as provided in the CEMP and the standard sustainable urban drainage systems implemented on-site will result in no potential for impact on biodiversity downstream of the site. The impact upon biodiversity from hydrological impacts would be long-term and neutral.



Taking into account the design and mitigation measures set out in Chapter 6 of this EIA Report, the interaction between hydrology, and biodiversity during the operational phase is considered to be *neutral*, and *long term*.

8.8 Interaction Impacts with Air Quality and Climate

Construction Phase

Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils in the form of dust emissions that may deposit in surface waters.

Mitigation measures implemented during the construction phase will ensure that the deposition of dust is minimised. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and hydrology.

The interaction is considered to be *negative, not significant*, and *short term*. There are no potentially significant interactions identified between hydrology, and climate during the construction phase.

Operational Phase

There are no potentially significant interactions identified between hydrology, and air quality during the operational phase. Climate change has the potential to lead to increased rainfall in future years which may result in flood impacts and interactions between Hydrology and Land, Soils and Geology.

A detailed Site Specific Flood Risk Assessment (SSFRA) was carried out for the proposed development which states that the site is located in Flood Zone C with an annual probability of flooding (fluvial) of less than 0.1%.

The site is divided up into five catchment areas. These areas are defined by the topographical characteristics of the site and the proposed finish levels of the development. Each catchment collects the surface runoff and attenuates it within a pond up to the 1:100 year event. A flow control device will be installed within each catchment to slowly releases the water into the existing ponds. The SuDs features have been designed to provide sufficient capacity to contain and convey all surface water runoff associated with the 1 in 100-year event plus an additional allowance of 30% for climate change and 10% urban creep.

Therefore it can be determined that there is no significant risk to the proposed development as a result of increased rainfall and climate. No significant interactions between climate, hydrology and land, soils and ecology is predicted.

8.9 Noise and Vibration

Construction Phase

There are no potentially significant interactions identified between hydrology, and noise and vibration during the construction phase.

Operational Phase



There are no potentially significant interactions identified between hydrology, and noise and vibration during the operational phase.

8.10 Landscape and Visual Impacts

Construction Phase

There are no potentially significant interactions identified between hydrology, and landscape and visual impacts during the construction phase.

Operational Phase

There are no potentially significant interactions identified between hydrology, and landscape and visual impacts during the operational phase.

8.11 Archaeological, Architectural and Cultural Heritage

Construction Phase

There are no potentially significant interactions identified between hydrology, and archaeological, architectural and cultural heritage during the construction phase.

Operational Phase

There are no potentially significant interactions identified between hydrology, and archaeological, architectural and cultural heritage during the operational phase.

8.12 Material Assets, including Utilities, Waste, and Transport

Construction Phase

There are no potentially significant interactions identified between hydrology, and material assets during the construction phase.

Operational Phase

The proposed development will follow the SuDS and surface water management strategy; utilising an innovative natural based SuDS components to provide the necessary processes to control runoff frequency, flow rates and volumes. The use of SuDS during operations will mean that the runoff will discharge from the proposed bioretention and attenuation systems before out falling to the existing pond system and existing monitoring regime on-site resulting in a reduction of surface water discharge from the development site. This will have a net positive result on the downstream surrounding areas as the potential for flooding will be reduced and the overall discharged runoff will have an improved water quality due to the proposed SuDS upgrades. The SuDs features have been designed to provide sufficient capacity to contain and convey all surface water runoff associated with the 1 in 100-year event plus an additional allowance of 30% for climate change and 10% urban creep. This is as per Kildare County Council Water Services Department draft guidance on Drainage and SuDS Strategy.

Attenuation measures include bio retention areas, attenuation ponds, swales, filter drains, permeable paving and hydrocarbon interceptors. The interaction is considered to be **negative, not significant, and long-term.**



8.13 Mitigation Measures and Monitoring of Cumulative and Interaction Impacts

As has been identified in the receiving environment section, all cumulative developments that are already built and in operation contribute to the characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational developments has been assessed in the preceding sections of this chapter.

There are no relevant other permitted or proposed developments within the immediate vicinity of the proposed development site.

Construction Phase

Every development will have to incorporate SuDS measures to protect water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009 and S.I. 77 of 2019).

During construction phase the following monitoring measures will be implemented:

- Regular inspection of surface water run-off and sediments controls (e.g., silt traps);
- Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off; and
- Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).

As a result, there will be minimal cumulative potential for change in the natural hydrological regime. The cumulative impact is considered to be **short-term, neutral** and **imperceptible**.

Operational Phase

All the operational cumulative developments are required to manage discharges in accordance with S.I 272/2009 and 77/2019 amendments. As such there will be no cumulative impact to surface water quality and therefore there will be no cumulative impact on the Surface Waterbody Status.

During operational phase the following monitoring measures will be implemented:

- Maintenance of the surface water drainage system and foul sewers, as standard, is recommended to minimise any accidental discharges to surface water.

The operation of the proposed development is concluded to have a **long-term, imperceptible** significance with a **neutral** impact on surface water quality.

8.14 Residual Impacts

The residual effects are the final predicted or intended effects which occur after the proposed mitigation measures have been implemented. It will not always be possible or practical to mitigate all adverse effects.



This assessment has identified the potential for major accident hazards to occur. These scenarios can have significant consequences; however, the likelihood of these events occurring is low due to engineering and operational safeguards that will be implemented at the development. The Land Use Planning Assessment concluded that the risk contours do not extend off-site; therefore, there are no impacts to off-site receptors.

In the case of the Proposed development, there will be no significant residual impacts; the potential impact on surface water during operation and closure (following the EPA Draft EIA Report Guidelines (2017)) will be **long term, imperceptible** and **neutral** i.e. an impact capable of measurement but without noticeable consequences.



9.0 AIR QUALITY

This chapter of the EIA Report evaluates the impacts which the Proposed Development may have on air quality.

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

Construction Phase

During the construction phase there is the potential for dust emissions to impact nearby sensitive receptors resulting in potential dust soiling and human health impacts. Best practice mitigation measures have been proposed for the construction phase of the Proposed Development in order to mitigate potential dust impacts. Provided the mitigation measures outlined within Chapter 9 are implemented construction dust impacts will be **short-term**, **localized** and **neutral** at nearby sensitive receptors.

Operational Phase

Air dispersion modelling of operational phase emissions from the Proposed Development was carried out using the United States Environmental Protection Agency's regulatory model AERMOD. The aim of the study was to assess the contribution of operational emissions of NO₂ from the Proposed Development to off-site levels of this pollutant. Both the methodologies of the USEPA and UK Environment Agency were included within the assessment as per guidance issued by the Irish EPA. Modelling was conducted for the following three scenarios:

- **Do Nothing Scenario:** Under the Do Nothing Scenario no air emissions will take place. The ambient air quality at the site will remain as per the baseline and will change in accordance with trends within the wider area, changes in road traffic, etc.). Therefore, this scenario can be considered **neutral** in terms of air quality.
- **Proposed Development Scenarios:** The Do Something Scenario comprises the continuous operation of the CTGs as a worst-case although in reality they will not operate more than 330 days per year. In addition, the operation of the backup generators for 250 hours per year which involves the emergency operation of 72 of the 80 generators (the remaining generator serving as a "catcher" generator) has also been modelled in the same modelling run in order to capture the impact of both the CTGs and the back-up generators. The scenario also included weekly testing of all 80 generators at 25% load for 30 minutes and load bank testing at 90% load of all generators for one hour four time per year.
- **Cumulative Impact:** There are no nearby sources with emissions of NO₂/NO_x of sufficient magnitude to overlap with site emissions from the proposed facility and thus therefore no offsite cumulative impacts are anticipated. With appropriate mitigation measures it is not predicted that any cumulative impacts will occur during the combined construction and operational phase due to NO₂/NO_x impacts

USEPA Methodology

The modelling assessment has found that ambient NO₂ concentrations as a result of the operation of the CTGs and the emergency operations and scheduled testing of the standby diesel generators are in compliance with the relevant ambient air quality limit values at all locations at or beyond the site boundary under all scenarios modelled.



Based on the operation of the CTGs on a continuous basis, as a worst-case, and the operation of the backup generators for 250 hours per year in addition to the scheduled weekly and load banking testing of all back-up generators, the results indicate that the ambient ground level concentrations are within the relevant air quality standards for NO₂. For the maximum year modelled, emissions from the site lead to an ambient NO₂ concentration (including background) which is 63% of the maximum ambient 1-hour limit value (measured as a 99.8th percentile) and 94% of the annual limit value at the maximum off-site receptor. Concentrations decrease with distance from the site boundary.

