

Volume 2: Main Text – Environmental Impact Assessment Report (EIAR)

Ardee 2040 Regeneration Project, Co. Louth

October 2025



Comhairle Contae Lú
Louth County Council



Rialtas na
hÉireann
Government
of Ireland

Tionscatal Éireann
Project Ireland
2040

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Client

Louth County Council

Our reference

LOUB3003

October 2025

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List of Abbreviations

AA	Appropriate Assessment
ACA	Architectural Conservation Area
AQS	Advise Quality Standard
CIEEM	Chartered Institute of Ecology and Environmental Management
CO ₂	Carbon Dioxide
CSO	Central Statistics Office
DEASP	Department of Employment Affairs and Social Protection
DEFRA	Department for Environment, Food & Rural Affairs (Northern Ireland)
DEHLG	Department of Housing and Local Government
DHPLG	Department of Housing, Planning and Local Government
DMRB	Design Manual for Road and Bridges
DoEHLG	Department of The Environment, Heritage and Local Government
EC	European Commission
EcIA	Ecology Impact Assessment
ECow	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
ESRI	Economic and Social Research Institute
EU	European Union
FRA	Flood Risk Assessment
GDP	Gross Domestic Product
GHG	Green House Gases
GSI	Geological Survey of Ireland
GWP	Global Warming Potential
Ha	Hectares
HDV	Heavy Duty Vehicle
HSA	Health and Safety Authority
HSE	Health and Service Executive
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management & Assessment
IPCC	Intergovernmental Panel on Climate Change
LA	Local Authority
LCC	Louth County Council
LCDP	Louth County Development Plan 2021-2027
LI	Locally Important Aquifer
LRD	Large-scale Residential Development
MAD	Major Accidents and Disasters
MDD	Modified Domestic Demand
NAP	Noise Action Plan
NBDC	National Biodiversity Data Centre
NHA	Natural Heritage Area
NIAH	National Inventory and Historic Monuments
NIS	Natura Impact Statement
NPWS	National parks and Wildlife Service
NRA	National Roads Authority (now Transport Infrastructure Ireland)

NSL	Nearest Sensitive Location
NWCPO	National Waste Collection Permit
NWPP	National Waste prevention Plan
OPW	Office of Public Works
OSI	Ordnance Survey Ireland
PCEMP	Preliminary Construction Environmental Management Plan
pNHA	Preliminary National Heritage Area
RMP	Record of Monuments and Places
RPS	Recorded Protected Structure
RSA	Road Safety Audit
SAC	Special Area of Conservation
SNH	Scottish National Heritage
SPA	Special Protection Area
SUDS	Sustainable Urban Drainage System
TII	Transport Infrastructure Ireland
WFD	Water Framework Directive
WHO	World Health Organisation
WWTP	Wastewater Treatment Plant

1. Introduction

Overview

- 1.1 This Environmental Impact Assessment Report (EIAR) relates to a Section 175 planning application by Louth County Council (referred to as the 'Applicant' throughout) for the redevelopment of a c.7.79 hectares (ha) site (referred to as the application site/the site) on lands at Ardee, Co. Louth.

Purpose of an EIAR

- 1.2 An Environmental Impact Assessment Report (EIAR) is defined by the Planning and Development Act 2000, as amended, as *'a report of effects, if any, which proposed development, if carried out, would have on the environment and shall include information specified in Annex IV of the Environmental Impact Assessment Directive'*.
- 1.3 The purpose of an EIAR is to predict, consider, assess, and communicate any likely significant effects (direct and indirect) on the environment arising from a proposed project/development.
- 1.4 An EIAR is described by the Environmental Protection Agency (EPA) as being *'...the principal document prepared by an applicant for authorisation and submitted to a competent authority for consideration in the EIA process (which in turn forms part of the consent process)'*¹. This EIAR has been prepared to assist parties to understand if any likely significant environmental effects would arise from the proposed project.
- 1.5 Chapter 2 of this Report provides a detailed overview of the prevailing legislative, policy and guidance context/requirements for the EIA process and EIARs. This EIAR has been prepared in accordance with the relevant legislative, policy and guidance requirements as identified in Chapter 2.

The Applicant

- 1.6 As noted above, the applicant for this planning application is Louth County Council (LCC). Louth County Council's main office is located at Millennium Centre, County Hall, Dundalk, Co. Louth, A91 KFW6.
- 1.7 LCC holds title to a considerable extent of the land within the boundary of the application site. However, the application site also includes a small area of land owned by third parties, these being Escadia Limited and Health Service Executive.
- 1.8 A Letter of Consent is attached at Appendix 7 of the Cover Letter accompanying the planning application package. Whilst a letter of consent is not required for the planning application it is good practice to include consent where available.

¹ <https://www.epa.ie/news-releases/news-releases-2022/epa-publishes-guidelines-on-the-information-to-be-contained-in-environmental-impact-assessment-reports.php>

Project Background

- 1.9 LCC is intending to carry out a public realm and community infrastructure project on lands at Ardee, County Louth in accordance with national & international Best Practice. The project is focused on four Key Character Areas in Ardee including: the Main Street /Ash Walk; the wooded area to the east of St. Joseph's Hospital; underutilised Council owned lands in the east of the town, former railway lands; and lands adjacent to the River Dee. A full description of the application site and the immediate context is included in Chapter 3.
- 1.10 The project will incorporate the following infrastructure:
- Public realm improvements
 - New and improved street quality;
 - Upgraded public spaces/realm/plazas and introduction of new hard and soft landscaping;
 - Road/junction/cycleway/walkway upgrades and improvements; and
 - Sports and public recreation areas.
- 1.11 The key objectives of the proposed development are set out below:
- Ensuring inclusivity for all members of the community; the very young, the youth, the old, the mobility impaired, socially disadvantaged, the pedestrian and cyclist.
 - Developing schemes which meet the design principles of national & international best practices.
 - Encouraging an environment which leads to day and nighttime activities.
 - Improving connectivity and legibility for all members of the community and for visitors/tourists to the town.
 - Creating of quality gateways, public spaces, recreational areas, sporting areas and public realm.
 - Capitalising and respecting the rich heritage of this town centre location.
 - Operating / employing sustainable development principles through minimising energy consumption and maximising the use of renewable energy technology.

The Application Site

- 1.12 The application site covers an area of approx. 7.79 hectares which includes the following roads/streets/lanes/areas and their adjoining footpath/public realm areas namely: Ardee Main Street (N2) including Golf Links Road, Dundalk Road, Main Street, Irish Street, Market Street, Castle Street, Boat Trench, Bridge St, Fosters Close, Markethouse

Lane, Tierney St, O' Carroll St, Barrett's Lane (N52) and Ash Walk (in the townland of Townparks); the former railway lands off O'Carroll Street (in the townlands of Dawsons Demesne / Cappocksgreen) and lands off Tierney St. (in the townland of Cappocksgreen). It is noted that the application site is partly located within Ardee Architectural Conservation Area and in the vicinity of Ardee Castle (National Monument LH017-101018, Protected Structure LHS017-017 (NIAH Reg. No. 13823004)) and Hatch's Castle (Recorded Monument LH017-101015, Protected Structure LHS017-009 (NIAH Reg. No. 13823055)). **Figure 1.1** indicates the extent of the land included within this planning application.

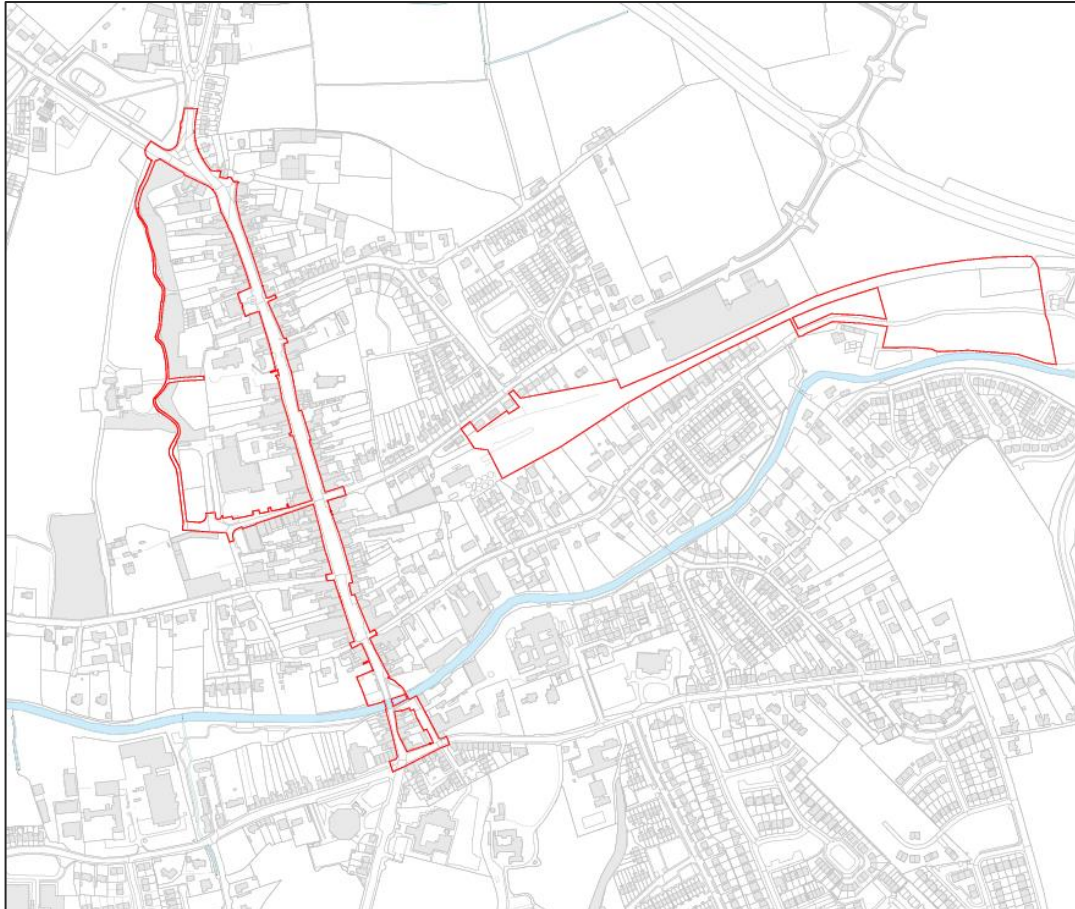


Figure 1.1: Extract from Site Location Plan (Dwg. No. LOUB3003-P-1001-H) prepared by Turley

1.13 The application site extends across multiple locations/land uses in Ardee. To assist in the description of the existing site context/uses and the proposed development, the overall development is split into the following main Character Areas (see **Figure 1.2** below):

- Character Area 1 – Main Street (including Ash Walk);
- Character Area 2 – Old Railway Lands;
- Character Area 3 – Amenity Lands; and
- Character Area 4 – Woodland Walk.

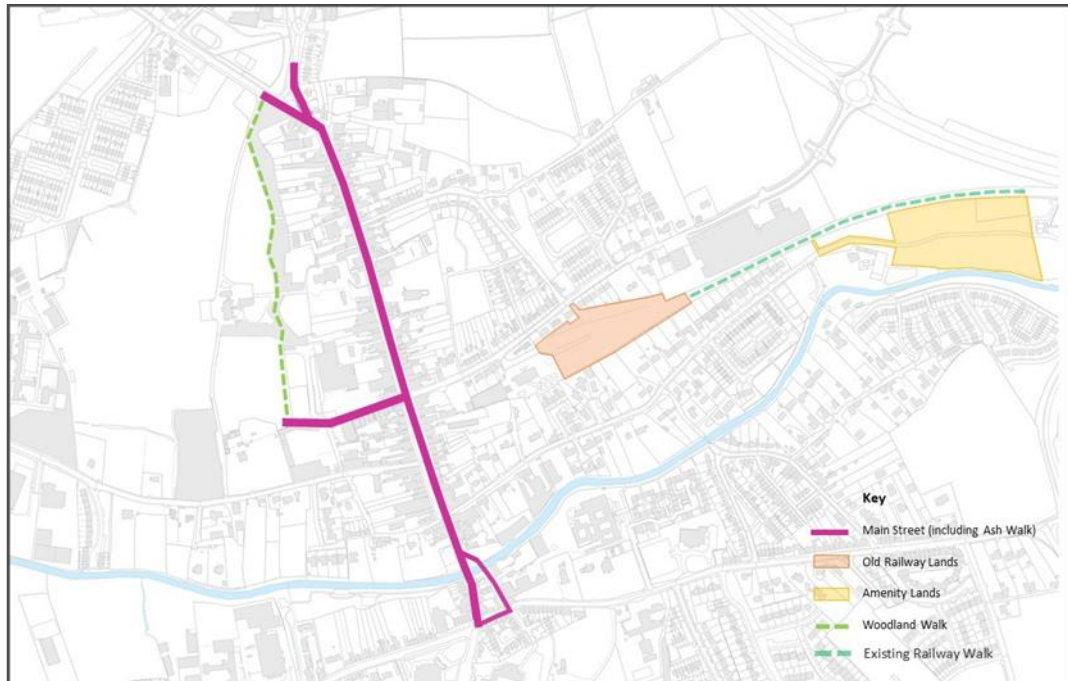


Figure 1.2: Character Areas of the Proposed Development

Proposed Development

1.14 The proposed development consists of the following:

(1) Public realm improvement works at Ardee Main Street (N2) and surrounding streets as listed above (in the townland of Townparks) comprising: new hard landscaping including resurfacing; soft landscaping including new tree planting; street furniture; new pedestrian connections and footpaths; Sustainable Urban Drainage System (SUDS); new cycle parking; tactile paving; and undergrounding of services.

(2) Road improvement works at Ardee Main Street (N2) and surrounding streets as listed above (in the townland of Townparks) to include: alteration of road alignment; realignment of Golf Links Road / N2 junction; raised junctions; resurfacing; shared surface treatments; revised access arrangements; pedestrian crossing points; reduction and rationalisation of the layout / orientation of existing on-street public car parking provision; installation of electric vehicle charging points; new bus stop shelters; road signs; and new public lighting.

(3) Resurfacing of Bridge Street Bridge (NIAH Reg. No. 13823008 / Protected Structure Ref: LHS017/056) at Bridge Street.

(4) Construction of a new segregated cycle lanes at Main Street (N2) (in the townland of Townparks), Ardee provided as dedicated one-way and two-way bi-directional cycle lanes and associated cycle parking stands.

(5) Alterations to the existing car parking layout at Ardee Library off Ardee Main Street (N2) (in the townland of Townparks) to create in part a public plaza including retention of Sir Frederick Foster Memorial Fountain scheduled monument (NIAH Reg No.

13823042 / Protected Structure Ref: LHS017/070) and realignment of existing access road to Foster Close.

(6) Extension of Ash Walk Road (extending approx. 60m to the west and upgrades to the existing junction to the Supervalu car park / services access off Ash Walk Road.

(7) Development of a woodland walk within St. Joseph's Hospital Grounds (in the townland of Townparks) including: resurfacing of existing informal path within St. Joseph's Hospital grounds (Protected Structure Ref: LHS017/035); a new footpath on agricultural land linking St. Joseph's Hospital grounds to Ash Walk and Golf Links Road; resurfacing of existing footpath linking St. Joseph's Hospital grounds to the rear of Ardee Day Care Centre to create new pedestrian access point onto Ardee Main Street; and new soft landscaping, boundary treatments, bollards and signage.

(8) Construction of a new community park at lands known as the Old Railway Lands off O'Carroll Street (in the townlands of Dawsons Demesne / Cappocksgreen) including: hard and soft landscape areas; community garden; equipped children's play space; pedestrian footpaths and kerbing; storage container; proposed boundary treatments; street furniture; public lighting; Sustainable Urban Drainage System (SUDS); heritage enhancement including demarcation of former location of Ardee Town Wall with engraved natural stone paving; new signage; construction of a new vehicle / pedestrian access and associated gate piers to O'Carroll Street and associated works; and provision of car parking and circulation space within the proposed community park.

(9) Retention of existing railway heritage infrastructure off O'Carroll Street (in the townland of Dawsons Demesne) to provide a public amenity space.

(10) Construction of a community sports and recreation facility and single storey sports pavilion building (7m high) on lands off Tierney St. (in the townland of Cappocksgreen) to include: a 200m all-weather running track; bowling green and associated flood lighting and boundary treatments; hard and soft landscape areas; Sustainable Urban Drainage System (SUDS); new pedestrian access points to existing old railway walk retaining pedestrian linkage to Old Railway Lands; provision of new car parking; new public lighting; street furniture; and signage.

(11) All associated site works including: drainage; undergrounding of services; and all other associated ancillary development works.

1.15 Chapter 5 of this EIAR provides further details relating to the proposed development.

Format and Structure of the EIAR

1.16 **Table 1.1** below sets out the format and structure of Volume 2 of this EIAR and identifies the relevant author for each chapter. Further information with respect to the qualifications of each author is provided at Chapter 2.

Table 1.1: Structure of this EIAR

EIAR Chapter	EIAR Team Member
Chapter 1 – Introduction	Turley
Chapter 2 – The EIA Process	Turley
Chapter 3 – Site and Development Context	Turley
Chapter 4 – Key Alternatives Considered	Turley
Chapter 5 – Description of Proposed Development	Turley
Chapter 6 – Consultation	Turley
Chapter 7 – Population & Human Health	Turley
Chapter 8 – Biodiversity	RSK
Chapter 9 – Land, Soils and Geology	RSK
Chapter 10 – Hydrology and Hydrogeology	RSK
Chapter 11 – Air & Climate	RSK
Chapter 12 – Noise & Vibration	RSK
Chapter 13 – Material Assets (Waste)	RSK
Chapter 14 – Material Assets (Traffic & Transportation)	Hegsons
Chapter 15 – Material Assets (Site Services)	Nicholas O’Dwyer Ltd
Chapter 16 – Cultural Heritage and Archaeology	IAC
Chapter 17 – Architectural Heritage	Mesh Architects
Chapter 18 – Townscape & Visual Impact	Park Hood
Chapter 19 - Interactions	Consultant Team
Chapter 20 - Cumulative Impacts	Consultant Team
Chapter 21 - Mitigation Measures	Consultant Team

1.17 This EIAR is also accompanied by:

- **Volume 1 - Non-Technical Summary:** provides a summary of the EIAR in non-technical language; and
- **Volume 3 - Appendices:** containing all surveys, reports, analysis undertaken in association with the specialist Chapters contained in this Volume 2.

EIAR Team

- 1.18 This EIAR was project managed, co-ordinated and produced by Turley. Turley coordinated the EIA process and liaised between the Project Team and the various environmental specialists.
- 1.19 The specialist environmental chapters of the EIAR have been prepared by suitably qualified and competent environmental experts as required by the Directive 2014/52/EU. Please refer to **Chapter 2** for further details on EIA and EIAR requirements as well as details on the EIAR team's qualifications.

Availability of the EIAR

- 1.20 A copy of this EIAR document and Non-Technical Summary of the EIAR document are available for purchase at the offices of An Coimisiún Pleanála and Louth County Council at a fee not exceeding the reasonable cost of reproducing the document. Details on the EIAR can also be viewed online at the Department of Housing, Local Government and Heritage's EIA Portal and on the Louth County Council's website: www.louthcoco.ie.

Impartiality

- 1.21 This EIAR document has been prepared with reference to a standardised methodology which is universally accepted and acknowledged. Experienced and competent environmental specialists have been used throughout the EIA process to ensure the EIAR is robust, impartial and objective.

Statement of Difficulties Encountered

- 1.22 No specific difficulties, such as technical deficiencies or a lack of knowledge, were encountered in compiling any of the information contained in this statement, such that that the prediction of impacts has not been possible. Where any specific difficulties were encountered these are outlined in the relevant chapter of the EIAR.

Forecasting Methods Used for Environmental Effects

- 1.23 The evidence used to identify the significant effects on the various aspects of the environment, and the methods employed to forecast effects, are standard techniques used by each of the specialist individual disciplines. The general format followed was to identify the receiving environment, to add a projection of the "loading" placed on the various aspects of the receiving environment by the development, and to put forward enhancement measures where appropriate to lessen or remove an impact, to determine the net predicted impact.
- 1.24 Where specific methodologies are employed within the EIAR assessment, these are referred to in the respective Receiving Environment (Baseline Scenario) sections in the EIAR.

Errors

- 1.25 While every effort has been made to ensure that the content of this EIAR document is error free and wholly consistent there may be instances where typographical errors and/or minor inconsistencies do occur. These typographical errors and/or minor inconsistencies are unlikely to have any material impact on the overall findings and assessment contained in this EIAR.

2. EIA Process

EIA Legislation

- 2.1 Directive 85/337/EEC, which came into force in June 1985, required Member States to ensure that before a development consent is given, any public or private projects which are likely to have significant effects on the environment regarding their nature, size or location, are made subject to an Environmental Impact Assessment (EIA) of their effects on the environment. Directive 2011/92/EU codified Directive 85/337/EEC and its three (1997, 2003 and 2009) subsequent amendments in December 2011.
- 2.2 Directive 2011/92/EU was then amended by Directive 2014/52/EU in April 2014, to address certain problems of implementation, reduce unnecessary administrative burdens, simplify the assessment procedure, and reinforce certain levels of environmental protection, taking into account emerging challenges such as resource efficiency, climate change, biodiversity and disaster prevention.
- 2.3 The amending Directive took effect in Ireland on 16th May 2017 and was transposed into Irish law by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296/2018)) on 1st September 2018.
- 2.4 The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 further amended the Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended) transposing the amended Directive into the Irish planning code.

EIA Guidance

- 2.5 The above mentioned EIA legislation is supported by guidance documents, circulars and advice notes, which help to provide direction and clarity in terms of satisfying the requirements of EIA legislation.
- 2.6 This assessment of environmental impacts has been completed in accordance with the aforementioned prevailing EIA legislation and in accordance with the following guidelines².
 - Environmental Protection Agency (EPA) - Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022);
 - Department of Housing, Planning and Local Government (DHPLG) - Guidelines for Planning Authorities and An Coimisiún Pleanála on carrying out Environmental Impact Assessment (2018);
 - Department of Housing, Planning and Local Government (DHPLG) - Circular letter PL 1/2017 - Advice on Administrative Provisions in Advance of Transposition (2017);

² Other specialist guidelines are identified in the various specialist EIAR chapters.

- European Commission (EC) - Environmental Impact Assessment of Projects. Guidance on Scoping (2017);
- European Commission (EC) - Environmental Impact Assessment of Projects. Guidance on the preparation of Environmental Impact Assessment Report (2017);
- Environmental Protection Agency (EPA) - Draft Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (2015);
- European Commission (EC) - Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (2013); and
- European Commission (EC) - Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (1999).

2.7 In addition to the above listed guidance documents, all EU Directives and national legislation relating to the specialist areas (e.g. Biodiversity, Air and Climate, Noise) have been considered under each relevant environmental aspect. Specific guidance is addressed in the relevant chapters of this EIAR.

EIA Process

2.8 EIA can be described as a ‘*process*’ for predicting effects on the environment caused by a proposed project. Where effects would be unacceptable, design or other mitigation measures can be implemented to avoid or reduce potential effects to acceptable levels.

2.9 Article 1(2)(g) of the amended Directive defines EIA as:

‘Environmental impact assessment means a process consisting of:

i) the preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);

ii) the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;

iii) the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;

iv) the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and

v) the integration of the competent authority’s reasoned conclusion into any of the decisions referred to in Article 8a.’

2.10 In this case, the ‘*competent authority*’ refers to An Coimisiún Pleanála and the ‘*developer*’ refers to the Applicant.

- 2.11 The EPA's 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (2022), hereafter the '2022 Guidelines', state that '*...the EIA process can be considered as involving three main parts...*', as illustrated in **Figure 2.1**:

'The first consists of a compilation of facts – i.e. the description of the existing environment and the description of the proposed project.'

The second consists of predictions of likely effects – this may be carried out on an iterative basis as the design is improved to eliminate excessive adverse effects.

The final part consists of the assessment of the environmental effects as part of a consent process which may decide to grant, condition, refuse or seek additional information.'

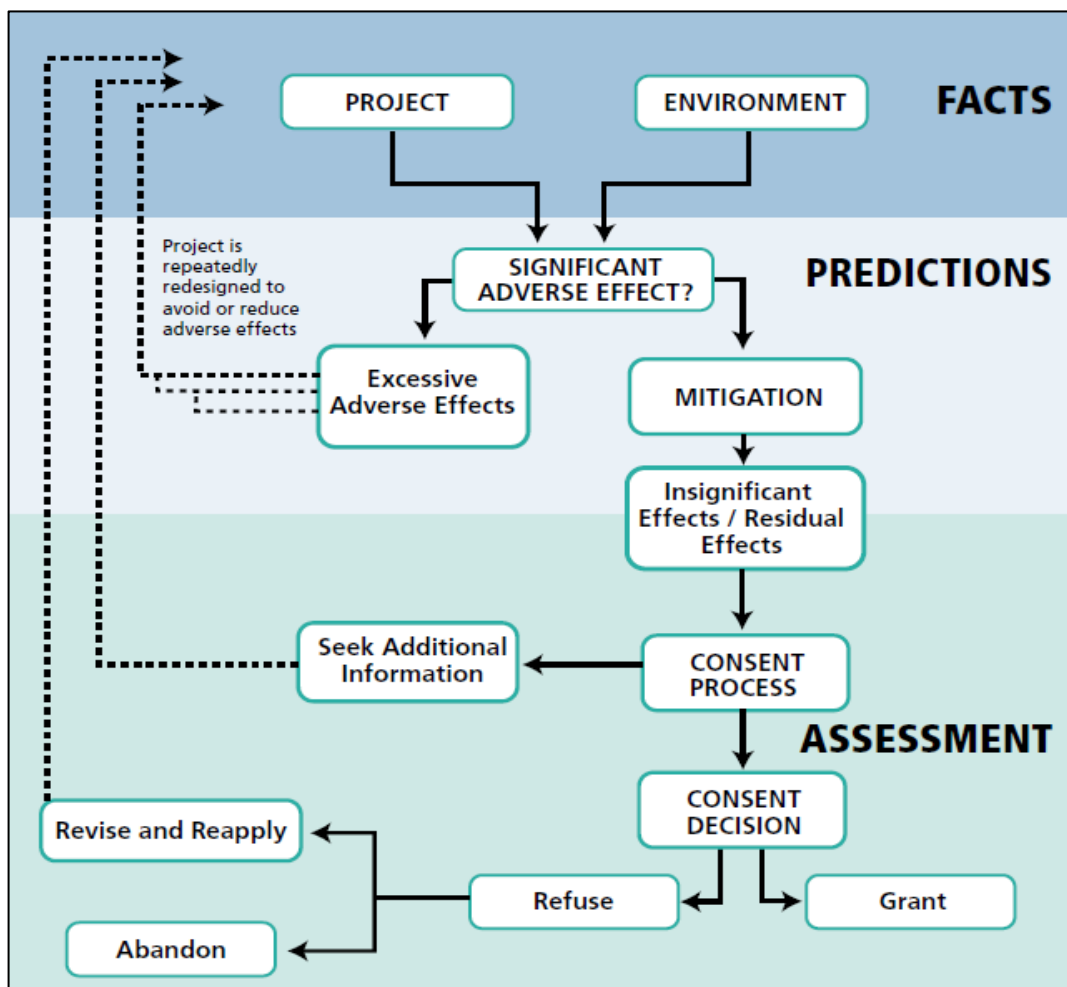


Figure 2.1: EIA Process Flow Chart [Source: EPA's 2022 Guidelines]

- 2.12 The 2022 Guidelines further advise that that '*EIA provides a system of sharing information about the environment which enables effects to be foreseen and prevented during the design and consent stages. This provides the basis for protecting the environment and informs decision-making.*'

2.13 **Figure 2.2** identifies the various stages involved in the EIA process and, together with **Figure 2.1**, illustrates how EIA is a systematic analysis of the proposed project in relation to the existing environment during a consent process.

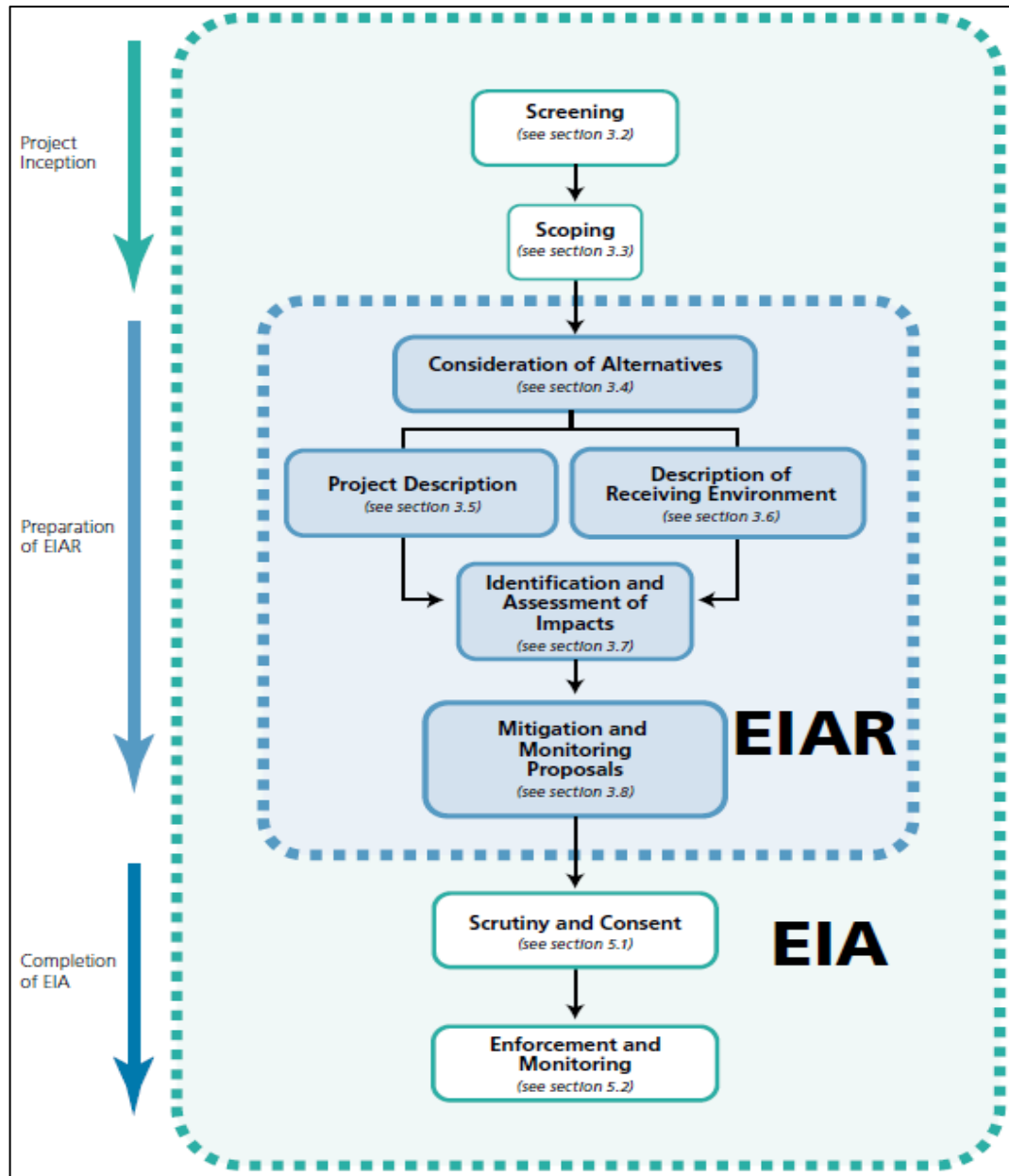


Figure 2.2: Stages of an EIA Process [Source: EPA's 2022 Guidelines]

2.14 The EIA process can be summarised as follows:

- **Screening:** The process of determining whether a proposed development should be subject to EIA.
- **Scoping:** The process of identifying the topics that should be addressed in the EIAR as well as the methods to do so.

- **Description of the receiving environment:** This stage aims to establish a robust baseline (a description of the environmental characteristics of the receiving environment plus any relevant trends in status), utilising a review of existing available information and undertaking surveys and analyses, where appropriate.
- **Impact assessment:** The primary purpose of the EIAR is to identify, describe and present as assessment of the likely significant impacts of a proposed development on the environment.
- **Mitigation:** Where appropriate, mitigation measures are identified to avoid, prevent, reduce or offset any likely significant negative effects identified, as well as any proposed monitoring arrangements.
- **Consultation:** With statutory bodies, the public and other stakeholders, as appropriate.
- **Decision:** The competent authority (An Coimisiún Pleanála, in this case) decides, in the context of other considerations (including the outcomes of the consultation process), whether development consent should be granted.
- **Implementation / enforcement of conditions of development consent:** Assuming the development is permitted, the schedule of environmental commitments (including the mitigation and monitoring measures set out in the EIAR and any additional environmental conditions of the development consent) needs to be implemented.

EIA Screening

- 2.15 EIA Screening represents the first stage of the EIA process. It involves deciding whether an EIA needs to be undertaken or not. **Figure 2.3** below provides a step-by-step guide to the main steps involved in the EIA Screening process.
- 2.16 It is important to note that Recital (27) of Directive 2014/52/EU states that *‘The screening procedure should ensure that an environmental impact assessment is only required for projects likely to have significant effects on the environment.’*
- 2.17 The EPA’s 2022 Guidelines advise that the first step in the EIA Screening process is *‘...to examine whether the proposal is a project as understood by the Directive. Projects requiring environmental impact assessment are defined in Article 4, and set out in Annexes I and II, of the Directive³’*.
- 2.18 The EPA’s 2022 Guidelines also confirm that *‘...the term project is used to encompass all of the various forms of development, works and activity which are subject to EIA requirements, as set out in the relevant legislation and as understood by the Directive⁴’*.

³ Including but not limited to those projects specified in Schedule 5 of the Planning and Development Regulations 2001, as amended

⁴ ref. Article 1(2)(a) of Amended Directive.

- 2.19 If a proposed project is not of a type covered by the Directive, then there is no statutory requirement for it to be subject to environmental impact assessment.

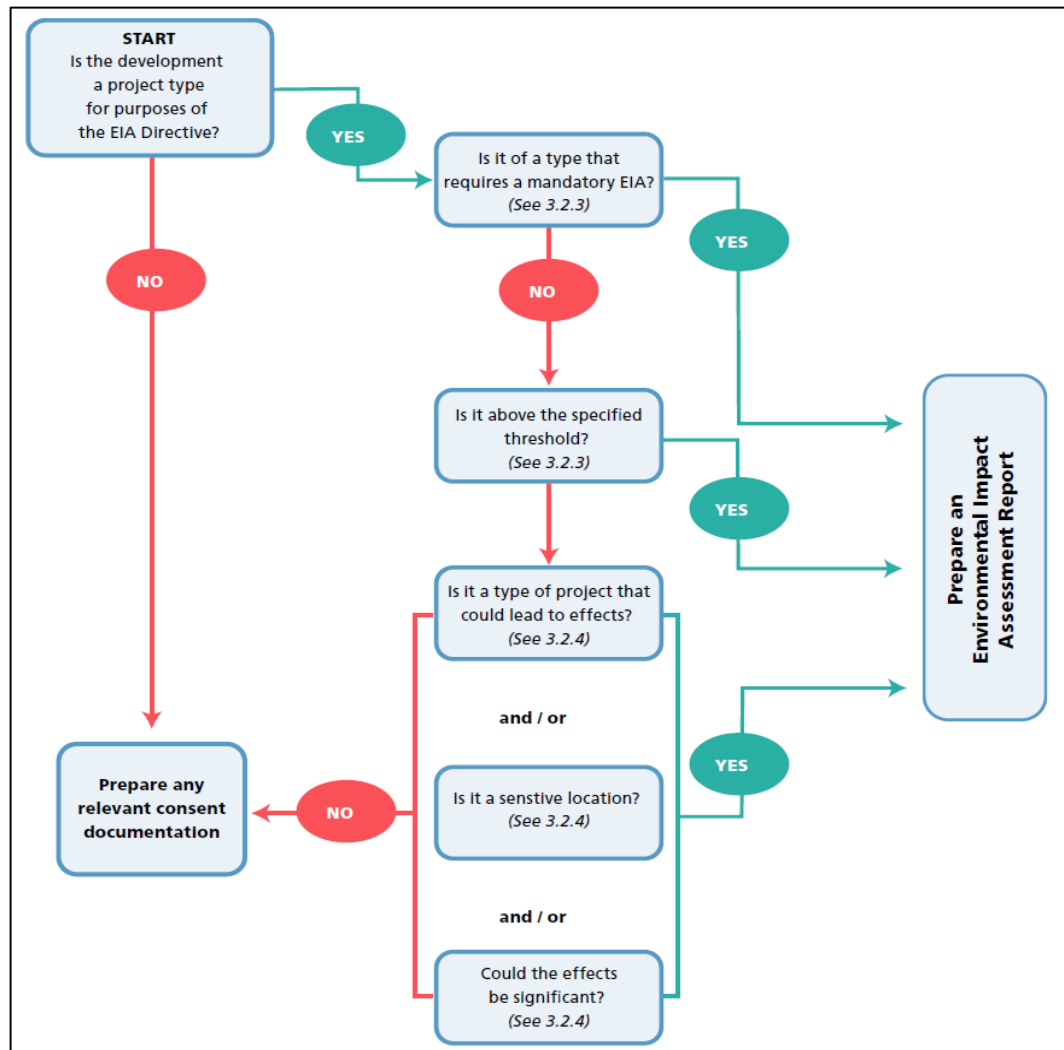


Figure 2.3: EIA Screening Process [Source: EPA's 2022 Guidelines]

- 2.20 However, the EPA's 2022 Guidelines warn that '*...this is a complex issue and regard should be had to the Directive's 'wide scope and broad purpose'⁵ and that 'In determining if the proposed project is of a type covered by the Directive it may be necessary to go beyond the general description of the project and to consider the component parts of the project and/or any processes arising from it'.*
- 2.21 The projects listed in Annex I of the EIA Directive are subject to a mandatory EIA. Those listed in Annex II are subject to a screening procedure, followed by an EIA when thresholds established at national level or a case-by-case examination so demand.

⁵ Interpretations of definitions of project categories of annex I and II of the EIA Directive, EC, 2015.

- 2.22 The Annexes contained within the amended Directive have been transposed into Irish law by the provisions of the *Planning and Development Act 2000 (as amended)* and the *Planning and Development Regulations 2001 (as amended)*.
- 2.23 Specifically, Annex I projects are listed in Part 1 of Schedule 5 of the *Planning and Development Regulations 2001 (as amended)* and Annex II projects are listed in Part 2 of Schedule 5 of the *Planning and Development Regulations 2001 (as amended)*.
- 2.24 Part 1 of Schedule 5 of the *Planning & Development Regulations 2001 (as amended)* lists major project classes for the purposes of mandatory EIA, which typically include industrial, chemical, energy, waste, infrastructure and intensive agricultural developments.
- 2.25 The proposed project does not fall within a development category contained in Part 1 of Schedule 5 and therefore a mandatory EIA is not a requirement under this provision.
- 2.26 Part 2 of Schedule 5 of the *Planning & Development Regulations 2001 (as amended)* sets mandatory thresholds for each project category above which EIA is required. Category 10 of Part 2 relates to 'infrastructure projects' and sub-category 10(b) makes specific reference to residential projects and urban development:

'Category 10 - Infrastructure Projects:

(b) (i) Construction of more than 500 dwelling units...

(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'.

- 2.27 It is considered that the proposed development represents 'urban development' in an area which can be classified as a 'business district'. Noting this, and that the proposed red line boundary for the application extends to an area of 7.7979 ha, exceeding the 2ha threshold for this type of development and location, the project exceeds the threshold set out in sub-category 10(b)(iv) of Part 2, therefore the requirement for a mandatory EIA is triggered.

EIA Scoping

- 2.28 The EPA's 2022 Guidelines state that 'Scoping' is a '*...process of deciding what information should be contained in an EIAR and what methods should be used to gather and assess that information*'.
- 2.29 Scoping is further defined in the European Commission guidance⁶ as:

'The process of identifying the content and extent of the information to be submitted to the Competent Authority under the EIA process'.

⁶ Guidance on EIA Scoping, European Commission, 2017.

2.30 Article 3 of the amended Directive states the following with respect to the content of an EIAR and the environmental factors that should be considered:

‘1. 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).

2. The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned.’

2.31 Annex IV of the amended Directive is of note with respect to ‘Scoping’ an EIAR, and it has been considered in the Scoping of this EIAR.

2.32 An informal scoping exercise was carried out by the submission of a Scoping Report to the Planning Section of Louth County Council. In this document, the environmental aspects that were proposed to be considered in detail in this EIAR were identified on the basis that there is potential for significant effects. **Table 2.1** below documents the scoping exercise undertaken in respect of this EIAR.

Table 2.1: EIAR Scoping – potential for significant effects arising from the proposed project.

Environmental Component	Detailed Assessment Required	Rationale
Population & Human Health	Yes	The proposed development has the potential to impact on population and human health, employment, local community and amenity uses, during the construction and operational phases.
Biodiversity	Yes	The Site is not within or adjacent to any Natura 2000 sites, these being Special Areas for Conservation (SAC) or Special Protection Areas (SPA). However, the site is located in one Special Areas of

		Conservation (SAC) and two Special Protection Area (SPA) are located in the zone of influence. There is potential for habitats to be recorded on site and therefore, the proposed development has potential to impact on local biodiversity.
Land, Soils and Geology	Yes	The proposed development includes the excavation, movement and deposition of soil as part of the construction process. The impacts on geology and hydrogeology should therefore be assessed in terms of the groundworks, construction and operational phase of the proposed development.
Hydrology and Hydrogeology	Yes	The proposed development does have the potential to impact on water (including flood risk, hydrology and drainage) as there will be ground disturbance associated with the proposed development.
Air & Climate	Yes	Construction and operational phases have the potential to give rise to air quality impacts, principally relating to traffic associated with the proposed development.
Noise & Vibration	Yes	Construction and operational phases will have the potential to give rise to air quality impacts, principally relating to traffic associated with the proposed development.
Material Assets (Waste)	Yes	The proposed development may generate waste arisings that will require management during construction and operation.
Material Assets (Traffic & Transportation)	Yes	The Traffic and Transportation chapter of the EIAR is required to present an assessment of the potential traffic and transport impacts of the proposed development.

Material Assets (Site Services)	Yes	The Material Assets section of the EIAR will examine the likely significant effects of the construction and operation of the proposed development on intrinsic and valuable assets of material value.
Cultural Heritage (Conservation)	Yes	The site contains a number of Heritage Assets/Protected Structures. This gives rise to the potential for impact upon relevant Archaeological sites. Detailed assessment is required.
Cultural Heritage (Archaeology)	Yes	The site contains a number of heritage assets which give rise to the potential for impact upon Architectural or Cultural Heritage of Ardee. On this basis a detailed assessment of the potential impacts is required.
Townscape and Visual Impact	Yes	The development has the potential to impact on key views that are protected within the Louth County Council Development Plan 2021 – 2027 therefore there is a requirement to assess the Townscape and Visual Impact of the proposed development.
Interactions	Yes	There is the potential for multiple direct or indirect effects (from various environmental aspects) to result in an accumulation or magnified effects from the proposed development.
Cumulative Impacts	Yes	The proposed development will be in proximity to other development permitted and proposed development and thus has the potential to exacerbate or create larger, more significant effects.

Major Accidents & Disasters

- 2.33 Article 3 of the amended Directive requires that an EIAR shall include ‘...*the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned*’. [our emphasis.]

- 2.34 The purpose of this requirement is to ensure that relevant safety and precautionary measures are identified so as to protect the proposed project in the event of a major accidents and/or disasters (MADs) and that appropriate mitigation measures are incorporated to the protect the environment, if such an event were to occur.
- 2.35 The Institute of Environmental Management and Assessment's (IEMA) document, 'Major Accidents and Disasters in EIA: A Primer', dated September 2020, provides helpful guidance in terms of scoping a MAD into an EIAR:
- "A major accidents and/or disasters assessment will be relevant to some developments more than others, and for many developments it is likely to be scoped out of the assessment". [our emphasis.]*
- 2.36 The 2020 IEMA document (pg. 12) further advises that the topic may be scoped out if:
- *'There is no source-pathway-receptor linkage of a hazard that could trigger a major accident and / or disaster, or potential for the proposed development to lead to a significant environmental effect; or*
 - *All possible MADs are adequately considered elsewhere in the assessment or covered by existing design measures or compliance with legislation and best practice.'*
- 2.37 The MADs impact assessment typically includes an assessment of the potential effects in relation to 'Seveso Sites', i.e. major industrial establishments with a presence of certain dangerous substances in sufficient quantities. These sites are regulated under the 'Seveso III Directive' (Directive 2012/18/EU) on the control of major-accident hazards involving dangerous substances.
- 2.38 The SEVESO III Directive provides that appropriate consultation distances must be established for Seveso sites which indicate the area that is liable to be affected by a major accident at the establishment in question.
- 2.39 The Health & Safety Authority (HSA) is the Central Competent Authority responsible for providing advice, where appropriate, in respect of planning applications that fall within consultation distances of SEVESO sites.
- 2.40 The closest identified Seveso site to the application site is BAKBulk Services, a low tier Seveso site located at Red Barns, Drumcar Road, Drumcar, Dunleer, Co. Louth. This site is approx. 9km from the application site.
- 2.41 Table 11.1 of the Louth County Development Plan 2021-2027 titled 'Notified Seveso Establishments' identifies a consultation distance of 400m for this Seveso site. As this Seveso site is located approximately 9km to the southeast of the application site, the application site is therefore located outside the relevant consultation distance.
- 2.42 As such, an assessment of impacts specifically in relation to MADs has been scoped out of this EIAR. The risk/effects of any potential accidents and/or natural events are addressed in the relevant specialist chapters of this EIAR, for example the potential for

flood risk is addressed in 'Chapter 10 - Hydrology and Hydrogeology' (and the accompany Site Specific Flood Risk Assessment prepared by Nicholas O'Dwyer Ltd).

Appropriate Assessment

- 2.43 Article 6 of the Habitats Directive, which was translated into Irish law by the European Union (Birds and Natural Habitats) Regulations 2011-2015 (the Birds and Natural Habitats Regulations) and the Planning and Development Act, 2000-2021 (as amended), lays out the specifications for an appropriate assessment (AA).
- 2.44 Screening for Appropriate Assessment has been prepared by RSK and is submitted as a separate assessment as part of the planning application package to address the relevant policy objectives and requirements with respect to Appropriate Assessment and European Sites.
- 2.45 This screening concludes that the development will not lead to direct or indirect impacts on any Natura 2000 sites, either alone or in combination with other plans or projects, so progression to a stage 2 Appropriate Assessment is not required.

EIAR Content and Methodology

- 2.46 This EIAR is structured in accordance with, and contains all relevant information as required by, the prevailing EIA legislation, policy and guidance. Annex IV of the amended Directive, Schedule 6 of the 2001 Regulation (as amended) and the EPA's 2022 Guidelines are of note with respect to the methodology and content of an EIAR.
- 2.47 The EPA's 2022 Guidelines state the following with respect to the purpose of an EIAR:

'The main purpose of an EIAR is to identify, describe and present an assessment of the likely significant effects of a project on the environment. This informs the CA's assessment process, its decision on whether to grant consent for a project and, if granting consent, what conditions to attach'.

- 2.48 Annex IV (5) of the amended Directive⁷, as reproduced below, provides guidance in terms of the 'likely significant effects' that are to be considered as part of an EIAR:

'A description of the likely significant effects of the project on the environment resulting from, inter alia:

a) the construction and existence of the project, including, where relevant, demolition works;

b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;

c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;

⁷ See also Schedule 6(2)(e) of the 2001 Regulations (as amended).

d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);

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;

f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;

g) the technologies and the substances used.

The description of the likely significant effects on the [environmental] factors should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project.'

- 2.49 The EPA's 2022 Guidelines further advise that 'Effects should be described by reference to the individual environmental factors and their sensitivities' and note that it is useful to consider the criteria listed in Annex III of the amended Directive⁸, which states:

'a) 'the magnitude and spatial extent of the impact (for example geographical area and size of the population likely to be affected);

b) the nature of the impact;

c) the transboundary nature of the impact;

d) the intensity and complexity of the impact;

e) the probability of the impact;

f) the expected onset, duration, frequency and reversibility of the impact;

g) the cumulation of the impact with the impact of other existing and/or approved projects;

h) the possibility of effectively reducing the impact.'

- 2.50 The assessment of effects in this EIAR is based on the source-pathway-receptor model. The EPA's 2022 Guidelines provide the following definitions with respect to these terms at 'Appendix I – Glossary of Terms':

- **'Source:** The activity or place from which an effect originates'.
- **'Pathway:** The route by which an effect is conveyed between a source and a receptor'.

⁸ See also Schedule 7(3) of the 2001 Regulations (as amended).

- **‘Receptor:** Any element in the environment which is subject to impacts’.

2.51 In accordance with the EPA’s 2022 Guidelines, the criteria for describing specific effects on the environment are set out in **Table 2.2**, unless stated otherwise within the respective EIAR chapters.

Table 2.2: Descriptions of Effects [Source: Table 3.4 of the EPA’s 2022 Guidelines]

Criteria	Definition
Quality of Effects	It is important to inform the non-specialist reader whether an effect is positive, negative or neutral
Positive Effects	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
Neutral Effects	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Negative/Adverse Effects	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Significance of Effects	Significance’ is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful (also see Figure 2.4 below).
Imperceptible	An effect capable of measurement but without significant consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
Profound Effects	An effect which obliterates sensitive characteristics.

Extent and Context of Effects	Context can affect the perception of significance. It is important to establish if the effect is unique or, perhaps, commonly or increasingly experienced.
Extent	Describe the size of the area, the number of sites and the proportion of a population affected by an effect.
Context	Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Probability of Effects	Descriptions of effects should establish how likely it is that the predicted effects will occur so that the CA can take a view of the balance of risk over advantage when making a decision.
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Duration and Frequency of Effects	‘Duration’ is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful.
Momentary Effects	Effects lasting from seconds to minutes.
Brief Effects	Effects lasting less than a day.
Temporary Effects	Effects lasting less than a year.
Short-term Effects	Effects lasting one to seven years.
Medium-term Effects	Effects lasting seven to fifteen years.
Long-term Effects	Effects lasting fifteen to sixty years.
Permanent Effects	Effects lasting over sixty years.
Reversible Effects	Effects that can be undone, for example through remediation or restoration.
Frequency of Effects	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
Types of Effects	
Indirect Effects (a.k.a. Secondary or Off-site Effects)	Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
Cumulative Effects	The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.

‘Do-nothing Effects’	The environment as it would be in the future should the subject project not be carried out.
‘Worst-case’ Effects	The effects arising from a project in the case where mitigation measures substantially fail.
Indeterminable Effects	When the full consequences of a change in the environment cannot be described.
Irreversible Effects	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
Synergistic Effects	Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).

- 2.52 In accordance with the EPA’s 2022 Guidelines, the significance of an effect is determined by comparing the character of the predicted effect to the sensitivity of the receiving environment (see **Figure 2.4** below), unless stated otherwise within the respective EIAR chapters.

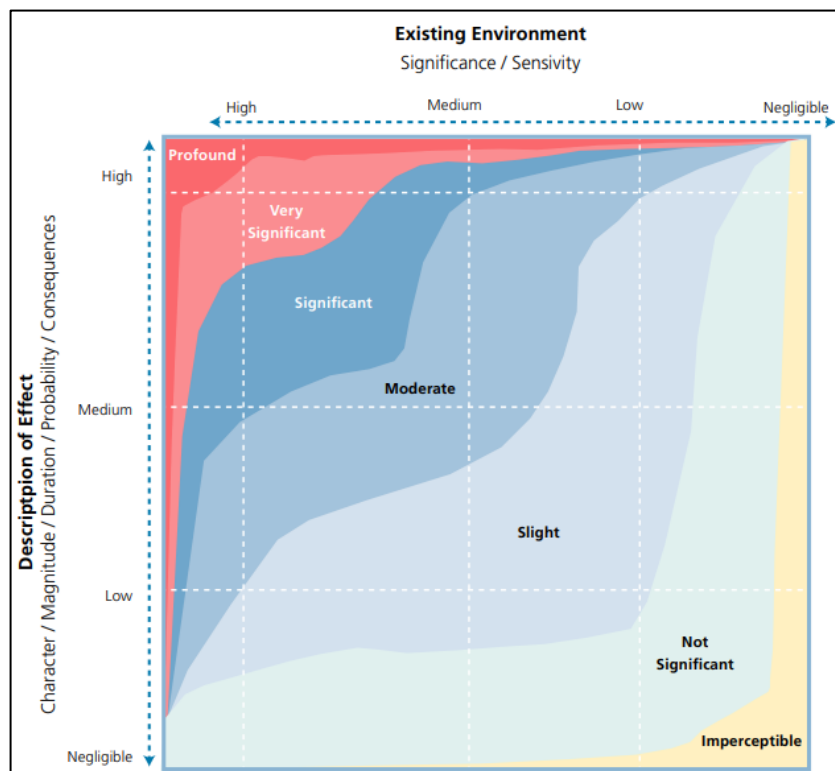


Figure 2.4: Chart Showing Typical Classifications of the Significance of Effects
[Source: Figure 3.4 of the EPA’s 2022 Guidelines]

- 2.53 This EIAR has been prepared in full accordance with the stated requirements of the amended EIA Directive, the *Planning and Development Act 2000* (as amended), the

Planning and Development Regulations 2001 (as amended) and the relevant EIA guidance documents.

- 2.54 Turley co-ordinated the preparation of this EIAR in association with competent expert members of the Project Team, as identified in **Table 2.3** below.

Table 2.3: Contributors to the EIAR

Company	Name	Qualifications
Turley	Angela Wiggam	• BSc (Hons) Town Planning • Diploma Town Planning • MRTPI
Turley	Lee Hannigan	• MSC Urban & Regional Planning • MIPI • MRTPI
RSK	Conor McKinney	• MSc Ecological Mgt & Conservation Biology
RSK/NM Ecology	Nick Marchant	• MSc in Ecosystem Conservation • Landscape Management • BSc in Environmental Science
RSK	Mark Lang	• BSC Biology, Chartered Ecologist
RSK	Lisa Colleen Mc Clung /	• MSc Environmental Science
RSK	Sven Klinkenbergh	• B.Sc. Environmental Science P.G.Dip. Environmental Protection
RSK	Lisa Colleen Mc Clung	• MSc Environmental Science
RSK	Erin Zhang	• MSc in Environmental Monitoring, Modelling and Reconstruction
RSK	Srinivas Srimath	• MSc Environmental Engineering, Phd Air Quality
RSK	James Mangan	• IOA Diploma in Acoustics and Noise Control
RSK	Ryan Murphy	• MSc Environmental Engineering
Hegsons	Ken Hegarty	• BE Civil & Environmental Engineering • MEng Sc Transport Engineering • MIEI • MCIHT
Nicholas O'Dwyer Ltd	Delecia Reddy	• BTech in Civil Engineering. • National Diploma in Civil Engineering

		• MIEI
IAC Archaeology	Faith Bailey	• MA Cultural Landscape Management • BA (Hons) Archaeology • MIAI • MCIfA
IAC Archaeology	Jacqui Anderson	• MA Archaeology • BA Archaeology and Classical Studies • MIAI
Mesh Architects	Tom McGimsey	• BA Architecture • MSC Historic Preservation • RIAI (Architecture & conservation)
Park Hood	Andrew Bunbury	• BA Landscape Architecture • DipLA Landscape Architecture • CMLI
Park Hood	Conor Thallon	• BA Landscape Architecture • DipLA Landscape Architecture • CMLI

3. Site Location and Context

Site Description

3.1 The application site extends across multiple sites/land uses in Ardee. As noted above to assist in describing the existing site context/uses and the proposed development, the overall development is split into the following main Character Areas (see **Figure 3.1** below):

- Character Area 1 – Main Street (including Ash Walk);
- Character Area 2 – Old Railway Lands;
- Character Area 3 – Amenity Lands; and
- Character Area 4 –Woodland Walk.

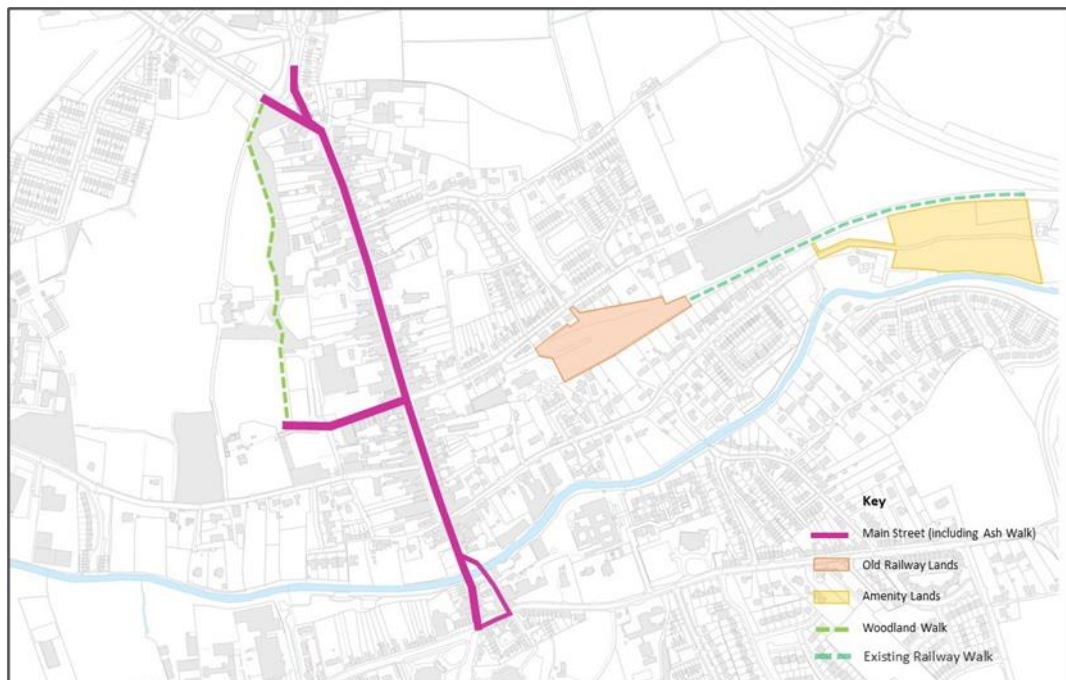


Figure 3.1: Project Character Areas

Character Area 1 – Main Street (including Ash Walk)

3.2 This area includes roads/streets/lanes/areas and their adjoining footpath/public realm areas at Townparks (including Golf Links Road, Dundalk Road, Main Street, Irish Street, Market Street, Castle Street, Boat Trench, Bridge St, Fosters Close, Markethouse Lane, Tierney St, O' Carroll St, Barrett's Lane, William Street, Hale Street and Ash Walk). The named streets/roads are commonly referred to as Main Street from here on. The entire public area within Main Street, including the public road and existing footpath/areas of public realm, are within the site boundary. These areas are currently finished in either concrete paving / tarmac or soft landscaping.

3.3 Given its town centre location there are limited areas of existing soft landscaping along Main Street, with a number of mature trees positioned along the public footpath. None of the buildings along Main Street are located within the site boundary.

3.4 Ash Walk, to the west of the Main Street, is also located within the site boundary.

Character Area 2 – Old Railway Lands

3.5 This portion of the site is located at Dawsons Demesne and Cappocksgreen on lands to the south of 4 no. dwellings on O’Carroll Street (Eircode’s⁹ A92 W684, A92 ND36, A92 V260 & A92 A6P2) and No’s 1 – 5 Cappocks Green, east of Mid-Louth Garage (the Old Railway Station) and north of No’s 1 – 5 The Avenue and dwellings located on Tierney Street, Ardee.

3.6 Character Area 2 links to Character Area 3 via the existing pedestrian footpath on the former railway lands to the south of Ardee Enterprise Centre at Cappocks Green. This footpath is located within the site boundary.

3.7 The boundaries of Character Area 2 are defined by existing fences and walls. The site is currently maintained grassland with semi-mature trees located sporadically throughout the space. The remains of the former railway platform are visible in the western portion of the site.

3.8 A pedestrian footpath traverses the site from O’Carroll Street in the north before exiting the site via the route of the old railway line to the east of the site. A second pedestrian access is located to the southeast linking the site to Tierney Street.

3.9 An informal gravel roadway runs in a west to east direction linking the vehicular access at Mid-Louth Garage in the west to the existing pedestrian walkway in the east of the site. Vehicular access to the site is available from Sean O’Carroll Street via Mid-Louth Garage and the existing access to the north of the site.

3.10 Character Area 2 is linked to Character Area 3 via an existing pedestrian footpath along the former railway line.

Character Area 3 – Amenity Lands

3.11 This portion of the site is located at Cappocksgreen to the east of Greenvale House, Old Dawsons Demesne (Eircode A92 RH76), to the west of Ardee Wastewater Treatment Works and north of the River Dee.

3.12 The western boundary of the site is defined by a post and wire fence and existing hedge / mature trees. The southern boundary of the site follows the alignment of the River Dee. The southeast boundary of the site is currently undefined by an existing physical boundary whnortheastorth east boundary is marked by the security fencing enclosing Ardee Wastewater Treatment Works. The northern boundary is marked by a row of existing mature trees.

3.13 Much of the site is unmaintained grassland. The northeastern corner of the site is currently used for the storage of building materials by Louth County Council. The

⁹ Eircode Finder website (<https://finder.eircode.ie>)

boundary of this storage area is defined by a fence. A roadway traverses the centre of the site in a west to east direction linking Tierney Street to the Ardee Wastewater Treatment Plant.

- 3.14 The immediate area is characterised by a mixture of land uses. To the north is a pedestrian footpath following the route of the former railway line, and beyond this is agricultural land. To the east of the site is Ardee Wastewater Treatment Works. To the south of the site is the River Dee and beyond this agricultural land. To the west of the site is a private dwelling set within a large mature plot and beyond this a medium density residential area.

Character Area 4 - Woodland Walk

- 3.15 This area is located on the grounds of St. Joseph's Hospital and travels in a north to south direction linking Ash Walk to Golf Links Road. The proposed route begins directly to the west of the existing Supervalu overflow car park and travels north through agricultural land towards the existing wooded area surrounding St. Joseph's Hospital. The proposed route follows the alignment of an established path through the wooded area and connects to Golf Link Road in the north. This portion of the proposed route is currently used as agricultural land and incorporates an existing path through the wooded area.

Architectural Heritage

- 3.16 Ardee is one of Ireland's oldest walled towns, having been established soon after the Norman Invasion of 1185. The town retains its late medieval footprint as illustrated in a map dating from the 18th century. Although the historic town walls have almost totally disappeared, the town's main street has survived as the most important element of the town's urban form. The historic pattern of streets, lanes, building plots and principal structures is very much in evidence in the modern town. Account has been taken of the historic street pattern and it is critical that proposals to improve Ardee's townscape should include proposals to protect and reinforce the surviving historic urban form.
- 3.17 **Figure 3.2** is an extract from the Ardee Composite Map of the Louth County Development Plan 2021 - 2027 identifying that much of the application site is located within Ardee Architectural Conservation Area (ACA) and Zone of Archaeological Potential. In addition to this, a number of protected structures and national monuments are located either within, or directly adjacent to the area of the proposed development.
- 3.18 An assessment of the potential impact of the proposed development on the built heritage of Ardee is included in Chapter 16 Archaeology and Cultural Heritage and Chapter 17 Architectural Heritage.

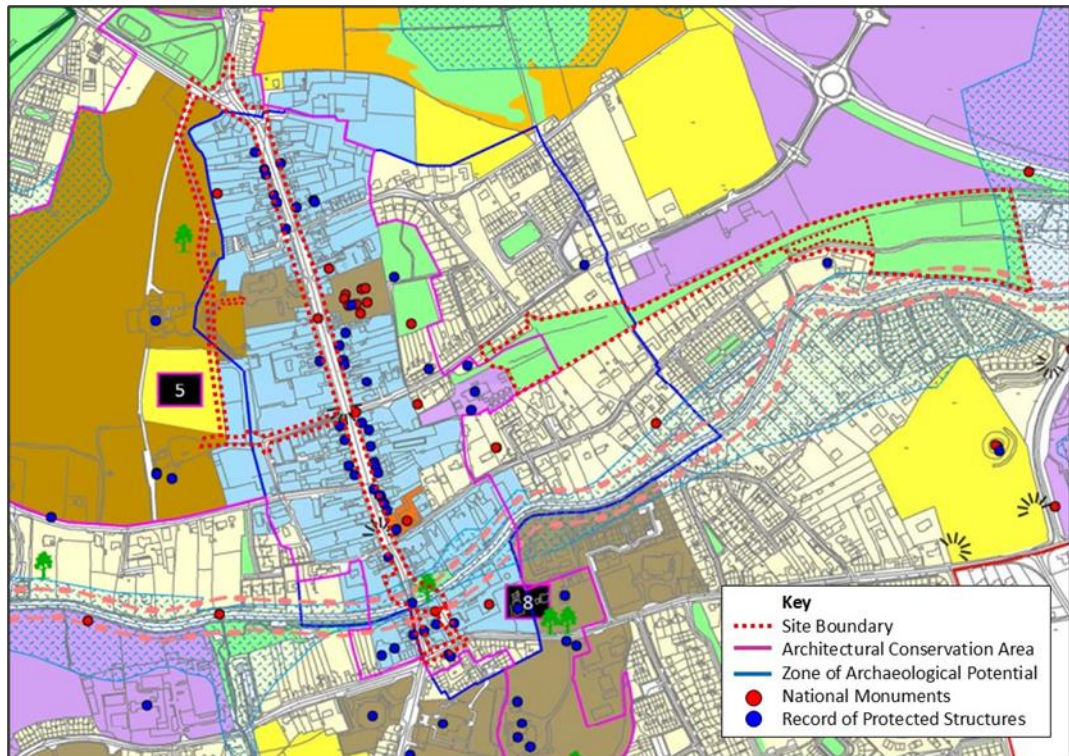


Figure 3.2: Extract from Ardee Composite Map (Volume 1A of LCDP)

Movement

- 3.19 As a town Ardee is in a strategic location, just 1 hour from both Dublin and Belfast via the M1 motorway. Further to this, the National Roads N52, N2 and N33 traverse near the town and result in a busy, vibrant town centre (see **Figure 3.3**).
- 3.20 Although Ardee does not have a dedicated bus station, it does benefit from several bus stops located on the N33 to the north and along the N2 (Main Street). The site is well serviced by Public Transport with 2 no. bus stops located to the north of Main Street with Service numbers 167, 180, 182, 182a, 980, 980A and 980B which provide local services as well as routes to Dundalk, Drogheda and Dublin.
- 3.21 Historically, Ardee was served by the rail network, with the train station being located to the south of O'Carroll Street in the east of the town. The rail service in Ardee ended in 1975 however the remains of the route of the track, the railway platform and railway station building are still evident today.
- 3.22 Ardee Main Street is linear in form and therefore many pedestrian routes tend to follow this orientation, running in a south to north direction. The town benefits from a dedicated pedestrian / cycle route in the east which runs along the route of the former rail track. This walk links to the town centre via Tierney Street.



Figure 3.3: Review of Strategic Road Network

Urban Form

- 3.23 Ardee has retained its late medieval footprint. Although the historic town walls have almost totally disappeared, the town's Main Street has survived as the most important element of the town's historic urban form.
- 3.24 Running through the core of the historic town is a long Main Street, with sections named as Bridge Street, Castle Street, Market Street and Irish Street. Main Street forms a strong spine through the core of the historic town and provides a linear form to the townscape.
- 3.25 Residential development wraps around to the north, east and south of the linear core of the town whilst industrial and commercial uses have developed along the arterial routes

into the town centre from the west and east. The building height in Ardee is predominantly single and two storeys, with some taller buildings located centrally along the Main Street.

- 3.26 The lands surrounding St. Joseph's Hospital to the west of Main Street have remained undeveloped and have the potential to offer a natural environment on the doorstep of the town centre for residents and visitors to the town.

Wider Context

- 3.27 Ardee is the third largest town in County Louth. The town itself is located on the River Dee, which runs through the southern end of the town and straddles the N2 Dublin to Derry National Primary Route, which runs south to north, and the N52 Dundalk to Kells National Secondary Route which runs from the west into the town, before joining the N2 and then at its northern end leaves the town in a north easterly direction (see **Figure 3.4**).
- 3.28 Ardee is an important local service centre in mid-Louth providing a range of services and employment to an extensive hinterland that extends into parts of Meath and Monaghan. The connectivity and accessibility that the town provides, due to its strategic location along the national road network, makes it an attractive location for growth and investment.

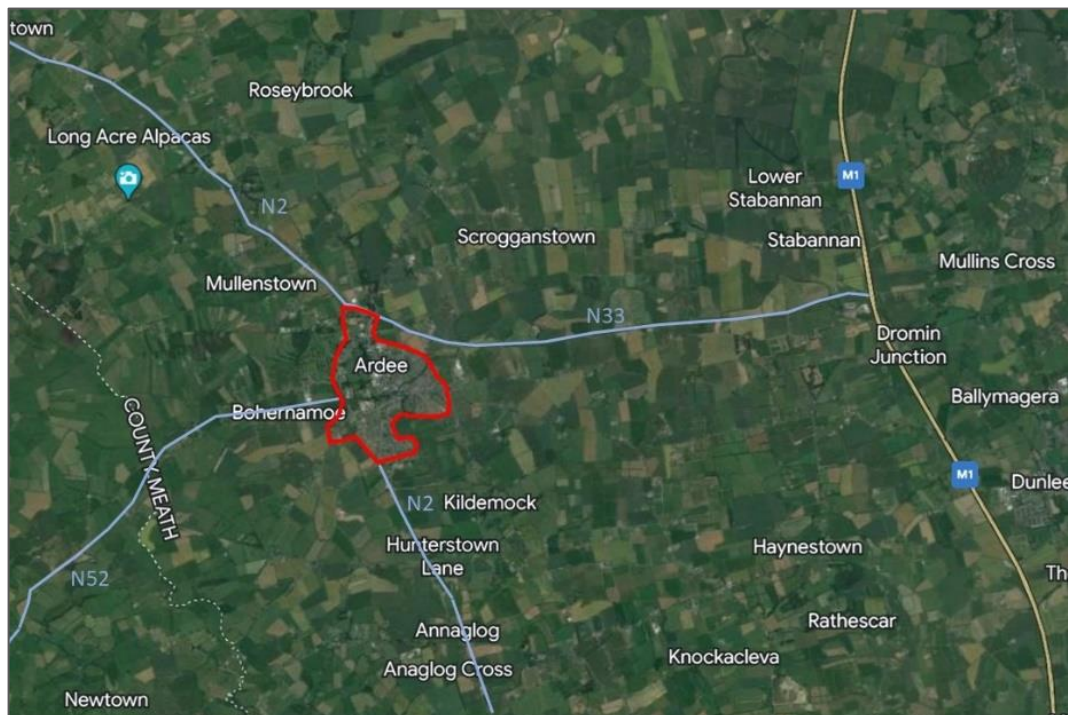


Figure 3.4: Satellite Image of Ardee and Wider Area

Planning History

- 3.29 A review of historical planning permissions was undertaken to identify whether there have been previous applications on or adjacent to the application site that either impact

on the prospects of planning permission being granted for the proposed development, or that could be impacted upon by the proposed development.

3.30 For the purposes of this review, a search was undertaken of all planning applications, recorded on Louth County Councils online planning portal as extant permissions or were otherwise under consideration at the time of writing of this report. A further review of An Coimisiún Pleanála's website was undertaken to identify any relevant applications.

3.31 Due to the extent of the site area and the nature of the proposed works it should be noted that the planning history search excludes small scale applications such as:

- Minor change of use applications.
- New residential schemes of less than 10 units.
- New commercial schemes (including change of use) of less than 3000 sqm).
- Retention applications.
- Minor amendments to permitted applications.
- Minor signage applications.
- Other development types of scale that would not exacerbate significant environmental / planning concerns (including car parking proposals, internal reconfigurations etc.)

Site History

3.32 There does not appear to be any recent significant planning history within the boundary of the application site which would be material with respect to the consideration of the proposed development either individually or in-combination with other recent developments/applications.

Wider Context

3.33 **Table 3.1** provides details on relevant planning applications outside, but within the immediate vicinity of the subject site. **Figure 3.5** shows the identified planning applications in the context of the application site.

3.34 We consider that these applications will not have a direct impact on the proposed development, however they have been considered as part of the design concept evolution to ensure that the Ardee 2040 Regeneration Project maximises the potential to link that will build upon and improve existing and future residential and community infrastructure, where possible.

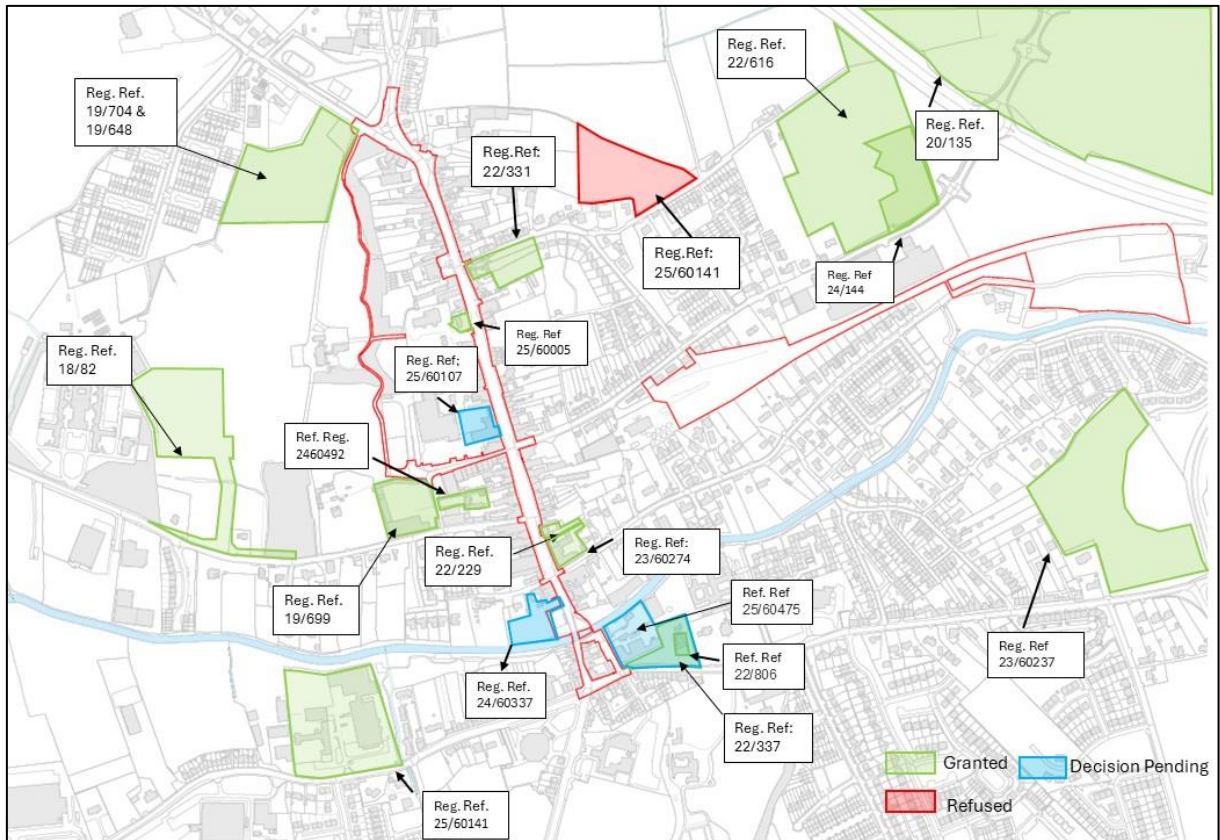


Figure 3.5: Map Showing Location of Relevant Planning Applications in the Immediate Area

Table 3.1: Relevant Planning History in the Immediate Area

Planning Reference	Site Location	Proposed Development (as per planning application description on Planning Authority portal)	Decision
2560141	John St, Ardee, Co. Louth	Permission for a two-storey extension to the south and west elevations of the existing factory, incorporating first floor offices and ground floor factory extension. A small single storey infill extension to the existing canteen to the south elevation, upgrading the existing south elevation with new cladding to match proposed finishes, together with all ancillary and associated site development works at our existing premises at John Street, Ardee, Co. Louth. The development is within the confines of a protected structure Ref LHS017-063.	Granted 07/05/2025
2460492	Ashwalk, Ardee	Permission for the construction of 2no. buildings (Blocks A & B). Proposed Block A is a three storey mixed use building comprising of a ground floor retail unit and a one bedroom apartment with vertical access area (stairs & lift) to the first and second floor residential accommodation; the first floor to consist of 2no. one bedroom apartments; the second floor to consist of 2no. one bedroom apartments. Proposed Block B consists of a two storey	Granted 18/10/2024

		residential building comprising of 2no. ground floor apartments (1no. one bedroom & 1no. two bedroom) with vertical access area (stairs) to the first floor residential accommodation comprising of 2no. apartments (1no. one bedroom & 1no. two bedroom); a landscaped courtyard between Blocks A & B, ancillary bin, bike and bulk storage areas, connections to the existing adjoining public water and drainage systems and all associated site development works. Note the proposed site / buildings in question are located within an Architectural Conservation Area (ACA) as outlined in the current Louth County Council Development Plan -2021 - 2027	
2560532	Black Ridge, Townparks, Ardee	Permission for the development to comprise of a total 45no. residential units as follows: (a) The provision of a total of 20no. two storey & 3no. three storey dwellings which will consist of 20no. 3 bed units and 3no. 4 bed units. (b) The provision of a total of 22no. apartments units consisting of 11no. 1 bed units and 11no. 2 bed units across 3no. buildings. (Block A comprises 4no. 1 bed & 4no. 2 bed units over two storeys, Block B comprises 3no. 1 bed & 3no. 2 bed units over two storeys, Block C comprises 4no. 1 bed & 4no. 2 bed units over two storeys). (c) Provision of associated car parking at surface level via a combination of in-curtilage parking for dwellings and via on-street parking for the apartment units. (d) Provision of electric vehicle charge points with associated site infrastructure ducting to provide charge points for residents throughout the site. (e) Provision of associated bicycle & bin storage facilities at surface level adjoining the apartment units. (f) Creation of a new vehicular and pedestrian access from The Black Ridge road with associated upgrade works to sections of the existing adjoining access (Black Ridge) road including the provision of a new footpath. (g) Provision of internal access roads and footpaths and associated works. (h) Provision of residential communal & public open space areas to include a formal play area along with all hard and soft landscape works with public lighting, planting and boundary treatments to include boundary walls, railings & fencing. (i) Provision of 1no. ESB substation. (j) Internal site works and attenuation systems including a pumping station. (k) All ancillary site development / construction works to facilitate foul, water and service networks for connection to the existing foul, water, gas and ESB networks. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application.	Refused (20/10/2025)
2560005	Market Street, Ardee, Co. Louth	Permission for (1) the Change of Use of the former Health Centre to a Community Support Centre, (2) demolition of tiled hipped roof structure including 2No chimneys & replacement with a slated gabled roof structure, (3) demolition of single storey flat roof structure to east elevation (front) & replacement with larger single storey flat roofed structure, (4) flat roofed extension to	Granted 31/03/2025

		west (rear) elevation to house services room, (5) elevational changes including alterations to existing window & door openings, new window & door openings, removal of wet dashing & replacement with a rendered finish, (6) site development works.	
24144	Potters Field, Cappocksgreen, Ardee, Co Louth	Permission for 47 no. two storey houses comprising 3 no. detached houses, 32 no. semi-detached houses and 12 terraced units. Works will include all associated landscaping and site development works on a site of 1.27 hectares	Granted 24/03/2025
2360237	Lands at Dawsons Demesne, Ardee, Co. Louth	Large-scale Residential Development (LRD) Application. Permission for development to consist of the provision of a total of 122 no. residential units along with provision of a creche. Particulars of the development comprise as follows: (a) site excavation works to facilitate the proposed development to include excavation and general site preparation works. (b) the infilling, raising and reprofiling of ground levels within the site as required with inert materials. (c) the provision of a total of 48 no. residential dwellings which will consist of 2 no. 2 bed units, 44 no. 3 bed units and 2 no. 4 bed units. The dwellings range in height from single storey to three storeys. (d) The provision of a total of 74 no. apartments / duplex units consisting of 17 no. 1 bed units, 32 no. 2 bed units and 25 no. 3 bed units. The apartment blocks range in height from two storey to three storey in height. (e) Provision of a creche at ground floor within apartment block H. (f) provision of associated car parking at surface level via a combination of in-curtilage parking for dwellings and via on-street parking for the creche, duplexes and apartment units. (g) provision of electrical vehicle charge points with associated site infrastructure ducting to provide charge points for residents throughout the site. (h) provision of associated bicycle storage facilities at surface level throughout the site and bin storage facilities. (i) creation of a new access point from Castleguard Road with associated works to include for a cycleway and footpath to the southern and eastern site boundaries. (j) provision of internal access roads and footpaths and associated works. (k) provision of residential communal open space areas to include a formal play area along with all hard and soft landscape works with public lighting, planting and boundary treatments to include boundary walls, railings and fencing. (l) provision of 1 no. ESB substation. (m) internal site works and attenuation systems which will include for provision of a hydrocarbon and silt interceptor prior to discharge into the surface water network in Castleguard Manor. (n) all ancillary site development / construction works to facilitate foul, water, and service networks for connection to the existing foul, water, and ESB networks.	Granted 21/12/2023 Appeal decision – granted modified (Ref: ABP-318163-23)

2360274	Castle Street and Tierney Street, Ardee	Permission for development as follows: 1. Demolition of rear projections and outbuildings associated and within the curtilage of the protected structures (Former Ardee Bread Company protected structure reference 13823007 and the former Sheridan's Services house protected structure reference 13823006) along with demolition of the boundary wall to Tierney Street. 2. Construction of the following:(a) 2no. apartment buildings ranging in height from 2 storey to 4 storeys which will comprise a total 20no. apartments of which there are 6no. 1 bed and 14no. 2bed units, all with balconies or ground floor terraces along with provision of a communal space at roof level. (b) The provision of 1no. 3bed semi-detached dwelling and associated garden area. (c) The adaptation and change of use of the former Ardee Bread Company building (protected structure reference 13823007) to provide for 2no. retail units at ground floor, 2no. 1bed apartments at first floor level and 1no. 1bed duplex apartment. Associated refurbishment works of the former Ardee Bread Company building are also to be carried out. (d) The adaptation and change of use of the former Sheridans Services house (protected structure reference 13823006) to provide for a total of 1no. 2bed apartments and 1no. 1bed apartment. Associated refurbishment works of the former Sheridans Services house are also to be carried out. (e) The creation of a new pedestrian entrance from Tierney Street. (f)Associated bin and bicycle storage facility. (g) Provision of internal footpaths and communal space areas at ground level to include all hard and soft landscape works with planting and boundary treatments;(h) Internal site works and attenuation systems (i)All ancillary site development/construction works to facilitate foul, water and service networks for connection to the existing foul, water and ESB networks. The proposed works relate to the protected structures within the site (Former Ardee Bread Company protected structure reference 13823007 and the former Sheridan's Services house (protected structure reference 13823006)	Granted (08/07/2024) 3rd Party Planning Appeal – appeal withdrawn (Ref: ABP-319595-24)
22806	De La Salle House, Moorehall, Townparks, Ardee	Permission for development at Protected Structure LHS017-031, consisting of alterations to the previously approved development - Ref. No. 22337, which was for (1) the change of use from a monastery to a boutique hotel and restaurant, (2) internal alterations and restoration of the existing building, (3) erection of a part 2, part 1.5 storey extension to the side and rear, (4) creation of a glazed courtyard between the house and outbuilding, (5) formation of a new car park and adjustment of site boundaries to allow for vehicular circulation and (6) all associated site works, including connections to public foul drainage system. The alterations relate to the building only and affect the plan layout at ground and first floor levels and elevations to the rear and sides of the building. The alterations	Granted – 1/12/2022

		will result in a reduction of floor area from that previously approved	
22331	Market Street and Market House Lane, Ardee	Permission for the demolition of 3 no. habitable dwellings/2 no. with ground floor shop units and existing out buildings, demolition of existing boundary walls to Market House Lane, alteration to existing road entrance to Market House Lane and the construction of 2 no. retail units and 28 no. housing units comprising a mix of apartments, terraced dwellings including: (i) Block A: 8 no. apartment units (House Type E,F,G,H,I), comprising of two one-bed apartments over 2 no. ground floor retail spaces, 4 no. two-bedroom duplex apartments and 2 no. three-bedroom duplex apartments with own door access; (ii) Block B: 10 no. terraced houses comprising 5 no. two-bedroom and 5 no. three-bedroom houses (House Type A,B); (iii) Block C: 4 no. terraced houses comprising 1 no. two-bedroom and 3 no. three-bedroom houses (House Type A,B); (iv) Block D: 3 no. terraced houses, comprising of 2 no. three-bedroom and 1 no. four-bedroom houses (House Type D,J); (v) Block E: 3 no. terraced houses, comprising of 3 no. four-bedroom houses (House Type C). The proposed development will also include the provision of surface car parking (28 no. spaces including 2 no. accessible), bicycle parking (44 no. spaces), bin stores, private open space, public open space, foul and surface water drainage, street lighting, boundary treatments and all ancillary site development works necessary to facilitate the development, on a site located within an ACA *SFI received 23.03.23 which provides for, inter alia, a reduction from 2 to 1 no. retail units, an increase from 28 to 45 no. dwelling units and a reduction in site size to 0.4587ha****	Granted 17/04/2023 Appeal Decision – granted with modifications 28/08/2024 (Ref: ABP-317116-23)
22228	Bridgegate, Rathgory, Mulladrillen, Drogheda Road, Ardee, Co Louth (Location not shown at Figure 3.6)	SHD Stage 3. Stage 2 Ref. No. 20/759 - See www.bridgegateshd.ie for details. The Ardee Partnership, intend to apply to An Coimisiún Pleanála for permission. Development will consist of: A) construction of 272 no. residential units comprising 206 houses 66 no. duplex units (3 storeys), with private open space, B) A part 1, part 2 no. storey crèche and playground and a single storey community building adjacent at a community hub accessed from Bridgegate Avenue served by car parking on Bridgegate Green and Bridgegate Avenue; C) A Park located in the north of the site extending to accessed from community hub and between duplex B & C at Bridgegate Avenue, with 2 no. pedestrian links to public park adjoining to the west and 1 no. pedestrian footpath extending to the north perimeter at Hale Street, with reservation for a future link road to the east facilitated in the north section of park; D) Works to the Rathgory Tributary comprising realignment of the channel and regrading and reprofiling of land, implementation of 2 vehicular crossings and provision of a riparian corridor based around the open watercourse comprising landscaping and	Granted 15/08/2023

		planting with access to the watercourse provided for maintenance purposes and 1 no. pedestrian and cyclist crossing; E) A series of public open spaces; open spaces will provide a mix of hard and soft landscaping, pedestrian and cycle access and a range of activities F) Provision of shared surfaces, landscaped streetscapes including planting and landscaping at two neighbourhood streets in the southern part of the site, with roads provided to site boundaries to the east, south and west to facilitate possible future connections; G) All landscaping and boundary treatments; H) Roads and access infrastructure taken from Bridgegate Avenue (permitted Ref: 10/174; ABP Ref: PL15.238053, provision of a bus stop on the south side of Bridgegate Avenue adjacent to community hub and provision of cycle lanes at this location (continued through Public Open Space 01); a total of 480 no. car parking spaces (362 no. serving houses, 84 no. serving duplexes, 23 no. serving crèche and community building and 11 no. visitor and public open spaces), a total of 296 no. bicycle parking spaces ; I) Provision of 2 ESB substations, drainage and services infrastructure, lighting, SUDS drainage. An EIAR and a NIS have been prepared	
22616	Cappocksgreen, Ardee, Co Louth	Permission for amendments to previously granted permission Ref. No. 08/1220 (extended under Ref. No. 19/178), amended under Ref. No. 21/20 and 21/1190, for 1. Replacement of 32 no. 2 storey 3 and 4 bedroom dwelling houses, (6 number at 1-2 and 15-18 Potters Field Close; 17 number at 1-17 Potters Field Walk; 4 number at 22-27 and 33-34 Potters Field Green) with 38 no. 2, 3 and 4 bedroom revised residential dwellings, 2 storeys in height and their associated site works. 2. Modifications to 7 no. house types at 4-10 Potters Field Avenue to recently approved house types A & A1 from granted permission 2120, also involving minor amendments to rear gardens of 1, 2 and 4 Potters Field Avenue. 3. Revised naming and numbering of dwellings to include proposed amendments. All on site of 4.6 hectares at Cappocksgreen, bounded at north by N33 Ardee Link Road and south by Sean O'Carroll Street	Granted 17/10/2022
22/337	De La Salle House, Moorehall, Townparks, Ardee, Co Louth	Permission for development to Protected Structure LHS017-031, De La Salle House to consist of (1) the change of use from a monastery to a boutique hotel and restaurant; (2) internal alterations and restoration of the existing building; (3) erection of a part two storey, part storey and a half extension to the side and rear; (4) creation of a glazed courtyard between the house and	Granted 18/07/2022

		outbuilding; (5) formation of a new car park and adjustment of site boundaries to allow for vehicular circulation and (6) all associated site works, including connections to public foul drainage system	
22229	Ardee Castle, Main Street, Ardee	Part 8 - Louth County Council hereby gives notice of its intention to carry out refurbishment works to Ardee Castle, a Protected Structure comprising the Castle, Bridewell building to the rear and modern courtyard extension (Reference Lhs 017-017, NIAH 13823004 and a National Monument and Protected Structures and are within the Ardee Conservation Area as designated in the Louth County Development Plan 2021-2027. This application is an amendment to previously approved Part 8 procedure namely Ardee Castle Refurbishment and Access Improvement Works (Ref:17/137) and comprises the following over and above the previously approved Part 8 procedure: - Altered and extended external stair, lift and services core to height of 4 floors to rear of buildings providing universal access and egress to ground and all upper levels of the building. - All associated site development works.	Granted 02/06/2022
20135	Cappocksgreen, Ardee	EXTENSION OF DURATION OF 09/509: Ten year Permission for the construction of: A light industrial / business park of 43,418sqm (gross floor area), consisting of 29 no. light industrial/ warehouse buildings ranging in size from 648sqm to 1944sqm (gfa), each subdividable in up to 8 units, 1 no. building of 1080sqm (gfa) for restaurant and gym use and 1 no. building of 3,236sqm (gfa) for builders providers' use; Associated surface car parking (1,002 spaces); Associated internal road network; Access from new roundabout to N33; 8 no. ESB substations; Entrance totem sign of 5.0m in height; Re-routing of a 38Kv power line traversing the site; Landscaping works including along the River Dee, Captain's Stream & N33 boundary; Foul and surface water drainage, connection to existing public sewer network and all associated site works. An EIS will be submitted to the Planning Authority with the planning application, all on a 19.82 ha site bounded by the N33 to the south, the River Dee to the east, and agricultural lands to the north and west	Granted - 05/03/2020
19704	St Joseph's Hospital, Golf Links Road, Ardee, Co Louth	Construction of a new single storey ambulance base and upgrading of the existing access road within the site to a two-way road with a new 3m wide shared pedestrian/cycleway path and associated site development works.	Granted 20/02/2020
19699	Jervis Street, Ardee, Co Louth	Development of an Aldi Store with new access road from Jervis Street.	Granted 08/10/2020
19648	St Joseph's Hospital, Golf	Development of new community nursing unit/residential care unit.	Granted 30/09/2021

	Links Road, Ardee, Co Louth		
1882	Jervis Street, Ardee, Co. Louth	PART 8: Notice of Intention to carry out works on a site measuring approximately 2.37 hectares at Jervis Street, Ardee, County Louth. The development will consist of: (i) Construction of a single storey primary school building, Ardee Educate Together National School, (1923 sq.m. gross floor area); with associated external signage. The constituent elements of the new school building comprise: (a) a single storey south facing wing containing 8 classrooms and associated sanitary accommodation, (b) an east facing double class special needs unit incorporating multi-sensory room, para-educational room, central activities room and specialist sanitary accommodation and (c) a one and half storey general purpose room, library, multi-purpose room, special tuition, general sanitary and administration rooms within a central entrance wing. The immediate school site development works include (d) a single hard ball court, junior hard play, sensory play and sensory garden with general grass play areas (e) vehicular access to a bus set-down area, 19 car parking spaces and 2 universally accessible car parking spaces and (f) 22 bicycle racks for 44 bicycles. The general site estate development includes an access boulevard, pedestrian pavements and cycle lanes to be constructed from Jervis Street to service the school site and make provision for future development within the existing adjacent estate. The existing stone wall on Jervis Street shall be taken and realigned to form a new public access to this boulevard. The proposed development also includes hard and soft landscaping, boundary fencing, site attenuation, associated site services integration and services diversions. The areas for the proposed works are within the curtilage of a number of Protected Structures located adjacent or abutting the subject site, and includes the removal of freestanding gates, boundary walls and stone square piers, (Protected Structure Reference No. Lhs 017-068 NIAH 13823034) along the north side of Jervis Street within the urban boundary of Ardee Local Area Plan. The proposed development is also in the Ardee Architectural Conservation Area. Louth County Council has undertaken Appropriate Assessment Screening, the details of which are available to the general public.	Granted 05/04/2018

Planned Projects

- 3.35 The EPA document Guidelines on the information to be contained in Environmental Impact Assessment Reports states that *"It may also be appropriate to consider other projects that are planned but not yet permitted"*. On this basis, this assessment also took into consideration relevant planned projects.

3.36 **Table 3.2** provides details of planned projects (i.e. projects that do not have planning permission) have been identified at the time of writing of the EIAR (see **Figure 3.5**). We consider that these applications will not have a direct impact on the proposed development, however they have been considered as part of the design concept evolution to ensure that the Ardee 2040 Regeneration Project maximises the potential to link that will build upon and improve existing and future residential and community infrastructure, where possible.

Table 3.2: Pending Planning Applications

Planning Reference	Address	Proposed Development (as per planning application description on Planning Authority portal)	Decision
2560475	Moorehall, Ardee	Planning permission is sought for a mixed-use development on the sites of disused buildings of Odea Agri Seeds Limited (listed on the records of protected structures: LHS017-060) and the De La Salle Monastery (listed on the Record of Protected Structures: LHS017-031) in Moorehall, Townparks, Ardee, Co. Louth. The development applied for consists of: (A) Demolition or partial demolition of existing derelict disused buildings and outbuildings / sheds on the existing site. (B) Construction of a 4-Storey commercial building to cater for a restaurant and retail unit at ground floor level and office spaces on upper floors. (C) Construction of a 3-Storey residential building that consists of 9No. of apartments with the following configuration: o 1No. - 1 Bedroom (Studio Apartment) o 6No. - 2 Bedroom Apartments o 2No. - 3 Bedroom Apartments (D) Demolition of the structurally unsound concrete extensions and the 2-storey corner building attached to the existing protected structure (LHS017-060) and form new 2-Storey extensions to the sides within the existing building footprint. (E) Renovation and change of use of the existing disused Odea Agri Seeds building to form 12 No. of apartments with the following configuration: o 5No. - 1 Bedroom Apartments o 4No. - 2 Bedroom Apartments o 3No. - 3 Bedroom Apartments The development shall include removal of all derelict internal floors and creation of additional openings on external walls. It is also proposed to raise the existing roof to create a band of glazing around the outer profile of the building and to improve the floor heights inside the dwellings. (F) Conversion and extension of the existing Silos building to form a 22 bedroomed hotel building that will function ancillary to the already granted 18 bedroomed hotel proposed in De La Salle house (ref. 22806) (G) Modify the entrance to the site with the public road on William Street and to create internal vehicular and pedestrian paved routes and car parking. (H) Revised car parking layout from the previously approved application (ref. 22/806) for De La Salle house. We intend to maintain the one-way system and integrate additional parking spaces to accommodate the expanded development needs. (I) Construction of refuse storage, bicycle storage, public plaza, and river side park. (J) Repairs to riverbank wall. (K) Permission is also	Decision Pending – FI Request (5/09/2025)

		sought to connect to the existing drainage and services and all ancillary site works associated with the above.	
2460337	Boat Trench, Ardee, Co. Louth	Permission for the demolition of a dwelling house and the erection of 22 No. Older people and persons with limited mobility housing units consisting of 5 no. blocks of single storey semi-detached and terrace buildings comprising 18 no. one bedroom units and 4 no. two bedroom units. The development also includes the provision of a new access road & pedestrian access leading to public road, carparking spaces, covered bicycle spaces, bin storage enclosure, site lighting and revised site boundary treatments with associated site works. To connect to council water mains and public foul sewage with associated siteworks. A Natura Impact Statement (NIS) will accompany the planning application	Decision pending.

4. Consideration of Alternatives

Introduction

- 4.1 The consideration of alternatives is necessary to evaluate the likely environmental consequences of the range of development strategies for the site within the constraints imposed by environmental and planning conditions.

Legislative Context

- 4.2 Article 5 (1) of the 2014 Directive requires the consideration of reasonable alternatives which are relevant to the project and take into account the effects of the project on the environment.

- 4.3 Article 5 (1) states that;

“Where an environmental impact assessment is required, the developer shall prepare and submit an environmental impact assessment report. The information to be provided by the developer shall include at least...”

“...a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment.”

- 4.4 Schedule 6 of the Planning and Development Regulations, 2001 (as amended) sets out the information which is to be contained in an EIAR and Part 1 (d) of Schedule 6 states that the following shall 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 option chosen, taking into account the effects of the proposed development on the environment.”

- 4.5 In accordance with the draft EPA Guidelines, different types of alternatives may be considered at key stages during the EIA process. As environmental issues emerge during the preparation of the EIAR, alternative designs may need to be considered early on in the process or alternative mitigation options may need to be considered towards the end of the design process.

- 4.6 The EPA Guidelines (Draft) state:

“The objective is for the developer to present a representative range of the practicable alternatives considered. The alternatives should be described with ‘an indication of the main reasons for selecting the chosen option’. It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option. A detailed assessment (or ‘mini-EIA’) of each alternative is not required.”

- 4.7 The consideration and examination of alternatives is set out below.

Methodology

- 4.8 In accordance with the EIAR guidelines, different classes of alternatives may be considered at key stages during the design process. The EPA guidelines state that:

“The objective is for the developer to present a representative range of the practicable alternatives considered. The alternatives should be described with ‘an indication of the main reasons for selecting the chosen option’. It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option. A detailed assessment (or ‘mini-EIA’) of each alternative is not required.”

- 4.9 The EPA Guidelines indicate that alternatives should be considered under the following headings:

- ‘Do-Nothing’ Alternative
- Alternative Locations
- Alternative Layouts
- Alternative Designs
- Alternative Processes
- Alternative Mitigation Measures

‘Do-Nothing’ Alternative

- 4.10 The ‘Do-Nothing’ alternative considers the likely scenario that would arise, assuming the proposed development was not progressed, i.e. if nothing were done. Note that this chapter discusses the Do-Nothing scenario in terms of development (or lack thereof) in the absence of the proposed development. The likely impacts of a Do-Nothing scenario in relation to the various environmental topics (e.g. cultural heritage, biodiversity, traffic and so on) are discussed in the respective chapters of this EIAR. In this case, the Do-Nothing scenario might entail:

- **Scenario A:** A continuation of the existing condition and use of the subject lands (i.e. underutilised public realm, car dominated environment, underutilised amenity spaces and unmaintained grassland); or
- **Scenario B:** Development (likely to be similar in nature to the current proposal) of an alternative proposal and related planning application at some point in the future.

- 4.11 If Scenario A occurred i.e. if the development was not implemented (i.e., scenario A above), then it could represent a significant loss of potential regeneration and the associated funding opportunities for Ardee, in order to upgrade public realm spaces, install traffic calming measures and community infrastructure. This would not maximise

the development potential of the land and maintain a negative impact on the wider community.

- 4.12 We consider that Scenario B is the more likely alternative. If this development were not to come forward at this stage it is likely that LCC would propose a similar development under a separate proposal. This course of action is considered to be likely where LCC owns the majority of the application site and on the basis that policy objectives of the Louth County Development Plan 2021 – 2027 aspire to deliver sustainable community infrastructure to meet the needs of the entire population.

Alternative Locations

- 4.13 The overall objective of this regeneration project is to transform Ardee Town from a traditional manufacturing centre to a 21st century prosperous and thriving local multifunctional, innovative centre in an integrated and sustainable way. The proposed development relates to four Key Character Areas within Ardee. These four key areas have been chosen due to the potential of these areas to link to/complement a number of existing projects at differing stages of development in the town. On this basis, consideration of alternative locations is not relevant in this instance.

Alternative Design Approach (Layout and Design)

- 4.14 The proposal has been the subject of an extensive master planning process undertaken to establish the best and optimal redevelopment principles and proposals for Ardee. This master planning process included an extensive review of the identified site and the surrounding area by an integrated design team, including a roads engineer, architect, urban designer, civil engineer, conservation architect, planner and ecologist, to identify potential physical, social and planning constraints and opportunities for the development project.
- 4.15 Following this, the Design Team identified 3 no. potential design options for the Main Street/Ash Walk, Old Railway Lands and Amenity Lands Key Character Areas. No alternative options were developed for the route of the Woodland walk as the proposal includes improvement works to an existing footpath.
- 4.16 The design process has considered feedback at key stages of the project obtained by non-statutory consultation and engagement, to balance the issues and opportunities, in order to establish design principles that ensure that the potential benefits of the redevelopment of the lands are optimised.
- 4.17 As part of the concept development stage of the project 3 no. alternative design options were developed for each character area. These are detailed below and the reasons as to why they were discounted as the preferred option for the final development.