UK EA Methodology

The results indicate that in the maximum year, the emergency generators for the Proposed Development can operate for up to 345 hours per year in addition to the continuous operation of the CTGs, as a worst-case, before there is a likelihood of an exceedance of the ambient air quality standard (at a 98th percentile confidence level).

However, the UK guidance recommends that there should be no running time restrictions placed on these generators which (aside from testing) are only used to provide power on site only during an emergency scenario.

Human Health

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 construction of the Proposed Development is likely to be short-term and imperceptible with respect to human health.

As demonstrated by the dispersion modelling results, pollutant concentrations with the Proposed Development operations are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant impact on human health.

Mitigation Measures

A dust management plan will be implemented during the construction phase of the Proposed Development to ensure that no significant dust nuisance occurs outside the site boundary.

With regards to the operational phase, provided each stack is built to the minimum heights determined by the air dispersion modelling, no further mitigation measures are required.

Residual Impacts

Once the mitigation measures outlined in Section 8.6 are implemented, the residual impacts on air quality from the construction of the proposed development, based on the EPA EIAR Guidelines (EPA, 2022), will be **short-term** and **neutral** and for the operational phase of the proposed development will be **long-term, negative** and **slight**. Thus, in terms of air quality, both the construction phase and operational phase will be **not significant**.



10.0 CLIMATE

This chapter of the EIA Report evaluates the impacts which the Proposed Development may have on climate. In terms of baseline data, provisional national total emissions (including LULUCF) for 2021 are 69.29 Mt CO₂eq, these have used 23.5% of the 295 Mt CO₂eq Carbon Budget for the five-year period 2021-2025. This leaves 76.5% of the budget available for the succeeding four years, requiring an 15.4% average annual emissions reduction from 2022-2025 to stay within budget.

Do Nothing Scenario – Construction Phase

Under the Do Nothing Scenario no construction works will take place and the impacts of GHG emissions from equipment and machinery will not occur. Therefore, this scenario can be considered *neutral* in terms of climate.

Construction Phase

Based on the scale and temporary nature of the construction works, the potential impact on climate change from the construction of the Proposed Development is deemed to be *short-term* and *imperceptibly negative* in relation to Ireland's obligations under the EU ETS 2030 target and the National Carbon Budget for the period 2021-2025.

Impact of Climate Change on the Construction Phase

Appropriate flood risk measures and extreme weather events have been considered as part of the construction planning. However, the potential for changes to long-term seasonal averages as a result of climate change are not considered to be as significant. Thus, the likelihood of extreme weather and flooding is assessed to be of either very low or low likelihood and with a moderate adverse effect leading to a finding of low risk and thus a non-significant impact.

Do Nothing Scenario – Operational Phase

Under the Do Nothing Scenario no GHG emissions will take place. The site will remain as per the baseline and will change in accordance with trends within the wider area, (changes in road traffic, etc.). Therefore, this scenario can be considered *neutral* in terms of climate.

Operational Phase

The proposed development has the potential, in the absence of mitigation, to release significant quantities of GHG emissions during the operational phase of the project. However, as the proposed development is over 20 MW, a greenhouse gas emission permit will be required for the facility which will be regulated under the EU-wide Emission Trading System (ETS) which necessitates operating under a "cap and trade" scheme.

The direct (due to onsite natural gas and diesel usage) and indirect CO₂ emissions from electricity to operate the facility has been assessed below in the context of Ireland's national annual CO₂ emissions.

The project's GHG emissions for each scenario has been compared to the 2030 Emission Trading System budget and to the Electricity 2030 Sectoral Emission Ceiling based on the



approach set out in IEMA guidance (IEMA, 2022). The assessment is presented both prior to and post mitigation. The impact of the project prior to mitigation would be deemed to be a moderate, significant, adverse impact. Although the project prior to mitigation is better than the “do-nothing” scenario of enterprise computers, the impact would still be significant in the absence of appropriate mitigation.

Through a series of measures including project replacement, a reduction in residual emissions through best practice and the implementation of a series of adaptive design measures, the net impact of the proposed development is not significant. The applicant intends to undertake a Corporate Power Purchase Agreement (CPPA) which will provide a percentage of renewable gas for power generation to the Irish grid. The CPPAs will be between the applicant’s group and the data centre end user and provide for the establishment of new renewable energy generation projects by the applicant’s group or data centre end user which demonstrates that the energy consumed by the data centre development on site is offset with renewable energy generation.

Given that the use of natural gas and electricity to power the facility will achieve net zero by 2050 and the facility will use CPPAs as outlined above, the predicted impact to climate, after mitigation, is deemed to be **long-term, negative** and **minor adverse**.

Impact of Climate Change on the Operational Phase

Climate change has the potential to alter weather patterns and increase the frequency of rainfall in future years. As a result of this there is the potential for flooding related impacts on site in future years. Chapter 8 (Hydrology & Hydrogeology) has investigated the likelihood of flooding and has found that there is no current or predicted flood risk (either fluvial, pluvial or coastal) for the Site. Thus, the likelihood of extreme weather and flooding was assessed to be of low likelihood and with a moderate adverse effect leading to a finding of low risk and thus a non-significant impact.

Mitigation Measures

Construction Phase

The objective of the mitigation measures outlined below is to ensure that GHG emissions are minimized wherever possible during the construction phase. The measures will include:

- All vehicles will be required to switch off engines when stationary (no idling);
- All vehicles will be serviced and maintained to ensure emissions are minimised;
- Where practicable, materials will be reused within the extent of the Proposed Development; and
- Where practicable, materials will be sourced locally to reduce the embodied emissions associated with transport.

Operational Phase

The CTGs and diesel generators will be regularly serviced to ensure that they operate to their maximum efficiency. In addition, the data centre will be designed to minimize energy use including the use of passive solar design, natural ventilation and incorporating the following features:



- Provision of significant Solar PV installations with c.8,560 panels being proposed across the 4no. data centre buildings and the 2no. Deeptech buildings.
- A green wall will be installed within the campus which will be the equivalent of 322 medium sized trees in terms of carbon sequestration.
- Use of Hydrotreated Vegetable Oil (HVO) as back-up fuel source for the Energy Centre upon full build out rather than diesel.
- Implement District Heating system, which will use recaptured heat produced from the data centres to provide recycled heat the existing campus buildings being retained as well as the new buildings A1 and A2. Further to this, the district heating system has been designed to provide export heat to surrounding community uses.

The facility is committed to running the data centre in the most environmentally friendly way possible with a long-term goal to power the facility using 100% renewable energy where feasible.

Residual Impacts

The Institute of Air Quality Management document ‘*Guidance on the Assessment of Dust from Demolition and Construction*’ (IAQM, 2014) states that site traffic and plant is unlikely to make a significant impact on climate. Based on the scale and temporary nature of the construction works and the intermittent use of equipment, the predicted impact on climate change from the proposed development, after mitigation, is deemed to be **short-term, neutral** and **not significant** in relation to Ireland’s obligations under the EU Effort Sharing Agreement 2030 target.

Once the mitigation measures outlined in Section 10.7 are implemented, the residual impacts on climate from the operational phase of the proposed development will be **long-term, negative** and **minor adverse**.

Thus, in terms of climate, both the construction phase and operational phase will be **not significant**.



11.0 NOISE & VIBRATION

The baseline noise environment has been established through an environmental noise surveys conducted at the site in order to quantify the existing noise environment. The survey was conducted in accordance with ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise.

Construction Phase

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. Local authorities or An Bord Pleanála normally control construction activities by imposing limits on the hours of operation and/or applying noise limits for construction noise at noise-sensitive locations.

Reference has been made to BS 5228 2009+A1 2014 Code of practice for noise and vibration control on construction and open sites. Part 1 to set appropriate construction noise limits for the development site. Construction noise contours have been prepared on this basis using computer-based noise modelling.

Construction noise levels predicted at nearest sensitive properties are predicted to be below the threshold for significant impact during the general construction phase. The application of binding noise limits, hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact are minimised.

At noise sensitive locations in the surrounding area potential negative, not significant and short-term effects are likely.

Operational Phase

The primary sources of outward noise in the operational context are long term and will comprise noise from the generators in the energy centre, the cooling and ventilation plant serving the data centres.

The proposed development also includes emergency generators for use when a power outage or issue with supply from the national grid has occurred and is required to keep the data centres operation. It should be noted that such an event is an extremely rare occurrence.

Detailed computer-based noise modelling of the site shows that the noise levels at noise-sensitive locations are within the noise criteria taking the energy centre, the data centres and the substation into account. Similarly, the predicted noise levels for the emergency generators, combined with the energy centre and data centre plant, are within the criteria for emergency operations.

In the context of the surrounding road network the proposed development will not generate significant additional traffic noise.

The overall effect is therefore negative, not significant to moderate and long-term.



12.0 MATERIAL ASSETS – WASTE MANAGEMENT

12.1 Introduction

AWN Consulting Ltd. carried out an assessment of the potential impacts associated with waste management during the construction and operational phases of the proposed development. The receiving environment is largely defined by Kildare County Council (KCC) as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

12.2 Methodology

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. A summary of the documents reviewed, and the relevant legislation is provided in the Resource & Waste Management Plan (RWMP) Appendix 12.1 and section 12.6 of the chapter.

12.3 Baseline Environment

The Project is an integrated masterplan proposal that includes for the expansion of the existing campus, allowing for a mix of Deep Tech, ICT and Innovation uses.

There will be waste materials generated from the from the demolition (Buildings No's 7, 8 and 9 and renovation (Building No's 1-6) of the existing buildings and hardstanding areas on site to accommodate the new development.

There is currently a quantity of waste generated and managed at the proposed development site from the operation of the existing buildings. This waste will cease to be generated if the proposed development is approved as the buildings will either be demolished or renovated.

12.4 Potential Impacts of the Proposed Development

The proposed development will generate a range of non-hazardous and hazardous waste materials during the site demolition, construction, and operational phases. If waste material is not managed, stored or disposed of correctly, it is likely to lead to negative impacts via unnecessary landfill use, litter and pollution issues at the proposed development site on a local and regional level.

Construction Phase

During the demolition and construction phase (inc excavations), the mismanagement of waste, including the inadequate storage of waste, inadequate handling of hazardous waste, the use of inappropriate or insufficient segregation techniques, and the use of non-permitted waste contractors, would likely lead to negative impacts such as waste unnecessarily being diverted to landfill, litter pollution which may lead to vermin, runoff pollution from waste and illegal dumping of waste. In the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant and negative**.



Operational Phase

The potential impacts on the environment during the operational phase of the proposed development would be caused by improper, or lack of waste management. These impacts may arise in the form a segregation system which is not fit for purpose and may lead to waste unnecessarily being diverted to landfill. Inappropriately designed waste storage areas may also lead to litter pollution and potential fly tipping, which may have knock on effects such as the presence of vermin in the affected areas. Similarly, to the construction phase, the use of non-permitted waste contractors or insufficient collections may lead to negative environmental impacts or pollution. In the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant and negative**.

12.5 Mitigation and Residual Effects (Post-Mitigation)

Construction Phase

During the demolition and construction phase, typical construction waste materials will be generated which will be source segregated on-site into appropriate skips/containers, within designated waste storage areas and removed from site by suitably permitted waste contractors as required, to authorised waste facilities, by appropriately licensed waste contractors. While the accurate keeping of waste records will be undertaken. All waste leaving the site will be recorded and copies of relevant documentation maintained.

Where possible, materials will be reused on-site to minimise raw material consumption or reuse of materials under Regulation 27 and Regulation 28 will be investigated for reuse on other sites. Source segregation of waste materials will improve the re-use/recycling opportunities of recyclable materials off-site. This will all be overseen by the main contractor, who will appoint a construction phase Resource Manager to ensure effective management of waste during the excavation and construction works. All construction staff will be provided with training regarding the waste management procedures on site.

A carefully planned approach to waste management and adherence to the site-specific Resource and Waste Management Plan (Appendix 12.1) and chapter 12 during the construction phase, this will ensure that the effect on the environment will be **short-term, neutral and imperceptible**.

Operational Phase

During the operational phase, waste will be generated by the operators and staff. Dedicated waste storage areas (WSAs) have been allocated throughout the development for the use of staff. The WSAs have been appropriately sized to accommodate the estimated waste arisings from the development. The WSAs have been allocated to ensure a convenient and efficient management strategy with source segregation a priority. Waste will be collected from the designated waste collection areas by permitted waste contractors and removed off-site for re-use, recycling, recovery and/or disposal.

An Operational Waste Management Plan or Strategy will be prepared by the operator (s) prior to occupation which will provide a strategy for segregation (at source), storage and collection of wastes generated within the development during the operational phase including packaging waste, general non-hazardous waste, non-hazardous WEEE canteen/kitchen waste, packaging, landscaping waste, hazardous WEEE, waste filters, lube oil and other spares and waste batteries. The plan complies with all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development. This Plan will be made available to all staff from first



occupation of the development i.e. once the first unit is occupied. This Plan will be supplemented, as required, by the operator as required with any new information on waste segregation, storage, reuse and recycling initiatives that are subsequently introduced.

Provided the mitigation measures outlined in chapter 12 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, neutral and imperceptible**.

12.6 Cumulative Impact of the Proposed Development

Construction Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase.

Due to the high number of waste contractors in the KCC region, as provided from the National Waste Collection Permit Office and the EPA, there would be sufficient contractors available to handle waste generated from a large number of these sites simultaneously, if required. Similar waste materials would be generated by all of the developments.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the cumulative effect will be **short-term, imperceptible and neutral**.

Operational Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place. All of the current and potential developments will generate similar waste types during their operational phases. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste and non-recyclables. An increased density of development in the area is likely improve the efficiencies of waste collections in the area.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate any potential cumulative impacts associated with waste generation and waste management. As such the cumulative effect will be a **long-term, imperceptible and neutral**.



13.0 MATERIAL ASSETS: TRAFFIC AND TRANSPORTATION

Chapter 13 of the EIAR assess the likely effects on traffic and transport arising from the Proposed Development on the surrounding environment.

13.1 Receiving Environment

The site is strategically located southeast of the M4 junction 6 interchange. The site is bounded by the M4 to the north which separates it from Leixlip urban area. Located to the southwest is Castletown House, and beyond that, the town of Celbridge. The current Kildare Innovation Campus occupies the site, with access from the R404 to the east and Barnhall Road to the west. Internal road and path network are currently private.

Footways and segregated cycle lanes are provided in both directions on the Barnhall Road and on the R449 which is the primary access route to the site. This high standard of footway and segregated cycle lanes is maintained along the R449 and R405 which link the development site with the towns of Leixlip and Celbridge.

To the east of the site, the R404 provides a footway in both directions, however no cycle facilities are available along this route. Internally there are a total of 50 cycle parking spaces for the existing site users.

There are facilities within the site for staff including canteen and gym which limit the need to travel offsite during the working day. The site benefits from bus links and is within close proximity to train stations.

13.2 Predicted Effects of the Proposed Development

The assessment focuses on predicted impacts in relation to traffic and transportation. The assessment relates to impacts occurring during both the construction and operational phases of the development.

Do Nothing

The site, under previous occupants Hewlett Packard, employed up to 3,000 staff. Current occupancy is understood to be 800 staff. Kildare County Council's Local Area Plan (LAP) 2020-2026 recognises that, given the size and scale of the site, it is important to work with all stakeholders to ensure the site can be redeveloped and remain a key employment hub, both for Leixlip, and for the wider Dublin Metropolitan Area. The site is currently zoned for category H: Industry and Warehousing.

It is likely that in the absence of this proposal that a development of a similar nature will be brought forward to fulfil the above aspirations of Kildare County Council.

Construction Phase

The construction phase will be short-term in nature relative to the operational phase with the construction taking place across three phases of development. All HGV traffic will be routed to and from the site to the west to junction 6 on the M4. Temporary car and cycle parking facilities for construction vehicles and staff will be provided within the site boundary.

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As the application progresses it will be possible to make a more informed assumption of staff traffic during construction periods. This will be agreed with the road section of Kildare County Council.

Construction traffic associated with the known facilitation works will be managed by GNI and ESB / Eirgrid, through traffic management plans.

Operational Phase

The operational assessment has been undertaken in line with Transport Infrastructure Ireland (TII's) Traffic and Transport Assessment Guidelines using microsimulation VISSIM model to assess the surrounding network. Traffic surveys undertaken in October 2022 informed the traffic assessments.

In total, it is anticipated that the development will generate a net increase of 178 two-way pcu movements during the AM peak and 36 during the PM peak. This is the total operational traffic following the demolition of existing buildings on site.

Trips are primarily distributed in accordance with background traffic patterns recorded during the traffic surveys. The development traffic has been distributed onto the surrounding road network based upon the existing east west split of those currently accessing the site and as per the existing turning movements on the surrounding road network. All HGVs routing to and from the Site are assumed to access and egress via the M4 Junction 6 roundabout and Site Link Road.