Character Area 1 – Main Street (Including Ash Walk)

Alternative Option 1

- 4.18 Alternative Option 1 is a vision for pedestrian comfort. The design characteristics of this option are as follows:

- Asymmetric Road Scape designed to slow down vehicular speed;
- 7 no. different quarters designated along Main Street defined through the changing road design;
- Change of pavement material of the road at three main Quarters; Heritage, Town Square & Culture to identify their individual characteristics;
- Improving pedestrian and bicycle comfort;
- The road is designed to reduce vehicular speed;
- East/West connectivity from the new school in the west to the recreation area in the east is provided for in the vision; and
- A green gateway is proposed to the north and south of Main Street.

4.19 The main characteristics of this alternative option are shown in **Figure 4.1** and **Figure 4.2**. This design option was discounted as, whilst it encouraged a reduction in vehicular speed, it was decided that it didn't go far enough to improve the public realm and encourage alternative modes of sustainable transport.



Figure 4.1: Image illustrating Transition from Heritage Quarter to Town Square



Figure 4.2: Image illustrating transition towards the Heritage Quarter. Asymmetric road scape increases the space in front of the Castle

4.20 The following details the design characteristics of the alternative option for the Ash Walk Area (see **Figure 4.3**):

- The proposed concept was for a 'Town Square Extension' to the Main Street to provide a multifunctional space for events.
- Pavilions were proposed for commercial use which would help to define the street scape along Ash Walk and extend the town centre towards the new Aldi site and school to the west.

- Possible re-invention of the old Super Valu store fronting onto Main Street for further commercial uses, while creating a pedestrian link from the Main Street to Ash Walk.

4.21 A large portion of the proposed concept concentrated on the re-development of the existing Super Valu car park for alternative uses in the evenings/weekend. Further to engagement with the owners of the Super Valu store it has been confirmed that redevelopment of their car park, for use as a shared space on occasions, would have a detrimental impact on the viability of their business and therefore this proposal was discounted as an alternative option.



Figure 4.3: View towards proposed Town Square Extension

Alternative Option 2

4.22 Alternative Option 2 is a vision for an improved pedestrian environment. The following details the design characteristics of the alternative option for the Main Street Area:

- This option includes a partly asymmetric road scape, with the majority of the road alignment remaining as per the existing road;
- The proposed road would be finished in tarmac throughout all 7 no. Quarters, with no shared surface spaces; and
- This option will marginally improve pedestrian and cyclist experience along Main Street.



Figure 4.4: Image showing transition towards the Heritage Quarter.
Asymmetric road scape increases the space in front of the Castle



Figure 4.5: Image showing transition from Heritage Quarter to Town Square

- 4.23 The main characteristics of this alternative option are shown in **Figure 4.4** and **Figure 4.5**. This design option was discounted as it was decided that it didn't go far enough to improve the public realm and encourage alternative modes of sustainable transport, therefore the option would not deliver on the vision or objectives of the project.
- 4.24 The following details the design characteristics of the alternative option for the Ash Walk Area (see **Figure 4.6**):
- Redevelopment of the Super Valu car park as a multifunctional space which can be used for events, culture, markets etc on special occasions;

- Parking remains as the primary function of the space; and
- New landscaping will announce the entrance to Super Valu.



Figure 4.6: View towards proposed Car Park

- 4.25 Further to engagement with the owner of the Super Valu store it has been confirmed that redevelopment of their car park to use this as a shared space on special occasions would have a detrimental impact on the viability of their business and therefore this proposal was discounted as an alternative option.

Character Area 2 – Old Railway Lands

Alternative Option 1

- 4.26 Alternative Option 1 is for an event space with temporary/moveable café and nature based play structures (see **Figure 4.7**). This option includes an extension of the existing ecological corridor of existing railway walk.



Figure 4.7: Alternative Option 1 Proposed Sketch Layout

- 4.27 Whilst aspects of the option were considered to be appropriate for this site i.e. temporary/moveable café and nature based play structures, it was decided that this was not the preferred location for a performance space in Ardee due to the potential noise impacts on the adjacent residential properties. Further to this there is no car parking in close proximity to this location that could be used to accommodate traffic associated with an event. For this reason, Alternative Option 1 was discounted.

Alternative Option 2

- 4.28 Alternative Option 2 proposed a neighbourhood park with formal landscaping and small commercial units/workshops (see **Figure 4.8**). A review of Louth County Council Development Plan 2021 – 2027 indicated that a commercial use was not a generally acceptable land use on a site zoned for Open Space. Louth County Council also advised that in its opinion this was not a viable location to locate small business units, with their preference being that commercial uses be retained within the town centre boundary. For these reasons, Alternative Option 2 was discounted.



Figure 4.8: Alternative Option 2 Proposed Sketch Layout

Character Area 3 – Amenity Lands

Alternative Option 1

- 4.29 Alternative Option 1 is to develop a BMX / cycle track and cross-country running track and associated landscaping on this site (see **Figure 4.9**). This alternative was discounted as the non-statutory community consultation process carried out as part of the design process did not identify a sufficient level of need or support for the redevelopment of this site for a BMX / cycle track.



Figure 4.9: Alternative Option 1 Proposed Sketch Layout

Alternative Option 2

- 4.30 Alternative Option 2 was for the development of an open parkland with structured tree planting, cycle friendly pathways and sub-space recreation e.g., boules / yoga / outdoor fitness (see **Figure 4.10**). This option was discounted as a viable alternative option for redevelopment of the Amenity Lands site as it didn't maximise the use/community benefit of a key Council owned site within the settlement boundary of Ardee.



Figure 4.10: Alternative Option 2 Proposed Sketch Layout

Character Area 4 – Woodland Walk

- 4.31 No alternative design options were developed for the route of the Woodland Walk as the proposal includes improvement works to an existing path.

The Preferred Final Proposed Development

- 4.32 The proposed project constitutes the final alternative, and preferred, option. A full description of the proposed development is included in **Chapter 5**.
- 4.33 The design has been progressed via an iterative process with design amendments arising from non-statutory engagement with the community and local groups, Transport Infrastructure Ireland (TII) and Louth County Council. The current scheme takes account of planning, economic, social and environmental considerations arising throughout the design process. The planning application submission, which includes this EIAR, provides a full assessment of the proposed project and concludes that the proposed project is in accordance with the proper planning and sustainable development of the area in which the proposal is situated.

Alternative Processes

- 4.34 The EPA Guidelines state that *‘Within each design solution there can be several different options as to how the processes or activities of the project can be carried out’*.
- 4.35 Alternative processes is not considered to be relevant for the proposed project or this EIAR having regard to the detailed Masterplanning and engagement stages/processes that were undertaken and noting the nature, location and design specifics of the proposed project.

Alternative Mitigation Measures

- 4.36 The mitigation measures which are outlined in the various chapters of the EIAR, and summarised in Chapter 21 of this EIAR, are considered appropriate to the location, nature and extent of the project and its potential impacts. As such, no alternative mitigation measures were required to be considered.

Conclusion

- 4.37 Having examined various reasonable alternative designs for each character area, it is considered that the proposed development represents the preferred option in terms of achieving the best sustainable development outcome of the site and its surrounding area.

5. Description of the Proposed Development

Introduction

- 5.1 This Chapter, in accordance with Article 5(1)(a) of the EIA Directive, provides: *“...information on the site, design, size and other relevant features of the project”*.
- 5.2 The assessment provided in the following Chapters, undertaken by a specialist team of consultants, is underpinned by the description of the project as set out below.

Overall Project Vision

- 5.3 Towns are constantly reassessing themselves, searching for new ways to address local and regional challenges to be thriving, attractive and prosperous centres. In-line with the National Planning Framework and the Regional Economic and Spatial Strategy, there is a need to provide Ardee with the strategic direction required to ensure it grows and performs as a Local Service Centre.
- 5.4 The purpose of the project is to support regeneration, compact growth and sustainable development in Ardee Town. The type of infrastructure to be implemented on this project will be; new and better quality streets, public spaces/realm/plazas and associated services, junction upgrades, cycleways \ walkways and sports recreational areas.
- 5.5 The Ardee 2040 Regeneration Project brings forward a vision for urban regeneration and development of the town with the following objectives at the forefront:
- Ensuring inclusivity for all members of the community; the very young, the youth, the old, the mobility impaired, those that are socially disadvantaged, the pedestrian and cyclist.
 - Developing projects which aspire to embody the design principles established as national and international best practice.
 - Promoting an environment which leads to daytime and night-time activities.
 - Improving connectivity and legibility for all members of the community and for visitors/tourists to the town.
 - Creating quality gateways, public spaces, recreational areas, sporting areas and public realm.
 - Capitalising upon, whilst sensitively respecting the rich heritage of the town centre.
 - Operating / employing sustainable development principles through minimising energy consumption and maximising the use of renewable energy technology.

Detailed Description of the Development

5.6 The scheme is defined in the statutory notice as follows:

(1) Public realm improvement works at Ardee Main Street (N2) and surrounding streets as listed above (in the townland of Townparks) comprising: new hard landscaping including resurfacing; soft landscaping including new tree planting; street furniture; new pedestrian connections and footpaths; Sustainable Urban Drainage System (SUDS); new cycle parking; tactile paving; and undergrounding of services.

(2) Road improvement works at Ardee Main Street (N2) and surrounding streets as listed above (in the townland of Townparks) to include: alteration of road alignment; realignment of Golf Links Road / N2 junction; raised junctions; resurfacing; shared surface treatments; revised access arrangements; pedestrian crossing points; reduction and rationalisation of the layout / orientation of existing on-street public car parking provision; installation of electric vehicle charging points; new bus stop shelters; road signs; and new public lighting.

(3) Resurfacing of Bridge Street Bridge (NIAH Reg. No. 13823008 / Protected Structure Ref: LHS017/056) at Bridge Street.

(4) Construction of a new segregated cycle lanes at Main Street (N2) (in the townland of Townparks), Ardee provided as dedicated one-way and two-way bi-directional cycle lanes and associated cycle parking stands.

(5) Alterations to the existing car parking layout at Ardee Library off Ardee Main Street (N2) (in the townland of Townparks) to create in part a public plaza including retention of Sir Frederick Foster Memorial Fountain scheduled monument (NIAH Reg No. 13823042 / Protected Structure Ref: LHS017/070) and realignment of existing access road to Foster Close.

(6) Extension of Ash Walk Road (extending approx. 60m to the west and upgrades to existing junction to the Supervalu car park / services access off Ash Walk Road.

(7) Development of a woodland walk within St. Joseph's Hospital Grounds (in the townland of Townparks) including: resurfacing of existing informal path within St. Joseph's Hospital grounds (Protected Structure Ref: LHS017/035); a new footpath on agricultural land linking St. Joseph's Hospital grounds to Ash Walk and Golf Links Road; resurfacing of existing footpath linking St. Joseph's Hospital grounds to the rear of Ardee Day Care Centre to create new pedestrian access point onto Ardee Main Street; and new soft landscaping, boundary treatments, bollards and signage.

(8) Construction of a new community park at lands known as the Old Railway Lands off O'Carroll Street (in the townlands of Dawsons Demesne / Cappocksgreen) including: hard and soft landscape areas; community garden; equipped children's play space; pedestrian footpaths and kerbing; storage container; proposed boundary treatments; street furniture; public lighting; Sustainable Urban Drainage System (SUDS); heritage enhancement including demarcation of former location of Ardee Town Wall with engraved natural stone paving; new signage; construction of a new vehicle /

pedestrian access and associated gate piers to O'Carroll Street and associated works; and provision of car parking and circulation space within community park.

(9) Retention of existing railway heritage infrastructure off O'Carroll Street (in the townland of Dawsons Demesne) to provide a public amenity space.

(10) Construction of a community sports and recreation facility and single storey sports pavilion building (7m high) on lands off Tierney St. (in the townland of Cappocksgreen) to include: a 200m all-weather running track; bowling green and associated flood lighting and boundary treatments; hard and soft landscape areas; Sustainable Urban Drainage System (SUDS); new pedestrian access points to existing old railway walk retaining pedestrian linkage to Old Railway Lands; provision of new car parking; new public lighting; street furniture; and signage.

(11) All associated site works including: drainage; undergrounding of services; and all other associated ancillary development works.

- 5.7 The following provides a detailed description of the proposed uses and development proposed for each area of the application site.

Character Area 1 - Main Street Area (including Ash Walk)

Proposed Development

- 5.8 The extent and nature of the proposed development is intended to reflect the importance of a balanced approach to the town's further development. Ardee is a commercial centre and therefore it is essential that links to surrounding towns and counties, as well as to the country as a whole, are retained.
- 5.9 The proposals are rooted in the urban fabric of the town. They include components for strengthening the town's infrastructure, by improving the accessibility of existing pavements and celebrating the town's cultural strengths through high-quality public realm additions, with an emphasis on the Library square and Ardee Castle areas of the Main Street.
- 5.10 The development in the Main Street / Ash Walk area comprises of:
- The realignment of the existing carriageway including areas of road narrowing and the introduction of raised junctions and shared surfaces;
 - Realignment of the Golf Links Road and Main Street (N2) junction to rationalise the junction and improve road safety;
 - Construction of a new off-road cycle route in Townparks provided in dedicated one-way and two-way shared cycle tracks and associated cycle parking stands;
 - Reduction and rationalisation of the layout / orientation of existing on-street public car parking provision to increase the area of hard and soft landscaped public realm spaces available to the public;
 - Alterations to the Ash Walk / Main Street / O'Carroll Street junction;

- New high priority pedestrian crossings throughout Main Street;
- Extension of Ash Walk to connect to the new link road previously approved under Part 8 planning permission (granted 2005);
- Resurfacing of the existing bridge (Structure of regional importance as recorded by the National Inventory of Architectural Heritage (NIAH) Reg. No. 13823008) on Bridge Street; and
- Public realm upgrade works to Main Street / Ash Walk to include the resurfacing of existing footpaths, new public realm areas outside of Ardee Library and Ardee Castle, new soft landscape areas and trees, new street lighting and street furniture.

Materials

- 5.11 It is proposed that the existing paving is replaced with a high-quality paving, including stone slabs and bonded gravel of various tone and colour, which reflects the character of prominent historical buildings along Main Street including Ardee Castle, Hatches Castle and St. Marys Church. The proposal will include a durable material palette using local stone where possible.
- 5.12 The choice of materials can contribute to the project's sustainable credentials and be a strong element of its identity. Choosing a local stone, if it is available economically, is an obvious starting point, but several types of surface will generally be required, including asphalted carriageways for vehicles. The extent and nature of the finishes will need to be carefully balanced against budgetary constraints.
- 5.13 A variety of public seating areas are located at key positions along Main Street to provide a place for the community to sit and socialise or provide a place to rest. Cycle stands will also be located along Main Street to encourage the use of bicycles.

Landscape Strategy

- 5.14 The Main Street area will incorporate a mixture of evergreen tree species including *Pinus Sylvestris* and *Pinus Nigra* (Tree Planting Typology 1) (see **Figure 5.1**) and flowering tree species including *Prunus avium* 'Plena', *Betula pubescens* and *Amelanchier canadensis* (Tree Planting Typology 2) (see **Figure 5.2**). This approach has been proposed to identify the various quarters proposed throughout the Main Street area and provide a level of greenery throughout the year.



Figure 5.1: Tree Planting Typology 1 – Evergreen Species Trees



Figure 5.2: Tree Planting Typology 2 – Flower Species Tree

Car Parking

- 5.15 The Main Street is the primary route for traffic moving in a north-south direction through Ardee. The road is a single carriageway, two-way road with footpath provided on both sides of the road along its full length. The carriageway is wide at various locations along the Main Street. A high level of car parking is experienced along the Main Street and a lot of the parking is in an irregular pattern, with combinations of parallel, saw-tooth and perpendicular parking along the street.
- 5.16 The proposed development will result in the net loss of 150 no. on-street car parking spaces. The loss in parking spaces is due to a significant gain in the provision of walking (wider footpaths), cycling infrastructure (cycle facilities and parking) and the creation of new urban civic spaces, streets, road junctions, pedestrian pavements, steps and cycle routes.

- 5.17 The proposed development will result in the next loss of 11 No. off-street car parking spaces. The loss in parking spaces is due to a significant gain in new urban civic spaces through the alterations to the existing car parking layout outside Ardee Library, to create a public plaza, and the redevelopment of Bridge Street car park to create a public landscaped park.

Drainage Infrastructure

- 5.18 The proposed development includes new gullies and drainage infrastructure which will connect to the existing sewers along Main Street and Ash Walk. Where appropriate, the proposed development will use a tree pit Sustainable Urban Drainage System (SUDS). The tree pits will be constructed to attenuate surface water runoff by exploiting the inherent void within each tree's soil rooting zone which is contained within underground tree pit.

Character Area 2 - Old Railway Lands

Proposed development

- 5.19 The Old Railway Lands are located in a strategic position in Ardee and will create an attractive parkland link from the Amenity Lands to the centre of Ardee via the existing railway footpath and Sean O'Carroll Street. The proposals for the development of the Old Railway Lands provide for a lively and active public open space with accessible routes which will help to enhance and improve the existing connectivity between different areas of Ardee and create a space where friends can gather (**Figure 5.3**).
- 5.20 The following principles and elements underlie the landscape strategy for this space:
- Universal access from O'Carroll Street in the north to Tierney Street in the south and the Railway Walk in the east.
 - Remnant railway infrastructure should inform the spatial layout of the sub-spaces within the lands.
 - Innovative and creative play area for children.
 - Facilitate events in a flexible space.
 - Interpretive and interactive elements.
 - Allotment gardens to encourage gardening, community interaction, and develop a GYO (Grow Your Own) ethos.
 - Seating and picnic areas designed for all age groups and abilities.
 - Use of planting to define areas and spaces with a greater proportion of native plant species.
 - Celebrate the presence of Ardee's old town wall.
 - Entrance thresholds to be denoted using thoughtful design and carefully curated materials.

- Retention of existing ground levels.

The following provides a detailed description of the proposed works in this Character Area:

- Redevelopment of the site to develop a community park including hard and soft landscaped area, allotments, equipped children's play park, kiosk style storage container and boundary fences.
- Retention of the remnant railway infrastructure to create a raised platform / seating area.
- Construction of new public realm comprising new surfaces, kerbing, street furniture, feature lighting and signage.
- Construction of a new vehicle / pedestrian access and associated pillars to O'Carroll Street and associated vehicle circulation space / car park.
- Retention of existing pedestrian / maintenance access from O'Carroll Street including refurbishment of the existing pillars and retention of existing bollards.
- Retention and refurbishment of the existing pillars at the O'Carroll Street access.



Figure 5.3: Extract from Proposed Site Layout Plan (Dwg. No. Lo.06-DR-2001 Rev. E)

Materials

- 5.21 A mixture of hard landscaped areas is proposed within the site. A key part of the design is to provide a flexible open space, which creates connectivity in an east to west direction within the park. This space will use a variety of materials including a self-binding

aggregate and timber decking to create areas where people can sit and relax. Footpaths within the site will be finished in a mixture of Macadam and decorative concrete finishes.

- 5.22 Soft landscaped areas within the site will be a mixture of open lawn, meadow, native forestry planting, proposed ground cover planting and allotments.
- 5.23 A natural play area utilising timber play equipment has been proposed to the south west corner of the site. This space will be finished in an impact absorbing play safety surface.

Access Arrangements

- 5.24 The existing vehicular access to Sean O'Carroll Street will be retained and refurbished as part of the proposed development to provide access for maintenance vehicles and pedestrians. A new vehicular / pedestrian access is proposed to the north west corner of the site from O'Carroll Street. This will provide access to a new car park.

Car Parking Strategy

- 5.25 A new car park providing 7 no. spaces (2 no. wheelchair accessible spaces) is proposed in this character area. This is in addition to LCC paid car parking directly adjacent to the site at O'Carroll Street.

Drainage Infrastructure

- 5.26 An existing combined sewer traverses the north boundary of the site in a west to east direction. This sewer will be retained in its current position and no permanent structures are proposed above this sewer. No other new drainage is proposed in this area.
- 5.27 The layout will incorporate SUDS in the form of open swales. The swales have been scaled to ensure that they provide adequate capacity to serve the hard landscaped areas of the proposed development.

Character Area 3 - Amenity Lands

- 5.28 The Amenity Lands site is currently an underutilised grassland area to the east of the town. Through consultation with the local community, sports groups and the wider public a vision for this space has been created which will establish a new sports hub in the town, delivering a mixture of formal and informal facilities and recreational activities that will link seamlessly to the town centre via the proposed greenway and Old Railway Lands park.
- 5.29 The proposals for the development of the Amenity Lands are intended to integrate the proposed development with the surrounding context and generate a newly accessible public open space with recreation facilities along the River Dee (see **Figure 5.4**). The following principles and elements underpin the landscape strategy for this space:
- Facilitate an integrated access from Tierney Street to the Railway Walk.
 - Installation of a grass athletics running track with additional athletics spaces such as a long jump.
 - Innovative and creative play/rest areas for all ages.
 - Installation of grass bowling green with universal access to pavilion building.

- Facilitate river access for walkers and cyclists.
- Comfortable and high-quality seating and viewing areas.
- Provide opportunities for education and observation of wildlife.
- Use of planting to define areas and spaces.
- Increased quantum of native plant species creating ecological connectivity between river and Railway Walk.
- Flood resistant materials.
- Multi-use pavilion building with universal access.
- Generous cycle parking, SuDS friendly car-parking.

5.30 The following provides a detailed description of the proposed works in this Character Area:

- Redevelopment of the site to create a community park and sports hub to include 200m grass running track and associated flood lighting, bowling green and boundary fence, hard and soft landscaped areas and drainage swale.
- Retention of a 10m riparian corridor along the bank of the River Dee.
- Construction of new public realm comprising new surfaces/footpaths, kerbing, street furniture, feature lighting, signage and new site boundary fencing.
- Construction of a single storey sports pavilion building (7m high).
- Construction of a new access road, public car parking parallel / perpendicular to the carriageway and a designated off road car park.



Figure 5.4: Extract from Proposed Site Layout (Dwrg. No. Lo.06-DR-2002 Rev. F) for Amenity Lands

Proposed Building Design

- 5.31 The Pavilion Building will be the centre piece of the Amenity Lands vision (see **Figure 5.5**). Taking inspiration from its agricultural location, we propose to use the traditionally rural form of a barn and its simplistic pitched gable end as a starting point.
- 5.32 Simplification of the basic form allows for a contemporary interpretation of the barn vernacular. Removing mass from the form enables a covered external space to be created within the volume. Using timber frame construction methods and sustainable materials for cladding and insulation enables a fast and cost-effective construction method.



Figure 5.5: Elevation of Proposed Pavilion Building (prepared by Arrow Architects)

Materials

5.33 The following summarises the materials proposed for this portion of the site:

- Road & Car Parking – it is proposed that the road is finished in permeable asphalt with car parking spaces finished in a mixture of permeable paving and grass crete.
- Hard Landscaped Areas – it is proposed that the hard surfaced areas, including footpaths and plazas are finished in Macadam surfacing and feature stone paving.
- Soft Landscaped Areas – the proposal includes a mixture of soft landscaped areas including open maintained lawn, managed meadow, low level ground cover planting and native forestry whip planting.

Access Arrangements

5.34 The existing access from Tierney Street to the site will be upgraded to serve the proposed development.

Car Parking Strategy

5.35 A total of 45 no. spaces are provided to serve the development at Character Area 3. As previously outlined, it is our opinion that none of the development types listed in Table 13.11: Car Parking Standards of the LCDP are representative of the proposed development.

5.36 We consider that this car parking provision, in addition to existing and proposed pedestrian linkages to the site from the town centre, is adequate to meet the need of future users of the space. The area identified for the overflow parking will be constructed as a grasscrete area and would only be used in periods of high demand or when an event is scheduled for the amenity lands.

Drainage Infrastructure

5.37 The layout will incorporate SUDS in the form of open swales. The swales have been scaled to ensure that they provide adequate capacity to serve the hard landscaped areas of the proposed development.

5.38 Foul drainage for the proposed building will connect to the existing foul sewer which traverses the site.

Character Area 4 - Woodland Walk

Proposed Development

5.39 The proposed development will resurface the existing woodland walk traversing the woodlands to the east of St. Josephs Hospital and will include an extension of this route to link to the new road extension proposed to Ash Walk.

Materials

5.40 The proposed path will use a cellular confinement system specifically designed for tree root protection (see **Figure 5.6**). The system creates a stable, load bearing surface for traffic or footfall whilst eliminating damage to roots through compaction and desiccation of the soil. This approach will ensure that the existing trees are not impacted by the proposed development.



Figure 5.6: The Installation of a Cellular Confinement System

Access Arrangements

- 5.41 There will be no vehicular access to this portion of the site. Pedestrian access will be available from Golf Links Road and Ash Walk. Signage will be located to notify pedestrians of how to access the walk.

Drainage Infrastructure

- 5.42 There is no drainage proposals planned for this portion of the site. The proposed path will be constructed of a permeable surface.

Construction Phase and Construction Works

- 5.43 Subject to the allocation of funding, land acquisition and the grant of planning approval, it is expected that construction can commence in 2026 / 2027. The programme for construction of the development will be determined as and when funding becomes available. Whilst it is premature to prepare a detailed Construction Method Statement, the following steps are anticipated to be required:

- Pre-Construction Surveys, treatment of Japanese Knotweed;
- Site Clearance (including tree removal, archaeological monitoring, removal of hazardous material, temporary prop works);
- Pavement slab / asphalt removal;
- Drainage and services installation;
- Construction of Pavilion Building;
- Road/street construction;
- Traffic management;
- Hard landscaping;
- Soft Landscaping, street furniture, ECV;
- White lining, signage;

- Finishes.

Construction Management

5.44 Details of the predicted impacts and mitigation measures associated with the construction of the proposed development are included within the relevant chapters of this EIAR. In general, disturbance from construction works will include various activities comprising:

- Site clearance and preparatory works;
- Diversion of services;
- Demolition of buildings and structures;
- Noise and vibration from plant;
- Excavation and fill operations;
- Stockpiling and handling;
- Construction Traffic; and
- Duration and timing of the construction phase;

5.45 During the construction phase, the methods of working will comply with all relevant legislation and best practice in reducing the environmental impacts of the proposed works. By their nature, construction phase impacts will be short-term and localised. These impacts will be reduced as far as practicable through compliance with the mitigation measures identified within this EIAR and the relevant industry standards and guidelines.

5.46 A Preliminary Construction Environmental Management Plan (PCEMP) has been prepared and has informed this assessment. This is a working document and has been provided as a separate document to supplement the construction details of the proposed project. The PCEMP which includes procedures for monitoring the effectiveness of the environmental protection measures is available in Volume 3 of the EIAR. The PCEMP will be updated by the Contractor following their appointment, and in advance of the commencement of construction.

Construction Operating Hours

5.47 The operating hours will be agreed with the Local Authority prior to the commencement of the proposed works and will be specified in the CEMP. Hours will generally be limited to 7am to 7pm Monday to Friday and 8 – 1 pm on a Saturday. Construction works outside these hours will be limited, e.g., amenity and health and safety reasons.

Temporary Facilities

5.48 The construction phase will require the provision of a temporary contractor's compound and welfare facilities. A temporary connection to water supply and foul sewer will be

provided to accommodate these welfare facilities. Temporary car parking for contractors' vehicles will be provided within the temporary compound. The location of the temporary contractor's compound and car parking will be agreed with the appointed contractor upon award of the contract and details agreed with the Local Planning Authority prior to commencement of construction works.

6. Consultation

Introduction

- 6.1 This Chapter describes the consultation process in respect of the proposed project. The planning application is submitted to An Coimisiún Pleanála by LCC under Section 175 of the Planning and Development Act, 2000 (as amended).
- 6.2 Statutory consultation prior to submission of the planning application is not required under Section 175, however the applicant acknowledges the importance of effective public participation in large scale Council regeneration projects. On this basis extensive non-statutory community consultation has been undertaken. The consultation process is described in detail below.

Non-Statutory Consultation

Public Consultation

- 6.3 In June and July 2021, Louth County Council undertook preliminary engagement and consultation for the preparation of a masterplan for the regeneration of Ardee.
- 6.4 The study area covers four key character/opportunity areas:
- Character Area 1 – Main Street (including Ash Walk);
 - Character Area 2 – Old Railway Lands;
 - Character Area 3 – Amenity Lands; and
 - Character Area 4 – Woodland Walk.
- 6.5 The project seeks to upgrade the streetscape and provide high quality public spaces alongside sports, recreation and active travel facilities and act as a catalyst for the positive regeneration of the broader town centre area.
- 6.6 The Ardee 2040 campaign is a targeted place-making response aimed at improving the streetscape and amenity of Ardee, focused on these four key opportunity sites. This project will result in a holistic design proposal, setting a new benchmark for public realm and town centre infrastructure, to be brought forward in an application for funding under the Rural Regeneration and Development Fund.
- 6.7 As part of the design development, key stakeholders and members of the community have been engaged to assess the needs and aspirations of the local community. This exercise also provided an opportunity for those parties engaged to provide feedback on the proposed design principles and mixed-use ambition for the sites.
- 6.8 The stakeholder engagement was carried out during the public health crisis, and varying levels of restrictions applied at different stages of engagement, which may have influenced both the number and type of responses received. The survey was live during the circuit breaker lockdown, during which time the general public were advised to stay

at home and limit their contact with people outside of their household ‘bubble’. The public information webinars took place shortly after restrictions were eased, when the general public could meet with other households when outdoors.

- 6.9 An online consultation survey was carried and received a total of 541 submissions (equivalent to c.11% of the population of Ardee town as per the last census). The responses we received represented a diverse range of stakeholders with an interest in the Ardee area, or with a connection to one of the four key opportunity sites.
- 6.10 The survey was hosted online at www.ardee2040.ie (Figure 6.1) and was live for a two weeks from 21st June to 5th July 2021. The survey sought to gather participant feedback on potential uses for the four key character areas, in relation to the existing key features in the area, and commence a co-design process on the draft design principles on draft design principles.

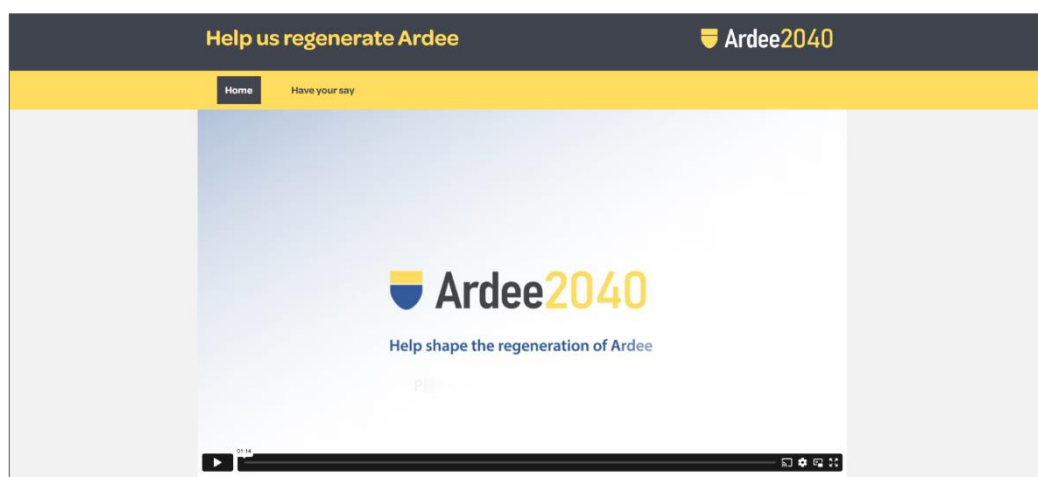


Figure 6.1: Extract from Ardee 2040 Website

- 6.11 Of the 541 responses, 24% of respondents live in Ardee, 20% use the local shops, 15% walk/cycle around the area, 13% use the community and public facilities, 12% use the sports and recreation facilities, 7% use the night-time economy, 6% work in Ardee and 3% are business owners.
- 6.12 **Table 6.1** provides a summary of a word cloud response on what features that people would like to introduce to Ardee Town. A total of 359 responses were received for this question, and the responses were used to inform the proposed development.

Table 6.1: Word Cloud of responses to ‘What feature(s) would you introduce to improve Ardee Town?’

Theme	Response No.	Summary of comments
Highways and access	70	The need for traffic management measures is viewed as a critical requirement in order to improve Ardee town.

		It was suggested that current levels of congestion be addressed in order to encourage town centre use. A number of respondents suggested that a bypass be built to address this problem. It was also suggested that traffic control measures, such as traffic lights, be implemented. A small number of respondents suggested that large heavy goods vehicles be prohibited from entering the town centre during working hours. In terms of accessibility, possible enhancements were suggested including safer pedestrian crossings and consideration for disabled and elderly users.
Recreational facilities and amenity space	67	Respondents emphasised the importance of introducing recreational facilities for leisure and social use to the town centre. A number of respondents suggested that outdoor amenity spaces, such as play parks, a band stand and street furniture, be included for the benefit of people of all ages. The addition of seating areas and bins was frequently mentioned. Improvements to the public realm and streetscape were deemed necessary in order to improve the town, particularly around Market Square and Main Street.
Tourism and visitor facilities	53	A large number of respondents highlighted the tourism potential of Ardee through the development of attractions and facilities to encourage visitors to the town. The desire to encourage tourism was expressed through the provision of tourist attractions, such as opening Ardee Castle to visitors, with the possibility of hosting tours and cultural events within the grounds. A number of respondents suggested that accommodation such as hotels should be considered in order to encourage visitors to stay in the area. It was suggested that event information be posted on a dedicated town website.
Sports and leisure	52	There is a desire for the provision of new and improved sports facilities. Improved athletic facilities and a new swimming pool, were particularly popular among respondents.
Active travel	40	It is believed that infrastructure improvements are required to encourage active modes of transportation. Several respondents suggested that future development plans include wider and safer cycle and pedestrian paths. More cycle lanes and pedestrianisation around the castle, railway line, and riverside have been proposed as specific areas for improvement. Improved public transportation was also suggested.

Retail facilities	32	The feedback highlighted the need for a broader range of retail facilities, such as shops and restaurants. Ardee's reestablishment as a market town was mentioned, with the possibility of weekend farmers' markets. Potential improvements include a stronger night-time economy and longer shopping hours.
Youth facilities	26	Facilities for young people were identified as a necessity to improve the current offering. After-school programmes and extra space, including playing fields for children, were suggested.
Regeneration and future development	25	It was suggested that derelict buildings be used to improve the appeal and upkeep of several buildings. A few respondents also believed that further housing development would aid the town.
Parking	18	Improved parking spaces were mentioned several times, with respondents describing the current problems with parallel parking in the town centre. It was suggested that street parking be realigned.
Landscaping and public open spaces	16	The inclusion of more green open spaces and landscaping measures was a recurring theme in the feedback. Improving the aesthetics of the town through the incorporation of public art murals on buildings and landscaping in the main square was suggested.
Employment opportunities	8	It was suggested that more job opportunities be created through the establishment of businesses and shared workspaces.
Heritage provision	5	Enhancing the town's heritage by preserving traditional shop fronts and emphasising the town's history was suggested as a potential improvement.
Town maintenance	4	Ensuring that the town is well-kept and properly signposted was deemed to be a priority by a small group of respondents.
Council	2	A few respondents mentioned the need for an improved town council and a possible merger with Monaghan County.
Security	2	Improving safety by incorporating measures such as CCTV to help reduce antisocial behaviour was highlighted.
Health infrastructure	1	One respondent suggested that a new GP surgery was necessary.

- 6.13 The feedback demonstrated: a clear demand for an overall reduction in traffic; greater access to sustainable travel measures; better river access and public space; and more sports and recreation facilities.

- 6.14 There was an overwhelming positive response to realising the potential of Ardee, with particular emphasis on its location close to the M1, equidistant between Belfast and Dublin.
- 6.15 Ardee's strategic location was considered to be a significant advantage. The town is ideally placed to benefit from hybrid working, as more people choose to live further from our capital cities, where daily in-office presence is a less common employment requirement.
- 6.16 The responses emphasised the contribution that new housing and remote working could make to the community.
- 6.17 In total, 82% (444 respondents) strongly agreed or agreed that the town had unrealised potential to attract more people to work and live in the area.
- 6.18 There was a strong emphasis on harnessing the potential of Ardee Castle and the amenity of the river and associated wildlife. Having considered the combined results of the qualitative and quantitative data generated from the survey, a number of very clear themes have emerged that the community feel strongly about.
- Tourism and heritage potential;
 - Traffic congestion and flow, centralised parking, car free zones;
 - Youth and physical activity space;
 - River walk improvements and the environment;
 - Under-utilisation of public and outdoor space; and
 - Improvements to Main Street.
- 6.19 Those themes were also identified in the breakout room discussions and the additional stakeholder consultation meetings, noted later within this report:

Statutory Consultation

- 6.20 This planning application is submitted directly to An Coimisiún Pleanála for assessment. As part of this planning application process, the following consultation will be undertaken:
- Placing of a public notice in a local newspaper;
 - Placing a copy of the application and all accompanying documents on display in the Council's local offices and website; and
 - Issuing details of the planning application and a copy of the EIA Report to the Department of Department of Housing, Local Government and Heritage's EIA Portal.

6.21 Pursuant to Section 175(4)(b) of the Planning and Development Act, 2000 (as amended), the following authorities have also been directly notified in respect of this planning application:

- An Chomhairle Ealaíon
- An Taisce
- Fáilte Ireland
- Heritage Council
- Department of Housing, Local Government and Heritage
- Uisce Éireann
- Minister for Tourism, Culture, Arts, Gaeltacht, Sport and Media
- National Transport Authority; and
- Transport Infrastructure Ireland.

6.22 Any submissions arising from the consultation and notification process will be submitted directly to An Coimisiún Pleanála and considered as part of the planning application assessment and decision-making process.

Transport for Ireland Departure Consenting Process

6.1 The N2 National Road traverses the Main Street Character Area in a north / south direction. As the application is proposing alterations to the design of a national road we were required to secure TII permission for the proposed design through their Departures process prior to submitting this planning application.

6.2 Departure no. 36213 – Ardee 2040 Regeneration Project was accepted by TII on the 15th April 2025 under acceptance number 18634. 1 no. condition advises that *“The submission of a Design Report in accordance with DN-GEO-03030 - Design Phase Procedure for Road Safety Improvement Schemes, Urban Renewal Schemes and Local Improvement Schemes for the N2 Ardee 2040 Regeneration Project is noted”*. This confirms that a Preliminary Design Report and Quality Audit accompanied the departure submission. Acceptance of the departure application confirms that TII are content that the design amendments to the national road are acceptable in principle from their perspective.

7. Population & Human Health

Introduction

7.1 Article 3 of Directive 2014/52/EU states the following:

‘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; ...’

7.2 In accordance with Directive 2014/52/EU, this Chapter evaluates the likely direct and indirect significant effects of the proposed project (as defined in Chapter 5 of this EIAR) on population and human health during both the construction and operational phases.

7.3 Where any associated and inter-related potential likely and significant effects are identified with respect to other environmental factors, these are referred to and the reader is directed to the relevant chapter of this EIAR for a more detailed consideration, such as for:

- Air Quality;
- Noise & Vibration;
- Material Assets;
- Traffic.

Methodology

7.4 The EPA’s 2022 Guidelines advise that *‘The recitals to the 1985 and 2011 Directives refer to ‘Human Health’ and include ‘Human Beings’ as the corresponding environmental factor. The 2014 Directive calls this factor ‘Population and Human Health’.*

7.5 Section 1.3.1 of the European Commission’s (EC) ‘Guidance on the preparation of the Environmental Impact Assessment Report (2017)’¹⁰ states:

“Human health is a very broad factor that would be highly Project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air

¹⁰ https://environment.ec.europa.eu/law-and-governance/environmental-assessments/environmental-impact-assessment_en

pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population.”

7.6 The EPA’s 2022 Guidelines confirm that there is no specific guidance on the meaning of the term ‘Human Health’ in the context of the amended Directive, but notes that ‘...the same term was used in the SEA Directive (2001/42/EC)’... and that the ‘...Commission’s SEA Implementation Guidance states - The notion of human health should be considered in the context of the other issues mentioned in paragraph (f)’. (Paragraph (f)¹¹ lists the environmental factors including soils, water, air etc)’.

7.7 The EPA’s 2022 Guidelines note that this approach is ‘...consistent with the approach set out in the 2002 EPA EIS Guidelines where health was considered through assessment of the environmental pathways through which it could be affected, such as air, water or soil...’.

7.8 In light of this, the EPA’s 2022 Guidelines advise that the following approach should be adopted in an EIAR:

‘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...

Assessment of other health & safety issues are carried out under other EU Directives, as relevant. These may include reports prepared under the Industrial Emissions, Waste Framework, Landfill, Strategic Environmental Assessment, Seveso III, Water Framework Directive, Floods or Nuclear Safety Directives. In keeping with the requirement of the amended Directive, an EIAR should take account of the results of such assessments without duplicating them.’

7.9 The EPA’s Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) dated 2003 states that the population and human health section of an EIAR is ‘...a broad ranging section which covers the existence, activities and wellbeing of people, usually considering people as groups or ‘populations’.

7.10 The EPA’s Advice Notes also advise that:

‘While most developments by people will affect other people, the Environmental Impact [Assessment Report] concentrates on those topics which are manifested in the environment, such as new land uses, more buildings or greater emissions. Issues such as employment, commercial competition, zoning and other social and economic issues are dealt with by more specific instruments (such as the Planning Acts).’

7.11 The EPA’s 2022 Guidelines reinforce this advice by confirming that:

¹¹ Section 5.2.6 of ‘Implementation of Directive 2001/42 on the assessment of the effects of certain plans and programmes on the Environment’.

‘The transposing legislation does not require assessment of land-use planning, demographic issues or detailed socioeconomic analysis. Coverage of these can be provided in a separate Planning Application Report to accompany an application for planning permission. This should be avoided in an EIAR, unless issues such as economic or settlement patterns give rise directly to specific new developments and associated effects.

7.12 The EPA’s 2022 Guidelines identify the following topics for consideration with respect to ‘Population and Human Health’:

- *‘Employment*
- *Settlement patterns*
- *Land use patterns*
- *Baseline population*
- *Demographic trends*
- *Human health (considered with reference to other headings, such as water and air)*
- *Amenity (e.g. effects on amenity uses of a site or of other areas in the vicinity may be addressed under the factor of Landscape)’.*

7.13 There are numerous inter-related environmental factors addressed throughout this EIAR which are of relevance to Population and Human Health including potential significant effects on townscape and visual impact, archaeology and cultural heritage, air quality and climate, noise and vibration, water, land and soils, material assets including traffic and transport impacts.

7.14 This Chapter considers other assessments undertaken as part of the EIAR including those relating to Air Quality and Climate, Noise and Vibration, Traffic, etc and their accompanying/separate reports/surveys as well as the outline Construction Environmental Management Plan. Where these topics are dealt with in further detail elsewhere in this EIA Report, the relevant chapters have been cross referenced in this Chapter. For detailed reference to particular environmental topics please refer to the corresponding chapter of the EIAR.

7.15 The consideration of effects in this chapter follows the methodology and terminology contained in the EPA’s 2022 Guidelines, as set out in Chapter 2 of this EIAR.

7.16 Please refer to the ‘References’ section at the end of this Chapter for a list of all of the relevant guidelines and sources of information that have been used and considered in preparing this Chapter.

7.17 This section refers to the Census 2022 data (published 30 May 2023) where possible to help inform the baseline/receiving environment with respect to population and human health, and the Census 2016 data is also utilised where certain information is not published for the Census 2022.

Assessment of Significance & Sensitivity

- 7.18 The assessment of significance is a professional appraisal based on the sensitivity of the receptor and the magnitude of the effect. Within any area, the sensitivity of individuals in a population will vary. As such, it would be neither representative of the population, nor a fair representation of the range of sensitivities in a population were an overall sensitivity classification assigned to the population in question. As such, the precautionary principle has been adopted for this assessment, which assumes that the population within the study area is of a uniformly high sensitivity.

Magnitude of Impact

- 7.19 The magnitude of predicted impacts has been quantified in this assessment using the terms outlined in **Table 7.1** below.

Table 7.1: Magnitude of Predicted Impacts

Magnitude	Description of Magnitude
High	Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would result in a major change to existing baseline conditions (adverse or beneficial)
Medium	Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would result in a moderate change to existing baseline conditions (adverse or beneficial)
Low	Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would result in a minor change to existing baseline conditions (adverse or beneficial)
Negligible	Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would not result in change to existing baseline conditions at a population level, but may still result in an individual impact (adverse or beneficial)
No Change	No change would occur as a result of the Proposed Development which would alter the exiting baseline conditions (adverse or beneficial)

Significance of Effects

- 7.20 **Table 7.2** below provides a matrix on the measure of the significance of effects as determined by the relationship between the magnitude of impact and the sensitivity of receptors.

Table 7.2: Significance of effects and the sensitivity of the receptor

	Magnitude of Impact			
	Negligible	Low	Medium	High

Sensitivity of Receptor	Negligible	Negligible	Negligible or Minor	Negligible or minor	Minor
	Low	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
	Medium	Negligible or Minor	Minor	Moderate	Moderate or Major
	High	Minor	Minor or Moderate	Moderate or Major	Major

Study Area

- 7.21 To assess the likely significant impacts of the proposed development on population and human health, we undertook an analysis of the available Census data¹², relating to the economic, demographic and social characteristics of the Local Authority (LA) area within which the subject site is located.
- 7.22 The study area for this assessment is the full extent of the development site and considers Ardee Town in the wider context (Ardee Town as identified in **Figure 7.1**). Ardee Town is made up by a combination of 18 no. Small Areas. Ardee town has a population of 5,478 people at the time of Census 2022, 2,815 Females and 2,663 males.

¹² Source of Census data identified in individual tables

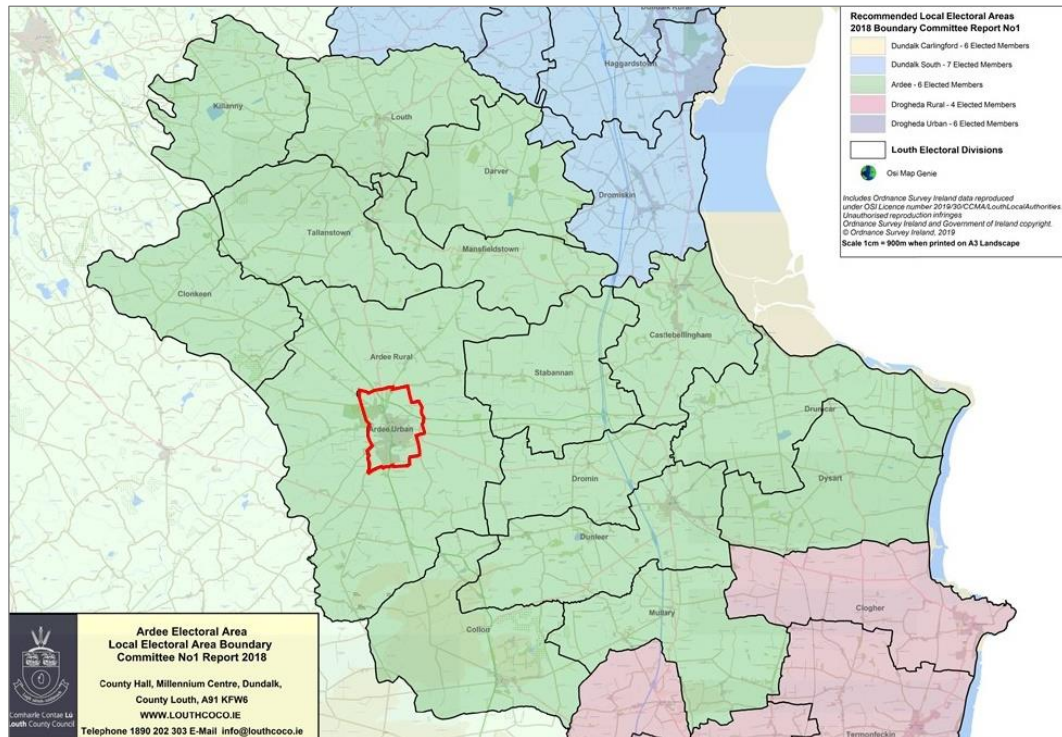


Figure 7.1: Study Area – Ardee Town per Census 2022

Baseline/Receiving Environment

7.23 A detailed description of the physical characteristics and context of the application site and the surrounding/wider area is provided at Chapter 3 of this EIAR. This section provides information on the baseline/receiving environment with respect to the following:

- Economic and Employment Activity
- Settlement and Land Use Patterns
- Population
- Demographic Trends
- Housing
- Community Infrastructure
- Human Health
- Amenity (including Tourism)

7.24 This Chapter does not seek to duplicate or repeat the baseline/receiving environment information contained in these specialist Chapters. However, in line with the relevant EIA guidance, the assessment section with respect to effects on population and human

health refers to environmental factors for which human health effects might occur, such as noise, water, air quality, and etc.

- 7.25 A 'Do Nothing' scenario is also included as part of the assessment on population and human health to demonstrate the potential effects on the baseline scenario if the proposed project is not implemented.
- 7.26 An assessment of the baseline environment and associated key factors are outlined in detail below.

Economic and Employment Activity

- 7.27 This section provides information on the economic and employment activity context for Ireland (national context), County Louth (county context) and the Ardee Town Area (local context).

National Context

- 7.28 The Economic and Social Research Institute's (ESRI) 'Quarterly Economic Commentary – Spring 2025'¹³ predicts Gross Domestic Profit (GDP) to increase by 4.1% and Modified Domestic Demand (MDD) to also grow by 3.0% in 2025. The level of growth is predicted to continue into 2026 with GDP forecasted to grow by 3.9% and MDD forecasted to grow by 2.8%.
- 7.29 The CSO's Quarterly Labour Force Survey for Q1 2025¹⁴ (published 22nd May 2025), indicates an overall increase by 89,900 (+3.3) in the year to Q1 2024 to 2,704,200, while the number of self-employed increased by 9,000 (+2.62%) to 353,100. Looking at the rates by age group, the employment rate was lowest among those aged 65 years and over(14.2%) and highest among those aged 35-44 years (89.2%). The rate of youth employment, those aged 15-24, stood at 50.1%; slightly higher for males (50.3%) than for males (49.8%).
- 7.30 The survey indicates that the overall unemployment rate in Ireland is 4.3% in Q1 2025, which is up from 4.1% in Q1 2024. The number of persons aged 15-74 years who were unemployed increased by 9,000 (+7.8%) to 124,200 in the year to Q1 2025 from 115,200 people in Q1 2024.
- 7.31 ESRI's 'Quarterly Economic Commentary – Spring 2025'¹³ reported an unemployment rate of 4.2 per cent for Ireland in March 2025 and indicated that the unemployment rate would rise slightly to 4.4% by 2026 due to the influence of global trading conditions and the implications for the domestic economy.

County / Town Context

- 7.32 Up-to-date employment data from Census 2022 is available for County Louth and the Ardee Town area, allowing for direct comparisons to be made against the recent national averages cited above. The CSO's Census 2022 publication schedule confirms that detailed data/findings was provided with respect to employment, occupations and

¹³ www.esri.ie/publications/quarterly-economic-commentary-spring-2025

¹⁴ www.cso.ie/en/statistics/labour-force-survey-quarter-1-2025

commuting on 30 November 2023. Census 2022 data shows the socio-economic trends at a national, county and local level.

- 7.33 At a County level, socio-economic trends broadly reflect the national picture, with just over half of all persons aged over 15 in work, albeit with a slightly higher (3%) proportion of over 15 year olds not at work, accounted for by higher rates of retirees and people looking after home/family, than the national average (see **Table 7.3**).

Table 7.3: Socio-Economic Status of Population Aged 15+ (Source: CSO 2022)

Economic Status	Ardee Town	% Total	County Louth	% Total	Ireland	% Total
At work	2,240	52%	59,140	53%	1,644,493	56%
Looking for first regular job	62	1%	1,265	1%	27,967	1%
Short term unemployed	89	2%	2,157	2%	54,527	2%
Long term unemployed	158	4%	3,820	3%	83,826	3%
Student	417	10%	12,583	11%	326,901	11%
Looking after home/family	350	8%	7,888	7%	184,061	6%
Retired	694	16%	17,245	16%	438,682	15%
Unable to work due to permanent sickness or disability	289	7%	5,740	5%	141,156	5%
Other	28	1%	771	1%	19,400	1%
Total	4,327	100%	110,609	100%	2,921,013	100%

- 7.34 The Louth County Development Plan 2021 – 2027 states that “*With over 35,000 jobs in the County and a Jobs:Workforce ratio of 0.71 recorded in Census 2016, the economic benefits associated with the strategic location of the County, and in particular the strength of the employment base, are apparent*”.
- 7.35 Existing employment in Ardee is concentrated in Ardee Business Park, on the eastern side of the town, and Farrell’s Business Park, to the north of John Street, on the western side of the town. There are also a number of independent businesses operating in the town, with a strong local services sector located on Main Street. Ardee performs a key employment role, where, in 2016 there was a Jobs:Workforce ratio of 0.93, with in

excess of 1,700 jobs in the town. This is 0.22 higher than the Jobs:Workforce ratio in the wider county.

- 7.36 The CSO Live Register is a monthly measurement of the numbers of people (with some exceptions) registering for Jobseekers Benefit (JB) or Jobseekers Allowance (JA) or for various other statutory entitlements at local offices of the Department of Employment Affairs and Social Protection (DEASP). This data source, whilst not an unemployment register, can provide a general indication of recent employment trends and economic activity in the local area.
- 7.37 Live Register figures are available at a national, county or local level, with respect to the jurisdiction of DEASP welfare offices. We note that the number of people on the register decreased over the last three years (**Table 7.4** below), with figures for the Ardee office largely reflecting the nationwide pattern.

Table 7.4: Persons on Live Register by Month and Area, 2021-2023 (Source: CSO¹⁵).

Area Definition	April 2023	April 2024	April 2025
DEASP Offices - Ardee ¹⁶	767	732	709
County Louth	7,663	7,416	7,156
Ireland	178,580	169,497	167,960

- 7.38 The data in **Table 7.5** below is obtained from CSO PxStat (CIA02)¹⁷ and confirms the total income per person in County Louth was 6.1% lower than the national average, in 2023. A similar pattern of income distribution is observed in data for disposable income per person, with a light adjustment for the lower cost of living in the area, as disposable income in County Louth was approximately 9.5% lower than the national average in 2023.

Table 7.5: Income per person (Source: CSO PxStat CIA02¹⁸)

Area	Income	2021	2022	2023
Ireland	Total Income per Person (€)	36,163	38,409	41,328
	Disposable Income per Person (€)	24,543	25,975	28,370
County Louth	Total Income per Person (€)	34,684	36,200	38,792
	Disposable Income per Person (€)	22,919	23,804	25,688

¹⁵ Live Register, Selected from CSO PxStat Table LRM02, LRM07 and LRM15.

¹⁶ Ardee DEASP office covers Ardee, Castlebellingham, Nobber, Lobinstown, Collon, Annagassan, Drumconrath, Allenstown and Dundalk.

¹⁷ <https://data.gov.ie/dataset/cia02-estimates-of-household-income>

Settlement Patterns and Land Use Patterns

- 7.39 The proposed development is located in Ardee town, where the settlement pattern has retained characteristics of its late medieval footprint. Although the historic town walls have almost totally disappeared, the town's Main Street has survived as the most important element of the town's historic urban form. Running through the core of the historic town is a long Main Street, with sections named as Bridge Street, Castle Street, Market Street and Irish Street. This street forms a strong spine through the core of the historic town and provides a linear form to the townscape.
- 7.40 Residential development wraps around to the north, east and south of the linear core of the town whilst industrial and commercial uses have developed along the arterial routes into the town centre from the west and east. The building height in Ardee is predominantly single and two storeys, with some taller buildings located centrally along the Main Street. The lands surrounding St. Joseph's hospital to the west of Main Street have remained undeveloped. An analysis of the land uses within the town is included at **Figure 7.2.**

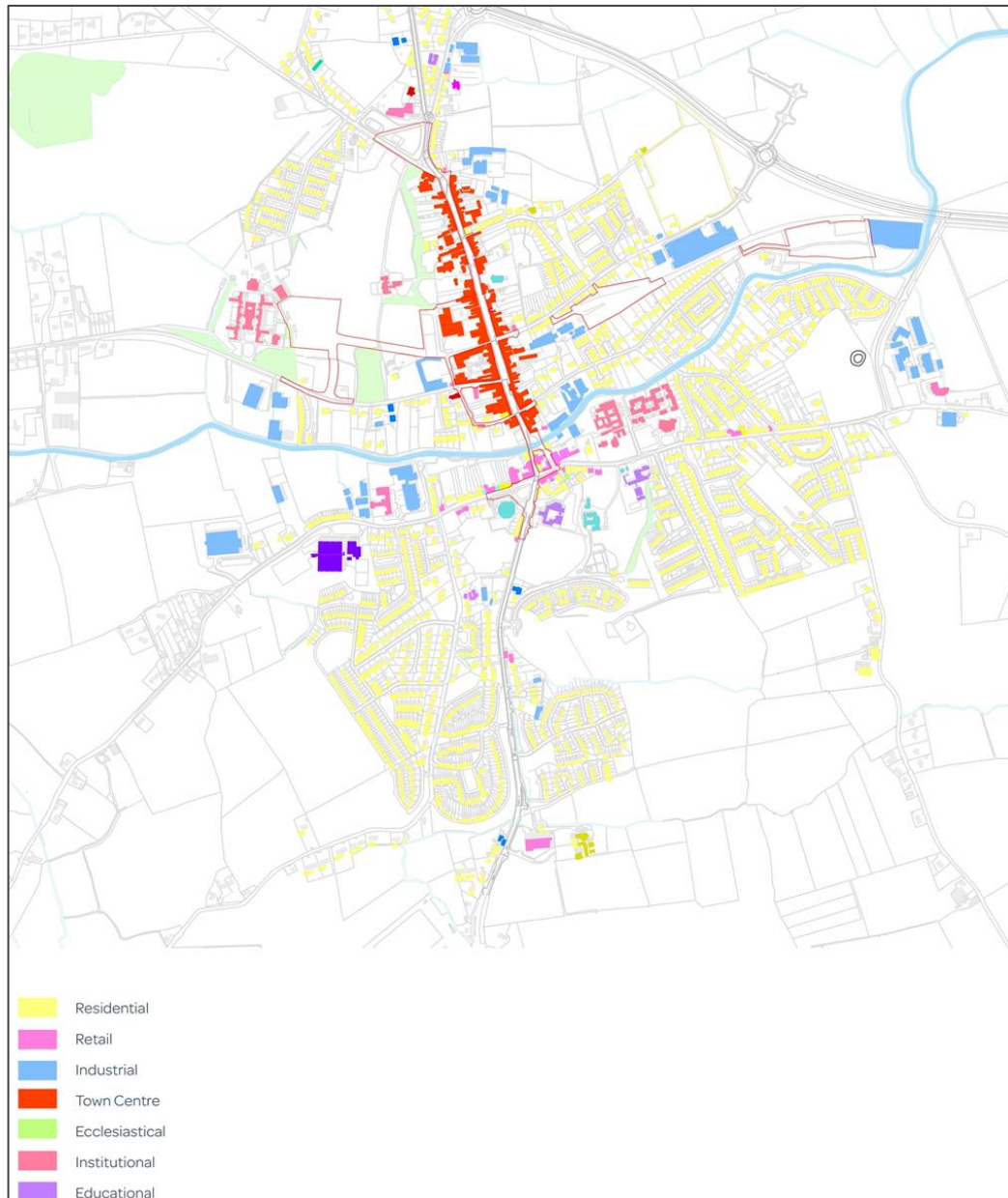


Figure 7.2: Land Use Building Plan

- 7.41 Development in the wider area is characterised by pre-existing arable and pastoral agricultural land. As identified in **Figure 7.2** industrial uses are dispersed throughout the town. There are no Sevesco III sites in Ardee, with the closest identified Sevesco site being a Lower Tier site located at Drumcar Road, Dunleer, Co. Louth, approx. 11.5km from the site located in Ardee.
- 7.42 The Site is located within the functional area of LCC and is governed by the Louth County Development Plan 2021-2027 (LCDP). **Figure 7.3** provides the Land Use Zonings for Ardee as shown in Map 2.1. Ardee Zoning and Flood Maps in Volume 1A of the LCDP. **Table 7.6** summarises the land use zonings of the application site, as outlined in Chapter 13 Development Management Guidelines of the LCDP.

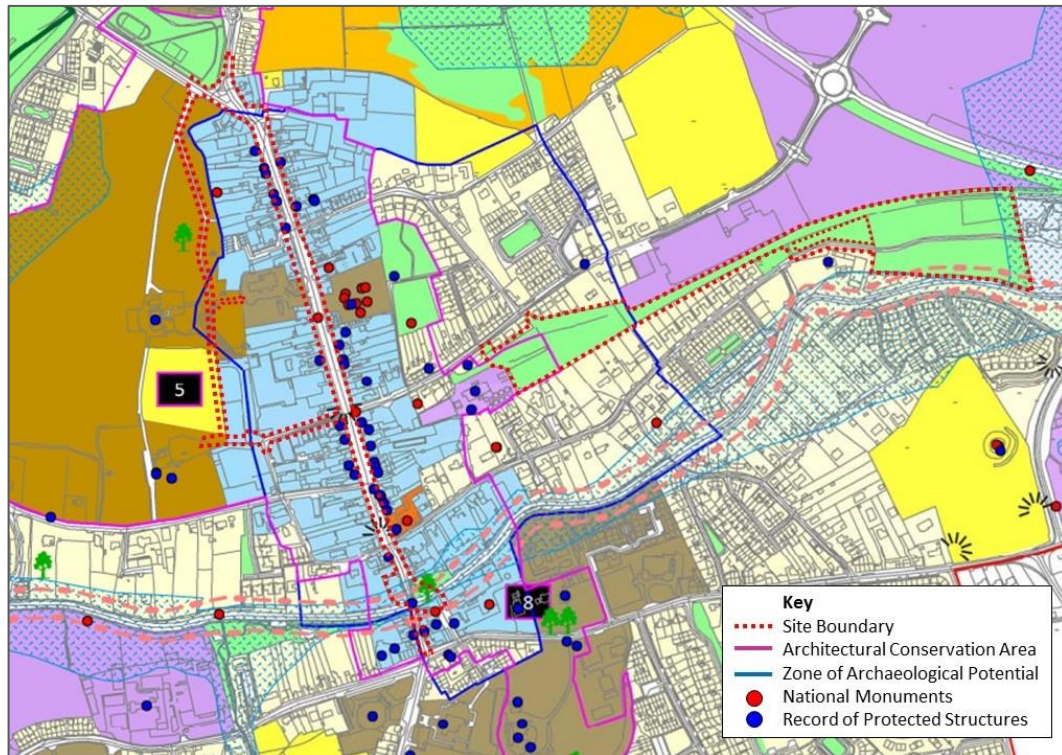


Figure 7.3: Extract from Ardee Composite Map from the LCDP 2021 - 2027

Table 7.6: Land Use Zonings of the Application Site

Land Use Zoning	Objective	Is the Proposed Use Compatible with Generally Permitted Uses of the LCDP?
<i>Character Area 1 – Main Street (including Ash Walk)</i>		
B1 Town or Village Centre	To support the development, improvement and expansion of town or village centre activities.	Yes – the proposal in this area is for public realm works therefore there is no change of use.
<i>Character Area 2 – Old Railway Lands</i>		
H1 Open Space	To preserve, provide and improve recreational amenity and open space.	Yes - Park/Playgrounds & Recreational/Amenity Open Space.
<i>Character Area 3 – Amenity Lands</i>		
H1 Open Space	To preserve, provide and improve recreational amenity and open space.	Yes - Cycleway/Walkway trails, Park/Playgrounds, Recreational/Amenity Open Space, Recreational/Sports Facility.
<i>Character Area 4 – Woodland Walk</i>		
G2 Institutional Lands	To conserve and protect the setting of institutional buildings.	Not specifically listed as Permitted Use / Open for Consideration Use however we consider the proposed development to be to be compatible with the “G2

		Institutional Lands” land use zoning category and wider policy objectives of the CDP, as the majority of the proposal is for the resurfacing of an existing track within this zoning and the proposal does not detract from the architectural setting of the existing Hospital structures and is in accordance with proper planning and sustainable development of the area.
A2 New Residential Phase 1 (Development opportunity site 5).	To provide for new residential neighbourhoods and supporting community facilities	Yes – Community Facility / Recreational/Amenity Open Space, Recreational/Sports Facility

Population

- 7.43 The most recent demographic data for the state is based on the Census 2022 carried out on 3rd April 2022 and published on the 30th May 2023. The census compiles data for the whole state as well as other geographical areas including regional authorities, provinces, local authorities (counties), limistéir pleanála teanga ghaeltachta (Irish-speaking planning areas), cities, towns, local electoral areas (2022), electoral divisions, and small areas. Taking into consideration the location of the Proposed Development, the census information on population, age profile, and employment, has been analysed in relation to the development site.
- 7.44 **Table 7.7** denotes the population change for Ireland, County Louth, and Ardee for the census years 2016 and 2022 (CSO Census 2022). The latest census data shows that the population of the Ardee, increased in size by 10.6% between the years 2016 and 2022 compared with an increase of 8.1% nationally and 8.4 % in County Louth. The general increase in growth rate of surrounding areas, when compared to the state and county figures suggests the increasing economic role of the areas surrounding the proposed development site.
- 7.45 The census results also confirm that this is the first time that the population of Ireland exceeded 5 million since 1851 and noted that all counties in the State experienced an increase in population between 2016 and 2022.

Table 7.7: Population Trends at State, County Council and ED level (Source: CSO Census 2022 ¹⁸).

Study Area	2016 Census Population	2022 Census Population	2022 % Change
Ireland	4,761,865	5,149,139	+8.1%
Louth	128,884	139,703	+8.4%

¹⁸ Live Register, Selected from CSO PxStat Table F1001 and F1011

Ardee Settlement/ Town ¹⁹	4,928	5,478	+10.6%

Demographic Trends

7.46 This section provides an overview of the following demographic trends to help inform the baseline/receiving environment with respect to population and human health:

- Age Profile
- Deprivation
- Education
- Income
- Commuting Patterns

Age Profile

7.47 With respect to the population breakdown of the study area, the age profile of the Ardee is similar to that of the state, as shown in **Table 7.8**.

7.48 However, the younger age groups (0-14 years) cohort forms a slightly higher percentage of Ardee (21%), compared to the state generally (20%). The largest cohort for both Ardee and the State generally was the 25-44 year olds which constituted 29% of Ardee's population and 28% of the State's population. In both Ardee and the State, there were more 0-14 year olds (21% in Ardee and 20% in State) compared to the number of people ages 65 and over (14% in Ardee and 15% in the State).

Table 7.8: Comparison of Age Profile of State and Study Areas (Source: CSO 2022).

Age Groups	Ardee		Ireland	
Age Groups	Population	% Total	Population	% Total
Age 0-14	1,151	21%	1,012,287	20%
Age 15-24	628	11%	644,771	13%
Age 25-44	1,583	29%	1,422,424	28%
Age 45-64	1,333	24%	1,293,342	25%
Age 65+	783	14%	776,315	15%
Total	5,478	100%	5,149,139	100%

7.49 The average age of the Ardee population was slightly lower at 37.6 than the state population (38.8) in 2022. **Table 7.9** also shows that Ardee generally has a significant

¹⁹ Census 2016 classifies Ardee as a 'Settlement', Census 2022 classifies Ardee as a 'Town'

higher proportion of the population who are dependents when compared with the state as a whole.

Table 7.9: Age Dependency of State and ED Study Areas (Source: CSO 2022).²⁰

Enumeration Area	Average Age	Population	Dependent Population	% Dependent
Ireland	38.8	5,149,139	1,788,602	34.7%
Louth County	38.2	139,703	48,992	35.1%
Ardee	37.6	5,478	1,934	35.3%

Deprivation

- 7.50 Regarding the socio-economic status of local residents, the Pobal Deprivation Index utilises CSO statistics to analyse areas with high levels of affluence or disadvantage throughout the country. This Index draws on data from censuses and combines three dimensions of relative affluence and deprivation: Demographic Profile, Social Class Composition and Labour Market Situation. **Figure 7.4** below shows a graphical representation of how the concepts of Demographic Growth, Social Class Composition and Labour Market Situation are measured by ten key socio-economic indicators from the Census of Population.



Figure 7.4: Basic Model of the Pobal HP Deprivation Index²¹

- 7.51 In this EIA Report, the Relative Index Score is considered as the measure for deprivation, as these Relative Index Scores are rescaled such that the mean is 0 and the standard deviation is 10 at each census wave. This allows for the provision of descriptive labels with the scores, which are grouped by standard deviation as seen in **Table 7.10** below.

²⁰ Dependents are calculated as those outside of the 15-64 years age bracket.

²¹ Source: [chrome-extension://efaidnbmninnbpcjpcglclefindmkaj/https://www.pobal.ie/wp-content/uploads/2023/11/Pobal-HP-Deprivation-Index-Briefing.pdf](https://www.pobal.ie/wp-content/uploads/2023/11/Pobal-HP-Deprivation-Index-Briefing.pdf)

Table 7.10: Labelling of Relative Index Scores (Source: Pobal HP Deprivation Index 2022)

Relative Index Score	Standard Deviation	Label
Over 30	> 3	extremely affluent
20 to 30	2 to 3	very affluent
10 to 20	1 to 2	Affluent
0 to 10	0 to 1	marginally above average
0 to -10	0 to -1	marginally below average
-10 to -20	-1 to -2	Disadvantaged
-20 to -30	-2 to -3	very disadvantaged
Below -30	< -3	extremely disadvantaged

- 7.52 Ardee is identified as being marginally below average in the deprivation index, along with Louth County Council area. Ardee Urban Electoral Division, which follows the same geographical boundaries as Ardee town settlement, is identified as more deprived than Louth County as a whole, as shown on **Table 7.11** below.

Table 7.11: Deprivation Indices (Source: Pobal 2022, based on CSO 2016, 2022)

Area Definition	2016	2022
Louth County Council	-3 marginally below average	-3.59 marginally below average
Ardee Urban Electoral Division	-7.1 marginally below average	-6.56 marginally below average

Education

- 7.53 Census 2022 data presents the highest level of education attainment for key educational levels by persons aged 15 and over living in Ardee, Louth County Council, and the state generally (see **Table 7.12**). The table presents key milestone education and ignores people undertaking other studies. In both Ardee and Louth County Council, there are higher levels of the population whose highest level of formal education attainment is primary, secondary, and higher education-level school education compared to the national average. However, when looking at Level 6 educational attainment through undergraduate and postgraduate levels, Ardee and Louth County Council fall behind national averages in terms of university attainment. Both Ardee and Louth County Council also have slightly higher levels of their respective population who have no formal education with Ardee having 4%, Louth having 3% and the State having 2% of the population with no formal education.

Table 7.12: Highest level of education in 2016 (all ages 15 and over) - Percentage (Source: CSO, 2022)

Area	No formal education	Primary Education	Secondary ²²	Higher Education ²³	Undergraduate Degree ²⁴	Postgraduate Degree ²⁵	Not Stated
Ardee Town	4%	10%	36%	19%	16%	6%	9%
Louth	3%	9%	34%	19%	20%	9%	6%
Ireland	2%	7%	30%	18%	22%	13%	8%

Commuting Trends

7.54 Chapter 14 (Traffic & Transportation) details the existing transport infrastructure at the location of the proposed development and the wider area. In summary, Ardee is located in a strategic location, just 1 hour from both Dublin and Belfast via the M1 motorway. Further to this, the National Roads N52, N2 and N33 traverse in close proximity to the town and results in a busy, vibrant town centre. Although Ardee does not have a dedicated bus station, it does benefit from a number of bus stops located on the N33 to the north and along the N2 (Main Street).

7.55 As is to be expected, the Ardee experiences a net inflow of commuters travelling for work or education, whilst the rural hinterland has a net outflow (**Table 7.13**). The net flow for the urban area does not fully capture the Ardee Rural outflow, and it is expected that some of this outflow is to other surrounding urban areas. This total net outflow points to the nature of the area as a feeder site for larger employment hubs in Louth, particularly Dundalk.

Table 7.13: Commuting Patterns of Local Residents, 2016. (Source: CSO 2016).

Local Divisions	Electoral	Commuters Out	Commuters In	Net Flow into ED
Ardee Rural		785	203	-582
Ardee Urban		922	1,344	422
Study Area Average		854	774	-80

7.56 Census 2022 data shows that Ardee commuters are very much in-step with commuting trends across the State (see **Table 7.14**). Car use remains the most popular mode of transport for commuting, representing 53% of all commutes in Ardee, in line with 54% of commutes across the State. 24% of the population in Ardee use active transport (walking, cycling) as part of their commute, compared to 16% nationally. Smaller number

²² Lower secondary and Upper secondary

²³ Higher Certificate, Advanced certificate/completed apprenticeship or Technical/vocational training

²⁴ Ordinary bachelor's degree, Honours bachelor's degree/professional qualification

²⁵ Postgraduate degree or Ph.D

again (5% in Ardee, 11% across the State) use public transport as part of their commute. Under 10% of commuters in both Ardee and the State work from home, despite the implications of commuting from the COVID-19 pandemic lockdowns.

Table 7.14: Louth Means of Travel for Population Aged 5+ Years to work, school, college or childcare (total) (Source: CSO 2022)

Means of Travel	Ardee No. of persons	Ardee Mode Share	% Ireland No. of persons	Ireland modals share
On foot	783	22%	456,291	13%
Bicycle	59	2%	97,212	3%
Bus, minibus, coach	183	5%	323,923	9%
Train	6	0%	85,316	2%
Motorcycle or scooter	2	0%	9,150	0%
Car driver	1272	35%	1,254,419	35%
Car passenger	647	18%	691,044	19%
Van	198	5%	148,823	4%
Other (inc. lorry)	10	0%	14,092	0%
Work mainly from home	151	4%	266,726	7%
Not stated	293	8%	266,412	7%
Total	3,604	100%	3,613,408	100%

Human Health

- 7.57 The Department of Health's latest policy report *Health in Ireland: Key Trends 2024*²⁶ provides statistical analysis on health in Ireland over the last 10 years and deals specifically with issues such as life expectancy, mortality and other health indicators within the country.
- 7.58 The World Health Organisations definition of Health is "*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.*"
- 7.59 The average life expectancy is continuing to increase in Ireland, with estimates of 84.2 years for women and over 80.9 years for men as of 2022. Both of these figures are higher than the average estimates for their EU counterparts, as shown in **Figure 7.5 and 7.6**. Male life expectancy has increased by 1.6 years and female life expectancy by almost 1 years since 2014, while the gap between the life expectancy of men and women continues to narrow. The greatest gains in life expectancy have been achieved in the older age groups, due to decreasing mortality rates from major diseases.

²⁶ [Department of Health: Health in Ireland key trends 2024](#)

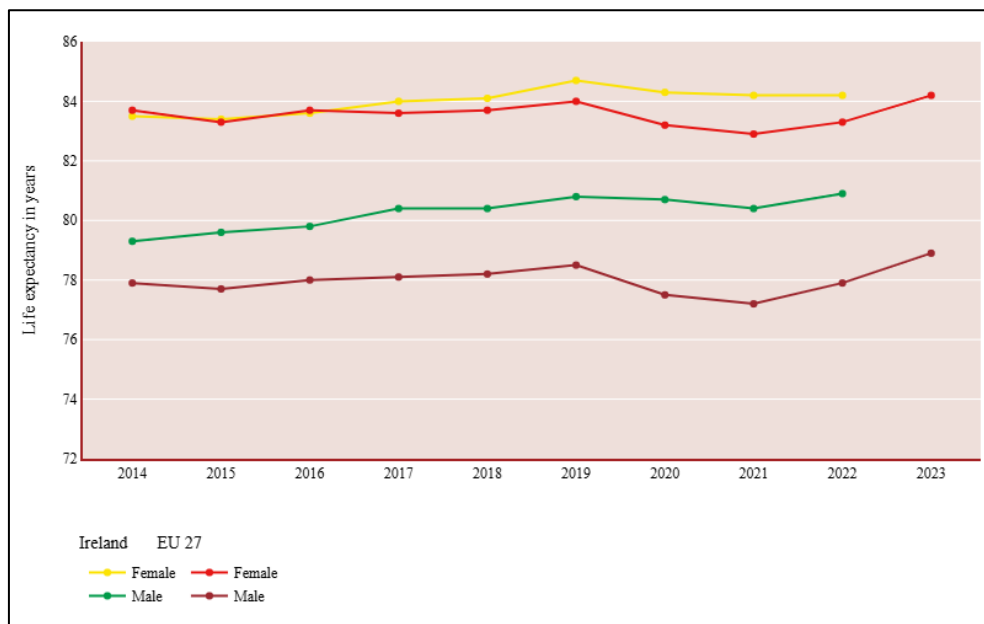


Figure 7.5: Extract from Health in Ireland: Key Trends 2024, Figure 1.5 showing Life Expectancy at Birth by Gender 2014 to 2023. Source: Department of Health, 2025.

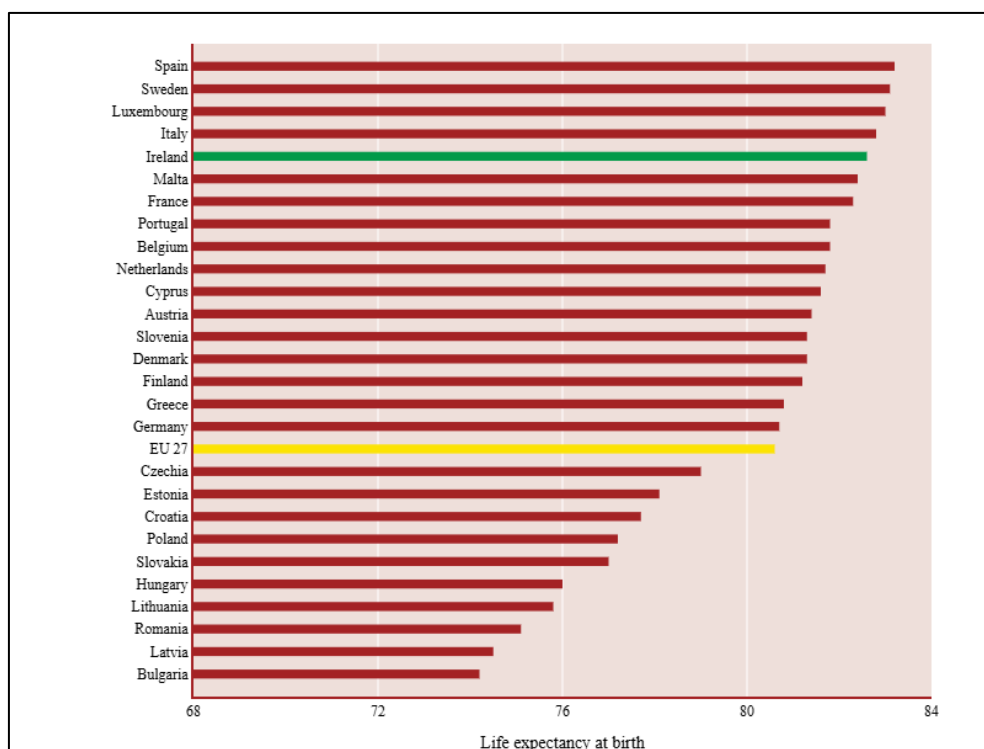


Figure 7.6: Extract from Health in Ireland: Key Trends 2024, Figure 1.6 showing Life Expectancy at Birth for EU27 Countries, 2022. Source: Department of Health, 2025.

7.60 National health figures show that there has been an improvement in overall mortality rates and a rise in life expectancy in the country over the last ten years; however, these figures may be impacted in the medium-term by the COVID-19 pandemic and its effect on the healthcare system.

7.61 The *Health in Ireland* report also states:

“Table 2.4 shows that age-standardised mortality rates have declined for all causes over the past decade by 10.6%. This decrease is particularly strong for mortality rates from suicide (-45.6%), Transport accidents (-60.4%), and pneumonia (-40.7%). Infant mortality, measured as deaths per 1,000 live births, has also decreased by 14.3% since 2011 and remains below the EU average (Figure 2.8).”

[Dept. of Health, Health in Ireland: Key Trends 2022]

7.62 With respect to the particular causes of death within the population, the report identifies significant decreases in the mortality rates for suicide (-45.6%) and pneumonia (-40.7%) as shown in **Figure 7.7**. Infant mortality rates within the country have also declined to below 0.4% since 2013 and remain lower than the EU average for the same period.

Cause of death		2014	2018	2022	2023	% change 2014-2023	% change 2022-2023
All causes of death	Number	29,252	31,140	35,804	35,459	21.2	-1.0
	Rate	1002.7	950.0	943.1	896.4	-10.6	-5.0
Cancer							
All malignant neoplasms	Number	9,022	9,258	10,100	10,308	14.3	2.1
	Rate	290.3	265.0	250.9	247.6	-14.7	-1.3
Cancer of the trachea/bronchus/lung	Number	2,005	1,894	2,039	2,121	5.8	4.0
	Rate	63.9	53.5	50.3	50.5	-20.9	0.4
Cancer of the female breast	Number	735	780	783	748	1.8	-4.5
	Rate	41.6	39.6	35.3	32.6	-21.6	-7.6
Circulatory system diseases							
Diseases of the circulatory system	Number	8,852	9,084	9,930	9,872	11.5	-0.6
	Rate	319.9	290.2	272.0	257.5	-19.5	-5.3
Ischaemic heart disease	Number	4,283	4,250	4,479	4,277	-0.1	-4.5
	Rate	151.5	132.5	120.0	109.6	-27.7	-8.7
Cerebrovascular disease	Number	1,852	1,657	1,650	1,664	-10.2	0.8
	Rate	68.6	53.4	45.4	43.5	-36.6	-4.3
Respiratory system diseases							
Diseases of the respiratory system	Number	3,492	4,051	3,874	4,200	20.3	8.4
	Rate	129.6	130.7	106.4	109.6	-15.4	3.0
Pneumonia	Number	1,003	1,058	852	861	-14.2	1.1
	Rate	39.4	36.2	24.8	23.4	-40.7	-5.8
Chronic lower respiratory disease	Number	1,551	1,736	1,824	1,979	27.6	8.5
	Rate	55.8	53.8	48.8	50.7	-9.1	4.0
External causes of injury and poisoning							
External causes of injury and poisoning	Number	1,530	1,398	1,670	1,354	-11.5	-18.9
	Rate	39.8	34.4	37.8	30.2	-24.0	-20.1
Transport accidents	Number	169	89	102	77	-54.4	-24.5
	Rate	4.0	2.1	2.2	1.6	-60.4	-26.6
Suicide	Number	486	437	436	302	-37.9	-30.7
	Rate	10.8	9.3	8.7	5.9	-45.6	-32.3
Other causes							
COVID 19	Number			1,632	769		-52.9
	Rate			45.2	20.2		-55.3

Figure 7.7: Extract from Health in Ireland: Key Trends 2024, Table 2.4 showing Principal Causes of Death and Age-Standardised Death rates per 100,000 population 2012-2021. Source: Department of Health, 2025.

7.63 At the national level, the Health in Ireland report 2024 identified that 38.2% of the male population and 38.9% of the female population in Ireland held a self-perceived health status of ‘Very Good’ in 2023, compared to only 22.0% for the male population and

19.0% of the female population within the greater EU27 population. Ireland also topped the list of EU27 countries in this area in 2023 as shown in **Figure 7.8**, with 79.5% of the population rating their health as good or very good. However, health status varies in respect of income inequality, with fewer low-income earners reporting good health both in Ireland and across the EU.

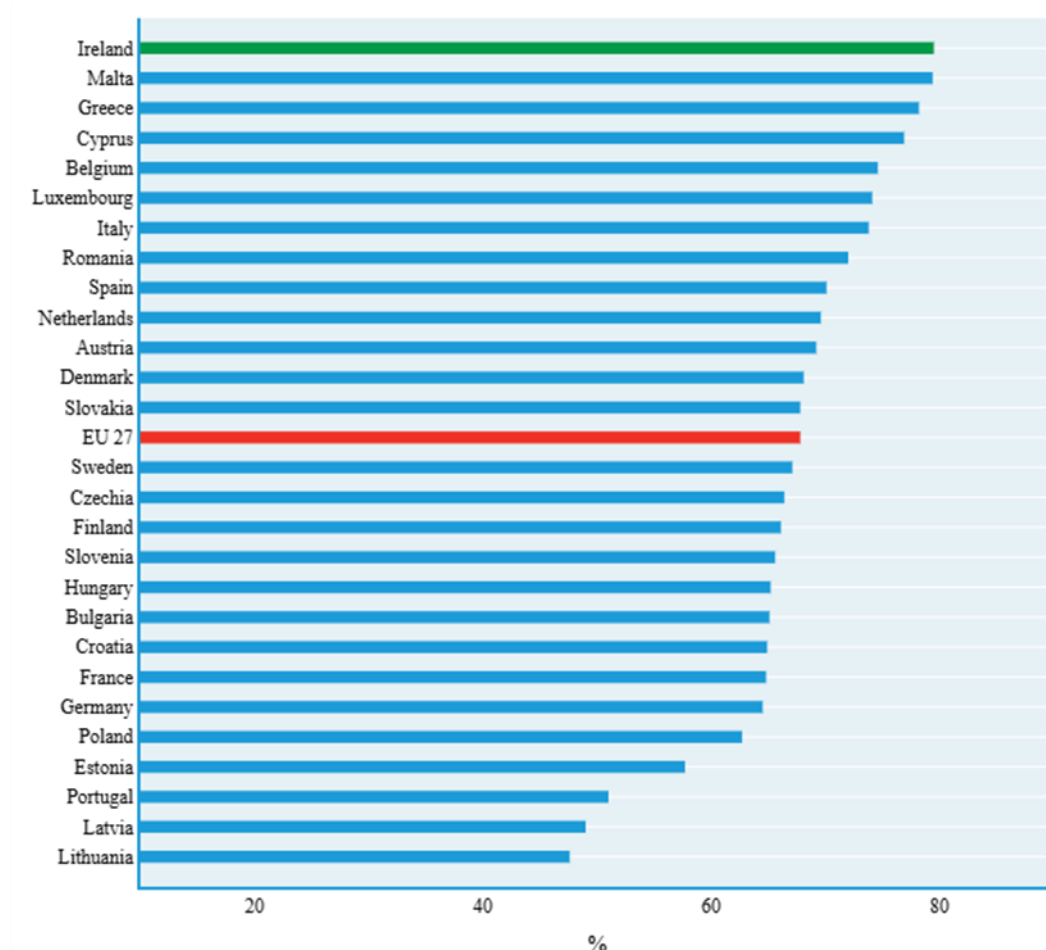


Figure 7.8: Extract from *Health in Ireland: Key Trends 2024*, Figure 2.2 showing Percentage of the Population Reporting Good or Very Good Health in EU-27 Countries, 2023. Source: Department of Health, 2025.

- 7.64 At the local level, c. 81% of people living in Ardee reported their health to be “Good” or “Very Good” accounting for 4,426 people within the area. These figures are slightly lower than the wider County population, which reported c. 82%, and 83% across the State’s population, who reported having ‘Good’ or ‘Very Good’ health in 2022.

Table 7.15: Population by general health status - self-reported (Source: CSO, 2022).

	Ardee		Louth County		Ireland	
	No. Persons	% Total	No. Persons	% Total	No. Persons	% Total
Very good	2,673	49%	72,443	52%	2,740,994	53%
Good	1,753	32%	41,520	30%	1,527,027	30%
Fair	549	10%	13,290	10%	444,895	9%
Bad	86	2%	2,226	2%	72,556	1%
Very bad	14	0%	508	0%	16,843	0%
Not stated	403	7%	9,716	7%	346,824	7%
Total	5,478	100%	139,703	100%	5,149,139	100%

Health Profile Louth 2015 (HSE)

7.65 The following summarises the findings of the HSE Health Profile 2015 for County Louth:

7.66 **Physical Health:** The HSE 2015 Louth profile contains statistical analysis on physical health compared to Ireland. In death rates per 100,000 for the four principal causes of death over the period 2007-2012 it was reported Louth was slightly lower in heart disease and stroke and cancer deaths compared to the national mean rates. Deaths by respiratory disease and poisoning/injury were slightly lower than the national mean average.

7.67 **Mental Health:** Levels of depression and admissions to psychiatric hospital are higher among less affluent socioeconomic groups. Mental health problems are also related to deprivation, poverty, inequality and other social and economic determinants of health. Mental health is a growing health, social and economic issue and it is believed that depressive mental illnesses will be the leading cause of chronic disease in high income countries by 2030 (Healthy Ireland, 2013). Suicide and deliberate self harm rates were reported to be above the Irish average in the Health Profile Louth 2015.

Other Health Considerations

7.68 Human health has the potential to be affected by exposure to toxic substances or pathogens in environmental media, such as air, water and soil. Human health impacts can also arise due to anthropogenic or naturally occurring accidents or disasters, such as landslides, flooding or structural failures. Nuisance and negative psychosocial impacts can also arise as a direct result of environmental factors; e.g. as a result of noise, dust, unsafe environments and / or crime; or indirectly, e.g. as a result of economic hardship. Occupational health and safety risks to construction site personnel are also inherent where demolition and construction works are proposed.

7.69 The baseline environment in terms of air, surface water and groundwater / soil are detailed in Chapter 11 (Air & Climate), Chapter 10 (Hydrology & Hydrogeology) and

Chapter 9 (Land, Soils & Geology), respectively. The risks of accidents and disasters are addressed, where relevant, in the various specialist chapters herein.

Amenity

Green infrastructure / Landscape

- 7.70 Ardee benefits from a diverse and historic landscape which has influenced how the modern town has developed. To the west of Main Street is a mature woodland and agricultural grazing land surrounding St. Joseph's Hospital. This provides a valuable landscape break in close proximity to the centre of the town. Beyond this to the northwest is Ardee Golf Club. The River Dee traverses the town in a west to east direction. A biodiverse rich riparian corridor with mature trees exists along the banks of the river. To the east of the town are areas of under-utilised grassland which are located within the application site boundary (Character Area 2 – Old Railway Lands & Character Area 3 – Amenity Lands).

Sports Clubs / Organisations

- 7.71 Ardee benefits from a number of sports clubs / organisations including Ardee & district Athletics Club, Ardee Rugby Club, Ardee Celtic football club, Ardee Gold Club, Ardee boxing club, St. Marys GAA Club, Ardee tennis club and Sean McDermott's GAA Club.

Social, Community and Commercial

- 7.72 Social facilities provide civil and other services that meet the needs and requirements of the community. Commercial facilities, such as shopping centres and hotels, provide leisure and social environments for the community and tourists.
- 7.73 Ardee benefits from being a commercial centre and has numerous retail, commercial and hospitality businesses located along Main Street and in the adjoining streets. Ardee also has a garda station, fire station, and libraries, financial institutions and a post office.

Potential Impacts of the Proposed Project

- 7.74 As stated previously, the EPA's 2022 Guidelines advise that the following approach should be adopted in an EIAR with respect to the assessment of potential impacts on population and human health:

*'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.]*

- 7.75 The EPA's 2022 Guidelines also advise that:

*'The **transposing legislation does not require assessment of land-use planning, demographic issues or detailed socioeconomic analysis**. Coverage of these can be provided in a separate Planning Application Report to accompany an application for planning permission'. [our emphasis.]*

- 7.76 In keeping with the EPA's 2022 Guidelines, this section, assesses the potential direct and indirect construction and operation impacts associated with the proposed project with

respect to the following environmental factors/pathways through which population (human beings) and human health could be affected:

- Potential health impacts due to changing air quality;
- Potential nuisance and disturbance due to noisy activities;
- Potential negative impacts on journey characteristics / parking due to presence of construction traffic;
- Potential negative impacts on townscape and visual amenity due to presence of construction site and effects of construction activities (e.g. dust, dirt, stockpiling of soils, removal of vegetation, etc.); and
- Positive economic impacts due to construction employment.

Air Quality

Construction Phase

- 7.77 Dust and particulate matter (PM) generated during the construction phase may have the potential for an adverse effect on local air quality, and therefore this was assessed in accordance with the Institute of Air Quality Management (IAQM) construction dust guidance (IAQM, 2016).
- 7.78 Construction dust may be deposited within 350 m of a site, but the majority of deposition tends to occur within a 50 m radius. The extent of dust generation is dependent on the type of dust; the nature of construction activities; and meteorological factors, such as rainfall, wind speed and wind direction. As such, the degree and severity of dust generation is expected to fluctuate across the duration of the proposed works. However, dust generation of some degree may be anticipated throughout.
- 7.79 Chapter 11 (Air & Climate) has rated the sensitivity of the local population to dust soiling as medium risk during any earthworks and low risk during the construction phase of the development.
- 7.80 With respect to potential impacts on climate, Chapter 11 advises that greenhouse gas emissions of the project equate to 0.00002% of Ireland's 2020 target (37,651 kt CO₂eq) and 0.00002% of the 2030 target (32,860 kt CO₂eq) and therefore, construction phase GHG emissions are considered negligible and not significant.
- 7.81 Corresponding mitigation measures have been set out in Chapter 11 of this EIAR. The mitigation measures described will be used to control potential fugitive emissions from the construction project.
- 7.82 All construction effects were assessed to be not significant provided that appropriate dust control and construction phase mitigation measures are applied as listed in the mitigation measures section. During the construction phase, potential climate change effects are considered likely to be appropriately mitigated and not significant. Residual effects are therefore also not significant with suitable mitigation measures in place.

Operation Phase

- 7.83 It can be concluded that the change in concentration and exposure directly attributable to the proposed development are not of a level to quantify any change in baseline health. The magnitude of impact on human health is therefore considered to be negligible.
- 7.84 The predicted development is considered to have a negligible magnitude impact on all receptors for NO₂ and PM₁₀ when considering the national AQS. As concentrations at the site as well below the relevant AQSs, a detailed air quality modelling assessment is not considered to be required.
- 7.85 It is considered unlikely that the development would introduce additional sensitive receptors into an urban area of poor air quality and the development is not anticipated to have a significant impact on local air quality. Therefore, no specific operational phase mitigation measure is considered to be required.
- 7.86 The development is not anticipated to have a significant impact on local air quality, and the residual impacts of the development on air quality whilst it is in operation are likely to be acceptable. During the operational phase, potential climate change effects are considered likely to be not significant.

Noise Exposure

Construction Phase

- 7.87 During the construction phase, the range of activities with potential to generate noise and vibration emissions to off-site sensitive receptors will include site preparation works, construction of the proposed development, landscaping and erection of any temporary buildings/compounds that may be required.
- 7.88 The distance between the construction site and the nearest sensitive receptors (NSL) varies. The closest distance between the site and neighbouring dwellings will be approximately 10 metres but generally construction works will occur between 15 and 100 metres from existing dwellings, depending on the location where specific works are occurring.
- 7.89 With consideration of the site location, the likely construction phase activities, the distances from these works to nearby dwellings and the proposed construction noise criteria it is expected that potentially significant noise impacts will be encountered when works are occurring approximately 15 metres or closer to neighbouring dwellings.
- 7.90 With consideration of the distance from site boundaries to nearby sensitive receptors, and proposed general methods of construction, it is projected that vibration emissions to nearby receptors will not cause structural or cosmetic damage to any nearby buildings.
- 7.91 Chapter 12 Noise and vibration sets out proposed mitigation measures for the construction phase of the development.

- 7.92 Subject to the implementation of the recommended mitigation measures, the human health impacts associated with noise and vibration is not considered to be significant in EIA terms.

Operation Phase

- 7.93 During the operational phase, the potential sources of noise are those associated with any required mechanical plant, additional vehicular traffic on public roads, noise from recreational activity and car parking.
- 7.94 The human health effects from changes in noise exposure are predicted to be of local spatial extent, short term duration and intermittent (i.e. during peak demand). It is predicted that the impact will affect the EIAR receptor directly, and will not be of a magnitude, timing, duration or exposure sufficient to quantify any change in health baseline. The magnitude of impact on human health is therefore considered to be negligible.
- 7.95 With respect to additional road traffic noise on public roads, the calculated increase in noise level on the majority of roads is less than 2dB. This calculated change in noise level is negligible, and the associated impact is not significant.
- 7.96 The noise impact of recreational noise associated with the proposed amenity uses on the site are not expected to be significant, given the distance to nearby dwellings and expected use. Chapter 12 Noise and vibration sets out proposed mitigation measures for the operational phase of the development.
- 7.97 Subject to the implementation of the recommended mitigation measures, the human health impacts associated with noise and vibration is not considered to be significant in EIA terms.

Transport

- 7.98 The World Health Organisation Report, Health Effects and Risks of Transport Systems: *The Hearts Project (World Health Organisation, 2006)*, states that road traffic is a major cause of adverse health effects - ranking with smoking and diet as one of the most important determinants of health in Europe. The Report states:

“Traffic-related air pollution, noise, crashes and social effects combine to generate a wide range of negative health consequences, including increased mortality, cardiovascular, respiratory and stress-related diseases, cancer and physical injury. These affect not only transport users but also the population at large, with particular impact on vulnerable groups such as children and elderly people, cyclists and pedestrians”.

- 7.99 In the Department of Communications, Climate Action & Environment document *Cleaning Our Air – Public Consultation to Inform the Development of a National Clean Air Strategy* vehicle emissions are included as a key source of health impacts in Ireland (DOCCA&E, 2017).

- An assessment of the additional traffic movements associated with the proposed development during the construction and operational phases is presented in Chapter 14 - Material Assets (Traffic & Transportation)

- The impact of traffic generated by the proposed development on human health in relation to air quality and noise during both the construction and demolition phases of the proposed development is considered in Chapters 11 and 12 of this EIAR.

Construction Phase

- 7.100 An increase in HGVs and vehicle movements has the potential to change the transport nature (composition and flow rate on local roads). Depending on the magnitude of change, there is the potential for an increased risk of accident and injury; feelings of isolation from increased severance; and loss of amenity from increased severance or transport disruption.
- 7.101 An assessment of the potential impact on the road network due to the development proposals has been undertaken. This assessment has focused on the impacts associated with the construction and operational phases of the development proposals at the key location along the road network to/ from the character areas. The study area includes the following primary streets/road network and lands:
- N2 Main Street / Castle Street
 - Golf Links Road
 - N52 Jervis Street
 - Ash Walk
 - Sean O'Carroll Street
 - Tierney Street
 - Old Railway Lands and Amenity Lands.
- 7.102 This study area is considered to be the primary zone of influence with respect to the management of traffic during the construction of the proposed scheme and is the area most likely to experience changes, if any, in traffic flow.
- 7.103 The construction phase may have slight localised effects in relation to traffic and environmental impacts, but these will only be for brief periods (occasional few hours or day) to enable the movement of material, etc.

Operation Phase

- 7.104 'Chapter 14 – Material Assets (Traffic and Transportation)' of this EIAR assesses the potential for traffic and transportation impacts associated with the operational stage of the proposed project.
- 7.105 These impacts could include additional traffic on the road network resulting in congestion and impacts on journey amenity, duration and length for other road users.
- 7.106 Relevant traffic and transportation modelling was carried out on the proposed project and Chapter 14 confirms that the proposed project is not expected to result in any

significant effects on the local road network nor will it have any discernible effects on the journey times on the local network.

- 7.107 Noting the information contained in Chapter 14, the Traffic and Transport Assessment and the Car Parking Strategy, as well as the best practice design, construction and mitigation measures referred to in this EIAR, particularly 'Chapter 21 – Mitigation Measures', no significant adverse population (human beings) and human health impacts are predicted with respect to traffic and transport during the operational stage of the proposed project.

Townscape, Landscape and Visual Amenity

- 7.108 The report 'Health Impacts on the Built Environment: A Review' (The Institute of Public Health in Ireland, 2006) states that deteriorating physical features of the urban environment can harm health. Architecture Ireland has also shown the link between the Built Environment and Mental Health (Architecture Ireland, 2015). The World Health Organisation (WHO) has undertaken research that shows urban environments that are aesthetically pleasing and landscaped encourage people to explore and access their local community by foot or bicycle when compared to the same urban space prior to renovations (WHO, 2016).

Construction Phase

- 7.109 During construction, the site and immediate environs would be disturbed by construction related activities. Construction is an inherently unsightly process and there is limited potential for mitigation of the negative townscape and visual effects – apart from erection of site hoarding as means to screen ongoing works and the implementation of best practice site management.
- 7.110 When considering the impacts at the construction stage is reasonable to factor in the following:
- That the construction process is temporary to short term; and
 - Construction activity, streetscape or urban environmental schemes are commonplace in towns like Ardee and have been part of the character of town centre and riverside areas as part of the wider process of urban evolution and improvements.
- 7.111 The magnitude of change to the townscape and views would be *medium* at construction stage on the site itself including the sensitive heritage site at Ardee Castle. However, while of an interruptive nature to the area itself due to construction activity and associated impacts, the significance of any of these temporary effects would reduce to low or negligible due to extent of intervening townscape and the nature of the development.