An AADT increase assessment indicates a maximum traffic contribution of 36.6% on Barnhall Road is anticipated with lesser impacts experienced on the wider network, varying from 0.5% to 7% on surrounding assessed links.

The effect of the proposed development is envisaged to be not significant, likely, and long term.

13.3 Mitigation Measures

This section highlights the mitigation measures proposed for the construction and operation stages of the proposed development to mitigate potential impacts to the near and wider environment.

Construction Phase

A planning phase Construction Environmental Management Plan (CEMP) submitted under separate cover has been developed as part of the planning process. Mitigation measures have been identified for the construction stage to limit the potential effects. This includes provision for the completion of CEMP and Construction Traffic Management Plan prior to construction commencement. The implementation and monitoring of the CEMP will be managed by the appointed Construction Manager. This process will be repeated for all facilitation works by the associated undertaking companies.



Operational Phase

There are measures which have been included from the outset in the design of the development to reduce any potential negative effects on the local transport network arising from additional traffic generated by the development.

The provision of high-quality walking and cycling access infrastructure, and its integration with the surrounding road network, has the potential to encourage sustainable trip making to the site and its surrounding environs. In particular, the M4 overpass for pedestrian and cyclists provides a more direct route to Leixlip Town Centre and local community facilities and will allow those travelling north and south of the site to traverse the site using dedicated paths. Dedicated crossing facilities are provided to facilitate safe and convenient access for users.

The provision of a bus EV parking hub will provide public transport providers with an opportunity to connect and route from the R404 to Barnhall Road. The provision of the link road, connecting from the R404 to Barnhall Road, will potentially allow existing traffic to shorten their traffic journeys and route away from residential areas such as those on the R404 north of the site.

The assessment concludes that the proposed development will not have a significant effect on the local road network during the operational phase. Notwithstanding this, a Mobility Management Plan has been prepared by SYSTRA (as part of the planning application submission), as a 'best practice' measure, to accompany the planning application. The aim of the Mobility Management Plan is to further reduce the proportion of car trips, from an already low baseline, by promoting sustainable travel by future residents of the development. These mobility measures will also support and enable those residents who may be living 'car-free' providing them with a range of sustainable mobility options and negating the need to own a car.

13.4 Monitoring

Construction Phase

The construction phase will be monitored by the appointed site manager and regular progress reports will be prepared. The manager will ensure the mitigation measures outlined will be implemented and adhered to.

Operational Phase

A Mobility Manager will be appointed from within the management company to ensure the implementation of the Mobility Management Plan. They will act as a point of contact for residents for all mobility and access related issues.

13.5 Residual Effects

Construction phase

The effect of the construction phase in terms of traffic and transport will be imperceptible and short-term in nature. The measures outlined in the CEMP, will help alleviate the effect of the additional traffic and limit the effect to outside the busier peak hours. The measures, including wheel washing and dust mitigation, will also ensure the standard of the public road network is maintained in terms of dust and dirt from construction traffic.



Operational Phase

With the mitigation measures in place, the effect of the proposed development on traffic and transport is envisaged to be slight, likely in probability and long-term. The proposed development will have well-integrated walking and cycling infrastructure to encourage sustainable travel choices to and through the proposed development. The Mobility Management Plan initiatives and design of the campus and its accessibility improvements, including the M4 overpass, are likely to result in lower volumes of car traffic than that assumed in the modelling assessment.

13.6 Reinstatement

Following the construction phase, all excavations will be made good, and all hard and soft landscaped areas will be delivered in accordance with the Landscape.

13.7 Interactions and Potential Cumulative Effects

Interactions

Trip generation and resultant traffic flow contribution on the local network impacts on the performance of the road network (in terms of network delays), air quality and noise in the local environment. The impacts on the performance of the transport network are addressed in this EIAR and the Traffic and Transport Assessment report produced by SYSTRA.

The impacts on air quality and noise and vibration are addressed in Chapter 9 Air Quality and Climate (AWN), and Chapter 10 Noise and Vibration (AWN) respectively. The combined impact on Population and Human Health is addressed in Chapter 5 (TPA).

13.8 Potential Cumulative Impacts

Regarding the construction phase, the CTMP will ensure coordination with any known nearby construction. The strict routing for HGVs to the nearby M4 and mitigation measures outlined in the CTMP will ensure impact is slight and short-term.

The road network analysis undertaken accounts for a robust background growth in traffic and known developments, within close proximity to the site, as outlined in Chapters 2 and 3 of this EIAR. The results of the analysis conclude that with signals installed at the interchange junction and the link road full operational, that the network operated within capacity.



14.0 MATERIAL ASSETS: SITE SERVICES

14.1 Introduction

This chapter describes the existing material assets (site services) for the foul and surface drainage, potable water, power, gas, heating & telecom aspects of the proposed development site. An assessment is made of the likely impact arising during the construction and operational phases of the proposed development on these elements.

14.2 Foul drainage

Two existing foul pumping stations will be retained and upgraded to accommodate the new developments on the site. Upgrading shall include consideration of the pumps and automated pumping controls upgrade/updating/replacement etc. The station operation data signals etc shall be connected to the new location for the campus facilities management building etc. Underground 24-hour storage tanks shall be provided at each of the existing stations. A new, additional pumping facility shall be provided to service areas of development outside the catchments of the existing stations.

It is not expected that there will be new requirements for new foul connections outside of the overall landholding. The wastewater discharged from the site will ultimately discharge to the Waste Water Treatment Plant at Leixlip. There are no proposed process water emissions.

The wastewater discharge rate previously agreed with Uisce Éireann is in accordance with the discharge rates outlined in the PCE (ref CDS23003038) submitted to Uisce Éireann for the Proposed Development. Foul water drainage is presented in CSEA drawings No 21_048-CSE-ZZ-ZZ-DR-C-2200 and 21_048-CSE-ZZ-ZZ-DR-C-2210 to 21_048-CSE-ZZ-ZZ-DR-C-2218.

14.3 Surface water drainage

The proposed surface water networks for the proposed development collect runoff from roofs, roads and other hard standing areas in a combination of SuDS systems and sealed system of pipes and gullies. The SuDS and surface water management strategy will utilise innovative natural based SuDS components to provide the necessary processes to control runoff frequency, flow rates and volumes. There are five separate surface water drainage networks in the proposed development which are proposed to flow to new surface water attenuation basins (Refer to Drawing No's 21_048-CSE-00-XX-DR-C-2111 to 21_048-CSE-00-XX-DR-C-2118) from which attenuated flows are discharged, via carrier drains, to the existing retention ponds within the site. Each catchment collects the surface runoff and attenuates it within a pond up to the 1:100 year event. A flow control device will be installed within each catchment to slowly releases the water into the existing ponds and monitoring regime on-site which includes an automatic shut off valve in the event of contaminants being detected, from there the water will discharge to the Leixlip Reservoir. The portion of the site on the north side of the M4 will drain into small swales and landscaping and infiltrate to ground. No attenuation or piped infrastructure will be required in this area.

Rainwater runoff from the roof areas of the proposed building will be utilised to reduce water demand. Rainwater harvesting will be utilised from the roof of each data centre throughout the year for the water to be available during those hottest periods during summer months when adiabatic cooling may be needed. Rainwater harvesting from Deep Tech buildings will provide irrigation for green walls across the site. The harvested rainwater will be utilised to offset the demand from Uisce Éireann.



The runoff will discharge from the proposed retention and attenuation systems before outfalling to the existing pond system and monitoring regime on-site which includes an automatic shut off valve in the event of contaminants being detected. The existing outfall from the existing ponds to the Liffey Reservoir is to be retained. Refer to CSEA's *Engineering Services Report Drainage and Water Services* and *Ethos Energy & Sustainability Statement* for further detail.

14.4 Water supply

The existing watermain network for the development areas shall be retained where possible and diverted, where necessary to accommodate the new development areas – refer to CSEA drawings (*Drawing No 21_048-CSE-ZZ-ZZ-DR-C-2300 and Drawing's No 21_048-CSE-ZZ-ZZ-DR-C-2310 – 2318*). The new buildings & road developments shall be serviced from the existing incoming 250mm and 150mm main supply with fire hydrants etc. The Energy Compound, 110kV Substation and Deep Tech Buildings do not have an industrial water demand. General potable supply for drinking and sanitary facilities will be provided from mains supply with rainwater harvesting also proposed to reduce overall water demand. The energy compound will include a Firewater Tank which will be provided from mains supply.

The Data Centres will use the water supplied by Uisce Éireann for domestic and evaporative cooling. The design philosophy will be to limit the evaporative cooling process to peak summer months only. The water used during these peak summer months will be supplied by on-site industrial water storage only. The industrial storage will be filled during the winter months (Dec - Jan - Feb). Using historic weather data it is estimated that evaporative cooling utilizing process water will only commence during peak summer temperatures. For all temperatures below the peak summer days, the cooling system will operate on direct air only and thus the process water usage will be zero (0 l/s). To confirm, no water demand is required during the winter period. The peak industrial water demand for the proposed data centre element of the development is estimated at 5.05 l/s per the submitted PCE (CDS23003038).

14.5 Power supply

The power requirements for the proposed KIC Masterplan will be provided from the 110kV replacement substation that will be provided on site. The new replacement substation will connect to the existing overhead lines via short runs of underground cable. The existing Maynooth – Rinawade 110kV overhead circuit which enters the site in the north-west corner will be retained and diverted to the new replacement substation. The existing Rinawade-Dunfirth/Kinnegad overhead circuit that enters the site in the north-west corner will also be retained and diverted to the new replacement substation. Upon completion of the replacement substation, the existing Rinawade AIS substation will be decommissioned and removed. A diversion of the existing 110kV power line that runs along the north side of the M4 is also required to accommodate the proposed pedestrian and cycle overpass.

The proposed substation will replace the existing Rinawade 110kV substation and will utilise the existing grid connection into the site. On completion of the 110kV replacement substation sufficient power will be available to power the initial Data Centre B1 (16MW) and a connection agreement is in place with EirGrid¹ for the initial supply. The initial Deep Tech Building A1 will provide sufficient power through existing site connection from Adamstown via the existing 20kv substation on site. The new substation will also be sufficient to cater for the entire build out of the proposed development and meet its power requirements (170MW). A connection agreement is in place with Eirgrid for the first 16MW of power required. However, to accommodate the full build out of the KIC Masterplan and maximise the new 110kV substation capabilities future uprating/line replacements of the existing overhead lines into the site will



be required. TNEI & H&MV on behalf of the developer has undertaken an analysis of the required uprating / line replacements to increase the overall power supply to the campus (Refer to *Network Demand Capability Analysis* by TNEI & H&MV). The analysis concludes that four total uprates and a 150 MVA STATCOM (on-site), is required to accommodate a connection of 170MW. The uprates relate to the Overhead Lines (OHLs) between Maynooth – Rinawade, Dunfirth – Kinnegad – Rinawade, Derryiron – Maynooth and Derryiron – Kinnegad. With the identified uprates a capacity of 170 MW is possible with no thermal overloads or voltage violations being detected.

The proposed development will include its own energy centre to be built out over the life of the permission. The Energy Centre will include 9no. combustion turbine generator's (CTG's) to ensure equal power can be replaced within the grid to alleviate any potential constraints to the electrical transmission system arising from the data centre usage. Further to this, the CTG's will also provide reinforcement to grid if and when required. The Energy Centre will never provide power to the data centres or site in general.

In the event of a loss of power supply to the site (i.e. temporary grid blackout), fuel oil powered back-up generators will be activated. Building B1 will have 14no. fuel oil generators and Buildings C1-C3 will each have 22no. fuel oil generators. These generators are designed to automatically activate and provide power to the data centre component of the proposed development pending restoration of the main power supply. Based on experience of the future operator, the back-up generators will rarely be used other than for routine testing.

The connection agreement for the first and second phase of development will utilise power already allocated to the site through the existing 110kV Rinawade Substation and 20kV Substation connection adjacent to the DBS facility. In line with EirGrid's Data Centre Connection Offer Process and Policy further connection agreements with EirGrid for the full development can only be reached once planning consent is in place.

A number of sustainability measures have been incorporated into the design of the proposed development including an installation of an array of photovoltaic panels on the roofs of Buildings A1, A2, B1, C1, C2 and C3. The photo voltaic (PV) array will consist of 8,560 modules yielding a total yielding a total peak power generated of 2859.19kWp to offset the lighting and IT electrical power requirements during the peak summer months for the administration section of the buildings. The installation significantly exceeds that required for code compliance under NZEB.

14.6 Gas supply

As referenced above under Power Supply the proposed development will include its own energy centre to ensure equal power can be replaced within the grid to alleviate any potential constraints to the electrical transmission system arising from the data centre usage. The energy centre will be supplied by GNI's enhancement of the existing supply to the site to support the proposal (identified above under 'Facilitation Works' and Chapter 2 'Project Description'). GNI have confirmed that sufficient gas supply is available subject to the enhancement of the existing supply.

The CTGs will be primarily fuelled by natural gas/bio-gas supplied by Gas Networks Ireland (GNI) via their existing high-pressure network that runs close to the site (subject to upgrade). The upgrade works are described in Chapter 2 of this EIAR and will delivered through a local upgrade of the gas network over a length of approximately 1.5km through predominantly residential areas. The route of the upgrades will be along Ryevale Lawns along Station Road, Old Hill and Celbridge Road for a distance of approximately 1.5km up to the entrance of Barnhall Meadows. The pipe will run under the existing road pavement. At the entrance to Barnhall Meadows, the pipe will run underground through the Barnhall Meadows lands



(adjacent to the existing haul road) and will then cross the M4 Motorway through Horizontal Directional Drilling and enter the Kildare Innovation Campus then connecting to the proposed Gas Skid.

It is envisaged that the energy centre will aim to use as much renewable gas as is commercially available in the market secured through Corporate Power Purchase Agreements (CPPAs). With some modifications, the CTGs are capable of operating on at least a mix of hydrogen should this be available in the future.

Further to this, the developer has entered into a continuous supply agreement for renewable diesel (HVO) which will be the back-up fuel for the energy centre in the event that there is a gas supply outage. MDM Engineering have advised that there has never been a gas block out or interruption of supply in the history of the state, as such, the requirement for the CTGs to operate of HVO is considered extremely low.

14.7 Heating supply

As the activities of the data centres generate a significant amount of excess heat, the concept of heat recapture and district heating was chosen as the heating approach for the campus replacement of the centralised heating system.

Through studies by Ethos Engineering, it has been estimated that c. 18 MW of energy could be provided to the campus, community, and surrounding area through recaptured heat and the implementation of district heating from the overall development.

It is proposed to include district heating as part of Phase 1 to supply the deep tech buildings on site, the existing campus buildings to be retained as well potential to supply Barnhall RFC, Salmon Leap Canoe Club, Castletown Estate as well as the future residential zoned lands known as Celbridge East KDA. As set out in the *Energy and Sustainability Statement* by Ethos, the heat available from the Phase 1 development, assuming an average dwelling heat load of 5 kW, is estimated at being able to benefit 580 dwellings. Phase 3, which is the balance of the data centres (Buildings C1 – C3), could further provide for additional community buildings and schools in Leixlip, once a wider district heating network is developed by KCC.

14.8 Telecommunications

A fibre optic cable distribution network is in place on the site and will be extended and enhanced for the proposed development. No works outside the redline boundary are required for connection. There is sufficient capacity in the network for the proposed development.

14.9 Residual Impacts

The implementation of mitigation measures detailed in Chapter 14 will ensure that the predicted impacts on the material assets – site services will be **short-term, negative** and **not significant** for construction and **long-term, neutral** and **not-significant** for the operational phase.



15.0 ARCHAEOLOGY AND CULTURAL HERITAGE

15.1 Introduction

This chapter was prepared by Shanarc Archaeology Ltd. with respect to archaeology and MESH Architects with respect to architectural and landscape heritage. It assesses the impacts, if any, as a result of the proposed project, on the archaeological, architectural and landscape heritage within, and close to, the application site.

15.2 Methodology

The chapter was informed by relevant legislation, policy, guidance and codes of practice and includes a desk-based study, a detailed documentary and cartographical review and a field inspection of the KIC lands. The methodology in relation to the gas transmission line and EirGrid uprating alignment was at a higher level, based on SMR and RMP records held by the National Monuments Service.

Consideration has been given to the effects of the proposed development on recorded archaeological and cultural heritage resources, on unknown or undesignated archaeological heritage resources and areas of archaeological potential or sensitivity.

Upstanding heritage assets that will be affected, or are likely to be affected, by the proposed development, were identified and characterised in relation to their heritage value.

15.3 Baseline Environment

The site of the proposed development stands adjacent lands historically associated with the highly significant Castletown Estate, home of William Connolly, and largely development during the C18th as one of Ireland's grandest and most extensive examples of Georgian architectural and landscape design. The site of the proposed development consisted of a separately owned estate, adjacent to the formally laid out parkland and demesne containing Castletown House proper. While visible from some rooms in the grand house, and from some vantage points within its surrounding parkland, the site of the proposed development was not the subject of large scaled plantings or other designed landscape exercises, but existed as an adjacent rural agricultural landscape. However, there did exist a long view from the side elevation of Castletown House across the subject site, towards another outlying property that was owned by the greater Castletown Estate, to a large folly structure known as The Wonderful Barn.

The planting of rows of trees along portions of this view corridor, close to Castletown House and The Wonderful Barn, is believed to have occurred during the late C18 and early C19th, but there is no evidence that such a grand allee was previously in existence across the fields included in the Parsonstown or Renawade Lower lands, now included within the proposed development. During the late C20th, when the initial stages of development of the Hewlett Packard Industrial Park were planned and begun, additional lines of trees were planted within the development site along the same alignment as the view corridor, and the importance of the view corridor was acknowledged and given a presence across lands that were not historically included in the grand landscape designs.

The Architectural Heritage Assets that have been identified as having specific significance, and are susceptible to change by the Proposed Development, are as follows:



- Castletown House and Demesne. This is one of Ireland's most impressive and significant early Georgian Country Houses, of National Significance, and standing within its historic parkland setting.
- The Wonderful Barn. This unusual granary was commissioned by the owner of the Castletown Estate to provide work relief during the Irish Famine of the early 1740s. It was located on an outlying farm that was owned as part of the greater Castletown estate, and has a formal relationship with Castletown House, due to its axial alignment with the side elevation of Castletown House itself.
- The Protected View Corridor. A grandly scaled allee currently links the eastern side elevation of Castletown House and the Wonderful Barn, consisting of rows of hardwood trees. While not specifically included in the Record of Protected Structures, this corridor provides an unbroken line of sight connection between Castletown House and the Wonderful Barn.

The KIC lands at Barnhall Road are largely developed and landscaped lands containing the re-branded Liffey Business Campus (formerly known as the Hewlett Packard Campus), which was preceded by the Irish Meat Packers facility, which in turn incorporated the site of a large residence once named Parsonstown.

The existing archaeological record demonstrates that the KIC lands and surrounding area was a focus of settlement in the prehistoric period. This was probably owing to the area's proximity to the River Liffey, and to nearby fording points. The record also demonstrates that the area was densely settled throughout the medieval period (5th century to c. 1550-1600).

As part of the development of the Hewlett Packard Campus in the mid-1990s, the KIC lands produced prehistoric evidence in the form of a polished-stone axe (in Parsonstown townland), a flint blade (in Rinawade Upper townland) and a *fulacht fiadh* (KD011-062----) (in Barnhall townland), which was fully excavated at the time.

15.4 Potential Impacts of the Proposed Project

In relation to the Architectural Heritage Assets, the proposed development has the potential to impact several important historic structures. Briefly summarized, those impacts are likely to consist of the following:

- Castletown House and Demesne. This is one of Ireland's most impressive and significant early Georgian Country Houses, of National Significance, and standing within its historic parkland setting. The Proposed Development will add large new structures to the existing industrial estate, which have the potential to be visible from within the Castletown parkland. The extent of the impact will depend on how well the new development is buffered by the dense woodland screening, and whether the highest elements in the proposed development will be visible from the most sensitive areas to the front and rear of Castletown House.
- The Wonderful Barn. This unusual granary was commissioned by the owner of the Castletown Estate to provide work relief during the Irish Famine of the early 1740s. It was located on an outlying farm that was owned as part of the greater Castletown estate, and has a formal relationship with Castletown House, due to its axial alignment with the side elevation of Castletown House itself.



- The Protected View Corridor. A grandly scaled allee currently links the eastern side elevation of Castletown House and the Wonderful Barn, consisting of rows of hardwood trees. While not specifically included in the Record of Protected Structures, this corridor provides an unbroken line of sight connection between Castletown House and the Wonderful Barn.
- Historic Setting for Protected Structures in the general vicinity of the development area of the proposed development. Due to the effective screening provided by mature woodlands around the perimeter of the development site, and the presence of the N4 Motorway, there will be virtually no visual impact to the setting of any of the Protected Structures in the general vicinity of the Proposed Development.

In relation to Archaeological Heritage, the excavation of a *fulacht fiadh* KD011-062----, along with the recovery of stray artefacts during a previous development demonstrate the potential for buried archaeology to survive *in-situ* below the ground at the KIC lands. The construction phase will have a direct, negative impact on the inherent archaeological potential of the KIC lands.

15.5 Mitigation Measures

Pre-construction, an archaeological geophysical survey shall be carried out in undeveloped greenfield areas of the KIC lands. This survey will allow for the early identification and further investigation of potential sub-surface archaeology. This will be followed by a programme of pre-construction archaeological test-excavation to identify the nature, extent and significance of any archaeological remains.

Archaeological monitoring of construction phase groundworks at the KIC lands shall be subject to the outcome of the geophysical survey and test-excavation. All survey and excavation work will be done under licence from the National Monuments Service and the National Museum of Ireland who will be consulted in relation to the results.

During the construction phase, all existing trees that currently form the grand allee of the Protected View Corridor, will be protected by site fencing, to prevent damage from construction activities, and damage to the ground by compaction and damage to roots.

15.6 Residual Impacts (post-mitigation)

With mitigation measures applied:

- The Protected View Corridor will be strengthened through sensitive hard and soft landscaping.
- The construction of a new pedestrian bridge across the N4 will provide a permanent and publically accessible link from the Castletown Demesne to the Wonder Barn. This will be a very positive impact on the Castletown Demesne, the Wonderful Barn, and the Protected View Corridor.

All archaeological and cultural heritage issues will be resolved at the pre-construction and construction phase, in advance of the operational phase. There is no predicted residual effect on the archaeological and cultural heritage resource.

16.0 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

16.1 Introduction

The objective of the Landscape and Visual Impact Assessment process is to identify and evaluate the likely significant effects on the landscape character and the visual amenity arising from all elements the Proposed Development. The assessment identifies the residual effects arising from the finalised design considering landscape mitigation measures and their development over time. The assessment describes landscape and visual effects which are a result of the impact of the Proposed Development. Landscape effects are the result of physical changes to the fabric of the landscape. Visual effects relate closely to landscape effects but concern changes in views.

The landscape and visual impact assessment is accompanied by mapping indicating landscape and visual designations as well as 17 photomontages taken at representative viewpoints. The views and accompanying photomontages capture a range of views at different distances.

Facilitation works required to support proposed development at the KIC lands, namely the provision of an enhanced gas connection by Gas Networks Ireland (GNI) to the site and EirGrid uprating of existing overhead transmission lines to the site have also been considered in the assessment of effects.



Image 161 Photomontage locations and direction of viewpoints



16.2 Baseline overview / Landscape context

The Kildare Innovation Campus site is bound immediately by the M4 motorway to the north, Castletown House and surrounding demesne to the southwest, and the R404 to the east. Beyond the R404, the River Liffey corridor extends in a southwest to northeast alignment, swelling to form the Leixlip Reservoir. The Royal Canal is situated to the north of the study area, largely defining the footprint of residential buildings to the north of Leixlip. Castletown House and demesne forms a significant open green space within the study area, which contains a historically designed landscape which includes areas of open landscape with clusters of trees and axial views defined by tree lined avenues. In addition, the surrounding landscape within the study area is characterised by agricultural fields enclosed by hedgerows, residential and commercial premises located along the local road network and the western fringes of Lucan, located within South County Dublin lands.

The location of GNI Gas Upgrade development extends from the R148 Station Road and follows the Celbridge Road to the KIC lands. The majority is located within a built-up suburban environment of Leixlip. It crosses the eastern extends of The Wonderful Barn curtilage before crossing the M4 motorway with its dense bands of woodland to either side and entering the KIC lands. The locations of the EirGrid Uprating development cover in their majority a variety of agricultural land, Timahoe Bog as well as suburban areas of Leixlip / Kilmacredock and Edenderry.

16.3 Study Area

The extent of the principal study area comprises the Proposed Development excluding the facilitation works. It was initially informed by a desktop study, which was then verified on site during fieldwork surveys. This included reviews of published landscape character assessments and the wider landscape to identify landscape and visual receptors that have the potential to be affected by the Proposed Development. This process determined a principal study area of 2km from the boundary of the Proposed Development, defined as the extent in which the Proposed Development may result in significant landscape or visual effects.

The facilitation works are at an early planning stage and linear in nature. They will affect existing gas and electricity infrastructure. A study area of up to 200m to either side of the indicative alignment of GNI enhancement works, and up to 500m to either side of the existing overhead lines subject to EirGrid uprating has been considered.