Operation Phase

- 7.112 The designed scheme seeks to harmonise and integrate the development within the existing landscape and the broader urban environment whilst adhering to national planning policy which seeks the densification and the provision of increased height on appropriate urban sites. The design rationale and detail employed seeks to mitigate

potential negative effects on the landscape character and visual amenity. Once operational, the new development will contribute positively to the form and function of the local area. The improved town scape and visual settings will result in a positive impact on population and human health in area. This will result in a positive, significant and long-term effect on human health in the local area.

- 7.113 A detailed assessment of the proposed developments impact on the landscape is outlined in Chapter 18 Landscape Visual Impact Assessment.

Income and Employment Generation

Construction Phase

- 7.114 Having a consistent income and benefitting from long-term employment are two of the most important wider determinants of health. The construction phase of the proposed development would offer a number of job opportunities; while job opportunities would vary in type, the majority of jobs available would be for construction workers. This would be an indirect impact which, dependent on procurement, has the potential to benefit some construction workers in and around Ardee.
- 7.115 However, it should be noted that due to the highly mobile nature of the construction industry and as construction companies tend to bring much of their labour force with them to undertake developments, it is unlikely that all of the construction companies and contractors commissioned on the proposed development would be based in and around Ardee.
- 7.116 The human health effects from income and employment generation are predicted to be primarily of local spatial extent and short-term duration. It is predicted that the impact will affect the receptor directly through employment and indirectly via indirect and induced income and employment opportunities important to health. However, the magnitude of direct, indirect and induced income and employment opportunities are not sufficient to quantify any change in baseline health. The magnitude is therefore considered to be negligible.
- 7.117 A precautionary approach has been applied, where the sensitivity of residential receptors to human health effects from income and employment generation is considered to be uniformly high.
- 7.118 Overall, it is predicted that negligible magnitude of impact on the high sensitivity receptor would result in a minor beneficial effect, which is not significant in EIA terms.
- 7.119 The residual effect following no mitigation or enhancement is predicted to remain minor beneficial, which is not significant in EIA terms.

Operation Phase

- 7.120 The human health effects from income and employment generation are predicted to be primarily of local spatial extent and short-term duration. It is predicted that the impact will affect the receptor indirectly but will not be of level sufficient to quantify any change in health baseline. The magnitude is therefore considered to be negligible.

- 7.121 Overall, it is predicted that a negligible magnitude of impact on the high sensitivity receptor would result in a minor beneficial effect, which is not significant in EIA terms. The residual effect following no mitigation or enhancement is predicted to remain minor beneficial, which is not significant in EIA terms.

‘Do-Nothing’ Scenario

- 7.122 The ‘Do-Nothing’ alternative considers the likely scenario that would arise, assuming the proposed project was not progressed, i.e. if no development occurred.
- 7.123 A ‘Do-Nothing’ scenario would likely result in the following:
- No development of the lands and a continuation of the existing use, this being predominantly agricultural land; or
 - Development (likely residential) under the scope of a separate proposal and application at some point in the future.
 - Under the ‘no development’ scenario, no significant impacts would arise in relation to population and human health locally.

Potential Cumulative Impacts

- 7.124 Cumulative effects are those arising from impacts of the proposed development in combination with impacts of other proposed or consented development projects that are not yet built/ or operational.
- 7.125 The projects identified in Chapter 3 Site and Development Context have been reviewed and, in all cases, there will be no significant cumulative impacts on population and human health as a result of neighbouring development proposals.

Interactions

- 7.126 Taking account of the proposed design, nature and location/siting of the project, the following interactions with other environmental factors are predicted:
- **Hydrology & Hydrogeology:** interactions between ‘Population & Human Health’ and ‘Hydrology & Hydrogeology’ have been considered in this EIAR as the proposed project has the potential to create impacts on surface water runoff during the construction stage as a result of increased levels of silt or other pollutants, in addition to potential pollution from spillages, wheel washing and water from trucks on site.
 - **Air & Climate:** interactions between ‘Population & Human Health’ and ‘Air & Climate’ have been considered in this EIAR as the proposed project has the potential to create nuisance/health impacts related to exposure to dust during the construction stage and construction traffic related emissions during the construction stage.

- **Noise & Vibration:** interactions between 'Population & Human Health' and 'Noise & Vibration' have been considered in this EIAR as the proposed project has the potential to create potential impacts during the construction stage related to elevated noise levels.
- **Material Assets - Traffic & Transportation:** interactions between 'Population & Human Health' and 'Material Assets – Traffic & Transportation' have been considered in this EIAR as the proposed project has the potential to create traffic/parking impacts during the construction stage due to presence of construction traffic and traffic management measures and traffic impacts due to the traffic generated by the operational stage.
- **Material Assets – Waste:** interactions between 'Population & Human Health' and 'Material Assets – Waste' have been considered in this EIAR as the proposed project has the potential to create health impacts if improper waste management measures are implemented during both the construction and operational stages.
- **Material Assets – Site Services:** interactions between 'Population & Human Health' and 'Material Assets – Site Services' have been considered in this EIAR as the proposed project has the potential to create health impacts related to improper safety protocols, e.g. related to diversions of power lines, and potential nuisance/impacts on residential amenity due to potential water/power/service outages during the construction phase.
- **Townscape, Landscape and Visual Impact:** interactions between 'Population & Human Health' and 'Townscape and Visual Impact' have been considered in this EIAR as the proposed project has the potential to create visual impacts related to the presence of a construction site during the construction stage, and the presence of a sizeable new residential development during the operational phase.

Mitigation Measures

- 7.127 In relation to the impact of the development on population (human beings) and human health, it is considered that the monitoring and mitigation measures outlined in other environmental topics/chapters such as water, air quality, climate and noise etc. are sufficient to address any potential impacts.

Construction Phase

- 7.128 A PCEMP has been prepared to accompany the planning application and to help protect the amenities of the area. The contractor will further develop the PCEMP and submit it for further approval, if necessary, and implement the requirements during the construction phase. The content of the PCEMP is also based on the mitigation measures set out in this EIAR.
- 7.129 No further specific mitigation measures are recommended for the construction phase with respect to population (human beings) and human health having regard to the mitigation measures contained within each of the other specialist chapters of this EIAR for each environmental factor assessed. Readers are also directed to 'Chapter 21 – Mitigation Measures' of this EIAR which summarises all of the proposed mitigation measures.

- 7.130 No specific mitigation measures for the construction phase are proposed for Population and Human Health.

Operational Phase

- 7.131 A range of operation related mitigation measures are proposed throughout this EIAR in relation to each environmental factor assessed in order to avoid, where possible, and in other cases minimise/reduce, potential and predicted impacts associated with the proposed project.
- 7.132 The recommended mitigation measures will reduce the potential for any likely significant effects on the environment with respect to population and human health during the operation phase. Readers are directed to 'Chapter 21 – Mitigation Measures' of this EIAR which summarises all of the remedial and mitigation measures proposed as a result of this EIAR.
- 7.133 It is noted that the operational phase of the proposed project is considered to have likely positive effects on population (human beings) and human health in relation to the provision of high quality hard and soft landscaping and public realm, access to heritage assets and improved connectivity, permeability and pedestrian/cycle infrastructure encouraging the use of active travel and subsequent health benefits.
- 7.134 No specific mitigation measures for the construction phase are proposed for Population and Human Health.

Difficulties in Compiling Information

- 7.135 There were no difficulties in compiling the Chapter.

Summary of Effects

- 7.136 No significant human health effects are predicted as a result of the construction or operation phases of the proposed development. This has been concluded on the basis that any change in health determinant would not be sufficient to quantify any change in baseline health outcomes within the surrounding community.
- 7.137 Positive impacts on population and human health will include health and social/wellbeing benefits associated with the provision of a new public/open space in the town centre and the provision of a highly permeable layout which encourages walking and cycling.
- 7.138 The implementation of the range of remedial and mitigation measures recommended in this EIAR document is likely to have the impact of limiting any adverse significant and likely environmental impacts of the operational phase of the proposed development on population and human health.

References

This Chapter has been informed by a review of the relevant legislation, policy and guidance documents and data sources, including:

- Environmental Protection Agency (EPA) - Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022).
- Department of Housing, Planning and Local Government (DHPLG) - Guidelines for Planning Authorities and An Coimisiún Pleanála on carrying out Environmental Impact Assessment (2018).
- European Commission (EC) - Environmental Impact Assessment of Projects. Guidance on the preparation of Environmental Impact Assessment Report (2017).
- Environmental Protection Agency (EPA) - Draft Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (2015).
- European Commission (EC) - Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (1999).
- National Planning Framework 2018
- Eastern and Midlands Regional Assembly - Regional Spatial and Economic Strategy, 2019.
- Louth County Development Plan 2021 - 2027

This Chapter has also been informed by desktop studies of relevant data sources including:

- Department of Housing, Planning & Local Government (2022). My Plan Map Viewer.
- Google Maps and Places (2022)
- Central Statistics Office – Census 2022 data.
- Central Statistics Office – Census 2016 data.
- Central Statistics Office – Census 2011 data.
- Central Statistics Office (2022) – *CSO PxStat*
- Central Statistics Office (2022) - Quarterly Labour Force Survey for Q1 2025
- Economic and Social Research Institute (2025) - Quarterly Economic Commentary, Spring 2025
- Department of Housing, Planning & Local Government (2021) - Rebuilding Ireland – Action Plan for Housing and Homelessness
- Government of Ireland (2025). Health in Ireland – Key Trends 2024

8. Biodiversity

Introduction

- 8.1 This Chapter assesses the impacts of the Likely Significant Effects (LSE) of the proposed development in terms of biodiversity. It presents an ecological impact assessment (EcIA) following the guidelines for Ecological Impact Assessment published by the Chartered Institute of Ecology and Environmental Management (CIEEM 2018). In particular, designated sites, habitats and species are noted; baseline ecological conditions are described; potential impacts on ecological features are predicted and assessed (including those due to direct loss of habitat, and those likely to arise in connection with each stage of the project from soil translocation to creation of temporary road routes). Proposed mitigation and compensation measures are outlined; and residual impacts after mitigation are then described and assessed. Cumulative impacts arising from interaction with other developments in the area are also addressed.
- 8.2 This chapter describes the ecological value of the area (hereafter referred to as 'the Site'). The Site and its surrounds are further described in Section 8.3.1, but its general context can be described as follows: lying at the centre of the town of Ardee in the vicinity of retail and residential housing comprising of a mixture of terraced and detached housing in urban and more suburban areas fringed by green space and riparian woodland.
- 8.3 Biodiversity is addressed as part of the EIA process because of S.I. No. 296/2018 – European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 which transpose the requirements of the Directive 2011 on the assessment of the effects of certain public and private projects on the environment (Directive 2011/92/EU) as amended by Directive 2014/52/EU. This requires consideration of the aspects of the environment that are likely to be significantly affected by the proposal including flora and fauna. Ecological features are also covered by a variety of legislation and policy documents (both national and local) and these have been reviewed.

Statement of Authority

- 8.4 This Ecological Impact Statement has been prepared by Conor McKinney of RSK Ireland. Conor has worked for over 15 years in the ecological field and has a BSc in Environmental Science from University of Stirling and a MSc in Ecological Management and Conservation Biology from Queens University Belfast. Conor has completed numerous similar projects including Ecological Impact Assessments and biodiversity chapters for Environmental Impact Assessment Reporting and is a certified Building with Nature Assessor. Technical and quality review undertaken by Mark Lang – Associate Director with RSK and a Chartered Ecologist with 30 years' experience of ecological assessment.

Methodology

- 8.5 This chapter of the EIAR concentrates on ecological features within the development area of particular significance, primarily designated habitats and species. This includes

habitats/species listed in Annex I, II and IV of the EU Habitats Directive, rare plants listed in the Flora Protection Order and other semi-natural habitats of conservation value.

Legislative Framework

8.6 A number of Legislative Acts, Directives and international conventions aim to conserve biodiversity and nature conservation interest in the UK. A summary of Proposed Development compliance with legislation is provided below:

- The Bonn Convention
- The Bern Convention
- The Convention on Biological Diversity
- The Habitats Directive (Council Directive 92/43/EEC)
- The Birds Directive (Directive 2009/147/EC)
- The Water Framework Directive (Directive 2000/60/EC)
- Wildlife Acts 1976 to 2021
- The European Communities (Birds and Natural Habitats Regulations 2011 (S. I. No. 477 of 2011))
- Heritage Act 2018 (no.15 of 2018), Part 3
- Planning and Development Acts 2000 to 2019

8.7 The primary legislation of note for this Chapter is discussed in further detail below.

EU Habitats Directive

8.8 The “Habitats Directive” (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna) is the main legislative instrument for the protection and conservation of biodiversity within the European Union and lists certain habitats and species that must be protected within wildlife conservation areas, considered to be important at a European as well as at a national level. A “Special Conservation Area” or SAC is a designation under the Habitats Directive. The Habitats Directive sets out the protocol for the protection and management of SACs.

8.9 The Directive sets out key elements of the system of protection including the requirement for “Appropriate Assessment” of plans and projects.

EU Birds Directive

8.10 The “Birds Directive” (Council Directive 2009/147/EC on the Conservation of Wild Birds) provides for a network of sites in all member states to protect birds at their breeding, feeding, roosting and wintering areas. This Birds Directive identifies species that are rare, in danger of extinction or vulnerable to changes in habitat and which need protection (Annex I species). Appendix I indicates Annex I bird species as listed on

the Birds Directive. A “Special Protection Area” or SPA, is a designation under The Birds Directive.

- 8.11 Special Areas of Conservation and Special Protection Areas form a pan-European network of protected sites known as Natura 2000 sites and any plan or project that has the potential to impact upon a Natura 2000 site requires appropriate assessment.

Wildlife Acts (1976-2012)

- 8.12 The primary domestic legislation providing for the protection of wildlife in general, and the control of some activities adversely impacting upon wildlife is the Wildlife Act of 1976. The aims of the wildlife act according to the National Parks and Wildlife Service are “... to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources and to regulate their exploitation, and to provide the services necessary to accomplish such aims.” All bird species are protected under the Wildlife Act 1976. The Wildlife (Amendment) Act of 2000 amended the original Wildlife Act 1976 to improve the effectiveness of the Wildlife Act 1976 to achieve its aims.
- 8.13 Both the Habitats Directive and the Birds Directive have been transposed into Irish law by one set of regulations (i.e. The European Communities (Birds and Natural Habitats) Regulations 2011 to 2015 as amended).

Policy Context

Statutory Policy

- 8.14 Planning policy occurs at the national and local levels and has relevance to environmental design and assessment. A summary of the Proposed Development compliance with planning policy is provided below.
- Project Ireland 2040: National Planning Framework
 - Biodiversity Climate Change Sectoral Adaptation Plan
 - Louth County Development Plan 2021 – 2027
- 8.15 Other Statutory Policy is included within the Local Biodiversity Action Plan for County Louth 2021 - 2026 which envisages a future “to have healthy people and wildlife, thriving in a healthy, natural environment. The county intends to move from a goal of “No net loss of biodiversity” to “Net gain”, that is active management and restoration of our life support systems.

Non- Statutory Policy

- 8.16 In 1996 the Irish Government ratified the convention on Biological Diversity and launched a series of National Biodiversity Plans, the latest of which is the 4th National Biodiversity Plan 2023 - 2030. This plan contains the following 7 objectives:
- Adopt a Whole-of- Government, Whole- of-Society Approach to Biodiversity.
 - Meet Urgent Conservation and Restoration Needs.

- Secure Nature's Contribution to People.
- Enhance the Evidence Base for Action on Biodiversity.
- Strengthen Ireland's Contribution to International Biodiversity Initiatives.

8.17 This plan operates across statutory and non-statutory policy realms.

Consideration of available Guidance and Resources

8.18 The guidance used for the preparation of this Chapter is summarised as follows:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DEHLG, Rev. Feb. 2010).
- Assessment of plans and projects significantly affecting Natura 2000 sites (EC, 2002).
- CIEEM (2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Version 1.3.
- EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports 2017.
- European Commission Guidance on the Preparation of the EIA Report (2017) as well as the European Commission Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (2013).
- Fossitt J. 2000. A Guide to Habitats in Ireland. Heritage Council.
- Managing Natura 2000 Sites (EC, 2000) Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC (EC, 2000).
- Managing Natura 2000 Sites (EC, 2018) Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC (EC, 2018).
- NRA. 2009. Guidelines for Assessment of Ecological Impacts of National Road Schemes. National Roads Authority.
- Smith G. F., O'Donoghue P., O'Hara K. and Delaney E. 2010. Best Practice Guidance for Habitat Survey and Mapping. Heritage Council.

Relevant Elements of the Proposed Development

8.19 A full description of the site context, immediate character and the proposed development is included in Chapter 5 of this EIAR. The project area is mapped in **Figure 1.1** of this EIAR.

Assessment Methodology and Significance Criteria

Scope of the Assessment

8.20 Chapters 1, 2, 3 and 4 of the EIAR detail the approach to the assessment.

8.21 This assessment follows the second edition of the Chartered Institute of Ecology and Environment Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK, referred to here as 'the CIEEM Guidelines' (CIEEM 2018). The guidelines are endorsed by statutory consultees in EIA and other concerned organisations including National Parks and Wildlife Service and the Environmental Protection Agency.

8.22 The assessment involved the following key stages:

- identifying the zone of influence arising from the whole lifespan of the project;
- a background data search to obtain archival records of sites and species, and to gain information to focus the field surveys;
- identifying ecological features (e.g. habitats, species, ecosystems, and to gain information to focus the field surveys;
- determination of the ecological features (e.g. habitats, species, ecosystems and their functions / processes, previously known as ecological receptors) through field surveys and the background data search;
- determination of the ecological value / importance of the ecological features;
- identification of the potential impacts and assessment of effects on the integrity or conservation status of the ecological features in terms of their extent, magnitude, duration, reversibility, timing and frequency;
- identify cumulative impacts;
- identify significant effects of impact in the absence of any mitigation;
- incorporation of ecological mitigation measures to avoid or reduce effects; and compensation measures to balance any unavoidable significant effects, and enhancement to provide net benefits for biodiversity over and above requirements for avoidance, mitigation and compensation; and
- assessment of the significance of any residual ecological effects remaining after the implementation of mitigation and compensation measures

Method of Baseline Data Collection

Desk Study

8.23 A desk study was undertaken in March 2022 which included a review of available information to determine the baseline conditions in the Study Area. The following data sources have been reviewed:

- aerial photography;
- National Biodiversity Data Centre (NBDC) species records;
- National parks and Wildlife Service (NPWS) priority habitat GIS data; and
- NPWS protected sites viewer and protected sites shapefiles.

8.24 A search was made for information on statutory designated sites (nationally and internationally important sites for biodiversity) and non-statutory designated sites (sites that are locally or regionally important for biodiversity) within 15km. A search was also carried out for records of notable species within the 10 km area. Species included in the search parameters are:

- European protected species;
- Nationally protected species;
- Species listed as Critically Endangered, Endangered or Vulnerable on the IUCN Red list;
- Birds listed as Amber or Red listed on the Birdwatch Ireland Birds of Conservation Concern;
- Nationally red listed species; and
- Local Biodiversity Action Plan priority species.

8.25 The following resources assisted in the production of this chapter of the report:

- OpenStreetMaps and Bing Aerial photography (1995 – 2020);
- NPWS Mapviewer: <http://www.npws.ie/en/MapsData/>;
- Designated sites (SACs, SPAs, NHAs);
- Records of protected species from 10km squares; and
- National Biodiversity Data Centre Records and Maps.

Habitat Survey

8.26 The site was surveyed in accordance with the Heritage Council’s Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010). Habitats were identified in accordance with Fossitt’s Guide to Habitats in Ireland (Fossitt, 2000). The site was surveyed in accordance with the Heritage Council’s Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010).

Table 8.1: Summary of ecological surveys undertaken

Survey Type	Details of Survey	Month/Year/Company
Extended Phase 1 habitat survey included assessment for protected species	Identification of broad habitat types and habitat suitability for protected species following the Heritage Council’s Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010) and CIEEM Preliminary Ecological Assessment methods (IEEM 2012) and identified (Figure 6.1) in accordance with (Fossitt, 2000).	April 2022 RSK Ireland

Technical Note: Greylag Goose Habitat Assessment	This assessment and accompanying technical note reports on the potential for habitat suitability for Greylag Goose at Ardee, Co. Louth, following a walkover survey of grassland habitats within the Old Railway Lands and Amenity Lands	September 2023, RSK Ireland
Ground Level Tree Assessment (GLTA) Bat Survey	The purpose of a GLTA is to inform the design of subsequent more detailed bat surveys, or to rule them out if appropriate, and to give recommendations of further bat surveys that may be required before any felling and/or pruning works are carried out. The development proposals concentrated on three main Key Character Areas in Ardee: the 'Main Street'; the 'Ash Walk', which is a wooded area to the east of St. Joseph's Hospital; the 'Old Railway & Amenity Space', which are council-owned lands in the east part of the town. Twenty-one individual trees and five groups of trees were identified in the arborist report and were assessed.	September 2023, RSK Ireland

8.27 Based on the findings of a walkover survey conducted on 14 January 2025, it is confirmed that the baseline ecological conditions remain unchanged. The habitats, potential species presence, and ecological constraints remain consistent with those identified in the previous assessments outlined in the below rereport:

- RSK, Appropriate Assessment (AA) Screening, December 2023
- RSK, Technical Note: Greylag Goose Habitat Assessment, November 2023
- RSK, Ground Level Tree Assessment (GLTA) Bat Survey, October 2023
- RSK, Preliminary Ecological Appraisal (PEA), May 2021
- RSK, Biodiversity Chapter 8, December 2023

8.28 Consequently, it is concluded that the existing ecological data remains valid for informing the proposed planning application, and no further ecological surveys or assessments are necessary at this stage to support the planning application.

Assessment Methodology

Site Evaluation

8.29 The Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009) outlines the methodology for evaluating ecological impacts of the project in the present report. According to the Guidelines, the Ecological Study should address:

- Designated conservation areas and sites proposed for designation within the zone(s) of influence of any of the route options;
- All the main inland surface waters (e.g. rivers, streams, canals, lakes and reservoirs) that are intersected by any of the route corridor options, including their fisheries value and any relevant designations;
- Aquifers and dependent systems and turloughs and their subterranean water systems;
- Any known or potentially important sites for rare or protected flora or fauna that occur along or within the zone(s) of influence of any of the route options;
- Any other sites of ecological value, that are not designated, along or in close proximity to any of the route corridor options;
- Any other relevant conservation designations or programmes (e.g. catchment management schemes, habitat restoration or creation projects, community conservation projects, etc.); and
- Any other features of particular ecological or conservation significance along any of the route options.

Significance Criteria

8.30 The assessment of likely significant effects as a result of the Proposed Development has taken into account the construction and operational stages. The significance level attributed to each effect has been assessed based on the magnitude of change due to the Proposed Development and has the sensitivity of the affected ecological feature. Magnitude of change and the sensitivity of the affected ecological feature are both assessed on a scale of high, medium, low and negligible. The overall significance of an effect has been determined qualitatively by measuring the magnitude of change effect against:

- The number of ecological features affected and their 'value', which will consider the scale of an effect (i.e. whether it is local or regional);
- The reversibility and duration of the effect;
- The type and sensitivity of the ecological feature affected; and
- The type of effect

Identifying and Evaluating the Value/ Importance of Ecological Features

8.31 The EcIA guidelines suggest that the value or importance of ecological features should be defined in terms of geographical scale. Therefore, the value (or potential value) of ecological features within the zone of influence for the project has been considered at the scales outlined in **Table 8.2**.

8.32 Ecological Impact Assessment (EcIA) firstly involves determining the value of ecological features / receptors with an emphasis on different aspects of ecological value including designations, biodiversity value, potential value, secondary or supporting value, social

value, economic value, legal protection and multi-functional features. These values are applied to the receptors within a defined geographical context. For example:

Table 8.2: Ecological features evaluation criteria

Value of Ecological Features	Example Criteria
International importance	• European site including Special Area of Conservation (SAC), Special Protection Area (SPA), • Site that fulfils the criteria for designation as a “European Site” see Annex III of the Habitats Directive, as amended. • Features essential to maintaining the coherence of the Natura 2000 network • Ramsar Site
National importance	• Sites designated, or proposed as a Natural Heritage Area (NHA) • Statutory Nature Reserve or National Park • Refuge for Fauna and Flora protected under the Wildlife Acts. • Resident or regularly occurring populations (assessed to be important at the national level) of the following: • Species protected under the Wildlife Acts; and/or • Species listed on the relevant Red Data list.
County importance	• Area of Special Amenity • Area subject to a Tree Preservation Order • County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National of Local BAP
Local importance (higher value)	• Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared; • Resident or regularly occurring populations (assessed to be important at the Local level) of the following: • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; • Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; • Species protected under the Wildlife Acts; and/or • Species listed on the relevant Red Data list

Value of Ecological Features	Example Criteria
Local importance (lower value)	- Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; - Sites or features containing non-native species that are of some importance in maintaining habitat links

Characterising Ecological Impacts

- 8.33 Once the ecological features have been identified and their value defined, a judgement is made as to whether the Proposed Development is likely to result in impacts upon each of the identified features and, if appropriate, the nature of those impacts. Each potential ecological impact has a number of characteristics that need to be adequately described before effect significance can be assessed.
- 8.34 A number of key factors have been considered when describing and assessing the nature of ecological impacts, including:
- Positive or negative impacts/effects in accordance with nature conservation objectives and policy;
 - Extent (area or distance);
 - Magnitude (the size of an impact i.e. departure from baseline, described in quantitative terms where possible, amount or level of effect). Definitions of the levels of magnitude of impact are described below:
 - High magnitude impacts include those where there is the potential to affect the integrity of a significant area by substantially changing in the long term its ecological features, structures and functions, across its whole area, that enable it to sustain the habitat, complex of habitats and/or population levels of species that makes it important;
 - Medium magnitude impacts include those where the ecological integrity of the site is predicted to not be adversely affected in the long term but where the project is likely to affect some, if not all, of the area's ecological features, structures and functions in the short or medium term. The site may be able to recover through natural regeneration and restoration; and
 - Low magnitude impacts which include those which have the potential to cause some minor impacts of limited extent to an ecological feature and/or its quality. This level of impact can include limited changes over the medium term, noticeable changes over the short term, or barely discernible changes for any length of time. Impacts at this level are often temporary in nature and the site can recover through natural regeneration.
 - Duration (in time as short-term (0-2 years), medium-term (2-10 years), long-term (where the effect occurs for 10 years or more and includes permanent effects (normally greater than 25 years) or related to species' life-cycles);

- Timing and frequency/ intermittent (where the effect occurs for short periods of time and may re-occur occasionally at regular or irregular intervals, e.g. related to life cycles and breeding seasons); and
- Reversibility (whether the effect is permanent (where the effect represents a long-lasting change of an ecological feature) or temporary (where the effect occurs for a limited period of time and change at a defined ecological feature can be reversed)).

8.35 Direct, indirect, residual and cumulative impacts are also considered:

- Direct impacts are changes directly attributable to a defined action of the Proposed Development such as the physical loss of a habitat or the immediate mortality of an individual of a particular species;
- Indirect impacts are attributable to an action which affects ecological resources through effects on an intermediary ecosystem, process or receptor, e.g. a loss of food resources for a species downstream of a site due to fish-kill by polluted runoff entering a river;
- After assessing the impacts of the proposal all attempts should be made to avoid and mitigate ecological impacts. Once measures to avoid and mitigate ecological impacts have been finalised, assessment of the residual impacts should be undertaken to determine the significance of their effects on ecological features;
- Cumulative impacts are the collective effects of changes that may be insignificant individually but in combination, often over time, have the potential to be significant.

8.36 Where these parameters were unknown, this has been stated.

8.37 For each potentially significant impact attempts have been made to assess the likelihood that the change will occur as anticipated and that the impact on ecological structure and function will manifest as predicted. Wherever possible, this is based on previous evidence and applied to according to the following scale:

- Near-certain: >95% chance of occurring as predicted
- Probable: 50-95% chance of occurring as predicted
- Unlikely: 5-50% chance of occurring as predicted
- Extremely unlikely <5% chance of occurring as predicted

Significance of Effects and Geographic Scale

8.38 Once each of these factors has been considered, a judgment on the significance of the effect on a particular ecological feature is made. This significance depends on both the characteristics and magnitude of the impact and the value of the ecological feature. CIEEM states that for the purposes of EclA a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general, it can be positive or negative. Significant effects

encompass impacts on structure and function of defined sites or habitats and the conservation status of habitats and species and can be considered significant at a wide range of scales from international to local (CIEEM 2019).

- 8.39 Once an effect is identified, the geographic scale at which it will take effect is established see **Table 8.2**. For example, an effect may not be significant at a national scale but may be significant at a county or local scale.

Mitigation Hierarchy

- 8.40 Where possible significant ecological effects will be avoided through careful design and the mitigation hierarchy will be applied:

- Avoidance.
- Mitigation.
- Compensation.
- Enhancements.

Consultation

- 8.41 An email was sent to consult with the National Parks and Wildlife Service (NPWS), however, a response has not yet been received.

Limitations of the Assessment

- 8.42 This section sets out limitations relating to the methods used, data availability and deviations from standard practice.
- 8.43 Designated and protected sites are described and reviewed from existing information. This information, although accurate at the time of publishing, is often several years old and may not reflect the current status or condition of sites.
- 8.44 The Phase 1 habitat survey and assessment for protected vertebrates was completed in April, a sub-optimal month for this type of survey. However, the habitats on the site have only a small seasonal biodiversity component and the main ecological features are likely to have been recorded sufficient to inform this assessment, so this is not considered to be a significant limitation.

Baseline Ecological Features

European Designated Sites

- 8.45 The Site is not within or adjacent to any Natura 2000 sites, these being Special Areas for Conservation (SAC) or Special Protection Areas (SPA). Potential indirect impacts were considered within a zone of influence of 10 km, and downstream along the River Dee. Descriptions of relevant sites are presented in **Table 8.3**.

Table 8.3: Context of SPA and SACs in relation to the site

Site Code	Site name	Features of Interest	Distance (km) ²⁷
4091	Stabannan-Braganstown SPA	Key habitats: agricultural grasslands on alluvial plains Special Conservation Interests: greylag goose (wintering populations)	4.3km north-east
455	Dundalk Bay SAC	Annex I habitats: estuaries, mudflats and sandflats, perennial vegetation of stony banks, <i>Salicornia</i> and other annuals colonising mud and sand, Atlantic salt meadows, Mediterranean salt meadows Annex II species: none	11.2km north-east
4026	Dundalk Bay SPA	Key habitats: intertidal / coastal wetlands Special Conservation Interests: great-crested grebe, greylag goose, light-bellied brent goose, shelduck, teal, mallard, pintail, common scoter, red-breasted merganser, oystercatcher, ringed plover, golden plover, grey plover, lapwing, knot, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank, black-headed gull, common gull, herring gull (all are wintering populations)	11.2km north-east

- 8.46 The above sites are considered in the AA (Screening) that accompanies this report which has concluded no likely significant effects on the integrity of any European designated site, and they are therefore not assessed again within this EIAR.

National Designated Sites

- 8.47 The Site is not within or adjacent to any Natural Heritage Areas. Potential indirect impacts were considered within a zone of influence of 5 km. Descriptions of relevant sites are presented in **Table 8.4**, and their locations are shown in **Figure 8.1** (located at end of Chapter 8).

²⁷ Distances indicated are the closest geographical distance between the proposed development and the European site boundary, as made available by the NPWS. Connectivity along hydrological pathways may be significantly greater.

Table 8.4: Proposed Natural Heritage Areas (pNHAs) with features of interest and context to site

Site Code	Site name	Features of Interest	Distance (km) ²⁸
1616	Louth Hall And Ardee Woods pNHA	Three areas of mixed, planted and semi-natural deciduous woodland to the north of Ardee	0.5 km north
1454	Ardee Cutaway Bog pNHA	Cutaway raised bog supporting a mosaic of bog and heath vegetation	1.0 km north-west
1806	Kildemock Marsh pNHA	Small reed bed and associated wetland vegetation	2.5 km south
456	Stabannan-Braganstown pNHA	Refer to Stabannan-Braganstown SPA	4.3 km north-east

Identification of Potential Pathways for Indirect Impacts on Designated Sites

- 8.48 Indirect impacts can occur if there is a viable pathway between the source (future work within the Site) and the receptor (habitats and species within a designated site). The most common pathway for impacts is surface water, e.g. if a pollutant reaches a river and is carried downstream into a designated site. Other potential pathways are groundwater, air (e.g. airborne dust or sound waves), or land (e.g. flow of liquids, vibration). The zone of effect for hydrological impacts can be several kilometres, but for air and land it is rarely more than one hundred metres. An appraisal of potential pathways for impacts on designated sites is provided below.
- 8.49 The *Louth Hall And Ardee Woods* pNHA covers three discrete patches of woodland, of which the closest is approx. 0.5 km north of the Site. It is a terrestrial habitat, and is not associated with the River Dee, so pathways via surface water can be ruled out. The habitat is not associated with groundwater, so this pathway can also be ruled out. Pathways via land or air are unlikely at this distance.
- 8.50 The *Ardee Cutaway Bog* pNHA is located 1.0 km north-west of the Site and has been designated for the protection of cutover raised bog. Raised bogs are rain-fed ecosystems that are hydrologically isolated from surrounding surface water or groundwater bodies, so both of these pathways can be ruled out. Pathways via land or air can be ruled out due to distance.
- 8.51 The *Kildemock Marsh* pNHA is located 2.5 km south of the Site and has been designated for the protection of a small red bed and associated wetland habitat. It is located more than 400 m from the River Dee, and is upstream of the Site, so a surface water pathway can be ruled out. Pathways via groundwater, air and land can be ruled out due to distance.
- 8.52 The *Stabannan-Braganstown SPA / pNHA* is located approx. 4.3 km north-east of the Site. It has been designated to protect a population of over 1,000 greylag geese that feed

²⁸ Distances indicated are the closest geographical distance between the proposed development and the European site boundary, as made available by the NPWS. Connectivity along hydrological pathways may be significantly greater.

on alluvial plains at the confluence of the Rivers Glyde and Bawn. These watercourses are part of a separate river catchment to the River Dee, so a surface water pathway can be ruled out. Pathways via groundwater, air and land can be ruled out due to distance.

8.53 The *Dundalk Bay* SAC and *Dundalk Bay* SPA are located 11.2 north-east of the Site. The SAC was designated to protect a range of coastal and intertidal habitats, and the SPA to protect a range of overwintering bird species that feed in intertidal areas. The SAC and SPA are located at the mouth of the River Dee, so there is a surface water pathway. However, any waterborne pollutants entering the river at Ardee would be diluted by 17 km of intervening watercourse, as well as by coastal waters, prior to reaching the qualifying interests of the SAC or SPA. On this basis, the surface water pathway is not considered to be feasible. Pathways via groundwater, air and land can be ruled out due to distance. For further detail on deliberations with regards the European Sites consult the accompanying AA.

8.54 In summary, no potential pathways were identified to any of the designated sites in **Tables 8.3** or **8.4**.

Habitat Assessment

8.55 Five habitat types were found within the Site, as listed and described below.

- Buildings and artificial surfaces (BL3).
- (Mixed) broadleaved woodland (WD1).
- Hedgerow (WL1).
- Dry meadows and grassy verges (GS2).
- Amenity grassland (GA2).

Building and artificial surfaces (BL3)

8.56 All areas alongside the N2 / Bridge Street, and most areas around Ash Walk, consist of buildings, roads, car parks, and other paved surfaces. None have any substantial vegetation cover, so they are of Negligible nature conservation importance.

(Mixed) broadleaved woodland (WD1)

8.57 Some areas of woodland have been planted or otherwise managed, notably a small park on the eastern side of the N2 / Bridge Street. Species include Horse Chestnut *Aesculus hippocastanum*, Sycamore, Beech *Fagus sylvatica* and Scot's-pine *Pinus sylvestris*. Ground flora is impoverished due to management, but common species include Ivy, Spanish and native Bluebells *Hyacinthoides hispanica* / *Hyacinthoides non-scripta* and Lesser Celandine.

8.58 This habitat consists mainly of non-native tree species, and the ground flora is species poor. However, where it forms part of the woodland corridor alongside the River Dee, it is of Local nature conservation importance (higher value).

Hedgerow (WL1)

- 8.59 A large, mature hedgerow occurs along the northern boundary of the grassland in the east of the town alongside Tierney St.
- 8.60 The dominant species is Hawthorn, often of up to 5m height. Blackthorn *Prunus spinosa* and Dog-rose *Rosa canina* are frequent, and occasional species include Elder *Sambucus nigra*, grey Willow *Salix cinerea*, Ash and Sycamore. The ground layer is dominated by Brambles and Ivy, with abundant Cow Parsley *Anthriscus sylvestris*, frequent Bush Vetch *Vicia sepium* and Rosebay-willowherb *Chamerion angustifolium*, occasional Lords-and-ladies, and rare Bluebells *Hyacinthoides non-scripta* and Guelder-rose *Viburnum opulus*.
- 8.61 This is a high-quality hedgerow of considerable age, with a diverse structure and species composition, and value as an ecological corridor. Therefore, it is considered to be of Local importance (higher value).

Dry meadows and grassy verges (GS2)

- 8.62 The grassland in the east of the town alongside Tierney St. would be classified as a dry meadow. It is dominated by False Oat-grass *Arrhenatherum elatius*, and with abundant Yorkshire-fog *Holcus lanatus*. Frequent species include Cock's-foot *Dactylis glomerata*, Ribwort Plantain *Plantago lanceolata*, Dandelion *Taraxacum officinale* ag., Bush Vetch and Meadow Buttercup *Ranunculus acris*, and occasional species include Meadow Foxtail *Alopecurus pratensis*, Creeping Buttercup *Ranunculus repens*, Nettle *Urtica dioica* and Meadow Vetchling *Lathyrus pratensis*.
- 8.63 A separate patch of dry meadow occurs in the north-western corner of the car park near Lanney's SuperValu, having recolonised a former gravel area. It is similar in species composition to the meadow below, but with a lower diversity of forb species.
- 8.64 Dry meadows are common in suburban areas, particularly on field and road margins, and in abandoned agricultural land. The species listed above are common and widespread, and the species diversity is relatively low. Therefore, the dry meadow habitat is considered to be of Negligible importance.

Amenity grassland (GA2)

- 8.65 A small patch of this habitat occurs between car parks at Lanney's SuperValu. It is dominated by Perennial Rye-grass *Lolium perenne* and White Clover *Trifolium repens*, and scattered forbs such as Dandelion and Daisy *Bellis perennis*.
- 8.66 This habitat is widespread in urban environments, and consists of common plant species, so it is considered to be of Negligible importance.

Invasive Species

- 8.67 No species listed on Schedule 3 of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended) were recorded in the vicinity of the Site.
- 8.68 The River Dee is part of a project titled Controlling Priority Invasive Species run by Queens University Belfast (QUB).

- 8.69 None of the records collected by the project were in the vicinity of the Ardee masterplan area. Therefore, based on the results of the walkover survey and QUB study, there do not appear to be any legally restricted invasive species within the Site.

Summary

- 8.70 **Table 8.5** provides a summary of all ecological features identified on the Site, including their importance and legal / conservation status. For the purposes of this impact assessment, any features that are of Local ecological importance or above, or that receive legal protection, are 'important ecological features', and should be considered ecological constraints.

Table 8.5: Habitat features within the site footprint

Ecological feature	Importance	Legal status*	Important feature within site?
Designated sites	International / National	HR / WA	Yes / No
Buildings and artificial surfaces (BL3)	Negligible unless supporting roosting bats	-	Yes, if roosting bats present
Mixed broadleaved woodland (WD1)	Local	-	Yes
Hedgerow (WL1)	Local	-	Yes
Dry meadows and grassy verges (GS2)	Negligible	-	No
Amenity grassland	Negligible	-	No
Invasive species	N.A.	-	No

* HR – EC (Birds and Natural Habitats) Regulations 2011; WA – Wildlife Act 1976

Fauna

- 8.71 Biodiversity records in the vicinity of the proposed development site were obtained from the National Biodiversity Data Centre (NBDC). The records were filtered for protected and red-data-book species, and an edited list is provided in Appendix A.

Amphibians

- 8.72 One record of a notable amphibian species was recorded within 2km of the site and are illustrated in **Table 8.6**:

Table 8.6: List of notable amphibians and status recorded within 5km of the Proposed Development Area

Species	Status	
Latin name	Common name	
<i>Rana temporaria</i>	Common Frog	Protected Species - Wildlife Acts

- 8.73 Current site potential for this species is poor considering the lack of standing freshwater habitat types for reproduction although habitats such as the dry meadows and grassy verges (GS2) hedgerow (WL1) habitat types offer limited suitability for foraging. Accordingly, this species is scoped out and will not be considered further.

Birds

- 8.74 A number of common suburban / rural birds were recorded during the surveys, including woodpigeon, feral pigeon, jackdaw, rook, hooded crow, starling, blackbird, wren, pied wagtail, robin and great tit. A kingfisher was seen at the eastern end of the site near the wastewater treatment plant.
- 8.75 Kingfisher is included on the amber list of Birds of Conservation Concern in Ireland (as per Gilbert et al. 2021) due to declines in its breeding population. None of the other species listed above are of conservation concern.
- 8.76 Feral pigeons were observed clustering at a hole in the roof of some derelict buildings between Lanney's Supervalu and the N2 / Bridge Street, and it is likely that they nest inside the building. Other species could also nest in these derelict buildings, including swallows. A range of species are likely to nest in the woodland and hedgerow habitats. However, no potential nesting banks for kingfishers were observed along the River Dee.
- 8.77 Overall, the habitats present are considered to be of negligible importance for breeding birds. Nonetheless, it is noted that all birds (including nests, eggs and chicks) receive protection under the *Wildlife Act 1976* (as amended).
- 8.78 In addition, a background data search identified several species of conservation concern within 5km of the site boundary. These species are listed at **Table 8.7** below:

Table 8.7: Birds of conservation concern recorded within 5km of the site boundary

Latin name	Common name	Number of records	Last record	Level of conservation concern
<i>Tyto alba</i>	Barn Owl	1	31/12/2011	Red List
<i>Hirundo rustica</i>	Barn Swallow	8	07/04/2019	Amber List
<i>Larus ridibundus</i>	Black-headed Gull	3	31/12/2011	Red List
<i>Locustella naevia</i>	Common Grasshopper Warbler	1	31/12/2011	Amber List
<i>Falco tinnunculus</i>	Common Kestrel	4	31/12/2011	Amber List
<i>Alcedo atthis</i>	Common Kingfisher	6	31/12/2011	Amber List
<i>Carduelis cannabina</i>	Common Linnet	4	31/12/2011	Amber List
<i>Gallinago gallinago</i>	Common Snipe	2	31/12/2011	Amber List
<i>Sturnus vulgaris</i>	Common Starling	10	31/12/2011	Amber List
<i>Apus apus</i>	Common Swift	4	31/12/2011	Amber List
<i>Numenius arquata</i>	Eurasian Curlew	2	31/12/2011	Red List
<i>Passer montanus</i>	Eurasian Tree Sparrow	4	31/12/2011	Amber List
<i>Anas penelope</i>	Eurasian Wigeon	1	31/12/2011	Amber List
<i>Larus argentatus</i>	Herring Gull	1	31/12/2011	Red List
<i>Delichon urbicum</i>	House Martin	6	31/12/2011	Amber List
<i>Passer domesticus</i>	House Sparrow	10	31/12/2011	Amber List
<i>Tachybaptus ruficollis</i>	Little Grebe	2	31/12/2011	Amber List
<i>Larus canus</i>	Mew (Common) Gull	1	31/12/2011	Amber List
<i>Cygnus olor</i>	Mute Swan	2	31/12/2011	Amber List
<i>Vanellus vanellus</i>	Northern Lapwing	2	31/12/2011	Red List
<i>Falco peregrinus</i>	Peregrine Falcon	1	31/12/2011	Annex I
<i>Alauda arvensis</i>	Skylark	4	31/12/2011	Amber List
<i>Muscicapa striata</i>	Spotted Flycatcher	3	31/12/2011	Amber List
<i>Colomba oenas</i>	Stock Pigeon	6	31/12/2011	Amber List
<i>Cygnus cygnus</i>	Whooper Swan	1	31/12/2011	Amber List
<i>Emberiza citrinella</i>	Yellowhammer	14	10/04/2021	Red List

8.79 Of these, records for Eurasian curlew, mew gull, barn owl and Northern lapwing can mostly be discounted as having marginal association with the site or its environs on account of the habitat preferences of the species, number of records, or date since last record (or a combination of all three). Disregarding these records leaves twenty-five species of conservation concern which might use the habitat types on the site or adjacent to it.

8.80 The site is most likely to benefit foraging for those species considered as insectivorous (i.e. house martin, barn swallow, sand martin, common starling and common swift) and species associated with nesting in hedgerows or trees (i.e. common linnet, yellowhammer, house sparrow and common starling). The site is unsuitable for ground nesting birds due to the urban nature of the site.

Bats

- 8.81 Data from Lundy et al (2011) was consulted to assess the landscape suitability for bats with desk study records within the 2km² in which the site occurs (S55b). The model helps determine the suitability of the wider landscape for bats based on wider habitat mapping of suitable foraging, commuting and roosting habitat. Results from the consultation determines the following suitability for bats (see **Table 8.8**):

Table 8.8: Results of bat habitat suitability search for 2km² S55b

Bats Latin name	Common name	Habitat Suitability Index (0 – least suitable to 100 most suitable).
All bats		30
<i>Myotis daubentonii</i>	Daubenton's bat	32
<i>Myotis mystacinus</i>	Whiskered bat	30
<i>Myotis nattereri</i>	Natterer's bat	38
<i>Nyctalus leisleri</i>	Leisler's bat	43
<i>Pipistrellus nathusii</i>	Nathusius' pipistrelle	6
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	44
<i>Pipistrellus pygmaeus</i>	Soprano pipistrelle	40
<i>Plecotus auritus</i>	Brown long-eared bat	37
<i>Rhinolophus hipposideros</i>	Lesser horseshoe bat	0

- 8.82 Bat records from within 2km of the site show that two of the nine resident Irish species have been observed locally, those being soprano pipistrelle (*Pipistrellus pygmaeus*) and Daubenton's bat (*Myotis daubentonii*).
- 8.83 Suitable foraging and commuting for bats exist around and within the site boundary along various hedgerows, treelines and riparian woodland.
- 8.84 There are some derelict buildings between Lanney's Supervalu and the N2 / Bridge St. that have features suitable for roosting bats. The buildings have slate roofs, with a number of holes that provide access to the attic space for roosting bats. The western walls of these buildings have been demolished, leaving free access to the interior of the structure. This provides a range of potential cavities and crevices for roosting bats. However, it is noted that there is extensive artificial lighting on the eastern sides of the buildings, and moderate lighting on the western side. Therefore, these buildings may only be used by bat species that have some tolerance of light, notably common or soprano pipistrelles. Overall, the structure, which is not located within the site boundary, is considered to have Moderate suitability for roosting bats.
- 8.85 All other buildings adjacent to the site are of modern construction, of materials rarely used by roosting bats (e.g. corrugated metal panels) or in very brightly lit areas. No other buildings were considered to be suitable for roosting bats.

Badgers

- 8.86 No evidence of commuting or foraging badgers or setts were identified during the walkover survey and there are no records of setts from the site in the NBDC sett database. Accordingly, this species is scoped out and will not be considered further.

European Otter

- 8.87 No evidence was recorded for European Otter however a dedicated survey was not carried out. Records exist of otters within the site boundary and in the immediate vicinity of the site with the last recorded in 2015.

Other notable fauna

- 8.88 Records of pine marten (1 record, last recorded in 2021) and hedgehog (4 records, last recorded in 2021) also occur in the vicinity of the site.
- 8.89 In the case of the hedgehog records exist less than 20m east of the old railway line section of the site. The extent of scrub, hedgerow and treelined habitat on, and adjacent to the site are suitable for both species, and the suburban gardens in close vicinity to the site are optimal for hedgehog.
- 8.90 Two pollinators with a threatened status also occur in the vicinity of the site. Large Red Tailed Bumblebee (near threatened) and the Wall butterfly (endangered) have been recorded from the site in 2019 and 1984 respectively though given the land use changes since 1984 and the lack of records since the Wall butterfly can be discounted.

Assessment of Ecological Importance

- 8.91 **Table 8.9** evaluates the importance of ecological features affected by the proposed development. Each ecological feature has been assigned a level of importance in accordance with the geographical scale outlined in Table 8.2. Features of less than Local Importance (higher), and those to which impacts can be categorically ruled out, are scoped out of further assessment. However, if impacts to such features – even if not significant in terms of EclA – may result in legal offences then suitable safeguards are presented in Section 8.11.

Table 8.9: Importance of ecological features and scoping assessment

Ecological Feature	Legal Status	Importance	Scoped in / out assessment
Designated sites		International or national depending on site	Scoped out (see 8.49 to 8.55 for justification).
Buildings and artificial surfaces (BL3)	-	Negligible (Unless supporting bats or swifts in which case Local (Higher) or perhaps county)	Scoped out – but if buildings are to be demolished further survey work will be required
Mixed broadleaved		Local (Higher)	Scoped in

woodland (WD1)			
Hedgerow (WL1)	-	Local (Higher)	Scoped in
Dry meadows and grassy verges (GS2)	-	Negligible	Scoped out
Amenity grassland	-	Negligible	Scoped out
Invasive species	-	N.A.	Scoped out
Birds	WA	Local	Scoped in
Bats	HR, WA	Local	Scoped in
Hedgehog	WA	Local	Scoped in
Other terrestrial mammals	-	Negligible	Scoped out
Large red tailed bumblebee	-	Local (Higher)	Scoped in

* HR – EC (Birds and Natural Habitats) Regulations 2011; WA – Wildlife Act 1976

Characteristics of the Proposed Development

- 8.92 The proposed development may have impact through the following pathways:
- change in areas of habitat within the Site due to ground and excavation works and Sustainable Drainage Systems (SuDS) creation;
 - disturbance and displacement of species within the site due to construction noise, vibration and increased presence of people;
 - disturbance/displacement of species within the site by an increase in artificial lighting;
 - environmental incidents and accidents (e.g. spillages, noise, fire and emissions);
 - alterations to air quality through dust and other emissions;
 - impacts on adjacent habitats (and the suitability / behaviour on the species that use them), for example through noise and visual disturbance; and
 - changes to surface water and ground water during all phases

Potential Impacts

Construction Phase

Habitat types

- 8.93 The proposed project has outlined a change in habitat type predominantly from GA2 amenity grassland to GS2 dry meadows and grassy verges or GS1 dry calcareous and neutral grassland, and to WD5 scattered trees and parkland habitat and BC2 horticultural land. These potential changes will be positive.
- 8.94 In addition, all mixed broadleaved woodland and hedgerow will be retained and incorporated into the development. Any proposals within the emerging project for tree felling, vegetation clearance or landscaping in the vicinity of the river should be reviewed by the ecologist to avoid or minimise any potential impacts on protected species and the river and associated biodiversity.

Nesting birds

- 8.95 Hedgerow and scrub habitat on the site are considered suitable for a range of different species of nesting birds. The loss of foraging habitat and increased activity associated resulting from the works associated with the delivery of the masterplan could also result in decreased productivity and nesting activity within suitable, adjacent habitat.

Bats

- 8.96 The buildings between Lanney's Supervalu and the N2 are considered to be suitable for roosting bats, as outlined in Section 8.90. Scrub and hedgerow habitat are considered optimal for foraging and commuting bats. Bats are sensitive to artificial lighting, and they may be displaced from the site if lights are of high intensity, or if they are directed towards the river or any trees.
- 8.97 Should any of these buildings be earmarked for demolition or refurbishment in the future under a separate planning application then additional surveys to confirm the presence or absence of roosting bats will be required.

Hedgehog

- 8.98 Hedgehogs prefer woodland edges, hedgerows and suburban habitats, the site includes some suitable areas of this habitat in particular in the old railway section.

Large Red Tailed Bumblebee

- 8.99 In the short term the project may result in the loss of green space and / or woody habitat to the detriment of this species but changes of amenity grassland to dry grassland or calcareous grassland may offer additional foraging habitat for this pollinator species.

Operational Phase

Habitat types

- 8.100 New tree planting will also occur along the main street which will improve the ecological value resulting in a non-significant (local) positive impact.

Nesting birds

- 8.101 The project aims to create additional nesting habitat predominantly by the planting of trees. This is anticipated to result in a non-significant (local) positive impact on nesting birds.

Bats

- 8.102 The project will result in improved foraging quality of the surrounding landscape due to the additional trees and shrubs that will be planted and increased biomass of forbs and grasses associated with the meadows habitats. Additional tree habitat will in time provide new roosting habitat for bats but over the long-term. It is anticipated that the masterplan will result in a non-significant (local) positive impact on bats.

Hedgehog

- 8.103 There will be a net improvement of habitat for hedgehog with the proposed landscaping for the site providing improved foraging and sheltering habitat. It is anticipated that the masterplan will result in a non-significant (local) positive impact on hedgehogs.

Large Red-Tailed Bumblebee

- 8.104 There will be a net improvement of habitat for large red-tailed bumblebee with the proposed landscaping = providing improved foraging and sheltering habitat. It is anticipated that the masterplan will result in a non-significant (local) positive impact on large red-tailed bumblebee.

Potential Cumulative Impacts

- 8.105 In addition to the proposed project, other relevant plans and projects in the area must also be considered. This step aims to identify at this early stage any possible significant in-combination or cumulative effects of the proposed development with other such plans and projects on biodiversity.
- 8.106 A review of the National Planning Application Database was undertaken, as outlined in Chapter 3 of this EIAR. The site is extensive, so many applications were found for small-scale works such as residential modifications or changes-of-use. However, no large-scale developments were identified that would impact the proposed site, so no potential sources of in-combination effect were noted.

Mitigation Measures

Birds

- 8.107 Potential impacts on nesting birds will be avoided by timing the cutting of vegetation to avoid the nesting season (March to August inclusive). If nesting birds are found to be present suitable mitigation measures will be required – such as undertaking demolition of structures or tree felling and vegetation management outside of the bird nesting period (March to August inclusive).
- 8.108 Prior to any tree felling or the demolition or renovation of buildings, an ecologist must be employed to carry out a nesting bird survey of the structures and vegetation.

Bats

- 8.109 Prior to any tree felling or the demolition of any structures, an ecologist must be employed to carry out a bat survey of the structures and vegetation. It is noted that the optimal season for bat surveys is between May and September (inclusive). If bats are present, the ecologist may propose measures to avoid or minimise impacts on bats, such as the provision of alternative roosting spaces, supervision of demolition / renovation works, or a restriction on the timing of works. A derogation licence from the *EC (Birds and Natural Habitats) Regulations 2011* would be required for any work that affected a bat roost.
- 8.110 Further tree surveys, where required, would ideally comprise aerial inspections using an endoscope to confirm and/or assess the suitability of each PRF. This may be carried out by climbing the tree, using ladders or via a mobile elevated work platform (MEWP) but, in instances where access is not possible or the features are too extensive to survey fully, dusk emergence surveys supported by night vision aids (NVAs) such as e.g. infrared (IR) video cameras, will be required.
- 8.111 The numbers of surveys required would be determined by the results of the aerial inspections. Surveys may need to be repeated if the aim is to establish presence/absence prior to undertaking a specific activity that relies on absence (such as a bird nesting check or pre-felling bat emergence survey).
- 8.112 Bats are sensitive to artificial lighting, and they may be displaced from the site if lights are of high intensity, or if they are directed towards the river or any trees. To avoid or minimise displacement of bats from high-quality feeding areas such as along the River Dee, woodland and hedgerows, it is recommended that 'bat-sensitive' lighting techniques are implemented in these areas. If possible, it is recommended that existing streetlights near the River Dee are adjusted to incorporate bat-sensitive techniques. If any floodlighting is proposed for the sports facilities in the east of the Site (off Tierney St), it must be designed to avoid any light spill onto the River Dee, riparian woodland or the northern hedgerow.
- 8.113 The design principles for bat-sensitive lighting are as follows (BCT & ILP 2018):
- Low-UV LEDs or low / high pressure sodium lamps would be the preferred bulb type, as they have least effect on bats. Mercury or metal halide bulbs should not be used. Lights should have a 'warm' tone, with minimal blue / UV content.
 - Lights in pedestrian areas should be installed at a low level, e.g. bollards of up to one metre in height. Lights should be directed onto ground level, with no light spill above the horizontal. Lux levels should be the minimum required for pedestrian safety.
 - All external lights should be fitted with directional hoods to direct the light downwards onto targeted areas and to prevent unnecessary light-spill.
 - No lights should be directed towards freshwater habitats (i.e. the River Dee), woodland or trees. This particularly applies to floodlighting for the sports facilities in the east of the Site near Tierney St.

- Where feasible, all external lighting at access points to buildings should be fitted with motion sensors and timers in order to provide light only when required. Constant, overnight lights should not be permitted.

8.114 These measures would apply both during both the construction and operational phases. To ensure that these techniques are effective, and that bat mitigation measures can be balanced with public safety requirements, it is recommended that an ecologist liaises with the contractor on lighting design.

8.115 Measures to protect all tree features and hedgerows throughout the site that do not require removal will be undertaken including the zoning of buffers around that habitat types to protect root systems.

Enhancement Measures

8.116 A number of enhancement measures are recommended for protected or priority species and habitats for which the development could reasonably support on site (see **Table 8.10**):

Table 8.10: Recommended enhancement for protected/priority species and habitats

Species	Status	Foraging	Nesting / Denning	Mitigation / Enhancement
Common swift	Red Listed	Aerial invert rich habitats	Cavities in buildings	• Increase in habitat diversity will increase insect abundance. • The only building currently proposed on the site will be at the amenity lands, comprising a timber clad building with a grass roof. The installation of swift boxes is recommended to provide nesting habitat.
Bats	Protected	Continuous and dark wooded habitats	Mature trees and hedgerow, old buildings	• Increase in suitable woody vegetation throughout site for roosting, reduced management of hedgerows and increase in woody habitat. • Installation of bat boxes at the proposed timber clad building at the amenity lands, to provide roosting habitat.
Hedgehog	Protected	Range of habitats including wooded	Habitat enhanced for within	• Increase in suitable woody vegetation throughout site and increase in the extent of habitat types abundant

Species	Status	Foraging	Nesting / Denning	Mitigation / Enhancement
		landscapes and suburban gardens	current plans.	in seeds and rich in invertebrates such as wildflower meadows.
Solitary bees	Priority (various)	Flower rich habitats	Habitats with suitable cavities or bare, suitable substrate.	Provision of new flower-rich grassland and bee banks in locations with a southwestern aspect or bee posts or other suitable installations hosting suitable cavities.
Habitat	Status	Enhancement potential		
Species rich grassland	Priority	- The green space within the old railway line area has some limited floral diversity. Its current management regime is a frequent cut which offers little biodiversity value. - Due to the indicative fertility levels this grassland offers value as a potential species rich grassland if sown with a seed mix of native wildflowers incorporating yellow rattle and managed with a September cut and lift and removal of raisings regime. Other opportunities should be sought to increase the biodiversity value of green space as a result of masterplan, particularly as the council is a signatory of the All-Ireland Pollinator Plan and species rich grassland are a feature within the local biodiversity action plan.		

‘Do Nothing’ Scenario

- 8.117 If the proposed development were not to proceed the site would continue to operate as an urban area with overmanaged green space and current traffic loading.

Worst Case Scenario

- 8.118 A worst-case scenario would result in the loss of all habitat and features deemed to be of use to biodiversity including building and green space.

Interactions

- 8.119 **Land, Soils and Geology:** interactions between ‘Biodiversity’ and ‘Land, Soils and Geology’ have been considered in this EIAR as the proposed project has the potential to create impacts on nearby watercourses during the construction stage as a result of silt laden runoff and potential spills/leakages of fuels/contaminants.

Monitoring & Reinstatement

- 8.120 Monitoring is required where the success of mitigation measures is uncertain or where residual impacts may in themselves be significant. It is recommended that an Ecological

Clerk of Works (ECoW) is in place to oversee the creation of the wildflower meadows and installation of features such as the swift bricks, bee banks and bee posts and that a Landscape and Ecology Habitat Management Plan (LEMP) is produced and implemented to inform the meadow habitat creation.

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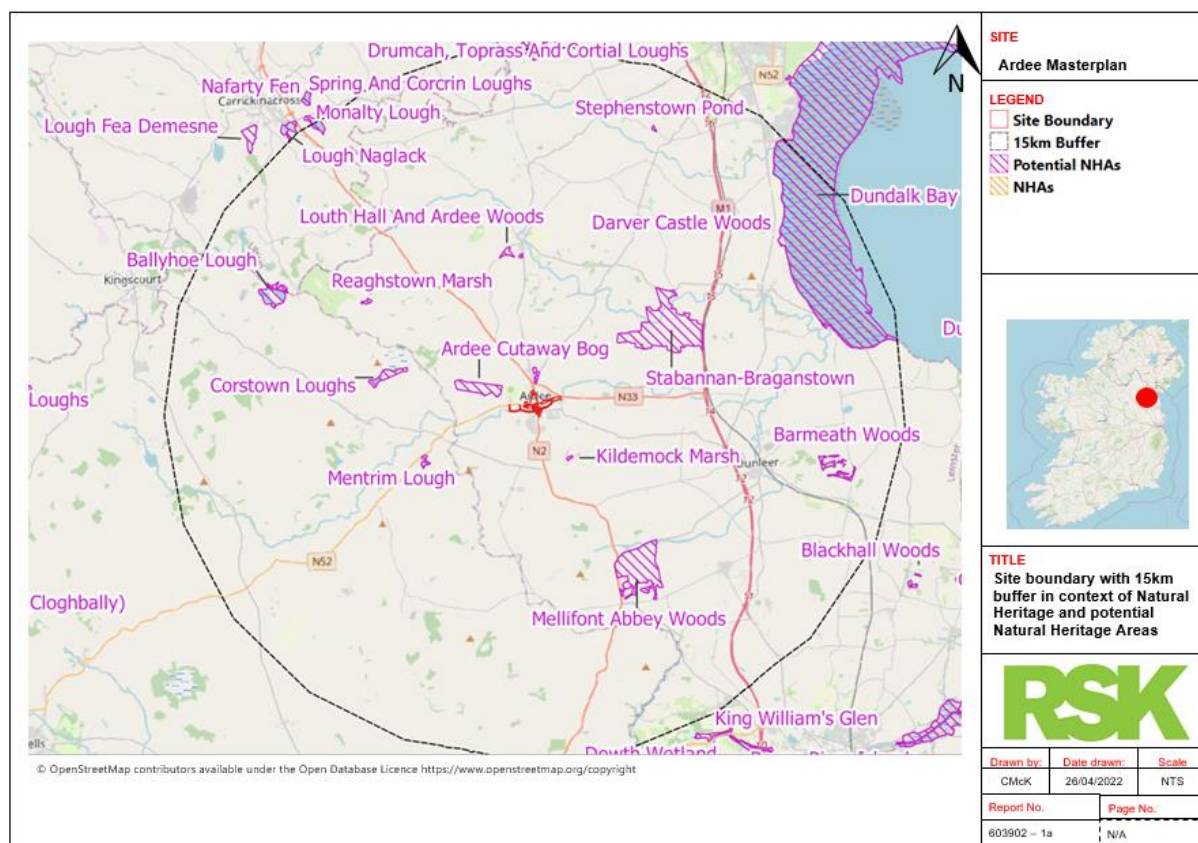


Figure 8.1: Site boundary with 15km buffer in context of protected and priority sites

9. Land, Soils & Geology

Introduction

- 9.1 This chapter considers the likely significant effects on the receiving geological, land and soil environments associated with the construction of the proposed Development. The development refers to all elements of the application including site preparation and construction works within the boundary of the proposed development area. Where negative effects are predicted, the chapter identifies appropriate mitigation strategies therein. The assessment considers the potential effects during the construction and operation phases of the proposed development. It is assumed these mitigation measures will be implemented in full to assure no negative or adverse effects to the environment.
- 9.2 An Outline Construction and Environmental Management Plan (CEMP) has been provided as a standalone document with respect to the proposed development. This document will be a key construction contract document, which will ensure that all mitigation measures, which are considered necessary to protect the environment, are implemented. The CEMP includes all of the mitigation described within the EIAR.

Statement of Authority

- 9.3 This chapter has been prepared by RSK (Ireland) Ltd. The principal members of the RSK EIA team involved in this assessment include the following persons:
- Project Manager & Lead Author: Sven Klinkenbergh – B.Sc. (Environmental Science), P.G. Dip. (Environmental Protection). Current Role: Principal Environmental Consultant. Experience c. 10 years industry experience in the preparation of hydrological and hydrogeological reports.
 - Project Scientist: Lissa Colleen McClung - B.Sc. (Hons.) Environmental Studies, M.Sc. (Hons.) Environmental Science. Current Role: Graduate Project Scientist.
 - Project Scientist: Mairéad Duffy - B.Sc. (Environmental Science), M.Sc. (Climate Change). Current Role: Graduate Project Scientist.
 - Project Scientist: Jayne Stephens – PhD Environmental Microbiology, BSc Environmental Science. Current Role : Environmental Consultant.

Assessment Structure

- 9.4 In line with the EIA Directive and current (draft) EPA guidelines the structure of this Land, Soils and Geology and Hydrogeology chapter is as follows:
- Assessment Methodology and Significance Criteria;
 - Description of baseline conditions at the Site;

- Identification and assessment of impacts to soils and geology associated with the Development, during the construction and operational phases of the Development;
- Identification of mitigation measures to avoid, remediate or reduce the impacts identified, including mitigation by avoidance at design stage;
- Identification and assessment of residual impact of the Development considering recommended mitigation measures; and
- Identification and assessment of cumulative impacts if and where applicable.

Assessment Methodology and Significance Criteria

9.5 The following calculations and assessments were undertaken to evaluate the potential impacts of the Development on the soils, land, geology and ground stability aspects of the environment at the urban regeneration scheme at Ardee, Co. Louth:

- Characterise the topographical, geological and geomorphological regime of the Site from the data acquired through desk study and onsite surveys;
- Consider ground stability issues as a result of the Development, its design and methodology of construction;
- Assess the combined data acquired and evaluate any likely impacts on the soils, geology and ground stability aspects of the environment; and
- If impacts are identified, consider measures that would mitigate or reduce the identified impact.

9.6 Where impacts are identified, measures are described that will mitigate or reduce the identified impact. Findings are presented and reported in a clear and logical format that complies with EIAR reporting requirements.

Legislation Requirements and Relevant Guidance

9.7 This Environmental Assessment complies with the EIA Directive, as amended, which requires Environmental Impact Assessment for certain types of development before development consent is granted. Environmental planning policy and industry best-practice guidance relevant to an assessment of geological and soil environments are summarised below in **Table 9.1**.

Table 9.1: Relevant European and National Planning Policy

Legislation	
EU	Assessment of the effects of certain public and private projects on the environment (2014/52/EU)
	Dangerous Substances Directive (2006/11/EC)
	Environmental Liability Directive (2004/35/EC)

National	Environmental Protection Agency (EPA) (2015) Advice Notes for Preparing Environmental Impact Statements – DRAFT September 2015 (will supersede 2003 version once finalised)
	Environmental Protection Agency (EPA) (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (supersede 1997 and 2002 versions)
	Heritage Act 1995, as amended
	Institute of Geologists of Ireland (IGI) (2002) Geology in Environmental Impact Statements – A guide
	IGI (2013) Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements
	National Roads Authority (NRA) (2008) Environmental Impact Assessment of National Road Schemes – A Practical Guide – Rev 1
	NRA (2008) Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes
	Planning and Development Act 2000, as amended
	Planning and Development Regulations 2001, as amended

Desk Study

9.8 RSK undertook desk top study assessments of the soils and geology aspects of the proposed development site before and after field investigations. This involved the following components:

- Acquisition and compilation of all available and relevant maps of the proposed Development;
- Detailed study and assessment of the proposed Development relative to available data on site topography and slope gradients; and
- Thorough study and assessment of the proposed Development relative to available data on site soils, subsoil and bedrock geology, which included:
 - Overlay Ordnance Survey of Ireland (OSI) 1:250,000, 1:50,000 and 1:10,560 (6”) maps with AutoCAD plan drawings.
 - Overlay Geological Survey of Ireland (GSI) Geology maps (1:100,000) to determine site bedrock geology and the presence of any major faults or other anomalies.
 - Overlay Geological Survey of Ireland (GSI) Groundwater Resources (Aquifers), Groundwater Vulnerability, and Groundwater Recharge maps to determine site sensitivity in terms of groundwater.
 - Overlay Environmental Protection Agency (EPA) and Teagasc (Agricultural Agriculture & Food Authority) Soils and Subsoil maps (1:50,000) to

determine categories of soils and subsoil and indirectly the geochemical origin for the study area.

- Search of the GSI karst database for records of karst features at and near the study area.
- Search of the GSI wells and springs database for records of wells or springs at and near the study area.
- Search of National Parks and Wildlife Service designated sites in the region.

Field Work

9.9 Field inspections were carried out at the site of the proposed development during March and April 2022. These works consisted of the following:

- Site walk over including recording and digital photography of significant features; and
- Recording of GPS co-ordinates for all investigation and monitoring points in the study.

9.10 Initial site walk overs were carried out to assess general ground conditions including topographical characteristics, and to observe the existing site including visual assessment of the receiving environment in terms of impacts arising from the existing infrastructure and practices at the site.

Evaluation of Potential Effects

Sensitivity

9.11 Sensitivity is defined as the potential for a receptor to be significantly affected by a proposed Development (EPA, 2022). Potential affects arising by a proposed development in terms of soils and geology will be limited to a localised scale, and therefore in describing the sensitivity of soils and geology it is appropriate to rate such while considering the value of the receiving environment or site attributes. **Table 9.2** below presents rated categories and criteria for rating site attributes (NRA, 2008):

Table 9.2: Criteria for Rating Site Attributes – Soils and Geology Specific

Importance	Criteria
Extremely High	Attribute has a high quality or value on an international scale.
Very High	Attribute has a high quality, significance or value on a regional or national scale.
High	Attribute has a high quality, significance or value on a local scale.
Medium	Attribute has a medium quality, significance or value on a local scale.

Low	Attribute has a low quality, significance or value on a local scale.

- 9.12 Considering the above categories of rating importance and associated criteria, **Table 9.3** presents rated sensitivity categories (SNH, 2013):

Table 9.3: Criteria for Rating Site Sensitivity – Landscape Character Specific

Importance	Criteria
High Sensitivity	Key characteristics and features which contribute significantly to the distinctiveness and character of the landscape character type. Designated landscapes e.g. National Parks, Natural Heritage Areas (NHAs) and Special Areas of Conservation (SACs) and landscapes identified as having low capacity to accommodate proposed form of change, that is; sites with attributes of Very High Importance .
Medium Sensitivity	Other characteristics or features of the landscape that contribute to the character of the landscape locally. Locally valued landscapes which are not designated. Landscapes identified as having some tolerance of the proposed change subject to design and mitigation, that is; sites with attributes of Medium to High Importance .
Low Sensitivity	Landscape characteristics and features that do not make a significant contribution to landscape character or distinctiveness locally, or which are untypical or uncharacteristic of the landscape type. Landscapes identified as being generally tolerant of the proposed change subject to design and mitigation, that is; sites with attributes of Low Importance .

Magnitude

- 9.13 The magnitude of potential impacts arising as a product of the Development are defined in accordance with the criteria provided by the EPA, as presented in **Table 9.4** (EPA, 2022).

Table 9.4: Describing the Magnitude of Impacts

Magnitude of Impact	Description
Imperceptible	An impact capable of measurement but without noticeable consequences.
Slight	An impact that alters the character of the environment without affecting its sensitivities.

Moderate	An impact that alters the character of the environment in a manner that is consistent with the existing or emerging trends.
Significant	An impact, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Profound	An impact which obliterates all previous sensitive characteristics.

- 9.14 In terms of soils and geology, magnitude is qualified in line with relevant guidance, as presented in the following tables (NRA, 2008).

Table 9.5: Qualifying the Magnitude of Impact on Soil and Geological Attributes

Magnitude of Impact	Description	Examples
Large Adverse	Results in loss of attribute.	Removal of the majority (>50%) of geological heritage feature.
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute.	Removal of part (15-50%) of geological heritage feature.
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute.	Removal of small part (<15%) of geological heritage feature.
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity.	No measurable changes in attributes.
Minor Beneficial	Results in minor improvement of attribute quality.	Minor enhancement of geological heritage feature.
Moderate Beneficial	Results in moderate improvement of attribute quality.	Moderate enhancement of geological heritage feature.
Major Beneficial	Results in major improvement of attribute quality.	Major enhancement of geological heritage feature.

Significance Criteria

- 9.15 Considering the above definitions and rating structures associated with sensitivity, attribute importance, and magnitude of potential impacts, rating of significant environmental impacts is done in accordance with relevant guidance as presented in the Table below (NRA, 2008). This matrix qualifies the magnitude of potential effects based on weighting same depending on the importance and/or sensitivity of the receiving

environment. In terms of Soils and Geology, the general terms for describing potential effects (**Table 9.4**) are linked directly with the Development specific terms for qualifying potential impacts (**Table 9.5**). Therefore, qualifying terms (**Table 9.6**) are used in describing potential impacts of the development.

Table 9.6: Weighted Rating of Significant Environmental Impacts

Rating	Magnitude of Impact			
	Negligible (Imperceptible)	Small Adverse (Slight)	Moderate Adverse (Moderate)	Large Adverse (Significant to Profound)
Extremely High	Imperceptible	Significant	Profound	Profound
Very High	Imperceptible	Significant/ Moderate	Profound/ Significant	Profound
High	Imperceptible	Moderate/ Slight	Significant/ Moderate	Profound/ Significant
Medium	Imperceptible	Slight	Moderate	Significant
Low	Imperceptible	Imperceptible	Slight	Slight/Moderate

Baseline Description

Introduction

- 9.16 The application site covers an area of approx. 7.79 hectares which includes the following roads/streets/lanes/areas and their adjoining footpath/public realm areas as described above in Chapter 5. A full description of the proposed development is set out in Chapter 5 of this EIAR.

Site Walkover and Observations

- 9.17 Site walk over surveys were tailored in line with the proposed site boundary plan for the planning application. Photographs obtained during site surveys are presented in EIAR **Volume 3: Appendix 9.2 Site Photographs**.

Field Work Restrictions

- 9.18 Access to the Site was unrestricted as the project entails the regeneration of mainly public lands.

Topography

- 9.19 There is a slight change in the topography along Irish Street southward towards Drogheda Road 'Main Street' with an elevation difference of approximately 4m, varying between 24.00m – 28.88m AOD.

Bedrock Geology

- 9.20 The underlying bedrock is a mixture of limestone and sandstone. There are a number of geological formations underlying the Site, according to GSI (2022) Bedrock 100k maps. **(Appendix 9.7- Mapped Geology of Volume 3 - Appendices).**
- 9.21 The Cruicetown Group of 'argillaceous bioclastic limestone' underlay the western extent of the Site; 'dark limestone, mudstone and sandstone' of the Navan Beds underlay the central portion of the Site; and 'calcareous red-mica greywacke' of the Clontail Formation can be seen in the eastern boundaries of the site (EPA, 2022). The bedrocks associated with the western and central portions of the Site are noted as a Locally Important Aquifer, which is a 'Bedrock which is Moderately Productive only in Local Zones', capable of 'good' well yields 100-400 cubic metres per day. On the other hand, the bedrock along the eastern boundary of the Site is a poor aquifer, made up of bedrock that is 'Generally Unproductive except for Local Zones'.

Geotech Data

- 9.22 Consultation with the GSI maps confirm that there is geotechnical data available for the site. To the west of the site there are boreholes recorded that indicate the depth of the bedrock to be 2.5 to 2.78 metres below ground level. To the northeast the boreholes indicate that the bedrock is deeper, between 4-16 metres.

Mapped Karst Geology

- 9.23 Consultation with available GSI maps indicates that there is one borehole mapped as a Karst feature within the vicinity of the site.

Soils and Subsoils

- 9.24 Consultation with available soil maps Corine (2018), EPA (2022) and Teagasc (2022) indicates that soil types across the site include 'Artificial Surfaces' of 'Discontinuous Urban Fabric' of 'Made ground'. **(EIAR Volume 3: Appendix 9.5 Soils).**
- 9.25 Consultation with available subsoil maps (GSI, 2022) indicate that subsoil types across the site are of limestone till, with alluvium along the river corridor, and made ground in urban areas. Soils are deep and well-drained in most areas of the site. **(EIAR Volume 3: Appendix 9.6. Mapped Subsoils).**

Land Use & Site Contamination

- 9.26 The main land use in the vicinity of the site is urban, but there is also a mix of agricultural lands, public recreational areas and greenfield uses within the boundary of the site **(EIAR Volume 3: Appendix 9.4).** Consultation with GeoHive Historical 25" maps (2022) indicate that there were gas works sites near the proposed development which may have led to contamination in the soil.
- 9.27 No intrusive ground works data was available in the form of Site Investigation Reports to inform this report. Therefore, if proposed works include earthworks or excavating ground, it is recommended to carry out a further assessment of the underlying soils to determine their nature and if contamination of any kind is present. Since the site is situated in an urban area, there is likely to be some level of contamination in the soil from previous historical use.

- 9.28 It is understood that a portion of the Old Railway/Amenity lands to the east of the Town as envisioned to be a community garden / allotment. Before work commences on this area intrusive ground investigations are recommended due to the sensitivity of receptors (human consumption) from the potentially polluted topsoil and subsoils (i.e., hydrocarbons) which may have been buried from previous infrastructure.

Geological Resource Importance- Heritage

Natural Heritage Areas

- 9.29 The site is not within or adjacent to any Natural Heritage Areas. Potential indirect impacts were considered within a zone of influence of 5 km. Descriptions of relevant sites are presented in **Table 9.7**, and their locations are shown in **EIAR Volume 3: Appendix 9.8**.

Table 9.7: Natural Heritage Areas of relevance to the Development

Site Name	Distance	Qualifying Interests
Louth Hall And Ardee Woods pNHA (site code 1616)	0.5 km north	Three areas of mixed, planted and semi-natural deciduous woodland to the north of Ardee
Ardee Cutaway Bog pNHA (1454)	1.0 km north-west	Cutaway raised bog supporting a mosaic of bog and heath vegetation
Kildemock Marsh pNHA (1806)	2.5 km south	Small reed bed and associated wetland vegetation
Stabannan-Braganstown pNHA (456)	4.3 km north-east	Refer to Stabannan-Braganstown SPA

- 9.30 Further information on Cultural Heritage and Archaeology can be found in Chapter 16 of this EIAR.

Designated and Protected Areas

National Sites

- 9.31 The Site is not within or adjacent to any Natura 2000 sites, these being Special Sites for Conservation (SAC) or Special Protection Areas (SPA). Potential indirect impacts were considered within a zone of influence of 10 km, and downstream along the River Dee. Descriptions of relevant sites are presented in **Table 9.8**, and their locations are shown in **EIAR Volume 3: Appendix 9.8**.

Table 9.8: Natura 2000 Sites of relevance to the Development

Site Name	Distance	Qualifying Interests
Stabannan-Braganstown SPA (site code 4091)	4.3 km north-east	Key habitats: agricultural grasslands on alluvial plains Special Conservation Interests: greylag goose (wintering populations)
Dundalk Bay SAC (455)	11.2 km north-east	Annex I habitats: estuaries, mudflats and sandflats, perennial vegetation of stony banks, <i>Salicornia</i> and other annuals colonising mud and sand, Atlantic salt meadows, Mediterranean salt meadows Annex II species: none
Dundalk Bay SPA (4026)	11.2 km north-east	Key habitats: intertidal / coastal wetlands Special Conservation Interests: great-crested grebe, greylag goose, light-bellied brent goose, shelduck, teal, mallard, pintail, common scoter, red-breasted merganser, oystercatcher, ringed plover, golden plover, grey plover, lapwing, knot, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank, black-headed gull, common gull, herring gull (all are wintering populations)

Assessment of Potential Effects

9.32 The predicted impacts of the proposed development with regard to the land, soil and geology environment will be assessed for the construction and operational phases. The predicted impacts of a “do nothing” scenario is also considered.

9.33 Assessments of the baseline geological and geotechnical conditions of the site indicate the following:

- The site has already experienced impacts to baseline conditions through urban development.
- There is no indication that current land use practices have had adverse impacts in terms of ground stability.

Do Nothing Scenario

9.34 Should the proposed development not proceed, the site would remain a sprawled previously developed and undeveloped urbanised area. The existing land-use practice, including local community recreation would continue.

- 9.35 Urban development activities have had an impact on the site relative to the absolute baseline or natural conditions with regard to the land and soil environment of the site when referring to historical maps (**EIAR Volume 3: Appendix 9.3**).

Construction Phase Potential Effects

- 9.36 RSK Ireland Ltd. has reviewed the proposed development for Ardee, Co Louth. The Environmental Team received a detailed project description and have made use of this to outline general effects, and mitigation measures have been prescribed for protecting the existing land, soils and geological regime of the site during the construction phase. Where possible, project-specific environmental constraints have been identified and detailed in this EIAR.

Land Take

- 9.37 Land take is inferred to be minimal in the absence of large-scale proposed developments, such as buildings or other similar infrastructure. Land take involved in the Ardee Regeneration Scheme would arise from the Ash Walk, The Old Railroad and Amenity Lands.

Subsoil and Bedrock Removal

- 9.38 Proposed works are limited to superficial, minimum re-profiling of roadways, footpaths and cycle paths along with seating areas. Therefore, it is envisioned that the risk involving subsoil and bedrock removal is insignificant. The storage of subsoil stockpiles is not anticipated given the size and current use of the site. There will be the addition of hard and soft landscaped areas and drainage swale at the Amenity Lands, reducing the removal of subsoil and bedrock further. The Old Railway Lands will retain the railway infrastructure and existing pillars at the O'Carroll Street Access which will reduce the disturbance of subsoil and bedrock.

Soil and Subsoil Compaction

- 9.39 Unintended soil and subsoil compaction is due to inadvertent construction traffic on the development site. Soil compaction leads to bulk density of the soil increasing and the total porosity decreasing which can pose a risk to site drainage due to the lower level of ground permeability on the site.

Mechanism/s:	• Excavation of soils. • Handling of soils. • Storage of soils.
Impact:	• Compaction of topsoil and subsoils underlying the Site.
Receptor/s:	• Land. • Soils. • Subsoils.
Pre-Mitigation Potential Effect:	Negative, direct, imperceptible, likely impact on topsoil and subsoils.
Mitigation Measures:	The in-situ soils and subsoils underlying the development area will be subject to a certain amount of compaction, but this will be unavoidable.

	Any infill material/landscaping that is required will be placed and levelled in appropriate lift thicknesses to ensure the material is not over compacted, thereby retaining its drainage properties.
Residual Effects	Negative, slight, direct, likely impact on topsoil and subsoils.
Assessment:	

Soil Contamination

9.40 Construction activities associated with the proposed development have the potential to introduce a number of contaminants to the receiving environment. Accidental spillage during refuelling of construction plant with petroleum hydrocarbons is a significant pollution risk. The accumulation of spills of fuels and lubricants during routine plant use can also be a pollution risk. Large spills or leaks have the potential to result in significant effects on the geological and water environment. Potential pollution-causing activities and associated contaminants of the Development include:

- Operation of plant vehicles and other petrol / diesel driven equipment - Hydrocarbons e.g. diesel, oil, grease;
- Construction materials – e.g. concrete or cement; and
- General waste – e.g. plastic.

9.41 Hydrocarbon are a pollutant risk due to their toxicity to all flora and fauna organisms. Hydrocarbons chemically repel water and sparingly dissolve in water. The majority of hydrocarbons are light non-aqueous phase liquids (L-NAPL's) which means that they are less dense than water and therefore float on the water's surface (whether surface water or groundwater). Hydrocarbons adsorb (stick) onto the majority of natural solid objects it encounters, such as vegetation, animals, and earth materials. It burns most living organic tissue, such as vegetation, due its volatile chemistry. It is also a nutrient supply for adapted micro-organisms, which can deplete dissolved oxygen at a rapid rate and thus kill off water based vertebrate and invertebrate life.

9.42 The hazard posed by hydrocarbon contamination to soil is significant in terms of adversely impacting the health of the soils associated with the proposed site and the flora and fauna it supports; however the risk is considered limited considering the movement of the same is limited. The more significant risk of hydrocarbon contamination of soils is the potential migration to surface water systems (i.e., the River Dee).

9.43 To control and contain any potential hydrocarbon and other harmful substances spillage by vehicles during construction, it is recommended where possible to refuel plant equipment off the development site, thus mitigating this potential impact by avoidance.

Mechanism/s:	• Lubricants and other construction consumables – minor in scale. • Fuel leak from personnel vehicle – minor in scale. • Fuel leak from plant machinery – minor in scale. • Fuel spill during refuelling – significant in scale. • Fuel leak from storage - significant in scale.

Impact:	• Release of hydrocarbons into soils. • Release of hydrocarbons to ground, intercepted by groundwater.
Receptor/s:	• Soils. • Subsoils. • Bedrock. • Groundwater.
Pre-Mitigation Potential Effect:	Negative, direct, slight, short term, unlikely, permanent impact on soil, subsoil and bedrock.
Mitigation Measures:	• All plant and machinery will be serviced before being mobilised to site. • No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed. • Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will be undertaken offsite where possible. Where this is not possible, filling and maintenance will take place in a designated material storage compound, which is located at least 10 meters from any temporary or permanent drainage features. • Refuelling if necessary on Site, will be completed in a controlled manner using drip trays at all times or a designated refuelling area will be created on an impervious surface such as a concrete slab with drainage to a hydrocarbon interceptor or other tank type which will hold run-off from the concrete slab. • Mobile bowsers, tanks and drums will be stored in secure, impermeable storage areas away from open water. • No bulk chemicals will be stored within the active construction areas. • Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores. • Containers and bunding for storage of hydrocarbons and other chemicals will have a holding capacity of 110% of the volume to be stored. • Ancillary equipment such as hoses and pipes will be contained within the bund. • Taps, nozzles or valves will be fitted with a lock system. • Fuel and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage. • Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills. • Only designated trained operators will be authorized to refuel plant on site. • Procedures and contingency plans will be set up to deal with emergency accidents or spills. • An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill. A specific team of staff will be trained in the use of spill containment.

	- Highest standards of site management will be maintained, and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment during construction. A named person will be given the task of overseeing the pollution prevention measures agreed for the site to ensure that they are operating safely and effectively as well as having responsibility for the implementation of Emergency Procedures for spill control measures.
Residual Effects Assessment:	The use and storage of hydrocarbons and small volumes of chemicals is a standard risk associated with all construction sites. The measures identified above to mitigate the risk of spills and leaks, will be applied during the construction phase. The residual effect is assessed as - Negative, imperceptible, direct, short-term, low probability effect on subsoils, bedrock and groundwater.
<i>Geological Effect on Designated and Protected Areas</i>	
Mechanism/s:	• Excavation of soils/subsoils. • Handling of soils/subsoils. • Storage of soils/subsoils.
Impact:	• Effects on a proposed or listed NHA.
Receptor/s:	• Land. • Topsoil. • Subsoils. • Associated Designated Sites
Pre-Mitigation Potential Effect:	Negative, direct, imperceptible, likely impact on site. No direct excavation or development of any local designated sites are proposed. No indirect impacts on Designated Sites are anticipated.
Mitigation Measures:	None are foreseen nor proposed.
Residual Effects Assessment:	None.

Operational Phase Potential Effects

- 9.44 The Development consists of land use activities, similar to its current use and works, as they are understood, to date, will not involve further significant disturbance to the topsoil, subsoils and geology of the area.
- 9.45 Due to the nature of the proposed Development, no impacts on soils nor geology are anticipated during the operational phase. The operational stage of the Development consists of the current use and activities in the area and will not involve further significant disturbance to the topsoil, subsoils and geology of the area.
- 9.46 No cumulative impacts on the land, soils, and geological environment are envisaged during the operational stage.

Further Assessment

- 9.47 To determine if there is any historic ground pollution throughout the Site area from previous land use practices, intrusive ground investigations are recommended.

Mitigation Measures and Residual Effects

Mitigation by Avoidance

- 9.48 The layout plan was reviewed and the best layout design available for protecting the site's existing geotechnical (and hydrological) regime was considered and identified, whilst also incorporating and overlaying landownership, engineering and avoiding environmental constraints as detailed in this EIAR.

Construction Phase

- 9.49 Any and all direct impacts on soils/peat and bedrock arising from the Development are considered localised, therefore the above assessment and classification of the weighted significance of land take encompasses all impacts to soils and bedrock considering the Development as a whole. Therefore, impacts assessed and classified in the following section/s are considered at the localised scale, with the exception of potential indirect impacts on downgradient receptors, for example, associated with Surface Water.

Mitigation by Reuse

- 9.50 Subsoil and bedrock which are excavated as part of the initial decommissioning and construction phase will be reused onsite where possible.
- 9.51 Similarly, all soil and subsoil types or horizons identified during site investigations and during actual construction, will be treated as separate materials and arisings separated accordingly. This includes, for example, Acrotelm peat, catotelm pet, clays, subsoils (GRAVEL / TILL), weathered rock.
- 9.52 The management, movement, and temporary stockpiling of material on site, including a materials balance assessment and plan is detailed in the CEMP, this will include identification of suitable temporary set down areas which will be located within the Development footprint and will consider and avoid geo-constraints. Temporary set down / stockpile areas will be considered similarly to active excavation areas in terms of applying precautionary measures and good practices, and mitigation measures, including those relating to control of runoff and entrapment of suspended solids (see **Chapter 10: Hydrology**).

Mitigation by Avoidance and Good Practice

Stockpiles Proposed Mitigation Measures

- 9.53 Excavation of materials is unavoidable however the impacts of same can be minimised if managed appropriately. Similarly, given that excavations are unavoidable, so too are temporary stockpiles. However, if managed appropriately, the impact of same can be minimised.
- 9.54 No permanent stockpiles will remain on the Site. All excavated materials from the site or introduced materials for construction will be either used or removed from the site.

- 9.55 All temporary stockpiles will be positioned on established and designated areas which are appropriate for short term storage. Temporary storage locations will also be managed in terms of potential for solids entrainment by runoff (**Chapter 10: Hydrology**).
- 9.56 Stockpiling of material will invariably lead to the entrainment of solids in surface water runoff, discussed in **Chapter 10: Hydrology**. Mitigation measures to address same are detailed in **Chapter 10**. The immediate reuse of material in so far as practical, thus reducing the potential for temporary stockpiles in general. For example, the material arising from the first excavation is deposited in areas identified as having potential for restoration or requiring fill, the material arising from the second excavation is used as fill and reinstatement material in the first excavation location, etc.

Mitigation by Reduction

- 9.57 The volume of material to be managed including temporary stockpiling is directly proportional to the volumes of material required to be excavated, in total the volume of material is large, however when managed appropriately (ongoing reinstatement) the volume of material to be managed at any particular time will be minimised.

Vehicular Movements Mitigation Measures

- 9.58 Vehicular movements will be restricted to the footprint of the Development and advancing ahead of any construction will be minimised in so far as practical. This will be done with a view to minimising soils / subsoils exposure to rain and runoff.

Ground Stability Mitigation Measures

- 9.59 Relatively high impact–construction activities (e.g., excavations, movement of soils / subsoils / rock) are acceptable to be carried out throughout the year. Considering the variability of metrological conditions and the potential for significant events to occur at any stage of the year, the construction phase will be limited to favourable meteorological conditions. In order to mitigate for particular earth works tasks and suitable meteorological conditions, construction activities will not occur during periods of sustained significant rainfall events, or directly after such events (allowing time for work areas to drain excessive surface water loading and discharge rates reduce).

Monitoring

- 9.60 Chapter 10 - Hydrology, outlines the surface water monitoring that is proposed during construction of the development. This will give indications on whether the mitigations on land and soil management are being adhered to. In areas of intensive groundworks, continuous monitoring stations will be established.

Cumulative Effects

- 9.61 Considering the discipline under investigation, soils and geology, and the fact that potential effects of the Development on same are generally localised, the cumulative effects of the Development are not considered to vary dramatically or behave synergistically when considering the site as a unit, or indeed when considering in conjunction with other developments in the vicinity or downgradient of the Site. However, on a national scale the importance of soils in terms of ecological value and carbon value must be considered. The cumulative impacts associated with hydrological

and hydrogeological characteristics of the site are also identified in **Chapter 10: Hydrology**.

Assessment of interactions with other EIAR Chapters

- 9.62 This Land Soils Chapter is closely linked to Hydrology and Ecology Chapters, cross references are included in this report where relevant. Geology often shapes the topography and geology of a site. Ecology is also closely linked due to water quality having an impact on the ecosystems and their flora and fauna.

10. Hydrology & Hydrogeology

Introduction

- 10.1 This chapter assesses the potential impacts of the proposed Development on Hydrology and Hydrogeology. The Development refers to all elements of the application including site preparation and construction works of the masterplan area. Where negative effects are predicted, the chapter identifies appropriate mitigation strategies therein. The assessment considers the potential effects during the construction and operation phases of the Development. It is assumed these mitigation measures will be implemented in full to ensure no negative or adverse effects to the environment.
- 10.2 This chapter of the EIAR is supported by Figures provided in the Appendix documents in Volume 3 of this EIAR:
- 10.3 An Outline Construction and Environmental Management Plan (CEMP) has been provided as a standalone document with respect to the proposed development. This document will be a key construction contract document, which will ensure that all mitigation measures, which are considered necessary to protect the environment, are implemented. The CEMP includes all of the mitigation described within the EIAR.

Statement of Authority

- 10.4 RSK (Ireland) Ltd. (RSK) has prepared this chapter. The principal members of the RSK EIA team involved in this assessment include the following persons
- Project Manager & Lead Author: Sven Klinkenbergh – B.Sc. (Environmental Science), P.G. Dip. (Environmental Protection). Current Role: Principal Environmental Consultant. Experience c. 10 years industry experience in the preparation of hydrological and hydrogeological reports
 - Project Scientist: Lissa Colleen McClung – B.Sc. (Hons.) Environmental Studies, M.Sc. (Hons.) Environmental Science. Current Role: Graduate Project Scientist
 - Project Scientist: Mairéad Duffy – B.Sc. (Environmental Science), M.Sc. (Climate Change). Current Role: Graduate Project Scientist
 - Project Scientist: Jayne Stephens – PhD Environmental Microbiology, BSc Environmental Science. Current Role: Environmental Consultant

Assessment Structure

- 10.5 In line with the EIA Directive and current (draft) EPA guidelines the structure of this Hydrology and Hydrogeology chapter is as follows:
- Assessment Methodology and Significance Criteria.
 - Description of baseline conditions at the Site.

- Identification and assessment of impacts to hydrology and hydrology associated with the Development, during the construction and operational phases of the Development.
- Identification of mitigation measures to avoid, remediate or reduce the impacts identified, including mitigation by avoidance at design stage.
- Identification and assessment of residual impact of the Development considering recommended mitigation measures.
- Identification and assessment of cumulative impacts if and where applicable.
- An assessment of interactions with other environmental considerations / EIAR chapters.

Assessment Methodology and Significance Criteria

10.6 The following calculations and assessments were undertaken in order to evaluate the potential impacts of the Development on the hydrology and hydrogeology aspects of the environment at the urban regeneration scheme at Ardee, Co. Louth:

- Characterise the topographical, hydrological and hydrogeological regime of the Site from the data acquired through desk study and onsite surveys.
- Preliminary flood risk evaluations.
- Consider hydrological or hydrogeological constraints together with development design.
- Consider drainage issues, or issues with surface water runoff quality as a result of the Development, its design and methodology of construction.
- Assessment of the combined data acquired and evaluation of any likely impacts on the hydrology and hydrogeology aspects of the environment.

10.7 Where impacts are identified, measures are described that will mitigate or reduce the identified impact. Findings are presented and reported in a clear and logical format that complies with EIAR reporting requirements.

Legislation Requirements and Relevant Guidance

10.8 This Environmental Assessment complies with the EIA Directive, as amended, which requires Environmental Impact Assessment for certain types of development before development consent is granted. Environmental planning policy and industry best-practice guidance relevant to an assessment of hydrology and the water environment are summarised below in **Table 10.1**.

10.9 The Water Framework Directive (WFD) was passed by the European Union (EU) in 2000, and came into legal effect in December 2015. It is a wide-reaching piece of legislation which replaces a number of the other water quality directives (for example, those on Water Abstraction) while implementation of others (for example, The Integrated Pollution Prevention and Control and Habitats Directives) will form part of the 'basic measures' for the Water Framework Directive. The fundamental objective of the Water

Framework Directive aims at maintaining “high status” of waters where it exists, preventing any deterioration in the existing status of waters and achieving at least “good status” in relation to all waters by 2021* (WFD). (*Current River Basin Management Plan (RBMP) cycle).

Table 10.1: Relevant European and National Planning Policy

Legislation	
EU	Assessment of the effects of certain public and private projects on the environment (2014/52/EU)
	Assessment and Management of Flood Risks (2007/60/EC)
	Dangerous Substances Directive (2006/11/EC)
	Drinking Water Directive on the quality of water intended for human consumption (98/83/EC)
	Environmental Liability Directive (2004/35/EC)
	EU Water Framework Directive (2000/60/EC)
	Freshwater Fish Directive (2006/44/EC)
	Groundwater Daughter Directive to the Water Framework Directive (2006/118/EC)
	Priority Substance Daughter Directive to the Water Framework Directive (2008/105/EC)
	Quality Required of Surface Water Intended for Abstraction of Drinking Water (75/440/EEC)
National	
	Environmental Protection Agency (EPA) (2015) Advice Notes for Preparing Environmental Impact Statements – DRAFT September 2015 (will supersede 2003 version once finalised)
	Environmental Protection Agency (EPA) (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (supersede 1997 and 2002 versions)
	McCloy Consulting & Robert Bray Associates (2022) SDCC SuDS Explanatory, Design and Evaluation Guide
	National Roads Authority (NRA) (2008) Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes
	NRA (2008) Environmental Impact Assessment of National Road Schemes – A Practical Guide – Rev 1
	SI No. 12 of 2001: Water Quality (Dangerous Substances) Regulations
	SI No. 293 of 1988: Quality of Salmonid Waters Regulations

SI No. 296 of 2018: European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018
SI No. 258 of 1998: Water Quality (Phosphorous Regulations)
Environmental Objectives (Surface Waters) Regulations 2009 SI No. 272 of 2009
SI No. 294 of 1989: Quality of Surface Water Intended for Abstraction (Drinking Water)
SI No. 122 of 2014 (Drinking Water) Regulations and SI No. 464 of 2017 (Amendment) Regulations

Desk Study

10.10 Desk top study assessments were undertaken of the hydrology and hydrogeology aspects of the proposed development site before and after field investigations. This involved the following components:

- Acquisition and compilation of all available and relevant maps of the proposed Development.
- Detailed study and assessment of the proposed Development relative to available data on site topography.
- Thorough study and assessment of the proposed Development relative to available data on hydrology and hydrogeology.
- Overlay Geological Survey of Ireland (GSI) Groundwater Resources (Aquifers), Groundwater Vulnerability, and Groundwater Recharge maps to determine site sensitivity in terms of groundwater.
- Search of the GSI wells and springs database for records of wells or springs at and near the study area.
- Study of geospatial data obtained from various sources including Environmental Protection Agency (EPA), Geological Survey Ireland (GSI), Teagasc, Ordnance Survey Ireland (OSI), National Parks and Wildlife (NPWS) overlain with the Development plan drawings using a Graphic Information System (GIS). Data was assessed at a regional, local and site-specific scale.
- Assessment of additional data was obtained where relevant, for example, rain data obtained from Met Eireann and synoptic data sets obtained from the EPA.

Field Work

10.11 Field inspections will be carried out at the site of the proposed regeneration scheme in March and April 2022. These works consisted of the following:

- Site walk over including recording and digital photography of significant features.
- Drainage distribution and catchment mapping.

- Field hydrochemistry of the drainage network (electrical conductivity, pH and temperature).
- Recording of GPS co-ordinates for all investigation and monitoring points in the study.
- Two baseline sampling events of surface water will be carried out for analytical laboratory testing.

Evaluation of Potential Effects

Sensitivity

- 10.12 Sensitivity is defined as the potential for a receptor to be significantly affected by a proposed Development (EPA, 2022). The EPA provides guidance on the assessment methodology, including defining general descriptive terms in relation to magnitude of impacts however, in terms of qualifying significance of the receiving environment the EPA guidance also states that:

“As surface water and groundwater are part of a constantly moving hydrological cycle, any assessment of significance will require evaluation beyond the development site boundary.” (EPA, 2015)

- 10.13 To facilitate the qualification of hydrological and hydrogeological attributes, guidance specific to hydrology and hydrogeology as set out by National Roads Authority (NRA) (2008), and guidance specific to landscape as set out by Scottish National Heritage (SNH) (2018), has been used in conjunction with EPA guidance.
- 10.14 **Table 10.2** presents rated categories and criteria for rating site attributes (NRA, 2008):

Table 10.2: Criteria for Rating Site Attributes – Hydrology and Hydrogeology Specific

Importance	Criteria
Extremely High	Attribute has a high quality or value on an international scale.
Very High	Attribute has a high quality, significance or value on a regional or national scale.
High	Attribute has a high quality, significance or value on a local scale.
Medium	Attribute has a medium quality, significance or value on a local scale.
Low	Attribute has a low quality, significance or value on a local scale.