16.4 Likely Landscape and Visual Effects

1. Construction Effects

Temporary, significant, and adverse landscape effects during construction will occur locally due to changes to the landform to accommodate the proposed bridge and other buildings. Construction plant, including boring equipment and lifting machinery, will be introduced, and typical construction features such as fencing, access tracks and construction compounds will be laid out. The presence and activity of construction machinery and associated features will degrade the condition of this landscape character area locally.

Adjoining landscape character areas such as the River Liffey landscape character area will remain unaffected during the construction phase apart from construction traffic crossing the river bridges. Landscape Character Areas located within the wider study area in South Dublin, namely Liffey Valley, Urban, and Newcastle Lowlands will not be altered by the proposed construction works. While construction traffic will pass temporarily along existing transport



corridors within these landscape character areas, the landscape character will not be affected resulting in no landscape effects.

Temporary, significant, and adverse visual effects during construction will be highest within the site, from areas immediately adjacent to the site boundary, and within a principal visual zone of approximately 400m radius from the boundary of the Proposed Development site. Construction works of the proposed bridge will be visible along the M4 and the overbridges (R404 & Junction 6) for approximately 1.6km to the west and approximately 1km to the east although the existing bridge of the R404 will be more prominent on approach from the east. The visibility of construction works within the wider study area will be mainly limited to open areas where there are available views towards the site, that are unscreened by vegetation and intervening buildings.

Facilitation Works at Construction

The **GNI Gas Upgrade** works will not result in changes to the local landscape character. In terms of visual effects, the main receptor groups affected by construction works will be local residents and pedestrians as well as vehicular traffic. Temporary, significant, and adverse visual effects will be highest along roads / footpaths along which the gas pipe travels, and within the immediate vicinity of the construction works. Principal views of construction works will likely be experienced within a radius of approximately up to 100m from the centre line of the Proposed gas pipe as well as from nearby residential dwellings facing the upgrading works.

The **EirGrid Upgrading** will not result in changes to the local landscape character. In terms of visual effects, the main receptor groups affected by construction works will be local residents and vehicular traffic including cyclists. Temporary, significant, and adverse visual effects will be along the existing OHL, within the immediate vicinity of the substations and of the construction works including along adjacent local roads. Principal views of construction works will likely be experienced within a radius of approximately up to 250m from the centre line of the existing OHL as well as from nearby residential dwellings facing the existing OHL alignment.

2. Operational Effects

16.5 Landscape Effects

Long-term change or modification will occur locally where the proposed extension to the existing Kildare Innovation Campus will be physically located. Significant and beneficial landscape effects will arise as the proposed alteration and redesign of the open space will improve biodiversity and the overall strength of the landscape layout within the campus site. The proposed pedestrian / cycle bridge will increase the infrastructural elements in the principal study area but it will integrate into the existing character of the M4 motorway corridor due to its design and scale.

Landscape change outside of the Proposed Development site boundary will occur within a distance of up to approximately 400m, where the visibility of the Proposed Development influences the perception of the character of the landscape. Considering the flat and low-lying nature of the existing landscape, in addition to the dense mature vegetation planting to the perimeter of the existing business campus site, change in landscape character is largely limited to a short section of the R404 and from the existing campus entrance to the northwest of the site. Landscape change is not considered to be significant. The Proposed Development will continue the established light industrial character on the site, which has served as a business campus in this location since the mid-1990's. The extension of the building footprint will intensify this existing use, while also offering opportunity to improve pedestrian and cycling



permeability through the site, in particular due to the new pedestrian / cycle link north across the M4 motorway.

Landscape effects will reduce quickly to imperceptible with increasing distance from the Proposed Development in the remaining principal study area (beyond approximately 400m from the Proposed Development). Adjoining landscape character areas such as the River Liffey landscape character area will remain unchanged during operation. Landscape Character Areas located within the wider study area in South Dublin, namely Liffey Valley, Urban, and Newcastle Lowlands will not be affected by the Proposed Development resulting in no landscape effects.

16.6 Visual Effects

Significant visual effects will occur where there is no or little intervening vegetation between the viewer and the Proposed Development within the Proposed Development site, along its periphery (sections of the R404), or where the viewer is at an elevated position (Top of Wonderful Barn). They will be experienced from locations within the Proposed Development site or in close proximity to it (up to approximately 300m) as dense bands of woodland along the boundaries of the M4, the grounds of Castletown Demesne, within the area around The Wonderful Barn, and publicly accessible locations along the River Liffey will screen the Proposed Development fully.

Views of the upper sections of the proposed Building A1 and the pedestrian / cycle bridge across the M4 can be experienced from the R404 road bridge crossing the M4, where the upper sections of additional building structures will become visible to already visible existing structures. Open views of sections of the Proposed Development will be possible from sections of the R404 / Celbridge Road. While roadside vegetation will screen considerable parts of the Proposed Development, views will be available at the vehicle entrance areas and where there are gaps in the roadside vegetation. Views of the proposed pedestrian / bridge will be possible along the M4 as well as from the grounds of The Wonderful Barn.

The existing protected viewing axis between Castletown House and The Wonderful Barn will not be altered and remain unaffected by the proposed development.

Other designated scenic routes and points of view located within the study area will not be affected by the Proposed Development.

Sections of Arthur's Way Heritage Trail and the Slí na Sláinte – Celbridge Kildare are located along the eastern boundary (R404 / Celbridge Road) of the Proposed Development. Significant and beneficial visual effects will be limited to gaps in the boundary vegetation where open or intermittent views will become available as well as changes to the existing planting and additional planting.

The Castletown House Demesne will not be affected by the Proposed Development.

The Proposed Development will also not result in landscape and visual effects within the following areas of high amenity, which are located within the principal study area:

- The River Liffey and the River Barrow Valleys
- The Grand and Royal Canal Corridors



Facilitation Works at Operation

The **GNI Gas Upgrade** works will not result in landscape effects at operation. The majority of the proposed gas pipe alignment will be located within existing road corridors. No visual effects are anticipated following the completion of construction works as existing road surfaces and open ground will be reinstated to match existing conditions.

Changes to the existing OHL network due to the **EirGrid Upgrading** will be barely perceptible or appear similar to existing structures. Visual effects are therefore considered not significant.

16.7 Landscape Mitigation

The principal mitigation for the Proposed Development is inherent in the design of its architecture and open space design, which has evolved through an iterative process of assessment and consultation.

While the site is generally well screened from surrounding receptors and landscape sensitivities, the aim of the proposed landscape mitigation measures is to integrate the Proposed Development into the existing site while also reducing the visual effects on identified receptors within the principal study area. The landscape mitigation will complement the space by adding new landscape elements helping to integrate the Proposed Development into its existing environs over time. The overarching design intention is to propose a network of connected open spaces to improve pedestrian and cyclist permeability across the site, while also generating a strong sense of place and identity for the upgraded business campus. The protected axial view from Castletown House to The Wonderful Barn has been incorporated into the overall site layout and is emphasised by a newly introduced walking route along the tree lined avenue on the site in addition to the setback of building facades along the viewing corridor. Ecological enhancements such as bird and bat boxes, bug hotels, scrapes along with significant habitat creation from woodland planting to wildflower meadows will ensure the site maintains its biodiversity for local wildlife.

16.8 Residual Effects

Following the completion of construction works and the implementation of the proposed landscape mitigation measures, the development will become a long-term feature extending the building footprint of Kildare Innovation Campus.

Effective execution and establishment of the proposed landscape mitigation / green infrastructure will have a positive impact and help to 'soften' landscape and visual effects associated with the Proposed Development, particularly from areas where the development will become visible such as sections of the R404 and the curtilage of The Wonderful Barn. In the medium to long term, the perception of adverse landscape and visual effects will reduce in tandem with the maturing of the proposed planting.

Significant, beneficial, and long term residual landscape effects will arise locally where the proposed extension to the existing Kildare Innovation Campus and the proposed pedestrian / cycle bridge will be physically located. The alteration and transformation of the existing campus will intensify the inherent light industrial landscape character within the site, leading to an increase and densification of the light industrial buildings replacing sections of existing open green space and lead to the addition of infrastructural elements in the curtilage of The Wonderful Barn area. The alteration and redesign of the open space, and the proposed screen planting will improve biodiversity and the overall strength of the landscape layout as the vegetation matures. Residual landscape effects outside of the Proposed Development site are not significant following the establishment of landscape mitigation measures.

Residual visual effects outside of the Proposed Development will be not significant and concentrate along the adjacent road network to the east and south (R404) and in available



views from the area around The Wonderful Barn where the proposed pedestrian / cycle bridge will be visible, as well as from the elevated viewing location at the top of The Wonderful Barn. The proposed landscape mitigation measures will integrate the Proposed Development into its setting reducing the significance of residual visual effects. This includes the view from the top of The Wonderful Barn where the proposed extensive new planting within the Kildare Business Park will reduce views of sections of buildings as the planting matures. The overall character of the view from the top of The Wonderful Barn will remain similar.



17.0 MAJOR ACCIDENTS AND DISASTERS

This chapter is an assessment of major accident hazards and disasters based on the engineering design, drawings and documentation. The likely significant impacts of major accidents and disasters in regard to issues such as soils, geology and hydrogeology, hydrology, air quality, noise and vibration, human health and biodiversity are addressed in detail within the respective chapters.

17.1 Methodology

Alongside the legislation, policy, and guidance outlined in Chapter 1, the following relevant legislation, policy, and guidance has informed the preparation of this chapter:

- *EPA 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (2022),*
- *EPA 'Advice Notes on Current Practice in the Preparation of Environmental Impact Statements' (2018),*
- *Health and Safety Authority Guidance on Technical Land-Use Planning Advice, for planning authorities and COMAH establishment operators (2023)*
- *Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015*

Construction Phase

The following scenarios have been identified that could impact the construction phase of the project:

- Extreme heat or cold weather resulting in result structural damage and/or pollution to soils, groundwater or surface waters.
- Storm events resulting in structural damage and/or pollution to groundwater and surface waters.
- Flooding
- Pollution to soils / groundwater / surface water

There are no likely impacts on the project or to off-site receptors during the construction phase in relation to major accidents and disasters; therefore, the risk of major accidents and disasters associated with the construction phase are **not significant**.

Operational Phase

The potential hazards associated with substances stored and process at for the proposed development, which have the potential to cause a major accident, are summarised in the following section. All hazards identified require a loss of containment to occur, such as, catastrophic damage or failure of pipework and/or storage tanks.



Fire:

- Flash Fire: A flash fire can occur following a loss of containment of natural gas from the natural gas pipeline. A flash fire may be caused by releases at high or low pressure into an open, unconfined area which contacts an active source of ignition:
- Jet Fire: A jet fire can occur following a loss of containment of natural gas from the natural gas pipeline, via a source such as a leak or failure of flanged pipework joints, pipework or another asset which contacts an active source of ignition.

Explosion:

- Vapour Cloud Explosion (VCE): A loss of containment of natural gas, within a turbine enclosure, which does not ignite immediately may form a cloud of flammable material depending on the conditions of the release. If this cloud contacts an active source of ignition, a VCE can result and generate potentially harmful overpressures.

Major Accident to the Environment (MATTE):

- A loss of containment of liquids, such as fuel oils, which are accidentally released to water, land and/ or groundwater in significant quantities can cause harm to the environment.

In keeping with EIA guidance these results are a summary of the Land Use Planning Assessment (report reference: MM.237501.0007RR01). It was concluded, there are no likely impacts to off-site receptors, as a result of the proposed development, during the operational phase, in relation to major accidents and disasters. **The level of risk is acceptable.**

17.2 Mitigation Measures

The proposed development has been designed in line with good industry practice, and, as such, mitigation against the risk of major accidents and/or disasters is embedded through the design and in accordance with planning, best practice and legislative requirements.

17.3 Cumulative Impacts

The cumulative residual and operational impacts of the proposed development have been assessed and, in regard to screening of major accidents and risks, cumulative impacts are considered **imperceptible and neutral** as there is no risk to off-site receptors in relation to a major accident.

17.4 Residual Impacts

The residual effects are the final predicted or intended effects which occur after the proposed mitigation measures have been implemented. It will not always be possible or practical to mitigate all adverse effects.

This assessment has identified the potential for major accident hazards to occur. These scenarios can have significant consequences; however, the likelihood of these events occurring is low due to engineering and operational safeguards that will be implemented at the development. The Land Use Planning Assessment concluded that the risk contours do not extend off-site; therefore, there are no impacts to off-site receptors and the level of individual



risk on-site is acceptable. It can be concluded that the risk of major accidents and disasters associated with the proposed project are **not significant**.

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18.0 INTERACTIONS AND CUMULATIVE EFFECTS

18.1 Introduction

This section of the EIAR has been prepared by Brian Minogue (BSc in Spatial Planning), Tom Philips + Associates and deals with likely interactions between effects predicted as a result of the proposed project.

In addition to the requirement under the Planning and Development Regulations 2001 (as amended) to describe the likely significant effects of the proposed development on particular aspects of the environment, it is also required to consider the interaction of those effects. These are assessed below.

This section addresses the intra project significant effects (i.e. those occurring between environmental topics within the project). Inter project effects (i.e. those which are likely to occur as a result of the likely impacts of the proposed project interacting with the impacts of other projects in the locality) have also been considered.

We have reviewed a number of planned and permitted projects that have the potential to interact with either the construction or operational phases of the proposed development. The projects considered most likely to interact with the proposed development are identified in Chapter 3 with a more comprehensive list of planned or permitted projects outlined in Appendix 1.1.

Further detail relevant to the interaction of impacts may be found in the earlier chapters of the EIAR.

18.2 Methodology

The EIAR has considered and assessed the interactive effects and cumulative effects arising from the construction and operation of the proposed project based on best scientific knowledge. The relevant interactions and interdependencies between specific environmental aspects have been summarised in the matrix set out in Table 18.1.

Interactive effects (or interactions), specifically refer to any direct or indirect effects caused by the interaction of environmental factors as outlined in Article 3 (1) of the amended EIA Directive;

“The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

- (a) population and human health;*
- (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
- (c) land, soil, water, air and climate;*
- (d) material assets, cultural heritage and the landscape;*
- (e) the interaction between the factors referred to in points (a) to (d).”*

Annex IV of the amended Directive states that a description of impacts should include:



“...the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project”

This approach is considered to meet with the requirements of Part X of the Planning and Development Act 2000 (as amended) and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001 (as amended) as well as the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

The EPA Guidance in turn references: *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, European Commission, 1999*. In terms of interactions, the guidelines state the following:

“careful consideration of pathways – direct and indirect – that can magnify effects through the interaction or accumulation of effects – for instance the potential for cumulative significant effects to arise from multiple non-significant effects.”

In terms of Cumulative effects, Annex Iv(5) of the EIA Directive requires:

*“A description of the likely significant effects of the proposed project on the environment resulting from, inter alia...
(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;...”*

We have reviewed a number of planned and permitted projects that have the potential to interact with either the construction or operational phases of the proposed development. The projects considered most likely to interact with the proposed development are identified in Chapter 3 with a more comprehensive list of planned or permitted projects outlined in Appendix 1.1.

18.3 Inter-Relationships/ Interactions

In practice many potential impacts from various sources have slight or subtle interactions with other sources of impact. However, the EIAR concludes that most inter-relationships are neutral in impact when the mitigation measures proposed in each chapter are incorporated into the operation of the proposed development.



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Matrix of Interactions																										
	Cultural Heritage		Population & Human Health		Biodiversity		Land, Soils, Geology & Hydrogeology		Hydrology		Air		Climate		Noise & Vibration		Landscape & Visual Impact		Traffic		Waste		Site Services		Major Accidents and Disasters	
	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op
Cultural Heritage																										
Population & Human Health											X				X	X		X	X	X	X	X			X	X
Biodiversity							X		X						X			X		X	X			X	X	
Land, Soils, Geology & Hydrogeology															X			X		X	X			X	X	
Hydrology																								X	X	
Air																			X	X						
Climate																			X	X						
Noise & Vibration																			X	X				X	X	
Landscape & Visual Impact																										
Traffic																						X				
Waste																										
Site Services																										
Major Accidents and Disasters																										

Table 18.1: Matrix of Potential Interactions Between Environmental Factors



18.4 Cumulative Effects

Chapter 18 includes a compiled list of all cumulative effects as described in each of the preceding chapters.

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19.0 MITIGATION AND MONITORING

The chapters contained within this EIAR have been ordered in a grouped format by their relevant topic. This chapter summarises all mitigation measures proposed in order to provide a comprehensive overview of the full range of mitigation measures discussed within each chapter.

Paragraph 2(d) of Schedule 6 to the Planning and Development Regulations 2001, as amended by S.I. No. 30/2018 - Planning and Development (Amendment) (No. 2) Regulations 2018, provides that the following information must be contained in an EIAR:

"a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of an analysis after completion of the development), explaining the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset during both the construction and operational phases of the development."

Chapter 19 includes a compilation of all mitigation and monitoring measures as outlined in the preceding chapters.