- 10.15 Considering the above categories of rating importance and associated criteria, **Table 10.3** presents rated sensitivity categories (SNH, 2013):

Table 10.3: Criteria for Rating Site Sensitivity – Landscape Character Specific

Importance	Criteria
High Sensitivity	Key characteristics and features which contribute significantly to the distinctiveness and character of the landscape character type. Designated landscapes e.g. National Parks, Natural Heritage Areas (NHAs) and Special Areas of Conservation (SACs) and landscapes identified as having low capacity to accommodate proposed form of change, that is. sites with attributes of Very High Importance .
Medium Sensitivity	Other characteristics or features of the landscape that contribute to the character of the landscape locally. Locally valued landscapes which are not designated. Landscapes identified as having some tolerance of the proposed change subject to design and mitigation, that is; sites with attributes of Medium to High Importance .
Low Sensitivity	Landscape characteristics and features that do not make a significant contribution to landscape character or distinctiveness locally, or which are untypical or uncharacteristic of the landscape type. Landscapes identified as being generally tolerant of the proposed change subject to design and mitigation, that is; sites with attributes of Low Importance .

Magnitude

- 10.16 The magnitude of potential impacts arising as a product of the Development are defined in accordance with the criteria provided by the EPA, as presented in **Table 10.4** (EPA, 2022). These descriptive phrases are considered general terms for describing potential effects of the Development and provide for considering baseline trends. For example, a 'Moderate' impact is one which is 'consistent with the existing or emerging trends.

Table 10.4: Describing the Magnitude of Impacts

Magnitude of Impact	Description
Imperceptible	An impact capable of measurement but without noticeable consequences.
Slight	An impact that alters the character of the environment without affecting its sensitivities.
Moderate	An impact that alters the character of the environment in a manner that is consistent with the existing or emerging trends.
Significant	An impact, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Profound	An impact which obliterates all previous sensitive characteristics.

10.17 In terms of hydrology and hydrogeology, magnitude is qualified in line with relevant guidance, as presented in the following tables (NRA, 2008). These descriptive phrases are considered development specific terms for describing potential effects of the Development, and do not provide for considering baseline trends and therefore are utilised to qualify impacts in terms of weighting impacts relative to site attribute importance, and scale where applicable.

Table 10.5: Qualifying the Magnitude of Impact on Hydrological Attributes

Magnitude of Description Impact		Examples
Large Adverse	Results in loss of attribute and/or quality and integrity of attribute	Loss or extensive change to a waterbody or water dependent habitat, or Calculated risk of serious pollution incident >2% annually, or Extensive loss of fishery
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute.	Partial reduction in amenity value, or Calculated risk of serious pollution incident >1% annually, or Partial loss of fishery
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute.	Slight reduction in amenity value, or Calculated risk of serious pollution incident >0.5% annually, or Minor loss of fishery
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity.	Calculated risk of serious pollution incident <0.5% annually
Minor Beneficial	Results in minor improvement of attribute quality.	Calculated reduction in pollution risk of 50% or more where existing risk is <1% annually
Moderate Beneficial	Results in moderate improvement of attribute quality.	Calculated reduction in pollution risk of 50% or more where existing risk is >1% annually
Major Beneficial	Results in major improvement of attribute quality.	Reduction in predicted peak flood level >100mm

Table 10.6: Qualifying the Magnitude of Impact on Hydrological Attributes

Magnitude of Impact	Description	Examples
Large Adverse	Results in loss of attribute.	Removal of large proportion of aquifer, or Changes to aquifer or unsaturated zone resulting in extensive change to existing water supply springs and wells, river baseflow or Ecosystems, or Potential high risk of pollution to groundwater from routine run-off
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute.	Removal of moderate proportion of aquifer, or Changes to aquifer or unsaturated zone resulting in moderate change to existing water supply springs and wells, river baseflow or Ecosystems, or Potential medium risk of pollution to groundwater from routine run-off.
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute.	Removal of small proportion of aquifer, or Changes to aquifer or unsaturated zone resulting in minor change to water supply springs and wells, river baseflow or ecosystems, or Potential low risk of pollution to groundwater from routine run-off.
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity.	Calculated risk of serious pollution incident <0.5% annually

Significance Criteria

- 10.18 Considering the above definitions and rating structures associated with sensitivity, attribute importance, and magnitude of potential impacts, rating of significant environmental impacts is done in accordance with relevant guidance as presented in **Table 10.7** (NRA, 2008). This matrix qualifies the magnitude of potential effects based on weighting same depending on the importance and/or sensitivity of the receiving environment. In terms of Hydrology and Hydrogeology, the general terms for describing potential effects (**Table 10.4: Describing the Magnitude of Impacts**) are linked directly with the Development specific terms for qualifying potential impacts (**Table 10.5: Qualifying the Magnitude of Impact on Hydrological Attributes** and **Table 10.6: Qualifying the Magnitude of Impact on Hydrogeological Attributes**). Therefore,

qualifying terms (**Table 10.7**) are used in describing potential impacts of the development. This is largely driven by the likely transboundary characteristic of potential effects arising as a product of the Development in terms of Hydrology and Hydrogeology.

Table 10.7: Weighted Rating of Significant Environmental Impacts

Rating	Magnitude of Impact			
	Negligible (Imperceptible)	Small Adverse (Slight)	Moderate Adverse (Moderate)	Large Adverse (Significant to Profound)
Extremely High	Imperceptible	Significant	Profound	Profound
Very High	Imperceptible	Significant/ Moderate	Profound/ Significant	Profound
High	Imperceptible	Moderate/ Slight	Significant/ Moderate	Profound/ Significant
Medium	Imperceptible	Slight	Moderate	Significant
Low	Imperceptible	Imperceptible	Slight	Slight/Moderate

Baseline Description

Site / Project Description

- 10.19 The application site covers an area of approx. 7.79 hectares. A description of the site is set out at Chapter 5 of this EIAR. A copy of the Site Location Plan is included at **EIAR Volume 3: Appendix 10.1 - Site Location**.

Site Walkover and Observations

- 10.20 Site walk over surveys were tailored in line with the Development site layout presented in the Louth County Council, Project Ardee 2040 Category 2 Proposal. Photographs obtained during site surveys are presented in **EIAR Volume 3: Appendix 10.2**.
- 10.21 The Main Street and Ash Walk works are located within the town centre and consist almost entirely of manmade artificial surfaces. The Old Railway/Amenity grasslands in the east of the town include a local-authority storage depot, and a greenfield of unmanaged grassland, bordered against a wastewater treatment plant (WWTP).

Field Work Restrictions

- 10.22 Access to the Site is unrestricted as the project entails a regeneration of already public lands.

Topography

- 10.23 The Site is generally, roughly speaking, spread over 2.7 kilometres from the town centre. Topography is discussed in greater detail in relation to stability and constraints in EIAR Chapter 9 - Soils and Geology.

Rainfall and Evapotranspiration

- 10.24 Data from the meteorological stations listed in **Table 10.9: Meteorological Stations** are used in this assessment.
- 10.25 Using data presented in **Table 10.8: Met Eireann Return Period Rainfall Depths (Irish Grid; 296062, 290997)**, **Figure 10.1**, a storm event of 25 days duration 1 in 100-year return period is inferred to be 236.1mm, **Figure 10.2**.

Table 10.8: Meteorological Stations

Data Category	Meteorological Stations	Approximate Distance from Site (km)
Rainfall (Mean Monthly Total Casement 1981-2010)		62.3
Rainfall (Daily 2020)	Dublin Airport	51.7

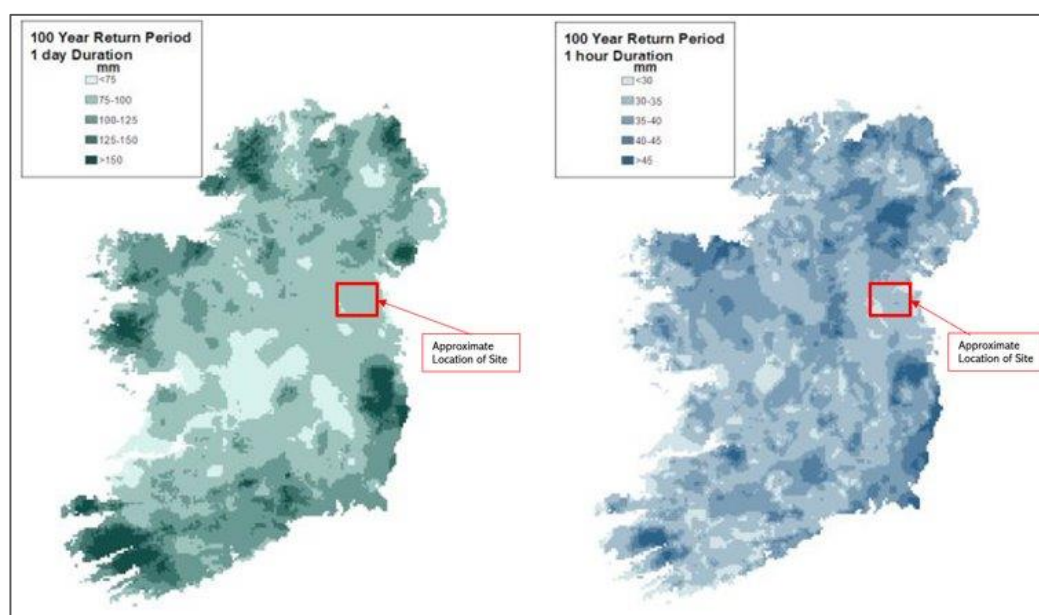


Figure 10.1: Rainfall Depths, 100-Year Return Period 1-day Return Map (Fitzgerald, 2007)

Met Éireann Return Period Rainfall Depths for sliding Durations Irish Grid: Easting: 296062, Northing: 290997,															
DURATION	Interval	Years													
	6months, 1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	2.7, 3.7,	4.2,	5.0,	5.5,	5.9,	7.3,	8.7,	9.7,	11.0,	12.2,	13.1,	14.4,	15.5,	16.4,	N/A,
10 mins	3.8, 5.2,	5.9,	7.0,	7.7,	8.3,	10.1,	12.1,	13.5,	15.3,	16.9,	18.2,	20.1,	21.6,	22.8,	N/A,
15 mins	4.4, 6.1,	6.9,	8.2,	9.1,	9.7,	11.9,	14.3,	15.8,	18.0,	19.9,	21.4,	23.6,	25.4,	26.8,	N/A,
30 mins	5.9, 7.9,	9.0,	10.6,	11.6,	12.4,	15.0,	17.8,	19.7,	22.2,	24.5,	26.2,	28.8,	30.8,	32.4,	N/A,
01 hours	7.8, 10.4,	11.7,	13.6,	14.9,	15.8,	18.9,	22.3,	24.4,	27.4,	30.0,	32.0,	35.0,	37.3,	39.2,	N/A,
02 hours	10.4, 13.5,	15.1,	17.5,	19.0,	20.2,	23.8,	27.8,	30.4,	33.9,	36.9,	39.2,	42.6,	45.3,	47.4,	N/A,
3 hours	12.2, 15.8,	17.6,	20.2,	21.9,	23.2,	27.3,	31.7,	34.5,	38.3,	41.6,	44.1,	47.8,	50.7,	53.0,	N/A,
4 hours	13.8, 17.7,	19.6,	22.5,	24.3,	25.7,	30.1,	34.8,	37.7,	41.8,	45.3,	47.9,	51.9,	54.9,	57.3,	N/A,
6 hours	16.2, 20.6,	22.9,	26.0,	28.1,	29.6,	34.4,	39.6,	42.9,	47.3,	51.1,	53.9,	58.2,	61.4,	64.0,	N/A,
9 hours	19.2, 24.1,	26.6,	30.1,	32.4,	34.1,	39.5,	45.1,	48.7,	53.5,	57.6,	60.7,	65.3,	68.7,	71.6,	N/A,
12 hours	21.5, 27.0,	29.6,	33.4,	35.9,	37.7,	43.4,	49.5,	53.3,	58.3,	62.7,	65.9,	70.8,	74.5,	77.4,	N/A,
18 hours	25.4, 31.5,	34.5,	38.7,	41.4,	43.5,	49.8,	56.4,	60.5,	66.0,	70.7,	74.2,	79.4,	83.4,	86.5,	N/A,
24 hours	28.6, 35.2,	38.4,	43.0,	45.9,	48.1,	54.8,	61.8,	66.2,	72.0,	77.0,	80.7,	86.2,	90.3,	93.6,	104.7,
2 days	35.3, 42.8,	46.5,	51.5,	54.7,	57.1,	64.5,	72.1,	76.8,	83.1,	88.4,	92.3,	98.1,	102.4,	105.9,	117.5,
3 days	41.0, 49.2,	53.2,	58.7,	62.2,	64.8,	72.7,	80.9,	85.9,	92.6,	98.2,	102.3,	108.5,	113.0,	116.7,	128.8,
4 days	46.0, 54.9,	59.2,	65.1,	68.9,	71.6,	80.1,	88.7,	94.1,	101.1,	107.0,	111.3,	117.8,	122.6,	126.4,	139.1,
6 days	55.1, 65.1,	69.9,	76.6,	80.7,	83.8,	93.1,	102.7,	108.5,	116.2,	122.6,	127.4,	134.3,	139.5,	143.6,	157.3,
8 days	63.2, 74.3,	79.6,	86.8,	91.3,	94.7,	104.8,	115.1,	121.4,	129.7,	136.6,	141.6,	149.1,	154.6,	159.0,	173.5,
10 days	70.8, 82.8,	88.5,	96.3,	101.2,	104.8,	115.6,	126.6,	133.3,	142.1,	149.4,	154.8,	162.7,	168.5,	173.2,	188.4,
12 days	78.0, 90.9,	97.0,	105.3,	110.4,	114.3,	125.8,	137.4,	144.5,	153.8,	161.5,	167.1,	175.4,	181.5,	186.4,	202.4,
16 days	91.6, 106.0,	112.8,	122.0,	127.8,	132.0,	144.7,	157.5,	165.3,	175.4,	183.8,	190.0,	199.0,	205.7,	211.0,	228.3,
20 days	104.4, 120.2,	127.6,	137.7,	144.0,	148.6,	162.4,	176.3,	184.6,	195.6,	204.6,	211.2,	220.9,	228.0,	233.7,	252.2,
25 days	119.6, 137.1,	145.2,	156.3,	163.1,	168.1,	183.2,	198.3,	207.4,	219.2,	229.0,	236.1,	246.6,	254.2,	260.3,	280.2,

NOTES:
N/A Data not available
These values are derived from a Depth Duration Frequency (DDF) Model
For details refer to:
'Fitzgerald D. L. (2007), Estimates of Point Rainfall Frequencies, Technical Note No. 61, Met Éireann, Dublin',
Available for download at www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf

Figure 10.2: Met Éireann Return Period Rainfall Depths (Irish Grid; 296062, 290997)

Regional and Local Hydrology

- 10.26 Regional and local hydrology is mapped and presented in **EIAR Volume 3: Appendix 10.3**.
- 10.27 Consultation with EPA maps (2022) indicates that the site is situated within the Dee_SC_040 SubCatchment of the Newry, Fane, Glyde and Dee Catchment (ID: 06_15; Area: 1675.312 km²). The site's location within the WFD River Sub Basin has been identified by the EPA as DEE_070 (Area: 9.8192 km²) and the DEE_080.
- 10.28 The surface water network draining the site area is presented in

10.29 . Designated and /or protected areas (for example: Natura 2000 sites, National Heritage Areas, or drinking water) associated with surface water at or downstream of the site are also included in **Figure 10.3**.

10.30 The River Dee is adjacent to the southern boundary of the Site. The river flows east and meets the coast of the Irish Sea at Annagasan, approximately 17 km downstream. A second river, the Townspark River flows through the northern section of the site before joining the River Dee approximately 650 metres northeast of the Site, **EIAR Volume 3: Appendix 10.3**.

10.31 During desktop assessment 18 no. existing watercourse crossings within or in the vicinity of the Site. 17 no. existing bridges and 1 no. existing culvert as presented in **EIAR Volume 3: Appendix 10.3**, and **Figure 10.4**.

10.32 There is evidence that the River Dee (Segment Code: Dee 080) has been diverted within Ardee Golf Club, to the River Dee (Segment Code 060) to the south. **EIAR Volume 3: Appendix 10.3** presents the actual local hydrology and also indicates the old river route.

Site Drainage

10.33 Consultation with GeoHive Map Viewer (OSI, 2022) and aerial photography indicates extensive non-mapped drainage (i.e. non-WFD/EPA maps) within the general area of the site. These drains are unmapped in EPA or WFD (2022) hydrology maps but are recognised by the Ordnance Survey Ireland.

10.34 In urbanised areas, it is assumed drainage from the site leads directly to existing foul and storm water drainage infrastructure. Runoff from the area is either directed to the municipal sewer system or potentially discharges directly into the surface water systems in the area e.g. River Dee. During initial site surveying, the area of the site was observed to be surfaced with hard standing and made ground along the main street and pedestrian footpaths.

Baseline Surface Water Quality

10.35 Two surface water sampling events took place (March and April 2022) to understand the baseline conditions of water quality associated with the receiving waterbody related to the Site. Sampling locations are presented in **EIAR Volume 3: Appendix 10.4**. Laboratory certificates and the baseline water quality database are presented in **EIAR Volume 3: Appendix 10.9**.

10.36 There are two hydrometric gauge stations on the River Dee near the Site; one located on the county borders of Louth and Meath named 'BURLEY', c. 5 km upstream of the N2. The other gauge is c 9 km downstream of the proposed Development, near the N33, M1 junction to the east. (EPA, 2022).

10.37 Several National River Water Monitoring Stations can be found along the River Dee within the footprint of the Development (EPA, 2022). Three (3 no.) stations are located c. 5 km upstream of the site-west of the N2, and an additional five (5 no.) are downstream of the Site, within 1.5 km of the N2 (EPA, 2022).

Hydrogeology-Bedrock Aquifer

10.38 Consultation with GSI (2022) Groundwater maps indicates that the Site is underlain by various bedrocks, for further information refer to **EIAR Chapter 9 - Land, Soils and Geology**. The central and western footprints of the site are underlain by a 'Locally Important Aquifer' (LI), that is bedrock which is Moderately Productive on in Local Zones.

The northeastern reach of the Site is underlain by a 'Poor Aquifer', that is, bedrock which is Generally Unproductive except for Local Zones.

Groundwater Vulnerability & Recharge

- 10.39 Vulnerability depends on the quantity of contaminants that can reach the groundwater, the time taken by water to infiltrate to the water table and the attenuating capacity of the geological deposits through which the water travels. These factors are controlled by the types of subsoil that overlie the groundwater, the way in which the contaminants recharge the geological deposits (point or diffuse source) and the unsaturated thickness of geological deposits from the point of contaminant discharge.
- 10.40 Where low permeability subsoil overlies the bedrock, it is the thickness of subsoil between the release point of contaminants and bedrock that is considered when assessing vulnerability of bedrock aquifers, regardless of whether the low permeability materials are saturated or not. The GSI vulnerability mapping guidelines allow for the assignment of vulnerability ratings from "extreme" to "low", depending upon the subsoil type and thickness. With regard to sites where low permeability subsoil is present, the following thicknesses of unsaturated zone are specified (GSI, 2022).

Table 10.9: Groundwater Vulnerability Ratings

Vulnerability Rating	Thickness of unsaturated zone (m)
Rock at or Near Surface (X)	0
Extreme (E)	0 to 3
High (H)	3 to 5
Moderate (M)	5 to 10
Low (L)	>10

- 10.41 Consultation with the GSI Groundwater Map Viewer (2022), indicates that the site is underlain by areas classified with High (H) and Moderate (M) vulnerability ratings along the Development footprint boundaries (see **EIAR Volume 3: Appendix 10.5 Groundwater Vulnerability**).
- 10.42 As mapped by GSI (2022), there are two Groundwater Recharge rates separating the Site. The effective rainfall of the western portion of the Development is noted as being 390.900 mm/yr with a recharge coefficient of 60% of effective rainfall due to the moderate permeability of subsoil overlain by well-drained soil. Therefore, the average recharge rate of the underlying bedrock aquifer for the area is c. 235 mm/yr, however GSI (2022) has applied a recharge capacity of 200 mm/yr. Similar hydrogeological settings and effective rainfall rates can be seen across the eastern stretch of the site, however GSI (2022) has placed an average recharge rate capacity for this area at 100 mm/yr.

Water Framework Directive Water Body Status & Objectives

- 10.43 Details in relation to the Water Framework Directive (WFD) 2016-2021 status assigned to surface waterbodies associated with the Site are presented in **EIAR Volume 3: Appendix 10.6**.
- 10.44 The River Dee is located just south of the main proposed works, joining along the eastern portion of the boundary. Under the Water Framework Directive status assessments 2016 – 2021, the River Dee (and its tributaries) are of Moderate status, declining to Poor status near the coast. The coastal waters of Dundalk Bay are of good status.
- 10.45 Urban Waste Water Treatment Agglomerations PE of 2,001 to 10,000 (Ardee D0117) have been identified as significant pressure throughout the sub catchment (Dee_SC_040) in 'At Risk' river bodies while channelisation is also another significant pressure (EPA, 2021).
- 10.46 Groundwater underlying the Site holds a WFD Status of 'Good' from the previous monitoring cycle 2016- 2021 (EPA, 2023). However, the groundwater body underlying the majority of proposed regeneration works of the town centre and along Irish Street is 'At risk' of deteriorating, however it did achieve 'Good' status. The remaining groundwater body towards the eastern boundary of the site along the River Dee has been classified as 'Not at risk'.
- 10.47 According to the Newry, Fane, Glyde and Dee Catchment Report published by the EPA (2021), agriculture is the significant pressure to the groundwater body underlying the Site. Pressures stem from the loss of phosphorus to surface waters from, for example, direct discharges; or runoff from yards, roadways, compacted surfaces and poorly draining soils. Sediment associated with agricultural activities, including land drainage works, bank erosion from animal access or stream crossings, have also been noted as an issue in the catchment (EPA, 2021). Unknown anthropogenic pressures were also noted as stressors to the underlying groundwater body (EPA, 2021).

Flood Risk Identification

- 10.48 Flood risk assessments have been carried out in accordance with the Department of Housing and Local Government (DEHLG) and the Office of Public Works (OPW) document "The Planning Process and Flood Risk Management Guidelines for Planning Authorities" published in November 2009. Consultation with Nicholas O'Dwyer Ltd's 'Ardee 2040 Regeneration Scheme Site-Specific Flood Risk Assessment' was also performed. This Assessment identifies and sets out possible mitigation measures against potential risks of flooding from various sources. Sources of possible flooding include coastal, fluvial, pluvial (direct heavy rain), groundwater and human/mechanical error. Sections of the Ardee area zoned in the Regeneration Scheme is inundated in predicted Flood Zone A and B extents. Low lying areas along the bank of the River Boyne are the worst affected areas (EMRA 2018).
- 10.49 In the FRM Guidelines, the likelihood of a flood occurring in an area is identified and separated into Flood Zones (**Figure 10.4 - Indicative Flood Zone Map**), which indicate a high, moderate or low risk of flooding from fluvial or tidal sources, defined as follows:

- Flood Zone A - Where the probability of flooding is highest (greater than 1% Annual Exceedance Probability (AEP) or 1 in 100 for river flooding and 0.5% AEP or 1 in 200 for coastal flooding) and where a wide range of receptors would be located and therefore vulnerable;
- Flood Zone B - Where the probability of flooding is moderate (between 0.1% AEP or 1 in 1000 and 1% AEP or 1 in 100 for river flooding and between 0.1% AEP or 1 in 1000 year and 0.5% AEP or 1 in 200 for coastal flooding); and
- Flood Zone C - Where the probability of flooding is low (less than 0.1% AEP or 1 in 1000 for both river and coastal flooding).

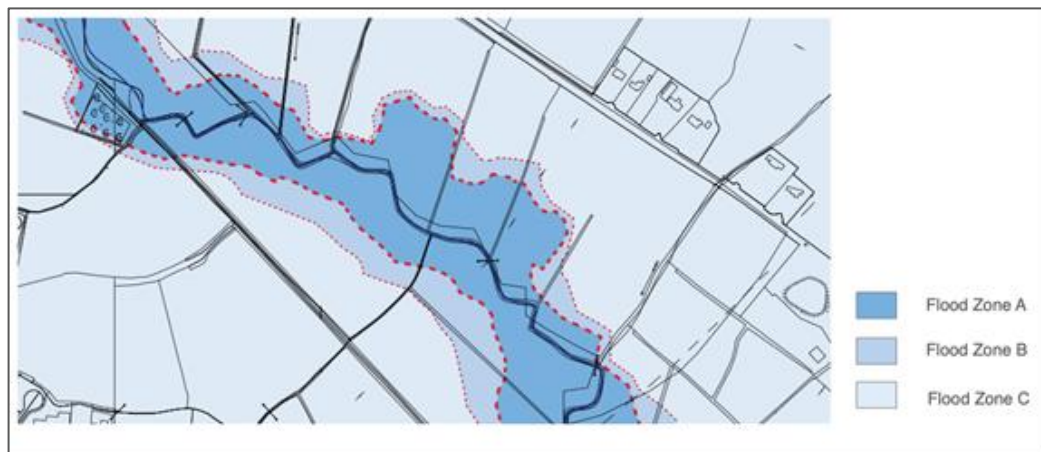


Figure 10.4: Indicative Flood Zone Map, Department of Housing, Local Government and Heritage (2009)

- 10.50 The River Dee, at the location of the development Site is a river waterbody, i.e., it is fluvial in nature and hence.
- 10.51 Consultation with OPW (2022) CFRAM River Flood Extent Maps indicate that the River Dee falls under Flood Zones A, Flood Zone B and Flood Zone C. The redline boundary of the Site crosses the River Dee over an existing bridge along the N2. Furthermore, improvement works related to the amenity lands to the east of the Town boarder the River Dee to the south and Wastewater Treatment Plant to the east.
- 10.52 Conclusions from NOD Flood Risk Assessment (FRA) (2023) highlighted that the assessment was based on the most recent CFRAM mapping available at the time of production. It was therefore recommended that the latest maps be obtained from Louth County Council to ensure the accuracy of the flood risk assessment going forward.
- 10.53 Historic flood events presented by the OPW (2022) Flood Hazard Maps, recorded a reoccurring flood event along the River Dee, just 20 m east of the N2, near the southern-most boundary of the Site. There have been 2 no. Single Flood Events downstream of the proposed Development; 1 recorded as 'Dee Downstream Ardee November 1968' c. 310m downstream and the other recorded as 'Dee County Louth - Nov 2000' c. 2.7 km downstream. Therefore, it was established the predominant source of flood risk for

the proposed development site is fluvial flooding from the River Dee adjacent to the riverfront area (NOD, 2023).

- 10.54 NOD (2025) concluded that the proposed development met an acceptable level of flood risk mitigation management measures and a Justification Test through topographical surveys and levels information. Inundation from floodwaters will be mitigated through retained and replaced drainage infrastructure as well as SuDS design of soft landscaping.

Stages 2 & 3 FRA

- 10.55 The risk of flood is expressed in more detail in the form of Stage 2 and Stage 3 Flood Risk Assessments in the NOD (2023). The proposed development site is situated outside the 0.1% AEP (Flood Zone C), indicating a low flood risk, it was concluded that A Stage 3 Detailed Flood Risk Assessment is not required. Considering that the development involves public realm and urban regeneration projects with minimal alterations to existing site levels, a more detailed risk assessment for fluvial and coastal flooding is not deemed necessary.

Wells

- 10.56 Groundwater is nationally protected under the European Communities (Drinking Water) (No. 2) Regulations 2007 (S.I. no. 278/2007). However, consultation with GSI (2022) well database indicates there is one borehole which is situated within the vicinity of the Site. The GSI (2022) reference of the borehole is 2929SWW141 located at easting 296130 and northing 290800. The local accuracy is to 1km. It is 12.2 metres in depth. The well use is unknown, therefore, it is unknown if this borehole is used for public drinking supply.

Designated Sites & Habitats

European Sites

- 10.57 There are no SACs or SPAs located in the immediate vicinity of the site. The Stabannan Braganstown SPA is located approximately 6.2 kilometres to the east of the site. The Dundalk Bay SAC is located approximately 12.9 kilometres from the site. Relevant sites are presented in **Table 8.11**, their locations are shown in **EIAR Volume 3: Appendix 10.7**.
- 10.58 Ground water bodies underlying the Development Site are also protected under EU Water Framework Directive Legislation as Designated Groundwater in SPA and SAC Habitats.

Table 10.10: Natura 2000 Sites Related to Development

Site Name	Distance
Stabannan Braganstown SPA (4091)	6.2 km (east)
Dundalk Bay SAC (0455)	13.8 km (east)
Dundalk Bay SPA (4026)	13.8 km (east)

National Sites

- 10.59 The Site is not within any Natural Heritage Areas or proposed Natural Heritage areas. Relevant sites are presented in **Table 10.11**, their locations are shown in **EIAR Volume 3:**

Appendix 10.7. It is important to note that there are two proposed Natural Heritage area located near the Site, in which works could potentially influence if prescribed mitigation measures are not followed. The Louth Hall and Ardee Woods pNHA is located approximately 490 metres to the north of the Site. Ardee Cutaway bog is located approximately 1.5 kilometres to the west of the site.

Table 10.11: Natural Heritage Areas Related to Development

Site Name	Distance
Louth Hall And Ardee Woods pNHA (site code 1616)	490 metres (north)
Ardee Cutaway Bog pNHA (site code 1454)	1.5 km (west)
Stabannan-Braganstown pNHA (site code 0456)	5.06 km (northeast)

Water Resources

- 10.60 Rivers, designated for drinking water in accordance with European Communities (Drinking Water) (No. 2) Regulations 2007 (SI no. 278/2007), are protected for the purposes of drinking water abstraction. Consultation with relevant EPA maps (2022) indicate that there is a public drinking water section located to the west / upstream of the Site, and some kilometres downstream of the site (**EIAR Volume 3: Appendix 10.7**). As stated previously under Irish legislation, groundwater is nationally protected.

Receptor Sensitivity

- 10.61 All receptors associated with the Development i.e. streams, rivers, and groundwater, are considered highly sensitive receptors when considering
- Water Framework Directive (WFD) status (2013-2018) identified as “Good”. The WFD objective to protect waterbodies with at least Good status and to improve conditions in waterbodies which fall below Good status or are identified as being at risk of deterioration.
 - The on-site and down-stream designations (sensitive protected areas e.g. SAC, SPA) associated with the catchment and the sensitive habitats and species associated with same.
 - The designation of some waterbodies within the boundary of the site and downstream surface water bodies and all groundwater bodies as sources of drinking water.
- 10.62 Ultimately, all surface waters and groundwaters associated with the Site are considered sensitive and important attributes in their own right and must be protected as per the WFD. In that context, all waters are considered to be Medium to High Sensitivity attributes and of High to Very High importance. However, waters associated with

designated and protected areas should be considered the highest in the scale, that is; High Sensitivity and Very High Importance.

- 10.63 Risk to receptors must consider both the hazard, and likelihood of adversely impacting on any given sensitive receptor, and therefore parameters such as; distance from potential source of hazard to receptor, pathway directness and/or connectivity, and assimilative capacity of the receiving water body should also be considered.
- 10.64 In terms of groundwater sensitivity and susceptibility, the bedrock aquifer underlying the site and surrounding area is of relatively low importance and sensitivity.
- 10.65 In terms of surface water sensitivity, as stated above, the vast majority of potential contaminants or unmitigated adverse impacts will readily infiltrate the neighbouring surface waterbody. It must be noted, sensitive receptors and their pathways are located in extremely close proximity to the proposed Development.

Assessment of Potential Effects

Do Nothing Impact

- 10.66 Assessments of the baseline hydrological and hydrogeological conditions at the site indicate that parts of the site have already experienced impacts to baseline conditions through urban development and agricultural practices in the area.
- 10.67 Should the proposed development not proceed, the site would remain a previously developed urbanised area, along the waterfront of the River Dee. The existing land-use practice, including local community recreation will continue as would the associated pressures on surface water quality from upstream urban, agricultural and other pressures. The Water quality report published by the EPA (EPA, 2021) indicates that over half of the water bodies in Ireland are not at a water quality level that they should be at (WFD Objectives) and many are in decline or at risk of deteriorating. Should the development not proceed, the catchment and receiving surface water bodies associated with the site will continue to be impacted by baseline activities.
- 10.68 Urban development activities have had a profound impact to the site relative to absolute baseline or natural conditions with regard to the hydrology or hydrogeology of the site in terms of drainage infrastructure in particular. Agricultural production and practices such as fertiliser, slurry and farmyard application can also have a significant impact on the baseline and can significantly affect the hydrology and groundwater quality at the site.

Potential Impacts of the Proposed Development- Construction Phase

- 10.69 The Development has the potential to result in the release of contaminants, particularly suspended solids during the construction phase of the project, and to a lesser extent during the operational phase relative to baseline conditions.

Release of Contaminants-Suspended Solids

- 10.70 Excavation and construction activities introduce the risk of solids being entrained in runoff. Runoff contaminated with suspended solids will add turbidity to the receiving surface water body, can block fish gills and smother spawning grounds, reduce light penetration for flora growth, and promote bacteria and algae production. Nutrients that

are associated with the solids (inorganic nutrients such as phosphorus and organic such as hydrocarbons, and sewage if present) can lead to eutrophication of the water environment and eventually to fish-kills due to lowering of oxygen supply.

- 10.71 The degree to which inorganic solids are entrained in runoff is related to the particle sizing of the soil components. Smaller inorganic particles (e.g. clay) will be easily entrained and will remain in suspension for a longer period than larger particles (silt / sand) and will require lower flow rates and longer retention rates to settle out of the water column when given the opportunity.
- 10.72 Intrusive ground investigation, i.e., SI Report will provide more information on the description of the underlying soils of the site.

Release of Contaminants - Hydrocarbons and Storage

- 10.73 Plant equipment and vehicles associated with excavation, material transport, and construction activities introduce the risk of hydrocarbon (fuel and oil) spillages and leaks.
- 10.74 Similar to suspended solids arising from excavation activities, hydrocarbons accidentally introduced to the environment will likely be intercepted by drainage and surface water networks associated with the Development Site.
- 10.75 Hydrocarbons are a pollutant risk due to their toxicity to all flora and fauna organisms. Hydrocarbons chemically repel water and sparingly dissolve in water. The majority of hydrocarbons are light non-aqueous phase liquids (L-NAPL's) which means that they are less dense than water and therefore float on the water's surface (whether surface water or groundwater). Hydrocarbons adsorb ('stick') onto the majority of natural solid objects they encounter, such as vegetation, animals, and earth materials such as soil. They burn most living organic tissue, such as vegetation, due to their volatile chemistry. They are also a nutrient supply for adapted micro-organisms, which can deplete dissolved oxygen at a rapid rate and thus kill off water based vertebrate and invertebrate life.

Release of Contaminants - Construction or Cementitious Material

- 10.76 The Development has the potential to result in the accidental spillage or deposition of construction waste into soils and in turn impact on surface water runoff, or accidental spillages directly intercepted by drainage or surface water networks associated with the Development.
- 10.77 Depending on the material in question, the introduction of such materials can lead to a local change in hydrochemistry and impact on sensitivities such as ecology. For example, the introduction of cementitious material (concrete / cement / lean mix etc.) can lead to changes in soil and water pH, and increased concentrations of sulphates and other constituents of concrete. Fresh or wet concrete is a much more significant hazard when compared to old or set concrete which is considered inert in comparison, however it should also be noted that any construction materials or non-natural materials deposited, even if inert, are considered contaminants.
- 10.78 Surface water runoff coming into contact with concrete structures will be impacted to a degree, however water percolating through lean mix will be impacted significantly.

Release of Contaminants - Wastewater or Sanitation Contaminants

- 10.79 The Development has the potential to result in the accidental leakage of wastewater or chemicals associated with waste water sanitation onto soils, and into the drainage network during the construction phase of the project.
- 10.80 Wastewater and wastewater sanitation chemicals are pollutant risks due to their potential impact on the ecological productivity or chemical status of surface water systems, and toxicity to water-based flora and fauna. The level of risk posed by such facilities is dependent on the condition and upkeep of the facilities that are put in place, and the chemical agents used if applicable.
- 10.81 The worst-case scenario/s associated with waste water sanitation is the potential for sanitation chemical, particularly related to porta-loos, accidentally spilling or leaking and being intercepted by surface water drainage features via runoff during rainfall event and in turn surface water networks associated with the Development.
- 10.82 In addition to direct adverse impacts on ecological sensitivities downgradient of the site, runoff of suspended solids and/or other contaminants will potentially impact on the WFD status and objectives associated with the receiving surface water networks associated with the Development. Considering the 'Moderate' quality of the surface waterbody neighbouring the Site (baseline), and the fact surface waters are 'At Risk' in terms of sensitivity, any introduction of contaminants is considered a potentially profound adverse impact of the Development. Potential incidents of release contaminants at the Site will likely be short lived or temporary, however the potential impacts to downstream receptors can be long lasting, or permanent.
- 10.83 With appropriate environmental engineering controls and mitigation measures these potential impacts can be significantly reduced. Furthermore, if considered adequately, mitigation measures to address attenuation of potential contaminants have the potential to have a further positive impact on the hydrological response to rainfall at the site.

Hydrologically Connected Designated Sites and Drinking Water

- 10.84 Contaminants arising as a product of the Development could be potentially intercepted by the drainage and surface water network associated with the Site. The Site is situated upstream of designated site/s as previously discussed. Therefore, maintaining surface water quality is a key component of environmental objectives during this project. Any contaminants arising from the Development will potentially adversely impact on downstream designated site/s.
- 10.85 The geographical scale of catchments upstream of designated areas downstream of the Site should be considered in terms of the assimilative capacity of the surface water systems which will buffer against any potential contaminants introduced at the Site, that is; contaminants will be 'diluted' in receiving waterbodies, i.e. River Dee. This does not lessen potential adverse impacts in the immediate vicinity of the Site and does not reduce the need for mitigation measures to be implemented but is considered a 'last line of defence' for the protection of designated areas downstream of the Site.
- 10.86 Surface waters, under the scope of the objectives of the WFD are considered attributes with the 'Moderate' sensitivity and importance and will be protected in their own right.

Although potential contamination incidents will be temporary in terms of the waters themselves, it is important to consider the potentially long lasting or potentially permanent impact/s of contaminants on the ecological attributes dependent on the surface water bodies associated with designated areas.

Potential Impacts of the Proposed Development- Operational Phase

Increased Hydraulic Loading

- 10.87 The Development has the potential to result in increased volumes of runoff during the operational phases of the Development relative to baseline conditions. This is a function of the progressive excavation and removal of vegetation cover and replacement with impermeable surfaces, thus removing the hydraulic absorption / buffer control from this part of the Site. Increased runoff, or an increased hydrological response to rainfall has the potential to exacerbate flooding events and impact on hydro morphology of waterbodies downstream of the development, and/or to exacerbate flooding and erosion within the boundary of the site.
- 10.88 It is presumed, from the design layout of the proposed project, excavation of an unknown area will be carried out to install car parks, and the Ash Walk for the public amenity scheme. The total area of resurfacing to be carried out is unknown at this time.

Storm water Run-off Contamination

- 10.89 The Development has the potential to impact the water quality associated with surface and foul water drainage. General water quality impacts associated with runoff from parking areas and other hard standing areas will be directed towards storm water network observed during Site surveying. There is no publicly available data on sewer drainage maps, but it is assumed there are extensive storm water drains within the Site.

Assessing the Magnitude of Potential Effects – Construction Phase

Release of Suspended Soils

- 10.90 The construction phase of the Development will invariably involve earthworks including removal of vegetation cover, excavations to facilitate the installation of footpaths and cycle paths, and possible temporary stockpiling of subsoils. Entrainment of suspended solids and other contaminants in runoff are the principal risks to surface water quality in the receiving surface water network. With appropriate environmental engineering controls and properly executed mitigation measures the risk of these potential impacts can be significantly reduced, and the magnitude of any potential impact reduced to within acceptable levels.
- 10.91 The most vulnerable aspects to surface water quality deterioration are:
- Development within surface water buffer zones, i.e., the southern boundary of the Site along the river walkway adjoined to the River Dee.
 - Exposed soils, temporary stockpiles.
- 10.92 Vehicular movements and excavation works associated with the construction phase (earthworks) of the Development have the potential impact on soil stability at a localised scale. Localised stability issues/erosion or degradation of soil by e.g. vehicular

movements, have the potential to increase the potential for entrainment of suspended solids in surface water runoff.

Mechanism/s:	Construction activities; Excavation, handling/transport, temporary storage of soils / subsoils / vehicle tracking. Erosion in areas impacted by construction activities.
Impact:	Release of suspended solids entrained in runoff, intercepted by surface water network.
Receptor/s:	Surface Water. Surface water quality, ecological sensitivities and WFD status, WFD Registered Protected Areas.
Pre-Mitigation Potential Effect:	Negative/adverse, direct, profound, likely, long-term to permanent.

Release of Hydrocarbon Storage

- 10.93 During the construction phase of the Development, plant equipment and vehicles associated with excavation, material transport, and construction activities introduce the risk of hydrocarbon (fuel and oil) spillages and leaks. Similar to suspended solids arising from excavation activities, hydrocarbons accidentally introduced to the environment will likely be intercepted by drainage and surface water networks associated with the Development Site.

Mechanism/s:	• Lubricants and other construction consumables – minor in scale. • Fuel leak from personnel vehicle – minor in scale. • Fuel leak from plant machinery – minor in scale. • Fuel spill during refuelling – significant in scale. • Fuel leak from storage - significant in scale.
Impact:	• Release of hydrocarbons in runoff, intercepted by surface water network. • Release of hydrocarbons to ground, intercepted by groundwater.
Receptor/s:	• Surface Water. Surface water quality, ecological sensitivities and WFD status, WFD Registered Protected Areas. • Groundwater. Groundwater quality for the purposes of extraction.
Pre-Mitigation Potential Effect:	• Surface Water - Negative, direct, profound, likely, long-term to permanent.

-
- Groundwater - Negative, direct but limited, significant, likely, long term to permanent.
-

Release of Waste Water Sanitation Contaminants

- 10.94 Welfare facilities will be required at the Site during the Construction phase. The level of risk posed by such facilities is dependent on the condition and upkeep of facilities that are put in place, and the chemical agents used if applicable, and therefore can range from a potentially significant to insignificant impact in direct correlation to the type of sanitation used (e.g. septic tank versus port-a-loo). It is envisaged that porta-loos will be used for this Development.

Mechanism/s:	• Wastewater leak – minor in scale. • Chemical leak – minor in scale
Impact:	• Release of wastewater / chemicals in runoff, intercepted by surface water network.
Receptor/s:	• Surface Water. Surface water quality, ecological sensitivities and WFD status, WFD Registered Protected Areas. • Groundwater. Groundwater quality for the purposes of extraction.
Pre-Mitigation Potential Effect:	• Surface Water - Negative, direct, moderate to significant, likely, short to medium term. • Groundwater - Negative, direct but limited, imperceptible, likely, short to medium term.

Release of Construction or Cementitious Materials

- 10.95 Depending on the material in question, the introduction of any cementitious material can lead to a local change in hydrochemistry and impact on sensitive attributes e.g. ecology. For example, the introduction of cementitious material (concrete / cement / lean mix etc.) can lead to changes in soil and water pH, and increased concentrations of sulphates and other constituents of concrete can further impact water quality. Fresh or wet concrete is a much more significant hazard when compared to set or precast concrete which is considered inert in comparison, however it should also be noted that any construction materials or waste deposited, even if inert, is considered contamination. Surface water runoff, or groundwater coming into contact with concrete will be impacted to a degree, however water percolating through lean mix concrete will be impacted significantly. If the Development requires concrete footpaths near receptors, this will need to be considered.
- 10.96 The production/acquisition, transport of material and management of plant machinery must also be considered.

Mechanism/s:	• Accidental spillage or unmanaged deposition of construction materials such as wet concrete which is intercepted by drainage or surface water networks associated with the Development.

	• Dust generation in relation to the production of concrete and management of raw materials. • Transport of material on Site and washout of plant machinery. • Pouring, forming, deposition of concrete during construction. • Generation of waste.
Impact:	• Release of cementitious material in runoff, intercepted by surface water network.
Receptor/s:	• Surface Water. Surface water quality, ecological sensitivities and WFD status. • Groundwater. Groundwater quality for the purposes of extraction.
Pre-Mitigation Potential Effect:	• Surface Water - Negative, direct, profound, likely, long-term to permanent. • Groundwater - Negative, direct but limited, imperceptible, likely, short to medium term.

Diversion and Enhancement Drainage

- 10.97 It is assumed existing drainage infrastructure will be maintained insofar practical given the superficial nature of the regeneration project and engineering drainage will be limited to enhancement of existing drainage features, potential for watercourse crossings and potential for SuDS features.

Watercourse Crossings (Mapped Rivers)

- 10.98 Existing watercourse crossings are presented in local hydrology maps **EIAR Volume 3: Appendix 10.3**, as well as **Figure 10.4**.
- 10.99 New watercourse crossings potentially required as part of the proposed development are presented in **EIAR Volume 3: Appendix 10.8 and Figure 10.4**.
- 10.100 The proposed development will require 1 no. new bridge (associated with the reach of diverted river discussed in Baseline sections of this report).
- 10.101 The bridge will serve as a watercourse crossing over the River Dee_060, as part of the development along the River Greenway. This crossing is located along the southwest boarder of the Site; this proposed development is directly adjacent to the River Dee. Construction near any watercourse will have inherent risk given the level of disruption involved with construction activities, and the proximity, to the primary sensitive receptor of the watercourse itself. New watercourse crossings are presented in the hydrology and constraints figure **EIAR Volume 3: Appendix 10.3** and **Figure 10.5** below.

Watercourse Crossing Database.				
Type	ID	Category	East ITM	North ITM
Bridge	Bridge001	Existing	695325.0	790609.2
Bridge	Bridge002	Existing	695350.7	790827.7
Bridge	Bridge003	Existing	695325.0	790844.8
Bridge	Bridge004	Existing	695255.3	790884.5
Bridge	Bridge005	Existing	695199.6	790885.5
Bridge	Bridge006	Existing	695163.2	790897.3
Bridge	Bridge007	Existing	695118.2	790923.0
Bridge	Bridge008	Existing	695970.9	791421.2
Bridge	Bridge009	Existing	695861.7	791524.0
Bridge	Bridge010	Existing	696540.9	791313.0
Bridge	Bridge011	Existing	697246.8	790963.7
Bridge	Bridge012	Existing	697239.4	790947.1
Bridge	Bridge013	Existing	696565.4	790561.6
Bridge	Bridge014	Existing	696181.3	790349.5
Bridge	Bridge015	Existing	695932.8	790162.0
Bridge	Bridge016	Existing	694898.0	790336.7
Bridge	Bridge017	Existing	696319.5	791225.3
Bridge	NewBridge001	New	695332.1	790411.4
Culvert	Culvert001	Existing	695708.0	790461.9
Culvert	NewCulvert001	New	695582.6	790586.7
Culvert	NewCulvert002	New	695715.5	790601.7
Culvert	NewCulvert003	New	695308.0	790492.8

Figure 10.5: Identified Watercourse Crossings within Site

Watercourse Crossings (Non-Mapped Rivers)

- 10.102 No watercourse crossings are required as part of the proposed development. However, there is the potential to encounter additional drainage features throughout the site. In urban and built areas sewers and storm water drains are expected, similarly the same principles apply in greenfield areas where non mapped drains and/or culverts or buried drainage could be encountered within the site boundary and will need to be assessed upon discovery.
- 10.103 Section 50 of the European Communities (Assessment and Management of Flood risks) Regulation SI 122 of 2010 requires that: No Person, including a body corporate, shall construct any new bridge or alter, Reconstruct, or restore any existing bridge over any watercourse without the Consent of the Commissioners or otherwise than in accordance with plans previously approved of by the Commissioners. The OPW is responsible for the implementation of the regulations and consent to construct any bridge should be sought from the OPW via their application process. Details on the application process and guidance / requirements of the bridge design and considerations in terms of flow can be found in the OPW guide Construction, Replacement, or Alteration of Bridges and Culverts (A Guide to Applying for Consent under Section 50 of the EU (Assessment and Management of Flood Risks) Regulations SI 122 of 2010 and Section 50 of The Arterial Drainage Act, 1945).

Assessing the Magnitude of Potential Effects – Operation Phase

- 10.104 The operational phase of the development will involve activities which will potentially lead to the release of pollutants including from hydrocarbons (fuel leaks) from motor vehicles in carparks. However, the likelihood of these environmental incidents occurring is very low compared to that of construction activities, therefore the risk of adverse impacts is considered relatively low.

Increased Hydraulic Loading

- 10.105 Detailed project information given to date has identified a minimum of superficial paving for new roadways, car parks, footpaths and cycle paths. This land take will require adequate SuDS management to accommodate the increase in impermeable area proposed with the Development.

Storm water Run-off Contamination

- 10.106 During the operational phase, there is potential for contamination from fuel or oil spillages and debris from vehicles. Run-off from these hard surfaced areas may be impacted with residual hydrocarbon contaminants from fuel emission and trace sediments and contaminants like metals and organics from tyres. This represents a potential source of contamination that could have a pathway to surface waters through the storm water drainage system. The nature of these contaminants could have a toxic effect on the biology of the receiving waters affecting the ecological status and chemical status of the water body.
- 10.107 It is anticipated that pollution of surface waters bodies as a result of run-off and drainage from the road and carpark, without mitigation, would result in a direct, negative, imperceptible, long term, likely impact on the stormwater drains and receiving surface water.

Mitigation Measures and Residual Effects

Design Phase

- 10.108 Mitigation measures have been prescribed for protecting the existing hydrological regime of the site, and where possible, project-specific environmental constraints have been identified and detailed in this EIAR.

Constraints

- 10.109 Buffer zones are intended to drive the design process by minimising or avoiding the risk to surface water features by restricting construction disturbance to outside these zones; in turn protecting riparian vegetation and providing potential for filtering of runoff from the proposed site and maintaining the baseline hydrological and drainage regime at the site. The prescription of surface water, and groundwater, buffer zones (sometimes referred to as setback distances) is in line with relevant guidance relating to, forestry, agriculture, water resources, and direct discharges guidance documents. Given the location of the development, directly adjacent to a river waterbody, there is an escalated risk in terms of sensitivity.
- 10.110 The available guidance stipulates that surface water buffer zones should be prescribed to mapped surface water bodies or aquatic zones i.e. defined as a permanent or seasonal river, stream or lake shown on an Ordnance Survey 6-inch map.

10.111 The available guidance stipulates varying surface water buffer widths depending on type of activity, receptor type and sensitivity, and riparian zone characteristics including topography (steepness). Recommended surface water buffer widths range from 5 m to 50 m depending on site specific and activity specific characteristics. For the purposes of this assessment the following conservative approach has been applied (see **EIAR Volume 3: Appendix 10.8**)

- 50-meter Surface Water Buffer Zone - Mapped surface water features i.e. mapped streams, rivers, lakes. Source for mapped surface water features; EPA (2022), OSI (2022)
- 15-meter Drainage Feature Buffer Zones – Non-mapped surface drainage features i.e., streams, drainage ditches, diverted rivers, which have been identified through desk study Google Maps (20220), OSI (2022).

10.112 While buffers have been established, it is necessary to carryout works within the buffer zone. Therefore, it is essential to contain runoff using prescribed mitigation measures outlined later in this report.

Construction Phase

Earthworks Proposed Mitigation Measures

10.113 Preventing run-off is an effective method of preventing sediment pollution in the water environment. Therefore, adoption of appropriate erosion and sediment controls to manage run-off during construction is essential to prevent sediment pollution.

10.114 Mitigation measures to reduce the potential for adverse impacts arising from earth works and management of spoil include the following:

- Management of excavated material, that is: a materials management plan will be established and form part of the Construction & Environmental Management Plan (CEMP) with a view to establishing material balance during the proposed construction phase, thus minimising the potential for, or the length of time excavated materials are exposed and vulnerable to entrainment by surface water runoff.
- A full-service survey of existing drainage features should be carried out with an accompanied risk assessment for the potential receptors, prior to works commencing.
- Drainage and measures to control run-off will be employed to manage sediments prior to any works to be undertaken at the Site.
- No permanent, or semi-permanent stockpile will remain on the site during the construction phase of the Development.
- Suitable locations for temporary stockpiles will be identified on a case-by-case basis. The suitability of any particular location will consider characteristics of the proposed site including slope incline and topography, drainage networks in the vicinity and proximity to same, other relevant characteristics which are likely to

facilitate, increase, or compound the potential for entrainment by surface water runoff.

- Earthworks will be limited to seasonally dry periods and will not occur during sustained or intense rainfall events. Similarly, controls measures in preparation for and during storm events will be outlined in the SWMP, for example, pause excavation activities during storm events.
- Any permitted, exposed soils (temporary stockpiles) will be covered with plastic sheeting during all relatively heavy rainfall events and during periods where works have temporarily ceased before completion at a particular area (e.g. weekends).
- Silt fencing will be installed around the perimeter of the site at any locations where surface water is likely to run off, directly into the River Boyne. This could include the river bank, land drains, natural depressions in the soil surface, or any other geomorphological feature which might accommodate surface water run-off. The location of the silt fencing will be determined in the construction stage CEMP and is subject to a detailed assessment of the area or phase to be developed. The purpose of the silt fencing is to prevent silt leaving the site in run-off water and entering adjacent land with the potential to impact nearby watercourses. Silt fences will consist of a geotextile membrane fixed to wooden stakes approximately 600 mm high. The membrane will be anchored into the ground to form a continuous barrier with the soil surface. Silt fences will be monitored and maintained when necessary during the construction period. Maintenance will include the replacement of the geotextile when damaged and the removal of any silt build-up on the upslope side of the silt fence. Silt fences will be temporary features but will remain in place for a period following the completion of the Construction Phase.
- Construction waters will be collected and pumped to the established treatment train prior to discharging from Site, if necessary.
- Emergency contact numbers for the Local Authority Environmental Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident.
- Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same.
- The site manager will be responsible for the implementation of these measures. They will be inspected on at least a daily basis for the duration of the works, and a record of these inspections will be maintained.
- Road sweepers will be employed to clean the site access route as required. For example, any hard surface site roads will be swept to remove mud and aggregate materials from their surface.

Release of Hydrocarbons Proposed Mitigation Measures

- 10.115 To control and contain any potential hydrocarbon and other harmful substances spillage by vehicles during construction, it is recommended where possible to refuel plant equipment off the development site, thus mitigating this potential impact by avoidance.
- 10.116 Despite the management of refuelling and fuel storage, there remains the risk of leakage from vehicles and plant equipment during construction activity. Plant equipment used on site will require regular mechanical checks and audits to prevent spillage of hydrocarbons on the exposed ground (during construction). Construction plant will be routinely checked by the Contractor for signs of leaks or damage, or unsatisfactory performance. All leaks identified from plant hydraulics, brakes lines, fuel lines will be promptly repaired, and any spillages will be dealt with accordingly with spill kits.
- 10.117 The risk of water quality impacts associated with works machinery, infrastructure and on-land operations (for example leakages/spillages of fuels, oils, other chemicals and waste water) will be controlled through good site management and the adherence to codes and practice. The following measures will be implemented during construction:
- Gerry cans with proper pouring nozzles will be used to move fuel around the site for the purposes of refuelling items of small plant on site.
 - Drip trays will be used under items of small plant during refuelling or any repair works which may lead to accidental spillage of hydrocarbons.
 - Any gas bottles will be stored in a caged area at a secure location on the site.
 - Temporary oil and fuel storage tanks, if necessary, may be kept in a material storage area in suitable containers and will be stored on appropriately bunded spill pallets capable of retaining a volume of equal to or greater than 1.1 times (>110%) capacity of the containers stored on them. In the event of a filling spillage excess oil or fuel will be collected in the bund.
- 10.118 In the event of an accidental spill during the construction or operational phase of the Development, contamination occurrences will be addressed immediately, this includes the cessation of works in the area of the spillage until the issue is resolved. In this regard, appropriate spill kits must be provided across the site to deal with the event of a spillage and made available at all times. Spill kits will contain a minimum of; oil absorbent granules, oil absorbent pads, oil absorbent booms, and heavy-duty refuse bags (for collection and appropriate disposal of contaminated matter). Staff will be trained in their use and details of personnel and location and type of spill kits should be listed in the Pollution Incident Response Plan to be compiled by the Contractor. No materials contaminated or otherwise will be left on the Site. Suitable receptacles for hydrocarbon contaminated materials will also be at hand. Upon usage, spill kits must be promptly replaced.

Construction and Cementous Materials Proposed Mitigation Measures

- 10.119 Fresh concrete is very alkaline and can cause serious pollution in water bodies. It is essential to ensure that the use of wet concrete is carefully controlled so as to minimise the risk of any material entering the water.

- A washdown area will be provided on site, if necessary, for trucks to use after delivery of concrete or on return to the batching plant. This area will be adequately bunded to mitigate the risk of contaminated runoff to the site and surrounding area. Washdown runoff will be appropriately treated prior to discharge.
- Wash-out areas on site will be properly designed as an impermeable slab with a peripheral drain system.
- Wash-out of vehicles shall not be located within 10 metres of any temporary or permanent drainage features.

Wastewater or Sanitation Contaminants Proposed Mitigation Measures

10.120 During the construction phase potential contamination incidents arising from welfare facilities will be addressed in a similar manner to other contamination incidents whereby issues identified will be isolated and addressed in an efficient and timely manner.

10.121 Site welfare facilities will connect to existing foul sewer system (in consultation with and authorized by Irish Water) or use bunded porta-loos.

Operational Phase

Increased Hydraulic Loading

10.122 Consultation with the site-specific Flood Risk Assessment will need to be carried out upon its release under the scope of this Development. At this stage, it is presumed there are no proposed infilling works, and reprofiling of levels for roadways, car parks, footpaths and cycle paths are estimated to be minimum. Pending consent of the Development, during the detailed Designed Phase, proposed mitigation measures outlined below and in the Flood Risk Assessment will set out to limit surface water runoff from the new Development.

10.123 Mitigation measures for protecting the site from direct flooding can be achieved through the use of Sustainable Urban Drainage Systems which reduce the impacts of increases to hydraulic loading on or near the site. Some SuDS measures have been outlined in Table 10.13 below. These mitigation measures will be developed, modelled and tested in the form of an advance Flood Risk Assessment.

Table 10.13 – SuDS Mitigation Measures

Location and Phase of Development	Suggested Mitigation	Description / Design Considerations	Applicability
Onsite; Operational Phase and lifetime of the Development	Rainwater Harvesting & Diversion to Rain Butts or UST	Rainwater from roofs can be collected and stored (i.e. rainwater butts or underground storage tanks (UST)), which slows down the rate at which water leaves the site. There is potential to re- use this grey water for (i.e. irrigation).	Applicable, could be incorporated into the design of the proposed regeneration scheme.
Onsite; Operational Phase and lifetime of the Development	Permeable Paving	A SuDS technique that deals with storm water run-off at, or close to, the surface. In practice, rain percolates through alternative permeable material (rather than paved surfaces) such as gravel, porous asphalt, brick, which prevents water from pooling on impermeable surfaces leading to puddles and ice (seasonally) and flooding in the immediate area.	Applicable, could be incorporated in proposed amenity areas / footpaths.
Onsite; Operational Phase and lifetime of the Development	Infiltration Pits	Infiltration pits are features where stormwater runoff is stored until it gradually infiltrates through the soil of the basin floor. An overflow is required during periods of extreme rainfall, which exceeds the holding capacity of the basin (SUDS Wales, 2022)	Applicable, could be incorporated in proposed amenity areas / green spaces.
Onsite; Operational Phase and lifetime of the Development	Swales	A SuDS technique, designed as shallow, broad vegetated channels to store and/or convey runoff and remove pollutants. Can be incorporated into the design plans within the proposed 'open space', collecting and funnelling runoff from the	Applicable, could be incorporated in proposed amenity areas / green spaces.

		Development into the Infiltration Basin as a mitigation measure.	
Onsite; Operational Phase and lifetime of the Development	Infiltration Basins / Storage Ponds	A SuDS technique comprised of a vegetated low-lying area in the landscape to store runoff on the surface and infiltrate it gradually into the ground. Can be incorporated into the design plans within the proposed 'open space', storing runoff from the Development and potentially creating habitat for species/aesthetics for residents/ amenity users.	Applicable, could be incorporated in proposed amenity areas / green spaces.
Onsite; Operational Phase and lifetime of the Development	Attenuation Tank	A SuDS systems use as a holding area for stormwater runoff. The "attenuation tank" fills up during heavy rain and then discharges at a later time. This allows any Development to release water at a rate (Q_{BAR} /greenfield rate) that drains can adequately handle, thereby preventing a flood in the surrounding area.	Applicable, could be incorporated into the detailed design of the proposed regeneration scheme at construction stage.

10.124 SuDS management will need to be implemented to attenuate any increase in impermeable surfaces, to reduce the risk of surface runoff flooding, and to maintain the baseline greenfield runoff rate (Q_{BAR}). This is achievable in the form of SuDS management trains, whereby surface water is managed locally, rather than being conveyed and managed in large systems further down the catchment (McCloy and Bray, 2022).

Surface Water Contamination

10.125 Before works commence a detailed survey of surface water/storm water drainage system is required. During the construction phase of the Development, the use of oil booms and, if necessary, a silt settlement tank will reduce the risk contamination of surface water run-off.

Monitoring

10.126 Surface water monitoring is proposed during construction of the development. Surface water samples from the River Dee were collected at two locations; upstream and downstream of the Site to understand baseline conditions. This practice should be repeated regularly from the same upstream and downstream locations during the construction period. Weekly sampling is proposed, given the close proximity of works to a receptor, as well as sampling following an event such as heavy rainfall or an accidental spillage. Analysis for total suspended solids, pH and total petroleum hydrocarbons would allow for the detection of sediment loading, concrete pollution or spillages of hydrocarbons.

10.127 Appropriate parameter thresholds will be established with a view to monitoring water quality and escalating emergency responses as necessary. This will include, as a minimum:

- Total Suspended Solids (TSS) will be <25mg/L TSS
- In areas of intensive groundworks, continuous monitoring stations will be established. Data will be available to view in real time and alarms established for established parameter thresholds.

Residual Impact of the Proposed Development

10.128 Mitigation measures outlined in this report lay down the framework to reduce all identified potential impacts of the development on Hydrological and Hydrogeological receptors. The Mitigated Potential Impacts lay down the achievable benchmarks provided measures are considered and implemented adequately. These measures, in accordance with S.I. No. 296/2018 avoid and prevent what might otherwise be adverse effects on the environment of the development.

Impact	Mitigated Risk / Impact to Receptor
Release of suspended solids entrained in runoff, intercepted by surface water network.	Very Low Risk / Neutral Impact

Release of hydrocarbons in runoff, intercepted by surface water network.	Very Low Risk / Neutral Impact
Release of hydrocarbons to ground, intercepted by groundwater.	Low Risk / Neutral Impact
Release of waste water / chemicals in runoff, intercepted by surface water network.	Very Low Risk / Neutral Impact
Release of waste water / chemicals in runoff, intercepted by groundwater.	Low Risk / Neutral Impact
Release of cementitious material in runoff, intercepted by surface water network.	Very Low Risk / Neutral Impact
Reaction between concrete and surface water / runoff and concrete adversely altering surface water hydrochemistry.	Very Low Risk / Neutral Impact
Reaction between concrete and groundwater adversely altering Groundwater hydrochemistry.	Very Low Risk / Neutral Impact
Wetting – Excess discharge in a particular area (local flooding)	Very Low Risk, Neutral to Positive Impact.
Altering hydrological regime at a particular location. Potentially leading to restricting water flow and localised flood risk.	Very Low Risk / Neutral to Positive Impact
Altering hydrogeological regime at a particular location. Potentially leading to restricting groundwater flow and localised impacts to groundwater levels and flow regime.	Very Low Risk / Neutral Impact

Cumulative Impact

10.129 Water quality in Ireland is in decline, according to the EPA at least half (46%) of the surface water bodies in Ireland are not as ecologically healthy or resilient as they should be (WFD Objectives). In **Section 10.67** the 'Do Nothing Impact' includes the continued pressure on waterbodies generally. Pressures associated with a range of activities including urban, agricultural, and similar developments or construction contribute to the cumulative impact on receiving waterbodies in the catchment, therefore the cumulative impact associated with the Development must consider this, with a view to qualifying any adverse impact arising from the development as contributing to a catchment wide scenario. In turn, the mitigation measures set out in this report are objective driven with a view to minimising any adverse impact to the receiving waterbody network, and in line with WFD objectives that is; achieving and maintaining at least Good status in all

waterbodies. The WFD classification of Surface water, Groundwater and Hydrology of the site has been outlined in **Sections 10.45 – 10.49** of this Chapter.

- 10.130 With respect to hydrology, the effects of the Development are considered to contribute to the cumulative nature of adverse effects imposed on the surface water network in the catchments associated with the Development. However, considering the pre-existing “Moderate” and “Good” WFD status of the surface waters surrounding the proposed Development (**Appendix 10.6**), and the generally moderate-quality baseline water quality results outlined in **Appendix 10.9**, the potential for the Development to have adverse cumulative effects on hydrology is limited to the construction phase if prescribed mitigation measures are not adhered to.
- 10.131 Considering cumulative effects of pressures on the surface water network, if an accidental release of contaminants were to occur, there is a potential to temporarily effect surface waterbodies in the catchment, taking into account this projects works but also additional projects such as the construction of 272 no of units (Planning Ref: 22228). However, the objectives of the outlined mitigation measures in this chapter and in the Flood Risk Assessment (FRA) completed by Nicholas O’Dwyer Ltd, are to reduce any potential effect to acceptable levels. Therefore, the Development is not considered likely to significantly contribute to cumulative effects in terms of water quality nor flood risk.
- 10.132 With respect to hydrogeology, and the potential effects of the Development having been assessed as likely being to be minor and temporary, for example; in the event of a minor spill of fuel / hydrocarbons, the spill will be contained and remediated efficiently. Therefore, the development is not likely to contribute significantly to cumulative effects on groundwater quality, but the residual risk even if small in scale is important to consider in the context of the elevated sensitivity and importance of the receptor.
- 10.133 Assuming the adequate application and execution of mitigation measures, and achieving the objectives set, for example; <25mg/l Suspended Solids, the Development is not considered to potentially significantly contribute to cumulative surface water or groundwater effects.

Assessment of interactions with other EIAR Chapters

- 10.134 This Hydrology Chapter is closely linked to Geology and Ecology Chapters, cross references are included in this report where relevant. Hydrology is often dependant on the topography and geology of a site. Ecology is also closely linked due to water quality having an impact on the ecosystems and their flora and fauna.

References

- Eastern & Midland Regional Assembly (2018) Draft Regional Spatial & Economic Strategy - Regional Flood Risk Appraisal Report [Online] - Available at: <https://emra.ie/dubh/wp-content/uploads/2018/11/Draft-RSES-Regional-Flood-Risk-Appraisal.pdf> [Accessed: 27/03/2023]
- Environmental Protection Agency (EPA) (2021) EPA Water Quality Report 2016_2021 [Online] - Available at: https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/EPA_WaterQualityReport2016_2021.pdf [Accessed: 45264]

11. Air & Climate

Introduction

- 11.1 This chapter identifies and makes an assessment of the potential air quality and climate effects associated with the proposed Ardee Rural Regeneration Scheme, Co. Louth.
- 11.2 The significance of effects has been assessed in accordance with the Environmental Protection Agency (EPA) Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR), Draft, August 2017.
- 11.3 With regard to the quality of the impact, ratings may have positive, neutral or negative applications. The significance of an effect on the receiving environment is described in the range between imperceptible and profound. The duration of impacts as described in the EPA Guidelines are presented on a scale between momentary and permanent.

Statement of Authority

- 11.4 This chapter has been prepared by Erin Zhang, a senior air quality consultant at RSK Environment Limited who is a full member of the Institute of Environmental Science (MIEnvSc) and a full member of the Institute for Air Quality Management (MIAQM). Erin has seven years' experience as a project manager for air quality consultancy, modelling and monitoring, including EIAR and development planning applications. The contents of this chapter have been reviewed by Dr Srinivas Srimath, a full member of the Institute of Air Quality Management and a Chartered Environmentalist with over 30 years' experience of engineering and environmental projects relating to infrastructure development, pollution prevention and control, and air quality assessments.

Methodology

- 11.5 This air quality assessment has been prepared in the context of extensive European, national and local policy on the subject of air quality. A full review of this policy is given in **EIAR Volume 3: Appendix 11.1**.
- 11.6 The assessment addresses impacts during both the construction and operational phases of the proposed development. The approach taken for assessing the potential air quality effects of the proposed development may be summarised as follows:
- characterisation of baseline local air quality;
 - qualitative impact assessment of construction phase of the development;
 - impact assessment of air quality effects of the proposed development whilst it is operational; and
 - recommendation of mitigation measures, where appropriate, to ensure any adverse effects on air quality are minimised.
- 11.7 Climate change comprises two distinct areas:

- Climate Change Mitigation – an assessment of likely significant effects upon climate change resulting from the project and their mitigation, including an estimate of greenhouse gas (GHG) emissions; and
 - Climate Change Adaptation – an assessment of likely significant effects of climate change upon the project, including its vulnerability and the need for any adaptation measures to ensure project resilience to projected climate change scenarios.
- 11.8 The terms “carbon”, “carbon dioxide (CO₂)” and “GHG” are used interchangeably in this chapter depending on the terminology of referenced documents, etc.
- 11.9 The life cycle of the project considers construction, operation and demolition. These are assessed throughout the chapter.

Construction Phase

- 11.10 Dust and particulate matter (PM) generated during the construction phase may have the potential for an adverse effect on local air quality, and therefore this was assessed in accordance with the Institute of Air Quality Management (IAQM) construction dust guidance (IAQM, 2016).
- 11.11 In order to assess the potential effects, construction activities are divided into four types:
- demolition;
 - earthworks;
 - construction; and
 - trackout (defined as the transport of dust and dirt from the construction / demolition sites onto public road network, where it may be deposited and then re-suspended by vehicles using the network).
- 11.12 The first step is to screen the requirement for an assessment. An assessment is required where there are human and/or ecological receptors within certain distances of the site.
- 11.13 There are human receptors within 350m of the boundary of the site and within 50m of the trackout route; therefore, construction dust may have the potential to cause an adverse effect in the local area. There are no designated ecological receptors within 50m of the site boundary or 50m of the trackout route; therefore, construction dust impact on ecological receptors has been scoped out from this assessment.
- 11.14 A qualitative construction impact assessment has been conducted to assess the risk of dust impacts and determine appropriate mitigation to adequately control the risk. The level of mitigation recommended for each activity is then determined, being commensurate with the identified risk (high, medium or low risk). Mitigation is recommended for all these three risk categories as per the IAQM construction dust guidance. ‘Negligible’ is also a defined risk category, but mitigation is not required for the ‘negligible’ risk category. The IAQM construction dust guidance does not recommend

assigning the significance of construction activities without mitigation. However, in EIAR terms (and for consistency in wording and terminology for the assessment of impact significance), high, medium, low and negligible (risk) will result in a significant, moderate and slight significance levels, as shown in **Table 11.1**.

Table 11.1: Classification of significant air quality effects (construction phase)

Risk (IAQM)	Significance (EPA)
High	Significant, very significant, profound
Medium	Moderate
Low	Slight
Negligible	Not significant

- 11.15 The full construction dust assessment methodology is presented in **EIAR Volume 3: Appendix 11.2**.

Operational Phase

- 11.16 LA 105 of the Design Manual for Roads and Bridges (DMRB) was published by Highways England in November 2019 and sets out the requirements for assessing and reporting the effects of highway projects on air quality. The DMRB, on which the Transport Infrastructure Ireland (TII) guidance was based, states that road links meeting one or more of the following criteria can be defined as being 'affected' by a proposed development and should be included in the air quality assessment:

- road alignment change of 5m or more;
- daily traffic flow changes of 1,000 Annual Average Daily Traffic (AADT) or more;
- heavy Duty Vehicle (HDV) flow changes of 200 AADT or more;
- daily average speed changes of 10 km/h or more; and
- peak hour speed changes of 20 km/h or more.
- The TII guidance also states that a detailed modelling assessment will be required if:
 - concentrations exceed 90% of the air quality limit values when assessed by the screening method; or
 - sensitive receptors exist within 50m of a complex road layout (e.g. grade separated junction and hills).
- For routes which pass within 2km of a designated area of conservation (Irish or European), TII requires consultation with an Ecologist. However, in practice the

potential for impact to an ecological site is highest within 200 m of the proposed scheme and when significant changes in AADT (>5%) occur.

- 11.17 **Table 11.2** provides information for judgement of significance of air quality effects of a project as per the DMRB for nitrogen dioxide (NO₂) and PM₁₀. For consistency in wording and terminology for the assessment of impact significance, the equivalent EIAR terms are also presented.

Table 11.2: Classification of significant air quality effects (operational phase)

Magnitude of change in annual mean NO ₂ or PM ₁₀ (µg/m ³)	Magnitude (DMRB)	Significance (EPA)
>4 (>10%)	Large	Major adverse/beneficial
>2 (>5%)	Medium	Moderate adverse/beneficial
>0.4 (>1%)	Small	Minor adverse/beneficial
<0.4 (<1%)	Negligible	Negligible

- 11.18 Operational phase cumulative effects were assessed by the inclusion of assumed committed development traffic flows in both the 'Do Minimum' (DM) and 'Do Something' (DS) traffic data scenarios.

Climate

- 11.19 LA 114 Climate of the DMRB was published in 2019. The following scoping criteria are used to determine whether a detailed climate assessment is required. If any of the road links impacted by the proposed development meet or exceed the below criteria, then further assessment is required.

- A change of more than 10% in AADT.
- A change of more than 10% to the number of heavy-duty vehicles.
- A change in daily average speed of more than 20 km/hr.

Climate Change Mitigation

- 11.20 Climate mitigation assesses likely GHG emissions from the construction and operation of the proposed development, and the measures taken to mitigate these emissions. Determining the significance of climate change effects is complex given the local scale at which GHG emissions occur relative to the cumulative and global nature of climate change. This assessment estimates the development GHG emissions and compares these with the national (Irish) target. The magnitude and significance of GHG emissions are determined using the EPA and Institute of Environmental Management & Assessment (IEMA) guidance and professional judgement.

Magnitude and Significance of Effect

- 11.21 **Table 11.3** provides information for judgement of significance of GHG effects of a project. For consistency in wording and terminology for the assessment of impact significance, the equivalent EIA terms are also presented.

Table 11.3: Classification of significant GHG effects

GHG magnitude of change relative to budget	Magnitude	Significance (EPA)
>10%	Large	Major adverse/beneficial
3-10%	Medium	Moderate adverse/beneficial
1-3%	Small	Minor adverse/beneficial
<1%	Negligible	Negligible

Duration of Effect

- 11.22 Carbon dioxide equivalent (CO₂eq) is a measure used to compare the emissions from various GHGs based on the amount of CO₂ that would have the same global warming potential (GWP), when measured over a specified timescale (generally 100 years). Given this timescale and the findings of the IPCC Special Report: Global Warming of 1.5°C report that some impacts of climate change may be long-lasting or irreversible, the duration of effect is assumed to be long term and permanent.

Climate Change Adaptation

- 11.23 Climate change adaptation considers potential impacts to the construction and operation phases of the development from future changes to local climatic conditions that are projected to result from climate change. Measures to mitigate these effects are also discussed.

Baseline Environment

Air Quality

- 11.24 Existing or baseline air quality refers to the concentrations of relevant substances that are already present in ambient air. These substances are emitted by various sources, including road traffic, industrial, domestic, agricultural and natural sources.
- 11.25 The principal air quality pollutants relevant to this assessment are considered to be NO₂, PM₁₀ and PM_{2.5}, generally regarded as the three most significant air pollutants released by vehicular combustion processes, or subsequently generated by vehicle emissions in the atmosphere through chemical reactions. These pollutants are generally considered to have the greatest potential to result in human health impacts and are the substances of most concern in terms of existing levels in the area, as discussed below.
- 11.26 A desk-based study has been undertaken using data obtained from the EPA website. The Dundalk monitoring site is approximately 18km to the north-east of the development site. The Drogheda monitoring site is approximately 20km to the south-east of the development site (this site monitors PM₁₀ and PM_{2.5} but was only operational from April

2021). The Navan monitoring site is approximately 25km to the south-west of the site. Data for 2019 were not available for any of these stations (i.e. data for pre-COVID-19). The NO₂, PM₁₀ and PM_{2.5} monitoring data recorded are presented in **Table 11.4**.

Table 11.4: Annual Mean Measured Pollutant Concentrations (Source: <http://airquality.ie>)

Monitoring Site	2021 Annual mean concentrations (µg/m ³)		
	NO ₂	PM ₁₀	PM _{2.5}
Dundalk	21.7	13.4	8.1
Drogheda	-	12.1*	7.3*
Navan	11.2	12.6	-

*April 2021 – April 2022

- 11.27 No exceedances of the relevant air quality standards (AQs) were recorded at the sites in closest proximity to the site. Therefore, exceedances of the relevant AQs at the site is not expected.
- 11.28 The National Parks and Wildlife Services website (<https://www.npws.ie/>) indicates that there are no ecological designated sites is within 50m of the site boundary or potential routes along which trackout could arise.

Climate

- 11.29 Anthropogenic emissions of greenhouse gases in Ireland included in the European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC) are outlined in the most recent review by the EPA which details emissions from 1990 up to 2022 (updated July 2023) Agriculture was the largest contributor of CO₂ emissions in 2022 at 38.6%. The second largest contributor was the transport sector accounting for 19.1%. Ireland had total estimated GHG emissions of 60.76 Mt CO₂eq in 2022. This is an increase on 2019 levels which were lower due to the COVID impact on Transport and less peat used for electricity generation.
- 11.30 2020 is the eighth year where compliance with the EU 2020 Strategy is assessed. The Decision (Decision 406/2009/EC) sets 2020 targets for sectors outside of the Emissions Trading Scheme (known as ESD emissions) and annual limits. Ireland had total GHG ESD emissions of 44.38 Mt CO₂eq in 2020. This is 6.73 Mt CO₂eq higher than Ireland's annual target for emissions in 2020.
- 11.31 In terms of 2030 reduction targets the EU Effort Sharing Regulation (Regulation (EU) 2018/842) requires that Ireland reduce its non-Emissions Trading Scheme emissions by 30% on 2005 levels by 2030.
- 11.32 Ireland's GHG Emissions Projections 2020-2040 Report, published by the EPA in 2021, provides an assessment of Ireland's total projected GHG emissions which includes an assessment of progress towards achieving its emission reduction targets out to 2020 and 2030 set under the EU Effort Sharing Decision (Decision No 406/2009/EU) and Effort Sharing Regulation (Regulation (EU) 2018/842).

- 11.33 The EPA produced two scenarios in preparing these GHG emissions projections: a “With Existing Measures” scenario and a “With Additional Measures” scenario. The emissions projections and specifically the With Additional Measures scenario include the impact of new climate mitigation policies and measures that are in Ireland’s Climate Action Plan which was published in 2023.
- 11.34 Compared to the With Existing Measures scenario, the With Additional Measures scenario (which includes the impact of the 2023 Climate Action Plan) will deliver an emission savings of approximately 5.25 Mt CO₂eq per annum over the period 2026-2030. An average reduction in emissions of 8.3% per year is projected over this period.

Baseline Climate Conditions

- 11.35 The closest meteorological station to the development site is Dublin Airport. **Table 11.5** presents the average observed climate data for this site 1981 – 2010 available on the Met Eireann website (<https://www.met.ie/climate/30-year-averages>).

Table 11.5: Baseline Climatic Conditions

Month	Max. temp. (°C)	Min. temp. (°C)	Days of air frost (days)	Daily sunshine (hours)	Rainfall (mm)	Days of rainfall ≥1mm (days)	Monthly mean wind speed (knots)
January	8.1	2.4	6.4	1.9	62.6	12.0	12.5
February	8.3	2.3	6.5	2.7	48.8	10.0	12.0
March	10.2	3.4	3.8	3.5	52.7	11.0	11.6
April	12.1	4.6	2.4	5.3	54.1	10.0	9.9
May	14.8	6.9	0.3	6.2	59.5	11.0	9.2
June	17.6	9.6	0.0	5.8	66.7	10.0	8.6
July	19.5	11.7	0.0	5.3	56.2	10.0	8.7
August	19.2	11.5	0.0	5.1	73.3	11.0	8.7
September	17.0	9.8	0.0	4.3	59.5	10.0	9.2
October	13.6	7.3	0.5	3.3	79.0	11.0	10.4
November	10.3	4.5	3.0	2.4	72.9	11.0	11.0
December	8.3	2.8	6.4	1.7	72.7	12.0	11.3
Annual	13.3	6.4	29.4	3.9	758.0	129.0	10.3

Future Climate Baseline

- 11.36 Potential future baseline conditions are presented in EPA report number 339, published in 2020, High-resolution Climate Projections for Ireland – A Multi-model Ensemble Approach. The report states that mid-century mean annual temperatures are projected to increase by 1.3-1.6°C (under the pessimistic scenario) and heatwave events are

expected to increase by the middle of the century. The coldest 5% of daily minimum temperatures are projected to rise by 1–2.4°C. The frequencies of heavy precipitation events are projected to increase over the year as a whole and in the winter and autumn months, with “likely” projected increases of 5–19%. The number of extended dry periods (defined as at least 5 consecutive days for which the daily precipitation is less than 1 mm) is also projected to increase substantially by the middle of the century over the full year and for all seasons except spring. The projected increases in dry periods are largest for summer.

Sensitive Receptors

- 11.37 The UK Climate Change Risk Assessment provides guidance on potentially sensitive receptors. **Table 11.6** sets out a summary of climate change risks and opportunities relevant to the proposed development.

Table 11.6: Climate Change Risk Assessment

Climate Change Effect	Risk	Opportunity	Receptor(s)
Increase in winter mean temperature	Risk to species and habitats from changing climate space	New species colonisation and increased climate space	Habitats and species
		Improved health and wellbeing during construction	Construction employees and equipment
		Reduced energy use and GHG emissions	Energy infrastructure and climatic system
Increased summer mean and daily maximum temperature	Changing climate space	New species colonisation and increased climate space	Habitats and species
	Increased energy demand from additional cooling in buildings	-	Energy infrastructure and climatic system
	Overheating impacting health and wellbeing	-	Building occupants
	Ground movement due to ground movement and differential settlement	-	Buildings and infrastructure
Decrease in summer rainfall	Water restrictions	-	Habitats and species

	Fresh water supplies	-	Building operations
	Ground movement and differential settlement	-	Building infrastructure
Increase in winter rainfall	Increased flood risk	-	Building infrastructure and building occupants
	Ground movement and differential settlement	-	Building infrastructure

Potential Effects of the Proposed Project

Construction Phase

Potential Dust Emission Magnitude

- 11.38 With reference to the IAQM construction dust guidance outlined in **EIAR Volume 3: Appendix 11.2**, the estimation of dust emissions magnitudes (before mitigation) for earthworks, construction and trackout activities are presented in **Table 11.7**

Table 11.7: Summary of Dust Emissions Magnitudes (Before Mitigation)

Activity	IAQM Criteria	Dust Emission Magnitude
Demolition	No demolition will take place	N/A
Earthworks	Total site area where earthworks may occur is >10,000m². Soil type: soil and clay expected in the recreation and amenity sites. Some residual railroad ballast in the amenity gardens (former railway station). Recreation area with road repositioning likely to include broken asphalt and road base materials. The number of heavy earth moving vehicles active at any one time will be <5 The height of stockpiles on site will be 0-8m The total material to be moved is estimated to be <20,000 tonnes. Earthworks could potentially occur all year round	Medium
Construction	Total building volume is estimated to be <25,000m ³ .	Small

	On-site concrete batching and sandblasting are not proposed. Construction materials are expected to be potentially dusty (aggregates and soil/sand for recreation and amenity areas and concrete/mortar in street works)	
Trackout	Number of heavy vehicles per day out of the site is estimated to be <10. Haulage will take place on existing paved road network. Some temporary roads required to support recreation area development. Estimated that vehicles may travel on unpaved roads 50-100m in length. The surface type of the site has the potential to be dusty	Medium

Sensitivity of the Area

- 11.39 With reference to the IAQM construction dust guidance outlined in **EIAR Volume 3: Appendix 11.2**, the estimation of dust emissions magnitudes (before mitigation) for earthworks, construction and trackout activities are presented in **Table 11.8**.
- 11.40 As per the IAQM construction dust guidance, the sensitivity of the area takes into account a number of factors, including:
- The sensitivity of individual receptors in the area;
 - The proximity and number of those receptors;
 - For the human health assessment, the local background annual mean PM₁₀ concentration; and
 - Site specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.
- 11.41 Consideration is given to humans from the impact of the construction site boundary and routes along which HDVs may facilitate trackout. RSK anticipate that construction traffic will travel along N2 Carrick Road, N52 Dundalk Road and N2 Drogheda Road.
- 11.42 **Table 11.8** presents the determined sensitivity of the area with the factors itemised which have helped to define this.

Table 11.8: Sensitivity of the Area

Potential Impact		Demolition	Earthworks	Construction	Trackout
Dust soiling	Receptor sensitivity	N/A	High	High	High
	Number of receptors	N/A	>100	>100	10-100
	Distance from the source	N/A	<20m	<20m	<20m
	Overall Sensitivity of the Area	N/A	High	High	High
Human health	Receptor sensitivity	N/A	High	High	High
	Number of receptors	N/A	>100	>100	10-100
	Distance from the source	N/A	<20m	<20m	<20m
	Overall Sensitivity of the Area	N/A	Medium	Medium	Low
Ecological	N/A				

11.43 Construction activities are relevant up to 350m from the proposed development site boundary whereas trackout activities are only considered relevant up to 50m from the edge of the road up to 200m from the site exit (for a medium site), as per the IAQM construction dust guidance.

11.44 The National Parks and Wildlife Services website (<https://www.npws.ie/protected-sites>) was used to identify sensitive ecological receptors near the proposed development site. There are no ecologically designated sites (Special Protection Areas, Special Areas of Conservation or Natural Heritage Areas) within 50 m of the site boundary or potential routes along which trackout could arise.

11.45 Human receptors were identified within 350m of the proposed development site boundary by making reference to online publicly available satellite imagery.

Risk of Impacts

11.46 The dust emission magnitude summarised in **Table 11.7** has been combined with the sensitivity of the area in **Table 11.8** to determine the risk of impacts of construction activities before mitigation. These have been evaluated based on risk categories of each activity in **EIAR Volume 3: Appendix 11.2**.

11.47 The risk of dust impacts from construction activities is identified as ranging between low and medium risk, as is shown in **Table 11.9**. Mitigation measures to reduce construction phase impacts are defined based on this assessment.

Table 11.9: Summary of Dust Risk from Construction Activities

Potential Impact	Dust Risk Impact			
	Demolition	Earthworks	Construction	Trackout
Dust soiling	N/A	Medium risk	Low risk	Medium risk
Human health	N/A	Medium risk	Low risk	Low risk
Ecological	N/A			

Exhaust Emissions from Plant and Vehicles

- 11.48 The estimated number of employee trips and construction vehicle movements generated by the proposed development is low compared to vehicular trips generated by the proposed development during the operational phase. The number of HDV movements associated with the application site has been estimated to be <10 HDV movements per day during the busiest phase of the construction period. Therefore, the short-term increase in HDVs and employee trips moving to and from site is considered not significant.
- 11.49 The operation of site equipment and machinery will result in emissions to atmosphere of exhaust gases, but with suitable controls and site management such emissions are considered short-term and not significant (as per Defra's Local Air Quality Management Technical Guidance).

Operational Phase

- 11.50 The transport consultants for the scheme, Hegsons Design Consultancy Limited, provided RSK with predicted traffic data for the opening year 2027 and advised that no new traffic generators are being proposed by the scheme, therefore, the proposed development will not bring additional traffic to the area. Furthermore, traffic numbers are anticipated to decline in the next several years with the development, as the scheme is set to encourage active transport and improve travel networks.
- 11.51 In terms of the projected speed limits, it is understood that speed limits along the main road (N2 Castle Street, Ardee Town Centre) will be reduced from 50kph to 30kph. Using the DMRB Screening Method tool (see input and output examples in **EIAR Volume 3: Appendix 11.4**), pollution concentrations were predicted at three receptors along N2. Receptors were chosen at junctions to Tiereny Street, Jervis Street and O'Carroll's Street. For a conservative estimate, background concentrations at the site were assumed to be similar to the Dundalk (Station 23) monitoring site. The annual average modelled road contribution NO_x concentrations were converted into annual average road NO₂ by using the Defra NO_x to NO₂ spreadsheet (v8.1) (using Armagh, Banbridge and Craigavon as per TII guidance). As the opening year 2027 traffic emission factor is not available within the DMRB spreadsheet, the most recent assessment year of 2025 was used as a conservative approach. **Table 11.10** presents the results of the screening DS scenario.

Table 11.10: Predicted NO₂ and PM₁₀ Concentrations

Receptor	NO ₂				PM ₁₀			
	DN (µg/m ³)	DS (µg/m ³)	Change (µg/m ³)	Magnitude	DN (µg/m ³)	DS (µg/m ³)	Change (µg/m ³)	Magnitude
Castle St town centre and O'Carroll's St	22.78	23.79	1.01	Small	14.97	15.32	0.35	Negligible
N52 Jervis St and N2 Castle St	25.15	26.13	0.98	small	15.29	15.64	0.35	Negligible
N2 Castle St and Tiereny St	20.61	21.63	1.02	small	14.62	14.97	0.35	Negligible

- 11.52 As per **Table 11.10**, the predicted development is considered to have a negligible magnitude impact on all receptors for NO₂ and PM₁₀ when considering the national AQS. As concentrations at the site as well below the relevant AQSs, a detailed air quality modelling assessment is not considered to be required.

Potential Climate Effects

Construction Phase

- 11.53 GHG emissions will be generated during the construction of the development from various activities, such as during the combustion of fossil fuels by construction plant and vehicles, the generation of consumed mains electricity, the manufacturing of construction materials and the transport to / from site of workers, materials and wastes.
- 11.54 For both the construction and operational stage when considering mitigation and residual effects, IEMA recommends use of the GHG Mitigation Hierarchy which provides a structure for mitigating GHG emissions, as follows:
- Avoid – Investigate and deploy options to eliminate GHG emissions.
 - Reduce – Ensure that construction and operational activities will deliver efficient use of energy and resources.
 - Substitute – Commit to deploying renewables and low carbon materials, methods and technologies in place of more carbon intensive sources.
 - Compensate – Develop a strategy to compensate for residual or unavoidable emissions.

- 11.55 In 2017 RICS published 'Whole life carbon assessment for the built environment' guidance which provides a benchmark factor for estimating average building construction site GHG emissions where more specific information is not available (as typically the case at this planning stage prior to detailed design).
- 11.56 As presented in **Table 11.11**, this factor (1,400 kgCO₂eq per £100k project value) has been applied to the project value (€6,267,118.80 or approximately £5,595,628.36) to estimate total construction site GHG emissions as 78.34 tCO₂eq.

Table 11.11: Estimated Construction Site GHG Emissions

Parameter	Value
Estimate project value	£5,595,628.36
RICS construction emissions factor	1,400 kgCO ₂ eq/£100k
Estimated construction site emissions	78.34 tCO ₂ eq

- 11.57 In 2014 RICS published 'Methodology to calculate embodied carbon of materials' guidance which provides benchmark estimates of embodied carbon associated with construction materials for different building types. There will be one mix-use building located on the Amenity lands. This will include changing rooms and other general-purpose rooms. The benchmark for 'Mixed use city block (ground floor commercial, offices, leisure)' is 840 kgCO₂eq/sqm. As presented in **Table 11.12**, this benchmark has been applied to the estimated development floor area (336 m²) to estimate the embodied carbon associated with the development as 282.24 tCO₂eq.

Table 11.12: Estimated Embodied Carbon

Parameter	Value
Estimated development floor area	336 m ²
RICS embodied carbon factors	840 kgCO ₂ eq/sqm – mixed use city block (ground floor commercial, offices, leisure)
Estimated embodied carbon	282.24 tCO ₂ eq

- 11.58 **Table 11.13** presents the total estimated construction phase GHG emissions.

Table 11.13: Total and Annual Construction Phase GHG Emissions

Parameter	Value
Total Construction Phase GHG Emissions	360.58 tCO ₂ eq
Average Annual Construction Phase GHG Emissions	72.12 tCO ₂ eq

- 11.59 The construction period is likely to be approximately 5 years. Therefore, the estimated average annual construction phase GHG emissions are 72.12 tCO₂eq. This is 0.0002% of Ireland's 2020 target (37,651 kt CO₂eq) and 0.0002% of the 2030 target (32,860 kt CO₂eq) and therefore, construction phase GHG emissions are considered negligible and not significant. As per the DMRB climate guidance, further assessment of the construction phase climate impacts is not required.

Operational Phase

- 11.60 The operation of the development is assumed to produce zero GHG emissions as there will be no energy demand.
- 11.61 The impact of the proposed development traffic emissions of CO₂ were assessed using the DMRB screening model (see **Table 11.14**). The results show that the impact of the proposed development will be to increase CO₂ emissions by ≤0.001% of Ireland's EU 2020 and 2030 emissions targets for CO₂. Therefore, the impact of the proposed development on national GHG emissions is not significant in terms of Ireland's obligations under the EU 2020 target.

Table 11.14: Predicted CO₂ Concentrations

CO ₂			
DN (tonnes/annum)	DS (tonnes/annum)	Change (tonnes/annum)	Magnitude and significance
219	277	58	0.000002% (2020 target, negligible, not significant)
			0.000002% (2030 target, negligible, not significant)
Ireland's 2020 emissions target			37,651 kilotonnes/annum
Ireland's 2030 emissions target			32,860 kilotonnes/annum

- 11.62 The likely overall magnitude of the changes on climate is negative, not significant and long-term.

Mitigation Measures

Construction Phase

Fugitive Dust Emissions

- 11.63 The traffic effects of the proposed development during the construction phase will be limited to a relatively short period and will be along traffic routes employed by haulage/construction vehicles and workers. Any effects on air quality will be temporary i.e. during the construction period only and can be suitably controlled by the employment of mitigation measures (described below) and appropriate to the development project, including a construction logistics plan, and are therefore unlikely to materially impact on local air quality.
- 11.64 The dust emitting activities outlined in **Table 11.9** can be effectively controlled by appropriate dust control measures (described below) and any adverse effects can be greatly reduced or eliminated.
- 11.65 Prior to commencement of construction activities, it is anticipated that an agreement on the scope of a Dust Management Plan for the construction phase will be reached with the local authority to ensure that the potential for adverse environmental effects on local receptors is minimised. The Dust Management Plan should include inter alia, measures for controlling dust and general pollution from site construction operations, and include details of any monitoring scheme, if appropriate. Controls should be applied throughout the construction period to ensure that emissions are mitigated.
- 11.66 The dust risk categories identified have been used to define appropriate, site-specific mitigation methods. Site-specific mitigation measures are divided into general measures, applicable to all sites and measures specific to demolition, earthworks, construction and trackout. Depending on the level of risk assigned to each site, different mitigation is assigned. The method of assigning mitigation measures as detailed in the IAQM construction dust guidance has been used.
- 11.67 In this case, the 'medium risk' site mitigation measures have been applied, as determined by the dust risk assessment. For those mitigation measures that are general, the highest risk assessed has been applied. Two categories of mitigation measure are described in the IAQM construction dust guidance – 'highly recommended' and '*desirable*', which are indicated according to the dust risk level identified in **Table 11.9**.
- 11.68 The mitigation measures described below will be used to control potential fugitive emissions from the construction project. Therefore, the measures listed below, whether cited as 'highly recommended' or '*desirable*' in the IAQM construction dust guidance, should be applied on/around site.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.

- Display the name and contact details of people accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.

Dust Management

- Develop and implement a Dust Management Plan, which may include measures to control other emissions, to be approved by the Local Authority. The level of detail will depend on the risk and should include at a minimum the highly recommended measures. The desirable measures should be included as appropriate for the site. The Construction Environmental Management Plan may include monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/ or visual inspections.

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off site and the action taken to resolve the situation in the logbook.

Monitoring

- Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary.
- Carry out regular site inspections to monitor compliance with the dust management plan, record inspection results, and make an inspection log available to the local authority when asked.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations and duration (including baseline monitoring) with the local authority.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.

- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicles/Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15kph on surfaced and 10kph on unsurfaced haul roads and work areas.
- Produce a construction logistics plan to manage the sustainable delivery of goods and materials.
- *Implement a travel plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).*

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- No bonfires or burning of waste material.

Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate to cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.

Specific to Construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

Specific to Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.
- Avoid any dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site logbook.
- Install hard surfaced haul route, which are regularly cleaned and damped down with fixed or mobile sprinkler systems, or mobile water bowsers.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

Exhaust Emissions from Plant and Vehicles

- The traffic effects of the proposed development during the construction phase will be limited to a relatively short period and will be along traffic routes employed by haulage/construction vehicles and workers. Any effects on air quality will be temporary i.e. during the construction period only and can be suitably controlled by the employment of mitigation measures and appropriate to the development project, including a construction logistics plan, and are therefore unlikely to materially impact on local air quality.

- Any emissions from non-road mobile machinery (NRMM) can be reduced by ensuring that any plant used on-site comply with the NO_x, particulate matter and carbon monoxide emissions standards specified in the EU Directive 97/68/EC and subsequent amendments as a minimum, where they have net power of between 37kW and 560kW. The emissions standards vary depending on the net power the engine produces. The Construction Environmental Management Plan will include these emissions controls.

Operational Phase

- 11.69 It is considered unlikely that the development would introduce additional sensitive receptors into an area of known poor air quality and the development is not anticipated to have a significant impact on local air quality. Therefore, no specific operational phase mitigation measure is considered to be required.

Climate

- 11.70 The Construction Environment Management Plan should set out measures to mitigate the potential impacts of climate change during construction. Such as measures related to increased flood risk, overheating risks to construction employees and equipment, potential for water shortages and dust mitigation.

Residual Effects

Construction Phase

- 11.71 All construction effects were assessed to be not significant provided that appropriate dust control and construction phase mitigation measures are applied as listed in the mitigation measures section. During the construction phase, potential climate change effects are considered likely to be appropriately mitigated and not significant. Residual effects are therefore also not significant with suitable mitigation measures in place.

Operational Phase

- 11.72 The development is not anticipated to have a significant impact on local air quality, and the residual impacts of the development on air quality whilst it is in operation are likely to be acceptable. During the operational phase, potential climate change effects are considered likely to be not significant.

Monitoring

- 11.73 The appointed contractor will be required to monitor levels of dust during critical construction periods at nearby sensitive locations and/or development site boundaries. No additional monitoring is proposed for the operational phase of the proposed development.

Reinstatement

- 11.74 Not applicable.

Interactions

- 11.75 Relevant interactions considered within this EIAR are summarised below. These include interactions between: Population and Human Health; Traffic & Transportation; and Biodiversity.

Population and human health

- 11.76 The proposed scheme has the potential to create impacts relevant to dust nuisance during construction and vehicular emissions during both the construction and operational phase.

Traffic & Transportation & Material Assets

- 11.77 The proposed scheme has the potential to increase traffic related emissions from moving construction materials to and from site during the construction phase and contribute to congestion within the local road network.
- 11.78 Any additional traffic as a result of attracting visitors to the development has the potential to increase traffic related emissions during the operational phase.

Biodiversity

- 11.79 The proposed scheme also has the potential to create temporary impacts on local biodiversity in the area during the construction phase if the recommendations in the CEMP are not followed.

Cumulative Effects

Construction Phase

- 11.80 The phasing/commencement of any other permitted developments in the locality could potentially result in the scenario where a number of other construction sites are in operation at the same time as the proposed development. However, all permitted developments are expected to agree and follow site specific Construction Environmental Management Plans or Dust Management Plans and Construction Traffic Management Plans that will adequately control emissions from construction. Therefore, cumulative construction phase effects are considered to be not significant.

Operational Phase

- 11.81 As per construction phase impacts, any other permitted developments are expected to follow best practice mitigation measures to minimise emissions to air. Therefore, significant GHG emissions and exceedance of the relevant AQs is considered unlikely and cumulative operational phase effects are considered not significant.

Difficulties Encountered in Compiling the Chapter

- 11.82 No site-specific air quality monitoring was carried out and it was assumed that the monitoring data available from the EPA website was representative of the site; and some of the specific details of the construction phase of the development are not available at this stage. Therefore, the construction phase assessment has been conducted using professional judgement and experience of similar sized projects.

References

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12. Noise & Vibration

Introduction

- 12.1 This chapter considers the environmental impacts of proposed development with respect to noise and vibration.

Statement of Authority

- 12.2 This chapter has been prepared by Aarron Hamilton and James Mangan of RSK.
- 12.3 Aarron is an Acoustic Consultant with RSK Ireland Ltd. Aarron has been working in the field of Acoustics since 2019, he is an associate member of the Institute of Acoustics (AMIOA) and has completed the IOA Diploma in Acoustics and Noise Control from UL (Liverpool). He has extensive knowledge in aspects of environmental noise monitoring, analysis, impact assessment and reporting and has prepared environmental impact assessments reports for various developments.
- 12.4 James is Associate Director with RSK Ireland Ltd. and has been working in the field of Acoustics since 2001, he is a corporate member of the Institute of Acoustics (MIOA) and has completed the IOA Diploma in Acoustics and Noise Control from UWE (Bristol). He has extensive knowledge in aspects of environmental noise monitoring, analysis, impact assessment and reporting and has prepared environmental impact assessments reports for various major developments. James is the current Chairman of the Irish Branch of the Institute of Acoustics.

Background

- 12.5 This chapter includes a description of the receiving ambient noise climate in the vicinity of the subject site, an assessment of the potential noise and vibration impact associated with the proposed development during both the short-term construction phase and the long-term operational phase on its surrounding environment. The assessment of direct, indirect and cumulative noise and vibration impacts on the surrounding environment have been considered as part of the assessment.
- 12.6 During the construction phase, the range of activities with potential to generate noise and vibration emissions to off-site sensitive receptors will include site preparation works, construction of the proposed development, landscaping and erection of any temporary buildings/compounds that may be required.
- 12.7 During the operational phase, the potential sources of noise are those associated with any required mechanical plant, additional vehicular traffic on public roads, noise from recreational activity and car parking.
- 12.8 The significance of impacts has been assessed in accordance with the EPA *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EIAR), 2022.

- 12.9 With regard to the quality of the impact, ratings may have positive, neutral or negative applications. The significance of an impact on the receiving environment is described in the range between imperceptible and profound. The duration of impacts as described in the EPA Guidelines are presented on a scale between momentary and permanent.
- 12.10 Noise and vibration emissions from the development will vary in terms of quality, duration and magnitude. The following sections analyse the expected construction and operational phase noise and vibration impacts both in terms of the proposed assessment criteria and the expected impacts in terms of the significant effects.

Consultation

- 12.11 Consultation between RSK and other members of the project team was made in order to obtain information relating to the nature, scale and location of the proposed development in order to assess the potential construction and operational phase noise and vibration impacts.

Methodology

- A review of relevant standards and guidelines has been conducted to set noise and vibration criteria for the developments' construction and operational phases;
 - Baseline noise monitoring has been undertaken to characterise the receiving noise environment;
 - Predictive calculations have estimated the likely noise emissions during the construction phase at nearest sensitive locations (referred to as NSL's from hereon, outlined in ref. Figure 10.1);
 - Predictive calculations have assessed potential impacts associated with the developments' operation at NSL's surrounding the development; and
 - A schedule of mitigation measures has been proposed to reduce potential impacts relating to noise and vibration to and from the proposed development.
- 12.12 Relevant noise & vibration criteria for the developments' construction and operational phases, along with the methodology for conducting baseline noise surveys, have been outlined below.

Construction Phase Noise

- 12.13 The closest neighbouring NSL's to the proposed development are a number of residential dwellings which surround the site at various points. The distance between the construction site and nearby NSL's varies, the closest distance between the site and neighbouring dwelling will be approximately 10 metres but generally construction works will occur between 15 and 100 metres from existing dwellings, depending on the location where specific works are occurring.
- 12.14 There are no statutory limits with respect to construction noise in Ireland, additionally, limits for construction noise are not outlined in Louth County Council's (LCC) Noise Action Plan 2018 to 2023 (NAP). However, the LCC NAP, Section 2 "Existing Noise

Management Legislation and Guidance” provides an overview of existing noise management legislation, regulations and guidance in Ireland and regional scale. Section 2.1.4 states the following in relation to construction noise:

“The National Roads Authority (NRA) (now Transport Infrastructure Ireland TII) has published the document “Guidelines for the Treatment of Noise and Vibration in National Road Schemes”, which sets out the procedure to be followed in respect of the planning and design of national road schemes. These guidelines specify design goals for noise associated with the construction and operation of new national road schemes”.

- 12.15 The TII overall acceptable levels of construction noise, which should not be exceeded at noise sensitive locations during the construction phase of a development, are set out in **Table 12.1**.

Table 12.1: TII Maximum Permissible Noise Levels at the Facade of Dwellings during Construction

Days and Times	Noise Levels (dB re. 2×10^{-5} Pa)	
	$L_{Aeq(1hr)}$	L_{Amax}
Monday to Friday 07:00 to 19:00hrs	70	80
Monday to Friday 19:00 to 22:00hrs	60*	65*
Saturdays 08:00 to 16:30hrs	65	75
Sundays & Bank Holidays 08:00 to 16:30hrs	60*	65*

Note* Construction activity at these times, other than that required for emergency works, will normally require the explicit permission of the relevant local authority.

- 12.16 BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites* is also considered to represent industry standard methodologies for the assessment of construction noise and describes two methods for deriving noise significance thresholds for construction sites.
- 12.17 BS 5228:2009+A1:2014 (Appendix E.1) describes a method for identifying ‘Potential significance based upon noise change’. Following this methodology, BS 5228:2009+A1:2014 designates a noise sensitive location (NSL) into a specific category based on pre-existing ambient noise levels and then sets a threshold noise value that, if exceeded, indicates a significant construction noise impact.
- 12.18 **Table 12.2** presents the threshold values for significant noise impacts for weekday daytime and Saturday morning activity.

Table 12.2: BS5228 Construction Noise Thresholds for Significant Effects

Assessment category and threshold value period (L_{Aeq})	Threshold value, in decibels (dB)		
	Category A ^A	Category B ^B	Category C ^C
Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)	65	70	75

A. Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values.

B. Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values.

C. Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values.

D. 19:00 – 23:00 weekdays, 13:00 – 23:00 Saturdays and 07:00 – 23:00 Sundays.

12.19 Annex E.2 of BS 5228-1:2009+A1:2014 also provides the following comments in relation to ‘Potential significance based on fixed noise limits’:

- “Noise from construction and demolition sites should not exceed the level at which conversation in the nearest building would be difficult with the windows shut. The noise can be measured with a simple sound level meter, as we hear it, in A-weighted decibels (dB(A))– see note below. Noise levels, between say 07.00 and 19.00 hours, outside the nearest window of the occupied room closest to the site boundary should not exceed:*

 - 70 decibels (dBA) in rural, suburban and urban areas away from main road traffic and industrial noise;*
 - 75 decibels (dBA) in urban areas near main roads in heavy industrial areas”.*

12.20 These limits are for daytime working outside living rooms and offices. In noise-sensitive situations, for example, near hospitals and educational establishments – and when working outside the normal hours say between 19.00 and 22.00 hours – the allowable noise levels from building sites will be less: such as the reduced values given in the contract specification or as advised by the Environmental Health Officer (a reduction of 10 dB(A) may often be appropriate). Noisy work likely to cause annoyance locally should not be permitted between 22.00 hours and 07.00 hours.”

12.21 Taking account of the measured ambient noise levels, Local Authority recommendations and BS5228 significance thresholds, the recommended noise limits for construction activity are as follows:

- Monday to Friday 07.00 – 19.00 70 dB $L_{Aeq,11hr}$
- Saturday 08.00 – 13.00 70 dB $L_{Aeq,6hr}$

- 12.22 It is assumed that construction works will take place during normal working hours only.

Construction Phase Vibration

- 12.23 Following the same approach, BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Vibration recommends that, for soundly constructed residential property and similar structures that are generally in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak component particle velocity (in frequency range of predominant pulse) of 15mm/s at 4Hz increasing to 20mm/s at 15Hz and 50mm/s at 40Hz and above.
- 12.24 The standard also notes that below 12.5 mm/s PPV the risk of damage tends to zero. The recommended construction vibration criteria are presented in **Table 12.3**.

Table 12.3: Vibration Criteria During Construction Phase

Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of:-		
Less than 15Hz	15 to 40Hz	40Hz and above
15 mm/s	20 mm/s	50 mms

Operational Phase Noise

Industrial / Commercial Plant Noise

- 12.25 Reference is made to British Standard BS4142:2014+A1: 2019: '*Methods for Rating and Assessing Industrial and Commercial Sound*' (BS 4142) in setting criteria for any new mechanical plant items. This standard outlines methods for analysing plant sound emissions to residential receptors. BS 4142 is widely considered the 'industry standard' methodology for the assessment of industrial noise in Ireland.
- 12.26 BS 4142 describes methods for rating and assessing sound of an industrial and/or commercial nature, using outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling upon which the sound is incident.
- 12.27 The BS 4142 assessment methodology compares the measured external background sound level (in the absence of plant items) to the rating sound level, of the plant items, when operational. Where sound emissions are found to be tonal, impulsive, intermittent or to have other sound characteristics that are readily distinctive against the residual acoustic environment, BS4142:2014 advises that penalties be applied to the specific level to arrive at the rating level.
- 12.28 Based upon measured day and night-time background sound levels on the site, appropriate plant noise criteria to nearby dwellings are as follows:

- Daytime (07:00 to 23:00hrs) 50 dB L_{Aeq,1hr}
- Night-time (23:00 to 07:00hrs) 40 dB L_{Aeq,15-min}

- 12.29 Plant noise emissions should not contain any characteristics that would warrant any acoustic feature penalties under the BS 4142:2014 assessment procedure.

Additional Road Traffic on Public Roads

- 12.30 The potential noise impact associated with the proposed development introducing additional traffic onto the existing road networks has been considered. **Table 12.4** states the likely impact associated with any particular change in traffic noise level (Source DMRB, 2012).

Table 12.4: DMRB impact associated with change in traffic noise level (long term)

Noise Change (dB _{LA10,18hr})	Magnitude of Impact
0	No Change
0.1 - 2.9	Negligible
3 - 4.9	Minor
5 - 9.9	Moderate
10+	Major

- 12.31 **Table 12.4** has presented the DMRB (2012) likely impacts associated with long-term change in traffic noise level, the corresponding significance of impact presented in the 'EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)' is presented in **Table 12.5** for consistency in wording and terminology for the assessment of impact significance.

Table 12.5: DMRB impact associated with change in traffic noise level (Updated)

Noise Change (dB _{LA10,18hr})	Magnitude of Impact	Impact Guidelines on the Information to be contained in EIAR (EPA)
0	No Change	Imperceptible
0.1 - 2.9	Negligible	Not Significant
3 - 4.9	Minor	Slight
5 - 9.9	Moderate	Moderate
10+	Major	Significant, Very Significant, Profound

Other Noise Sources

- 12.32 For any other non-traffic or plant related sources appropriate guidance on internal noise levels for dwellings is contained within BS 8233: 2014: *Guidance on Sound Insulation and Noise Reduction for Buildings*. This British Standard sets out recommended noise limits for indoor ambient noise levels in dwellings as summarised in **Table 12.6**.

Table 12.6: Recommended Indoor Ambient Noise Levels from BS 8233: 2014

Typical Situation	Daytime $L_{Aeq,16hr}$ (07:00 to 23:00hrs)	Night-time $L_{Aeq, 8hr}$ (23:00 to 07:00hrs)
Living / Dining Rooms	35 - 40	n/a
Bedrooms	35	30

12.33 External limits can be derived from the internal criteria in Table 10.6 by factoring the noise reduction afforded by a partially open window. BS8233:2014 states a typical 15dB attenuation. Using this correction value across a partially open window, the following external noise levels would result in appropriate internal noise levels within nearby NSL's.

- Daytime (07:00 to 23:00hrs) 50 - 55 dB $L_{Aeq,1hr}$
- Night-time (23:00 to 07:00hrs) 45 dB $L_{Aeq,15-min}$

Operational Phase Vibration

12.34 Guidance as to an acceptable magnitude of vibration during the operational phase of the development is best taken from British Standard BS 6472 (1992): *Guide to Evaluation of human exposure to vibration in buildings (1Hz to 80Hz)*. The Standard contains recommendations that continuous vibration in residential buildings should not exceed nominally 0.3mm/s by daytime and 0.2mm/s by night-time.

12.35 No significant sources of vibration are expected to arise during the operational phase of the development. Operational vibration has therefore not been addressed further in this chapter.

Receiving Environment

12.36 A baseline noise survey has been undertaken as part of the planning application prepared for the proposed development.

12.37 The survey was conducted in general accordance with ISO 1996-2:2017 *Acoustics -- Description, measurement and assessment of environmental noise -- Part 2: Determination of sound pressure levels*. Specific details are set out in the following sections.

Choice of Measurement Locations

12.38 Five Noise Monitoring Locations (NML's) surrounding the site were selected for the noise survey; each of these locations are described in turn below.

- NML1: Along the Tierney Street Road to the east of the site, immediately adjacent to the Ardee Water Treatment Plant.

- NML2: Further west along Tierney Street close to the River Dee and residential receptors.
- NML3: On Castle Street near Ardee Castle, this is a busy road for traffic.
- NML4: To the southwest of the site next to the River Dee.
- NML5: To the northeast of the site next to St Josephs Hospital.

12.39 The position of each noise measurement location in relation to the site boundary are identified in **Figure 12.1**.

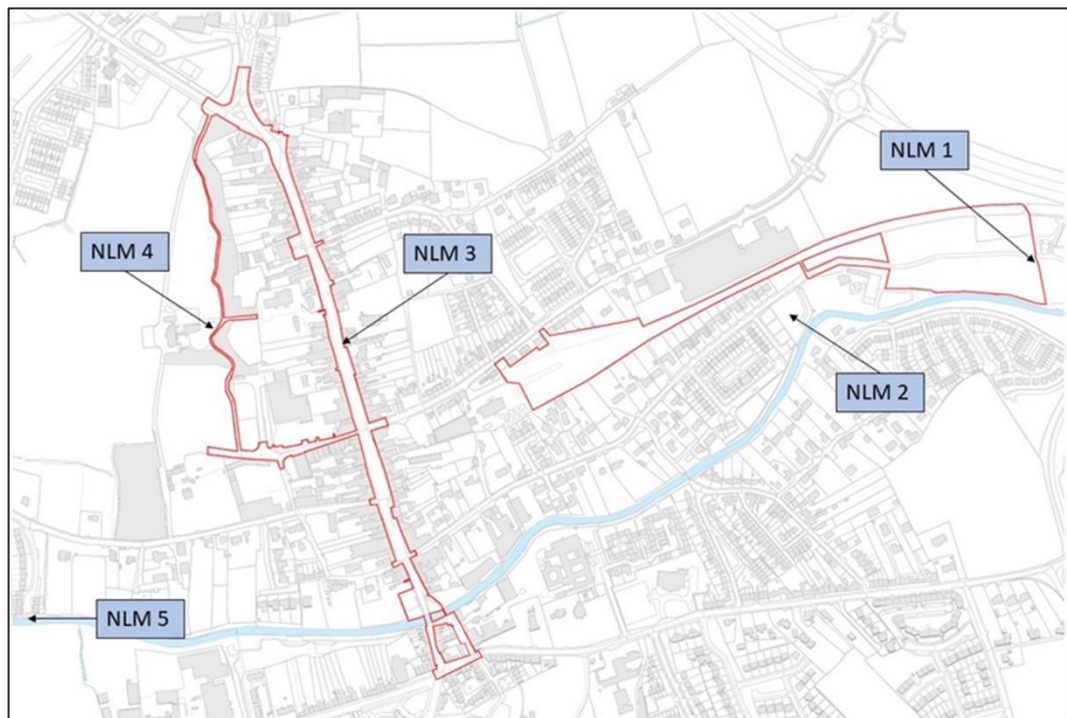


Figure 12.1: Site Location Plan Indicating Baseline Noise Monitoring Locations

Survey Periods

- 12.40 Daytime attended noise measurements were conducted between 12:09 to 15:06 on 14 April 2022. Further measurements were conducted between 14:08 and 15:22 on 21 April 2022.
- 12.41 The weather during the daytime survey was dry and calm with temperatures in the range 10 to 14 degrees, wind speeds of <4 m/s in a South Easterly direction.
- 12.42 Unattended measurements were conducted for a period of 7 days at one location (NML1) between 14 and 21 April 2022.

Instrumentation

- 12.43 Measurements were made using a Rion NL 52 Sound Level Meter and an LXT Sound Level Meter. Sample periods were 15-minute log periods. The instrumentation was calibrated using a Rion calibrator and all equipment is laboratory calibrated. Calibration certificates are available on request.

Measurement Parameters

12.44 The noise survey results are presented in decibels (dB), using the following parameters:

- (i) $L_{Aeq,T}$ is the equivalent continuous sound level and is used to describe a fluctuating sound as a single value over the sample period (T).
- (ii) $L_{AFmax,T}$ The maximum A-weighted sound pressure level occurring within a specified time period (T). Measured using the “Fast” time weighting.
- (iii) $L_{AF10,T}$ Refers to those A-weighted noise levels in the top 10 percentile of the sampling interval; it is the level which is exceeded for 10% of the measurement period (T). It is used to determine the intermittent high noise level features of locally generated noise and usually gives an indicator of the level of road traffic. Measured using the “Fast” time weighting.
- (iv) $L_{AF90,T}$ Refers to those A-weighted noise levels in the lower 90 percentile of the sampling interval (T). It is the level which is exceeded for 90% of the measurement period. It will therefore exclude the intermittent features of traffic and is used to describe a background level without contribution from intermittent sources. Measured using the “Fast” time weighting.

12.45 All sound levels in this report are expressed in terms of decibels (dB) relative to 2×10^{-5} Pa.

Baseline Noise Survey Results

Location NML1

12.46 An unattended baseline noise survey was undertaken for a 7-day period at location NML1. **Table 12.7** presents a summary of the average day/evening time (i.e. 07:00 to 23:00) and night-time (i.e. 23:00 to 07:00hrs) noise levels measured at Location N1.

Table 12.7: Summary of Measured Baseline Noise Levels at Location NML2

Day / Date	Period	Measured Noise Levels (dB re. 2×10^{-5} Pa)			
		$L_{Aeq,T}$	$L_{Amax,T}$	$L_{A10,T}$	$L_{A90,T}$
Thu 14 April 2022	Day / Eve	53	81	54	48
Thu/Fri 14 - 15 April 2022	Night	50	76	53	39
Fri 15 April 2022	Day / Eve	54	95	55	49
Fri/Sat 15 - 16 April 2022	Night	48	74	51	39
Sat 16 April 2022	Day / Eve	52	80	54	46
Sat/Sun 16 - 17 April 2022	Night	48	77	50	39
Sun 17 April 2022	Day / Eve	53	93	53	45

Sun/Mon 17 – 18 April 2022	Night	46	66	49	39
Mon 18 April 2022	Day / Eve	51	88	53	46
Mon/Tue 18 - 19 April 2022	Night	48	74	50	40
Tue 19 April 2022	Day / Eve	54	83	56	48
Tue/Wed 19 - 20 April 2022	Night	50	71	52	40
Wed 20 April 2022	Day / Eve	57	86	59	51
Wed/Thu 20 - 21 April 2022	Night	52	71	55	40
Thu 21 April 2022	Day	59	80	62	55

12.47 Figure 12.2 shows a graphical representation of the measured baseline noise levels over the survey period.

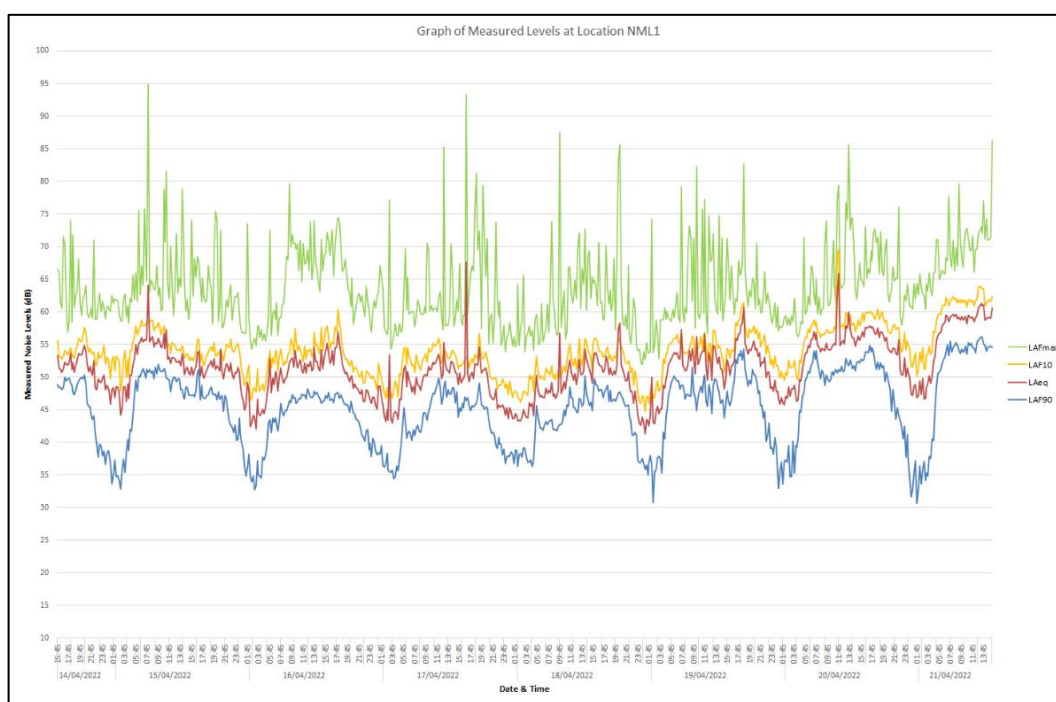


Figure 12.2: Summary of Measured Baseline Noise Levels at Location NML1

Location NML2

12.48 **Table 12.8** presents a summary of the attended daytime (i.e. 07:00 to 23:00) noise levels measured at Location NML2.

Table 12.8: Summary of Measured Baseline Noise Levels at Location NML2

Date and Start Time	Measured Noise Levels (dB re. 2×10^{-5} Pa)			
	$L_{Aeq,15min}$	$L_{Amax,15min}$	$L_{A10,15min}$	$L_{A90,15min}$
14 April 2022 at 14:51	49	68	52	42

21 April 2022 at 14:27	51	70	53	47
21 April 2022 at 15:07	51	72	53	47

12.49 During the noise survey, the dominant noise sources were noted to be from distant and occasional local road traffic, birdsong and occasional pedestrian activity.

12.50 Daytime ambient noise levels were in the range 49 to 51 dB $L_{Aeq,15min}$. The daytime background noise was in the range 42 to 47 dB $L_{A90,15min}$.

Location NML3

12.51 **Table 12.9** presents a summary of the attended daytime (i.e. 07:00 to 23:00) noise levels measured at Location NML3.

Table 12.9: Summary of Measured Baseline Noise Levels at Location NML3

Date and Start Time	Measured Noise Levels (dB re. 2×10^{-5} Pa)			
	$L_{Aeq,15min}$	$L_{Amax,15min}$	$L_{A10,15min}$	$L_{A90,15min}$
14 April 2022 at 14:17	68	85	71	62
21 April 2022 at 14:08	66	83	69	59
21 April 2022 at 14:48	69	102	69	59

12.52 During the noise survey, the dominant noise sources were noted to be from distant road traffic, car parking activities, birdsong and occasional pedestrian activity.

12.53 Daytime ambient noise levels were in the range 68 to 69 dB $L_{Aeq,15min}$. The daytime background noise was in the range 59 to 62 dB $L_{A90,15min}$.

Location NML4

12.54 **Table 12.10** presents a summary of the attended daytime (i.e. 07:00 to 23:00) noise levels measured at Location NML4.

Table 12.10: Summary of Measured Baseline Noise Levels at Location NML4

Date and Start Time	Measured Noise Levels (dB re. 2×10^{-5} Pa)			
	$L_{Aeq,15min}$	$L_{Amax,15min}$	$L_{A10,15min}$	$L_{A90,15min}$
14 April 2022 at 12:38	48	70	50	43
14 April 2022 at 13:17	46	67	48	42
14 April 2022 at 13:56	46	78	65	42

12.55 During the noise survey, the dominant noise sources were noted to be from distant and local road traffic, river flow noise, birdsong and occasional pedestrian activity.

12.56 Daytime ambient noise levels were in the range 46 to 48 dB $L_{Aeq,15min}$. The daytime background noise was in the range 42 to 43 dB $L_{A90,15min}$.

Location NML5

12.57 **Table 12.11** presents a summary of the attended daytime (i.e. 07:00 to 23:00) noise levels measured at Location NML5.

Table 12.11: Summary of Measured Baseline Noise Levels at Location NML5

Date and Start Time	Measured Noise Levels (dB re. 2×10^{-5} Pa)			
	$L_{Aeq,15min}$	$L_{Amax,15min}$	$L_{A10,15min}$	$L_{A90,15min}$
14 April 2022 at 12:09	50	73	52	46
14 April 2022 at 12:57	48	64	50	44
14 April 2022 at 13:36	50	66	53	45

12.58 During the noise survey, the dominant noise sources were noted to be from distant road traffic, construction machinery, birdsong and occasional pedestrian activity.

12.59 Daytime ambient noise levels were in the range 48 to 50 dB $L_{Aeq,15min}$. The daytime background noise was in the range 44 to 46 dB $L_{A90,15min}$.

Characteristics of the Proposed Development

12.60 During the construction phase the main site activities will include site clearance, ground excavation works and construction of the new facilities, road construction and landscaping. Potential impacts during the construction phase will be short term.

12.61 Operational phase outward noise impacts will be long-term and will typically consist of:

- noise from any proposed new industrial / commercial plant items;
- any increased noise due to additional vehicular traffic on public roads;
- recreational noise from the proposed new amenity / activity areas; and
- car parking on site.

Potential Impact of the Proposed Development

Construction Phase - Noise

12.62 During the construction phase the main site activities will include site clearance, ground excavation works and provision of infrastructure, construction of the residential buildings, road construction and landscaping. Potential impacts during the construction phase will be short term.

12.63 BS 5228-1:2009+A1:2014 provides catalogue of source noise levels for various construction plant, machinery and activity, along with a clear methodology and procedure for the prediction of noise from construction to sensitive receptors. This allows for an indicative assessment of the likely impacts of construction activity to nearby dwellings.

12.64 **Table 12.12** presents construction plant items that are considered to be typical for a site of this nature, along with the BS5228-1 reference noise emission values at the nominal distance of 10 metres.

Table 12.12: Typical Construction Plant Items and BS5228-1 Reference Noise Emission Values

Phase	Item of Plant (BS 5228-1 Ref.)	Construction Noise Level at Reference Distance (10m) dB L _{Aeq,1hr}
Site Preparation	Wheeled Loader Lorry (C2 28)	74
	Diesel Generator (C4.76)	61
	Track Excavator (C2 22)	72
	Dozer (C2.13)	78
	Dump Truck (C4.2)	78
Foundations	Tracked Excavator (C3.24)	74
	Concrete Pump (C3.25)	78
	Compressor (C3 19)	75
	Poker Vibrator (C4 33)	78
General Construction	Tower Crane (C4.48)	76
	Articulated lorry (C12.10)	77
	Hand tools	81
	Pneumatic Circular Saw (D7.79)	75
	Internal fit – out	70
Landscaping	Dozer (C2.13)	78
	Dump Truck (C4.2)	78
	Surfacing (D8.25)	68

12.65 There are a number of third-party noise sensitive locations in relatively close proximity to various aspects of the proposed development that may be impacted by short-term construction works.

- 12.66 The main construction activities proposed at the Railway Lands is highlighted as having the greatest potential risk with regard to the proximity to, and number of, residential dwellings in the vicinity of this site.
- 12.67 The closest works area is approximately 10-15m from the nearest properties with the remainder of works taking place across the site at varying distances. In order to assess a worst-case scenario, construction noise levels at distances of 15m, 30m and 100m have been used although a prediction to 10m distance is also provided as a reference in **Table 12.12**.
- 12.68 The calculations also assume that the equipment will operate for 66% of a typical 12-hour working day and that a standard site hoarding, typically 2.4m height will be provided around the northern perimeter of the Railway lands construction site for the duration of works. **Table 12.13** summarises the construction noise predictions.

Table 12.13: Typical Construction Noise Predictions at Various Distances

Construction Phase	Predicted Construction Noise Level dB L _{Aeq,11hr} at 15m	Predicted Construction Noise Level dB L _{Aeq,11hr} at 30m	Predicted Construction Noise Level dB L _{Aeq,11hr} at 100m
Site Preparation	70	63	50
Foundations	70	63	51
General Construction	72	65	52
Landscaping	69	62	49

- 12.69 With consideration of the site location, the likely construction phase activities, the distances from these works to nearby dwellings and the proposed construction noise criteria (i.e. 70dB L_{Aeq,T}) it is expected that potentially significant noise impacts will be encountered when works are occurring approximately 15 metres or closer to neighbouring dwellings.
- 12.70 Works associated with the site preparation and landscaping are likely to be the most significant construction noise sources, due to the proximity of these works to site perimeters. Other general construction works occurring close to the site boundary adjoining neighbouring dwellings also have the potential to generate significant short-term noise impacts.
- 12.71 Noise mitigation measures will therefore be necessary in order to reduce impacts as far as is reasonably practicable. The use of best practicable means (BMP) to control emissions can constitute a ground of defence against charges that a nuisance is being caused. Typical mitigation measures that should be considered are presented in the relevant sections of this document.

Construction Phase - Vibration

- 12.72 With consideration of the distance from site boundaries to nearby sensitive receptors, and proposed general methods of construction, it is projected that vibration emissions to nearby receptors will not cause structural or cosmetic damage to any nearby buildings.
- 12.73 Vibration emissions from construction works occurring close to the northern boundary of the Railway lands site may be such that vibration is perceptible at nearby dwellings and may lead to residential complaint. Mitigation measures are presented in the relevant sections of this document in order to ensure that construction vibration emissions are adequately monitored and controlled.

Operational Phase - Noise

Industrial / Commercial Plant Noise

- 12.74 Any new proposed industrial / commercial plant items shall be designed and specified such that cumulative noise emissions do not exceed the following criteria, at the external façade of existing and/or proposed new noise sensitive locations:
- Daytime/Evening (07:00 to 23:00 hours): 50 dB $L_{Aeq,1hr}$
 - Night (23:00 to 07:00 hours): 40 dB $L_{Aeq,15min}$
- 12.75 Plant noise emissions should not contain any characteristics that would warrant any acoustic feature penalties under the BS 4142:2014 assessment procedure.
- 12.76 Adherence to the noise criteria outlined above will ensure that impacts are low, when assessed in accordance with British Standard BS4142:2014+A1: 2019: 'Methods for Rating and Assessing Industrial and Commercial Sound'.

Additional Road Traffic Noise on Public Roads

- 12.77 A traffic impact assessment has been prepared as part of this EIAR. Information provided by the traffic consultant (Hegsons) was provided to RSK and this information has been used to determine the predicted change in noise levels in the vicinity of the adjacent road network along which traffic will travel to and from the site. Traffic data for the following scenarios has been reviewed in preparing this assessment:
- Existing Traffic 2022 (Surveyed Year);
 - Future Traffic 2027 (+ 5 years); and
 - Future Traffic 2039 (+ 15 Years).
- 12.78 AADT flow data has been used to assess the potential change in noise levels along the adjacent roads between the base year and the scenarios incorporating future site traffic. Changes in road traffic noise on the local road network have been considered using prediction guidance contained within *Calculation of Road Traffic Noise* (CRTN) issued by the Department of Transport in 1988. The future traffic flow data takes account of the proposed development. **Tables 12.14** and **12.15** summarise the calculated change in road traffic noise level for the assessment years.

Table 12.14: Assessment of Change in Traffic Noise Levels on Roads Surrounding the Site. AADT: 2022 vs 2027 (+5 Years)

Link	AADT Traffic Flows		Predicted Change in noise Level, dB (L _{A10})
	Year: 2022	Year: 2027 (+5 Years)	
ATC No.1: N52 (East of St Brigid's Hospital)	6,526	7,259	+0.5
ATC No.2: N2 (North of Golf Links Road Junction)	14,677	16,315	+0.5
ATC No.3: O'Carroll's Street (East of Old Chapels Lane)	3,347	3,736	+0.5
ATC No.4: Tiereny Street (East of Tiereny Avenue)	754	836	+0.4
ATC No.5: N2 (South of Monastery National School)	14,536	16,169	+0.5
ATC No.6: N2 – Ardee Town Centre	11,333	12,569	+0.4

Table 12.15: Assessment of Change in Traffic Noise Levels on Roads Surrounding the Site. AADT: 2022 vs 2037 (+15 Years)

Link	AADT Traffic Flows		Predicted Change in noise Level, dB (L _{A10})
	Year: 2022	Year: 2037 (+15 Years)	
ATC No.1: N52 (East of St Brigid's Hospital)	6,526	8,193	+1.0
ATC No.2: N2 (North of Golf Links Road Junction)	14,677	18,402	+1.0
ATC No.3: O'Carroll's Street (East of Old Chapels Lane)	3,347	4,234	+1.0
ATC No.4: Tiereny Street (East of Tiereny Avenue)	754	940	+1.0
ATC No.5: N2 (South of Monastery National School)	14,536	18,250	+1.0
ATC No.6: N2 – Ardee Town Centre	11,333	14,140	+1.0

- 12.79 The calculated increase in noise level on the majority of roads is less than 2dB, referring to Table 12.5 confirms that this calculated change in noise level is 'Negligible' and the associated impact is 'Not Significant'.

Recreational Noise from the proposed new Amenity / Activity areas

- 12.80 There are two main amenity / activity areas proposed as part of this development, the Amenity lands site, to the east of the site (as indicated in **Figure 12.3**) and the Railway Lands site, in the mid-section of the site. Each site is discussed separately below.

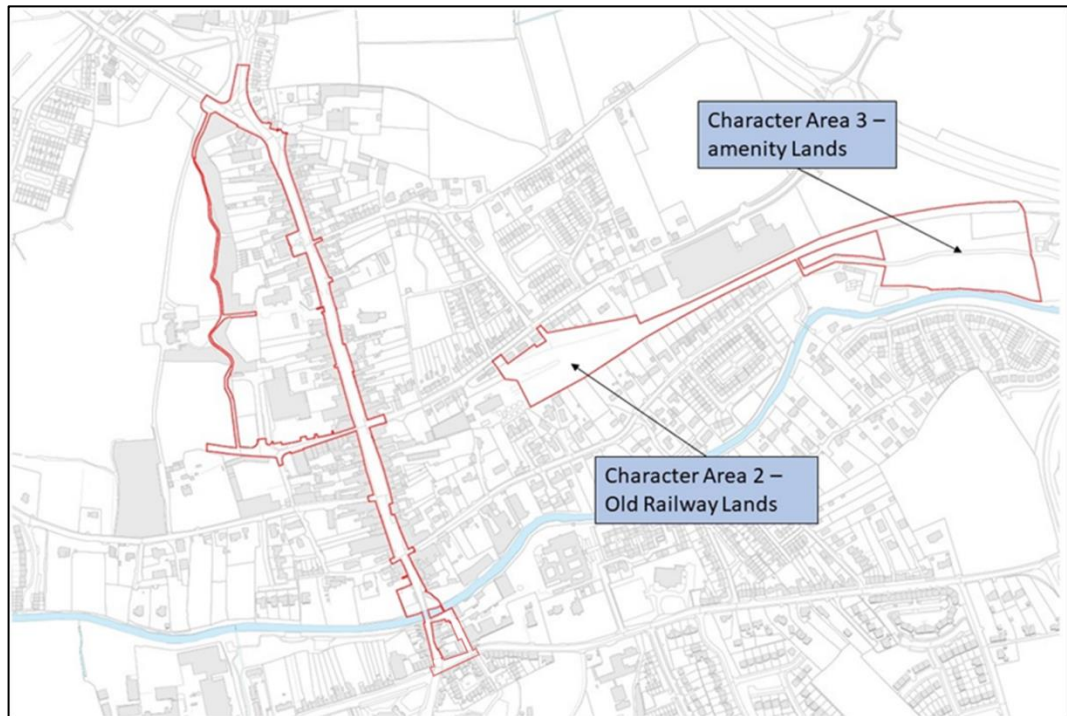


Figure 12.3: Plan showing location of Railway & Amenity Lands Sites

- 12.81 There is an Athletics Track, Bowling Green and Pavilion proposed within the Amenity Lands site, as well as a small car parking area, as indicated in **Figure 12.4**.



Figure 12.4: Proposed Layout for Character Area 3 - Amenity Lands

- 12.82 The closest noise sensitive location to the Amenity Lands site is the existing dwelling house to the west of the site, at a distance of approximately 75 metres from the proposed new bowling green, as well as proposed dwellings to the south of the site, on the opposite side of the River Dee, approximately 40 metres from the southern edge of the proposed new Athletics track.
- 12.83 The proposed activities at the Amenity lands site include lawn bowling and athletics, both of which will take place during daytime, evening and weekend periods. Noise emissions from these activities are expected to be limited to human voices, which can be expected to include occasional raised voices, primarily from the athletics track. The noise impact of the proposed Amenity lands site is not expected to be significant, given the distance to nearby dwellings and expected use. Noise emissions from the Amenity lands are expected to comply with the Daytime (07:00 to 23:00hrs) noise criteria of 50 dB $L_{Aeq,1hr}$ at nearby dwellings. No further noise mitigation measures are considered necessary.
- 12.84 There are a number of uses proposed within the Railway Lands site, including communal allotment, natural play area, flexible open space, open lawn and associated seating, all as indicated in **Figure 12.5**.

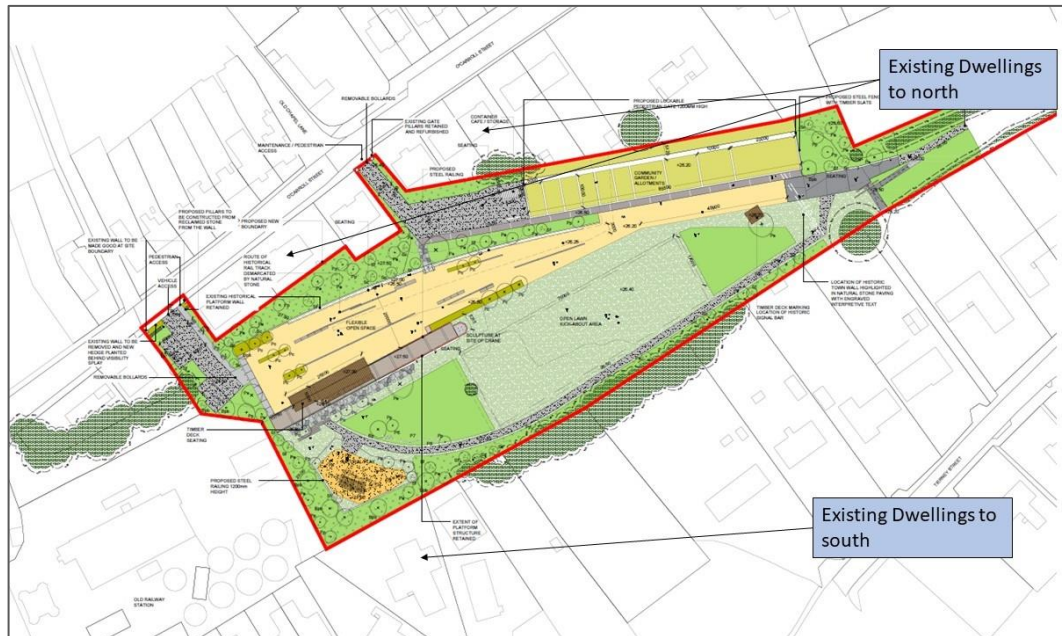


Figure 12.5: Proposed Site Layout for Character Area 2 - Railway Lands

- 12.85 The closest noise sensitive locations to the Railway Lands site are the existing dwellings surrounding the site, at a closest distance of approximately 15 metres from the proposed new flexible open spaces.
- 12.86 The proposed activities at the Railway lands site will take place during daytime, evening and weekend periods. Noise emissions from these activities are expected to be limited to human voices, which can be expected to include occasional raised voices. The noise impact of the proposed Railway lands site is not expected to be significant, given the distance to nearby dwellings and expected use. Noise emissions from the Railway lands are expected to comply with the Daytime (07:00 to 23:00hrs) noise criteria of 50 dB $L_{Aeq,1hr}$ at nearby dwellings. No further noise mitigation measures are considered necessary.

Car Parking on Site

- 12.87 There are a small number of car parking spaces proposed as part of the development, primarily to the north-western and eastern ends of the Amenity lands site, as well as a small informal car parking area to the northern end of the Railway lands site. The small number of car parking facilities will ensure that the impact at noise-sensitive residences in the surrounding areas is negligible (increase in noise level less than 3dB). Referring to the magnitude of impacts as described in **Table 12.5**, it is concluded that the change in noise level due to car parking provided by the proposed development will be 'Negligible' and the associated impact will be 'Not Significant'.

Mitigation Measures

Construction Phase

- 12.88 With regard to construction activities, best practice control measures for noise and vibration from construction sites are found within BS 5228:2009+A1:2014 '*Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2*'.

Whilst construction noise and vibration impacts are calculated to be within the criteria set out in this document for the majority of the time, the contractor will ensure that all necessary noise and vibration control measures will be used, in order to ensure impacts to nearby residential noise sensitive locations are not significant.

12.89 The following mitigation measures are required during the construction of the proposed development:

- Use of a site hoarding, minimum 2.4m height to be erected around the northern perimeter of the Railway lands side, for the duration of works where the distance of works is 30m or less to nearby noise sensitive locations;
- Limiting the hours of construction to the following:
- Monday to Friday 07.00 – 19.00
- Saturday 07.00 – 13.00
- In exceptional circumstances, and subject to agreement with the Local Authority, extended hours of operation may be applied for. In such instances an assessment of potential noise impacts shall be carried out in advance of works taking place, and submitted to the Local Authority, as part of the extended hours request.
- Monitoring levels of construction noise and vibration at the closest noise sensitive location to the north of the proposed Railway lands site;
- Maintaining site access roads even so as to mitigate the potential for vibration from lorries;
- Selection of plant with low inherent potential for generation of noise and/ or vibration;
- Erection of barriers as necessary around items such as generators or high duty compressors;
- Situate any noisy plant as far away from sensitive properties as is reasonably practicable and the use of vibration isolated support structures where necessary;
- Establishing channels of communication between the contractor/developer, Local Authority and residents; and
- Appointing a site representative responsible for matters relating to noise and vibration.

Operational Phase

Industrial / Commercial Plant Noise

12.90 Where necessary noise mitigation measures shall be installed in order to ensure that the stated plant noise limits are not exceeded, such measures may include attenuators to the atmosphere side of supply/extract fans, acoustic barrier screens / louvres to external plant.

Additional Road Traffic Noise on Public Roads

- 12.91 During the operational phase of the development, noise mitigation measures with respect to the traffic from the development are not deemed necessary.

Recreational Noise from the proposed new Amenity / Activity areas

- 12.92 During the operational phase of the development, noise mitigation measures with respect to noise from amenity / activity areas on site are not deemed necessary.

Car Parking on Site

- 12.93 During the operational phase of the development, noise mitigation measures with respect to car parking on site are not deemed necessary.

Residual Effects

Construction Phase

- 12.94 During the construction phase of the project there will be some negative impact on nearby noise sensitive locations due to noise/vibration emissions from construction activity. The implementation of suitable control measures will ensure that the impact is minimized. The residual impact from construction is as follows.

Table 12.16: Construction Phase Residual Noise/Vibration Impacts

Quality	Significance	Duration
Negative	Moderate	Short-term

Construction Phase Noise and Human Health

- 12.95 In terms of the noise exposure of construction workers, the *Safety, Health and Welfare at Work (General Application) Regulations 2007* (Statutory Instrument No. 299 of 2007) provides guidance in terms of allowable workplace noise exposure levels for employees. The Regulations specify two noise Action Levels at which the employer is legally obliged to reduce the risk of exposure to noise. The appointed contractor will be required to comply with the Regulations and provide appropriate noise exposure mitigation measures where necessary.
- 12.96 The noise exposure level to off-site receptors during the construction phase will be below the lower Action Level and therefore the risk of noise exposure resulting in hearing damage to off-site receptors is not significant.
- 12.97 In terms of construction noise emissions to nearby off-site receptors, provided that noise emissions are controlled to comply with the recommended significance thresholds, as outlined in previous sections, and considering the short-term nature of the works, the potential health impacts associated with construction noise is not significant.

Operational Phase

- 12.98 The anticipated residual impact from the operational phase of the development is summarised as follows.

Table 12.17: Operational Phase Residual Noise/Vibration Impacts

Quality	Significance	Duration
Neutral to Negative	Not Significant	Permanent

Operational Phase Noise and Human Health

- 12.99 Provided that operational phase outward noise emissions are controlled to comply with the recommended criteria, the potential health impacts associated with operational phase site noise emissions are not significant.

Worst Case Impact

- 12.100 Should a significant impact occur as a result of either construction or operational phase noise, the likely outcome would be a loss of amenity resulting in nuisance.
- 12.101 Should a significant impact occur as a result of either construction or operational phase vibration, the worst-case outcome would be that of structural damage to nearby buildings.
- 12.102 However, based upon the assessments conducted, the worst-case impacts are expected to be Moderate for the construction phase, and Not Significant for the operational phase.

Monitoring

Construction Phase

- 12.103 The appointed contractor will be required to monitor levels of noise and vibration at the closest noise sensitive location to the north of the proposed Railway lands site.

Operational Phase

- 12.104 No additional monitoring is proposed for the operational phase of the proposed development.

Interactions and Potential Cumulative Impacts

Interactions

- 12.105 Noise and vibration interact with Roads and Traffic, and information provided in the traffic assessment has been used in preparing this EIAR Noise & Vibration Chapter. This Chapter also interacts with Chapter 8 – Population & Human Health.

Cumulative Impacts – Construction Phase

- 12.106 The phasing/commencement of any other permitted developments in the locality could potentially result in the scenario where a number of other construction sites are in operation at the same time as the proposed development. The location of any cumulative construction sites in relation to each other and to nearby noise sensitive locations, means that there is minimal risk of cumulative construction noise emissions resulting in an exceedance of the relevant criteria.

Cumulative Impacts – Operational Phase

- 12.107 The location of the proposed development site in relation to nearby noise sensitive locations and the distance from the proposed development site in relation to other nearby lands means that there is minimal risk of cumulative operational phase noise emissions resulting in an exceedance of the relevant criteria. No additional mitigation measures are therefore required.

Do-Nothing' Effect

- 12.108 The existing noise climate will remain unchanged on site and at nearby noise sensitive locations.

Difficulties Encountered in Compiling the Chapter

- 12.109 There were no significant difficulties encountered in the preparation of this document.

13. Material Assets (Waste)

Introduction

- 13.1 This chapter considers the environmental impacts of the proposed project with respect to material assets (waste). This chapter has been prepared by the RSK Group.
- 13.2 This chapter includes a description of the site, the type of waste to be generated from the development during both the short-term construction & demolition phase and the long-term operational phase. The chapter also identifies mitigation measures to ensure the proposed development is constructed and operated in an environmentally sustainable manner.

Assessment Methodology

- 13.3 The assessment of the impacts of the proposed development arising from the generation of waste materials was carried out taking into account the methodology specified in the 'Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, May 2022), along with an extensive document review to assist in identifying current and future requirements for waste management including Directives, national and regional waste policy, waste strategies, management plans and relevant reports.
- 13.4 This Section is based on the project description and considers the following aspects:
- The legislative context;
 - The construction phase (including excavation and demolition); and
 - The operational phase.
- 13.5 A desk study was carried out which includes the following tasks:
- Review of applicable policy and legislation which creates the legal framework for resource and waste management in Ireland;
 - Description of the typical waste materials that will be generated during the construction and operational phases; and
 - Identification of mitigation measures to prevent waste generation and promote management of waste in accordance with the waste hierarchy.
- 13.6 These documents will ensure the sustainable management of wastes arising at the development in accordance with legislative requirements and best practice standards.

Legislation & Guidance

Construction Phase

- 13.7 Waste management in Ireland is subject to EU, national and regional waste legislation which defines how waste materials must be managed, transported and treated. The overarching EU legislation is the Waste Framework Directive (2008/98/EC) which is transposed into national legislation in Ireland. The cornerstone of Irish waste legislation is the Waste Management Act 1996 (as amended).
- 13.8 In addition, the Irish government issues regular policy documents which outline measures aimed to improve waste management practices in Ireland and help the country to achieve EU targets in respect of recycling and disposal of waste.
- 13.9 The most recent policy document 'A Resource Opportunity – Waste Management Policy in Ireland' was published in 2012 and is strongly influenced by the EU Waste Management Hierarchy. The document stresses the environmental and economic benefits of better waste management, particularly in relation to waste prevention. A key policy objective is that when waste is generated, the maximum value must be extracted from it by ensuring it is reused, recycled or recovered.
- 13.10 The waste hierarchy is implemented through the amendment made to the 1996 Waste Management Act (S.I. No 126/2011 – the 'European Communities (Waste Directive) Regulations 2011'). The following hierarchy shall apply as a priority order in waste prevention and management legislation and policy:
- Prevention;
 - Preparing for re-use;
 - Recycling;
 - Other recovery (including energy recovery); and
 - Disposal.
- 13.11 The EPA have published a recent National Waste prevention Plan (NWPP) 'Towards a Resource Efficient Ireland' which runs until 2020. The aim of the NWPP is to encourage hazardous and non-hazardous waste prevention and minimisation. This plan has since been superseded by the Waste Action Plan for a Circular Economy 2020 – 2025.
- 13.12 The strategy for the management of waste from the construction phase is carried out in line with the requirements of the 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects' published by the Department of The Environment, Heritage and Local Government (DoEHLG) in 2006. The guidance document 'Construction and Demolition Waste Management: A handbook for Contractors and Site Managers', published by FAS and the Construction Industry Federation in 2002, was also consulted in the preparation of this assessment.

- 13.13 There are currently no Irish guidelines on the assessment of operational waste generation and guidance is taken from industry guidelines, British Standards and other relevant studies and reports.
- 13.14 The Eastern Midlands Region Waste Management Plan 2015 - 2021 provides a framework for the prevention and management of waste in a sustainable manner in 12 local authority areas including Louth County Council. The plan specially includes a mandatory target of recycling and reuse of 70% of Construction and Demolition (C&D) waste (excluding soil and stone) by 2020. This plan has been adopted as stated in ENV 24 Policy in the Louth County Council Development Plan 2021 – 2027.
- 13.15 The three key objectives of the Eastern-Midlands Region Waste Management Plan are:
- Prevent waste: a reduction of one per cent per annum in the amount of household waste generated over the period of the plan;
 - More recycling: increase the recycle rate of domestic and commercial waste from 40 to 50 per cent by 2020; and
 - Further reduce landfill: eliminate all unprocessed waste going to landfill from 2016 onwards.
- 13.16 Future targets set in the Plan for 2030 include:
- Preparing for reuse and recycling of 60-70% of municipal waste by the end of 2030; and
 - Reduce and where possible, eliminate the landfilling of all major waste streams including municipal, industrial and construction & demolition wastes in favour of the recovery of residual wastes.
- 13.17 The Regional Plan sets out the strategic targets for waste management in the region and sets a specific target for C&D waste of “70% *preparing for reuse, recycling and other recovery of construction and demolition waste*” (excluding natural soils and stones and hazardous wastes) to be achieved by 2020.
- 13.18 The National Waste Statistics update published by the EPA in December 2017 identifies that Ireland’s current progress against this C&D waste target is at 68% and our progress against ‘*Preparing for reuse and recycling of 50% by weight of household derived paper, metal, plastic & glass (includes metal and plastic estimates from household Waste Electrical and Electronic Equipment (WEEE))*’ is at 45%. Both of these targets are required to be met by 12 December 2020 in accordance with the requirements of the Waste Framework Directive.

Operational Phase

- 13.19 There are several applicable primary legislative instruments that govern waste management (both hazard and non-hazard) in Ireland.
- 13.20 One of the guiding principles of European waste legislation, which has in turn been incorporated into the Waste Management Act 1996, as amended, is that the waste

producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal). As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final disposal area, waste contractors will be employed to physically transport waste to the final waste disposal site.

- 13.21 It is therefore imperative that residents undertake on-site management of waste in accordance with all legal requirements and employ suitably permitted/licensed contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contractor handle, transport and reuse/recover/recycle/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.
- 13.22 A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the Waste Management (Facility Permit & Registration) Regulations 2007 as amended or a waste or IED (Industrial Emissions Directive) licence granted by the EPA. The COR/permit/licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and/or disposed of at the specified site.
- 13.23 The Eastern Midlands Region Waste Management Plan 2015 - 2021 provides a framework for the prevention and management of waste in a sustainable manner in 12 local authority areas including Louth County Council.
- 13.24 Further to this, the development will comply with the requirements set out in the Louth County Council Bye-Laws for the Segregation, Storage and Presentation of Household and Commercial Waste, 2019 or any revision thereof, must be adhered to and, in particular, the requirement in the Bye-Laws to segregate waste into separate fractions to facilitate the collection of dry recyclables, organic kitchen/garden waste and residual waste in line with the applicable regulations, including the Waste Management (Food Waste) Amendment Regulations 2015 (S.I. 190 of 2015) and the European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. 430 of 2015), and the Eastern - Midlands Region Waste Management Plan 2015-2021.

Characteristics of the Proposed Development

Proposed Development

- 13.25 A description of the proposed development is outlined in Chapter 5. With regard to waste management, the proposed development will generate waste materials during the construction and demolition phases and when the new building is operational.

Demolition Phase

- 13.26 There is no demolition proposed on the site. There is a minimal amount of waste expected to be generated on the site with the removal of some assumed hardstanding surfacing in areas.

- 13.27 As referenced above, the Eastern Midlands Region Waste Management Plan 2015 – 2021 includes a mandatory target of recycling and reuse of 70% of C&D waste (excluding soil and stone) by 2020. Therefore, the contractor will have to ensure that waste is managed appropriately to ensure this target is met.

Construction Phase

- 13.28 During the Construction phase, if waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated. The construction contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised. In addition, excavations will be required to facilitate construction. The main non-hazardous and hazardous waste streams that are likely to be generated by the removal of existing hardstanding on site, site preparation and construction activities at site are shown in the **Table 13.1** below.

Table 13.1: Typical C&D non-hazardous and hazardous waste streams

Waste Material	EW Code
Concrete, bricks, tiles, ceramic	17 01 01-03 & 06-07
Wood, glass and plastic	17 02 01-04
Bituminous mixtures, coal tar and tarred products	17 03 01-03
Metals (including their alloys)	17 04 01-07 & 09-10
Soil and stones	17 05 03-04
Gypsum-based construction material	17 08 02
Mixed C&D waste	17 09 04
Electrical and electronic components	20 01 35-36
Batteries and accumulators	20 01 33-34
Liquid fuels	13 07 01-03
Paints	08 01 12
Chemicals (solvents, pesticides, paints, adhesives, detergents etc.)	20 01 13, 19, 27-30
Insulation materials	17 06 04

- 13.29 Should a volume of material be excavated, it has been advised that there are limited or no opportunities for reuse onsite and that it will require removal offsite for reuse, recovery and/or disposal, as appropriate.
- 13.30 Environmental soil analysis should be carried out prior to construction on a number of the soil samples in accordance with the requirements for acceptance of waste at landfills (Council Decision 2003/33/EC Waste Acceptance Criteria), if applicable. This legislation sets limit values on landfills for acceptance of waste material based on properties of the waste including potential pollutant concentrations and leachability.
- 13.31 Surplus soils/stones may be suitable for acceptance at either inert or non-hazardous soil recovery facilities/landfills in Ireland or, in the event of hazardous material being

encountered, be transported for treatment/recovery or exported abroad for disposal in suitable facilities.

- 13.32 Excavation works will be required to be carefully monitored by a suitably qualified person to ensure contaminated soil is identified and segregated from any potentially uncontaminated soil, where encountered. Additional soil testing may be required in order to reclassify soil and the material will be required to be classified as hazardous or non-hazardous using the HazWasteOnline application (or other similar application) and then classified as inert, non-hazardous or hazardous in accordance with the EC Council Decision 2003/33/EC for acceptance of waste at landfills.
- 13.33 Discussions about the acceptance of the material should be undertaken with individual landfill operators before removal of any material from site is carried out and further investigation may be required to satisfy the operators waste acceptance requirements.
- 13.34 Contaminated material will be required to be removed from site for treatment or disposal as appropriate. The contaminated material may be suitable for recovery or disposal in Ireland depending on the limitations of the facilities licence.

Operational Phase

- 13.35 The proposed development will give rise to a variety of waste streams when the development is completed. This plan will help to ensure that the development meets the targets outlined in the Eastern Midlands Regional Waste Management Plan 2015 – 2021.
- 13.36 All waste materials will be segregated into appropriate categories and will be stored in appropriate bins or other suitable receptacles in designated, easily accessible areas of the site in accordance with the Louth County Council Development Plan 2021 – 2027 (Policy RES 31).
- 13.37 **Table 13.2** summaries the various waste streams and the anticipated management strategy to be used for typical wastes to be generated at this type of development.

Table 13.2: Typical operational phase waste streams and management strategy

Waste Type	Hazardous	Onsite Method	Storage	Removal Offsite
Dry Mixed Recyclables	N	Segregated bins		Recycle
Mixed Non-Recyclables	N	Segregated bins		Recovery
Organic (food and garden) waste	N	Segregated bins		Composting
Glass (segregated by colour)	N	Segregated bins		Recycle
WEEE	Y	Segregated bins		Return to supplier
Batteries	Y	Segregated bins		Return to supplier
Cleaning Products	Y/N	Segregated bins		Disposal

- 13.38 All waste leaving site will be recycled or recovered, with the exception of those waste streams where appropriate recycling/recovery facilities are currently not available. All waste leaving the site will be transported by suitable permitted contractors and taken to suitably permitted or licenced facilities. All waste leaving the site will be recorded and copies of relevant documentation maintained.
- 13.39 Hazardous waste may be generated from WEEE, batteries, fluorescent tubes, and cleaning products. Any waste classed as hazardous will be stored in designated area(s) and will be removed off site by suitably authorised waste contractor(s).

Cumulative Impact

Construction Phase

- 13.40 The phasing/commencement of any other identified permitted developments in the locality could potentially result in the scenario where a number of other construction sites are in operation at the same time as the proposed development.
- 13.41 Should construction of nearby sites coincide with construction of the proposed development, this could result in a general increase in construction waste generation in the wider Ardee area. However, there will be sufficient capacity in the local waste collection and disposal network to ensure that all construction waste is removed from site and disposed of in an environmentally sustainable and responsibly manner. In the event that the local waste capacity is stretched, where necessary, appropriate waste management facilities outside the local area will be considered.

Operational Phase

- 13.42 The proposed development when considered alongside other developments in Ardee has the potential to have cumulative effects which could potentially result in a general increase in operational waste generation in the wider Ardee area.

Potential Impact of the Proposed Development

Proposed Development

Construction Phase

- 13.43 The construction stages of the project (which includes preparation) will generate a range of non-hazardous and hazardous waste materials from which there is a risk of potential impact. A waste management strategy from the activities undertaken on site and will ensure that there are no significant impacts from waste generated throughout the project by methods such as safe and secure storage of waste and raw materials, just in time deliveries and on-site security services.
- 13.44 The use of authorised waste hauliers and permitted/licensed waste facilities will ensure that the waste materials generated from the removal of the hardstanding area, site preparation and construction activities are appropriately managed off site. The potential impacts of handling and treatment of waste off site at permitted/licensed facilities are considered in the authorisation of these waste facilities.

- 13.45 Waste materials will be required to be temporarily stored on site pending collection by a waste contractor. Dedicated segregated areas for waste skips and bins will need to be identified across the site. These areas will need to be easily accessible to waste collection vehicles and for segregation.
- 13.46 Should the proposed development require the excavation of any soil then, where possible, this should be reused on site. Correct classification and segregation of the excavated material will be required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and offsite.
- 13.47 The opportunities for waste materials to be reused off-site will provide positive impacts in the resourcing of materials for other developments and reduce the requirement for raw material extraction.
- 13.48 The potential impacts on the environment from waste generation during the construction phase are expected to be likely, negative, short term and not significant.

Operational Phase

- 13.49 The nature of the development means the generation of waste materials during the operational phase is an unavoidable impact. Networks of waste collection, treatment, recovery and disposal infrastructure are in place in the region to manage waste efficiently from this type of development. Waste which is not suitable for recycling is typically sent for energy recovery. There are also facilities in the region for segregation of municipal recyclables which is typically exported for conversion in recycled products. The waste materials generated on a daily basis will be stored in dedicated waste storage area(s) and/or public street bin containers.
- 13.50 Factors such as waste material not being managed and stored correctly, and the use of non-permitted waste contractors or unauthorised facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution such as litter issues or the presence of vermin within the development and the surrounding areas.
- 13.51 The potential impact of operational waste generation from the development is expected to be **neutral, long term** and **not significant**.

Do Nothing Impact

- 13.52 If the proposed development was not to go ahead there would be no demolition and construction waste or operational waste generation at the site.

Mitigation (Ameliorative, Remedial or Reductive Measures)

Proposed Development

Construction Phase

- 13.53 It is anticipated that adherence to a waste strategy plan will take into consideration the waste hierarchy (prevention, minimisation, reuse, recycling, recovery and disposal of

waste material generated during the construction and demolition phases of the proposed development).

13.54 Should any excavated materials be generated from the proposed construction works, it is anticipated that there will be limited or no opportunities for reuse of this material onsite and it will require removal for offsite reuse, recovery, recycling and/or disposal. The contractor(s) will endeavour to ensure that material is reused or recovered off-site insofar as is reasonably practicable before considering disposal at an authorized facility.

13.55 During the construction phase there will be a number of mitigation methods put in place including:

- Onsite segregation of waste materials into concrete, rubble, Plasterboard, metals, glass and timber.
- Any hazardous wastes produced will be stored separately.
- All waste materials will be stored in skips or other suitable receptacles and appropriately labelled.
- Reuse of left-over materials where possible (e.g. timber off cuts, broken concrete)
- A waste manager/site representative will be appointed to ensure waste management procedures are followed.
- All waste leaving the site will be reused, recycled or recovered where possible.
- All waste leaving the site will be recorded and accounted for with all relevant documentation maintained.

13.56 These mitigation measures will ensure that the waste arising from the construction and demolition phases of the development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations, the Litter Pollution Act 1997 and the EMR Waste Management Plan (2015 - 2021). It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will encourage sustainable consumption of resources.

Operational Phase

13.57 During Operational Phase of the development. All waste materials will be segregated into appropriate receptacles and stored in appropriate bin container across the regeneration project area.

13.58 During the operational phase there will be a number of mitigation methods put in place including:

- The segregation of waste materials including Organics, dry mixed recycling, mixed non-recycling, glass, WEEE and cleaning chemicals.
- All wastes will be stored in appropriate containers and colour coded.

- All applicable waste leaving the area will be reused, recycled or recovered where possible.
- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities.
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

13.59 These mitigation measures will ensure the waste arising from the development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations, the Litter Pollution Act 1997 and the EMR Waste Management Plan (2015 - 2021). It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

Cumulative Impact

Construction Phase

13.60 The review carried out indicates that additional mitigation measures will not be required.

Operational Phase

13.61 The review carried out indicates that additional mitigation measures will not be required.

Residual Impact of the Proposed Development

Proposed Development

13.62 The implementation of the mitigation measures outlined will ensure that a high rate of reuse, recovery and recycling is achieved at the development during the construction phase as well as during the operational phase. It will also ensure that European, national and regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved. Primarily, implementation of the waste strategy during site preparation and construction activities and compliance with the site's waste management procedures during the operational phase will minimise the volume of waste requiring disposal at landfill.

Construction Phase

13.63 Implementation and adherence to the waste strategy will ensure that waste generated during the construction phase of the project will be managed in accordance with best practice and relevant legislation.

13.64 Recovery or disposal of excavated materials off-site at licensed/permitted facilities will ensure that the deposition of excavated materials is appropriately controlled.

13.65 Provided the mitigation measures outlined are followed, the residual effect of the construction phase on the environment will be likely, negative, short term and not significant.

Operational Phase

- 13.66 During the operational phase, a structured approach to waste management as set out in this waste strategy will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted impact of the operational phase on the environment will be **likely, neutral, long-term** and **not significant**.

Worst Case Impact

- 13.67 In the case where the mitigation methods fail and / or not complied with, there would be potential for significant effects on the environment. For example, the incorrect segregation of waste, the use of unlicensed waste contractors, lack of appropriate paperwork and the failure to reuse materials where possible could lead to non-compliance with National and European legislation, which could potentially result in pollution to the environment. Such a failure may result in enforcement action, and an increase in overall costs for the development.

Cumulative Impacts

Construction Phase

- 13.68 As a result of the mitigation measures outlined, there are no anticipated cumulative impacts in relation to construction waste generation as a result of the proposed development.

Operational Phase

- 13.69 As a result of the mitigation measure outlined, there are no anticipated cumulative impacts in relation to operational waste generation as a result of the proposed development.

Worst Case Impact

- 13.70 In the case where the mitigation methods fail and / or not complied with, there would be potential for significant effects on the environment. For example, the incorrect segregation of waste, the use of unlicensed waste contractors, lack of appropriate paperwork and the failure to reuse materials where possible could lead to non-compliance with National and European legislation, which could potentially result in pollution to the environment. Such a failure may result in enforcement action, and an increase in overall costs for the development.

Monitoring

Proposed Development

Construction Phase

- 13.71 It is important that during the construction phases of the development that the waste generation volumes are calculated, recorded and compared to the targets outlined.
- 13.72 A competent and trained waste manager/site representative should be appointed. It is recommended that it is their responsibility to monitor and track the waste volumes being generated. It is also their responsibility to ensure that all contractors and sub-contractors are segregating waste as required.

Operational Phase

- 13.73 It is important that during the operational phase of the development that the waste generation volumes are calculated, recorded and compared to the targets.

Cumulative Impact

Construction Phase

- 13.74 No additional monitoring is proposed in relation to potential construction phase of the cumulative development.

Operational Phase

- 13.75 No additional monitoring is proposed in relation to potential construction phase of the cumulative development.

Interactions

Interactions

- 13.76 Material Assets (Waste Management) has had no formal interaction with any of the other EIAR Chapters at the time of reporting.

Do-Nothing' Effect

- 13.77 The existing waste management climate will remain unchanged on site and at nearby locations.

Reinstatement

- 13.78 Not applicable.

Difficulties Encountered

- 13.79 There were no difficulties encountered in the preparation of this document.

14. Material Assets (Traffic & Transportation)

Introduction

- 14.1 This chapter of the EIAR has been prepared by Hegsons Design Consultancy Ltd to identify and assess potential traffic and transportation related impacts associated with the proposed project at Ardee, Co Louth.
- 14.2 The study area covers the four key character/opportunity areas:
- Character Area 1 - Main Street & Ash Walk;
 - Character Area 2 - Old Railway Lands;
 - Character Area 3 - Amenity Lands; and
 - Character Area 4 - Woodland Walk.
- 14.3 This chapter assesses how the proposed works will impact the surrounding roads network. It will consider appropriate access arrangements and the transport choices available to future users of the area and how the existing/proposed transport infrastructure surrounding the site will influence that choice. The impact of any traffic demand generated by the proposals will be considered and quantified.
- 14.4 The aim is to identify the characteristics of the application site and surrounding area, examine the likely transport implications, ensure sustainable accessibility is maximised and appropriate infrastructure provided. This report will present the baseline transport environment including reporting on traffic counts carried out on the surrounding street network and an analysis of the road safety data available. The projected change in traffic associated with the operation of the proposed scheme and its likely significant effects on the baseline transport networks is presented.
- 14.5 The likely phasing and scheduling of the proposed construction works and their likely significant effects on the receiving environment is also presented. Finally, any mitigation measures and monitoring which will assist in reducing the significant effects of the proposed scheme on the surrounding transport network and any resultant residual effects are presented.

Methodology

- 14.6 This Traffic and Transportation section was prepared based on Transport Infrastructure Irelands Traffic and Transportation Assessment Guidelines 2014 and assess the impact of the proposals on the street network during construction and operational stages. Other relevant documents consulted include:
- Environmental Protection Agency (EPA) - Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022);

- Department of Housing, Planning and Local Government (DHPLG) - Guidelines for Planning Authorities and An Coimisiún Pleanála on carrying out Environmental Impact Assessment (2018);
 - Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licensing Systems – Key Issues Consultation Paper, Department of Housing, Planning, Community and Local Government, 2017;
 - Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report, European Commission, 2017.
- 14.7 Notwithstanding ongoing public consultation events, the Design Team have engaged with Transport Infrastructure Ireland (TII) and various departments within Louth County Council with a view to considering the respective issues raised as part of the design process of the scheme. These engagements have informed the final layout of the scheme including access arrangements for vehicular, pedestrian and cycle modes of transport.

Transport Planning Policy Context

National Policy: Smarter Travel: A Sustainable Transport Future

- 14.8 This national policy document which covers a period from 2009-2020 sets out 49 actions which aim to *‘reverse the current unsustainable transport and travel patterns and reduce the health and environmental impacts of current trends and improve our quality of life’*. Implementation of Smarter Travel can be summarised into a number of overarching actions:

- Actions to reduce distance travelled by private car and encourage smarter travel, including focusing population growth in areas of employment and to encourage people to live in close proximity to places of employment and the use of pricing mechanisms or fiscal measures to encourage behavioural change;
- Actions aimed at ensuring that alternatives to the car are more widely available, mainly through a radically improved public transport service and through investment in cycling and walking;
- Actions aimed at improving the fuel efficiency of motorised transport through improved fleet structure, energy efficient driving and alternative technologies.

National Sustainable Mobility Policy (NSMP)

- 14.9 The National Sustainable Mobility Policy, published in September 2025, sets out a strategic framework to 2030 for active travel (walking and cycling) and public transport journeys to help Ireland meet its climate obligations. It is accompanied by an action plan to 2025 which contains actions to improve and expand sustainable mobility options across the country by providing safe, green, accessible and efficient alternatives to car journeys.
- 14.10 The policy aims to deliver at least 500,000 additional daily active travel and public transport journeys by 2030 and a 10% reduction in the number of kilometres driven by fossil fuelled cars. It will make it easier for people to choose walking, cycling and use public transport daily instead of having to use a petrol or diesel car.

Louth County Development Plan

- 14.11 Chapter 7 of the LCDP relates to pedestrian and vehicular movement. The LCDP sets out a number of policy objectives which are of relevance for the proposed development. These are set out and discussed below.

Sustainable Transport

- 14.12 The following 'Sustainable Transport' policy objectives are of note with respect to the proposed development:

- MOV 1: To work with national transport agencies in supporting the delivery of a high quality, climate resilient and sustainable transport network in the County.
- MOV 2: To support the implementation of the 'National Climate Action Plan' 2019, and any subsequent plans, and in particular the measures included that will assist in achieving the target of CO₂ emissions reduction by 2030 in the transport sector as set out in Section 10.2 of the Climate Action Plan.
- MOV 6: To promote and support the principles of universal design ensuring that all environments are inclusive and are accessible to and can be used to the fullest extent possible by all users regardless of age, ability or disability.
- MOV 7: To support a modal shift away from the private car to more sustainable forms of transport, such as public transport, cycling and walking and the attainment of any national targets relating to modal change published during the life of this Plan.
- MOV 9: To support investment in sustainable transport infrastructure that will make walking, cycling or public transport more attractive and appealing, and facilitates accessibility for all, regardless of age, physical mobility, or social disadvantage.
- MOV 14: To encourage a modal shift from use of the private car towards more sustainable modes of transport including walking, cycling, and public transport.

- 14.13 An overall objective and key design principle of the proposed development is to encourage/support alternative and active modes of transport. This objective /principle will be achieved through a number of proposed interventions including, prioritising the pedestrian and cyclist in the design approach; providing universally accessible routes/connections; reprioritisation of roads / junctions / parking / footpath areas; incorporating shared spaces; and provision of new cycle parking infrastructure.

- 14.14 It is considered that the proposed development will align with the Sustainable Transport policy objectives of the LCDP.

Bus Services

- 14.15 The following 'Bus Services' policy objective is of note with respect to the proposed development:

- MOV 20: To support the National Transport Authority (NTA) and other stakeholders and community groups in improving bus services and infrastructure in the County.

14.16 Consultation was undertaken with the NTA and LCC's Active Travel section during the concept development stage of the proposed development to appropriately inform the design approach with bus stops/infrastructure and integration of alternative transport modes.

14.17 The proposed development seeks to accommodate existing bus stop facilities and to improve these facilities where possible. The existing bus stops at the northern end of the scheme will be maintained and enhanced to provide better and safer facilities for users. It is considered that the proposed design approach will facilitate safer pedestrian, cycle and public bus access and will ultimately support and improve bus services / infrastructure in the area.

Cycling and Walking

14.18 The following 'Cycling and Walking' policy objectives are of note with respect to the proposed development:

- MOV 25 - To support the retrospective provision of walking and cycling infrastructure in existing settlements, where feasible, to achieve growth in sustainable mobility and strengthen and improve the walking and cycling network.
- MOV 28 - To promote walking and cycling as a safe, convenient, healthy, efficient, and environmentally friendly mode of transport for all age groups.
- MOV 29 - To continue to work and engage with the National Transport Authority, the Department of Transport, any other agencies in developing a modern network of walking and cycling infrastructure in the County.
- MOV 31: To encourage the provision of secure bicycle parking facilities in town and villages in the County.

14.19 A key design principle and objective of the proposed development is to promote cycling and walking within and throughout Ardee town centre. The proposals include design features and interventions to assist with prioritising the pedestrian and cyclist, including new cycle lanes; pedestrian walkways; level shared surfaces; cycle parking; improvements to the quality of the streetscape; and new pedestrian crossing points.

Public Realm Improvements

14.20 The following 'Public Realm Improvements' policy objective is of note with respect to the proposed development:

- MOV 40: To support the design and implementation of public realm projects in town and villages throughout the County that will make these locations more attractive and liveable spaces which are climate resilient and facilitates accessibility for all, regardless of age, physical mobility, or social disadvantage.

- 14.21 The proposed development is a public realm/urban regeneration project and has been carefully designed to accommodate persons of all ages and mobility and so by its nature will align with and support this policy objective of the LCDP.

Car Parking

- 14.22 Section 13.16.11 of the LCDP entitled 'Parking Standards that Reflect the Demand and Location' states that *"It is considered appropriate that the car parking requirement in the towns and villages in the County should be reflective of the anticipated parking demand"*.
- 14.23 Table 13.11 of the LCDP entitled 'Car Parking Standards' sets out the car parking standards for various land uses. It is noted that no provision has been assigned to public realm works in a town centre location and none of the development types listed in Table 13.11.
- 14.24 A number of car parking spaces are to be removed from the application site to facilitate the proposed public realm proposals and achieve the project design ambitions/principles. However, new bicycle parking facilities will be provided within the application site at accessible locations to help facilitate and encourage the transition to more sustainable and active modes of transport in the area.
- 14.25 All car parking / loading bays etc. provided as part of the development will comply with the minimum standards set out in Table 13.9 of the LCDP entitled 'Dimensions of Parking Spaces'. The reconfiguration of parking spaces has also facilitated a consolidation of the existing disabled bay parking spaces and will allow for the future provision of Electric Vehicle (EV) charging points.
- 14.26 It is considered that the car parking provision proposed for the development is adequate to serve the needs of the wider community and visitors to the town whilst encouraging sustainable modes of transport in compliance with national, regional and local policy and the objectives of the Climate Action Plan 2023.

Disabled Car Parking Provision

- 14.27 Section 13.16.7 of the LCDP entitled 'Disabled Parking' states that *"parking spaces shall be generally applied at the rate of 5% of spaces for developments requiring 10 or more spaces, with a minimum of one no. space"*.
- 14.28 All proposed disabled car parking bays will comply with the minimum standards set out in Table 13.9 of the LCDP entitled 'Dimensions of Parking Spaces'.

Electric Vehicles

- 14.29 The following 'Electric Vehicles' policy objectives are of note with respect to the proposed development:
- MOV 10: To facilitate the switch to Electric Vehicles through the roll-out of additional electric charging points at appropriate locations within the County in association with relevant agencies and stakeholders.
 - MOV 11: To facilitate the provision of electricity charging infrastructure for electric vehicles both on street and in new developments in accordance with car

parking standards prescribed in the Development Management Guidelines in Chapter 13.

- 14.30 In addition to the above policy objectives, Section 13.16.9 Charging Points for Electric Vehicles of the LCDP states that *“In all car parking areas, provision shall be made for charging points for electric vehicles. This shall include the necessary wiring and ducting. Pending the publication of guidance on the minimum requirement of these spaces, an assessment shall be made on a case-by case basis; however, applicants shall strive to provide these charging points in a minimum of 20% of the total spaces”*.
- 14.31 The proposed development has been designed in a manner to enable electric vehicle charging points to be accommodated should Louth County Council roll out a wider electric vehicle charging point strategy in the area/Ardee town centre.

National Roads

- 14.32 The following policy objectives are of note with respect to the National Roads:
- MOV 43: To protect the strategic transport function of national roads, including motorways through the implementation of the ‘Spatial Planning and National Roads – Guidelines for Planning Authorities’ and any subsequent guidelines.
- 14.33 The National Primary Road N2 travels through Ardee (N2 Dublin-Derry Road) and the road is critical in supporting more balanced regional development as they provide a vital connection to the north-west of the country. The proposed development has been designed to maintain the important level of connectivity between the regional growth centres and key service centres in the wider region and beyond.

Receiving Environment

- 14.34 For the purpose of this assessment, the subject site is identified by 4 main character areas as previously identified above.
- 14.35 The study area includes the following primary streets/road network and lands;
- N2 Main Street / Castle Street
 - Golf Links Road
 - N52 Jervis Street
 - Ash Walk
 - O’Carroll Street
 - Tiereny Street
 - Old Railway Lands and Amenity Lands.
- 14.36 This study area is considered to be the primary zone of influence with respect to the management of traffic during the construction of the proposed scheme and is the area most likely to experience changes, if any, in traffic flow.

- 14.37 Access to the character areas is primarily off the N2 and N52. Vehicular access to the Old Railway Lands is achieved directly from O'Carroll Street while the Amenity Lands are accessed via Tierney Street. Pedestrian and cycle access is achieved across a number of streets within the town centre, but these will not have dedicated cycle facilities.
- 14.38 Pedestrian and cycle access is achieved onto the existing riverwalk off the N2 at the River Dee bridge to the south of Ardee Castle. The walk extends in a westerly direction from the N2 for approximately 500m before turning south to connect to John Street.

N2 Main Street

- 14.39 The Main Street is a National Road and primary route for traffic moving in a north-south direction through Ardee. The road is a single carriageway, two-way road with footpath provided on both sides of the road along its entire length. The carriageway is quite wide at various locations along the Main Street. A number pedestrian crossing facilities are provided along the street however, no dedicated cycle facilities are provided along the street.
- 14.40 A high level of car parking exists along the Main Street and a lot of the parking is in an irregular pattern, with combinations of parallel, saw-tooth and perpendicular parking along the street. The road is subject to an urban speed limit of 50 km/hr.

N52

- 14.41 The N52 connects Kells in the west to the town centre and the N2 at a priority-controlled junction in the centre of the town. The N52 is a single carriageway two-way road which caters for a high volume of traffic travelling from the west and onward to the north along the N2.
- 14.42 The N52 Jervis Street section of the road has a pedestrian footpath on the northern side of the road between the N2 and Ash Walk. Footpaths are provided on the northern side of the road, but only a small section of footpath is provided intermittently on the southern side of the road. The road is subject to an urban speed limit of 50 km/hr and 60km/hr within the study area.

Ash Walk

- 14.43 Ash Walk is a narrow one-way westbound street which connects the N2 Main Street, via a priority-controlled junction with O'Carroll Street, to the N52 Jervis Street. The street is narrow with footpath provided along the full length of the street running east-west on both sides of the road. However, no footpaths are provided along the section of Ash Walk heading south towards the N52.
- 14.44 It should be noted that as a result of the Ardee Educate Together School, a section of Ash Walk road from the N52 to the school site will be constructed to service the school. This road will allow for the extension of Ash Walk road. Upon completion of the extension this will provide access to the publicly owned HSE lands and facilitate the development of these lands for institutional use including "Enabled Housing" for older people and the 50 bed Nursing Home unit.

O'Carroll Street

- 14.45 O'Carroll Street is a narrow two-way street which connects the N2 Main Street at the Ash Walk priority-controlled junction to the N33 at a roundabout junction, to the east of

Ardee town centre. The street provides on-street parking along the northern side of the road for the extend of the residential property boundaries, thus reducing the width of the road to only enable one vehicle to pass at a time.

- 14.46 The street has footpaths along the entire length of the street on the southern side and for a large extend of the northern side of the road. The road provides a dedicated cycle lane for 300m on the northern side of the road, close to the N33.

Tierney Street

- 14.47 Tierney Street is a single carriageway two-way street which connects the N2 Main Street at the Malone Terrace priority-controlled junction and whilst serving various residential dwellings, is a cul-de-sac to the east. The street leads to the Ardee Wastewater Treatment plant to the east of the town centre. The street has footpaths along its entire length, and these are provided on both side of the road.

Golf Links Road

- 14.48 Golf Links Road is a single carriageway two-way street which connects the N2 Main Street to the northwest areas of the town, including the golf course. The N2 connects to the Golf Links Road at the priority-controlled junction. The street has footpaths on both sides of the street along the section close to the N2 junction. A pedestrian crossing facility is provided to the west of the N2 in order to connect the Woodland Walk to the Town Park to the north of the road.

Old Railway & Amenity Lands

- 14.49 The Old Railway and Amenity lands are situated along O'Carroll Street and Tierney Street respectively. The lands are currently disused land but are currently accessible via vehicle or by foot/cycling via the old railway walk from the east.

Receiving Existing Public Transport Facilities

- 14.50 The area is served by a northbound and southbound bus stop on the N2 Main Street just south of the Golf Links Road junction. The bus stop is served by the 167 and 182 Bus Eireann services and a private service provided by Collins Coaches to Dublin.
- 14.51 **Table 14.1** outlines the details of the services operating via the N2 Main Street in Ardee.

Table 14.1: Bus Service serving Ardee (N2 Main Street)

Bus Service	Route	Service Frequency
167 Service	Dundalk – Louth – Ardee (Bus Eireann)	Weekday 90-120 mins Saturday 90-120 mins Sunday No Service
182 Service	Drogheda – Ardee – Monaghan (Bus Eireann)	Weekday 120 mins Saturday 120-240 mins Sunday 120-240 mins

182A Service	Drogheda – Ardee (Bus Eireann)	Weekday 120 mins Saturday 120 mins Sunday No Service
980 Service (incl. A & B Services)	Carrickmacross – Ardee – Dublin (Collins Coaches)	Weekday 45-120 mins Saturday 180 mins Sunday 180-240 mins

Existing Pedestrian/Cycling Facilities

- 14.52 There are good pedestrian facilities in the vicinity of the area connecting to the town centre and surrounding areas. Pedestrian footpaths run along all the major streets in the study area however the quality and width of the footpaths vary in standard. There are no dedicated cycle facilities currently within the study area other than the provision of a riverwalk to on the southern side of the River Dee, west of the N2.
- 14.53 Walking and cycling catchment areas from the site based on 10-20 minute journey times have been plotted and analysis can be seen in **Figures 14.1** and **14.2**.

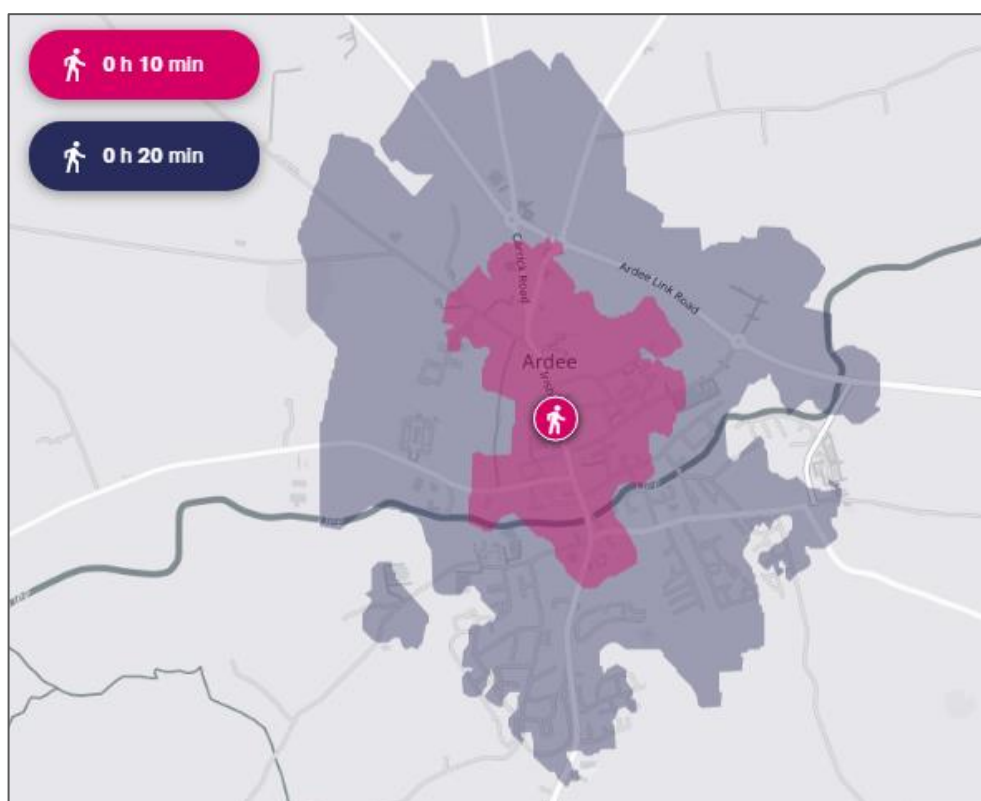


Figure 14.1: Pedestrian Walking Catchment - Journey Time Analysis

Source: Created with TravelTime API: <http://www.traveltimeplatform.com/>

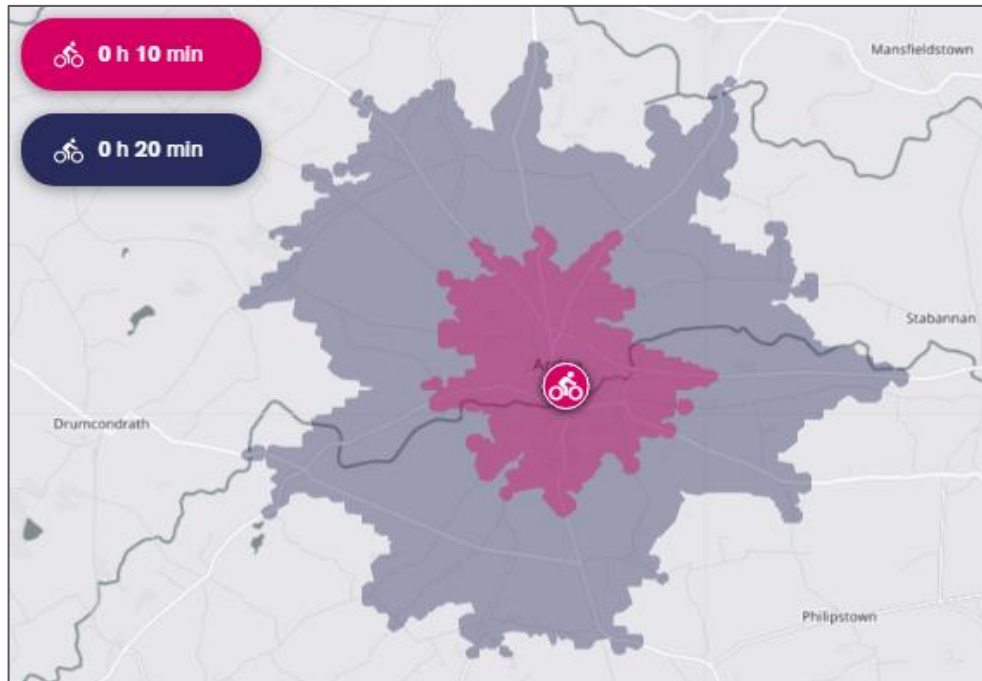


Figure 14.2: Cycle Catchment - Journey Time Analysis

Source: Created with TravelTime API: <http://www.traveltimeplatform.com/>

Existing Traffic & Parking Conditions

- 14.54 A number of traffic surveys were undertaken on behalf of Louth County Council in order to inform the traffic impacts of the proposals. Traffic data was collected by TSL 360 Ltd within the town to obtain data on the traffic volumes, speeds, and parking space utilisation.
- 14.55 The objectives of the traffic survey were to obtain accurate data on:
- The traffic volumes in and around the study area to assess the effect of the design decisions on the capacity of the road network. The surveys took the form of 12-hour classified turning counts and 7-day automatic traffic counts;
 - The speed of vehicles using these roads, to allow the designer's to take appropriate actions to ensure that the designed layout takes account of the actual speed of vehicles in the area and, if appropriate, seek to modulate the speed of users through design; and
 - The parking usage statistics, to ensure that the volume of parking available in the area is appropriate for the current utilisation, while also providing a high-quality urban public realm design.
- 14.56 Traffic counts and parking surveys were carried out March 2022. The traffic counts were carried out to establish junction and link flows during both the peak hour periods and on an all-day basis.

- 14.57 The junction turning count surveys were undertaken as part of this and other studies and these surveys were carried out using video cameras at each of the junctions for a 12-hour period. **Tables 14.2** and **14.3** outline the main findings of the traffic surveys.

Table 14.2: Summary of 2022 Peak Hour Survey Data for each Junction (Total Traffic Volumes at each Junction)

Location	Road No.	AM Peak Traffic Volume (vehs)	PM Peak Traffic Volume (vehs)
N2 / Irish Street / Golf Links Road Junction	N2	1,292	1,363
N2 / Ash Walk / O'Carroll Street Junction	N2	1,966	1,881
N2 / N52 Junction	N2/N52	1,795	1,703
N52 / Ash Walk Junction	N52	613	723
N2 / R170 / Johns Street Junction	N2	1,624	1,541

Table 14.3: 2022 Traffic Count Location – Summary of ATC Survey Data (7-day Traffic Flow by Composition & AADT)

Location	Road No.	24 hr Traffic Volume (Light Vechs)	24 hr Traffic Volume (HGV's) (%)	AADT Traffic Volume (vehs)
N2 (North of Golf Links Road Junction)	N2	12,797	1,880 (12.8%)	14,677
N2 – Ardee Town Centre	N2	10,159	1,174 (13.5%)	11,333
N2 (South of Monastery National School)	N2	12,577	1,959 (10.4%)	14,536
N52 (East of St Brigid's Hospital)	N52	5,643	883 (13.5%)	6,526
O'Carroll's Street (East Old Chapels Lane)		2,766	581 (17.3%)	3,347
Tiereny Street (East of Tiereny Avenue)		678	77 (10.2%)	754

- 14.58 A parking beat survey of the main car parking areas within the study area was also undertaken in order to establish the parking demand within the area.
- 14.59 An on-street parking beat survey was also undertaken within the study area for a 12-hour period (07.00-19.00) period on a neutral weekday and summarised by 30-minute time intervals. **Tables 14.4** and **14.5** outline the on-street and off-street parking areas surveyed.

Table 14.4: On-Street Parking Surveys Locations – Summary of Survey Data

Car Parking Area	No. of Parking Space	Average Occupancy Rate (0700-1900)	Peak Occupancy Rate
Main Street (between N52 Roundabout - Golf Links Road / Irish Street Junction)	15	79%	100%
Main Street (between Golf Links Road / Irish Street & Markethouse Lane)	38	73%	100%
Main Street (between Markethouse Lane & College Lane)	40	76%	100%
Main Street (between College Lane & Sean O'Carroll Street / Ash Walk)	40	76%	100%
Main Street (between Sean O'Carroll Street / Ash Walk & N52)	32	70%	97%
N52 (between N2 and Top PFS)	10	66%	90%
Main Street (between N52 and Tierney Street)	14	67%	107%
Castle Street (between Tierney Street & John Street)	5	48%	100%
Castle Street (between John Street and Circle K PFS)	38	21%	34%
Total	232		

Table 14.5: Off-Street Parking Surveys Locations – Summary of Survey Data

Car Parking Area	No. of Parking Space	Average Occupancy Rate (0700-1900)	Peak Occupancy Rate (No. of Occupied Spaces)
Ash Walk / Supervalu Car Parking	219	39%	60% (132)
Bridge Street Car Park (North of River Dee)	21	75%	100% (21)

Accident Information Analysis

- 14.60 The Road Safety Authority's (RSA) online collision database <http://www.rsa.ie/RSA/Road-Safety/Our-Research/Collision-Statistics/Ireland-Road-Collisions/> provides information on historic accident records on roads across Ireland over a 12 year period (2005 – 2016).

14.61 It should be noted that the RSA database is not a comprehensive record of collisions and does not include damage only collisions which might have been reported to the Local Authority / Gardaí records for the area. It does, however, provide a useful evidence base that can be used to identify roads that may currently suffer from an existing safety issue.

Figure 14.3 illustrates that over the 12-year period, a number of accidents were recorded in Ardee, in close proximity to Masterplan area.

14.62 The initial accident analysis indicated that some accident clusters are experienced around the main junction of the N8/ John Street and the N8 / N52 junction. Also, a number of accidents were recorded close to the pedestrian crossing opposite the Ardee Credit Union.

14.63 There are no details of any factors which could have caused the various accident however vulnerable users were present in c. 50% of all the accidents recorded. It is possible that vehicle accidents only may have occurred but were unrecorded. A number of accidents involved single vehicle accidents so it can be surmised that both accidents are likely to have been caused by driver error rather than any existing defects in the road layout. A number of accidents occurred between 2300 and 0700 on the weekends.

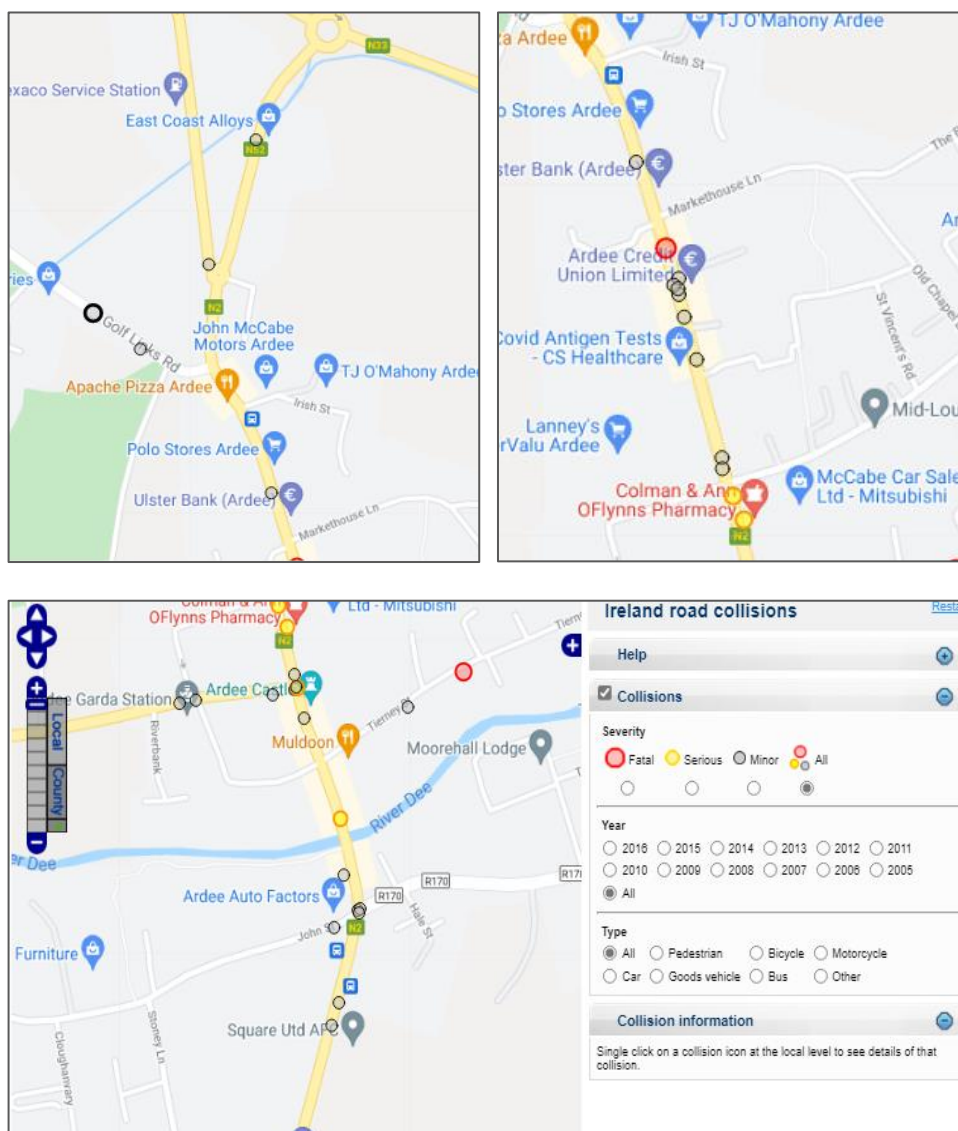


Figure 14.3: Collisions Recorded in and around the Main Street / Ash Walk Areas

Characteristics of the Proposed Development

Description of Proposed Project

- 14.64 The following summarises the proposed development for the public realm enhancement and community infrastructure works in Ardee Town Centre across 4 main character areas. Details of the proposed Character Areas is included in Chapter 3 of this EIAR. A full description of the proposed development is included at Chapter 5 of this EIAR.

Character Area 1 – Main Street / Ash Walk / Golf Links Road.

- Realignment and narrowing of the carriageway on Main Street and alterations to existing public car parking bays to reduce the overall number of spaces.
- Creation of new urban civic spaces, streets, road junctions, pedestrian pavements, steps, and cycle routes.
- Construction of new public realm comprising new hardscape surfaces, kerbing, street furniture, public street and feature lighting, soft landscape planting, cycle parking and signage.
- Alterations to the existing car parking layout outside Ardee Library to create a public plaza with associated car parking.
- Upgrade and installation of new utility services including electric vehicle charging points.

Character Area 2 – Old Railway Lands

- Redevelopment of this area to provide a community park including hard and soft landscaped area, allotments, equipped children's play park, storage container and boundary fences.
- Retention of remnant railway infrastructure to create a raised platform / seating area.
- Construction of new public realm comprising new hardscape surfaces, kerbing, street furniture, feature lighting and signage.
- New vehicular access proposed to the northwest corner of the site along with the retention of the existing access.
- Construction of a new vehicle access from O'Carroll Street to serve a new public car park. Retention of the existing controlled access from O'Carroll Street for pedestrian / maintenance access.

Character Area 3 – Amenity Lands

- Redevelopment of the site to provide a community park and sports hub to include a 200m grass running track and associated flood lighting, bowling green and boundary fence, hard and soft landscaped areas and drainage swale.

- Construction of new public realm comprising new hardscape and landscape surfaces/footpaths, kerbing, street furniture, feature lighting, signage and new site boundary fencing.
- Construction of a single storey sports pavilion building.
- Construction of a new access road, public car parking arranged parallel / perpendicular to the carriageway and a designated off-road car park.

Character Area 4 – Woodland Walk

- Resurfacing of existing informal path within St. Joseph's Hospital grounds, new footpath on agricultural land linking St. Joseph's Hospital grounds to Ash Walk and new soft landscaping, boundary fencing, bollards and signage.
- Resurfacing of existing informal path linking St. Joseph's Hospital grounds to the rear of Ardee Day Care Centre.

Potential Impacts

Construction Phase

- 14.65 The construction stage of the proposed development will be phased depending on funding availability and a detailed programme will be developed prior to the delivery of the scheme.
- 14.66 A Preliminary Construction Environmental Management Plan (PCEMP) has been prepared and is submitted as part of this planning application. This details the scope of the site works and processes..
- 14.67 A Construction Stage Temporary Traffic Management Plan will be developed including the identified haulage routes in compliance with the Preliminary Temporary Traffic Management Plan developed in consultation with the local authority. The surrounding road network is suitable to accommodate the construction traffic associated with the proposed development and the Construction Traffic Management Plan will include a range of mitigating measures as identified in the PCEMP to ensure the safety of the workforce on the site and accessing the site, and the public on the surrounding roads and to minimise construction traffic generation and disruption on the surrounding road network.
- 14.68 The initial enabling works, to be carried out in accordance with the Project specific PCEMP (Traffic Management, control of surface water, storage of materials etc.). Any movement of materials / excavation works in the various character areas designated will be undertaken and all vehicular access will be via the main distributor road network. If a site compound and materials storage area is required, then it will be constructed in a suitable and accessible area that will have limited impact on the adjoining road network. The location of the temporary contractor's compound and car parking will be agreed with the appointed contractor upon award of the contract and details agreed with the Local Planning Authority prior to commencement of construction works.
- 14.69 All construction materials will be sourced locally where possible. This will be based on the necessary constraints of performance, durability and cost.

- 14.70 The construction phase may have slight localised effects in relation to traffic and environmental impacts, but these will only be for brief periods (occasional few hours or day) to enable the movement of material, etc.

Operational Phase

Character Area 1: Main Street (including Ash Walk)

- 14.71 The site extends from the N2 / N52 roundabout in the north of Ardee and extends south along Main Street as far as the junction of the N2 and R170 (William Street) roads. The opportunity area includes a portion of Golf Links Road to the northwest of Main Street and the public road/existing footpath and public realm areas within Ash Walk.
- 14.72 The entire public area within Main Street, including the public road and existing footpath/areas of public realm, are included within the site boundary. These areas are currently finished in either paving or tarmac.
- 14.73 There are limited areas of soft landscaping along Main Street however there are a number of mature trees positioned along the public footpath. No buildings along Main Street are located within the site boundary. The site boundary extends as far as Bridge Street to the south.
- 14.74 The measures which will be implemented as part of the overall development to influence the use of sustainable modes of transport and help minimise the need for private vehicle trips. The design and layout of the development will facilitate ease of access to public transport, support walking and cycling and meet the needs of people with disabilities and others whose mobility is impaired through adherence to current design guidelines.
- 14.75 The development proposals recognise opportunities to encourage use of sustainable modes of travel by:
- Promoting cycling and walking as viable sustainable transport modes for all members of the community; and
 - Providing, where possible, traffic free pedestrian and cycle routes, especially where they would facilitate more direct, safer and pleasant alternatives to those used by the private car.
- 14.76 A summary of some of the key aspects of the scheme are outlined below and are contained on the full set of design drawings accompanying this report.

Junction Upgrade: N2 / Golf Links Road / Irish Street Junction

- 14.77 As part of the scheme proposals, it is proposed to upgrade the existing N2 / Golf Link Road junction. The proposed enhanced junction will include:
- Realignment of the entry and exit lanes to and from Golf Links Road from the N2 in order to provide safer junction layout;
 - Narrowing of the N2 carriageway to 6.5m in order to reduce vehicle speeds and enhance user safety;
 - Provide enhanced pedestrian and off-road cycle facilities through the junction;

- A new toucan crossing to cater for pedestrian and cyclist movements across Golf Links Road;
- Provision of hard and soft landscaping measures to enhance the public realm in at the junction;
- Provision of an uncontrolled pedestrian crossing of Irish Street;
- Provision of car parking and disabled parking spaces along the Main Street; and
- Provision of a shared surface carriageway incorporation the proposed parking and bus stop facilities.

14.78 The existing and proposed junction layouts are illustrated in **Figure 14.4**.



Figure 14.4: Existing & Proposed N2 / Golf Links Road Junction Layout

14.79 The current junction layout allows for the higher speed vehicular movements to and from the Golf Links Road and has little regard for cycle, pedestrian and movement of vulnerable users in and around the area. The proposed junction arrangement will narrow the entry width of the junction and enhance the safety of the junction whilst catering for the existing vehicular movements in the area. The enhanced layout will enable better local public realm to be provided and interaction with the existing park to the north and the Woodland Walk to the west of the area.

Main Street / Markethouse Lane Junction

14.80 The existing and proposed layouts at the Main Street / Markethouse Lane junction is illustrated in **Figure 14.5**.



Figure 14.5: Existing & Proposed Main Street Layout

- 14.81 The proposed scheme proposes the realignment of the Main Street and enhancement of the public realm in and around Ardee Library. This will involve the narrowing of the carriageway and the provision of a raised shared surface across the junction in order to encourage enhanced pedestrian and cycle connectivity across the area. The existing car parking area will be redesigned to accommodate a play area, bicycle parking facilities and enhanced public realm for the area along with the provision of 3 No car parking spaces, 2 No. which are accessible parking spaces. Vehicular access to the properties off the square will also be maintained.

Main Street / Castle Street – Ardee Castle

- 14.82 As part of the scheme proposals, it is proposed to enhance the public realm in and around Ardee Castle. The proposed enhanced layout will include:

- There is no significant change to the N52 / Main Street junction in terms of kerb alignments / entry and exit lanes to and from the N52 other than the removal of parking at the junction to enhance the safety of the junction;
- Narrowing of the main carriageway in order to reduce vehicle speeds and enhance user safety and the provision of a shared surface carriageway in front of Ardee Castle;
- Better provision of parking and crossing facilities to enhance connectivity between both sides of the street facilities in front of Ardee Castle; and
- Provision of hard and soft landscaping measures to enhance the public realm in at the junction.

- 14.83 The existing and proposed layouts between the N52 and Malone Terrace along the Castle Street are illustrated in **Figure 14.6**.



Figure 14.6: Existing & Proposed Main Street Layout – Ardee Castle (Castle Street)

- 14.84 The development proposals along the Main Street are seen to enhance the safety and connectivity for sustainable modes in and around the town centre. In the short to medium terms, the proposed scheme will maintain and cater for the current level of traffic movements along the Main Street as the current two-way carriageway is being maintained – but the width of the carriageway has been reduced to 6.5m in order to better channelise vehicle movements and cater a safer environment for pedestrians, cyclists and vulnerable road users. The proposed streetscape improvements will also reduce vehicles speeds and thus enhance the environmental credentials of the area.
- 14.85 The car parking proposals within the area have been reduced and re-orientated in order to enhance the safety of the Main Street and to reduce the level of vehicle manoeuvres within the area. The provision of enhanced cycle and pedestrian facilities along the route will provide an alternative to the need for vehicle to parking on the Main Street.
- 14.86 It should be noted that once the N52 Ardee Bypass to the northwest of the town is provided this will assist in reducing traffic and HGV movement through the town, thus reducing congestion levels allowing for some ease of access around the town hence cutting down on the reliance on the car.
- 14.87 The proposal for the area will have a positive effect on the movement of pedestrian and cyclist and the reduction in vehicle speeds through the area. The effect will extend along and beyond the Main Street area with long-term benefits for all users.

Character Area 2 – Old Railway Lands

- 14.88 This portion of the site is located on lands to the south of O'Carroll Street, Ardee (see **Figure 14.7**)
- 14.89 Character Area 2 links to Character Area 3 via the existing pedestrian walkway on the former railway lands to the south of Ardee Enterprise Centre, Cappocks Green and links to Character Area 4 via the existing pedestrian route from the south of the site to Tierney Street.
- 14.90 The remains of the former railway platform are visible in the west portion of the site. A pedestrian walkway traverses the site from Sean O'Carroll Street in the north before

exiting the site via the route of the old railway line to the east of the site. A second pedestrian access is located to the southeast linking the site to Tierney Street.

- 14.91 An informal gravel roadway runs in a west to east direction linking the vehicular access at Mid-Louth Garage in the west to the existing pedestrian walkway in the east of the site. Vehicular access to the site is available from Sean O'Carroll Street via Mid-Louth Garage and the existing access to the north of the site.
- 14.92 The new vehicular access will be provided at the northwestern corner of the site. A total of 6 No. car parking / drop-off spaces and 1 No. disabled car parking space is proposed within the site. The spaces will mainly be used for the drop-off and pick-up of materials and equipment relating to the community gardens / allotments.
- 14.93 Pedestrian and cycle access to the site will be encouraged via the new and existing accesses off O'Carroll Street and the site is well connected to the existing Railway Walk.
- 14.94 The proposed development of the land will have a positive environmental impact on the area and will generate insignificant level of vehicular movements to the site on a daily basis. Any trip generate would also be outside the peak commute periods for the area. The enhance connectivity to and from the site by sustainable modes of transport will further enhance the lands as a destination within the wider Ardee landscape.



Figure 14.7: Proposed Railway Lands Ardee

- 14.95 The operational impact of the proposed land use and site development will be insignificant in relation to the level of traffic to and from the site. The on-site provisions encourage the use of sustainable modes of travel to and from the site, thus reducing the environmental impacts resulting from vehicle movements to a minimum.

- 14.96 The proposals for the Old Railway Lands will have positive and long-term effects and benefits for the area in terms of the promotion of sustainable modes to travel to and from the site.

Character Area 3 - Amenity Lands

- 14.97 This portion of the site is located to the east of Greenvale House, Old Dawsons Demesne (Eircode A92 RH76), to the west of Ardee Wastewater Treatment Works and north of the River Dee (see **Figure 14.8**). An existing roadway traverses the centre of the site in a west to east direction linking Tierney Street to Ardee Wastewater Treatment Plant. To the north of the site is a pedestrian walkway which follows the route of the former railway line.
- 14.98 The proposed redevelopment of the site will provide a community park and sports hub to include a 200m grass running track and bowling green.
- 14.99 Vehicular access to the proposed Amenity Lands is via Tierney Street. The access also provides access to the Wastewater Treatment Plant to the east of the site. Access to the wastewater treatment plant will be restricted by the provision of removable bollards along the access road to the east of the main amenity area in order to restrict vehicular access to the site.
- 14.100 A total of 11 No. formal parking spaces, 4 No. Electric Vehicle parking spaces and 4 No. disabled car parking space are proposed within the site. A total of 26 No. overflow car parking spaces are also provided on site. The area identified for the overflow parking will be constructed as a grasscrete area and would only be used in periods of high demand or when an event is scheduled for the amenity lands.
- 14.101 Pedestrian and cycle access to the site will be encouraged via the existing Railway Walk and along Tierney Street. Cycle parking is also proposed for the amenity lands.



Figure 14.8: Proposed Amenity Lands Ardee

- 14.102 The recreational nature of the proposed site uses will primarily be for the local community use and no major events are proposed to be staged at the location. It is

envisaged that localised traffic movements to and from the site will occur on a daily basis and on the weekends, primarily outside the peak hour periods.

- 14.103 It is envisaged that no more than 30-40 trips to and from the site would be envisaged in the peak operational periods. The trip generation associated with the site is assumed based on the typical number of participants that may regularly attend such amenities (bowling green – 15-20 people in off-peak periods; athletics c. 30-40 children afternoon & evening sessions). The sports pavilion is proposed to cater for the users of the various amenity on site rather than being an additional use on site.
- 14.104 It should also be noted that the clubs and individuals using the proposed facilities, particularly the running tracks / athletics facilities, are currently using facilities around the town so the traffic associated with this land use are currently on the adjoining road network so no new traffic will be generated by the proposed development.
- 14.105 Based on the site's proximity to the adjoining residential areas and the good pedestrian and cycle connections to the Railway Walk and the town centre, the level of car use to and from the site would have an insignificant environmental impact on the adjoining road network.
- 14.106 The development proposals for the amenity lands will have positive effects for the area and long-term benefits and through the sustainably accessible route to the town centre, will encourage positive travel behaviour in terms of cycling and walking.

Character Area 4: Woodland Walk

- 14.107 The Woodland Walk site travels in a north to south direction in the west of the town linking Ash Walk to Golf Links Road. The route begins directly to the west of the existing Supervalu overflow car park and travels north through agricultural land towards the wooded area surrounding St. Joseph's Hospital. The route follows the alignment of an established path through the wooded area and connects to Golf Link Road in the north. This portion of the route is currently used as agricultural land and an existing path through the wooded area.
- 14.108 The proposed scheme involves the resurfacing of existing informal path within St. Joseph's Hospital grounds, the provision of a new footpath on agricultural land linking St. Joseph's Hospital grounds to Ash Walk with new soft landscaping, boundary fencing, bollards and signage. The resurfacing of the existing informal path linking St Joseph's Hospital to the Ardee Day Care Centre is also proposed.
- 14.109 The proposed scheme will provide a direct pedestrian and cycle connectivity from Ash Walk to Golf Links Road along a 2.5-3.0m wide path which will meander through the existing woodland area. The route of the pathway avoids, where possible, existing trees and landscaping in the area and will use a 'no dig' root sensitive construction method to limit impact on the root protection area of trees.
- 14.110 The proposed scheme will have a positive environmental impact in relation to providing good pedestrian and cycle connectivity through the area and providing safe connections to the wider Ardee area. No traffic impacts are envisaged as a result of the proposals.

- 14.111 The enhancement of the existing Woodland Walk will have positive effects for the area and long-term benefits as it will encourage a positive travel behaviour in terms of cycling and walking.

Road Safety Audits

- 14.112 A Stage 1 Road Safety Audit (RSA) was undertaken of the proposed layout to assess user safety and to highlight potential issues requiring further consideration. The RSA was undertaken by two independent approved auditors and all potential issues and recommendations are to be addressed by the designer and subsequently carried forward within the finalised design layout and during the construction design stage.

Summary of Effects

- 14.113 An accessibility review was undertaken to assess the opportunities for travel to the site by all relevant modes of transport and review walking, cycling and public transport provision, as well as access by private car. The sites are located within an existing and established urban centre and therefore benefits from good pedestrian and cycle links. The proposed development will significantly improve pedestrian and cycle facilities within the scheme area.
- 14.114 The development proposals will not generate any additional traffic to the traffic that is currently experienced in the town centre but could in fact reduce the need for private vehicle movements through the provision of the enhanced sustainable travel facilities. Therefore, it is concluded that the proposed development can be accommodated within the surrounding road network.

Cumulative Impacts

- 14.115 A review of historical planning permissions was undertaken to identify whether there is any planning history on or adjacent to the application site that either impacts on the prospects of planning permission being granted for the proposed development, or that could be impacted upon by the proposed development. These planning applications are detailed in chapter 3 of this EIAR.
- 14.116 We consider that these applications will not have a direct impact on the proposed development, however they have been considered as part of the design concept evolution to ensure that the Ardee 2040 Regeneration Project maximises the potential to link to existing and future residential and community infrastructure where possible.

Mitigation Measures

- 14.117 The following summarises the key mitigation measures proposed to manage the travel demand generated by the scheme during the construction and operational phases.

Construction Phase

Construction Traffic Management Plan

- 14.118 A detailed Construction Traffic Management Plan, which will incorporate the relevant traffic management measures included for in the Outline Construction Management Plan, will be finalised for the construction stage of the project by the Contractor. This Plan will include the following transport-related measures:

- Working hours that will avoid any significant staff trips during peak hours;
- Appropriate amount of car parking for construction staff to mitigate any potential car parking overspill onto the surrounding residential areas;
- The separation of construction traffic from general traffic where possible and necessary;
- The management and marshalling of construction vehicles when required; and
- The Contractor will be required to implement a Mobility Management Plan for its staff, where travel by sustainable modes and car-pooling will be encouraged.

14.119 The Contractor will ensure that the proposed works are carried out in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013).

14.120 The renewal and reconfiguration of the Main Street / Ash Walk and street layouts will necessitate the excavation of the existing footpaths and pavements, formation of suitable subbase and levels, relocation of existing utilities, installation of new street surface paving, street furniture and lighting.

14.121 The phasing of the construction works shall be outlined in the Construction & Environmental Management Plan (CEMP). The CEMP will be prepared by the appointed contractor and issued to TII for agreement prior to works commencing and will be implemented for the duration of the works. Access to the approach roads and properties within the area will be maintained at all times during the construction phase. This may require limited night works for final surfacing and utility installation etc.

14.122 Scheduling of these activities will be addressed in the CEMP. The construction works will always allow one lane of traffic on any section of road being worked on. The N2, N52 and bus routes will be maintained through the town.

14.123 As construction works are standard in nature and well understood, there is a low probability that traffic accidents will occur. Normal good construction and traffic management practices are to be employed and will ensure that the risk of accidents will be low.

Operational Phase

Development Proposals

14.124 The overall proposed scheme will include a number of measures that are deemed beneficial to improve the public realm, enhancing the pedestrian and cycle connectivity and road safety across the area. The measures which will be implemented as part of the overall development to influence the use of sustainable modes of transport and help minimise the need for private vehicle trips. The design and layout of the development will facilitate ease of access to public transport, support walking and cycling and meet the needs of people with disabilities and others whose mobility is impaired through adherence to current design guidelines.

14.125 The development proposals recognise opportunities to encourage use of sustainable modes of travel by:

- Promoting cycling and walking as viable sustainable transport modes for all members of the community; and
- Providing, where possible, traffic free pedestrian and cycle routes, especially where they would facilitate more direct, safer and pleasant alternatives to those used by the private car.

14.126 These opportunities are achieved by the:

- Realignment and narrowing of the carriageway on Main Street and alterations to existing public car parking bays to reduce the overall number of spaces in order to reduce traffic movements in the Main Street.
- Creation of new urban civic spaces, streets, road junctions, pedestrian pavements, steps, and cycle routes to encourage active travel.
- Redevelopment of the Old Railway Lands and the Amenity Lands to provide a community park and sports hub in order to encourage more health bases activities and active travel within the community.
- Resurfacing of existing informal Woodland Walk path within St. Joseph's Hospital grounds and new footpath on agricultural land linking St. Joseph's Hospital grounds to Ash Walk and to the rear of Ardee Day Care Centre in order to enhance pedestrian and cycle facilities to the west of the Main Street.

Active Travel Strategy

14.127 An 'Active Travel Strategy' is a strategy for managing multi-modal access to a site or development, focusing on promoting access by sustainable modes. The objective of national and local policy is to reduce reliance on the car for travel. Inducements and encouragement should be applied in order to influence change, and this can be achieved through the delivery of 'An Active Travel Strategy' for the area.

14.128 An Active Travel Strategy would encourage use of sustainable transport measures during the operational phase and should relate to all future developments within the Ardee area in order to form part of the wider mitigation measures (e.g. strategy highlighting the proximity of local services, public transport provision, schools and walking/cycle distances to same, etc). The proposed 'hard measures' that will facilitate safer pedestrian, cycle and public bus access will be provided as part of this application and could be further complimented by future scheduled works for the wider Ardee area.

14.129 The overarching ambition of this Active Travel Strategy is to: *Make active travel an attractive and realistic choice for short journeys in the area.* Delivering on this ambition will lead to more people walking and cycling, contributing to the following outcomes:

- Improved health through an increase in physical activity.
- Reduced congestion on the highway network by providing better travel choices.

- Safer active travel.

14.130 These outcomes will be realised by delivering the following actions:

- **Action 1:** Integrate active travel into planning: The strategy would influence the layout and design decisions and ensure active travel is prioritised in future planning processes. In addition, the strategy will encourage active travel to be better integrated with other types of transport e.g. walking to the bus stop or cycling to schools. This will be led by current commissioning guidance and best practice, existing policies and strategies with a commitment to encouraging active travel. These include:
 - Inform the site layout and development in line with policies;
 - Support the policies to ensure that active travel is used to deliver sustainable growth and development within the planning applications;
 - Ensure active travel routes are a priority, both within developments and linking sites to other services, community facilities and transport hubs making active travel an attractive and realistic choice for short journeys;
 - Ensure sufficient areas within developments for green spaces and attractive routes and environments that encourage active travel; and
 - Work with strategic transport providers to deliver infrastructure that supports active travel.
- **Action 2:** Provide and maintain appropriate routes for active travel: The area will provide fit-for-purpose active travel routes that people want to use. The existing and proposed cycling and walking routes will be developed over time as the wider development allow. They will be continuous and direct where possible and serve important community services in the area, which means that some people who would like to actively travel can be. There is a need to provide facilities such as safe crossings along routes and secure cycle storage at the proposed residential development. It is also important that these routes are well maintained and designed to be as inclusive as possible. The include:
 - Giving appropriate consideration to active travel within the proposed development in terms of pedestrian and cycle facilities and connections.
 - Ensure active travel resources such as appropriate signage is provided to enable safe and effective active travel.
 - Make reasonable adjustments to active travel route design to maximise the inclusivity and accessibility to all users.
 - Evaluate funding for active travel infrastructure and maintenance.
- **Action 3:** Support active travel in the community: There is a need to encourage and promote active travel in the community. People need the skills, confidence, information and, most importantly, the motivation to make active travel their

preferred choice. Initiatives needed to support this change include pedestrian and cycle training, road safety campaigns, projects to encourage active travel to schools and work and promotion of available routes and facilities. These include:

- Supporting initiatives including area wider travel planning and other active travel programmes.
- Promote active travel and provide support to increase levels of active travel within the proposed development.
- Integrate walking and cycling for travel purposes into local services through the provision of safer facilities.
- Develop and maintain recreational routes as a means of introducing people to active travel.
- Support road safety initiatives for all road users, especially the most vulnerable such as cyclists and pedestrians.
- Promote locally based programmes to encourage walking and cycling, and integrate active travel as part of longer journeys involving public transport.

Monitoring & Reinstatement

14.131 A detailed Construction Traffic Management Plan will be proposed for the proposals, and this will be monitored and amended where necessary during the course of the works. The plan will be finalised for the construction stage of the project by the Contractor and will address all transport-related measures.

14.132 Any construction access point, compounds or other requirements necessary during the construction stage will be reinstated.

14.133 The implementation of an Active Travel Strategy for Ardee would encourage use of sustainable transport measures during the operational phase and should relate to all future developments within the Ardee area in order to form part of the wider mitigation measures. The proposed 'hard measures' that will facilitate safer pedestrian, cycle and public bus access will be provided as part of this application.

Residual Impacts

14.134 The key residual impacts associated with the proposal include:

- The proposals for the area consist of the urban street and public area improvements and is not seen as a generator of vehicular destination trips. The vehicle movements generated by these proposals with particular reference to the character and number of trips in/out combined per day will therefore have a negligible impact on the adjoining existing road network.
- The overall proposed scheme will include a number of measures that are deemed beneficial to improve the public realm, enhancing the pedestrian and cycle

connectivity and road safety across the area. The measures which will be implemented as part of the overall development to influence the use of sustainable modes of transport and help minimise the need for private vehicle trips. The design and layout of the development will facilitate ease of access to public transport, support walking and cycling and meet the needs of people with disabilities and others whose mobility is impaired through adherence to current design guidelines.

- The proposals will have a positive impact in relation to reducing noise and air quality through the better management of vehicle movements and parking within the town centre.

14.135 Given that the proposals will encourage prioritisation of pedestrian and cyclist modes of transport in the town, it will have a positive effect by setting a benchmark for lowering traffic levels in the town in the short, medium and long term.

Do Nothing Scenario

14.136 If nothing is done to create a more dynamic public realm across the Ardee town centre, the area may continue to languish and decline. The lack of economic viability for the town centre commercial properties will continue, and the quality of life for visitors and residents of Ardee will continue to be negatively impacted by the hostile environmental impacts from unrestrained traffic through the town.

Worst Case Scenario

Construction Phase

14.137 The worst-case scenario would be that the construction activities required to replace the public realm paving and street furniture could have a negative impact for a short period of time on the highly sensitive fabric of the town and its operations in terms of traffic movements. This will be very short lived and can be mitigated across through traffic management and scheduling of works.

Operational Stage

14.138 It has been clearly demonstrated that the development proposals fall within the category of development where the use of sustainable transport solutions will provide the town centre with a real option for change. The enhance pedestrian and cycle offering is aimed at making a real behavioural change to how the town centre is accessed.

14.139 Future traffic growth predication has been undertaken for the Main Street and surrounding area, however, these have done to represent a worst-case scenario situation only. Once the N52 Ardee Bypass to the northwest of the town is provided this will assist in reducing traffic and HGV movement through the town, thus reducing congestion levels allowing for some ease of access around the town hence cutting down on the reliance on the car.

14.140 **Table 14.6** outlines the future year AADT volumes envisaged for the study area Street in the event of no N52 Ardee Bypass.

Table 14.6: Worst Case Scenario - Future Year Traffic Predication – Environmental Purposed Only

Location	2022 AADT Traffic Volume (vehs)	2027 AADT Traffic Volume (vehs)	2032 AADT Traffic Volume (vehs)	2037 AADT Traffic Volume (vehs)
N2 (North of Golf Links Road Junction)	14,677	16,315	17,528	18,402
N2 – Ardee Town Centre	11,333	12,569	13,482	14,140
N2 (South of Monastery National School)	14,536	16,169	17,378	18,250
N52 (East of St Brigid’s Hospital)	6,526	7,259	7,802	8,193
O’Carroll’s Street (East Old Chapels Lane)	3,347	3,736	4,026	4,234
Tiereny Street (East of Tiereny Avenue)	754	836	897	940

14.141 However, it should be noted that the future traffic predications are based on the current traffic behaviour in the area. The proposed scheme, the enhance connectivity for sustainable modes of travel and delivery of the N52 by-pass will result in a significant reduction in the level of traffic travelling but to and through the town centre.

Interactions

14.142 Significant inter-relationships that are likely to occur between the various environmental disciplines with regard to the proposed development have been outlined in this section. It is assumed, that an environmental discipline has a potential inter-relationship both during the construction and operational phases of the development.

Air Quality & Climate

14.143 Demolition, construction and operational phases of the project have the potential to releases atmospheric pollutants into the surrounding environment. Mitigation measures detailed for demolition and construction stages will aid in reducing levels of air pollution. There is no significant impact predicted on local air quality concentrations at human exposure receptors or designated sites as a result of the proposed development.

Noise & Vibration

14.144 There is an interaction between noise and traffic through generation of construction and operational stage traffic. Overall predictions are that there will be no significant noise impact generated during construction or operation stages due to traffic generation with appropriate mitigation.

Difficulties in Compiling Information

- 14.145 No difficulties were encountered in compiling this chapter other than the impact that Covid-19 Travel restriction played in relation to the collection of traffic data. Analysis of the traffic data available has been undertaken to ensure that the most accurate representation of the traffic behaviour in and around the area have been included in this assessment.

References

A number of reference document have assisted in the design development of the proposal and have been referred to in the preparation of this transport chapter, namely:

- Traffic and Transport Assessment Guidelines (Transport Infrastructure Ireland – May 2014)
- Transport Infrastructure Ireland Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections – May 2019.
- Environmental Protection Agency (2017) Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft August 2017)
- Highways Agency (UK) *DMRB Volume 5 Section 1 Part 3b (TA 79/99) Assessment and preparation of road schemes. Assessment of road schemes. Traffic capacity of urban roads (including Amendment No.1 dated May 1999)*

15. Material Assets (Site Services)

Introduction

- 15.1 This chapter describes and assesses the potential impacts of the proposed Ardee 2040 Regeneration Scheme material assets (Site Services). This chapter was authored by Keith Hanna, a qualified Senior Chartered Engineer at Nicholas O'Dwyer, who possesses extensive experience in the field of engineering.
- 15.2 The *"Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports"* (August 2017) defines material assets as concerning built services and infrastructure. This Chapter deals with Site Services element of Material Assets. Other elements including Waste and Traffic & Transportation are set out within Chapter 13 and Chapter 14, respectively.

Existing Environment (Baseline)

Overview

- 15.3 This section provides a baseline description of the utility services within the study area that interface with the proposed scheme. This baseline site services data has been sourced from the following:
- Louth County Council;
 - Irish Water;
 - ESB;
 - Telecoms;
 - Gas Networks Ireland;
 - Site Topographic Surveys;
 - Utility Service Mapping Survey.
- 15.4 The site services maps obtained from the relevant utility companies and local authorities are included in the **Appendix 15.1**.
- 15.5 The service maps provided by the utility companies and local authorities gives information that is approximate and 'best knowledge' only. The information supplied cannot be relied upon as being accurate, either in location, pipe size and/or levels. Indeed, the service maps are issued with disclaimers to this effect.
- 15.6 A Utility Mapping Surveying contract was procured for the area so that site services could be mapped more accurately, and information could become available for other services for which maps are not typically issued. The mapping survey is presented in the **EIAR Appendix 15.1**.

15.7 The utility mapping survey used a combination of ground penetrating radar (GPR) scanning and physical surveying of access covers at surface level to produce a comprehensive baseline site services survey. The following services were mapped:

- Wastewater;
- Water Supply;
- Surface Water;
- Electricity;
- Gas;
- Telecommunications; and
- Lighting.

Existing Environment - Wastewater

15.8 This section reviews the existing wastewater infrastructure, including any pipe sewer networks, foul pumping stations and wastewater treatment plants, within the site area. The wastewater assets in particular adjacent to the proposed works are:

- Foul drainage on both sides of the road along the N2, 225mm diameter pipes;
- 225mm diameter uPVC sewer pipeline runs across the field from Golf links road eastwards to towards the N2;
- Foul drainage pipes extend from St Brigid's Hospital eastwards towards Ash Walk towards the N2;
- Foul pipes located along O'Carroll Street from the N2;
- A 300mm diameter wastewater pipeline extends from the 225mm wastewater pipe on O' Carroll's Street across the amenity lands. Confirmed wayleave for the pipe across the amenity lands which will be 10m by Uisce Eireann;
- It is to be expected that individual small diameter domestic connections from buildings extend from the property boundary to the foul sewers in a perpendicular direction to the road/footpath; and
- There is a treatment plant located just east of the amenity lands with the entrance through Tierney Street.

Existing Environment - Water Supply

15.9 This section reviews the existing water infrastructure, including pipe networks, pumping stations and treatment plants within the study area. On the main road (N2), the water lines run near the buildings to supply them. Up to the river, two lines can be found on each side of the road (N2), and using GPR and record drawings, these lines can be identified up to the junction with John Street.

The water supply assets specifically adjacent to the proposed works are:

- Watermains on both sides of the road along the N2;
- Watermains located along Malone's Terrace and extends across the N2 towards Tierney Street;
- Watermains extend from St Brigid's Hospital towards Ash Walk towards the N52;
- Watermain located on the south side of the N52 from the N2 towards Riverbank Road and thereafter on both sides of the N52 heading west; and
- Watermains located along O'Carroll Street from the N2.

Existing Environment - Surface Water

15.10 This section reviews the existing surface water infrastructure, including pipe networks, pumping stations and surface water attenuation areas within the study area.

15.11 The surface water assets specifically adjacent to the proposed works are:

- A 225mm diameter Storm sewer extends from Main Street towards the N2;
- On the N2 at the graveyard, a storm sewer extends towards Castle Street increasing in Diameter from 300mm to 450mm and 500mm; and
- A 100mm diameter storm sewer extends eastward from the 500mm diameter pipe on Castle Street. A 500mm diameter stormwater pipe then extends from the 100mm pipe from Tierney Street southwards towards the River Dee.

Existing Environment - Electricity

15.12 This section reviews the existing ESB infrastructure, including underground and overhead infrastructure, and substations, within the study area. The majority of the electrical lines are installed overhead. Along the main road (N2), it's evident that buildings are being powered by these overhead lines. Notably, near the roundabout on the N2, the overhead line terminates at a pole, after which it runs underground on both footpath sides. In certain instances, the electrical lines are overhead and then transition to underground by connecting to a pole adjacent to a building, as observed on N2 and at the sewerage works. The following is a brief description of the ESB infrastructure in the vicinity of the proposed works area:

- HV cables run within the eastern site boundary across Tierney Street towards the N33;
- MV/LV ESB cables extend northwards along the N2 TOWARDS Irish Street;
- MV/LV cables extend from the N2 towards Ash Walk;
- MV/LV cables extend from the N2 towards along the N52 heading towards the Hospital;
- MV/LV cables are located along Jervis Street; and

- MV/LV cables are located on the eastern boundary at the Railway Station extending from Tierney Street northwards towards O'Carroll Street.

Existing Environment - Gas

15.13 This section reviews the existing Gas Network Ireland infrastructure, including distribution and transmission infrastructure, within the study area. Similarly to the water lines, the gas lines were detected using the GPR based on the record drawings. The majority of the lines are located underneath the road and provide gas supply to the buildings by crossing both the road and footpath. In the hospital area, there is a Gas Panel 90 that serves another panel (Gas Panel 88), which in turn supplies gas to the hospital.

15.14 The following is a brief description of the Gas Network Ireland infrastructure in the proposed works area:

- A 180 PE Gas main is located along the N2;
- 32 PE-80 low pressure distribution gas pipeline extends from the N2 along Ash Walk, servicing SuperValu;
- 125 PE-80 medium pressure distribution gas pipeline services St Brigid's hospital and runs eastwards towards St Joseph's Hospital;
- 63 PE low pressure distribution gas pipeline extends from the N2 towards Malone's Terrace and Northwards across the N52 servicing the Bohemian Centre;
- 180 PE low pressure gas pipeline extends from the N2 eastwards along O'Carroll Street; and
- 180 PE low pressure distribution gas pipeline extends from the N2 onto Hale Street.

Existing Environment - Telecommunications

15.15 This section reviews the existing telecommunications infrastructure, including Eir and Virgin Media infrastructure, within the study area. The following is a brief description of the telecommunications infrastructure in the proposed works area:

- On both sides of Castle Street, extending towards Bridge Street, there are 100 PP, 1-way MD(14/10), 50-st and 3-inch CI Open Eir cables. These cables also cross the street at various points;
- 112PP cables at Moorehall extending from Bridge Street towards William Street;
- 112TW & 1-way MD (14/10) cables located along the north side of Jervis Street;
- 100PP & 3-way MD cables extend from Bridge Street and continue along the east side of Drogheda Road heading south;
- 100CD, 1-way MD (14/10) & 100PP cables run along both sides of Irish Street and extends southwards onto Market Street;

- 100PP cables extend from Market Street that service Market Square and the Library;
- 100PP Open Eir cables are located along the South side of Markethouse Lane extending along Old Chapel Lane on the west side of the road;
- 100PP cables are located south of the River Dee; and
- 100PP & 112TW Cables are located on both sides of Tierney Street, these cables stop just after the Cuirt na hAbhann residential complex.

Predicted Impacts of the Proposed Development

Do Nothing Scenario

- 15.16 In the 'do-nothing' alternative, the existing infrastructure and site services would remain unchanged, without the need for new connections or adjustments. The current power supply and drainage systems would continue to function as they are, without intervention or approval from local authorities or utility companies. Access covers would maintain their current levels, and those in poor condition would not be replaced, potentially resulting in deterioration over time.

The 'do-nothing' approach would also mean that existing services would not be diverted, either temporarily or permanently, to accommodate construction works. This could lead to potential conflicts with overhead structures or tree pits, as well as shallow utilities that might be impacted by changes in ground levels. While the 'do-nothing' alternative avoids the immediate need for infrastructure modifications, it may not address the long-term requirements or potential environmental and infrastructural issues that the proposed project aims to resolve.

Potential Impacts During Construction Phase

- 15.17 One of the main potential impacts of the scheme on site services is the requirement to connect new infrastructure, i.e. new power supply or new drainage, to the existing network to bring into service. This work will likely require approval from the local authority and/or utility company.
- 15.18 Given the nature of the works, all redevelopment areas will require the re-setting of access covers to new levels. Some access covers which are in poor condition may require to be replaced.
- 15.19 It is possible that existing services may require to be diverted, either temporarily or permanently, to facilitate the works. This may be required where the existing utilities are located within the footprint of foundations for overhead or other structures, such as tree pits. Another possibility is that services are laid at a very shallow depth and therefore cause an issue where levels are proposed to be reduced as part of the permanent works, or else they interfere with the proposed subbase and/or pathway makeups.

Potential Impacts during Operational Phase

- 15.20 There will be no operational impact on utilities and services from operation of the scheme.

Mitigation Measures

Construction Phase

- 15.21 Standard industry practice for construction works will ensure the safety of the workers and maintain the integrity and operational functions of any service, above or underground.
- 15.22 Prior to construction, drainage networks, electrical cabling, gas pipelines, and telecommunications infrastructure will be recorded and incorporated into the detailed design of the scheme to avoid any clashes where possible.
- 15.23 Any service diversions required will be designed and constructed in accordance with the requirements and under the supervision of the relevant utility provider. Businesses and residents will be notified in advance of any service disruptions. All existing services are to be protected during the construction phase.
- 15.24 Contractors will be provided with service maps and the utility mapping survey prior to Construction. Services shall be traced on the ground with a cable avoidance tool (CAT) or similar by the Contractor. Where service locations are still not known or confirmed, the Contractor may be required to excavate trial pits to confirm locations and depths as necessary.

Operational Phase

- 15.25 No mitigation is required.

Interactions

- 15.26 In the context of site services, the following interactions with various environmental factors should be considered:
- **Population & Human Health:** Site services, such as water supply, sewage systems, and waste management, directly impact the well-being of the local population. Proper management and maintenance of these services will ensure good living conditions and minimize health risks.
 - **Biodiversity:** Site services, particularly waste management and drainage systems, can affect local ecosystems and biodiversity. Ensuring appropriate waste disposal and treatment methods will help protect sensitive habitats and species especially near the woodland walk area.
 - **Land, Soils, & Geology:** Site services, such as underground utilities and drainage systems, can impact soil quality, stability, and geological features. Proper design and construction practices should be employed to minimize these effects.
 - **Hydrology & Hydrogeology:** Site services can potentially impact surface and groundwater quality and flow patterns. Proper planning and management of drainage and SUDS systems, wastewater treatment, and stormwater management will help maintain hydrological balance and water quality.

- **Air Quality & Climate:** Emissions from site services, such as energy consumption and waste management, can contribute to air pollution and climate change. Implementing energy-efficient systems and proper waste management practices will help minimize these impacts.
- **Noise & Vibration:** Site services, such as waste collection and maintenance activities, can generate noise and vibrations. Proper scheduling and mitigation measures should be employed to minimize disturbance to nearby residents and sensitive receptors.
- **Landscape:** Site services infrastructure such as proposed overhead power cables, underground services etc. can have impacts on the landscape. Careful planning and design should be employed to minimize these effects and integrate the infrastructure into the surrounding environment.
- **Roads, Traffic & Transportation:** Site services can generate additional traffic, particularly during construction and maintenance activities. Proper planning and management should be employed to minimize congestion and ensure safe transportation.
- **Waste Management:** Proper waste management practices are crucial for minimizing environmental impacts and ensuring public health. The design and operation of waste management, especially during construction phase, facilities should adhere to relevant regulations and guidelines.

Cumulative Impact

- 15.27 Although the mentioned applications (as outlined in Chapter 3) are not expected to directly impact the proposed development, they have been considered during the design concept evolution. This consideration aims to ensure that the Ardee 2040 Regeneration Project maximizes opportunities for connections with existing and future residential and community infrastructure wherever possible. The construction of residential units, commercial establishments, schools, and other facilities will lead to an increased demand for utilities such as water, electricity, and gas. In addition, adequate sewage and drainage systems will be required. To address this increased demand, upgrades to existing infrastructure may be necessary, depending on the projected demands.

Residual Impacts

- 15.28 After the application of mitigation measures as prescribed in the 'Mitigation Measures during Construction Phase' above, it is anticipated that residual impacts on site services will be slight.

16. Cultural Heritage & Archaeology

Introduction

- 16.1 The following chapter details an archaeological and cultural heritage assessment undertaken in advance of a proposed regeneration development at Ardee, County Louth (ITM 696120, 790524).
- 16.2 The assessment was undertaken by Faith Bailey and Jacqui Anderson of IAC Archaeology (IAC), on behalf of Louth County Council. Faith is an Associate Director and Senior Archaeologist and Cultural Heritage Consultant with IAC Archaeology. She holds an MA in Cultural Landscape Management (archaeology and built heritage) and a BA in single honours archaeology from the University of Wales, Lampeter. She is a licence eligible archaeologist, a member of the Chartered Institute of for Archaeologists, a member of the Institute of Archaeologists of Ireland and has over 19 years' experience working in the commercial archaeological and cultural heritage sector. Jacqui is an Archaeological Consultant with IAC Archaeology. She holds an MA in Archaeology from University College Dublin and a BA in Archaeology and Classical Studies, also from University College Dublin. She is a member of the Institute of Archaeologists of Ireland and has nine years' experience in the commercial archaeological sector in Ireland. Jacqui specialises in the production of archaeological assessments and EIAR across all sectors of development.
- 16.3 This assessment has been carried out to ascertain the potential impact of the proposed development on the archaeological and cultural resource that may exist within the area.
- 16.4 This study determines, as far as reasonably possible from existing records, the nature of the archaeological and cultural heritage resource in and within the study area of the proposed development using appropriate methods of study. The study area is defined as an area measuring 100m from the proposed scheme. Desk-based assessment is defined as a programme of study of the historic environment within a specified area or site that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic, and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage assets (CifA 2014).
- 16.5 This leads to the following:
- Determining the presence of known archaeological assets that may be affected by the proposed development;
 - Assessment of the likelihood of finding previously unrecorded archaeological remains during the construction programme;
 - Determining the effect upon the setting of known cultural heritage sites in the surrounding area; and
 - Suggested mitigation measures based upon the results of the above research.

- 16.6 An impact assessment and a mitigation strategy have been prepared. The impact assessment is undertaken to outline potential adverse impacts that the proposed development may have on the archaeological and cultural heritage resource, while the mitigation strategy is designed to avoid, reduce, or offset any such adverse impacts.

Definitions

- 16.7 To assess, distil and present the findings of this study, the following definitions apply:
- ‘Cultural Heritage’ where used generically, can be an over-arching term applied to describe any combination of archaeological, architectural, and cultural heritage features, where the term:
 - ‘Archaeological heritage’ is applied to objects, monuments, buildings or landscapes of an (assumed) age typically older than AD 1700 (and recorded as archaeological sites within the Record of Monuments and Places).
 - ‘Cultural heritage’, where used specifically, is applied to other (often less tangible) aspects of the landscape such as historical events, folklore memories and cultural associations.

Methodology

- 16.8 Research for this report was undertaken in two phases. The first phase comprised a desk-based survey of all available archaeological, historical and cartographic sources. The second phase involved a field inspection of the proposed development area.

Paper Study

- 16.9 The following sources were consulted as part of the paper study of the proposed scheme:
- Record of Monuments and Places for County Louth;
 - Sites and Monuments Record for County Louth;
 - National Monuments in State Care Database;
 - Preservation Orders List;
 - Topographical files of the National Museum of Ireland;
 - Cartographic and written sources relating to the study area;
 - Louth County Development Plan 2021-2027;
 - Place name analysis;
 - Aerial photographs; and
 - Excavations Bulletin (1970-2023).

- 16.10 Record of Monuments and Places (RMP) is a list of archaeological sites known to the National Monuments Section, which are afforded legal protection under Section 12 of the 1994 National Monuments Act and are published as a record.
- 16.11 Sites and Monuments Record (SMR) holds documentary evidence and field inspections of all known archaeological sites and monuments. Some information is also held about archaeological sites and monuments whose precise location is not known e.g. only a site type and townland are recorded. These are known to the National Monuments Section as 'un-located sites' and cannot be afforded legal protection due to a lack of locational information. As a result, these are omitted from the Record of Monuments and Places. Sites and Monuments Record sites are also listed on a website maintained by the Department of Housing, Local Government and Heritage (DoHLGH) – www.archaeology.ie.
- 16.12 National Monuments in State Care Database is a list of all the National Monuments in State guardianship or ownership. Each is assigned a National Monument number whether in guardianship or ownership and has a brief description of the remains of each Monument.
- 16.13 The Minister for the Department of Housing, Local Government and Heritage may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.
- 16.14 Preservation Orders List contains information on Preservation Orders and/or Temporary Preservation Orders, which have been assigned to a site or sites. Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.
- 16.15 The topographical files of the National Museum of Ireland are the national archive of all known finds recorded by the National Museum. This archive relates primarily to artefacts but also includes references to monuments and unique records of previous excavations. The findspots of artefacts are important sources of information on the discovery of sites of archaeological significance.
- 16.16 Cartographic sources are important in tracing land use development within the scheme as well as providing important topographical information on areas of archaeological potential and the development of buildings. Cartographic analysis of all relevant maps has been made to identify any topographical anomalies or structures that no longer remain within the landscape.
- 16.17 Documentary sources were consulted to gain background information on the archaeological, architectural and cultural heritage landscape of the proposed scheme.

- 16.18 Development Plans contain a catalogue of all the Protected Structures and archaeological sites within the county. The Louth County Development Plan 2021-2027 was consulted to obtain information on cultural heritage sites in and within the immediate vicinity of the proposed scheme.
- 16.19 Place Names are an important part in understanding both the archaeology and history of an area. Place names can be used for generations and in some cases have been found to have their root deep in the historical past.
- 16.20 Aerial photographic coverage is an important source of information regarding the precise location of sites and their extent. It also provides initial information on the terrain and its likely potential for archaeology. A number of sources were consulted including aerial photographs held by the Ordnance Survey and Google Earth.
- 16.21 Excavations Bulletin is a summary publication that has been produced every year since 1970. This summarises every archaeological excavation that has taken place in Ireland during that year up until 2010 and since 1987 has been edited by Isabel Bennett. This information is vital when examining the archaeological content of any area, which may not have been recorded under the SMR and RMP files. This information is also available online (www.excavations.ie) from 1970-2023.

Field Inspection

- 16.22 Field inspection is necessary to determine the extent and nature of archaeological and historical remains and can also lead to the identification of previously unrecorded or suspected sites and portable finds through topographical observation and local information.
- Walking the proposed development and its immediate environs.
 - Noting and recording the terrain type and land usage.
 - Noting and recording the presence of features of archaeological or historical significance.
 - Verifying the extent and condition of any recorded sites.
 - Visually investigating any suspect landscape anomalies to determine the possibility of their being anthropogenic in origin.

Consultation

- 16.23 Following the initial research, a number of statutory and voluntary bodies were consulted to gain further insight into the cultural background of the baseline environment, receiving environment and study area, as follows:
- Department of Housing, Local Government and Heritage – the Heritage Service, National Monuments and Historic Properties Section: Record of Monuments and Places; Sites and Monuments Record; Monuments in State Care Database; Preservation Orders and Register of Historic Monuments;

- National Museum of Ireland, Irish Antiquities Division: topographical files of Ireland;
- Louth County Council: Planning Section; and
- Historical and Ordnance Survey Maps.

Guidance and Legislation

16.24 The following legislation, standards and guidelines were consulted as part of the assessment.

- National Monuments Act, 1930 to 2014;
- The Planning and Development Acts, 2000 (as amended);
- Heritage Act, 1995 (as amended);
- Draft Advice Notes on Current Practice (in the preparation of Environmental Impact Statements), 2015, EPA;
- Guidelines on the Information to be contained in Environmental Impact Assessment Report 2022, EPA;
- Frameworks and Principles for the Protection of the Archaeological Heritage, 1999, (formerly) Department of Arts, Heritage, Gaeltacht, and Islands; and
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 2000 and the Local Government (Planning and Development) Act 2000.

Description of Receiving Environment

Archaeological and Historical Background

16.25 The proposed development is located at Ardee within the townlands of Cappocksgreen, Townparks and Dawon's Demesne, barony of Ardee, and parish of Ardee, County Louth. The area is located within the zone of archaeological potential for the historic town of Ardee (LH017-101, shown as a dashed blue line on Figure 16.1), which is a recorded monument. There are two archaeological sites within the historic town that lie within proposed scheme footprint; namely the town defences (LH017-101001; shown as a purple line on Figure 16.1) and a midden (LH017-101023; AH3 on Figure 16.1). Town defences possess National Monument status under the National Policy on Town Defences (DoEHLG 2008). An additional 21 recorded archaeological sites are located within 100m of the proposed scheme (**Figure 16.1**).

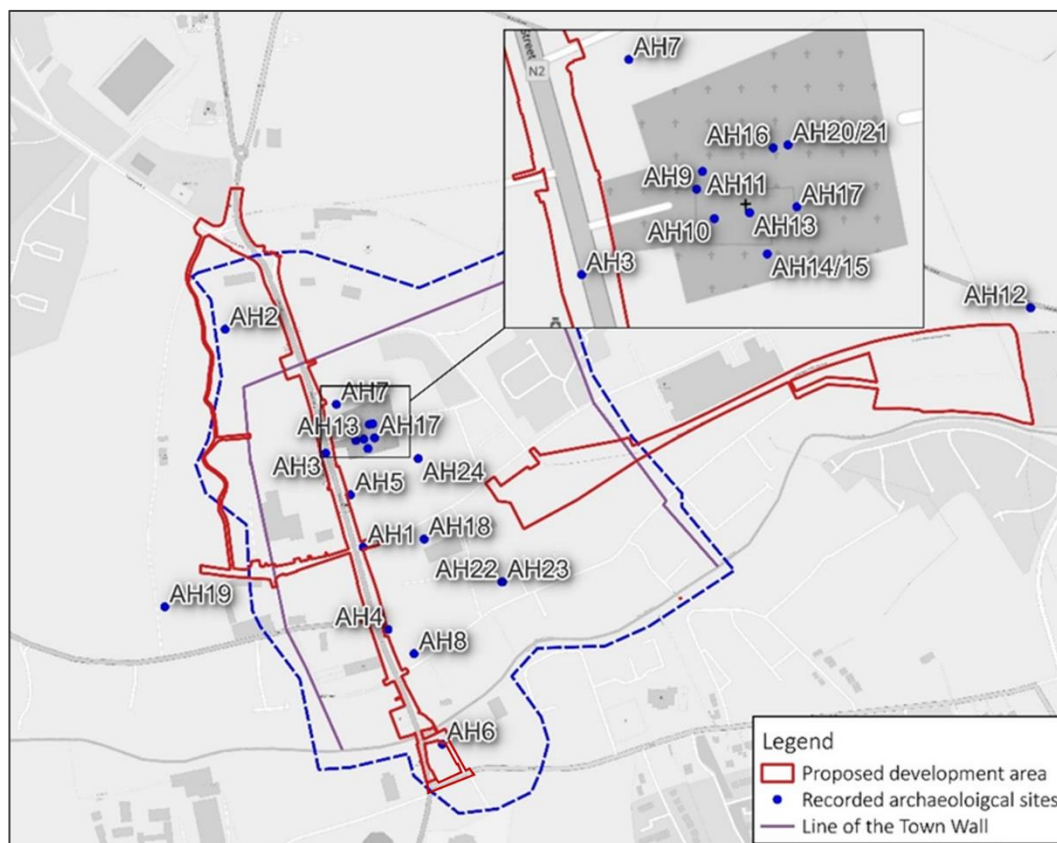


Figure 16.1: Recorded archaeological sites within the study area of the proposed development area (see Table 16.1 for site list)

Prehistoric Period

Mesolithic Period (c. 8000–4000 BC)

- 16.26 Although recent discoveries may push back the date of human activity by a number of millennia (Dowd and Carden 2016), the Mesolithic period is the earliest time for which there is clear evidence for prehistoric activity in Ireland. During this period people hunted, foraged, and gathered food and appear to have had a mobile lifestyle. The most common evidence found to show the presence of Mesolithic communities at a site consists of scatters of worked flint material, a by-product from the production of flint implements. A flint implement of Mesolithic date has been found near Ardee Town (Delany, O'Hara and Lovely 2007) and it is likely that the River Dee formed an important routeway for people at this time.

Neolithic Period (c. 4000–2500 BC)

- 16.27 The Neolithic period was revolutionary, resulting in the emergence of the first farming societies in Ireland. There was profound change as people moved from a peripatetic lifestyle to one organised around animal husbandry and cereal cultivation. Understandably, the transition to the Neolithic was marked by major social change; communities expanded and moved further inland to create more permanent settlements. This enabled the spread of agriculture and the alteration of the physical landscape. Forests were rapidly cleared and field boundaries constructed. Pottery was also being produced, possibly for the first time. The presence of a Neolithic population in the area is reflected by artefacts including a stone axehead found in Ardee townland

(NMI file: IA/L/1975:1) and a flint arrowhead found in Broadlough townland (NMI file: 1942:534).

Bronze Age (c. 2500–800 BC)

16.28 The Bronze Age was marked by the widespread use of metal for the first time in Ireland. As with the transition from Mesolithic to Neolithic, the transition into the early Bronze Age was accompanied by changes in society. The construction of megalithic tombs went into decline and the burial of the individual became typical. Cremated or inhumed bodies were often placed in a cist, which is a stone-lined grave, usually built of slabs set upright to form a box-like construction and capped by a large slab or several smaller lintels (Buckley and Sweetman 1991). Barrows and pit burials are also funerary monuments associated with this period. Bronze objects from this period in the form of a pin, a horse bridle pendant and a spearhead (National Museum of Ireland file) were recovered from Ardee townland and attest to the continuing presence and development of a prehistoric population in the area.

16.29 A common feature of the Bronze Age landscape is the burnt mound or *fulacht fia*. A common site within the archaeological record, they are normally interpreted as temporary cooking sites but may have been used for other industrial or even recreational functions. They survive as low mounds of charcoal-enriched soil mixed with an abundance of heat-shattered stones. They are usually horseshoe-shaped and located in low-lying areas near a water source and are often found in clusters. Even when levelled by an activity such as ploughing, they are identifiable as burnt spreads in the landscape (Hawkes 2018, 2). A number of such features are located within Broadlough (LH017-105-06 and LH017-110), revealed during archaeological excavations in 1999 (Licence Nos. 99E0458 and 99E0200). The nearest *fulacht fia* (LH018-106) is recorded c. 45m northeast of the proposed scheme.

Iron Age (c. 800 BC-AD 500)

16.30 This period is distinguished from the rather rich remains of the preceding Bronze Age and subsequent early medieval period by a relative paucity of evidence in Ireland. However, there is increasing evidence for Iron Age settlement and activity in recent years as a result of development-led excavations as well as projects such as the Late Iron Age and Roman Ireland (LIARI). Large defensive structures and earthworks known as promontory or hill forts are characteristic of the period. The former is a banked and ditched structure located above a steep cliff or bluff and is often found in coastal areas. The hill fort or hilltop enclosures are almost always multi-period. As a result, their dating is problematic but there appears to be some consensus that their peak use and greatest extents are dated to the Iron Age. There are no known Iron Age sites located within the vicinity of the proposed scheme, although a bronze spearhead and bridle pendant (NMI 1929:1356 and 1357) found within the locality are thought to be of Iron Age date.

Early Medieval Period (AD 500–1100)

16.31 At this time, modern County Louth was part of *Uriel*. The proposed scheme was located within the territory that was controlled by the *Ciannachta*. They are typically associated with the Baronies of Ferrad, County Louth and Duleek, County Meath. *Airigialla* or *Uriel* eventually absorbed much of Brega, to the south of Drogheda, during the 1150s. Prior to this, a line of rulers for *Fir Arda* or Ferrad can be traced back to the *Ciannacht Breg*, who were succeeded by the *Uí Chonaing* of *Síl nÁedo Sláine* in 700 AD. It is likely that *Fir*

Arda or Ferrad had its primary church at Monasterboice, which continued to be associated with the later town at Drogheda (MacCotter 2008, 236-7). The early medieval period is depicted in the surviving sources as largely rural characterised by the basic territorial unit known as *túath* ruled by approximately 150 kings in Ireland at any given time.

- 16.32 One of the most common indicators of settlement during this period is the ringfort. Ringforts were often constructed to protect rural farmsteads and are usually defined as a broadly circular enclosure. One of the most recent studies of early medieval settlement enclosures has suggested that there is potential for at least 60,000 such sites to have existed on the island (O’Sullivan et al. 2014, 49). They are typically enclosed by an earthen bank and exterior ditch and range from 25m to 50m in diameter (Stout 1997, 15). Ringforts can be divided into three broad categories – univallate sites, with one bank or ditch; multivallate sites with as many as four levels of enclosing features and platforms or raised ringforts, where the interior of the ringfort has been built up. These enclosed farmsteads were intimately connected to the division of land and the status of the occupant. The closest ringfort (LH017-083) lies c. 469m to the southeast. The lack of ringforts in the Ardee area is likely a reflection of farming practices and land clearance over the past 200 years, rather than a true reflection of the distribution of ringforts. Souterrains are commonly associated with ringforts and the presence of a souterrain (LH017-091) c. 227m to the northeast, suggests the area was inhabited at this time.
- 16.33 This period was also characterised by the introduction of Christianity to Ireland. The process of conversion to Christianity of the native population would not have been rapid but rather one of steady infiltration. Over and above the change in religious outlook that conversion would have meant for the individual, the establishment of the Irish Church was to have profound implications for political, social and economic life, in no small part due to the introduction of writing into the country. The introduction and establishment of Christianity are attested to in the archaeological record by the presence of church sites, associated places for Christian burial and holy wells. It has been suggested that Ardee was the site of an early Christian monastery but no remains of the site exist and the historical evidence is scant (Delany, O’Hara and Lovely 2007).

Medieval Period (AD 1100–1600)

- 16.34 The name Ardee is the Anglicised form of *Ath Fhirdia*, ‘the ford of Ferdia’, a reference to an episode in the epic tale *Táin Bó Cuailgne*. It is here on the southern extremes of the Plain of *Muirthemne* that *Cuchullain* fought a heroic duel with his friend Ferdia. The fight is thought to have taken place just upstream from the present-day bridge (louthcoco.ie).
- 16.35 By the end of the 12th century, the Anglo Normans had succeeded in overthrowing the previous ruling elites in much of the country. Great swathes of land were parcelled out among the Norman elite in a process known as sub-infeudation. The territory of Louth was granted to Hugh de Lacy who granted parts of it to his loyal followers. The initial Anglo-Norman occupation in Ireland was marked by the construction of defensive motte and bailey castles, which were often later replaced with stone fortifications. An example of such an early fortification (LH017-009) is located at Townparks c. 65m to the west of the scheme, outside the later town walls of medieval Ardee. A further two motte and bailey castles are known outside the town walls at Dawsons Demesne (LH017-012001) and Riverstown (LH014-044), known as ‘Castleguard Motte’ and ‘The Liss’.

- 16.36 Ardee was likely officially founded as a town by Gilbert Pippard who was given the barony of Ardee in 1185 by Prince John. The Pippards were prominent landholders in Oxfordshire. Lewis (1837) states that Ardee was *“chiefly indebted for its former prosperity and importance to Roger de Pippart, one of the English adventurers, who became lord of the surrounding territory, and erected a strong castle here, about the beginning of the 13th century”*. The Pippard castle or 'Atherdee' (LH017-012001) located at Dawsons Demesne c. 349m to the southeast, was exposed during test-trenching in 2000 (Licence Nos. 00E0318 and 00E0783).
- 16.37 The town grew substantially in the 13th century with a parish church, two monasteries of Crouched Friars and Carmelites, a chantry college (LH017-101006) and three castles. Within the walled town are two later stone castles known as 'Hatch's Castle' (LH017-101015) and 'The Courthouse/ Ardee Castle' (LH017-101018) both within c. 10m of the proposed scheme. The long street now known as Market Street and Castle Street formed the main artery of the town and its relative width would suggest that it also acted as a marketplace. Ardee primarily functioned as a market town for agricultural produce from the surrounding countryside. The fisheries of Ardee and the three mills mentioned in historic documents also played an important role in the economy of the town in the 13th century (Delany, O'Hara and Lovely 2007).
- 16.38 The parish church of Saint Mary's (LH017-101007) was established in the town in 1179, and a Crouched Friary (LH017-101022) was dedicated to Saint John by Roger de Pipard in 1207, both located within c. 50m of the scheme. The Carmelite friary (LH017-101020) was possibly also founded by the Pipard family in 1274, located c. 53m to the south. In 1315 a crowd of men, women and children fled to the Carmelite church for protection from an army of Scots and Irish under Edward Bruce and were burnt to death inside. Both friaries were dissolved during the reign of Henry VIII.
- 16.39 Murage grants for the town walls (LH017-101001) were granted during the 14th century and the town was contained within these limits. The street pattern of Ardee is essentially linear with one broad street formed by Market Street and Castle Street running north-south to which a number of streets are aligned at right angles. Among these is Ash Walk/Lambs Lane, which forms an east-west axis making an intersection that was referred to in 1540 as the great cross of the town. This axis is also marked by two opposing gates in the town wall; Ash Walk Gate to the west and Cappocks Gate to the east. This intersection may also have marked the location of the market cross, which is now located in St. Mary's Church. The medieval burgage plot pattern survives well along both sides of Market Street (Delaney, O'Hara and Lovely, 2007). Ardee was besieged and captured on three occasions. In 1315 it was taken by Edward Bruce; it fell to Conn O'Neill and Manus O'Donnell in 1539 and Sir Phelim O'Neill captured it in 1641.
- 16.40 The town was defended by walls (LH017-101001), which enclosed over 25 hectares (60 acres) by the 17th century. The estimated layout is indicated as a purple line on Figure 16.2. There is now little trace of the town walls above ground, but their rectangular plan can be determined through the use of early maps. Outside the walls on the north was a suburb at Irish Street. The early maps show that there were six gates. The Head Gate stood at the top of Market Street; another gate further to the north on Irish Street was known as the North Gate, suggesting that the extramural suburb had its own defensive

wall projecting off the original town wall. Cappock's Gate provided access from the east. In the south, access via the bridge was provided by Bridge Gate on the northern side of the river. In the west, there were two gates, the Blind Gate and the Ash Walk Gate. Although no upstanding evidence for the gates survive the proposed development footprint passes in close proximity to two of the former locations – Head Gate and Ash Walk Gate.

Post-Medieval Period (AD 1600–1800)

- 16.41 North of the Ash Walk Gate there is a projection outward in the town wall known as the Bastion. This feature would appear to be a 17th century artillery fortification protecting against attack from the west. The 17th century witnessed the concentrated and systematic reduction of all of Ireland to English authority, largely through conflicts and the forced settlements known as 'The Plantations'. In 1641 a war between the King and Parliament was sparked off by the rebellion of the Catholics in Ulster and resulted in 11 years of conflict and turmoil. In 1649, Oliver Cromwell and his army landed in Ireland in order to return the colony of Ireland to English rule. As part of the process of achieving colonial dominion a number of surveys and mapping programmes were completed throughout the post-medieval period.
- 16.42 Simington's Civil Survey of 1654–56, was an inquisition that visited each barony (land division) and took depositions from landholders based on parish and townland, with written descriptions of their boundaries to facilitate the 'transfer' of lands. Subsequent to the Civil Survey, a project known as the Down Survey, c. 1655 used the collected cadastral information to map all forfeited lands. This survey was overseen by the surgeon-general of the English army, William Petty, and a number of former soldiers. It was not just a project of mapping but of social engineering that was underpinned by a massive 'transfer' in landownership from Irish Catholics to English Protestants. Despite the obvious negative effects of colonial map drafting this survey is the first-ever detailed land survey on a national scale anywhere in the world and gives great insight into Ireland at this time. The Down Survey depicts the area of the proposed development within the town wall of '*Atherdee Towne*' (Down Survey, c. 1655).
- 16.43 The 18th century witnessed a more pacified Ireland and the political climate settled; this saw a dramatic rise in the establishment of large residential houses around the country. This was largely due to the fact that after the turbulence of the preceding centuries, the success of the Protestant cause and the effective removal of any political opposition, the country was at peace. The large country house was only a small part of the overall estate of a large landowner and provided a base to manage often large areas of land that could be dispersed nationally. During the latter part of the 18th century, the establishment of a parkland context (or demesnes) for large houses was the fashion. Although the creation of a parkland landscape involved working with nature, rather than against it, considerable construction effort went into its creation. Major topographical features like rivers and mountains were desirable features for inclusion in, and as a setting, for the large house and parkland. Multiple demesne landscapes and large houses were established throughout County Louth during this period. Notably, Ardee House and demesne landscape are situated to the immediate west of the proposed scheme, now known as St Joseph's Hospital. A decorated upper stone of rotary quern is listed on the NMI and was found within the demesne (NMI File). Dawsons Demesne is located immediately south of the River Dee beyond Dawsons Bridge.

Summary of Previous Archaeological Excavations

16.44 A review of Excavations Bulletin (1970–2023) has revealed that a number of investigations have been carried out within the proposed scheme boundary and within the 100m study area. Five archaeological investigations have been carried out within the footprint of the proposed development area which are summarised below.

- Test excavation and monitoring of works associated with the Northeast Broadband Project commenced in 2006 within the proposed scheme (Ministerial Consent C149/E2396, Bennett 2006:1323). The majority of trenches (0.6m in width) were located along the roadway (depth of 0.9m) or the adjoining verge/footpath (depth of 0.6m). On the western side of the carriageway at St Mary's Church on Market Street, part of a post-medieval ditch/pit feature was uncovered which contained cockle and oyster shell and animal bone.
- Archaeological testing was carried out within the proposed scheme footprint prior to an extension of the Girl Guides premises in O'Carroll Street in 2003 (Licence No. 03E0753, Bennett 2003:1219). This revealed medieval refuse pits which contained pottery, animal bone and tile.
- Test excavations along Market Street, adjacent to the medieval church and graveyard of St Mary's revealed 53 archaeological features ranging in date from medieval to modern (Licence No. 02E0193, Bennett 2002:1287). Four features were dated to the medieval period from artefact association, including evidence for two burgrave plots in the modern garden area. Large quantities of medieval pottery were recovered and included green-glazed, line-impressed tiles associated with the adjacent parish church. The features suggest occupation debris or refuse that indicated intensive occupation in the medieval period. Industry was also accounted for as features contained iron slag.
- Several investigations were also undertaken within the proposed scheme footprint which did not reveal anything of archaeological significance (Licence Nos. 02E1745 ext., 03E0052, and 09E0511).

16.45 A large number of investigations (c. 37) have been carried out within the immediate vicinity of the proposed development area, i.e. within 100m; of which 25 failed to identify archaeological remains (Licence Nos. 99E0061, 01E0425, 04E1193, 15E0418, 02E0069, 99E0304, 03E0052, 09E0511, 00E0839, 04E1193, 01E0902, 97E0244, 02E0417, 04E0131, 06E0111, 03E0182, 96E0281, 03E1523, 16E0028, 17E0637, 17E0523, 19E0408, 17E0483, 20E0674, and 20E0674). The remaining excavations revealed evidence for medieval occupation as described below.

- Pre-development test excavations were carried out in the yard of Ardee Castle in 1997 immediately east of the proposed scheme (Licence No. 97E0171, Bennett 1997:365). In two test pits, medieval deposits were encountered at a depth of 0.35m, immediately below material of modern date. Pottery evidence dates the bulk of the medieval activity recorded to the 13th–14th century, i.e., before the building of the present castle in the late 15th century.
- Test trenching at Irish Street in 2004 immediately east of the proposed scheme revealed post-medieval foundations of a former building (Licence No. 05E0566,

Bennett 2006:1326). Clay pipe was noted within the fills (Licence No. 04E0633, Bennett 2004:1068). Subsequent trenching at the site in 2005 revealed a cobbled surface of possible medieval date, preserved under later deposits.

- Testing took place at 28 Castle Street in 2002 c. 11m east of the proposed scheme (Licence No. 02E0011, Bennett 2002:1284). Test pits were dug to 1.15m below the paving in the yard and revealed rubble fill layers with a ceramic pipe laid through them formed the upper 0.4m. A rough layer of stones extended to 0.6m below the present surface and produced two sherds of post-medieval blackware. Below this layer, early medieval pottery was encountered. Archaeological deposits consisting of clay silts containing medieval pottery of 13th–14th-century date occurred on the site below overburden at a minimum depth of 0.78m below present ground level.
- In 1946 human remains were discovered underneath the floor of a grain store at Moorehall c. 18m south of the proposed scheme. Undated fragments of a skull and some ribs were recovered c. 0.3m beneath the old floor level (Cahill and Sikora 2011, 496).
- Testing commenced at the Ardee Bakery at the corner of Castle Street and Tierney Street in 2002, c. 19m east of the proposed scheme (Licence No. 02E0311, Bennett 2002:1285). Extensive evidence of medieval and post-medieval occupation, including buildings, property boundaries, pits, and hearths were revealed. The contained local medieval ceramics and a variety of post-medieval pottery.
- A single trench was excavated at the rear of No. 54 Irish Street in 2000 c. 36m east of the proposed scheme (Licence No. 00E0044, Bennett 2000:0635). The excavation revealed that substantial post-medieval deposits existed on the site to an average depth of 1m. The rear yard of the house was originally cobbled and was laid above a layer of 19th-century loose brown loam. The deposit of stone and brick fragments found under the loose brown loam represented a collapsed 18th–19th-century wall, possibly from the post-medieval structure that once stood on the site. No trace of the medieval town wall or ditch was uncovered.
- Eight test trenches were excavated at Ask Walk in 2005 c. 39m northeast of the proposed scheme (Licence No. 02E0011, Bennett 2002:1284). The western façade of the medieval town wall was exposed, consisting of a drystone wall at two foundation levels. Medieval green-glazed pottery was recovered at a depth of 1.2m. A further two medieval walls were discovered aligned north-south and stood to a maximum height of 1.2m.
- Monitoring of the groundworks for the construction of houses at The Avenue c. 61m south of the proposed scheme took place in 2002 (Licence Nos. 02E0831, Bennett 2002:1289). This revealed two kilns and a series of four superimposed hearths. Seven hundred sherds of medieval pottery and 125 flint artefacts were recovered during the investigation.
- Monitoring took place on the north side of Barrett's Lane in 2007, c. 71m west of the proposed scheme (Licence No. 06E0110, Bennett 2007:1166). Two 14th/15th

century field boundary ditches containing late medieval pottery were discovered 0.6m below the level of the pavement on Barrett's Lane. The presence of an 18th century lime mixing pit or limekiln was also indicated.

- A programme of archaeological testing at William Street took place in 1999 c. 81m south of the proposed scheme (Licence No. 97E0261, Bennett 1997:367). A significant quantity of industrial debris was discovered indicative of a mill however no artefacts or archaeological features were identified.
- Archaeological testing was carried out at Moorehall Lodge in 2021 c. 88m east of the proposed scheme (Licence No. 21E0124, Bennett 2021:102). A deposit of medieval date was recorded containing glazed ceramic ridged roof tile and possible roof slate suggesting that a medieval building may have been located in the vicinity; likely associated with the 13th-century Hospital of St John the Baptist (LH017-101022).
- Test trenching and a geophysical survey were carried out within the demesne landscape of Ardee House (now St Joseph's Hospital) was conducted in 2018, c. 100m west of the proposed scheme (Licence Nos 17E0565 and 17R0230, Bennett 2018:867). The survey indicated agricultural activity and a former track/laneway depicted on OS maps however no archaeological features were identified in the 17 test trenches. A number of sherds of medieval pottery were recovered from the topsoil or from agricultural features.

Cartographic Sources

Sir William Petty, Down Survey Maps, Barony of Atherdee, 1655–58 (Figure 16.2)

- 16.46 The earliest depiction of Ardee is shown on the Down Survey of 1655. The scheme is situated both within and outside of the town walls (LH017-101001). Where the walled precinct is alluded to in the county map, suggesting the survival of several of the mural towers, there is little to indicate the presence of any of the tower houses. One street extending to the southeast of a northern mural tower presumably represents the main street, yet the distribution and location of the ecclesiastical structures are questionable.

Robert Richardson's Map of The Common of Ardee, 1677 (Figure 16.3)

- 16.47 One of the earliest accurate maps of Ardee and its surroundings shows the town of Ardee within a walled settlement. This map shows a number of gates: Bridge Gate to the south; an unnamed gate to the west (Ash Walk Gate) to the extramural tower; Head Gate to the north and Cappock's Gate to the east. North Gate is shown further to the north of Head Gate. A further gate, possibly a postern on the west side of the town, is depicted by the Ordnance Survey as Blind Gate. Kenton's Gate referred to in 1591, cannot be identified, but it is unlikely to have been a reference to there being a further gate.
- 16.48 The 'Bridge' at this point has been built over the Dee with the lands further south shown as being undeveloped. The Hospital of St John the Baptist (LH017-101022) founded by Roger Pipard in 1207 is located to the east, fronting the partially formed William Street.

Matthew Wren, from A Topographical Map of the County of Louth, 1766 (Figure 16.4)

- 16.49 This map is similar to Robert Richardson's Map where the extra-mural tower houses are well represented, along with the parish church. The walls of the town are by now notably

absent; however, by following the line to the rear of the properties to the west of the town, it can be roughly traced. The property boundaries reflected on the eastern side of the town appear to represent the boundary line to the rear of St Mary's Church and this continues south along the present College Lane and easterly along Lamb Lane and then incorporates what is marked as Ardee House (at the former site of the Carmelite Friary, not to be confused with the later Ardee House developed to the west of the town around 1780). This implies that the north-eastern quarter of the town was not walled at the time. A mill is indicated on the river Dee to the west of the town.

First Edition Ordnance Survey Map, 1836, scale 1:10,560 (Figure 16.5 and 16.6)

- 16.50 This is the first accurate historic mapping coverage of the area containing the proposed scheme. The only historic features named in the first edition are the 'Site of the College', two castles and the fortification. The walls were not expressly indicated but its circuit can be identified in the property boundaries. By the time the 1910 map was surveyed the wall was referred to as 'site of' indicating that it had been entirely demolished or built over. Two of the former gate locations lie within the proposed development area – Head Gate and Ash Walk Gate – while the line of the wall itself is crossed three times. Ardee House and demesne landscape (now St Joseph's Hospital) are located to the west with the line of 'Fortifications' demarking the boundary of the landscape and start of burgage plots to the rear of the numerous roadside structures. The proposed scheme runs through the demesne landscape. A mill labelled a flax and corn mill, is depicted to the immediate south of the eastern extent of the proposed scheme on this map. This mill is adjacent to the River Dee. A number of mills and quarries are found to the south of the Dee with Dawsons Demesne also depicted. The proposed scheme follows the trajectory of the Townparks Dawsons Demesne along an existing roadway but passes through the townland boundary of Cappocksgreen and Dawsons Demesne.

Ordnance Survey Map, 1910, scale 1:2,500 (Figure 16.7 and 16.8)

- 16.51 This map shows the surviving medieval features in much more detail. It includes the alignment of the city wall, which is marked 'The Town Wall (Site of)', the fortification, the gate sites, the castles, the chancel and the college. This map is significant as it has been used to trace the wall alignment for all previous studies of the town walls in Ardee. At this time Ardee was still very much a space within the walls until quite recently when new developments have encroached on the eastern side of the town. A notable change from the previous mapping is the formation of Ardee train station and railway line to the east of the town. The existing two streetscape has remained extant with minimal variations. The mill to the immediate southeast of the proposed scheme is now labelled as a corn mill known as Greenvale Mill. There have been alterations to the River Dee in this area, as evidenced by the depiction of a weir and sluices.



Figure 16.2: Down Survey Map, Barony of Atherdee, 1655–58



Figure 16.3: Robert Richardson's Map of The Common of Ardee 1677



Figure 16.4: Wren's A Topographical Map of the County of Louth, 1766

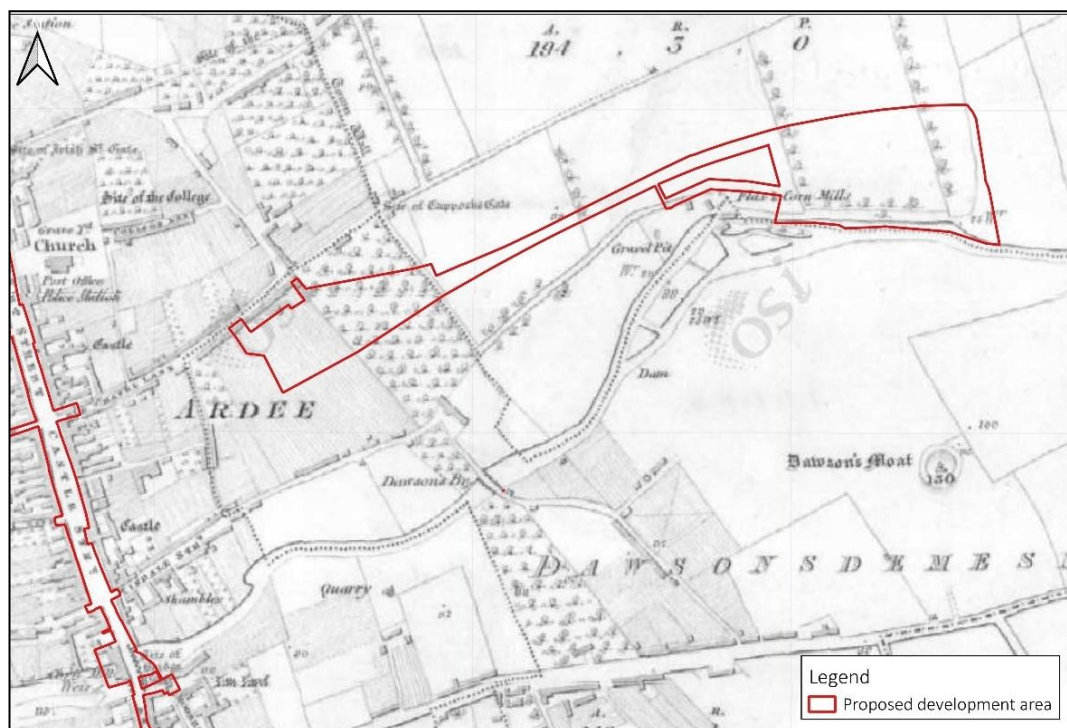


Figure 16.5: (a) Extract from the first edition OS map (1836) showing the eastern parts of the proposed development area

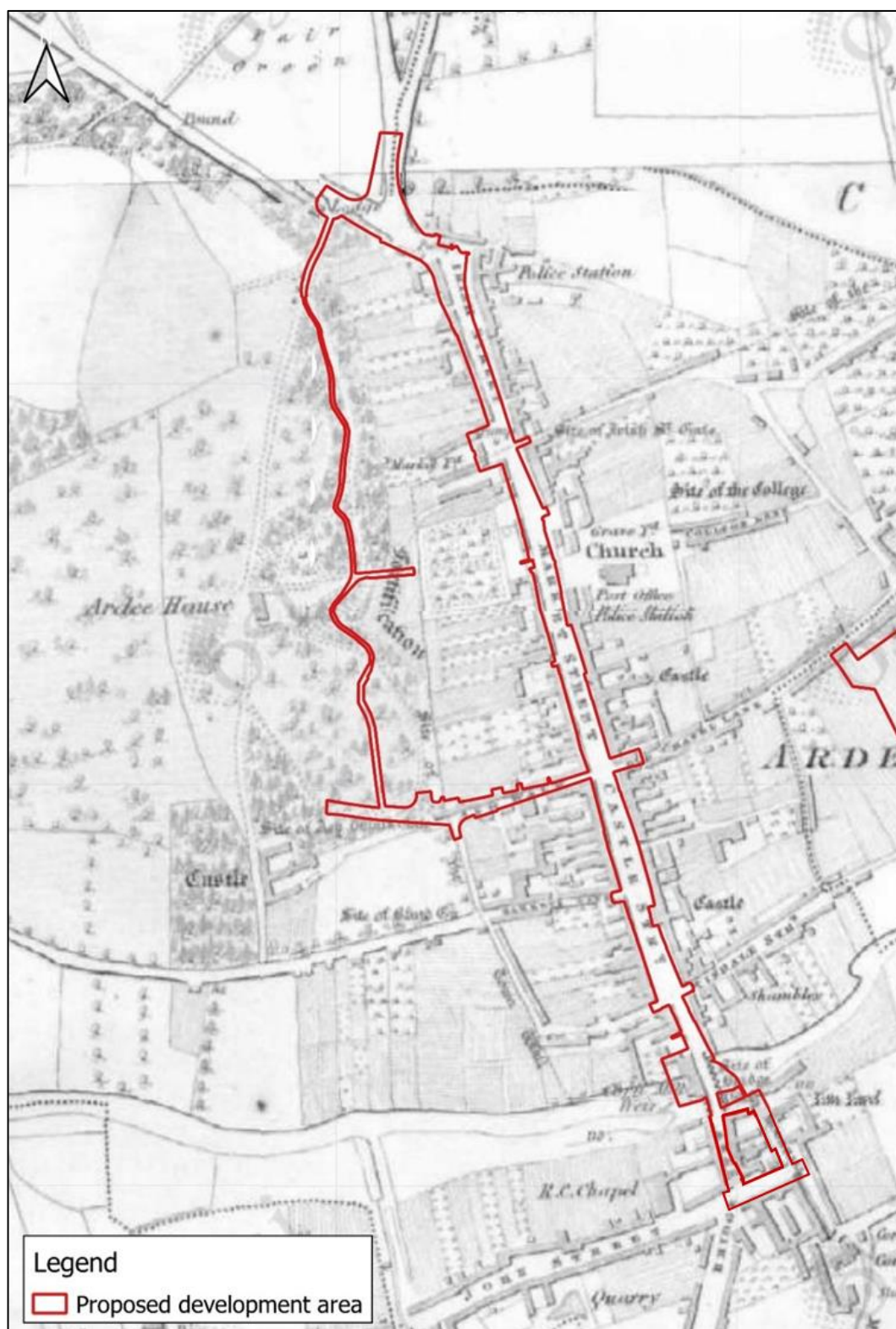


Figure 16.6: Extract from the first edition OS map (1836) showing the western parts of the proposed development area

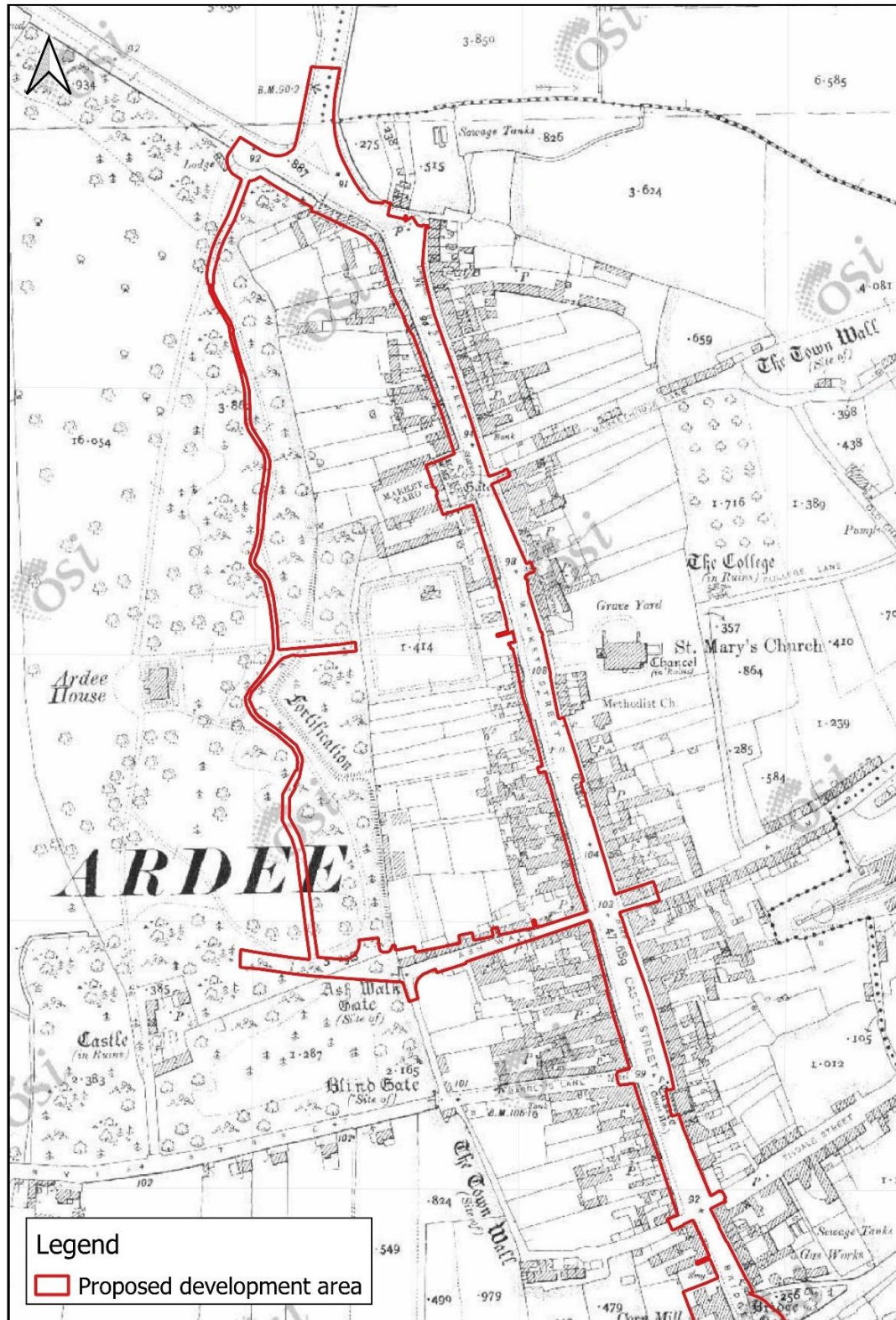


Figure 16.7: Extract from the historic OS map (1910) showing the western part of the proposed development area

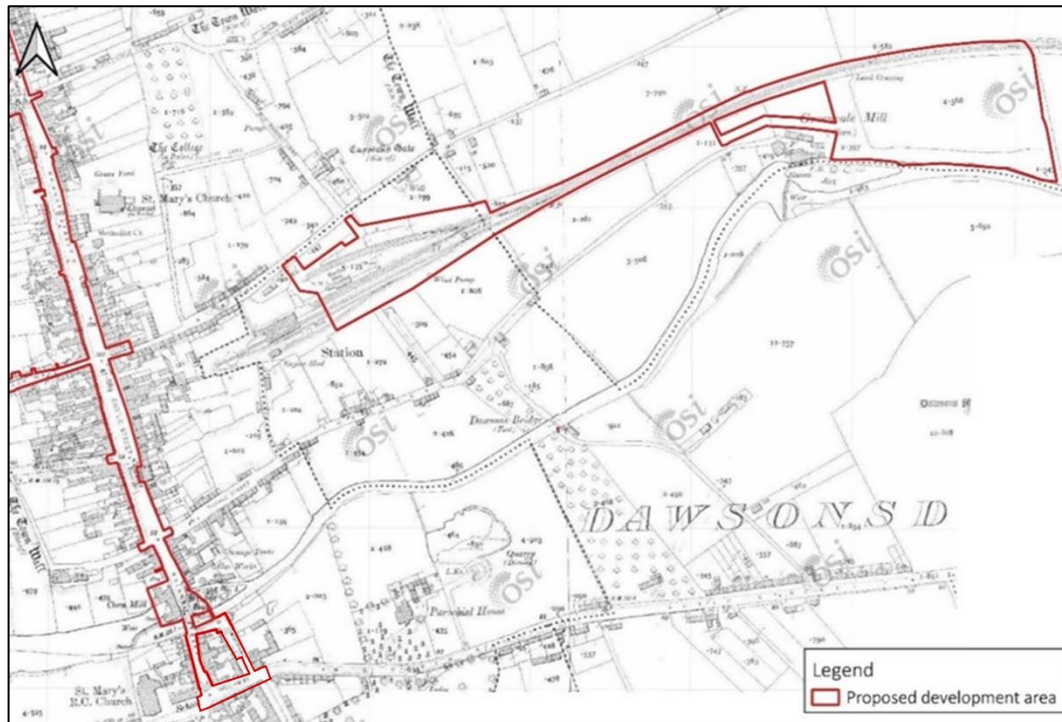


Figure 16.8: Extract from the historic OS map (1910) showing the eastern part of the proposed development area

Louth County Development Plan 2021-2027

- 16.52 The Louth County Development Plan 2021-2027 recognises the statutory protection afforded to all Record of Monuments and Places (RMP) sites under the National Monuments Legislation (1930–2014). These plans list a number of aims and objectives in relation to archaeological heritage (**EIAR Volume 3 Appendix 16.3**).
- 16.53 The proposed scheme is located within the zone of archaeological potential for the historic town of Ardee (LH017-101), which is a recorded monument. The scheme footprint crosses the path of the former medieval town defences (LH017-101001) which are considered to represent a National Monument. A further archaeological site, midden (LH017-101023) is also recorded within the proposed development area. An additional 21 recorded archaeological sites are located within 100m of the proposed scheme (**Table 16.1; Figure 16.2; EIAR Volume Appendix 16.1**).
- 16.54 Of particular relevance to this project is the Development Plan Objective BHC 8 which is to 'protect and preserve *in-situ* all surviving elements of medieval town defences (both upstanding and buried) and associated features in accordance with the Conservation and Management Plans as applicable and with 'National Policy on Town Defences' (Department of Environment, Heritage and Local Government 2008)'.

Table 16.1: Recorded Archaeological Sites

RMP No.	Location	Classification	Ref on Fig 16.2	Distance from the scheme
LH017-101	Cappocksgreen, Dawsons Demesne, Townparks	Historic town	AH1	Within the scheme
LH017-101001	Townparks	Town defences	AH2	Within the scheme
LH017-101023	Townparks	Midden	AH3	Within the scheme
LH017-101018	Townparks	Castle - tower house	AH4	c. 5m east
LH017-101015	Townparks	Castle - tower house	AH5	c. 6m east
LH017-101032	Townparks	Burial	AH6	c. 18m south
LH017-101028	Townparks	Building	AH7	c. 23m east
LH017-101029	Townparks	Building	AH8	c. 27m east
LH017-101009	Townparks	Cross - Churchyard cross	AH9	c. 36m east
LH017-101010	Townparks	Font	AH10	c. 38m east
LH017-101013	Townparks	Architectural fragment	AH11	c. 38m east
LH017-106	Townparks	<i>Fulacht fia</i>	AH12	c. 45m northeast
LH017-101007	Townparks	Church	AH13	c. 50m east
LH017-101012	Townparks	Graveslab	AH14	c. 51m east
LH017-101027	Townparks	Graveslab	AH15	c. 52m east
LH017-101025	Townparks	Graveyard	AH16	c. 63m east
LH017-101008	Townparks	Building	AH17	c. 64m east
LH017-101034	Townparks	Excavation – misc.	AH18	c. 66m west
LH017-009	Townparks	Castle - tower house	AH19	c. 67m south
LH017-101026	Townparks	Graveslab	AH20	c. 68m east
LH017-101011	Townparks	Graveslab	AH21	c. 68m east
LH017-101030	Townparks	Kiln - pottery	AH22	c. 91m southwest

RMP No.	Location	Classification	Ref on Fig 16.2	Distance from the scheme
LH017-101031	Townparks	Kiln - pottery	AH23	c. 91m southwest
LH017-101033	Townparks	Building	AH24	c. 98m northwest

Topographical Files

- 16.55 Information on artefact finds from the study area in County Louth has been recorded by the National Museum of Ireland since the late 18th century. Location information relating to these finds is important in establishing prehistoric and historic activity in the study area. There are four stray finds recorded within the proposed scheme's immediate environs comprising evidence for medieval and postmedieval burial and industrial activity (**Volume 3 Appendix 16.2**).

Aerial Photography

- 16.56 Inspection of the aerial photographic coverage of the proposed scheme held by the Ordnance Survey (1995–2013), Google Earth (2008–2022), and Bing Maps revealed that the proposed scheme remains largely unchanged since 1995. The street pattern and position of the River Dee have undergone minimal changes. The proposed Old Railway and Amenity Space have undergone partial small-scale redevelopment and landscaping, specifically within the greenfield areas. No previously unrecorded sites or areas of archaeological potential were noted during the course of the analysis.

Cultural Heritage

- 16.57 The term 'cultural heritage' can be used as an over-arching term that can be applied to both archaeology and architectural sites; however, it also refers to more ephemeral aspects of the environment, which are often recorded in folk law or tradition or possibly date to a more recent period. The archaeological sites discussed above should also be considered cultural heritage and the townlands and placename analysis detailed below are also of cultural heritage significance.

Place Name Analysis

- 16.58 Townland and topographic names are an invaluable source of information on topography, land ownership and land use within the landscape. They also provide information on the history; archaeological monuments and folklore of an area. A place name may refer to a long-forgotten site and may indicate the possibility that the remains of certain sites may still survive below the ground surface. The Ordnance Survey surveyors wrote down townland names in the 1830s and 1840's when the entire country was mapped for the first time. Some of the townland names in the study area are of Irish origin and through time have been anglicised. The main references used for the place name analysis are Irish Local Names Explained by P.W Joyce (1870) and www.logainm.ie.
- 16.59 The proposed scheme is located within the townlands of Townparks, Dawsons demesne and Cappocksgreen, in Ardee, County Louth. A description and possible explanation of each townland name in the environs of the proposed scheme are provided in **Table 16.2**.

Table 16.2: Placename Analysis

Name	Derivation	Possible Meaning
Ardee	<i>Baile Átha Fhirdhia</i>	Town of the ford of Ferdia
Townparks	-	Name given to an area farmed near a town by residents
Boharnamoe	<i>Bóthar na mBó</i>	Cows Road
Dawsons demesne	-	Demesne relating to Dawson family house
Cappocksgreen	<i>Ceapóga Glas</i> <i>Faiche an Cheapógaigh</i>	Keppock's Green – refers to a local family name

Cultural Heritage Sites

- 16.60 The term 'cultural heritage' can be used to refer to more ephemeral aspects of the environment, which are often recorded in folk law or tradition or possibly date to a more recent period. Two sites of cultural heritage significance have been identified within the vicinity of the proposed scheme.
- 16.61 Ardee Castle (LH017-101018) is a cultural asset of significant historical importance. It provides a tangible link to the very earliest development of the town of Ardee. The castle is owned by the local authority, which means it possesses National Monument status. The similarly significant Hatch's Castle (LH017-101015) is a very rare surviving example of a large medieval towerhouse in Ireland. The castle has enjoyed a varied history, including its later use as a courthouse. It provides a significant resource for interpreting and connecting to the experiences of past communities by providing a shared experience of a place.

Townland boundaries

- 16.62 The townland is an Irish land unit of considerable longevity as many of the units are likely to represent much earlier land divisions. However, the term townland was not used to denote a unit of land until the Civil Survey of 1654. It bears no relation to the modern word 'town' but like the Irish word, *baile* refers to a place. It is possible that the word is derived from the Old English *tun* land and meant 'the land forming an estate or manor' (Culleton 1999, 174). Gaelic land ownership required a clear definition of the territories held by each sept and a need for strong, permanent fences around their territories. It is possible that boundaries following ridge tops, streams or bogs are more likely to be older in date than those composed of straight lines (*ibid.* 179).
- 16.63 The vast majority of townlands are referred to in the 17th century when land documentation records begin. Many of the townlands are mapped within the Down Survey of the 1650s, so-called as all measurements were carefully 'laid downe' on paper at a scale of forty perches to one inch. Therefore, most are in the context of pre-17th century landscape organisation (McErlean 1983, 315). In the 19th century, some demesnes, deer parks or large farms were given townland status during the Ordnance Survey and some imprecise townland boundaries in areas such as bogs or lakes were given more precise definition (*ibid.*). Larger tracks of land were divided into a number of

townlands and named Upper, Middle or Lower, as well as Beg and More (small and large) and north, east, south and west (Culleton 1999, 179). By the time the first Ordnance Survey had been completed a total of 62,000 townlands were recorded in Ireland.

- 16.64 Although not usually recorded as archaeological monuments in their own right, townland boundaries are important as cultural heritage features as they have indicated the extent of the smallest land division unit in the country—the townland—which has been mapped since the 19th century. It remains unclear how old these land units are, though it has been convincingly argued that they date to at least the medieval period and may be significantly older than this (McErlean 1983; MacCotter 2008).
- 16.65 The proposed development crosses the boundary line between Cappocksgreen and Dawsons Demesne townlands, which constitutes a cultural heritage feature. At this point the townland boundary has already been subject to disturbance and removal by the former railway development however. The proposed scheme footprint also runs along the line of the Townparks and Dawsons Demesne townland boundary where it comprises O' Carroll's Street.

Field Inspection

- 16.66 The field inspection sought to assess the proposed development area, its previous and current land use, the topography and any additional information relevant to the report. During the course of the field investigation the proposed development area and its surrounding environs were inspected (Figure 16.1).
- 16.67 The eastern extent of the proposed development area comprises a large public amenity space. The area, known as Railway Walk, is situated within the footprint of the former railway station and trackway (Plate 16.1). Evidence of the former railway is clear, as historic walls and areas of stone rubble are present in the western part of the park (Plate 16.2). Extending eastwards from the park, is a gravel surfaced walkway, which follows the route of the former railway (Plate 16.3). This path is not included in the proposed development area but links the Railway Walk to the Amenity Space to the east. This walkway links (informally) to a large open green space located between the former railway and the River Dee. This green is approached by a driveway and leads to a Wastewater Treatment Plant located to the east of the proposed development area. A storage yard or depot in the possession of Louth County Council forms part of the proposed development area (Plate 16.4).
- 16.68 The proposed development area incorporates a large part of the main north-south running thoroughfare through the town of Ardee. This is formed by a wide street, designated from north to south as Irish Street, Market Street, Castle Street and Bridge Street. The most notable archaeological features are Ardee Castle (LH017-101018, Plate 16.5 and 16.6) on the east side of Castle Street and Hatch Castle (LH017-101015, Plate 16.7) on the east side of Market Street.
- 16.69 There is also a monument in Market Square, at the north end of Market Street, dedicated to Sir Frederick Foster and dated to 1861 (Plate 16.8). This monument was erected by the landlords tenants, indicating the high regard his tenants had for their landlord. A number of plaques have been erected on tree cages to commemorate the centenary of the 1916 Rising, in particular the heroes of the Rising (Plate 16.9). In addition, a plaque,

erected in a similar manner commemorates the Louth Football Team who won the All-Ireland Championship in 1957 (Plate 16.10).

- 16.70 The proposed development area extends westwards from Castle Street/Market Street, along a narrow one-way road known as Ash Walk; and incorporates part of the car park to the west. The proposed scheme footprint continues northwest from Ash Walk through a partially overgrown undisturbed field (Plate 16.11) and passes through a wooded area associated with St. Jospeh's Hospital (formerly Ardee House) (Plate 16.12).
- 16.71 No previously unidentified archaeological remains were identified during the inspection.



Plate 16.1 **Public Park, facing west**



Plate 16.2 **Former railway infrastructure, facing west-southwest**



Plate 16.3 **Railway Walk, facing east**



Plate 16.4 **LCC storage yard, facing north**



Plate 16.5 Ardee Castle (LH017-101018), facing south



Plate 16.6 Ardee Castle (LH017-101018), facing north



Plate 16.7 Hatch Castle (LH017-101015), facing northeast



Plate 16.8 Sir Frederick Foster Monument, facing southwest



Plate 16.9 Example of plaque to commemorate the centenary of the 1916 Rising, facing east



Plate 16.10 Plaque in honour of the Louth Senior Football Team of 1957, facing west



Plate 16.11 Location of the proposed development area, off Ash Walk, facing north-northwest



Plate 16.12 Woodland area in the grounds of St. Joseph's Hospital, facing south

Summary of Archaeological and Cultural Heritage Background

- 16.72 The proposed development area is located at Ardee within the townlands of Townparks, Dawsons demesne and Cappocksgreen, County Louth. The proposed scheme is located within the zone of archaeological potential for the historic town of Ardee (LH017-101), a recorded monument. There are two further archaeological sites within the proposed scheme boundary consisting of the medieval town defences (LH017-101001) and a midden (LH017-101023). The medieval town defences (wall circuit and gates) do not have any surviving upstanding remains but the sub-surface elements are considered to represent a National Monument. A further 21 sites are located within 100m of the proposed scheme. In addition, this assessment has identified a number of sites of cultural heritage significance in the study area.
- 16.73 A review of Excavations Bulletin (1970–2023) has revealed a large number of investigations have been carried out within the proposed development area and immediate vicinity. Investigations within the proposed development footprint have discovered medieval features such as refuse pits with pottery and ditches of post-medieval date. Investigations close to the banks of the River Dee demonstrated that the river has shifted positions over the centuries by as much as 10m. A number of features ranging from the medieval to modern periods including medieval burgage plots have been recorded off Market Street. Large quantities of medieval pottery were recovered including green-glazed, line-impressed tiles associated with the medieval church and graveyard of St Mary's. These features suggest occupation debris or refuse as well as industry that indicates intensive occupation in the medieval period. Medieval deposits were encountered at a depth of 0.35m, immediately below material of modern date.
- 16.74 Test trenching at Irish Street revealed a medieval cobbled surface as well as post-medieval deposits located at an average depth of 1m. At Castle Street archaeological deposits consisting of clay silts containing medieval pottery of 13th–14th-century date occurred below overburden at a minimum depth of 0.78m below present ground level. Extensive evidence of medieval and post-medieval occupation, including buildings, property boundaries and pits was also revealed. At Ash Walk, the medieval town wall was exposed consisting of two foundation levels and stood to a maximum height of 1.2m. Medieval pottery was recovered at a depth of 1.2m below the ground level. Two kilns and four hearths were discovered at The Avenue that contained 700 sherds of medieval pottery and 125 worked flints. Post-medieval features in the form of limekilns and ditches were also revealed at Barrett's Lane with the subsoil recorded at a depth of 1m below the pavement. At Moorehall Lodge a medieval occupation layer and possible structure were recorded that was likely associated with the 13th-century Hospital of St John the Baptist. South of the River Dee fragments of a human skull and ribs were recovered in 1946 c. 0.3m beneath the old floor level of an old grain store. An old mill that contained a significant number of industrial debris was also discovered at William Street.
- 16.75 Analysis of the available historic cartographic sources shows the scheme is situated both within and outside of the town walls. A number of gates and extramural towers are positioned throughout the settlement of Ardee, of which two are located within the footprint of the proposed development – Head Gate and Ash Walk Gate. Lands beyond the town walls are shown as being undeveloped until recent times. The only antiquarian features named in the first edition OS map are the '*Site of the College*', the two castles

and the fortification. The town walls in the 19th century were not expressly indicated. By the 20th century, they had been entirely demolished or built-over. Ardee House and demesne landscape (now St Joseph's Hospital) are located to the west with the line of '*Fortifications*' demarking the boundary of the landscape and start of burgage plots to the rear of the numerous roadside structures. A number of mills and quarries are found to the south of the Dee. The proposed development passes through the boundary line of Cappocksgreen and Dawsons Demesne townlands, which constitutes a cultural heritage feature. It also follows the line of the Townparks and Dawsons Demesne townland boundary within O' Carroll's Street. Ardee train station and railway line were constructed within the proposed development area in the 20th century, and these removed parts of both of these townland boundaries within the proposed development footprint.

- 16.76 The aerial photography and satellite imagery revealed that the proposed scheme footprint remains largely unchanged since 1995. The street pattern and position of the River Dee have undergone minimal changes. The proposed Old Railway and Amenity Space have undergone partial small-scale development and landscaping specifically within the greenfield areas. No previously unrecorded sites or areas of archaeological potential were noted during the course of the analysis.
- 16.77 There are four stray finds recorded within the proposed scheme's immediate environs in the Topographical Files of the National Museum of Ireland relating to medieval and post-medieval activity. No previously unrecorded areas of archaeological potential were noted during the course of the field inspection but a number of extant sites were inspected.

Impact Assessment

- 16.78 Each archaeological and cultural heritage receptor within the study area has been assessed in terms of its sensitivity, the type of potential impact, magnitude of same and the potential significance of the effect/impact.
- 16.79 The quality and type of an effect can be classed as one of the following (as per the Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA 2017):
- **Negative Impact:** A change that reduces the quality of the environment, for example, a change that will detract from or permanently remove an archaeological or cultural heritage site from the landscape;
 - **Neutral Impact:** A change which does not affect the quality of the environment; or
 - **Positive Impact:** A change which improves the quality of the environment, for example a change that improves or enhances the setting of archaeological or cultural heritage site.
- 16.80 The below terms are used in relation to the archaeological and cultural heritage and relate to whether a site will be physically impacted upon or not:

- **Direct Impact:** Where an archaeological/cultural heritage feature or site is physically located within the footprint of the proposed development and entails the removal of part, or all, of the monument or feature; and
- **Indirect Impact:** Where a feature or site of archaeological or cultural heritage merit or its setting is located in close proximity to the footprint of a development.

Significance of Effects

16.81 Impact Definitions (as defined by the EPA 2022 Guidelines):

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

Construction Phase Impact

Archaeology

- 16.82 The proposed development area crosses the footprint of the former medieval town defences LH017-101001, which have National Monument status. While there are no surviving upstanding remains of this monument the proposed development footprint crosses the line of the defences at three locations (Irish Street, Ash Walk and the former railway site) and is located in the immediate vicinity of three former gates (Head Gate, Ash Walk Gate and Bridge Gate). Ground disturbances associated with the proposed public realm works may have a permanent significant direct, negative effect on any surviving sub-surface elements relating to the former town walls and gates. This would be caused by ground works carried out beneath the modern road/footpath level, such as excavation for services or pits for tree planting, etc.
- 16.83 While it is clear that the proposed scheme footprint has been subject to development and disturbance during the post-medieval and modern periods it is not clear how this disturbance may have affected the archaeological resource. As such, ground disturbances below the modern road levels and within previously undisturbed greenfield, such as the excavation of service diversions or pits for tree planting etc, may

have a permanent significant direct, negative effect on previously unrecorded archaeological features or deposits that have the potential to survive beneath the current ground level. No excavation works are required to establish a footpath through the hospital grounds.

- 16.84 The well-preserved remains of two medieval castles (LH017-101015 and LH017-101018) are located on the east side of Irish Street and Market Street respectively, on the periphery of the proposed development area. LH017-101018 is a National Monuments. While there is no predicted direct impact by the proposed works, there may be a moderate indirect, negative impact on the upstanding remains on the structural remains of these monuments. This would be caused by the passage of construction traffic and associated activity.

Cultural Heritage

- 16.85 The proposed development area crosses two townland boundaries of Cappocksgreen/ Dawsons demesne and Townparks/ Dawsons demesne. The former boundary has been removed within the development area by the former railway development, and the latter boundary comprises O'Carroll Street. As such there is no predicted impact on these features by the proposed development.
- 16.86 A number of commemorative plaques have been erected along Irish Street/Market Street on tree cages. It is possible that works associated with the proposed scheme may have a temporary direct moderate negative impact on these cultural heritage objects. This would be caused if they were removed or covered up for the duration of the proposed works.

Table 16.3: Summary of Construction Impacts (prior to mitigation)

Site	Baseline Rating	Impact Type	Significance of Effect
LH017-101001 Town defences	Very High	Direct, permanent	Significant negative
Previously unrecorded archaeological remains	High	Direct, permanent	Significant negative
LH017-101018 Tower House	Very High	Indirect, temporary	Moderate negative
LH017-101015 Tower House	High	Indirect, temporary	Moderate negative
Townland boundaries	Medium	No impact	N/a
Commemorative plaques – Irish St/ Market Street	Medium	Direct, temporary	Moderate negative

Operational Phase Impact

Archaeology

- 16.87 There is no potential impact on the archaeological resource as a result of the operation of the proposed scheme.

Cultural Heritage

- 16.88 There is no potential impact on the cultural heritage resources as a result of the operation of the proposed scheme.

Do Nothing Impact

- 16.89 If the proposed development were not to proceed, there would be no negative impact on the archaeological or cultural heritage resource.

Worst Case Impact

- 16.90 Under a worst-case scenario, ground disturbances associated with the proposed development would disturb previously unidentified and unrecorded deposits and artefacts without appropriate excavation and recording being undertaken. This would lead to a direct, negative, permanent effect on the archaeological resource that may be significant to profound in significance, under a worst-case scenario.

Mitigation Measures

Archaeology

- 16.91 All groundworks associated with the proposed scheme, carried out beneath the modern road/footpath surface and within greenfield areas, will be monitored by a suitably qualified archaeologist. This work will be carried out under Ministerial Consent due to the proximity of the National Monument (Town Defences LH017-101001). The locations of the town walls and former gates are considered to have high archaeological sensitivity and all construction staff will be made aware of the potential for remains to exist at these locations in advance of works.
- 16.92 If any features of archaeological potential are discovered during the course of the monitoring further archaeological mitigation may be required, such as preservation *in-situ* or by record. Any further mitigation will require approval from the National Monuments Service of the DoHLGH.
- 16.93 Furthermore, protective measures, such as temporary signage or appropriate fencing, will be established around the upstanding structural remains of the medieval castles LH017-101015 and LH017-101018 in advance of construction to avoid any indirect impacts.

Cultural Heritage

- 16.94 No further mitigation is required in relation to the townland boundaries as no impacts are predicted.
- 16.95 The commemorative plaques will be removed and stored carefully to be re-erected following the completion of works.

Monitoring

- 16.96 The mitigation measures recommended above would also function as a monitoring system during construction to allow the further assessment of the scale of the predicted impacts and the effectiveness of the recommended mitigation measures.

Interactions

- 16.97 There is a direct interaction between this assessment and 'Chapter 17 - Built Heritage'. The chapters have been reviewed as part of this assessment to ensure all aspects of the historic environment have been assessed and also to prevent replication of information as much as possible.

Cumulative Impacts

- 16.98 Proposed and permitted development within the study area as listed in Chapter 20 (Cumulative Impacts) have been considered as part of the assessment of potential cumulative impacts. As the archaeological remains identified within the proposed development area will be preserved *in situ* or by record, no significant impacts have been identified as a result of the development going ahead in conjunction with any other proposed or permitted development in the study area.

Residual Impacts

- 16.99 Following the application of mitigation measures, there are no predicted significant residual impacts on the archaeological and cultural resource as a result of the proposed scheme.

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- www.bing.com – Satellite imagery of the proposed scheme.
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- www.logainm.ie –Placenames Database of Ireland.
- www.louthcoco.ie – Ardee Castle Design, Access and Heritage Strategy

17. Architectural Heritage

Introduction

- 17.1 The following chapter concerns the architectural heritage assessment undertaken in support of the proposed development at Ardee, County Louth. This assessment has been carried out to ascertain the potential impact of the proposed development on the architectural and townscape heritage that exists in the area of the proposed development.

Statement of Authority

- 17.2 This chapter of the Environmental Impact Assessment Report has been prepared by Thomas McGimsey of Mesh Architects, a RIAI Grade 1 Accredited Conservation Practice. This chapter examines the likely impacts, both direct and indirect, on protected structures, monuments and other significant architectural heritage assets.

Background

- 17.3 This study has sought to determine, as far as possible from visiting the site in person, examining the existing built heritage in the area, and studying the available records and surveys, the nature and significance of the architectural heritage in the area. The area of study is defined as all physical structures within the redline boundary of the development area, and all architectural and landscape features and structures visible from the public roads and lanes that are the subject of the proposed developments. The historic townscape of the Ardee area is the historic context in which these structures exist and are understood.
- 17.4 The following outcomes are sought:
- Understanding the background history of Ardee, its original foundation and development through time, up to the present day.
 - An understanding of the many historic structures that remain in the development area, most of which are protected by inclusion in the Record of Protected Structures, Record of Monuments and Places, and through the establishment of an Architectural Conservation Area in the Local Development Plan.
 - Determining the impact upon the setting of the identified Architectural Heritage assets of the proposed development.
 - Suggested mitigation measures based upon the results of the above research.
- 17.5 An impact assessment and a mitigation strategy have been prepared. The impact assessment is undertaken to outline potential adverse impacts that the proposed development may have on the archaeological and cultural heritage resource, while the mitigation strategy is designed to avoid, reduce, or offset any such adverse impacts.

Definition of Architectural Heritage

- 17.6 Architectural Heritage falls within the more general term 'Cultural Heritage', and describes works of construction, ranging from buildings designed by esteemed architects to vernacular structures of modest scale and complexity.
- 17.7 Architectural Heritage, as defined for inclusion in the Record of Protected Structures, applies to manmade structures of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point view. Structures included for such statutory protection in Ireland generally date from AD 1700 up to the middle of the C20th, and are considered to have International, National or Regional importance, or significance.

Methodology

- 17.8 Research for this report was undertaken in two phases. The first phase comprised a desk-based survey of all available archaeological, historical and cartographic sources. The second phase involved a field inspection of the proposed development area.

Paper Survey

- Record of Protected Structures, included in the Louth County Development Plan 2021-2027.
 - National Inventory of Architectural Heritage.
 - Architectural Conservation Area Plans, included in the Louth County Development Plan 2021-2027
 - Record of Monuments and Places for County Louth;
 - Sites and Monuments Record for County Louth;
 - Register of Historic Monuments;
 - Cartographic and written sources relating to the study area;
- 17.9 Record of Monuments and Places (RMP) is a list of archaeological sites known to the National Monuments Section, which are afforded legal protection under Section 12 of the 1994 National Monuments Act and are published as a record.
- 17.10 **Development Plans** contain a catalogue of all the Protected Structures and Architectural Conservation Areas within the county. The Louth County Development Plan (2021–2027) was reviewed to obtain information on architectural heritage sites in and within the immediate vicinity of the proposed development area.
- 17.11 **National Inventory of Architectural Heritage (NIAH)** is a state initiative under the administration of the Department of Housing, Local Government and Heritage and established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. The purpose of the NIAH is to identify, record, and evaluate the post-1700 architectural

heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage.

- 17.12 **Cartographic sources** are important in tracing land use development within the development area as well as providing important topographical information on areas of archaeological potential and the development of buildings. Cartographic analysis of all relevant maps has been made to identify any topographical anomalies or structures that no longer remain within the landscape.
- 17.13 **Documentary sources** were consulted to gain background information on the archaeological and cultural heritage landscape of the proposed development area. A full list of references is provided in Section 16.4.

Field Inspection

- 17.14 Field inspection is necessary to determine the extent and nature of all significant architectural heritage assets, as well as any upstanding archaeological and historical remains, and can also lead to the identification of previously unrecorded or suspected sites and portable finds through topographical observation and local information all of which contribute to and are affected by the general historical landscape and urban setting.
- 17.15 The architectural heritage field inspection entailed:
- Walking the proposed development and its immediate environs.
 - Noting and recording all of the extant old and historic structures lining the public roads and lanes within the project area.
 - Noting and recording the presence of features of historic paving and other hard landscaping within the project area.

Guidance and Legislation

- 17.16 The following legislation, standards and guidelines were consulted as part of the assessment.
- National Monuments Act, 1930 to 2014;
 - The Planning and Development Acts, 2000 (as amended);
 - Heritage Act, 1995 (as amended);
 - Draft Advice Notes on Current Practice (in the preparation of Environmental Impact Statements), 2015, EPA;
 - Guidelines on the Information to be Contained in Environmental Impact Assessment Report 2022, EPA;
 - Architectural Heritage Protection, Guidelines for Planning Authorities, 2011, Department of Arts, Heritage and the Gaeltacht.

- Frameworks and Principles for the Protection of the Archaeological Heritage, 1999, (formerly) Department of Arts, Heritage, Gaeltacht, and Islands.
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 2000 and the Local Government (Planning and Development) Act 2000.

17.17 The Architectural Heritage assets that are likely to be affected by the proposed development have been identified and characterised. The characterisation has taken into consideration their Architectural and Cultural Significance, their sensitivity to change and the likely degree of impact.

17.18 Where negative impacts are noted as possible or likely, mitigation measures are identified that will reduce or eliminate the severity of that impact.

Definition of Impacts

17.19 The quality and type of an impact can be classed as one of the following (as per the EPA's Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022)):

- Negative Impact: A change which reduces the quality of the environment, for example a change that will detract from or permanently remove an archaeological or cultural heritage site from the landscape;
- Neutral Impact: A change which does not affect the quality of the environment; or
- Positive Impact: A change which improves the quality of the environment, for example a change that improves or enhances the setting of archaeological or cultural heritage site.

17.20 The below terms are used in relation to the cultural heritage and relate to whether an Architectural Heritage Asset will be physically impacted upon or not:

- Direct Impact: Where an Architectural Heritage Asset or site is physically located within the footprint of the proposed development and entails the removal of part, or all, of the Asset; and
- Indirect Impact: Where an Architectural Heritage Asset or its setting is located in close proximity to the footprint of a development.

Significance of Effects

17.21 The description and significance of effects are in accordance with the above mentioned EPA Guidelines (2022), as defined below:

- Imperceptible: An effect capable of measurement but without noticeable consequences.
- Not significant: An effect which causes noticeable changes in the character of the environment but without noticeable consequences.

- **Slight Effects:** An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
- **Moderate Effects:** An effect that alters the character of the environment in a manner that is consistent with existing and emerging trends.
- **Significant Effects:** An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
- **Very Significant:** An effect which, by its character, magnitude, duration or intensity significantly alters the majority of a sensitive aspect of the environment.
- **Profound Effects:** An effect which obliterates sensitive characteristics.

Existing / Receiving Environment (Base Scenario)

17.22 Ardee is one of Ireland's oldest walled towns, having been established soon after the Norman Invasion of 1185. On the south side of the River Dee, in the vicinity of the current bridge, stood the Augustinian Hospital of St. John the Baptist, founded at the beginning of the C13th. In 1274, a Carmelite Monastery was established in the town by Ralph de Pippard, then the local lord. Given its exposed location along the late medieval Pale boundary, the town was protected by walls with several entrance gates. During one of the many incursions, the town was attacked and largely destroyed by Edward Bruce.

17.23 The current town of Ardee retains its late medieval footprint as illustrated in a map of the town from the C17th. Although the historic town walls have almost totally disappeared, the town's main street has survived as the most important element of the town's form. The historic pattern of streets, lanes, building plots and principal structures is still very much in evidence in the modern town. It is critical that any proposals for improvements to Ardee's townscape include proposals to protect and reinforce the surviving historic urban form.

Description of Architectural Heritage Assets in Ardee

17.24 The following description refers to the Character Areas of the proposed development as described in Chapters 3 and 5 of this EIAR.

Character Area 1 - Main Street/Ash Walk

17.25 The River Dee runs along the southern edge of the original town. The main road into the town crosses the river over a fine mid-C19th stone arched bridge.

17.26 The ancient origins of the town of Ardee can still be read in its principal streets, faint traces of the town's medieval and late medieval defensive perimeter, the survival of ancient structures including three tower houses, an ancient church and graveyard, and the substantial ruins of a medieval college structure.

17.27 At present, the central area of Ardee includes a bustling commercial core, with some new commercial developments in the backlands behind the somewhat under-used buildings on the west side of the Main Street. While there are relatively few derelict or unoccupied structures on the Main Street, there are some, and many of the upper floors

of buildings are poorly utilised or vacant. In addition, there are many under-used structures in the deep sites behind the primary Main Street Buildings.

Character Area 2 - Old Railway Lands

- 17.28 Located a short walk from Main Street is a former Railway station, converted to privately owned commercial use after the closure of the station and removal of the tracks. Besides the station, there are other related structures remaining from the railroad, including a Station Master's House, the original railway platform, a perimeter stone wall and gate, and a now-roofless engine shed.

Character Area 3 - Amenity Lands

- 17.29 There are no structures of historical or cultural significance within the site of the amenity lands development area. West of this area is Greenvale House, a mid-C16th form mill owner's house with remnants of the former mills standing adjacent to the house.

Character Area 4 - Woodland Walk

- 17.30 The woodland walk is proposed to pass through land that formerly comprised the parkland around Ardee House, now St. Joseph's Hospital. Ardee House is a short distance to the west of the western line of Ardee's ancient town defences and the woodland walk will pass in close proximity to the angled bastion, the only part of those defences that has survived above ground in that area. In addition, at its southern end, the proposed woodland walk will pass through the site of the medieval Ash Walk Gate, now vanished, and close to a small C15th tower house that survives to the west of the former town gate.

Louth County Development Plan 2021-2027

- 17.31 An Architectural Conservation Area (ACA) is defined within the Louth County Development Plan 2021 - 2027, as set out in **Figure 17.1** below, to preserve Ardee's many heritage assets. The ACA covers the length of the Main Street, to the rear boundaries of all properties fronting Irish Street, Market Street, Castle Street, Bridge Street and William Street.
- 17.32 The proposed development at Main Street/Ash Walk (Character Area 1) and the Woodland Walk (Character Area 4) are located within the defined boundary of the ACA. The western portion of the proposed development at the Old Railway Lands (Character Area 2) is partially located within the ACA with the portion of the site to the east falling outside of it. The proposed development at Amenity Lands (Character Area 3) is located outside of the ACA boundary.

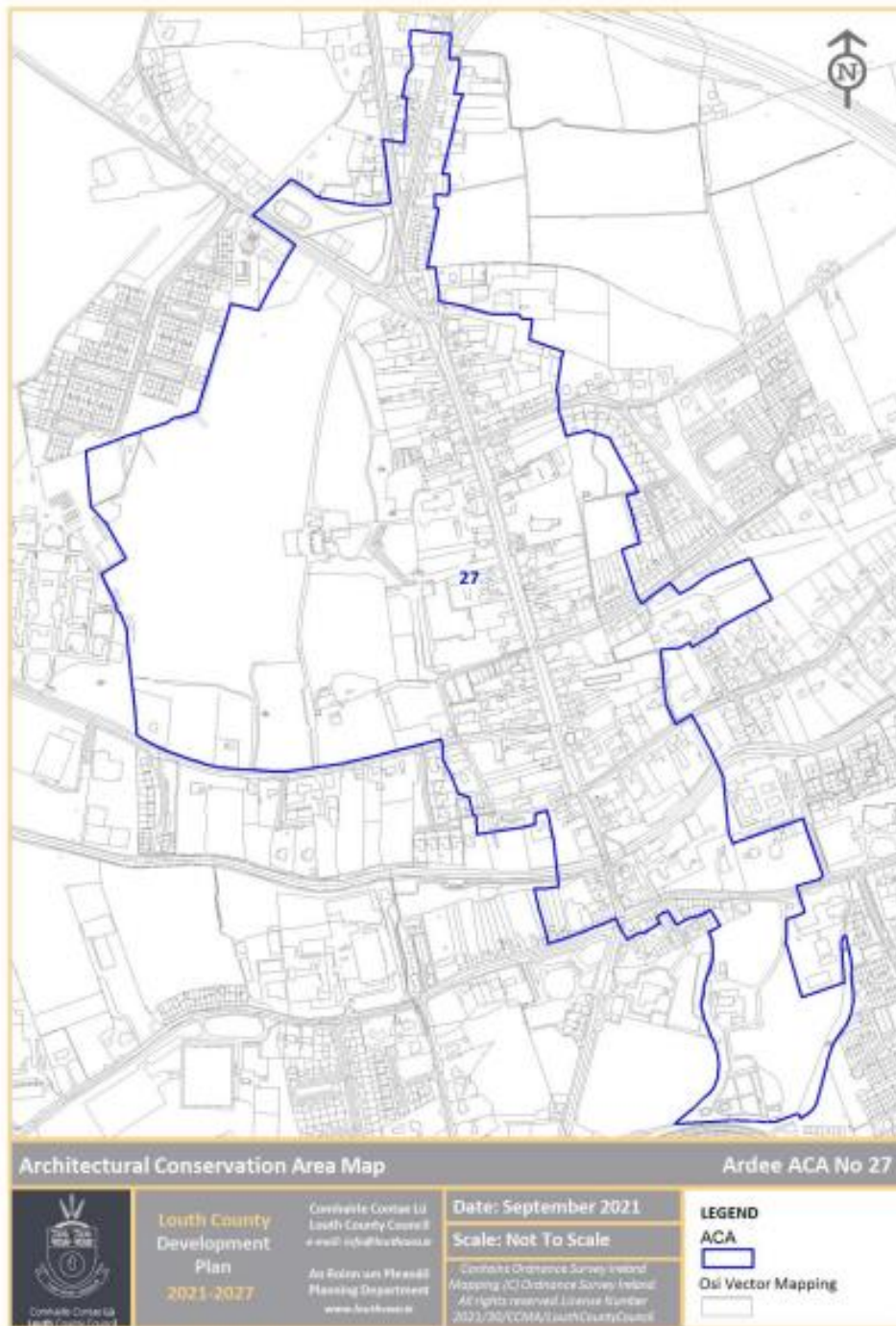


Figure 17.1: Map 11.11: Ardee Architectural Conservation Area from Appendix 11 – LCDP 2021 - 2027

17.33 The built heritage of Ardee has been surveyed and recorded in the National Inventory of Architectural Heritage, and many buildings in and around the subject project area have been included on the Record of Protected Structures. The map at **Figure 17.2** outlines the development area in yellow, with all Protected Structures identified by a blue dot, with their RPS number. **Table 17.1** provides detailed information on the Protected Structures in Ardee that have the potential to be impacted by the proposed development and were considered within this chapter. The following protected

structures are located within the site boundary (identified by **bold/underline text** in **Table 17.1**):

- Sir Frederick Foster Memorial, Market Square, Ardee (RPS No. Lhs017-070).
- Roadside water pump outside Ardee Castle (RPS No. Lhs017-016).
- Bridge Street bridge (RPS No. Lhs017-056).

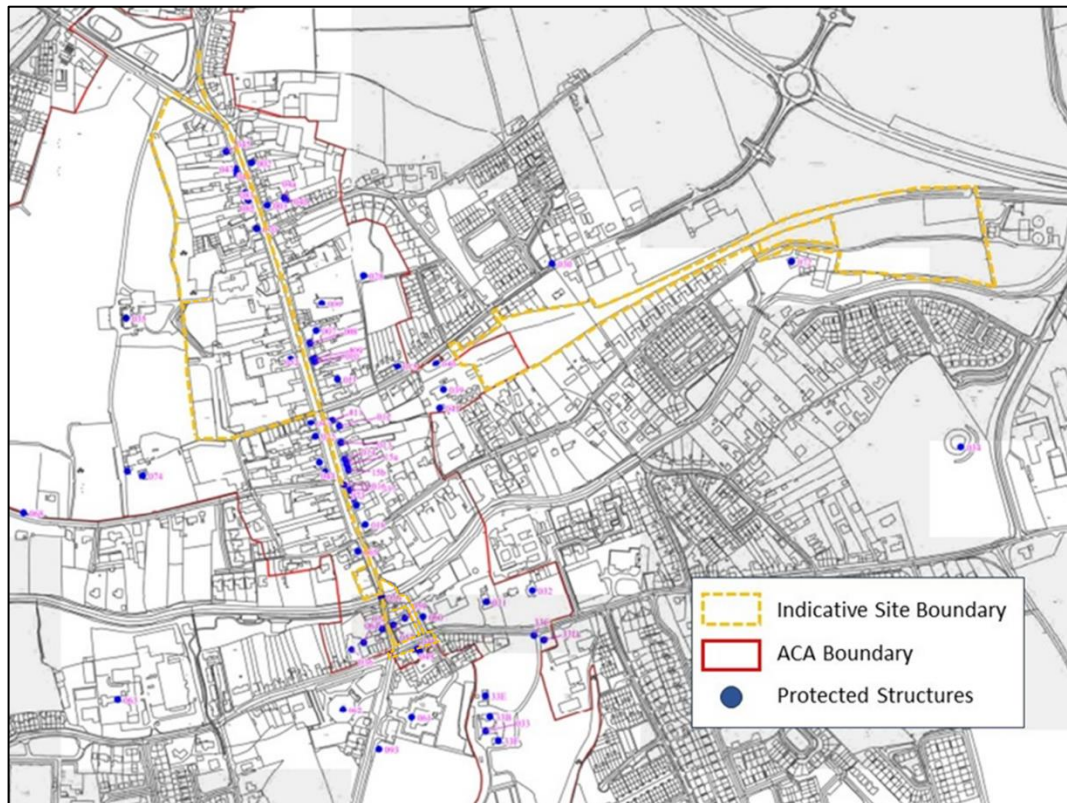


Figure 17.2: Map of Protected Structures

Table 17.1: Protected Structures Located within/adjacent to the Application Site

Structure's Names	RPS Number	NIAH Number	Structure(s) Location	Rating	Description of Special Interest	Description of Setting	Heritage Significance
"J. Malone"	Lhs017-002	13823049	Irish Street, Townparks Ardee	Regional	Well preserved house built ca 1840 with good quality shop front ca. 1885.	Terraced street in town centre.	Architectural and Artistic interests.
Ulster Bank	Lhs017-003	13823051	Irish Street, Townparks Ardee	Regional	Prominent three-storey Georgian style bank, built ca. 1910 with three bay shopfront and carriage arch.	Terraced street in town centre, among a variety of commercial and domestic structures.	Architectural, Artistic and Social Interests.
Stone Warehouse behind Ulster Bank	Lhs017-004a	N/A	Irish Street, Townparks Ardee	Regional	Historic stone warehouse, behind prominent town centre bank.	Located to the rear of Ulster Bank on Irish Street, in centre of Ardee.	Architectural and Social Interests.
Sansom Electric	Lhs017-004b	13823050	Irish Street, Townparks Ardee	Regional	Three-storey stone water mill, converted to office use.	Located to the rear of commercial shops on Irish Street, in centre of Ardee.	Architectural and Social Interests.
St. Mary's Church of Ireland	Lhs017-006	13823052	Market Street, Townparks, Ardee	Regional	Stone Church, built c.1810 on site of earlier church, retaining medieval building fabric.	Standing behind perimeter walls within church yard with historic graves.	Archaeological, Architectural, Artistic, Historical and Social Interests.

Former Wesleyan Chapel	Lhs017-007	13823053	Market Street, Ardee	Regional	Gothic Revival Former Methodist Chapel, built 1852.	Standing on Market Street in Ardee, set back from road, with vehicular arch to rear.	Architectural and Social Interests.
Castleville House	Lhs017-008	13823054	Market Street, Ardee	Regional	End of terrace former house, built ca. 1840. Retains fine door surround to front.	Town centre location beside historic former Methodist Chapel.	Architectural Interest.
Hatch's Castle	Lhs017-009	13823055	Market Street, Ardee	Regional	Four-storey late medieval tower house, in continuous domestic use. Set behind iron railings.	Prominent town centre location makes this structure on the Ardee's most important historic structures.	Architectural, Historical and Social Interests.
House	Lhs017-010	13823056	Market Street, Ardee	Regional	Three-storey four-bay former house, built c. 1850-1870, with fine door surround and front railings.	Town centre location beside historic Hatch's Castle	Architectural and Artistic interests.
Bank of Ireland	Lhs017-011	13823001	Castle Street, Ardee	Regional	Corner-sited red-brick, detached four-bay two-storey bank, built c.1890.	Well designed bank, occupying prominent corner location in town centre of Ardee.	Architectural, Artistic and Social Interests.
Kearney's Drapery Store	Lhs017-012	N/A	Castle Street, Ardee	Regional	Five-bay two-storey former house, with good quality shop front and carriage arch. Build during the late 19 th century.	Good quality mid-19 th century house standing on Castle Street, in historic centre of Ardee.	Architectural, Artistic and Social Interests.

Liscou	Lhs017-013	N/A	Castle Street, Townparks, Ardee	Regional	Former house, converted to shop with good quality shop front.	Good quality mid-19 th century house standing on Castle Street, in historic centre of Ardee.	Architectural, Artistic and Social Interests.
"J. Kiernan" Solicitor	Lhs017-014	13823002	16 Castle Street, Townparks, Ardee	Regional	Three-bay two-storey house, built c. 1850-1870. Simple design with fine door surround.	Good quality mid-19 th century house standing on Castle Street, in historic centre of Ardee.	Architectural and Artistic Interests.
House 1	Lhs017-015a	13823003	Castle Street, Townparks, Ardee	Regional	Three-bay two-storey house, built c. 1860. Simple design with fine central door surround.	Good quality mid-19 th century house standing on Castle Street, in historic centre of Ardee.	Architectural and Artistic Interests.
House 2	Lhs017-015b	13823003	Castle Street, Townparks, Ardee	Regional	Three-bay two-storey house, built c. 1860. Simple design with fine door surround.	Good quality mid-19 th century house standing on Castle Street, in historic centre of Ardee.	Architectural and Artistic Interests.
<u>Roadside Water Pump</u>	<u>Lhs017-016</u>	<u>N/A</u>	<u>Castle Street, Townparks, Ardee</u>	<u>Regional</u>	<u>Freestanding cast-iron water pump, c.1890, now disused.</u>	<u>Rare survivor of late 19th century hand powered water pump. Located on public footpath.</u>	<u>Social and Technical Interests.</u>
Ardee Castle	Lhs017-017	13823004	Castle Street, Townparks, Ardee	Regional	Late Medieval tower house, built c.1600, converted to court house c.1850. Largest fortified tower house to survive in Ireland.	Prominent location on Castle Street in the centre of Ardee. The castle projects forward of the building line and is larger and grander	Archaeological, Architectural, Artistic, Historical and Social Interests.

						than any other structure in the centre of the town.	
"Ardee Bread Company"	Lhs017-018	13823007	Castle Street, Townparks, Ardee	Regional	End-of-terrace eleven-bay two-storey former bakery, built c. 1850. Excellent period shop front.	Prominent local landmark bakery, located beside Ardee Castle in town centre site.	Architectural and Artistic Interests.
Allied Irish Bank	Lhs017-022	13823040	Castle Street, Townparks, Ardee	Regional	Five-bay three-storey bank built c.1870. This late 19 th century bank has a well detailed rendered front elevation and stands taller than its immediate neighbouring commercial structures.	Prominent town centre location on Castle Street, among other 19 th century commercial structures.	Architectural, Artistic and Social Interests.
"Hamill's Public House"	Lhs017-024	13823028	19 Bridge Street, Townparks, Ardee	Regional	Five-bay two-storey red brick Victorian public house. Retains excellent shop front with faience majolica tile cladding.	This public house has an excellent shop front with rare faience majolica tile details, and is a highly significant part of Ardee's historic townscape.	Architectural, Artistic, Historical and Social Interests.
Ardee House/ St. Joseph's Hospital	Lhs017-035	13823035	Fair Green Road, Townparks, Ardee	Regional	Fine seven-bay three-storey red brick Georgian country house, built c. 1760-	This fine country house stands in a former parkland demesne adjacent to the western edge of the town centre of Ardee.	Architectural, Historical and Social Interests.

					1800, converted to hospital.		
Railway Station	Lhs017-039	13823060	O'Carroll Street, Dawson's Demesne, Ardee	Regional	Detached yellow brick former railway station, built c.1880. Now used for commercial premises.	Fine Victorian railway station survives at its original location, long after the closure of the railway station and removal of tracks.	Architectural, Artistic and Social Interests.
House	Lhs017-040	13823059	O'Carroll Street, Dawson's Demesne, Ardee	Regional	Good quality single-storey with attic, red-brick detached former station master's house.	Victorian house standing at the gates to the former railway station.	Architectural and Social Interests.
Former Locomotive Shed	Lhs017-041	13823060	O'Carroll Street, Dawson's Demesne, Ardee	Regional	Three-bay single-storey former engine shed. Built of squared rubble stone masonry with yellow brick window surrounds.	This rare building type survives long after the closure of the railway station, and is an important part of the historic setting of the railway area.	Architectural, Artistic and Social Interests.
Shop	Lhs017-042	13823062	Castle Street, Townparks, Ardee	Regional	Attached three-bay three-storey house, built c. 1860, with decorative render to front. Shop front added to ground floor.	Prominent site on Castle Street in the centre of Ardee. Notable for the decorative render to the front elevation.	Architectural and Artistic Interests.

Café/Shop	Lhs017-043	13823041	Castle Street, Townparks, Ardee	Regional	Three-bay two-storey red brick gable-fronted former house and shop, built c. 1915.	Unusual red-brick shop and house, on Castle Street in Ardee.	Architectural, Artistic and Social Interests.
Ferdia Arms	Lhs017-044	13823038	Castle Street, Townparks, Ardee	Regional	Georgian former house on corner site, built c. 1800. Converted to public house during 19 th century with good quality entrance and shop front.	Good quality Victorian public house in converted Georgian house. Prominent corner site on Castle Street, with carriage arch on secondary elevation.	Architectural, Artistic and Social Interests.
Anderson's	Lhs017-045	13823045	Irish Street, Townparks, Ardee	Regional	End of terrace two-bay two-storey former house, built c. 1840. Converted to public house.	This converted 19 th century house has interesting shop front features and contributes to the historic streetscape of Ardee.	Architectural, Artistic and Social Interests.
House	Lhs017-047	13823047	18 Irish Street, Townparks, Ardee	Regional	End-of-terrace four-bay two-storey house, built c. 1800, with carriage arch, decorative fanlight, rendered façade and sash windows.	Early 19 th century house maintains its historic appearance on Irish Street in the centre of Ardee.	Architectural and Artistic Interests.
House	Lhs017-048	13823048	20 Irish Street, Townparks, Ardee	Regional	Terraced three-bay two-storey house, built c.1840. With carriage arch, decorative fanlight, rendered	Mid 19 th century terrace house retains its original historic appearance on Irish Street in the centre of Ardee.	Architectural and Artistic Interests.

					façade and sash windows.		
Warehouse	Lhs017-053	13823057	Market Street, Townparks, Ardee	Regional	Detached rubble stone four-bay three-storey former warehouse.	This former warehouse makes a positive contribution to Ardee's historic setting, being a surviving part of the area's industrial history.	Architectural and Social Interests.
<u>Bridge Street Bridge</u>	<u>Lhs017-056</u>	<u>13823008</u>	<u>Bridge Street, Townparks, Ardee</u>	<u>Regional</u>	<u>Single span stone road bridge over River Dee. Built c.1860.</u>	<u>Important stone bridge at location of ancient entrance gates into Ardee.</u>	<u>Architectural and Technical Interests.</u>
Ardee Clinic	Lhs017-057	13823009	Bridge Street, Townparks, Ardee	Regional	Attached five-bay two-storey house, built c. 1870, converted to use as a clinic.	Attractive former house, with ground floor shop front, contributes positively to the historic streetscape in Ardee.	Architectural and Artistic Interests.
Cuchulainn House	Lhs017-065	13823029	Bridge Street, Townparks, Ardee	Regional	Attached five-bay three-storey former house, built c.1800. Currently in use as flats.	A substantial early 19 th century house. Fine details on the front elevation including a front stairs with iron railings and good quality entry door surround with fanlight.	Architectural and Artistic Interests.
<u>Sir Frederick Foster Memorial</u>	<u>Lhs017-070</u>	<u>13823042</u>	<u>Market Square, Ardee</u>	<u>Regional</u>	<u>Freestanding stone monument, erected 1861. "To the memory of Sir Frederick George</u>	<u>Designed by architect John Murray, was erected to the memory of "one of the best landlords that ever lived"</u>	<u>Artistic, Historical and Social Interests.</u>

					<u>John Foster, Baronet. Erected by his Tenantry in A.D. 1861". Carved effigy of Sir Frederick Foster by Thomas Farrell of Dublin.</u>	<u>and placed in such a prominent position within the town of Ardee because of the respect in which Sir Frederick Foster was held by his tenants.</u>	
Manor Mill/ Leg Mill/ Meadow Mill	Lhs017-072	13823061	Cappocks- green, Ardee	Regional	Detached three-bay two-storey former mill house, built c.1850.	This good quality mill owner's house, with ancillary structures, was built near the site of a mill that originated during the medieval era.	Architectural and Social Interest.
House	Lhs017-073	13823005	Castle Street, Townparks, Ardee	Regional	Terraced two-bay two-storey house, built c.1840, abutting Ardee Castle to the north. Good quality door surround with columns and fanlight.	This modest house contributes positively to the streetscape contrasting in scale with the castle which it abuts to the north.	Architectural Interest.
House	Lhs017-082	13823043	Irish Street, Townparks, Ardee	Regional	Terraced two-bay two-storey house, built c. 1840. Ground floor shop front from c. 1970.	This modest house contributes positively to the streetscape of Ardee.	Architectural Interest.
House	Lhs017-083	13823044	Irish Street, Townparks, Ardee	Regional	Terraced three-bay two-storey house, built c.1840. Integral carriage arch to front	This modest house contributes positively to the streetscape of Ardee.	Architectural Interest.

elevation and good
quality door surround
to front door.

Site Photographs

- 17.34 Site photos are provided below which help to inform the context and understanding of the architectural heritage baseline/receiving environment.

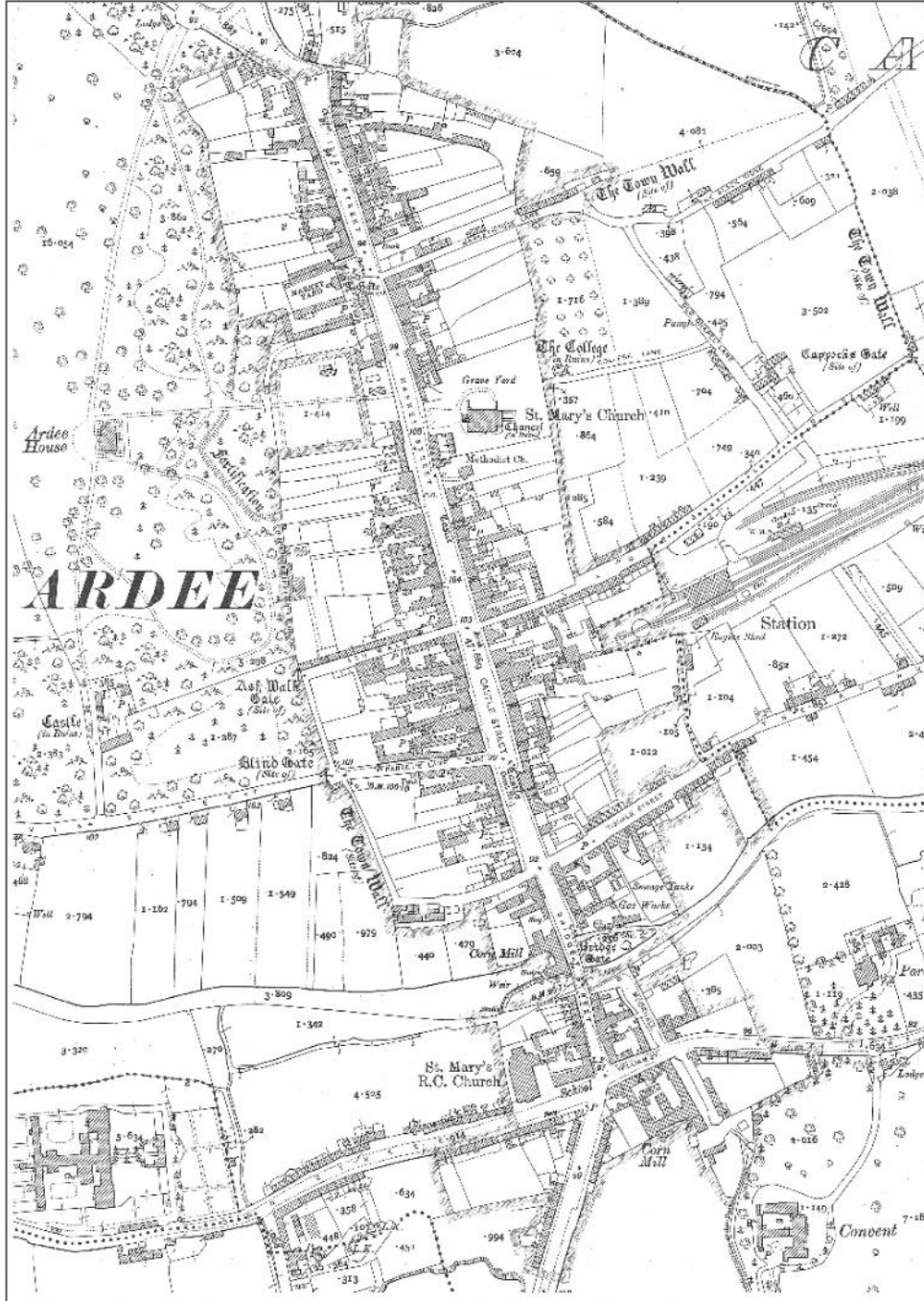


Photo 1: Ordnance Survey Map of Ardee, as surveyed in 1908. The compact footprint of the medieval town can be clearly seen, along with the principal historic structures, including Ardee House, St. Mary's Church, Ardee Castle (Courthouse), Hatch's Castle, and the railroad station.



Photo 2: Historic photograph showing the centre of Ardee during the late C19th. The primary subject of this photo is the large medieval tower house, then in use as a courthouse. Many of the other structures in the town have remained standing, with some modifications. The most obvious difference to modern times is the total lack of vehicular traffic and above ground services cables.



Photo 3: Recent photo showing the same view along Main Street. Ardee Castle, formerly St. Leger's Castle is possibly the largest fortified medieval townhouse in Ireland.



Photo 4: Recent photo looking north along the east side of Main Street, showing the castle at left, flanked by a terrace of largely empty and underused historic structure.



Photo 5: Recent photo showing some of the C19th commercial structures that line the west side of Main Street.



Photo 6: Recent photo showing the late C19th bank on the east side of Main Street and the junction with O'Carroll Street. Note the proliferation of cables and bollards at this corner, obscuring the features of the fine commercial structure.



Photo 7: Recent photo showing a sampling of the C19th and early C20th commercial structures on Main Street. Many of these businesses are struggling, but the town centre remains vibrant and bustling.



Photo 8: Victorian period shop front on a disused shop on the east side of Main Street.



Photo 9: Excellent terra cotta shop front on a historic pub, located on the west side of Bridge Street, on the south bank of the River Dee.



Photo 10: Front elevation of Hatch's Castle, a prominent monument on the east side of Main Street, close to St. Mary's Church. This structure remains in residential use, and retains its medieval character, despite many later alterations.



Photo 11: Front elevation of St. Mary's Church, standing within its ancient church yard on the northern end of Main Street. Most of the present structure dates from the C19th, however the remains of a small ancient chapel were incorporated into this structure. The church yard has many beautiful old and ancient gravestones.



Photo 12: The roofless ruin of the Chantry College, established prior to 1487, and standing to the east of St. Mary's Church.



Photo 13: View looking north towards Ardee House, currently in use as a hospital. The Proposed Woodland Walk will run through this area, to the rear of Ardee House, in the distance.



Photo 14: View looking south, from the same location as the previous photo, showing the historic farmyard previously associated with Ardee House. At the right side of the yard, at the rear, is another late medieval tower house, originally standing outside of the protective walls of Ardee.



Photo 15: General view looking west across the Railway Lands area. The Victorian station and adjacent engine house are visible in the distance, now in separate commercial use. The raised passenger platform is visible at left.



Photo 16: General view looking south showing the former station, currently in use as a heavy plant dealership.



Photo 17: General view showing the original entrance gates to the railway yard, from Sean O'Carroll Street. This gate serves as the public entrance into the public park that occupies the former railway platform and tracks area.



Photo 18: Detail view showing the fine limestone rubble masonry wall that survives from the railway station area.



Photo 19: Historic photo showing the original Goods Shed on the raised platform. That structure was removed after the station was closed during the late C20th.



Photo 20: General view looking east, showing the Railway Lands area, formerly covered with rail tracks, as seen in the previous historic photo.



Photo 21: General view showing the front elevation of the former Station Master's House, Sean O'Carroll Street. This fine house is now in private use but remains unchanged from its original appearance.



Photo 22: General view showing the rubble stone remains of the Cappock Gate, one of Ardee's historic routes out of the village to the east.

Characteristics of the Proposed Development

- 17.35 In relation to the Conservation of the area's rich architectural heritage, the proposed development has sought to improve and enhance the settings for a few highly visible and significant monuments that give Ardee its principal identity.
- 17.36 While the structures themselves are not intended to be modified or changed to accommodate the proposed adjacent developments, there will be changes to their current setting, and how they are seen and understood by members of the public.

Evaluation of Effects

'Do Nothing' Scenario

- 17.37 If nothing is done to create a more dynamic public realm across the Ardee town centre, the area may continue to languish and decline. The lack of economic viability for the town centre commercial properties will continue, and the quality of life for visitors and residents of Ardee will continue to be negatively impacted by the hostile environmental impacts from unrestrained traffic through the town.

Construction Phase

Character Area 1: Main Street and Ash Walk

- 17.38 The proposed development largely consists of upgrading to the paving materials, to the vehicular and pedestrian pavements, and modifications to the width and alignment of footpaths and vehicular roads. Extensive above ground cables, carrying mails electric service as well as telephone and telecoms cables, are seen throughout the main street area. To address these visually obtrusive elements, it is proposed to run these cables underground.
- 17.39 At street level, it is proposed to make extensive positive modifications to the public realm of the Main Street Area. The carriageway will be narrowed and traffic calming measures introduced. This will allow for increased widths to the footpaths, which will be paved with more attractive materials, and further improved with hard and soft landscaping.
- 17.40 Ash Walk is a remnant of ancient Ardee, formerly leading to one of the town's historic gates. The current proposals for development will encourage the use of this ancient public way, to connect to new developments that are currently underway on the west side of Ardee.

Protected Structures

- 17.41 Given the nature of the proposed development works, only a small number of protected structures actually fall within its boundaries. There are three protected structures that are within the development area. They are listed below, along with their RPS number. In all cases, there will be a change to the appearance of the setting around each of these elements. Because no historic paving materials have been noted in the surveys, there will be no loss of such materials. The new paving materials, in addition to landscaping and street furniture, will have a very positive impact on the general appearance of the public in Ardee, and the appearance of the townscape in the immediate vicinity of the protected structures that stand within the development are

will be greatly enhanced. For further description of these protected structures, see Table 17.1 below.

- Sir Frederick Foster Memorial, Market Square, Ardee (RPS No. Lhs017-070).
- Roadside water pump outside Ardee Castle (RPS No. Lhs017-016).
- Bridge Street bridge (RPS No. Lhs017-056).

17.42 In relation to protected structures that stand adjacent to, but outside of the development area, there will be minimal physical impact from the development. No historic pavings or curbing were noted in the survey, and so no historic materials will be removed or impacted in the development area. In addition, proposed new paving treatments to the public pavements and roadways will have a very positive impact to the appearance of the historic setting of these structures. All of the protected structures that stand adjacent to the area of proposed development can be seen in **Table 17.1**.

Ardee ACA

17.43 A substantial number of protected structures stand within the Ardee ACA and give Ardee an attractive historic character. By contrast, virtually no historic paving materials have survived in place in the adjacent public realm. The proposed developments within the ACA will have a positive impact on the appearance and setting of these protected structures and help to encourage their continued maintenance and use into the foreseeable future.

Protected Views

17.44 **Table 17.2** identifies key viewpoints within Ardee, as identified in Table 8.17: Views and Prospects in Ardee of the LCDP 2021 – 2027. The location of the viewpoints is identified at **Figure 17.3**. A detailed review of the visual impact of the proposed works is included at Chapter 18 of this EIAR.

17.45 There are two protected views within the Main Street corridor in Ardee, labelled as VP58 and VP59 on **Table 17.2** and on the map in **Figure 17.5**. At both locations, the proposed changes to the pavings, landscaping and street furniture in the public realm will have a very positive impact on the appearance of the centre of Ardee. In addition to the use of sensitively chosen materials and landscaping design, the impact of vehicular traffic will be lessened in the core of the historic town. The general setting for the towns numerous historic and protected structures will be enhanced, particularly when seen from the protected views.

17.46 An additional group of protected views are labelled as VP60 on **Table 17.2** and shown on **Figure 17.3**. These are views across the open landscape towards the ancient Castleguard Motte. It is considered that the proposed development of the sports facilities to the north will have minimal impact on these protected views. It is likely that some of the site lighting that will serve the sports facilities will be visible from the southernmost VP60, however the motte is approximately 250 m to the south of the proposed development at the Amenity Lands, with further screening provided by vegetation along the River Dee.

Table 17.2: Replication of Table 8.17: Views and Prospects in Ardee of the LCDP 2021 – 2027

Reference No.	Location
VP 58	Mulladrillen Hill and Mullaghash from the Town Centre
VP 59	Ardee Castle
VP 60	Castleguard Motte

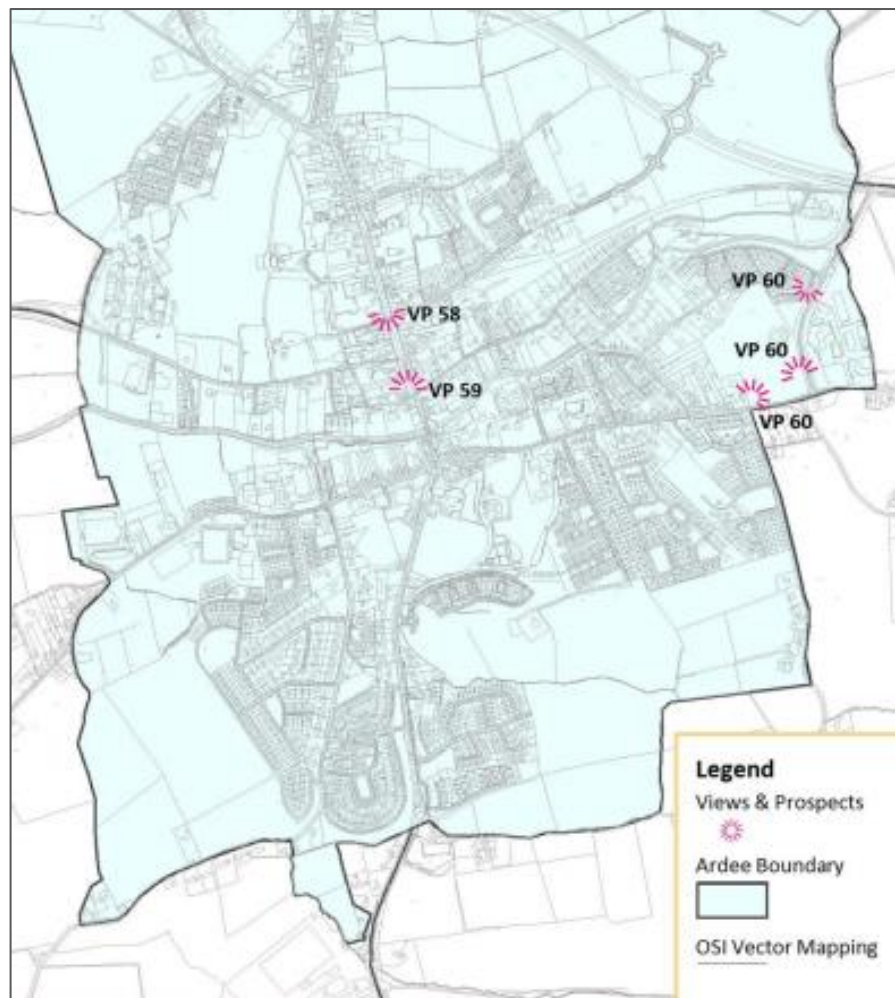


Figure 17.3: Replication of Map 8.19: Views and Prospects, Ardee of the LCDP 2021 – 2027

- 17.47 The appearance of Ash Walk will change as a result of the proposed developments, and there will be new pavings and hard / soft landscaping. No historic paving materials have been noted in Ash Walk, and none are expected to be impacted by the development. The proposed development is effectively a surface treatment, and no direct negative impacts are predicted to any heritage assets in the immediate area.

Character Area 2: Old Railway Lands

- 17.48 The proposed development has been designed to retain all surviving elements from the disused railway station, including the former boarding platform, entrance gates and stone boundary walls. Improvements to the hard and soft landscaping in this public park will encourage additional use and visitation by the area's residents and visitors. A new vehicular entrance is proposed at the northwest corner of the site to provide access to a proposed new public carpark.
- 17.49 The appearance and condition of the public park currently within this area will be greatly improved by the development. All surviving elements associated with the former railway station will be retained and repaired under the development proposals. The location of the historic town wall will be identified on the ground, to improve awareness of the town's ancient history. The creation of the new public carpark will encourage public use of the park by residents and visitors. The proposed developments will have positive direct impacts to the former railway lands and will result in moderate effects on the visual quality of the public park that was previously established in this area after the closure of the rail station during the late C20th.
- 17.50 The Ardee ACA covers a large area of central Ardee, containing a substantial number of Protected Structures. As mentioned above, virtually no historic paving materials have survived in situ within the area of the proposed development. It is considered that the proposed developments will have a positive impact on the appearance and setting of the ACA generally and will promote the repair and occupation of the town's protected structures.

Character Area 3: Amenity Lands

- 17.51 These proposed developments will occur in an area to the east of the Old Railway Lands, and will create a compact facility for outdoor sports, including a running track and bowling green. There are no protected structures or monuments within the redline boundary of this area, however there is a protected structure close to the western edge of the area. The proposed developments to the Amenity Lands have been located to ensure no development is within 10m of the bank of the River Dee.
- 17.52 There will be no direct impacts to any Heritage Assets due to the construction of this development.
- 17.53 There will be modest indirect impacts to the adjacent Protected Structures located immediately to the west of this development. During the construction phase of the development there will be typical construction activities such as increased vehicular travel, noise and dust that will impact the immediate area. These activities will be controlled and minimized as much as possible, ceasing upon completion of the development.

Woodland Walk Area Development

- 17.54 The construction of improved footpaths will entail some minor excavation and the laying of compacted hardcore and soft paving materials. The existing path linking St. Joseph's Hospital to the rear of Ardee Day Care Centre will be resurfaced, requiring the felling of no additional trees in that area. These activities will be monitored by archaeologists during the construction stage, to identify any previously unknown archaeological deposits or features. The increased accessibility to the former parkland around Ardee

House will constitute a neutral impact on the existing heritage asset. There will be a change to the appearance of the parkland, and the proposed development will have a moderate effect on the current appearance of the former parkland between Ardee House and the western edge of Ardee Village.

Operation Phase

Character Area 1 – Main Street (including Ash Walk)

- 17.55 During the operation stage of the proposed development, there will be widespread positive impacts on the appearance of the town centre, through reduced impacts from vehicular traffic, and enhancement of the pedestrian amenities on the improved footpaths. It is considered that the development, when completed, will encourage additional town centre improvements, which will further enhance the character of the town's historic core.
- 17.56 The Ash Walk developments will greatly improve the public accessibility to the parkland formerly associated with the historic Ardee House (now St. Joseph's Hospital). This will constitute a neutral impact on the existing context of the small tower house in the farmyard formerly associated with Ardee House.

Character Area 2 – Old railway Lands

- 17.57 There will be increased visitation by the local residents of Ardee to this park, with greater variation in attractions on offer. There will also be small garden allotments made available to local residents for gardening. The increase in visitation to the park will result in greater awareness of the town's heritage and recreational assets, encouraging higher levels of funding for maintenance and improvement through time.

Character Area 3 – Amenity Lands

- 17.58 When the sports facilities are in use, there will be an increase in pedestrian and vehicular travel to the development.
- 17.59 The development of the sports facilities will have a slightly negative impact on the remaining protected structures that comprise the former mid-19th century mill at Cappock's Green, RPS No. LHS017-072. There will be an increase in vehicular traffic in the immediate area, as well as increased lighting at night for the use of the sports grounds. The protected structures are well screened by existing vegetation, and the proposed development will include additional screening measures.

Character Area 4 – Woodland Walk

- 17.60 The large demesne, originally associated with Ardee House, has already been opened up for development, with a large swathe of the parkland being preserved as open space along the western edge of central Ardee. In particular, there will be public access along the edge of the C17th earthwork fortification on the line of the town walls, close to the rear of Ardee House. This revetment survives above ground but has not been easily accessed by the public due to its location within the private demesne of Ardee House, and during its more recent use as a hospital. The increased public accessibility to this important piece of regional and national history will constitute a positive indirect effect on the context of the old town defences.

General Public Realm Improvements

- 17.61 The proposed improvements to the streetscape in the main streets and lanes within the project area are intended to address the general appearance of disrepair and dereliction that prevails along many of those streets. As illustrated in Figure 17.3 above, a large concentration of historic structures can be found within the project area, largely in private ownership. Many of those structures are protected by their inclusion on the Record of Protected Structures, and much of the area is further protected by inclusion in an Architectural Conservation Area. Nonetheless, many of the structures suffer from lack of repair and chronic underinvestment. The improvements to the public realm included in the proposed development are intended to bring vitality and confidence back to the area, which will see increased opportunities for residential living, tourism and commercial activities. The demolition of the existing public realm footpaths, carriageways and other hard landscaping features has the potential for direct, negative and significant impacts to the fabric of the protected structures, monuments and otherwise significant heritage assets that stand adjacent to the public realm construction activities. These impacts can be caused by the operation of heavy construction plant in close proximity to these heritage assets, causing vibration, abrasion or impact.

Mitigation Measures

- 17.62 The design and details of the proposed development have been conceived to avoid any direct physical impact to the adjacent structures. Additionally, the design team responsible for the detail design/tendering information, will be made aware of the potential for damage to the monuments, protected structures and all otherwise significant heritage assets, during the construction stage of the works, and provide method statements and specifications that will guarantee that the required diligence will be practiced by the contractors on the project.

Worst Case Scenario

- 17.63 The worst-case scenario would be that the construction activities required to replace the public realm paving and street furniture could have a negative impact on the highly sensitive masonry fabric of the ancient structures that stand adjacent to the proposed developments. This will require some degree of excavation close to the medieval masonry, to allow for the installation of drainage, site services and new footpaths.

Monitoring & Reinstatement

- 17.64 In all locations, the design and details of the proposed developments have been conceived to avoid any direct physical impact to the adjacent structures. Additionally, the design team responsible for the detail design/tendering information, must be keenly aware of the potential for damage to the assorted heritage assets during the construction stage of the works, and provide method statements and specifications that will guarantee that the required diligence will be practiced by the contractors on the project.

Interactions

- 17.65 There is a direct interaction between this assessment and 'Chapter 16 - Archaeology and Cultural Heritage'. The chapters have been reviewed as part of this assessment to ensure all aspects of the historic environment have been assessed and also to prevent replication of information as much as possible.

Difficulties in Compiling Information

- 17.66 During the detailed design stage of these proposed works, a substantial amount of detailed survey information is required to be gleaned from the above ground fabric of the monuments. The services of specialist conservation professionals will be required to assess any structural weaknesses, inappropriate previous repairs, loose masonry, intrusive vegetation and the need for repointing or re-grouting of the delicate masonry.

References

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- Heritage Act, 1995 (as amended).
- Draft Advice Notes on Current Practice (in the preparation of Environmental Impact Statements), 2015, EPA.
- Guidelines on the Information to be Contained in Environmental Impact Assessment Report 2022, EPA.
- Architectural Heritage Protection, Guidelines for Planning Authorities, 2011, Department of Arts, Heritage and the Gaeltacht;
- Frameworks and Principles for the Protection of the Archaeological Heritage, 1999, (formerly) Department of Arts, Heritage, Gaeltacht, and Islands; and
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 2000 and the Local Government (Planning and Development) Act 2000.

18. Landscape and Visual Impact

Introduction

Statement of Expertise

- 18.1 This Landscape and Visual Impact Assessment (LVIA) has been prepared by Park Hood Chartered Landscape Architects in conjunction with Turley. Park Hood is a Chartered Member of the Irish Landscape Institute and Landscape Institute UK with extensive experience in preparation of Landscape / Townscape and Visual Impact Assessments for large scale projects throughout Ireland and the UK.
- 18.2 The primary author is Andrew Bunbury who is a qualified Landscape Architect and Chartered Member of the Landscape Institute (CMLI) with over 25 years' consultancy experience in the profession across Ireland and the UK. He works between the Dublin, London and Belfast offices of Park Hood where there are 25 members of staff including a further twelve Chartered Landscape Architects. All work is undertaken in compliance with the *Landscape Institute's Code of Standards of Conduct and Practice for Landscape Professionals* and checked in accordance with Park Hood's ISO 14001:2015 and ISO 9001:2015.

Summary of Proposed Development and Purpose of LVIA

- 18.3 The proposed development is in Ardee, Co. Louth. The project concentrates on four key character areas in Ardee including: the Main Street /Ash Walk; the wooded area to the east of St. Joseph's Hospital; underutilised Council owned lands in the east of the town; and lands adjacent to the River Dee. A full description of the application site is included in Chapter 3.
- 18.4 "Main Street" is name used within this LVIA to capture the various street or road names for the stretch of the N2 between Bridge Street (to the south) and Dundalk Road (to the north) in Ardee that is the focus of part of this project. The intervening section includes Castle Street, Market Street and Irish Street.
- 18.5 The purpose of this Landscape and Visual Impact Assessment (LVIA) is to identify and determine the potential effects on the character and visual amenity of the landscape / townscape as a result of the proposed development on the relevant parts of Ardee.

Methodology

Guidance Documents

- 18.6 The overall approach and methodology undertaken within this LVIA are based on the Guidelines for Landscape and Visual Impact Assessment (3rd Edition) by The Landscape Institute and the Institute of Environmental Assessment (2013) (GLVIA). Other published documents include:-
- Technical Information Note on Townscape Character Assessment published by the Landscape Institute (2016);
 - Guideline on the Information to be Contained in Environmental Impact Assessment Reports published by EPA (2022); and

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment published by the Department of Housing, Planning and Local Government (2018).

18.7 The EPA Guidelines (2022) provide a general methodology and impact ratings for all types of specialist assessments. The GLVIA provides specific guidelines for landscape and visual impact assessments. Therefore, a combination of the EPA guidelines, the Landscape Institute guidelines and professional experience has informed the methodology for this assessment.

Definition of Landscape and Visual Effects

18.8 For the purpose of this assessment, this chapter adopts the definition of landscape presented in the European Landscape Convention and as such, the term ‘landscape’ refers equally to areas of rural countryside and urban – built up – areas (typically historically referred to as ‘townscape’). The definition of landscape is: -

“An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.”

18.9 The assessment process sets out to identify the effects of the proposed development on views and on the landscape / townscape. Landscape and visual effects can be quite different and are assessed separately; although the process is similar, and effects ultimately arise as a result of combined impacts upon the landscape and visual amenity of a proposed development. Developments can have significant visual effects but no impact on landscape/townscape character and some can be vice versa.

18.10 **Landscape Effects** are the effects on landscape / townscape as a resource and defined as follows:

“An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern ... is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. ... The area of landscape that should be covered in assessing landscape effects should include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner.” (GLVIA3 paragraphs 5.1 and 5.2)

18.11 **Visual Effects** are the effects on Views and Visual Amenity and summarised as follows:

“...establish the area in which the development may be visible, the different groups of people who may experience views of the development, the places where they will be affected and the nature of the views and visual amenity at those points.” (GLVIA3 paragraph 3.13)

Summary of LVIA Objectives and Key Tasks

18.12 The objective of the LVIA is to evaluate the likely significance of townscape / landscape character and visual amenity effects to the Application Site and study area to assist the determining authority in considering the acceptability of this proposal. It is based on the interpretation of the physical and aesthetic characteristics following criteria and

terminology partially drawn from *Principles and Overview of Processes (Chapter 3)* within the GLVIA. The LVIA focuses on key effects and issues as follows: -

- The effect of the proposed development upon the landscape / townscape resource;
- The effect of the proposed development on the perception of the landscape / townscape; and
- The effects arising from the proposed development on visual amenity.

18.13 The LVIA methodology can be summarised as undertaking the following key tasks: -

- Site Visits in November 2023;
- Assessing the baseline Landscape Setting and Conditions;
- Evaluation of key components of the proposed development based on site layouts and plans forming the core of the planning documents;
- Assessing the Predicted Project Impacts on landscape/townscape and visual amenity/ views;
- Assessing any Cumulative Impacts;
- Consideration of Remedial, Mitigation and Enhancement measures;
- Assessing Residual Impacts; and
- Summary and Conclusions.

Baseline Landscape Character Assessment

18.14 The study area includes the Site itself and the wider townscape where the Proposed Development may have an influence either directly or indirectly. There is no specific guidance on extent of study areas applicable to this type of development in Ireland. Given the baseline setting and nature of the project, an appropriate and objective study area was assessed as being within less than 1km of the site as all significant views or effects would be within this range.

18.15 The baseline studies extend to include to the wider context into which the proposed development will be introduced. The baseline description of existing conditions forms an objective evaluation of the townscape / landscape character and visual amenity of the study area. This forms the base against which the townscape / landscape and visual effects deriving from the proposed development can be identified, assessed, and measured. It involves a desk-top analysis and review of material including:-

- National and Regional Landscape Character or local Landscape Character Assessments;
- Review of any historical planning applications on or near the Application Site;

- Existing National, Regional or Local Designations and relevant Planning Policy;
- Current and historical Ordnance Survey Ireland (OSI) Maps evidence;
- Aerial Photographs via Bing, Google and OSI; and
- Relevant environment / ecology, cultural heritage, historical and archaeology evidence.

- 18.16 As part of the baseline assessment, the combination of desk-top analysis and site survey allows a judgment to be made on the key elements that contribute to the landscape / townscape character and its wider condition (positive, neutral, or negative) and wider value and sensitivity.
- 18.17 Townscape value, quality and sensitivity is affected by factors including: (i) whether the resource is common or rare; (ii) whether it is considered to be of local, regional, national or global importance; (iii) whether there are any statutory or regulatory limitations / requirements relating to the resource; (iv) the quality of the resource; (v) the maturity of the resource, and (vi) the ability of the resource to accommodate changes. **See Table 18.1**

Table 18.1: Determination of Landscape / Townscape Value and Sensitivity

Terminology	Definition	Summary
Highest Value Townscape	Nationally or regionally important townscape with high quality, highly valued rare or unusual features. Diverse, stimulating and thriving street level uses with high level of human comfort, interactive pedestrian environment and strong hierarchy of public amenity and civic spaces. National area / feature designation and assemblage of important listed historical and rich cultural features including Conservation Areas and Listed Buildings / Scheduled Monuments or valued modern buildings. Well maintained unified townscape with attractive visual detail and no detractors. Negligible pedestrian and traffic conflict.	Very vulnerable to change. High Sensitivity
Very Attractive Townscape	Locally distinctive development form with rich cultural associations using good quality locally characteristic materials. Harmonious relationship between buildings and hierarchy of publicly accessible spaces. Several Listed Buildings or local area / feature designations may apply including features of regional interest. Highly permeable, well maintained and no significant townscape detractors. A townscape that promotes social interaction and pedestrian movement dominates traffic circulation with few conflicts.	Some ability to absorb change in some situations without having significant effects. Medium to High Sensitivity

Good Townscape	Features with historical / cultural local value, possibly designated. Locally distinctive townscape, vernacular or planned layout often with ornamentation in good condition and well maintained. Possibly degraded by unsympathetic modern development but retaining essential characteristics with potential for enhancement. Townscape supports social interaction and pedestrian movement co-exists with traffic movement with few conflicts.	Some ability to absorb change in some situations without having significant effects. Medium Sensitivity
Ordinary Townscape	Development is primarily functional, incoherent development form or minimum design criteria being used in contemporary situations. Little indication of local distinctiveness, design expression or ornamentation. Remnant distinctive townscape features may persist but no longer in context. Few opportunities for social interaction, limited to specific 'community' locations. Traffic circulation usually controls pedestrian movement.	Able to accommodate change without significant effects. Low Sensitivity

Landscape / Townscape Character Criteria

- 18.18 The LVIA considers how the Proposed Scheme would impact on existing townscape elements and resources (e.g. ground level changes) which are normally associated with the direct effects on the Application Site itself and adjacent areas. The indirect impacts of the Proposed Scheme on the wider townscape are assessed with reference to townscape types or character areas as identified in the baseline assessment. This is affected by factors including: (i) the physical extent and nature of the key elements that make up the proposal; (ii) the landscape context of these effects and (iii) the time-scale of impact, such as whether it is temporary (short, medium or long term), permanent with reversible potentials, or irreversibly permanent. **See Table 18.2**

Table 18.2: Landscape / Townscape Effects - Criteria

Terminology	Definition
Severe	Total loss or major alteration to key elements / features / characteristics of the baseline (i.e. pre-development) townscape or view and /or introduction of elements considered to be totally dominant when set within the attributes of the receiving townscape.
Substantial	A prominent change that may be large in scale and / or extent, and include the loss of key townscape characteristics or the addition of new features or elements that would potentially change the overall

	townscape quality and character at a wider scale.
Moderate	Partial loss or alteration to one or more key elements / features / characteristics of the baseline (i.e. pre-development) townscape or view and / or introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic when set within the attributes of the receiving townscape.
Slight	Minor loss or alteration to one or more) key elements / features / characteristics of the baseline (i.e. pre-development townscape or view and /or introduction of elements that may not be uncharacteristic when set within the attributes of the receiving townscape.
Negligible	Very minor loss or alteration to one or more key elements / features / characteristics of the baseline (i.e. pre-development) townscape or view and /or introduction of elements that are not uncharacteristic with the surrounding townscape - approximating the 'no change' situation.

- 18.19 In those instances where there would be no change to the townscape / landscape, the magnitude is recorded as 'zero' and the level of effect as 'no change'.

Visual Effects

- 18.20 Visual Effects are concerned wholly with the effect of the development on views, and the general visual amenity and are defined by the Landscape Institute in GLVIA 3 Paragraph 6.1 as follows:

"An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views."

- 18.21 The baseline studies establishes the area from which the Proposed Scheme may potentially be visible and the different groups of people ("visual receptors") who may experience views or changes to view context.
- 18.22 Viewpoints are generally identified in locations that are publicly accessible, such as streets, public realm / domain areas, footpaths and parks. Selection is also based on a determination of the extent of visibility towards the Application Site or from locations where there may be significant numbers of visual receptors who will see the Proposed Scheme e.g. commuter routes or tourist sites. Viewpoints are chosen to be representative, specific or illustrative and cover as much of the study area as reasonable or necessary and address all areas where there may be changes in terms of views or visual amenity.

- 18.23 Cooperation was undertaken with the heritage consultants with regards to location of these historic or cultural heritage viewpoints on account of crossover in terms of impact assessment.
- 18.24 The viewpoints are used as the basis for professional judgement on the potential effects on visual amenity or view quality. Viewer sensitivity is based on the nature of the visual receptor (resident, tourist, commuter etc.) and the visual quality or value attached to a particular view. **See Table 18.3**

Table 18.3: Viewer Sensitivity and Types

Sensitivity	Definition	Summary of Visual Receptor Type
High	Notable views of heritage assets, quality, valued or historic townscapes. Views that may be in designated areas, feature in guidebooks, scenic tours, associated with culture, literature and art or an important contributor to experience.	People whose interest is likely to be focused on an appreciation of townscape, culture, built form or particular views. e.g. tourists, cultural events. Residents / Communities living within close proximity of the proposal
Medium	Ordinary views where the reason for visual receptor to be in the area and does not involve or depend upon an appreciation of the views of the townscape or city form.	Commuters, travellers on road and rail. City centre / Public Building users including shopping / retail / commercial uses, recreational activity.
Low	Areas that may be viewed by the majority as incidental townscape where the focus of the viewer is on their work or activity and the setting is not important to the visual amenity or quality of working life.	Landowners for proposal. Workers with employment related to construction and management / maintenance activity in this part of the city and likely to have a low interest or appreciation of the view.

- 18.25 The nature of visual effects are based on a number of factors including:-

- Distance from Proposed Scheme;
- Contrast in terms of mass, colour, form and texture deriving from new feature(s);

- Extent of intervening vegetation (and seasonality if deciduous) or buildings and topography;
- Speed of passing visual receptor (and how long view is experienced);
- Angle and elevation of view e.g. oblique, direct, perpendicular;
- Nature of backdrop or skyline; and
- Duration of change or effect.

18.26 The visual effects deriving from a proposal are based on the combined judgement of all of the above and where mitigation (or enhancement) measures are proposed or relevant, these are described as part of any judgement. **See Table 18.4**

Table 18.4: Visual Effects - Criteria

Terminology	Definition
Severe	A major change or obstruction of a view that may be directly visible, appearing as the dominant and contrasting feature appearing in the foreground.
Substantial	The proposal forms the focus or an immediately apparent component in the view and will redefine its baseline characteristics.
Moderate	The proposal is likely to form a readily apparent component within the overall view but the baseline characteristics will continue to prevail.
Slight	The proposal forms a minor component in the wider view which might be missed by the casual viewer / observer. Awareness of the proposal would not have a marked effect on the overall quality of the view.
Negligible	The proposal is barely discernible or may be at such a distance that it is very difficult to perceive equating to a no-change situation.

Nature of Landscape / Townscape and Visual Effects

- 18.27 The assessment process aims to be objective and quantify effects as far as possible. However, townscape / landscape and visual assessment has aspects of it that can be considered subjective. Magnitude of change to a view can be factually defined but any subsequent objective assessment should be based on professional training, experience, observation, evidence and informed opinion.
- 18.28 Effects classified as Substantial or Substantial / Moderate are likely to be significant. Those classified as Slight or Negligible are not likely to be significant. However, following the classification of effects, further consideration of whether such an effect is positive, neutral or adverse. **See Table 18.5**

Table 18.5: Nature of Landscape / Townscape and Visual Effects

Terminology	Definition
Positive Effect	A change that improves the quality of the townscape character and fits very well with the existing townscape character.
Neutral	A change which does not affect the scale, landform or pattern of the townscape and maintains existing townscape quality.
Adverse Effect	A change which reduces the quality of the townscape and cannot be fully mitigated.

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

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

Significance Criteria and Determination

18.31 Significance of an effect is determined by the combination of sensitivity of the affected receptor(s) or townscape and the predicted magnitude or type of change which combine to form a level of effect. Significance of visual effects is not absolute and can only be defined in relation to each development and its specific location. **See Table 18.6**

18.32 This ES Chapter bases "Significance" of effects on the following definitions:-

- "Significant" in the Oxford Dictionary 2023 is defined as "Sufficiently great or important to be worthy of attention; noteworthy."; and
- "Significance" in the GLVIA3 is defined as "A measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic."

Table 18.6: Summary Scale of Significance

- Sensitive views or visual receptors; - Effects on recognised scenic, rare or distinctive townscapes; - Effects on mature or diverse townscape elements, features, characteristics, aesthetic or perceptual qualities; - Large scale changes.	More Significant 
- Effects on poorer condition or degraded townscapes; - Effects on low sensitivity visual receptors; - Small scale changes	Less Significant

- 18.33 The significance of townscape and visual effects is determined by cross-referencing sensitivity of townscape or view with the magnitude of change. In determining significance, mitigation measures are taken into account. Usually an effect is considered 'significant' if the level of effect is "moderate/major" or "major". **See Table 18.**

Table 18.7: Significance and Magnitude Criteria

Magnitude of Change	Townscape and Visual Sensitivity			
	High	Medium	Low	Negligible
Large	Major	Major/Moderate	Moderate/Minor	Negligible
Medium	Major/Moderate	Moderate	Minor	Negligible
Small	Moderate/Minor	Minor	Minor/Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Duration of Effects

- 18.34 The duration of effects is an important consideration for developments and corresponds to the following terms. **See Table 18.8**

Table 18.8: Duration of Effects

Terminology	Definition
Temporary	Effect lasting one year or less.
Short-term	Effects lasting one to five years.
Medium-term	Effects lasting five to ten years.
Long-term	Effects lasting between ten and twenty years.
Permanent	Effects lasting over twenty years and irreversible.

The Receiving Environment

The Subject Site

- 18.35 Ardee (*Baile Átha Fhirdhia*) is located at the intersection of the N2, N52 and N33 Roads and is within easy access of the Dublin-Belfast Corridor via the M1 and the north-west of the country via the N2. It can date itself back to the 13th century and is noted as being a historic walled town. The site comprises the redevelopment or works within four areas of townscape and landscape within the town of Ardee in Co. Louth (see **Figure 18.1**).

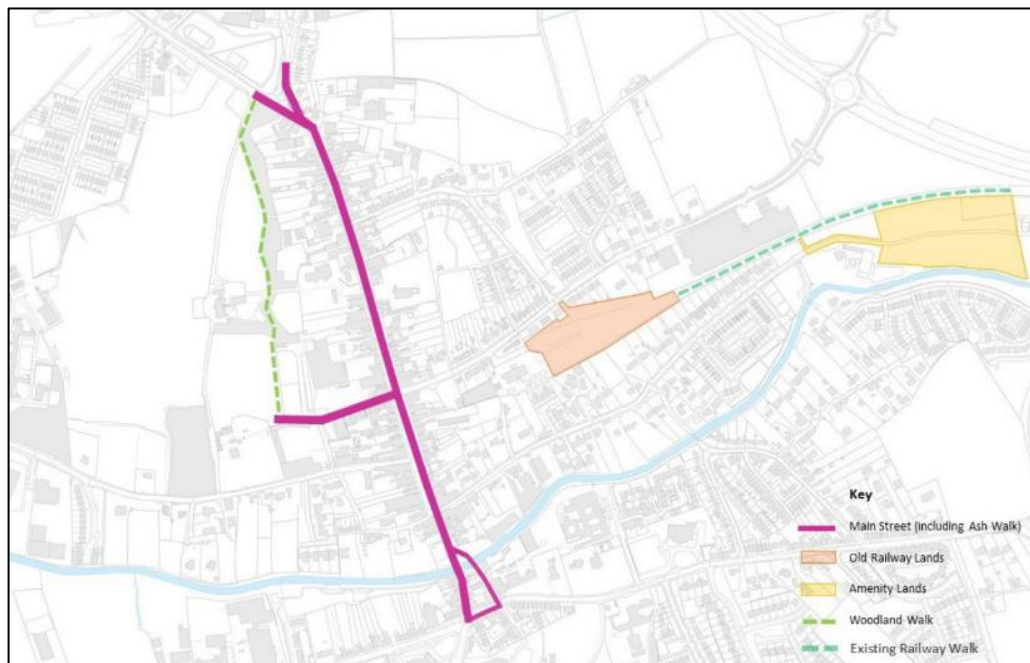


Figure 18.1: Project Character Areas

Character Area 1 – Main Street Ardee (including Ash Walk)

- 18.36 This part of the proposal extends from the N2 / N52 roundabout to the north of Ardee, along Main Street through the centre of the town to the junction of the N2 and R170

roads to the south. The opportunity area includes a portion of Golf Links Road to the north-west of Main Street and the public road/existing footpath and public realm areas within Ash Walk.



Photo 18.1 Existing Townscape Setting (View north on Main Street)



Photo 18.2 Existing Townscape Setting (View from opposite the former Ardee Bakery towards Ardee Castle)

- 18.37 The layout of Main Street (which is annotated on maps as including Bridge Street, Irish Street, Market Street and Castle Street) and the adjacent townscape today is comparable to that depicted on 19th century OSI Ordnance Survey mapping comprising generally low, two-storey houses and commercial buildings punctuated with shop fronts and carriage arches. This character is comparable along Bridge Street to the south of the site towards a bridge over the River Dee which is set aside a landscaped area and small car park on the northern banks of the river.
- 18.38 In general, the townscape of this area comprises dense built form with retail, commercial, institutional and residential lands set to either side of Main Street (N2). This

includes buildings that rise to three storeys (e.g. the AIB Bank) and four storeys (e.g. the Bank of Ireland and Hatch's Castle). Further north set on sizeable plots are St Mary's Church and graveyard, and to the west, St Joseph's Hospital and St Brigid's Hospital.

18.39 The public realm area along Main Street, including the road (N2), the associated footpath and areas of public realm are part of the application site. No buildings along Main Street are located within the site boundary. The site boundary extends as far as Bridge Street to the south. The footpaths are currently finished in either concrete sett paving or tarmac with areas of natural stone flag paving in the vicinity of Ardee Castle.

18.40 Ardee Castle is the most notable building in this part of Ardee and comprises a medieval Tower House, that ingresses just forward of the building line into the street. The castle was also known as St. Leger's Castle and dates from the 15th century, It was Ardee's district courthouse until 2006. Hatch's Castle, 214m to the north of the site, was built two or three hundred years later and was modernised in the early nineteenth century.



Photo 18.3 Existing Townscape Setting (View north from aside the Bank of Ireland at the N2 / O'Carroll Street Junction)

18.41 There are limited areas of soft landscaping along Main Street however there are a number of mature street trees positioned along the public footpath or set to ends of car parking bays.

18.42 The character area contains the following key site features/land uses/public realm areas:

- Market Square to the front of Ardee Library. A scheduled monument, the Sir Frederick Foster Memorial Fountain (1860-65) is located within the square facing Main Street;
- Road infrastructure (related primarily to the N2) including carriageways, footpaths, retaining walls, junctions, bus stops, loading bays and car parking facilities;

- Public utilities such as post boxes, street lighting, overhead electrical cabling and poles, underground services, CCTV cameras, electrical boxes, manholes, signage and car parking meters;
- The townscape setting in and around listed buildings and monuments including Ardee Castle. Further information can be found at 'Table 17.1 - Protected Structures Located within/adjacent to the Application Site' in Chapter 17 Architectural Heritage;
- Street furniture including street parklets, public art / sculptures, seating/benches, planter boxes, raised flower beds, bins, bicycle parking, hanging flower baskets and railings;
- A protected structure bridge (c. 1860) over the River Dee. The bridge is described in the NIAH listing as a "... *fine well-proportioned, beautifully crafted example of nineteenth-century engineering. Its setting next to a landscaped area, adds considerably to the ambience of the town*";
- An existing car park (including the Ferdia and Cuchulainn sculpture) and hard landscaped area to the north of the River Dee;
- An area of parkland located to the north of Ardee Main Street off Golf Links Road;
- A wooded area and pedestrian footpath which is located to the east / north east of the existing road bridge over the river;
- Hard landscaped areas including stepped, sloping and level components; and
- Soft landscaped areas including grass, trees, shrubs and flower beds.



Photo 18.4 Existing Townscape Setting (Parkland east of the River Dee Bridge)

Character Area 2 – Old Railway Lands

- 18.43 The site comprises approximately 1.35 hectares of open space located to the east of Ardee town and to the south of O'Carroll Street and north of rear gardens of approximately 20 detached and semi-detached properties on Tierney Street. The boundaries are defined by a mix of treatments including concrete block walls, traditional stone walls and timber board fencing. The immediate area to the north and south of the site is characterised by medium density residential developments.
- 18.44 The area include remnant stone platforms and sidings giving a sense of the industrial or railway based past. It is now largely in managed grassland with extensive standard tree planting undertaken over the last few years in linear rows aligning the former line routes. Amongst this are self-seeded trees and shrubs that have grown to maturity and give parts of these land a more wooded character.
- 18.45 There are gravelled paths through the open space with a connection to O'Carroll Street and then onto the east in the direction of Stickillen along the old railway line. A pedestrian access is located to the south east linking the site to Tierney Street. The walks are well used by the local community and information boards or hoardings provide information on the historical context of the site. New seating has also been provided along the paths and on the former platforms.
- 18.46 The old Ardee Railway Station (1860 – 1900) is located to the west of this part of the Application Site and is now in use as commercial premises (Mid-Louth Garage). The Station Masters House off O'Carroll Street is now a private residence. The railway line closed to passengers in June 1934, but the goods yard continued until closed by Córas Iompair Éireann in November 1975. Six silos built by Odlums in 1950 are local landmarks but are not within the Application Site.



Photo 18.5 Existing Landscape Setting – Old Railway Lands

Character Area 3 – Amenity Lands

- 18.47 The Amenity Lands Character Area is located on an area of unmaintained grassland to the east of the town, directly to the west of Ardee Wastewater Treatment Works, and north of the River Dee. The core of the lands extend to 2.6 hectares. The proposed

Railway lands character area and Amenity lands character area are linked by a well utilised existing walkway, along the former railway line.

- 18.48 The majority of the site is unmaintained grassland. The north eastern corner of the site is currently used for the storage of building materials by Louth County Council. The boundary of this storage area is marked by a fence. A roadway traverses the centre of the site in a west to east direction linking Tierney Street to Ardee Wastewater Treatment Plant. The banks of the River Dee is a feature of this character area.
- 18.49 To the south west of the site is a detached dwelling set in a large plot surrounded by mature trees at Tierney Street.



Figure 18.2: Aerial Photograph of the Amenity Lands

- 18.50 The River Dee corridor aligns part of the southern boundary which is defined by mature trees. To the south of the river is the recently constructed Castleguard Manor housing estate. The N33 Road is located to the north, separated from the site by an agricultural field.

Character Area 4 – Woodland Walk

- 18.51 The Woodland Walk area is located in a liner strip of mature trees to the west of Main Street (N2) towards the lands at St Joseph's Hospital. An informal path cuts into the woods near the entrance off Golf Links Road opposite the Ardee Ambulance Station and traverses south. The path route is closed off at the south of the wood by a rail before entering a field at the back of the Lanney's Supervalu Store and Aldi Store and associated surface car parks off Ash Walk with the route of any formal path in this area not readily discernible.



Photo 18.6 Existing Landscape Setting – Woodland Walk

- 18.52 The woodland backs onto rear gardens of properties on Main Street (Irish Street) to the east and is defined by a lane to the hospital to the west. The area is characterised by mature trees including Beech, Pine, Ash, Yew, Sycamore and Lime with an understory of holly and laurel. Extensive ivy has established on the trees but recent works have been undertaken to control this. The understory scrub is quite thick in places and serves to enclose the path though managements works are evident to prune back branches.
- 18.53 The woodland was once part of the wider Ardee House demesne. The original house which is described within the NIAH as a “...detached seven-bay three-storey over basement former house, built c. 1780, now in use as hospital” and as a “... a large classically-styled hospital and chapel work together to create a commanding presence on the west side of Ardee. NIAH note the key views from and of the house are to the west (away from the Application Site area).
- 18.54 “Fortifications” are annotated on the OSI Historical Maps from the 19th century though these are submerged within the woodland at this time and not evident from the footpath corridor. These “...appear to have acted as the bounds of the town until the end of the medieval period”²⁹.

²⁹ Thomas A (1992) *The Walled Towns of Ireland*, Bradley J (1984) *Ardee, An Archaeological Study*



Photo 18.7 Existing Landscape Setting – southern section within the field area to the back / west of the SuperValu Store off Ash Walk

Wider Townscape and Area

- 18.55 The wider area essentially comprises the urban footprint of Ardee Town. Residential development wraps around to the north, east and south of the linear core of the town whilst industrial and commercial uses have developed along the arterial routes into the town centre aside the key main roads (namely the N2 and N52).
- 18.56 Between 1996 and 2016, the population of Ardee increased by approximately 30%, from 3,791 to 4,928 inhabitants but this has subsequently slowed. The Louth County Development Plan (LCDP) identifies Ardee as a Self-Sustaining Growth Town noted as being “*regionally important local drivers serving their resident population and surrounding catchments and with a reasonable level of jobs and services.*” (LCDP Section 2.3.2). It has an extensive catchment that extends across this part of Co. Louth and into parts of Co. Meath and Co. Monaghan.

Historic Context and Evolution

- 18.57 Ardee is one of Ireland’s oldest walled towns, having been established soon after the Norman Invasion of 1185. On the south side of the River Dee stood the Augustinian Hospital of St. John the Baptist, founded at the beginning of the 13th century. In 1274, a Carmelite Monastery was established in the town by Ralph de Pippard.
- 18.58 Given its exposed location along the late medieval Pale boundary, the town was protected by walls with several entrance gates. During one of the many incursions, the town was attacked and largely destroyed by Edward Bruce.
- 18.59 The current town of Ardee retains its late medieval footprint although the historic town walls have almost totally disappeared. The town’s main street has however survived as the most important element of the town’s urban form. The historic pattern of streets, lanes, building plots and principal structures is very much in evidence in the modern town.

- 18.60 This historical legacy is evidential due to the majority of the Main Street, Railway and Woodland sites being located within a Zone of Archaeological Potential (LH017-101) associated with the medieval town of Ardee.
- 18.61 18.61 There are two archaeological sites within the historic town that lie within proposed scheme footprint; namely the town defences (LH017-101001) and a midden (LH017-101023). Town defences possess National Monument status under the National Policy on Town Defences (DoEHLG 2008). An additional 21 recorded archaeological sites within or in close proximity to the Application Site areas.
- 18.62 The town is regarded as one of the best examples of a medieval market town in Ireland. Its early footprint still endures today with the broad linear corridor of Main Street forming the main artery through the town, intersected by narrower streets and lanes running east and west to the former line of the town walls. The layout of many of the burgage plots in the town have survived, reflected in the nature of the narrow plots with rubble stone dividing walls to the rear on both sides of the main street. In the early nineteenth century a series of improvements enhanced the major buildings fronting the main thoroughfare of the town and although Ardee did not expand significantly, the face of the town did change considerably as a result of the changes and development of new public buildings. Further changes occurred at the turn of the twentieth century with the construction of the bank buildings for Bank of Ireland on Castle Street and Ulster Bank on Main Street, both registered on the NIAH.
- 18.63 The notable Historic Structures and Monuments include the following:=-
- Sites and Structures Dating from the 13th to 17th century including the basic footprint of the town's ancient walled enclosure and entrance gates, Ardee Castle and Hatch's Castle;
 - Georgian Buildings including Ardee House (1780) and St. Mary's Church (1800 - 1820), Cuchulainn House (1780 -1820) and J. Malone (1820);
 - Victorian buildings make up much of Main Street including the Bank of Ireland (1880 – 1900), Ardee Bakery (1840 – 1880) and the AIB Bank (1860 – 1880), the train station (1860-1900) and the Dee River Bridge (1860).
- 18.64 The collective historic buildings give much of the Application Site areas a distinct and historical sense of place. However, it is noteworthy that the Ardee Architectural Conservation Area - Character Appraisal notes that *"Although several shopfronts maintained their original features and many architectural features of high quality remain, the unfortunate and widespread loss of shopfronts and erosion of fine details such as sash windows and original doors over the latter half of the twentieth century have diminished the architectural character of Market and Castle Street."*³⁰
- Establishing the Wider Study Area – Published Landscape Character Assessments***
- 18.65 In 2002, a Louth Landscape Character Assessment (LCA) was completed for the entire County outside the major towns with the objective of heightening the awareness of the importance of landscape in all aspects of physical planning. Whilst this is now dated, it

³⁰ Architectural Conservation Area Ardee, Co Louth by Louth County Council (2013)

provides a basis for understanding the lands in which the proposed site lies. Nine Landscape Character Areas were identified in County Louth with the application site located within the Muirhevna Plain. The Key Characteristics of this LCA are noted as being as follows:-

- *Serves as a major traffic corridor between north and south.*
- *Extensive plain located between the Carlingford/Slieve Gullion mountain complex and the uplands of Colloony and Monasterboice.*
- *Rich soils are conducive to extensive agricultural practices both in crop and animal production.*
- *Robust hedgerows give a sense of enclosure. However, there is some evidence of hedgerow removal to facilitate more intensive farming. Hedgerows consist in the main of thorn, bramble, ash, sycamore, elder and generally maintained in their mature state thereby limiting any extensive views.*
- *The nature of the topography has had the effect that a number of small meandering rivers drain the flat landscape.*
- *Contains a number of fine broadleaf woodlands, particularly beech, around country houses. Ardee is particularly rich in tree cover.*
- *Area is rich in archaeological features.*
- *Renowned for its mythological past leading to the definition of the Táin Trail.*
- *Isolated housing is very evident especially in the eastern half.*

18.66 While focused on the landscape in the wider Co. Louth area rather than the specific townscape associated with Ardee (and the application site), the LCA described this townscape area as being of “Local Importance.”

18.67 The LCA notes the rich tree cover in Ardee. The various groups of mature broad leaf trees and the river corridor create rich visual and ecological assets that contribute much to defining the special character of the town.

Environment, Heritage and Planning Designations

Relevant Policy

Project Ireland 2040

18.68 Project Ireland 2040 comprises the National Planning Framework (NPF) and the National Development Plan (NDP). The NPF favours securing compact and sustainable growth that “focuses on reusing previously developed ‘brownfield’ land, building up infill sites, which may not have been built on before and either reusing or redeveloping existing sites and buildings.” NPO 3a, b and c seek the delivery of new homes within the footprint of existing settlements (which is considered relevant in townscape and visual terms to the application site location).

- 18.69 In terms of regeneration, Ardee is eligible for support under the Rural Regeneration and Development Fund and the historic buildings are accordingly candidates for conservation-led regeneration, aligning with Project Ireland 2040's emphasis on sustainable reuse of heritage assets.
- 18.70 With reference to Green Infrastructure, the NPF sets out for enhancing green spaces Demesne Park contributing to biodiversity and climate resilience. For public realm areas such as that relevant to this project, the NPF sets out objective for streetscape Improvements, community spaces and placemaking initiatives especially around landmarks like the Market House or Main Street which would enhance Ardee's identity and visitor appeal.
- 18.71 In terms of heritage, any new development should respect Ardee's historic character and medieval heritage, especially within the Architectural Conservation Area.

Eastern and Midland Regional Spatial and Economic Strategy (RSES)

- 18.72 The strategic vision of the RSES 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." In accordance with the NPF the RSES focuses on achieving compact growth in urban areas, facilitating easier access to public transport corridors and encouraging cycling and walking thus reducing the reliance on the car.

Louth County Development Plan (LCDP) 2021-2027

- 18.73 The *Louth County Development Plan (LCDP) 2021-2027* provides the relevant statutory planning context for the subject site. **Figure 18.3** indicates the Ardee Land Use Zonings.

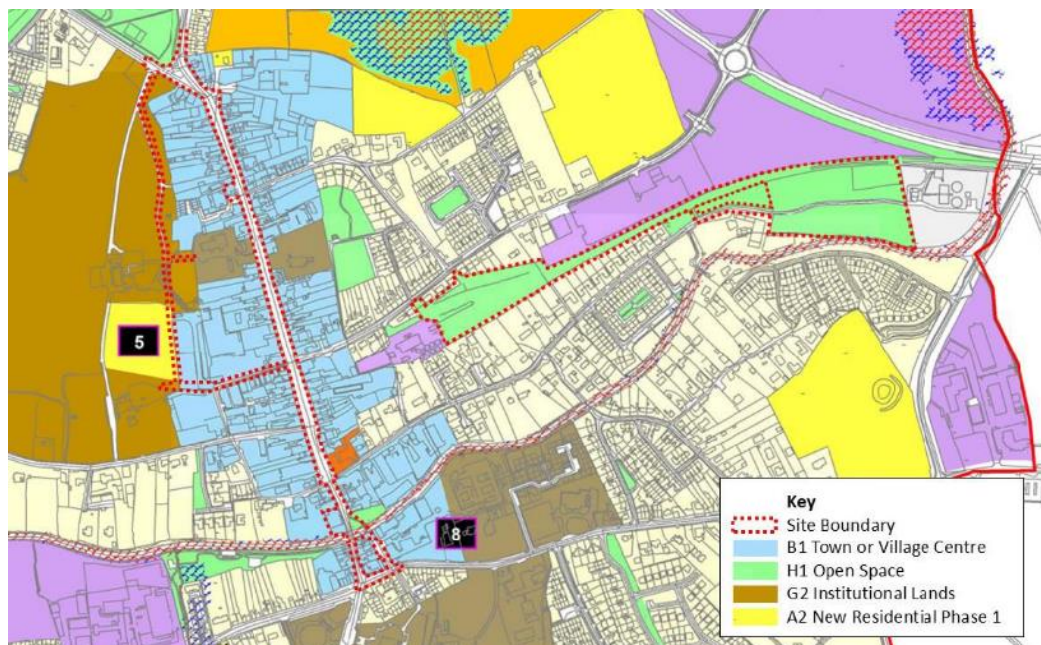


Figure 18.3: Extract from Ardee Composite Map from the LCDP 2021 - 2027

- 18.74 **Table 18.9** summarises the land use zonings of the application site, as set out within Chapter 13 Development Management Guidelines of the LCDP.

Table 18.9: Land Use Zonings of the Application Site

Land Use Zoning	Objective
Character Area 1 – Main Street (including Ash Walk)	
B1 Town or Village Centre	To support the development, improvement and expansion of town or village centre activities.
Character Area 2 – Old Railway Lands	
H1 Open Space	To preserve, provide and improve recreational amenity and open space.
Character Area 3 – Amenity Lands	
H1 Open Space	To preserve, provide and improve recreational amenity and open space.
Character Area 4 – Woodland Walk	
G2 Institutional Lands	To conserve and protect the setting of institutional buildings.

Landscape Character Assessment and Character Areas

- 18.75 *Map 8.5: Landscape Character Areas* within the LCDP identifies that Ardee is located within the Muirhevna Plain correlating with that character description and area as set out in the earlier Louth Landscape Character Assessment. This designation is rated as being of local importance.
- 18.76 LCDP Chapter 8 sets out the following Policy Objectives relevant to the Application Site and nature of proposed development:-
- **NBG 23:** To ensure the preservation of the uniqueness of a landscape character type by having regard to its character, value and objectives in accordance with national policy and guidelines and the Louth Landscape Character Assessment and by ensuring that new development meets high standards of siting and design and does not unduly damage or detract from the character of a landscape or natural environment.
 - **NBG 24:** To ensure development reflects and, where possible, reinforces the distinctiveness and sense of place of the landscape character types including the retention of important features or characteristics, taking into account the various elements, which contribute to their distinctiveness such as scenic quality, habitats, settlement pattern, historic heritage and land use.
- NBG 25:** *Where appropriate, require that landscape and visual impact assessments prepared by suitably qualified professionals be submitted with development applications, which may have significant impact on landscape character areas, especially in highly sensitive areas.*

Natural Heritage, Biodiversity & Green Infrastructure

- 18.77 LCDP Chapter 8 sets out the Councils policy objectives with respect to Natural Heritage, Biodiversity & Green Infrastructure and includes objectives in terms of the general

landscape. The site is not within a Landscape Conservation Area, Area of High Scenic Quality or Area of Outstanding Natural Beauty.

Trees and Woodlands of Special Amenity Value

18.78 Section 8.11.2 states that “*Having regard to the important role that trees and woodlands fulfil, the Council has identified and recorded trees and groups of trees considered to be of Special Amenity Value within the County*”. The locations of eight areas of protected trees / woodlands are indicated on LCDP Map 8.13 Trees and Woodlands of Special Amenity Value in Ardee (**See Figure 18.4**) of which two are in the subject site area:-

- TWSAV109 - St. Joseph’s, Ardee (within the Woodland Walk site); and
- TWSAV1015 - The Island, Bridge Street (within the Bridge Street site).

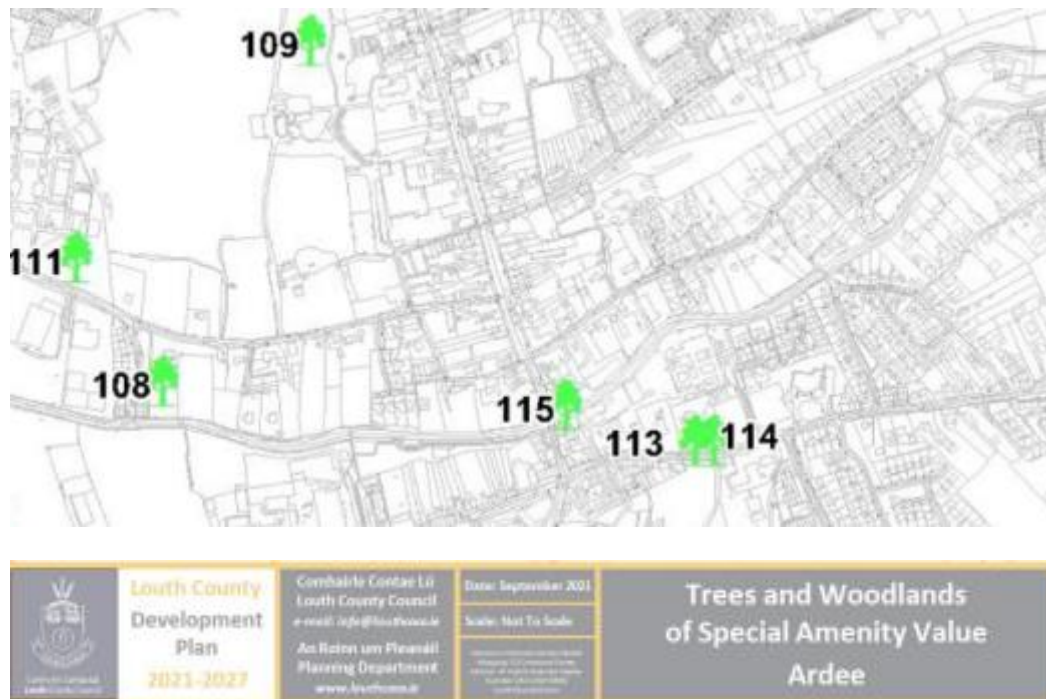


Figure 18.4: Extracts from LCDP Map 8.13 - Trees and Woodlands of Special Amenity Value in Ardee

18.79 The following policy objectives relate to the tree protection:

- **NBG 30:** *To protect trees and woodlands of special amenity value. Review and where appropriate make Tree Preservation Order(s) in relation to trees of special amenity value.*
- **NBG 31:** *Where in exceptional circumstances, trees and or hedgerows are required to be removed in order to facilitate development, this shall be done outside nesting season and there shall be a requirement that each tree felled is replaced at a ratio of 10:1 with native species and each hedgerow removed is to be replaced with a native species. In Drogheda and Dundalk, replacement trees will be required at a ratio of 5:1 where the removal of trees is required in order to facilitate development.*

- **NBG 33:** To assess the implications of proposed development on significant trees and hedgerows located on lands that are being considered for development, seeking their incorporation into design proposals where appropriate and in compliance with procedures detailed in Appendix 6.

Views and Prospects of Special Amenity Value

18.80 The LCDP identifies three sets of protected views identified within the Ardee Area (See Figure 18.5) as follows:-

- VP58 - Mulladrillen Hill and Mullaghash from the Town Centre;
- VP59 – Ardee Castle; and
- VP60 - Castleguard Motte

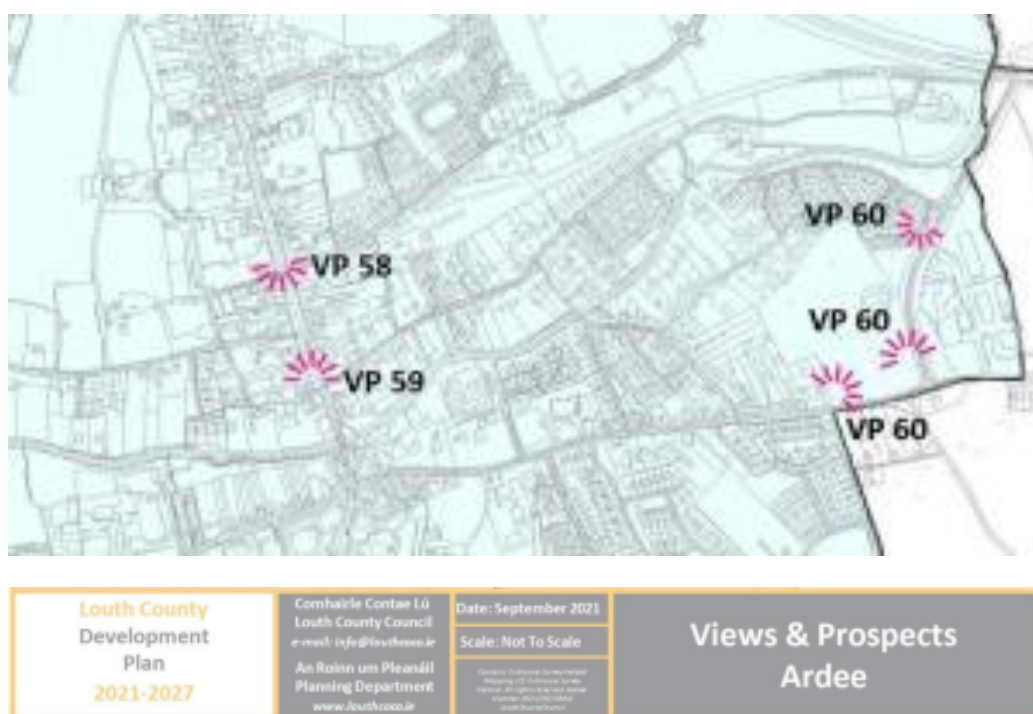


Figure 18.5: Extracts from LCDP Map 8.19: Views and Prospects, Ardee

18.81 The following policy objectives relate to the Views and Prospects:-

- **NBG 38:** Protect and sustain the established appearance and character of views and prospects listed in Tables 8.14 – 8.18 of this Plan that contribute to the distinctive quality of the landscape, from inappropriate development.
- **NBG 39:** To improve, where necessary, public access to viewing points, subject to availability of resources.

Built Heritage

18.82 LCDP Chapter 9 sets out policy objectives with respect to Built Heritage which includes within Appendix 12 the Ardee Architectural Conservation Area as well as identifying

protected structures and national monuments within this area. Full details of protected structures and scheduled monuments can be found in Chapter 17 of this EIAR.

- 18.83 The extent of buildings and site identified within the National Inventory of Architectural Heritage or designated within the LCDP and the associated ACA's and Zone of Archaeological Potential demonstrate the Application Site is within a historically important setting. The following policy objectives are of relevance in terms of the site lands and proposed development area:-

Walled Towns / Archaeology

- **BHC 1:** *To protect and enhance archaeological sites and monuments, underwater archaeology, and archaeological objects listed in the Record of Monuments and Places (RMP), and/or the Register of Historic Monuments and seek their preservation (i.e. presumption in favour of preservation in situ or in exceptional cases, at a minimum, preservation by record) through the planning process and having regard to the advice and recommendations of the National Monuments Service of the Department of Housing, Local Government and Heritage and the principles as set out in the 'Framework and Principles for the Protection of the Archaeological Heritage' (Department of Arts, Heritage, Gaeltacht and the Islands 1999).*
- **BHC 2:** *To protect the built heritage assets of the county and ensure they are managed and preserved in a manner that does not adversely impact on the intrinsic value of these assets whilst supporting economic renewal and sustainable development.*
- **BHC 3:** *To protect known and unknown archaeological areas, sites, monuments, structures and objects, having regard to the advice of the National Monuments Services of the Department of Housing, Local Government and Heritage.*
- **BHC 4:** *To ensure any development, either above or below ground, adjacent to or in the immediate vicinity of a recorded monument or a Zone of Archaeological Potential (including formerly walled towns) shall not be detrimental to or detract from the character of the archaeological site or its setting and be sited and designed to protect the monument and its setting. Where upstanding remains exist, a visual impact assessment may be required.*
- **BHC 6:** *To ensure any development, either above or below ground, adjacent to or in the immediate vicinity of a recorded monument or a Zone of Archaeological Potential (including formerly walled towns) shall not be detrimental to or detract from the character of the archaeological site or its setting and be sited and designed to protect the monument and its setting. Where upstanding remains exist, a visual impact assessment may be required.*
- **BHC 7:** *To require applicants seeking permission for development within Zones of Archaeological Potential and other sites as listed in the Record of Monuments and Places to include an assessment of the likely archaeological potential as part of the planning application and the Council may require that an on-site archaeological assessment is carried out by trial work, prior to a decision on a planning application being taken.*

- **BHC 8:** *To protect and preserve in situ all surviving elements of medieval town defences (both upstanding and buried) and associated features in accordance with the Conservation and Management Plans as applicable and with 'National Policy on Town Defences' (Department of Environment, Heritage and Local Government 2008).*
- **BHC 9:** *To retain the surviving medieval street pattern, building lines and burgage plot widths in historic walled towns.*
- **BHC 10:** *To require, as part of the development management process, archaeological impact assessments, geophysical surveys, test excavations and monitoring, as appropriate, where development proposals involve ground clearance of more than half a hectare or for linear developments over one kilometre in length or for developments in proximity to areas with a density of known archaeological monuments and history of discovery, as identified by a licensed archaeologist.*

Architectural Heritage

- **BHC 20:** *To ensure that any development, modification, alteration, or extension affecting a protected structure and / or its setting is sensitively sited and designed, is compatible with the special character and is appropriate in terms of the proposed scale, mass, density, layout, and materials of the protected structure.*
- **BHC 21:** *The form and structural integrity of the protected structure and its setting shall be retained and the relationship between the protected structure, its curtilage and any complex of adjoining buildings, designed landscape features, designed views or vistas from or to the structure shall be protected.*
- **BHC 25:** *To promote best conservation practice and the use of skilled specialist practitioners in the conservation of and for any works to protected structures.*

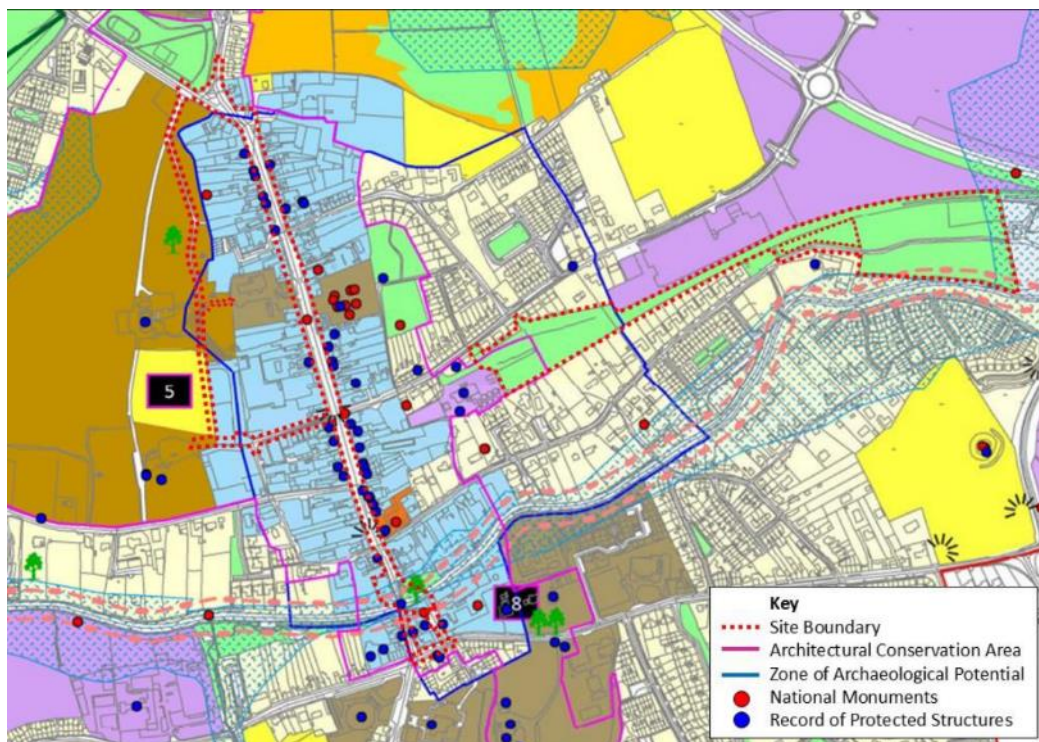


Figure 18.6: Extract from Ardee Composite Map (Volume 1A of LCDP)

Architectural Conservation Area

- 18.84 The assessment of the special character of Ardee Architectural Conservation Area was prepared by Lotts Architecture and Urbanism in 2011 (revised 2013) on behalf of Louth County Council. The ACA extends across the Main Street and Woodlands Walk part of the Application Site but not the Railway Walk and Amenity Lands to the east of Ardee.
- 18.85 The ACA notes that the “...morphology of Ardee is regular but informal, the result of its medieval origin as a planned defensive outpost of loosely rectangular form, overlaid with subsequent informal development over the centuries” and that the “...quality of the historic building stock in the Ardee ACA reflect its historic, architectural and social heritage and give form to its architectural character.”
- 18.86 Within the LCDP, the relevant policies related to the ACA include the following:-
- **BHC 31:** *To require that all development proposals within or affecting an Architectural Conservation Area preserve or enhance the character and appearance of that area, protect architectural features of special interest and ensure that the design respects the character of the historic architecture in terms of height, scale, layout, and materials. All development proposals shall have regard to the Architectural Conservation Area objectives in Appendix 11, Volume 3 and objectives contained in applicable Character Appraisals where available.*
 - **BHC 33:** *To ensure any new service infrastructure (installed by the Local Authority or Public/Private Sector Utility Companies) shall not be located where it will be detrimental to the character of the Architectural Conservation Area.*

- **BHC 36:** *To ensure that new trading bays and all associated signage shall not be located where it will be detrimental to the character of the Architectural Conservation Area or any important building or vista in the Architectural Conservation Area.*

Environmental Designations

- 18.87 No parts within the four areas associated with the Application Site carry any landscape or environment / ecology designations as indicated on the National Parks and Wildlife Service map viewer.

Townscape / Landscape Quality and Condition

- 18.88 Given the ACA designation within the core of the town, the majority of the Application Site along Main Street and the areas towards the Woodland Walk should, in principle, possess a high quality and value townscape / landscape baseline. The historic streetscape indented with notable buildings and wooded periphery to the St Joseph's respectively, give these parts of the town an inherent aesthetic core and is subject to high numbers of visual receptors. In general, the townscape aside the Application site is a mix of *ordinary* and *good* townscape including functional institutional and commercial lands but improved or higher quality landscapes associated with the more historic sites and key components of the Ardee Architectural Conservation Area.
- 18.89 Given the ACA designation within the core of the town, the majority of the Application Site along Main Street and the areas towards the Woodland Walk should, in principle, possess a high quality and value townscape / landscape baseline. The historic streetscape indented with notable buildings and wooded periphery to the St Joseph's respectively, give these parts of the town an inherent aesthetic core and is subject to high numbers of visual receptors. In general, the townscape aside the Application site is a mix of ordinary and good townscape including functional institutional and commercial lands but improved or higher quality landscapes associated with the more historic sites and key components of the Ardee Architectural Conservation Area.
- 18.90 The Old Railway Lands is characterised by managed grass public open space with tree planting within the former Railway yard and old platforms (with stone edging) and other features of the railway preserved as an interesting industrial record. This amenity makes an appreciable area of open space that contributes positively to the east Ardee townscape and setting.
- 18.91 The Amenity Lands have a more ordinary landscape character being normal farmland set aside the Water Treatment Works and the N33. The use of part of the land as a compound for LCC Roadworks reduce its general quality and condition to low. The proximity to the River Dee and general landscape setting ensure that the condition is something that could be easily improved or remedied.

Townscape Sensitivity

- 18.92 Sensitivity is based on the landscape or townscape's physical shape, scale, pattern, its visual environment/enclosure, any sense of heritage or architecture, sensitive or designated areas and the presence of rare or unique features, elements or components. This is ultimately an assessment of the ability of a surrounding landscape or townscape to accommodate and absorb change within the application site without affecting its character. GLVIA notes that landscape/townscape sensitivity should be

classified with consideration of “...the particular project or development that is being proposed and the location in question.” Sensitivity of the townscape is determined by two factors:-

- **Susceptibility to change:** *“This means the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular landscape type or area, or an individual element and/or feature...) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape policies or strategies.”*
- **Value of the landscape/townscape receptor:** This can be indicated by designations or, where there are no designations, by judgments based on criteria that can be used to establish landscape value.

18.93 The sensitivity of the receiving environment to change is classified as high adjacent to listed buildings such as Ardee Castle, the River Dee within woodlands near Bridge Street but drops to medium across the wider sites based on the mixed townscape or landscape quality.

18.94 The nature of the proposed development is one of public realm and landscape improvement with the proposals for the four respective areas being sympathetic to and complimenting the historic townscape setting. The architectural conservation areas, protected structures, and all other cultural heritage constraints in the immediate and surrounding townscape have been taken into careful consideration to inform the design and enhance their visual/cultural/historic offering. The proposed development will not alter the setting of any elements of architectural heritage within the surrounding townscape other than serving to improve their setting and “plinth”.

18.95 The sensitivity of the site takes into account that these parts of Ardee have been identified for urban regeneration, comprising redevelopment of underutilised spaces to provide community infrastructure and public realm improvements. On balance, the site is rated as having mixed townscape sensitivity but given the nature of the proposed, it would be considered that the site has a good ability to absorb changes without any detriment to landscape / townscape character or visual amenity of this area.

Representative Viewpoints and Visual Amenity

18.96 Site surveys for visual appraisal were undertaken between September and November 2023 to establish locations where there are potential views of the proposal. Viewpoints were selected within publicly accessible areas based on the following criteria:-

- Review of any designated Views and Prospects (with Ardee as per LCDP VP58, VP59 and VP60);
- Site investigation to establish those locations where there was likely to be notable or open views of the Application Site areas;
- Site investigation to establish those locations where there was likely to be a high numbers of visual receptors (e.g. residential areas, commuter routes or tourist locations).

- 18.97 Within the respective areas, the built townscape means that views consistently change in context, scale and extent with views, even from close proximity, often closed off by intervening buildings, embankments or vegetation. However, while views are confined and limited to specific areas, they are subject to high numbers of visual receptors.
- 18.98 Twelve representative viewpoints in and near the four Application Site areas were identified as set out in Figure 18.7 below and these formed the basis for the photomontages used as part of the broader visual assessment process. See Photomontage Report prepared by 3D Design Bureau - Appendix 18.1 (Volume 3 of the EIAR).
- 18.99 Viewpoint 5 is from LCDP designated View No. 58 while Viewpoint 7 is from designated View No. 59. Viewpoints 11 and 12 are taken from Castleguard Road and within Dawson's Demesne area and reflect locations of LCDP designated View No. 60. It is relevant that there are no views of the four Application Site areas from this View No. 60 and that the intervening lands were subject of a planning consent in August 2023 (LCC Ref: 2360237) for a residential development of 122 no. units that would further curtail any of these views.



Figure 18.7: Representative Viewpoint Locations

Characteristics of the Proposed Development

- 18.100 In summary, the proposed development incorporates the following elements across four areas:
- 1) Public realm improvement works at Ardee Main Street (N2) and surrounding streets as listed above (in the townland of Townparks) comprising: new hard landscaping including resurfacing; soft landscaping including new tree planting; street furniture;

new pedestrian connections and footpaths; Sustainable Urban Drainage System (SUDS); new cycle parking; tactile paving; and undergrounding of services.

- 2) Road improvement works at Ardee Main Street (N2) and surrounding streets as listed above (in the townland of Townparks) to include: alteration of road alignment; realignment of Golf Links Road / N2 junction; raised junctions; resurfacing; shared surface treatments; revised access arrangements; pedestrian crossing points; reduction and rationalisation of the layout / orientation of existing on-street public car parking provision; installation of electric vehicle charging points; new bus stop shelters; road signs; and new public lighting.
- 3) Resurfacing of Bridge Street Bridge (NIAH Reg. No. 13823008 / Protected Structure Ref: LHS017/056) at Bridge Street.
- 4) Construction of a new segregated cycle lanes at Main Street (N2) (in the townland of Townparks), Ardee provided as dedicated one-way and two-way bi-directional cycle lanes and associated cycle parking stands.
- 5) Alterations to the existing car parking layout at Ardee Library off Ardee Main Street (N2) (in the townland of Townparks) to create in part a public plaza including retention of Sir Frederick Foster Memorial Fountain scheduled monument (NIAH Reg No. 13823042 / Protected Structure Ref: LHS017/070) and realignment of existing access road to Foster Close.
- 6) Extension of Ash Walk Road (extending approx. 60m to the west and upgrades to existing junction to the Supervalu car park / services access off Ash Walk Road.
- 7) Development of a woodland walk within St. Joseph's Hospital Grounds (in the townland of Townparks) including: resurfacing of existing informal path within St. Joseph's Hospital grounds (Protected Structure Ref: LHS017/035); a new footpath on agricultural land linking St. Joseph's Hospital grounds to Ash Walk and Golf Links Road; resurfacing of existing footpath linking St. Joseph's Hospital grounds to the rear of Ardee Day Care Centre to create new pedestrian access point onto Ardee Main Street; and new soft landscaping, boundary treatments, bollards and signage.
- 8) Construction of a new community park at lands known as the Old Railway Lands off O'Carroll Street (in the townlands of Dawsons Demesne / Cappocksgreen) including: hard and soft landscape areas; community garden; equipped children's play space; pedestrian footpaths and kerbing; storage container; proposed boundary treatments; street furniture; public lighting; Sustainable Urban Drainage System (SUDS); heritage enhancement including demarcation of former location of Ardee Town Wall with engraved natural stone paving; new signage; construction of a new vehicle / pedestrian access and associated gate piers to O'Carroll Street and associated works; and provision of car parking and circulation space within community park.
- 9) Retention of existing railway heritage infrastructure off O'Carroll Street (in the townland of Dawsons Demesne) to provide a public amenity space.

- 10) Construction of a community sports and recreation facility and single storey sports pavilion building (7m high) on lands off Tierney St. (in the townland of Cappocksgreen) to include: a 200m all-weather running track; bowling green and associated flood lighting and boundary treatments; hard and soft landscape areas; Sustainable Urban Drainage System (SUDS); new pedestrian access points to existing old railway walk retaining pedestrian linkage to Old Railway Lands; provision of new car parking; new public lighting; street furniture; and signage.
- 11) All associated site works including: drainage; undergrounding of services; and all other associated ancillary development works.

Design, Built Form and Location

18.101 The proposed development has been designed taking into account both guidance and policy within the *Louth County Development Plan 2021–2027* and that within the Ardee 2040 Regeneration Vision. Key site characteristics were identified and used to inform the concept for the proposed design to ensure an integrated and sympathetic response to the immediate receiving environment across the four character areas. The following informed the general design principles for the wider proposed development:

- The proposal has taken account of the baseline character and historic setting of Ardee and its unique position, offering enhanced public realm and cycle lanes that will encourage the vitality and increased use of these areas.
- The objective of the proposed development is to create a quality streetscape along Ardee Main Street and associated public spaces, pedestrian linkages and public realm.
- To ensure inclusivity for all members of the community; the very young, the youth, the old, the mobility impaired, socially disadvantaged, the pedestrian and cyclist.
- To develop proposals which meet the design principles of national and international best practice.
- To promote an environment which leads to both day and night-time activities.
- To improve connectivity and legibility for all members of the community and for visitors/tourists to the town.
- To capitalise and respect the rich heritage of Ardee town in terms of medieval, 18th/19th century townscape and industrial heritage (at the Old Railway Lands).
- To ensure the wooded character and setting of the Woodland Walk is retained and enhanced.
- To operate / employ sustainable development principles by minimising energy consumption and maximising the use of renewable energy technology.
- The proposed paving and general hardscape materials have been carefully considered to create an environment that respects the surrounding context and

rich history of the area. This will be accomplished through the use of appropriate tones, colours, textures, and materials.

Predicted Project Impacts

Do-Nothing Scenario

- 18.102 The anticipated change or evolution of this area in the absence of this proposal is likely to be a continuation of the ongoing situation and thereby the general landscape / townscape character, quality and visual appearance will remain as existing with the general extended deterioration of materials over time.
- 18.103 The landscape / streetscape is likely to remain as currently exists (and be of a comparable value / condition) though the hard landscape and boundary treatments are likely to deteriorate in condition without management or repair thus leading to a diminishment of the townscape and visual quality of Main Street and a lessening of the potential visual and amenity value of the lands within the St. Joseph's woodland walk and designated areas of development to the east of Ardee town.

Construction Phase

- 18.104 During this phase, the respective sites and immediate environs would be subject to inevitable construction related activities and resulting impacts that are likely to constitute an adverse landscape / townscape and visual effect for this temporary period.
- 18.105 Specific site areas will be bound by new hoardings to clearly delineate working areas. Where feasible existing walls and fences will be retained in situ for the construction period. Publicity material may be displayed on the hoardings to inform the public and passers-by about the proposal and programme for delivery. These will also obscure views from low-level street / road areas. It is however a factor that towns will have high numbers of visual receptors, e.g. from the properties/structures adjoining the site and/or in very close proximity to the site and these have a potential for high sensitivity to townscape/visual change.
- 18.106 While the construction period is likely to be perceived by most as having an adverse effect, it is reasonable to factor in the following:-
- That the construction process is temporary to short term; and
 - Construction activity, streetscape or urban environmental schemes occur periodically in towns like Ardee and have been part of the character of town centre and riverside areas as part of the wider process of urban evolution and improvements.
- 18.107 Such effects should be measured against the existing condition and quality of respective sites as set out above and the fact they will be temporary, localised and short-term; these are not therefore not considered significant or adverse in context of the wider Ardee townscape.

Main Street, Ardee

- 18.108 Such is their condition, the removal of any existing features such as old or damaged pavements, boundaries, furniture and streetscape elements along Main Street including removal of overhead cables and lighting columns and demolition of an existing brick wall directly to the south of the bridge at Bridge Street would have no significant effects on townscape character and be of a neutral nature (i.e., no better or worse) on its broader character. The magnitude of change to the townscape and views would be **high to medium** at construction stage on the site itself including the more sensitive heritage sites at Ardee Castle and Hatch's Castle. However, while of a **moderate adverse** nature to the site itself due to construction activity and associated impacts, the significance of any of these temporary effects would reduce to **low** for any more distant views due to the extent of intervening townscape and the nature of the development.

Old Railway Lands

- 18.109 18.112 The works will have a temporary **slight adverse** effect on the usability and visual quality of the open space for the construction period related to the new car park and additional amenity provision. Given the visual containment of these lands, the temporary effects are limited to the areas on and immediately adjacent to this site with the magnitude of change assessed as being of a **medium** nature.

Amenity Lands

- 18.110 These visual and character is already subject to slight detriment due the proximity of the existing water works and the use of land within the site as a compound for LCC Roadworks. These uses and functions serve to reduce the landscape sensitivity of this area and thereby the corresponding magnitude of any change. The temporary construction works would result in **slight adverse** effects though this is in part a continuation of the existing effects. Across the wider site, the magnitude of change is assessed as being of a **medium** nature.

Woodland Walk

- 18.111 The construction works will have limited effects within the Woodland Walk area due to existing woodland screening construction activity. Further, the nature of the works (installing a gravel woodland path) are relatively less disruptive than that to other character areas and the potential landscape and visual effects for this phase are rated as **slight adverse**, of **low** magnitude and short term.

Operation (Completed) Phase – Townscape Effects

- 18.112 Improving the appearance of Ardee is not solely related to making people feel good when they visit, shop, work or live in this part of the town (although that is an important factor). If an area has been upgraded and is attractive it will be healthier, safer and cleaner with an improved sense of place and therefore more people will want visit or reside there or avail of the associated open spaces and public amenities. It also means that businesses will be more likely to invest money, to build or to trade there, which improves the economy and creates jobs. Thereby, the broader scope and intent of the project is to achieve **substantial positive** effects in townscape / landscape and visual terms on the respective sites that would accumulate to provide wider benefits across Ardee as borne out in the summary assessment of impacts deriving from the proposal.

Main Street, Ardee

- 18.113 In terms of the actual Application Site, there are no distinctive or notable built features, facades or architecture that will be lost.
- 18.114 The proposed development consists of the construction of public spaces / realm / square / plazas, new paving to walkways / footpaths, cycle paths, the rationalisation of the main road network, car parking and introduction of soft and hard landscaping and street furniture / street art correlating with the key objectives of the LCDP and Ardee 2040 Regeneration Vision.
- 18.115 Given the nature of the project, it will provide enhanced urban grain and movement patterns across the town centre area with the delivery of high quality and enhanced public realm to promote general use and enjoyment of the public realm areas. This will include an enhanced sense of arrival to Main Street from the north with the realigned and landscaped junction around Golf Links Road and Irish Street and improvements to the setting and public amenity / usability of the space around Ardee Library and the Frederick Foster Memorial Fountain and Bridge Street car park which will have **substantial positive** landscape / townscape effects. Further improvements to the setting are included with regards to the setting of Ardee Castle, the new pedestrian link from Ardee Main Street to the Woodland Walk and improved pedestrian areas on Ash Walk.
- 18.116 The effects across the broader Main Street area will include widening of footpath areas, provision of cycle lane facilities, undergrounding of existing and proposed services, reduction of on street and ad hoc parking to reclaim streetscape areas, new public lighting, street planting, SUDS areas, improved setting of heritage assets and improved connections to amenity areas. Collectively these will have **moderate positive** effects (of **medium to high** magnitude) on the townscape setting and sense of place.
- 18.117 In terms of green infrastructure, the proposals allow for retention of existing trees and introduction of extensive soft and hard landscaping that will result in significant new and notable planting across the town centre area having further **moderate positive** effects.
- 18.118 In summary, the project will not alter the inherent scale, built form or set townscape pattern of this part of Ardee to any significant degree in terms of the actual magnitude of change (rated primarily *medium*), but the enhancement and improvement works will have **substantial positive effect** on its baseline townscape character, visual quality, condition and general sense of place.

Old Railway Lands

- 18.119 This area of open space is characterised by maintained grassland / footpaths and mature / semi mature trees and has been subject to landscape improvements over the last decade that have enhanced its setting while respecting and retaining elements of its industrial past related to the railway. The proposed works offer further enhancements to the area in terms of amenity and landscape provision including play areas, seating areas, hard and soft landscape works, events space, parking provision and refurbishment of boundary fences and the pillars on O'Carroll Street. Given that much of the baseline "parkland" landscape in this area already exists, the changes

would be or a **medium** magnitude and are assessed as being ones that improve the quality of the landscape character and fits very well with the existing setting and use.

- 18.120 The proposed works will have **moderate positive** effects on the setting of the Old Railway lands which already provide east Ardee with a valuable public open space. The enhancements are primarily related to additional amenity provision, active recreation, increased biodiversity, community and play space and works within the existing area extending the uses and functions of the space. The consequence of the proposal is that it would contribute more to the ambience, landscape quality and usability of this area than exists at present.

Amenity Lands

- 18.121 The lands in this area do not have any current public or amenity purpose at this time with their use being defined by pastureland and the LCC Roadworks compound. While the Ardee River Rail trail footpath is located (on the former railway line corridor) to the north, any access to these lands is restricted and it currently has a generally unexceptional or degraded character.

- 18.122 The proposed development will result in changes of a **high** magnitude due to the introduction of a community park and sports hub, pavilion building, access and car parking provision and broader hard and soft landscape works. Existing pedestrian infrastructure will be used to connect these spaces.

- 18.123 In terms of landscape character, the changes are rated as being of a **substantial** nature on account of the change from formerly agricultural land to a sports and amenity area. The introduction of elements will have some local prominence and change the character of this area though they are not considered to be substantially uncharacteristic when set within the attributes of the receiving landscape of this part of East Ardee. The existing setting is not highly sensitive to change given the ordinary and current land-uses and the retention of existing trees / wooded belt along the River Dee to the south and hedgerow to the north (along the former railway line / footpath). Existing mature trees and landscaping will be retained and supplemented with new trees / landscaped areas that will enhance the biodiversity and tree cover in this area comparative to the existing situation. This ensures the proposed changes will not have detrimental effects on the landscape character and are rated as largely **moderate neutral** on the basis it will not affect the scale, landform or pattern of the landscape and offers the opportunity to enhance its usability and purpose. While largely neutral, there would be **positive** landscape effects as a result of visual quality / interest improvement related to the new facilities and extent of proposed landscape works that would mature to form a notable new part of the Ardee townscape.

Woodland Walk

- 18.124 The proposals for the Woodland Walk include the gravelling of an existing path through woodland on the east of St Josephs Hospital and extending this route across an area currently in use as agricultural land to formalise the pedestrian link between Golf Links Road to the north and Ash Walk to the south. The primary benefit will be enhanced linkages and connectivity in the west of Ardee. While the visual implications of the works within the woodland will be **negligible** due to visual containment provided by existing woodland and large mature landscape boundaries, the extension of the path

towards Ash Walk and the retail stores in this area will offer notable betterment to the townscape character, connectivity and pedestrian amenity.

18.125 Where the proposed walk traverses the agricultural field, the new path will be adjacent to the boundary wall at the Supervalu car park and be bound by a post & wire stockproof fence. This will entail removal of areas of self-seeded scrub, brier and remnant stockpiles which would tidy up this area resulting in positive effects on the general character of the urban / rural interface for foreseeable future (as it is acknowledged that the land within the field is zoned for housing).

18.126 While the new link and enhanced path would result in a low magnitude of change in landscape / townscape character terms, its primary benefits relate to enhanced public amenity and the general sense of place along this approximate 600m long linear corridor which would have **moderate positive** effects on townscape amenity and connectivity.

Ardee Town

18.127 The effects will be a positive statement in terms of the townscape development, legibility and future while tying effectively in with many of the ambitions and objectives of the LCDP and the Ardee 2040 Regeneration Vision. In townscape character terms, the collective developments will improve the quality and character of Ardee symbolising progress, revitalisation and have wider townscape benefit.

18.128 The proposed development would have significantly positive effects on all the main elements of the townscape/determinants of townscape character, including (a) the land use, (b) the urban grain and movement patterns, (c) the network of public and communal open spaces, (d) green infrastructure, and (e) the overall perception of quality and liveliness of the townscape.

18.129 In longer or distant views, it will invariably merge into the wider townscape and the finer details will not be so discernible. Effects from these areas, while generally more limited (**low magnitude**) due to intervening built environment, will be **positive** based on the enhanced general sense of place and townscape quality and condition.

18.130 In summary, the townscape effects of the proposed development in the operational phase are predicted to be broadly **positive** with the effects on specific areas ranging between a **slight** to **substantial** rating. These effects would be long-term to permanent.

Operational (Completed) Phase – Visual Effects

18.131 The following section summarises the existing setting and likely or anticipated visual effects on the 12 no. representational viewpoints for which verifiable photomontages have been prepared by 3D Design Bureau based on the proposed development plans, elevations and details. All viewpoints have been located within the public domain and are representative of views available from main thoroughfares/ pedestrian areas / key viewpoints within the vicinity of the proposed development. The locations of the viewpoints are given in **Figure 18.7** above.

18.132 An extract from the proposed view photomontage is included below for ease of cross-reference but the existing and proposed views are set out in larger scale within the

Photomontage Report prepared by 3D Design Bureau which is included in Appendix 18.1 (see Volume 3 of the EIR).

Viewpoint 1 – N2 Dundalk Road



Photomontage of proposed view courtesy of 3D Design Bureau (2024)

<i>Viewpoint Location</i>	Dundalk Road (N2) approaching Golf Links Road and Main Street junction.
<i>Baseline Setting</i>	This is the main road into Ardee town from the north and is a broad single carriageway aligned with two-storey terraced houses to the east and trees and parkland associated with Fair Green Park to the west. Approaching the Golf Links Road junction, the view is dominated by road-scape with the footpath, parking bays, carriageway and intervening verges all in tarmac. The result is a largely functional townscape though the trees within the park and on the boundary of the St Joseph's Hospital lands south of Golf Links Road giving this area a well-treed character. Visual receptors include local residents and those passing road-users, users of the adjacent park, commuters, workers and tourists.
<i>Viewpoint Sensitivity</i>	Medium
<i>Predicted Change</i>	The proposed works include resurfacing, new materials in footpath areas and introduction of cycle lanes. An existing spur lane off Irish Street is to be closed off and this area (c.60m ²) redesigned as public realm including widened footpaths, landscape areas and tree planting. Along with a reduction in car parking dominance and removal of overhead cabling, the existing streetscape character will be enhanced in terms of visual quality, amenity and appearance.
<i>Significance Summary</i>	Moderate Positive

Viewpoint 2 – N2 Road (Main Street)



Photomontage of proposed view courtesy of 3D Design Bureau (2024)

<i>Viewpoint Location</i>	Main Street (N2) near the Golf Links Road junction
<i>Baseline Setting</i>	Set to the northern end of Main Street, this is the commencement of the straight street that south runs to the Dee Bridge Street to the south. The views to west and east are curtailed by a mix of commercial and residential low-rise traditional 2-story terraced properties. The street including pavements is over 20m wide at this section and is made up of tarmac and concrete block paving giving resulting in utilitarian and functional appearance. Visual receptors include local residents and those passing road-users workers, users of the (open) bus stop (on a traffic island) and tourists.
<i>Viewpoint Sensitivity</i>	Medium
<i>Predicted Change</i>	The proposed junction upgrade includes resurfacing and new materials on widened footpaths and introduction of cycle lanes. Along with a reduction in car parking dominance and removal of overhead cabling, the existing streetscape character will be enhanced in terms of visual quality, amenity and appearance including a new parklet and upgraded public realm. This will improve its inherent visual quality, amenity value and appearance. The bus stop shelter will add to general amenity provision and townscape legibility.
<i>Significance Summary</i>	Moderate Positive

Viewpoint 3 – N2 Road (Main Street)



Photomontage of proposed view courtesy of 3D Design Bureau (2024)

Viewpoint Location	Main Street (N2) near the Markethouse Lane junction.
Baseline Setting	Located to the north of Main Street, this viewpoint is in close proximity to the east of Ardee Library and the Frederick Foster Memorial Fountain currently set aside an expanse of car parking to the front of the Ardee Library. This 100m ² area represents one of a few “indents” of public open space off Ardee Main Street but is dominated by a functional use at this time although there are a number of street trees and information panels near the fountain. The majority of visual receptors will be passing road-users including local residents, workers, library visitors and tourists.
Viewpoint Sensitivity	Medium
Predicted Change	The main change will be the creation of a pedestrian-friendly public realm including new paving, cycle-lanes, pedestrian crossings, bike stands, bespoke seating areas and general amenity provision. This will have positive effects on townscape amenity and character including reduction in car dominance and new pedestrian crossing of Main Street to the library. This will include planting of seven semi-mature trees and shrub areas with the collective hard and soft landscape works enhancing the visual setting and plinth character of the fountain, library and general Main Street.
Significance Summary	Moderate Positive

Viewpoint 4 – N2 Road (Main Street)



Photomontage of proposed view courtesy of 3D Design Bureau (2024)

<i>Viewpoint Location</i>	Main Street (N2) opposite St. Marys Church
<i>Baseline Setting</i>	This viewpoint is located on Main Street looking south with both Ardee Castle and Hatch's Castle visible on the left (east) side of the road. The view includes further listed buildings (Nos. 37, 44, 48, 50 Market Street) that contribute to the general visual character of the street. The existing road-scape is a broad expanse of tarmac and subject to heavy traffic. Trees are located within the St. Mary's Church property to the east and these break up views of gable ends. The majority of visual receptors will be passing road-users, those here for retail purposes, workers, tourists and church-goers and residents in adjacent properties.
<i>Viewpoint Sensitivity</i>	Medium
<i>Predicted Change</i>	The proposed streetscape upgrade includes resurfacing of the main carriageway and new materials on widened footpath areas, introduction of cycle lanes, new seating and public lighting. In conjunction with the reduction in car-dominance and removal of overhead cabling, this will enhance the visual quality, amenity value and appearance of this part of Main Street. The removal of a tree in the foreground (which has grown into the actual street) will be effectively mitigated by the new tree planting and the enhanced townscape legibility.
<i>Significance Summary</i>	Moderate Positive

Viewpoint 5 – N2 Road (Main Street)



Photomontage of proposed view courtesy of 3D Design Bureau (2024)

Viewpoint Location	Main Street (N2) approaching the Ash Walk and O'Carroll Street junction. LCDP designated View No. 58.
Baseline Setting	This view looks south along the Main Street corridor towards Ardee Castle on the skyline and includes the listed Bank of Ireland on the east (left) that contributes to the sense of historic streetscape. The street is generally defined by two-story terraced properties enclosing views to the east and west. The existing road-scape is a broad expanse of tarmac and subject to heavy local and through traffic. The majority of visual receptors will be passing road-users, those here for retail purposes, workers and tourists and residents in adjacent properties.
Viewpoint Sensitivity	High
Predicted Change	The proposed streetscape upgrade includes resurfacing of the main carriageway and new materials on widened footpath areas, seating, lighting and introduction of cycle lanes. In conjunction with the reduction in car-dominance and removal of overhead cabling, this will enhance the visual quality, amenity value and appearance of this part of Main Street. The proposal will introduce tree and shrub / groundcover planting into this part of Main Street contributing to the overall setting of historic assets.
Significance Summary	Moderate Positive

Viewpoint 6 – Ash Walk



Photomontage of proposed view courtesy of 3D Design Bureau (2024)

Viewpoint Location	Ash Walk
Baseline Setting	Ash Walk is a spur off Main Street that provides a link to commercial / retail properties, SuperValu, Aldi and the associated car parks to the east of Ardee town centre. It is a single one-way tarmac lane and has a largely functional character with the general area dominated by car parking. The majority of visual receptors will be those in this area for retail or commercial purposes or those working in this part of town.
Viewpoint Sensitivity	Medium/Low
Predicted Change	The proposed development will entail resurfacing of the carriageway and footpath areas (in natural stone) on Ash Walk to form a shared surface with increased space for pedestrians and improved connectivity between Ardee Main Street and the shops at Ash Walk. Further evident works would be traffic calming measures, street tree planting, removal of overhead services and new public lighting which would collectively benefit the visual appearance, townscape legibility and quality of this part of the town.
Significance Summary	Minor Positive

Viewpoint 7 – N2 Main Street



Photomontage of proposed view courtesy of 3D Design Bureau (2024)

Viewpoint Location	Junction of Ardee Main Street and Malone's Terrace. LCDP designated View No. 58.
Baseline Setting	Located to the south of Main Street, this view captures the broad street, Ardee Castle, Ardee Bakery to the right / east and general two-storey terraced properties aligning the left / west side of the street. The existing carriageway and footpaths comprise broad expanses of tarmac and is subject to heavy local and through traffic with extensive areas dedicated to car parking provision. The majority of visual receptors will be road-users, local residents, those here for retail purposes, workers and tourists.
Viewpoint Sensitivity	High
Predicted Change	The proposed streetscape upgrade includes resurfacing of the main carriageway and new materials on footpath areas and introduction of cycle lanes, public seating and lighting. In conjunction with the reduction in car-dominance and removal of overhead cabling, this will enhance the visual quality, amenity value and appearance of this part of Main Street. (The adjacent Ardee Bakery is also planned for redevelopment with the façade facing Main Street to be restored). The collective will have positive effects on the visual setting of this section of Main Street and the historic townscape and plinth on which Ardee Castle is set.
Significance Summary	Moderate Positive

Viewpoint 8 – Bridge Street (Dee Bridge)



Photomontage of proposed view courtesy of 3D Design Bureau (2024)

Viewpoint Location	Bridge Street (N2) on bridge over River Dee
Baseline Setting	Approaching the centre of the town from the south, the bridge over the River Dee (a protected structure) signals the commencement of the core of Main Street. Set between wooded areas of open space, there are open views along the Main Street corridor to the north that include Ardee Castle on part of the skyline. A car park is located to the west / left of the road but is largely obscured by existing vegetation and the bridge walls. The majority of visual receptors are passing road-users including local residents, users of the adjacent open spaces, commuters, workers and tourists.
Viewpoint Sensitivity	Medium
Predicted Change	The proposed streetscape upgrade includes resurfacing of the main carriageway and new materials on footpath areas enhancing the visual quality, amenity value and appearance of this arrival point into the town centre. The works would not impact the bridge itself other than improve the setting including landscape works related to changing the car park to the west / left to a landscaped park area though this is largely out of view. Irrespective, there will be a general improvement to the sense of place and ensuring this area has a wooded character and setting into the future.
Significance Summary	Minor Positive

Viewpoint 9 – Railway Walk and Memorial Park, Ardee



Photomontage of proposed view courtesy of 3D Design Bureau (2024)

Viewpoint Location	Ardee Railway Lands
Baseline Setting	The Ardee Railway Lands includes remnant stone platforms and sidings giving a sense of the former railway station in this area. It is now largely in managed grassland with extensive standard tree planting undertaken over the last few years though the grassed areas. Amongst this are self-seeded trees and shrubs that have grown to maturity and give parts of these land a more wooded character. The majority of visual receptors will be park-users including dog walkers, local residents and those here for recreational / amenity purposes.
Viewpoint Sensitivity	Medium
Predicted Change	The wider works to this park include improving its general amenity provision with the redesign of surfaces and introduction of seating, kickabout areas, car parking, tree planting, play areas, boundary improvements and a new community garden. This viewpoint illustrates the proposed community garden that will change an area currently in grass into a usable space for local residents. The broader park will be subject to major enhancement in terms of usability, amenity value / provision which will cross over to its visual appearance and thereby offer the opportunity to enhance the wider wellbeing of the residents of Ardee.
Significance Summary	Moderate Positive

Viewpoint 10 – Dee Amenity Lands, Ardee



Photomontage of proposed view courtesy of 3D Design Bureau (2024)

Viewpoint Location	Ardee Amenity Lands off Tierney Street
Baseline Setting	This viewpoint is on lane at the end of Tierney Street to the rural east of Ardee beyond the current built-up edge of the town. The area is currently characterised by open fields set to the north of a riparian wooded corridor aside the River Dee. The existing lane provides access to the Ardee Wastewater Treatment Plant and a compound area for LCC Roadworks. The flat landscape and peripheral hedgerows ensure no long views over the surrounding landscape. The old railway line is located to the north of this area and now in use as a public footpath set within thickset hedgerows. The main visual receptors are those visiting the plant and compound, adjacent one-off residential properties and those here for informal walking.
Viewpoint Sensitivity	Medium
Predicted Change	The proposed works change the view from field to include a widened and extended access with cycle lanes leading towards a new clubhouse/pavilion, car parking and sports facility. Landscape works include meadows, grass, woodland planting and retention / augmentation of peripheral hedgerows which would effectively settle the proposal into this landscape type. The main visual effect will be the change from a predominantly rural landscape to one with urban amenity, sports and recreational influences and more significant public use.
Significance Summary	Moderate Neutral

Viewpoint 11 – Castleguard Road, Dawson’s Demesne



Wireframe (with site outlined in red) courtesy of 3D Design Bureau (2024)

Viewpoint Location	Castleguard Road - Link Road between R170 and N33. LCDP designated View No. 60
Baseline Setting	This view is included as it is a designated view in the Louth County Development Plan. It looks north from the Castleguard Road on the eastern outskirts of Ardee in the townland of Dawson’s Demesne. The road has a busy character in part related to the adjacent Ardee Business Park which has an access point to the north of this viewpoint. Castleguard Motte is located just to the left / west of the road. Visual receptors include local residents, commuting traffic / road users as pedestrians (availing of the footpath) and cyclists.
Viewpoint Sensitivity	High
Predicted Change	On account of intervening topography (Castleguard Motte) and intervening vegetation, the nearest part of the proposed development at the amenity lands north of the River Dee will be obscured from this viewpoint having <i>negligible</i> effects. It is also relevant that the intervening lands were subject of a planning consent in August 2023 (LCC Ref: 2360237) for a residential development of 122 no. units that would further curtail any of these views in the direction of the site.
Significance Summary	No Effect

Viewpoint 12 – Hale Street, Dawson’s Demesne



Wireframe (with site outlined in red) courtesy of 3D Design Bureau (2024)

Viewpoint Location	Hale Street (R170) leading towards Richardstown. LCDP designated View No. 60
Baseline Setting	Hale Street is part of the R107 Road which is one of the main link roads into Ardee from the east (though its use diminished with the opening of the N33 Ardee Link Road in 2001). Open views are afforded over the eastern outskirts of Ardee and the Dawson’s Demesne townland including the Castleguard Motte. Visual receptors include local residents, commuting traffic / road users as pedestrians (availing of the footpath), cyclists and local residents on this part of Hale Street.
Viewpoint Sensitivity	High
Predicted Change	On account of intervening topography (Castleguard Motte) and intervening vegetation, the nearest part of the proposed development at the amenity lands north of the River Dee will be obscured from this viewpoint having <i>negligible</i> effects. It is also relevant that the intervening lands were subject of a planning consent in August 2023 (LCC Ref: 2360237) for a residential development of 122 no. units that would further curtail any of these views in the direction of the site.
Significance Summary	No Effect

Summary of Predicted Impacts

Do Nothing Impact

- 18.133 In the 'do nothing' scenario, the proposed site area, composed of the four character areas, would not benefit from regeneration. The Main Street would continue to operate as existing. The remaining parts of the site would remain without purpose and underperforming. The town would not benefit from the community infrastructure and facilities being proposed as part of this development.

Residual Impacts

- 18.134 Since no mitigation measures have been recommended, the predicted residual impacts are the same as the potential impacts identified above (See Section 18.149 Avoidance Remedial and Mitigation Measures below)
- 18.135 The proposed development is regarded as being permanent or long term in landscape and visual terms.
- 18.136 The core works on Main Steet are predominantly to streetscape areas and include built elements and structures designed to enhance the townscape character of Ardee. The magnitude of change is assessed as being of a *medium* rating, which when measured against the baseline sensitivity of the receiving environment (*medium / high*) would result in the overall townscape effects being rated as being of *moderate* significance. These impacts/ effects would be of a *positive* nature on all the main elements of the townscape character, including (a) the land use, (b) the urban grain and movement patterns, (c) the network of public realm and communal open spaces, (d) green infrastructure, and (e) the overall perception of quality and liveliness of the Ardee townscape.
- 18.137 The proposed works to the Railway Lands will improve the landscape condition, quality and character of this area. The proposals will enhance the usability and amenity provision of the park with the magnitude of effect rated as *medium* with, ultimately on completion, *moderate* positive effects of this part of Ardee.
- 18.138 Works to the Amenity Area to the east of Ardee will represent a slight extension of the townscape or urban influences into previously (largely) rural areas. The visual containment of the proposed amenity facilities due to peripheral vegetation and the extent of proposed landscape works ensure the (*medium / high*) effects, while of *moderate* significance will not have any adverse or unacceptable consequences in landscape of visual terms of the site or the wider Ardee town.
- 18.139 The woodland walk will be largely obscured due the existing woodland through which it traverses to impacts of a limited nature to the wider town (i.e. *low* magnitude of effect). However the extension of the path towards Ash Walk and the retail stores in this area will offer notable betterment to the townscape character, connectivity and pedestrian amenity.
- 18.140 Beyond the immediate areas associated with the four proposed sites or character areas, the predicted effects will be less easy to discern due to the nature of the townscape but

there will be an overall perception the quality, condition and sense of place across the town has improved having wider positive effects on Ardee and its environs.

18.141 In summary, the townscape effects of the proposed development in the operational phase are predicted to be **moderate positive** though there are incidental areas that would be subject to lesser (**slight positive**) or more notable improvement and enhancement (**substantial positive**) comparative to the existing situation.

18.142 The following tables present a summary of the landscape and visual assessment based on the key townscape areas and the 12 no. representative viewpoints.

Table 18.10: Summary of Residual Townscape Effects

Townscape Area	Townscape Sensitivity	Magnitude of Change	Significance & Magnitude of Effects		
			Construction (Temporary)	Operation (Permanent)	Residual (Permanent)
Main Street Ardee	Medium to High	Moderate	Moderate Adverse	Substantial to Moderate Positive	Substantial to Moderate Positive
Old Railway Lands	Medium	Moderate	Slight Adverse	Moderate Positive	Moderate Positive
East Ardee Amenity Lands	Medium	Moderate	Slight Adverse	Slight Positive	Slight Positive
Woodland Walk	Medium	Slight	Slight Adverse	Slight Positive	Slight Positive
Ardee Town	Low / Medium / High	Low to Moderate	Moderate to Slight Adverse	Moderate Positive	Moderate Positive

Table 18.11: Summary of Visual Effects Assessment

Viewpoint	Viewpoint Sensitivity	Magnitude of Change	Significance & Quality of Effects		
			Construction (Temporary)	Operation (Permanent)	Residual (Permanent)
1: Dundalk Road (N2)	Medium	Moderate	Slight Adverse	Moderate Positive	Moderate Positive
2: Main Street (N2)	Medium	Moderate	Slight Adverse	Moderate Positive	Moderate Positive

3: Main Street / Market Street (N2)	Medium	Moderate	Slight Adverse	Moderate Positive	Moderate Positive
4: Main Street (N2)	Medium	Moderate	Slight Adverse	Moderate Positive	Moderate Positive
5: Main Street (N2)	High	Moderate	Slight Adverse	Moderate Positive	Moderate Positive
6: Ash Walk	Medium to Low	Minor	Slight Adverse	Slight Positive	Slight Positive
7: Main Street (N2)	High	Moderate	Slight Adverse	Moderate Positive	Moderate Positive
8: Bridge Street (N2)	Medium	Minor	Slight Neutral	Slight Positive	Slight Positive
9: Memorial Park / Railway Walk	Medium	Moderate	Slight Adverse	Negligible Neutral	Negligible Neutral
10: Dee Amenity Lands, Tierney Road	Medium	Moderate	Slight Adverse	Moderate Neutral	Moderate Neutral
11: Castleguard Road, Dawsons Demesne	High	No change	No change	No change	No change
12: Hale Street, Dawsons Demesne	High	No change	No change	No change	No change

Worst Case Scenario

18.143 The worst-case scenario is not applicable in this instance in terms of landscape / visual considerations related to the proposed development.

Monitoring and Reinstatement

Construction Phase

18.144 Monitoring and Reinstatement is not applicable to this chapter.

Operation Phase

- 18.145 No monitoring of townscape and visual effects is required other than the monitoring of soft landscape works after planting to ensure the health and viability of the plants. The management of landscape areas will initially be undertaken by an ACLI approved landscape contractor. There will be a five year guarantee after construction that all the proposed planting works still exists and has been established in line with landscape design expectations. This will ensure that no planting has been removed or damaged due to the subsequent construction activity or failure of soft landscape and planting. A Landscape Management and Maintenance Plans will set out the objectives for management of external spaces or public realm areas for a 20 year period.
- 18.146 Regular monitoring will be undertaken to determine success of landscape operations and ensure they are establishing and being maintained in the manner anticipated at design stage. If required, elements of the design can be adapted to accommodate changes required by actual field experience.

Cumulative Impacts

- 18.147 Cumulative townscape / landscape or visual effects are the combined effects that arise through the interaction of two or more developments, whether of the same type or not, within the landscape and visual baseline context. Collectively they give rise to an overall combined effect.
- 18.148 A significant cumulative effect will occur where the addition of the proposed development to other existing and developments results in a landscape or view that is defined by the presence of more than one major development and is characterised primarily by large scale development so that other patterns and components are no longer definitive.
- 18.149 Given the existing built form and evolving townscape of Ardee, there are **no significant or unacceptable cumulative effects** predicted to derive from these proposals in townscape / landscape and visual amenity terms. The existing planning consents granted are in line with the anticipated development and expansion of Ardee town.
- 18.150 A core consideration in landscape / townscape and visual terms is the proposed Ardee By-Pass. Once operational this would have substantial benefits to Main Street Ardee with the reduction in volumes of through-traffic and associated benefits in terms of noise, dust, traffic management and general sense of place of the town centre. This project effectively ties in with the aspirations of what any successful by-pass project sets out to achieve in terms of environmental, economic benefits, social/community and landscape / visual benefit.

Avoidance, Remedial, and Mitigation Measures Construction Phase

- 18.151 The project is inherently about improvements to the visual appearance and townscape character of Ardee and includes for extensive landscape, public realm and open space works with the overall objective of a resulting project that integrates the development into the surrounding townscape / landscape and provides a series of coordinated and linked spaces. This includes designing of green infrastructure, formal and informal open spaces, public realm and other external areas for the amenity and use of residents,

visitors and others in this area. A key mitigation measure is therefore the very nature of the project in that it relates to environmental and aesthetic (i.e. landscape and visual) improvements.

Construction Phase

18.152 The key mitigation measures are those standard to best practice construction site management but the significance of effects can be limited by implementing the following strategies:-

- All activities will be subject to pre-planned method statements in accordance with appropriate legislation in particular Construction Design and Management Regulations and Management of Health and Safety at Work Regulations;
- Erection of temporary hoarding around construction areas to clearly delineate working areas and protect public from the works. Hoardings will be maintained in good condition throughout this stage;
- Lighting will be maintained in good order and provided where necessary to ensure sufficient illumination. Precautions will be taken to ensure no shadows are cast by hoardings or building works onto pavement or road areas. Internal construction lighting will be angled so that it does not cause nuisance to adjacent properties or carriageways;
- Careful siting of construction machinery, materials and welfare facilities to avoid unnecessary impacts on adjacent areas;
- Ensuring the streets or roads providing access to the work are maintained free of dust and mud as far as possible and that any damaged surfaces are made good;
- Maintaining effective site and litter management systems to be put in place from the outset of the works to ensure a clean, tidy and presentable image.

Operation Phase

18.153 The potential townscape and visual effects of the proposal in the operational phase have been classified as positive on the basis that the overriding nature of the project is to improve the townscape, public realm and visual amenity of Ardee. No negative effects have been identified and therefore no mitigation measures are required for townscape and visual effects.

Interactions

18.154 As is the case where a development will result in a change to the visual environment of an area, the landscape and visual impacts of the development will result in interactions with Cultural Heritage, Population and Human Health, Residential Amenity and Biodiversity.

18.155 The area contains numerous listed buildings and monuments including Ardee Castle and the core components of the Ardee ACA. In general terms, the proposal is related to improving each of their settings and understanding in visual terms that will have inherent positive effects.

18.156 In terms of any residential amenity, landscape and visual effects will be most pronounced during the construction stage causing initial visual impacts. Thereafter the effects will be positive as the vantage of their properties, general townscape, amenity provision and connectivity within Ardee will be enhanced.

18.157 The proposed landscape works were reviewed by the project ecologist and plant species include significant percentages of indictable genous species Other ecology measures are included in the landscape proposals which will have a positive effect as it matures and enriches ecology and diversity. The species selected as part of this development proposal are based on those listed in the *All-Ireland Pollinator Plan 2000-2025*.

18.158 In conclusion no adverse impacts are predicted in relation to any of the above mentioned interactions and the effects are all considered to be of a positive nature.

Difficulties in Compiling Information

18.159 No difficulties were encountered in the preparation of this assessment.

References

There are a number of published guidance documents including Development Plans, which include planning designations relevant to the Study Area or are referenced as part of the baseline assessment of the townscape / landscape as listed below:-

- Environmental Protection Agency (2022) Guidelines on the Information to be contained in Environmental Impact Assessment Reports;
- European Commission (2017) Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report;
- Louth County Development Plan 2021-2027;
- Ardee Local Area Plan (LAP) 2010-2016;
- Ardee Architectural Conservation Area Ardee, Co Louth;
- Louth Biodiversity Action Plan 2021-2026;
- National Inventory of Architectural Heritage <http://www.buildingsofireland.ie>;
- National Parks and Wildlife Service (NPWS) and Environmental Protection Agency - <https://gis.epa.ie/EPAMaps>;
- <https://www.heritagecouncil.ie>
- <https://www.ardeetown.ie/history>
- Design Manual for Urban Roads and Streets by the Department of Transport, Tourism and Sport and the Department of Housing, Planning and Local Government (2019);
- Urban design manual - a best practice guide by the Department of Environment, Heritage and Local Government (2009) and
- Landscape Character Assessment 2002 by Louth County Council (LCA Boyne and Mattock Valleys).

The baseline assessment included study of Ordnance Survey Ireland historical and recent mapping to assess how Ardee town has historically developed or changed since the early 19th century as well as assess approximate calculations of relevant distances or areas.

19. Interactions

Introduction

- 19.1 This Chapter of the EIAR has been prepared by Turley and deals with likely interactions between effects predicted because of the proposed development.
- 19.2 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 between impacts on different environmental factors. As such, these are assessed below.
- 19.3 The interaction of effects within the Proposed Development in respect of each of the environmental factors, listed in Article 3(1) of the EIA Directive, has been identified and addressed in the respective chapters in this EIAR. This chapter presents an overview of these interactions of impacts, from the Proposed Development, between the various environmental factors.
- 19.4 This Chapter outlines the areas where potential interactions may arise as a result of the proposed development.
- 19.5 The potential cumulative impact of the proposed development with committed or planned development projects in the surrounding area is also recognised as an interaction between potential environmental impacts. Cumulative impact has been addressed in detail in Chapter 20 below.

Description of Potential Interactions

- 19.6 **Table 19.1** provides an overview of the anticipated interactions of the construction and/or operation stages of the proposed project with respect to each of the environmental factors considered within this EIAR.
- 19.7 Where the potential for impacts have been identified as a result of interactions with other environmental factors, these have been addressed comprehensively within the corresponding specialist EIAR chapter, and relevant mitigation measures have been prescribed where required. Noting this, no likely significant (residual) impacts on any of the environmental factors are predicted in relation to the below-listed interactions.

Table 19.1: Matrix of Interactions Between Effects Predicted as a Result of the Proposed Development

Source	Receptor											
	Interaction Between Environmental Factors											
	Population and human Health	Biodiversity	Land, Soils and Geology	Hydrogeology & Hydrology	Air Quality / Climate	Noise & Vibration	Architectural Heritage	Cultural Heritage & Archaeology	Traffic & Transportation	Waste	Townscape and Visual	Services
				✓	✓	✓			✓	✓	✓	✓
	Biodiversity		✓	✓								
	Land, Soils & Geology	✓		✓								
	Hydrology & Hydrogeology	✓	✓									
	Air Quality / Climate	✓	✓						✓			
	Noise & Vibration	✓							✓			
	Architectural Heritage							✓				
	Cultural Heritage & Archaeology						✓					
	Roads and Traffic				✓	✓					✓	
	Waste											
	Townscape and Visual	✓					✓	✓				
	Services	✓	✓	✓	✓	✓			✓	✓	✓	

Table 19.2: Summary of Interaction and In-combination Effects

Environmental Discipline	Interaction With	Interaction Effect
Population and human Health	Material Assets (Services)	Interactions between 'Population & Human Health' and 'Material Assets – Site Services' have been considered in this EIAR as the proposed project has the potential to create health impacts related to improper safety protocols, e.g. related to diversions of power lines, and potential nuisance/impacts on residential amenity due to potential water/power/service outages during the construction phase.
	Hydrology & Hydrogeology	Interactions between 'Population & Human Health' and 'Hydrology & Hydrogeology' have been considered in this EIAR as the proposed project has the potential to create impacts on surface water runoff during the construction stage as a result of increased levels of silt or other pollutants, in addition to potential pollution from spillages, wheel washing and water from trucks on site.
	Material Assets - Traffic & Transportation:	Interactions between 'Population & Human Health' and 'Material Assets – Traffic & Transportation' have been considered in this EIAR as the proposed project has the potential to create traffic/parking impacts during the construction stage due to presence of construction traffic and traffic management measures and traffic impacts due to the traffic generated by the operational stage.
	Material Assets – Waste	Interactions between 'Population & Human Health' and 'Material Assets – Waste' have been considered in this EIAR as the proposed project has the potential to create health impacts if improper waste management measures are implemented during both the construction and operational stages.
	Air Quality and Climate	Interactions between 'Population & Human Health' and 'Air & Climate' have been considered in this EIAR as the proposed project has the potential to create nuisance/health impacts related to exposure to dust during the construction stage and construction traffic related emissions during the construction stage.

	Noise and Vibration	Interactions between 'Population & Human Health' and 'Noise & Vibration' have been considered in this EIAR as the proposed project has the potential to create potential impacts during the construction stage related to elevated noise levels
	Townscape and Visual Impact	Interactions between 'Population & Human Health' and 'Townscape and Visual Impact' have been considered in this EIAR as the proposed project has the potential to create visual impacts related to the presence of a construction site during the construction stage, and the presence of a sizeable new residential development during the operational phase.
Biodiversity	Land, Soil & Geology	Interactions between the 'Biodiversity' and 'Land, Soils & Geology' has been considered in this EIAR due to water quality having a potential impact on the ecosystems and their flora and fauna.
	Hydrogeology & Hydrology	Interactions between 'Biodiversity' and 'Hydrogeology & Hydrology' have been considered in this EIAR as the proposed project has the potential to create impacts on nearby watercourses during the construction stage as a result of silt laden runoff and potential spills/leakages of fuels/contaminants.
Land, Soils and Geology	Biodiversity	Interactions between 'Land, Soils & Geology' and 'Biodiversity' has been considered in this EIAR due to water quality having a potential impact on the ecosystems and their flora and fauna.
	Hydrogeology & Hydrology	Of particular significance is the interaction between Land, Soils and Geology and Hydrology and Hydrogeology. Potential effects associated with Geology, including excavations and management of excavation arisings produce potential sources of contamination and a hazard in terms of runoff and surface water quality, e.g. entrainment of solids in runoff and intercepted by receiving surface water network.
Hydrogeology & Hydrology	Land, Soils and Geology	The Hydrogeology & Hydrology Chapter is closely linked to the Land, Soils and Geology Chapter as hydrology is often dependant on the topography

		and geology of a site. Cross references are included in the Hydrogeology & Hydrology Chapter where relevant.
	Biodiversity	The Hydrogeology & Hydrology Chapter is closely linked to the Biodiversity Chapter due to water quality having an impact on the ecosystems and their flora and fauna. Cross references are included in the Hydrogeology & Hydrology Chapter where relevant.
Air Quality / Climate	Traffic and Transportation	The proposed scheme has the potential to increase traffic related emissions from moving construction materials to and from Site during the construction phase and operation phase.
	Population and Human Health	The proposed scheme has the potential to create impacts relevant to dust nuisance during construction and vehicular emissions during both the construction and operational phase.
	Biodiversity	The proposed scheme has the potential to create impacts on local biodiversity in the area (including all relevant designations) during the construction phase.
Noise & Vibration	Traffic & Transportation	There is an interaction between 'Noise & Vibration' and 'Traffic & Transportation' through generation of construction and operational stage traffic. Overall predictions are that there will be no significant noise impact generated during construction or operation stages due to traffic generation with appropriate mitigation.
	Population & Human Health	There is an interaction between 'Noise and Vibration' and 'Population & Human Health' through the generation of construction and operational stage traffic.
Material Assets (Waste)	N/A	Material Assets (Waste Management) has had no formal interaction with any of the other EIAR Chapters at the time of reporting.
Traffic & Transportation	Townscape & Visual Impact	There are no significant landscape & visual impacts predicted during either construction or operation as a result of traffic generation.
	Air Quality & Climate	Demolition, construction and operational phases of the project have the potential to releases

		atmospheric pollutants into the surrounding environment. Mitigation measures detailed for demolition and construction stages will aid in reducing levels of air pollution. There is no significant impact predicted on local air quality concentrations at human exposure receptors or designated sites as a result of the proposed development.
	Noise & Vibration	There is an interaction between noise and traffic through generation of construction and operational stage traffic. Overall predictions are that there will be no significant noise impact generated during construction or operation stages due to traffic generation with appropriate mitigation.
Material Assets (Services)	Population & Human Health	Site services, such as water supply, sewage systems, and waste management, directly impact the well-being of the local population. Proper management and maintenance of these services during the operation phase of the development will ensure good living conditions and minimize health risks.
	Biodiversity	Site services, particularly waste management and drainage systems, can affect local ecosystems and biodiversity. Ensuring appropriate waste disposal and treatment methods will help protect sensitive habitats and species especially near the woodland walk area.
	Land, Soils, & Geology	Site services, such as underground utilities and drainage systems, can impact soil quality, stability, and geological features. Proper design and construction practices should be employed to minimize these effects.
	Hydrology & Hydrogeology	Site services can potentially impact surface and groundwater quality and flow patterns. Proper planning and management of drainage and SUDS systems, wastewater treatment, and stormwater management will help maintain hydrological balance and water quality.
	Air Quality & Climate	Emissions from site services, such as energy consumption and waste management, can contribute to air pollution and climate change. Implementing energy-efficient systems and proper

		waste management practices will help minimize these impacts.
	Noise & Vibration	Site services, such as waste collection and maintenance activities, can generate noise and vibrations. Proper scheduling and mitigation measures should be employed to minimize disturbance to nearby residents and sensitive receptors.
	Townscape & Visual Impact	Site services infrastructure such as proposed overhead power cables, underground services etc. can have impacts on the landscape. Careful planning and design should be employed to minimize these effects and integrate the infrastructure into the surrounding environment.
	Roads, Traffic & Transportation	Site services can generate additional traffic, particularly during construction and maintenance activities. Proper planning and management should be employed to minimize congestion and ensure safe transportation.
Cultural Heritage & Archaeology	Architectural Heritage	There is a direct interaction between Cultural Heritage & Archaeology and Chapter 17 Architectural Heritage. Chapter 17 has been reviewed as part of this assessment to ensure all aspect of the historic environment have been assessed and also to prevent replication of information.
Architectural Heritage	Cultural Heritage & Archaeology	There is a direct interaction between this chapter and 'Chapter 16 - Archaeology and Cultural Heritage'. The chapters have been reviewed as part of this assessment to ensure all aspects of the historic environment have been assessed and also to prevent replication of information as much as possible.
Townscape & Visual Impact	Architectural Heritage	The area contains numerous listed buildings and monuments including Ardee Castle and the core components of the Ardee ACA. In general terms, the proposal is related to improving each of their settings and understanding in visual terms that will have inherent positive effects.
	Population and Human Health	In terms of any residential amenity, townscape and visual effects will be most pronounced during the construction stage causing initial visual impacts. Thereafter the effects will be positive as the vantage

	of their properties, general townscape, amenity provision and connectivity within Ardee will be enhanced.
Biodiversity	The proposed landscape works were reviewed by the project ecologist and plant species include significant indigenous species and other ecology measures are included which will have a positive effect as it matures on local ecology and diversity. The species selected as part of this development are based on those listed in the <i>All-Ireland Pollinator Plan 2015-2020</i> .

20. Cumulative Impacts

Introduction

20.1 This Chapter has been prepared by Turley and has regard to the potential cumulative impact upon the environment arising from the proposed project, in combination with other developments (committed or planned projects) in the surrounding area. This Chapter should be read in conjunction with planning history reviewed included at Chapter 3.

20.2 The accepted meaning of “cumulative impacts” is as set out in the Guidance on the Preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU) as:

“changes to the environment that are caused by activities/projects in combination with other activities/projects.”

20.3 This very broad interpretation has been further defined in the Irish context in the EPA’s 2017 Guidelines on the Information to be Contained in Environmental Impact Assessment Report to mean:

“the addition of many minor or significant effects including effects of other projects, to create larger, more significant effects”.

20.4 The EPA guidance goes on to provide that while a single activity may itself result in a minor impact, it may, when combined with other impacts (minor or significant), result in a cumulative impact that is collectively significant.

20.5 Having regard to the built-up urban environment within which the subject lands are located, there is a significant amount of new development either under construction, permitted or proposed. In recognition of this, and the potential for cumulative impacts upon the environment, an extensive exercise has been undertaken to identify projects within the surrounding area that have the potential to give rise to cumulative impact, when considered in combination with the proposed development. The methodology surrounding the identification of relevant projects is set out below.

Methodology

20.6 A scoping exercise was first undertaken to identify an appropriate study area in respect of cumulative assessment. This comprised an initial survey of all planning applications within the settlement boundary of Ardee as identified in Ardee Composite Map of the LCDP 2021 - 2027. This radius was selected for the reasons outlined in **Table 20.1** below.

20.7 For the purposes of this initial survey, a search of all planning applications which were recorded on the National Planning Applications Database (DoHPLG) with extant permissions or were otherwise under consideration at the time of writing were included. A further review of An Coimisiún Pleanála’s website was undertaken to identify relevant applications.

20.8 A screening exercise was then undertaken to determine whether each identified project has the potential to generate cumulative impacts of significance on the environment, when considered in combination with the proposed development. There were two stages to this:

- (i) Identifying projects of a scale and nature ('major' projects) with the potential to generate cumulative impacts of significance (in line with the parameters set out in **Table 20.1** below); and
- (ii) The record of applications resulting from (i) was further reviewed by the expert consultants to determine whether the identified 'major' projects, located within a 2km radius of the subject site, have the potential, in respect of each environmental aspect, to interact with the proposed development from a cumulative impact perspective.

20.9 Following the above screening exercise, a consolidated list of projects emerged, including both committed and planned projects that were determined to have the potential to give rise to cumulative impacts with the proposed development. Some of the projects were identified by more than one expert consultant whereas others were identified in relation to only one environmental aspect.

20.10 This final list was then distributed to the expert consultants undertaking the assessment of each environmental aspect. For completeness, despite the initial screening process, each chapter has regard to all of the projects identified in Chapter 3.

Table 20.1: Parameters/ Terms adopted in determining the study area and relevant projects for cumulative impact assessment with the proposed development.

Parameter/ term	Detail/ Definition	Justification
Settlement boundary of Ardee as identified in Ardee Composite Map of the LCDP 2021 - 2027	All lands within the settlement boundary of Ardee as identified in Ardee Composite Map of the LCDP 2021 – 2027.	Given the characteristics and use of the proposed development, the area of Ardee and the potential cumulative impact that other major developments within the settlement limit of Ardee may have on it, we consider that the study area should extend to 500m from the site boundary. When applied to Ardee, this catchment includes the majority of the urban area of the town.

Committed Projects	Development projects with an extant planning permission, including projects currently under construction. All development / applications within the settlement boundary of Ardee were screened for projects of a 'major' scale and nature. For the purposes of this exercise, the following developments were excluded: • Minor change of use applications; • New residential schemes of less than 30 units; • New commercial schemes (including change of use) of less than 3000 sqm) • Retention applications; • Minor amendments to permitted applications; • Minor signage applications; • Other development types of scale that would not exacerbate significant environmental concerns (including car parking proposals, internal reconfigurations etc.)	This parameter aligns with EIA Guidance surrounding the projects that should be included for cumulative impact assessment.
Planned Projects	Development projects (i.e. planning applications) that have been submitted to a Planning Authority for a decision, but were yet to be decided at the time of writing. Or potential projects that are at preapplication stage and within the public domain.	This parameter aligns with EIA best practice surrounding the projects that should be included for cumulative impact assessment.

Potential Cumulative Impact

20.11 Each Chapter which addresses a specific environmental factor provides a detailed cumulative impact assessment in respect of the relevant parameters set out in **Table**

20.1. The relevant chapters should be referred to for full details of the assessment; this chapter (**Table 20.2**) provides a summary of the cumulative impact assessment.

Table 20.2: Parameters/ Terms adopted in determining the study area and relevant projects for cumulative impact assessment with the proposed development.

Chapter/ Environmental Factor	Potential Cumulative Impact
Population & Human Health	Construction and Operational Stage The projects identified in Chapter 3 Site and Development Context have been reviewed and, in all cases, there will be no significant cumulative impacts on population and human health as a result of neighbouring development proposals.
Biodiversity	Construction and Operational Stages No cumulative impacts on biodiversity are envisaged during the construction or operational stages of the project.
Land, Soils and Geology	Construction and Operational Stages Considering the discipline under investigation, soils and geology, and the fact that potential effects of the Development on same are generally localised, the cumulative effects of the Development are not considered to vary dramatically or behave synergistically when considering the Site as a unit, or indeed when considering in conjunction with other developments in the vicinity or downgradient of the Site.
Hydrology and Hydrogeology	Construction and Operational Stages Hydrology With respect to hydrology, the effects of the Development are considered to contribute to the cumulative nature of adverse effects imposed on the surface water network in the catchments associated with the Development. However, considering the pre-existing “Moderate” and “Good” WFD status of the surface waters surrounding the proposed Development, and the generally moderate-quality baseline water quality results outlined in Appendix 10.9, the potential for the Development to have adverse cumulative effects on hydrology is limited to the construction phase if prescribed mitigation measures are not adhered to. Surface Water Considering cumulative effects of pressures on the surface water network, if an accidental release of contaminants were to occur, there is a potential to temporarily effect surface waterbodies in the catchment, taking into account this project’s works but also additional projects such as the construction of 272 no of units (Planning Ref:

22228). However, the objectives of the outlined mitigation measures in this chapter and in the Flood Risk Assessment (FRA) completed by Nicholas O'Dwyer Ltd, are to reduce any potential effect to acceptable levels. Therefore, the Development is not considered likely to significantly contribute to cumulative effects in terms of water quality nor flood risk.

Hydrogeology

With respect to hydrogeology, and the potential effects of the Development having been assessed as likely being to be minor and temporary, for example, in the event of a minor spill of fuel / hydrocarbons, the spill will be contained and remediated efficiently. Therefore, the development is not likely to contribute significantly to cumulative effects on groundwater quality, but the residual risk even if small in scale is important to consider in the context of the elevated sensitivity and importance of the receptor.

Summary

Assuming the adequate application and execution of mitigation measures, and achieving the objectives set, for example, <25mg/l Suspended Solids, the Development is not considered to potentially significantly contribute to cumulative surface water or groundwater effects.

Air & Climate

Construction Phase

The phasing/commencement of any other permitted developments in the locality could potentially result in the scenario where a number of other construction sites are in operation at the same time as the proposed development. However, all permitted developments are expected to agree and follow site specific Construction Environmental Management Plans or Dust Management Plans and Construction Traffic Management Plans that will adequately control emissions from construction. Therefore, cumulative construction phase effects are considered to be not significant.

Operation Phase

As per construction phase impacts, any other permitted developments are expected to follow best practice mitigation measures to minimise emissions to air. Therefore, significant GHG emissions and exceedance of the relevant AQs is considered unlikely and cumulative operational phase effects are considered not significant.

Noise & Vibration

Construction Phase

The phasing/commencement of any other permitted developments in the locality could potentially result in the scenario where a number of other construction sites are in operation at the same time as the proposed development. The location of any cumulative construction sites in relation to each other and to nearby noise sensitive locations,

	means that there is minimal risk of cumulative construction noise emissions resulting in an exceedance of the relevant criteria. Operation Phase The location of the proposed development site in relation to nearby noise sensitive locations and the distance from the proposed development site in relation to other nearby lands means that there is minimal risk of cumulative operational phase noise emissions resulting in an exceedance of the relevant criteria. No additional mitigation measures are therefore required.
Material Assets (Waste)	Construction Phase The phasing/commencement of any other identified permitted developments in the locality could potentially result in the scenario where a number of other construction sites are in operation at the same time as the proposed development. Should construction of nearby sites coincide with construction of the proposed development, this could result in a general increase in construction waste generation in the wider Ardee area. However, there will be sufficient capacity in the local waste collection and disposal network to ensure that all construction waste is removed from site and disposed of in an environmentally sustainable and responsibly manner. In the event that the local waste capacity is stretched, where necessary, appropriate waste management facilities outside the local area should be considered. Operational Phase The development of the proposed site along with other developments is capable of having in-combination effects could potentially result in a general increase in operational waste generation in the wider Ardee area. The implementation of the proposed mitigation measures will ensure that any waste arising from the development is dealt with in compliance with the provisions of relevant prevailing policy.
Material Assets (Traffic & Transportation)	Construction and Operation Phases The proposed development will not have a direct impact on current / planned projects in the study area, however they have been considered as part of the design concept evolution to ensure that the Ardee 2040 Regeneration Project maximises the potential to link to existing and future residential and community infrastructure where possible.
Material Assets (Site Services)	Construction and Operational Stages The construction of residential units, commercial establishments, schools, and other facilities will lead to an increased demand for utilities such as water, electricity, and gas. In addition, adequate sewage and drainage systems will be required. To address this increased demand, upgrades to existing infrastructure may be necessary. However, taking into account the staged delivery of the proposed project, these projects are not likely to have a cumulative impact on the proposed development.

Cultural Heritage and Archaeology	Construction and Operational Stages As the archaeological remains identified within the proposed development area will be preserved <i>in situ</i> or by record, no cumulative impacts have been identified as a result of the development going ahead in conjunction with any other proposed or permitted development in the study area.
Architectural Heritage	Construction and Operational Stages No cumulative impacts on architectural heritage are envisaged during the construction or operational stages of the project.
Townscape and Visual Impact	Construction and Operational Stage Given the existing built form and evolving townscape of Ardee, there are no significant or unacceptable cumulative effects predicted to derive from this proposal in conjunction with these in townscape / landscape and visual amenity terms.

Mitigation and Monitoring

- 20.12 Having regard to the conclusions set out in **Table 20.2** above, the proposed project, when considered in combination with the committed and planned projects set out in **Chapter 3** of this EIAR, is not expected to give rise to significant cumulative impacts.
- 20.13 It is therefore further concluded that no further mitigation or monitoring measures are required, beyond those proposed by each chapter in respect of the proposed project.

'Do-Nothing' Effect

- 20.14 If the proposed project does not proceed, there will be no cumulative impacts arising.

21. Mitigation Measures

Introduction

- 21.1 Paragraph 2(d) of Schedule 6 to the Planning and Development Regulations 2001, as amended by the 2018 regulations, 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’.

- 21.2 This Chapter provides a consolidated list of all of the environmental commitments/mitigation measures that have been recommended by the various specialists throughout the Chapters of this EIAR.
- 21.3 The mitigation and monitoring measures have been recommended on that basis that they are considered necessary to protect the environment during both the construction and operational phases of the proposed project.

Mitigation and Monitoring for Biodiversity

Table 21.1: Mitigation Measures for Chapter 8 Biodiversity

Construction Phase
Bats
The design principles for bat-sensitive lighting are as follows (BCT & ILP 2018):
• Low-UV LEDs or low / high pressure sodium lamps would be the preferred bulb type, as they have least effect on bats. Mercury or metal halide bulbs should not be used. Lights should have a ‘warm’ tone, with minimal blue / UV content. • Lights in pedestrian areas should be installed at a low level, e.g. bollards of up to one metre in height. Lights should be directed onto ground level, with no light spill above the horizontal. Lux levels should be the minimum required for pedestrian safety. • All external lights should be fitted with directional hoods to direct the light downwards onto targeted areas and to prevent unnecessary light-spill. • No lights should be directed towards freshwater habitats (i.e. the River Dee), woodland or trees. This particularly applies to floodlighting for the sports facilities in the east of the Site near Tierney St.; and

- Where feasible, all external lighting at access points to buildings should be fitted with motion sensors and timers in order to provide light only when required. Constant, overnight lights should not be permitted.

Birds

- Potential impacts on nesting birds will be avoided by timing the cutting of vegetation to avoid the nesting season (March to August inclusive).

Trees

- Measures to protect all tree features and hedgerows throughout the site that do not require removal will be undertaken including the zoning of buffers around that habitat types to protect root systems.

Operation Phase

The above measures apply both during both the construction and operational phases.

Table 21.2: Monitoring Measures for Chapter 8 Biodiversity

Construction Phase

No monitoring measures are proposed.

Operation Phase

Monitoring is required where the success of mitigation measures is uncertain or where residual impacts may in themselves be significant. It is recommended that an ECoW is in place to oversee the creation of the wildflower meadows and installation of features such as the swift bricks, bee banks and bee posts and that a Landscape and Ecology Habitat Management Plan (LEMP) is produced and implemented to inform the meadow habitat creation.

Mitigation and Monitoring Measures for Chapter 9 Land, Soils & Geology

Table 21.3: Mitigation Measures for Land, Soils & Geology

Construction Phase

Soil Contamination

- All plant and machinery will be serviced before being mobilised to site.
- No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed.

-
- Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will be undertaken offsite where possible. Where this is not possible, filling and maintenance will take place in a designated material storage compound, which is located at least 10 meters from any temporary or permanent drainage features.
 - Refuelling if necessary on Site, will be completed in a controlled manner using drip trays at all times or a designated refuelling area will be created on an impervious surface such as a concrete slab with drainage to a hydrocarbon interceptor or other tank type which will hold run-off from the concrete slab.
 - Mobile bowzers, tanks and drums will be stored in secure, impermeable storage areas away from open water.
 - No bulk chemicals will be stored within the active construction areas.
 - Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores.
 - Containers and bunding for storage of hydrocarbons and other chemicals will have a holding capacity of 110% of the volume to be stored.
 - Ancillary equipment such as hoses and pipes will be contained within the bund.
 - Taps, nozzles or valves will be fitted with a lock system.
 - Fuel and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage.
 - Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills.
 - Only designated trained operators will be authorized to refuel plant on site.
 - Procedures and contingency plans will be set up to deal with emergency accidents or spills.
 - An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill. A specific team of staff will be trained in the use of spill containment.
 - Highest standards of site management will be maintained, and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment during construction. A named person will be given the task of overseeing the pollution prevention measures agreed for the site to ensure that they are operating safely and effectively as well as having responsibility for the implementation of Emergency Procedures for spill control measures.

Soil and Subsoil Compaction

- The in-situ soils and subsoils underlying the development area will be subject to a certain amount of compaction.
- Any infill material/landscaping that is required will be placed and levelled in appropriate lift thicknesses to ensure the material is not over compacted thereby retaining its drainage properties.

Vehicular Movements Mitigation Measures

- Vehicular movements will be restricted to the footprint of the Development and advancing ahead of any construction will be minimised in so far as practical. This will be done with a view to minimising soils / subsoils exposure to rain and runoff.

Ground Stability Mitigation Measures

- In order to mitigate for particular earth works tasks and suitable meteorological conditions, construction activities will not occur during periods of sustained significant rainfall events, or directly after such events (allowing time for work areas to drain excessive surface water loading and discharge rates reduce).

Operation Phase

No mitigation measures are considered to be necessary during the operation phase.

Monitoring Measures for Land, Soils & Geology

21.4 Chapter 10 Hydrology outlines the surface water monitoring that is proposed during construction of the development. This will give indications on whether the mitigations on land and soil management is being adhered to. In areas of intensive groundworks, continuous monitoring stations will be established.

Mitigation and Monitoring Measures for Chapter 10 Hydrology & Hydrogeology

Table 21.4: Mitigation Measures for Hydrology & Hydrogeology

Construction Phase

Earthworks Proposed Mitigation Measures

Mitigation measures to reduce the potential for adverse impacts arising from earth works and management of spoil include the following:

- Management of excavated material, that is: a materials management plan will be established and form part of the Construction & Environmental Management Plan (CEMP) with a view to establishing material balance during the proposed construction phase, thus minimising the potential for, or the length of time excavated materials are exposed and vulnerable to entrainment by surface water runoff.

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- A full-service survey of existing drainage features should be carried out with an accompanied risk assessment for the potential receptors, prior to works commencing.
 - Drainage and measures to control run-off will be employed to manage sediments prior to any works to be undertaken at the Site.
 - No permanent, or semi-permanent stockpile will remain on the site during the construction phase of the Development.
 - Suitable locations for temporary stockpiles will be identified on a case-by-case basis. The suitability of any particular location will consider characteristics of the proposed site including; slope incline and topography, drainage networks in the vicinity and proximity to same, other relevant characteristics which are likely to facilitate, increase, or compound the potential for entrainment by surface water runoff.
 - Earthworks will be limited to seasonally dry periods and will not occur during sustained or intense rainfall events. Similarly, controls measures in preparation for and during storm events will be outlined in the SWMP, for example, pause excavation activities during storm events.
 - Any permitted, exposed soils (temporary stockpiles) will be covered with plastic sheeting during all relatively heavy rainfall events and during periods where works have temporarily ceased before completion at a particular area (e.g. weekends).
 - Silt fencing will be installed around the perimeter of the site at any locations where surface water is likely to run off, directly into the River Boyne. This could include the riverbank, land drains, natural depressions in the soil surface, or any other geomorphological feature which might accommodate surface water run-off. The location of the silt fencing will be determined in the construction stage CEMP and is subject to a detailed assessment of the area or phase to be developed. The purpose of the silt fencing is to prevent silt leaving the site in run-off water and entering adjacent land with the potential to impact nearby watercourses. Silt fences will consist of a geotextile membrane fixed to wooden stakes approximately 600 mm high. The membrane will be anchored into the ground to form a continuous barrier with the soil surface. Silt fences will be monitored and maintained when necessary during the construction period. Maintenance will include the replacement of the geotextile when damaged and the removal of any silt build-up on the upslope side of the silt fence. Silt fences will be temporary features but will remain in place for a period following the completion of the Construction Phase.
 - Construction waters will be collected and pumped to the established treatment train prior to discharging from Site, if necessary.
 - Emergency contact numbers for the Local Authority Environmental Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the
-

site compound. These agencies will be notified immediately in the event of a pollution incident.

- Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same.
- The site manager will be responsible for the implementation of these measures. They will be inspected on at least a daily basis for the duration of the works, and a record of these inspections will be maintained.
- Road sweepers will be employed to clean the site access route as required. For example, any hard surface site roads will be swept to remove mud and aggregate materials from their surface.

Release of Hydrocarbons Proposed Mitigation Measures

The risk of water quality impacts associated with works machinery, infrastructure and on-land operations (for example leakages/spillages of fuels, oils, other chemicals and waste water) will be controlled through good site management and the adherence to codes and practice. The following measures will be implemented during construction:

- Gerry cans with proper pouring nozzles will be used to move fuel around the site for the purposes of refuelling items of small plant on site.
- Drip trays will be used under items of small plant during refuelling or any repair works which may lead to accidental spillage of hydrocarbons.
- Any gas bottles will be stored in a caged area at a secure location on the site.
- Temporary oil and fuel storage tanks, if necessary, may be kept in a material storage area in suitable containers and will be stored on appropriately bunded spill pallets capable of retaining a volume of equal to or greater than 1.1 times (>110%) capacity of the containers stored on them. In the event of a filling spillage excess oil or fuel will be collected in the bund

Construction and Cementous Materials Proposed Mitigation Measures

Fresh concrete is very alkaline and can cause serious pollution in water bodies. It is essential to ensure that the use of wet concrete is carefully controlled so as to minimise the risk of any material entering the water.

- A washdown area will be provided on site, if necessary, for trucks to use after delivery of concrete or on return to the batching plant. This area will be adequately bunded to mitigate the risk of contaminated runoff to the site and surrounding area. Washdown runoff will be appropriately treated prior to discharge.
 - Wash-out areas on site will be properly designed as an impermeable slab with a peripheral drain system.
 - Wash-out of vehicles shall not be located within 10 metres of any temporary or permanent drainage features
-

Wastewater or Sanitation Contaminants Proposed Mitigation Measures

- During the construction phase potential contamination incidents arising from welfare facilities will be addressed in a similar manner to other contamination incidents whereby issues identified will be isolated and addressed in an efficient and timely manner. Site welfare facilities will connect to existing foul sewer system (in consultation with and authorized by Irish Water) or use bunded porta-loos.

Surface Water Contamination

- Before works commence a detailed survey of surface water/storm water drainage system is required. During the construction phase of the Development, the use of oil booms and, if necessary, a silt settlement tank will reduce the risk contamination of surface water run-off.

Operation Phase**Increased Hydraulic Loading**

Mitigation measures for protecting the site from direct flooding can be achieved through the use of Sustainable Urban Drainage Systems which reduce the impacts of increases to hydraulic loading on or near the site. Some SuDS measures have been outlined in detail in **Table 10.13**. These mitigation measures will be developed, modelled and tested in the form of an advance Flood Risk Assessment.

Table 21.5: Monitoring Measures for Hydrology & Hydrogeology**Construction Phase**

Weekly sampling is proposed during the construction phase, given the close proximity of works to a receptor, as well as sampling following an event such as heavy rainfall or an accidental spillage. Analysis for total suspended solids, pH and total petroleum hydrocarbons would allow for the detection of sediment loading, concrete pollution or spillages of hydrocarbons. Appropriate parameter thresholds will be established with a view to monitoring water quality and escalating emergency responses as necessary. This will include, as a minimum;

- Total Suspended Solids (TSS) will be <25mg/L TSS

In areas of intensive groundworks, continuous monitoring stations will be established. Data will be available to view in real time and alarms established for parameter thresholds.

Operation Phase

No monitoring proposed.

Mitigation and Monitoring Measures for Chapter 11 Air & Climate

Table 21.6: Mitigation Measures for Air & Climate

Construction Phase
Communications • Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. • Display the name and contact details of people accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager. • Display the head or regional office contact information.
Dust Management • Develop and implement a Dust Management Plan, which may include measures to control other emissions, to be approved by the Local Authority. The level of detail will depend on the risk and should include at a minimum the highly recommended measures. The desirable measures should be included as appropriate for the site. The Construction Environmental Management Plan may include monitoring of dust deposition, dust flux, real-time PM10 continuous monitoring and/ or visual inspections.
Site Management • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or air emissions, either on- or off site and the action taken to resolve the situation in the logbook.
Preparing and maintaining the site • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. • Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods.

-
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
 - Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicles/Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas.
- Produce a construction logistics plan to manage the sustainable delivery of goods and materials.
- Implement a travel plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- No bonfires or burning of waste material.

Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
-

- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate to cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.

Specific to Construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

Specific to Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.
- Avoid any dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site logbook.
- Install hard surfaced haul route, which are regularly cleaned and damped down with fixed or mobile sprinkler systems, or mobile water bowsers.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

Operation Phase

It is considered unlikely that the development would introduce additional sensitive receptors into an area of known poor air quality and the development is not anticipated to have a significant impact on local air quality. Therefore, no specific operational phase mitigation measure is considered to be required.

Table 21.7: Monitoring Measures for Air & Climate

Construction Phase

- Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log

available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary.

- Carry out regular site inspections to monitor compliance with the dust management plan, record inspection results, and make an inspection log available to the local authority when asked.
 - Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
 - Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations and duration (including baseline monitoring) with the local authority.
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Mitigation and Monitoring Measures for Chapter 12 Noise & Vibration

Table 21.8: Mitigation Measures for Noise & Vibration

Construction Phase					
• Use of a site hoarding, minimum 2.4m height to be erected around the northern perimeter of Character Area 2 – Old Railway Lands site, for the duration of works where the distance of works is 30m or less to nearby noise sensitive locations. • Limiting the hours of construction to the following:<table><tr><td>Monday to Friday</td><td>07.00 – 19.00</td></tr><tr><td>Saturday</td><td>07.00 – 13.00</td></tr></table> • In exceptional circumstances, and subject to agreement with the Local Authority, extended hours of operation may be applied for. In such instances an assessment of potential noise impacts shall be carried out in advance of works taking place, and submitted to the Local Authority, as part of the extended hours request. • Monitoring levels of construction noise and vibration at the closest noise sensitive location to the north of the proposed Railway lands site. • Maintaining site access roads even so as to mitigate the potential for vibration from lorries. • Selection of plant with low inherent potential for generation of noise and/ or vibration.		Monday to Friday	07.00 – 19.00	Saturday	07.00 – 13.00
Monday to Friday	07.00 – 19.00				
Saturday	07.00 – 13.00				

- Erection of barriers as necessary around items such as generators or high duty compressors.
- Situate any noisy plant as far away from sensitive properties as is reasonably practicable and the use of vibration isolated support structures where necessary.
- Establishing channels of communication between the contractor/developer, Local Authority and residents.
- Appointing a site representative responsible for matters relating to noise and vibration.

Operation Phase

Industrial / Commercial Plant Noise

- Where necessary noise mitigation measures shall be installed in order to ensure that the stated plant noise limits are not exceeded, such measures may include attenuators to the atmosphere side of supply/extract fans, acoustic barrier screens / louvres to external plant.

Additional Road Traffic Noise on Public Roads

- During the operational phase of the development, noise mitigation measures with respect to the traffic from the development are not deemed necessary.

Recreational Noise from the proposed new Amenity / Activity areas

- During the operational phase of the development, noise mitigation measures with respect to noise from amenity / activity areas on site are not deemed necessary.

Car Parking on Site

- During the operational phase of the development, noise mitigation measures with respect to car parking on site are not deemed necessary.

Monitoring Measures for Noise & Vibration

Table 21.9: Monitoring Measures for Noise & Vibration

Construction Phase

The appointed contractor will monitor level of noise and vibration at the closest noise sensitive location to the north of the proposed Railway lands site.

Operation Phase

No additional monitoring is proposed for the operational phase of the proposed development.

Mitigation and Monitoring Measures for Chapter 13 Material Assets (Waste)

Table 21.10: Mitigation Measures for Material Assets (Waste)

Construction Phase
• Onsite segregation of waste materials into concrete, rubble, Plasterboard, metals, glass and timber. • Any hazardous wastes produced will be stored separately. • All waste materials will be stored in skips or other suitable receptacles and appropriately labelled. • Reuse of left-over materials where possible (e.g. timber off cuts, broken concrete) • A waste manager/site representative will be appointed to ensure waste management procedures are followed. • All waste leaving the site will be reused, recycled or recovered where possible. • All waste leaving the site will be recorded and accounted for with all relevant documentation maintained.
Operation Phase
• The segregation of waste materials including Organics, dry mixed recycling, mixed non-recycling, glass, WEEE and cleaning chemicals. • All wastes will be stored in appropriate containers and colour coded. • All applicable waste leaving the area will be reused, recycled or recovered where possible. • All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities. • All waste leaving the site will be recorded and copies of relevant documentation maintained.

Table 21.11: Monitoring Measures for Material Assets (Waste)

Construction Phase
It is important that during the construction phases of the development that the waste generation volumes are calculated, recorded and compared to the targets outlined. A competent and trained waste manager/site representative should be appointed. It is recommended that it is their responsibility to monitor and track the waste volumes

being generated. It is also their responsibility to ensure that all contractors and sub-contractors are segregating waste as required.

Operation Phase

No mitigation measures proposed.

Mitigation and Monitoring Measures for Chapter 14 Material Assets (Traffic & Transportation)

Table 21.12: Mitigation Measures for Material Assets (Traffic & Transportation)

Construction Phase

Construction Traffic Management Plan

- A detailed Construction Traffic Management Plan, which will incorporate the relevant traffic management measures included for in the Outline Construction Management Plan, will be finalised for the construction stage of the project by the Contractor. This Plan will include the following transport-related measures:
- Working hours that will avoid any significant staff trips during peak hours.
- Appropriate amount of car parking for construction staff to mitigate any potential car parking overspill onto the surrounding residential areas
- The separation of construction traffic from general traffic where possible and necessary.
- The management and marshalling of construction vehicles when required.
- The Contractor will be required to implement a Mobility Management Plan for its staff, where travel by sustainable modes and car-pooling will be encouraged.
- The Contractor will ensure that the proposed works are carried out in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013).

Operation Phase

Active Travel Strategy

It is recommended that an Active Travel Strategy is prepared for the operation phase of the proposed development. This Strategy should encourage use of sustainable transport measures during the operational phase and should relate to all future developments within the Ardee area in order to form part of the wider mitigation measures (e.g. strategy highlighting the proximity of local services, public transport

provision, schools and walking/cycle distances to same, etc). Full details on the details that should be included within the Active Travel Strategy are set out in Chapter 14.

Table 21.13: Monitoring Measures for Material Assets (Traffic & Transportation)

Construction Phase

A detailed Construction Traffic Management Plan will be proposed for the proposals, and this will be monitored and amended where necessary during the course of the works. The plan will be finalised for the construction stage of the project by the Contractor and will address all transport-related measures.

Operation Phase

The implementation of an Active Travel Strategy for Ardee would encourage use of sustainable transport measures during the operational phase and should relate to all future developments within the Ardee area in order to form part of the wider mitigation measures. This should be updated on an ongoing basis.

Mitigation and Monitoring Measures for Chapter 15 Material Assets (Site Services)

Table 21.14: Mitigation Measures for Material Assets (Site Services)

Construction Phase

General

- Prior to construction, drainage networks, electrical cabling, gas pipelines, and telecommunications infrastructure will be recorded and incorporated into the detailed design of the scheme to avoid any clashes where possible.
- Any service diversions required will be designed and constructed in accordance with the requirements and under the supervision of the relevant utility provider. Businesses and residents will be notified in advance of any service disruptions.
- Contractors will be provided with service maps and the utility mapping survey prior to Construction. Services shall be traced on the ground with a cable avoidance tool (CAT) or similar by the Contractor. Where service locations are still not known or confirmed, the Contractor may be required to excavate trial pits to confirm locations and depths as necessary.

Operation Phase

No mitigation is required.

Monitoring Measures for Material Assets (Site Services)

- 21.5 No monitoring measures are required during the construction or operation phases of the project.

Mitigation and Monitoring Measures for Chapter 16 Cultural Heritage and Archaeology

Table 21.15: Mitigation Measures for Cultural Heritage and Archaeology

Construction Phase	
Archaeology	
• All groundworks associated with the proposed scheme, carried out beneath the modern road/footpath surface and within greenfield areas, will be monitored by a suitably qualified archaeologist. This work will be carried out under Ministerial Consent due to the proximity of the National Monument (Town Defences LH017-101001). The locations of the town walls and former gates are considered to have high archaeological sensitivity and all construction staff will be made aware of the potential for remains to exist at these locations in advance of works. • If any features of archaeological potential are discovered during the course of the monitoring further archaeological mitigation may be required, such as preservation in-situ or by record. Any further mitigation will require approval from the National Monuments Service of the DoHLGH. • Protective measures, such as temporary signage or appropriate fencing, should be established around the upstanding structural remains of the medieval castles LH017-101015 and LH017-1018 in advance of construction to avoid any indirect impacts.	
Cultural Heritage	
• No further mitigation is required in relation to the townland boundaries as no impacts are predicted. • The commemorative plaques will be removed and stored carefully to be re-erected following the completion of works. No further mitigation is required.	
Operation Phase	
No mitigation measures required.	

Monitoring Measures for Cultural Heritage and Archaeology

- 21.6 The mitigation measures recommended in Table 21.14 would also function as a monitoring system during construction to allow the further assessment of the scale of the predicted impacts and the effectiveness of the recommended mitigation measures.

Mitigation and Monitoring Measures for Chapter 17 Architectural Heritage

Table 21.16: Mitigation Measures for Architectural Heritage

Construction Phase
• Prior to the start of construction on site, a photographic record should be made to document the current condition and appearance of all structure and landscape features withing and abutting the proposed developments. • Detailed Method Statements should be prepared during the detail design/tendering stage, to provide clear instructions to the contractors in relation to preventing any damage to existing structures or other landscape features through the use of hoarding, sheeting, guarding's and work methods.
Operation Phase
N/A

Monitoring Measures for Architectural Heritage

- 21.7 No monitoring measures have been deemed to be necessary during the construction or operation phase of the development.

Mitigation and Monitoring Measures for Chapter 18 Landscape & Visual Impact

Table 21.17: Mitigation Measures for Landscape & Visual Impact

Construction Phase
The key mitigation measures are those standards to best practice construction site management but the significance of effects can be limited by implementing the following strategies:- • All activities will be subject to pre-planned method statements in accordance with appropriate legislation in particular Construction Design and Management Regulations and Management of Health and Safety at Work Regulations; • Erection of temporary hoarding around construction areas to clearly delineate working areas and protect public from the works. Hoardings will be maintained in good condition throughout this stage; • Lighting will be maintained in good order and provided where necessary to ensure sufficient illumination. Precautions will be taken to ensure no shadows are cast by hoardings or building works onto pavement or road areas. Internal construction lighting will be angled so that it does not cause nuisance to adjacent properties or carriageways; • Careful siting of construction machinery, materials and welfare facilities to avoid unnecessary impacts on adjacent areas;

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- Ensuring the streets or roads providing access to the work are maintained free of dust and mud as far as possible and that any damaged surfaces are made good; and
 - To have effective site and litter management systems in place from the outset to ensure a clean, tidy and presentable image.

Operation Phase

The potential townscape and visual effects of the proposal in the operational phase have been classified as positive on the basis that the overriding nature of the project is to improve the townscape, public realm and visual amenity of Ardee. No negative effects have been identified and therefore no mitigation measures are required for townscape and visual effects.

Table 21.18: Monitoring Measures for Landscape & Visual Impact

Construction Phase

No monitoring required

Operation Phase

No monitoring required
