On Behalf of Monaghan County Council

Dublin Street North, Monaghan

Vol I – Main Report

Ref. 139 - 013

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1 Introduction & Background

1.1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared on behalf of Monaghan County Council (MCC) in support of a planning application to An Bord Pleanála (ABP) under Section 175 of the Planning and Development Act 2000, as Amended ('The Act') seeking full planning permission for the proposed regeneration of Dublin Street North and its backland areas. The proposals seek to deliver the first phase of that envisioned within the Dublin Street North Regeneration Plan (Variation No. 3 of the Monaghan County Development Plan 2019-2025). The sites' location can be summarised more specifically as Dublin Street, Old Cross Square and lands to the north-east of Dublin Street (including the Diamond Centre car park). The site is situated in Monaghan town centre and the townlands of Roosky and Tirkeenan, County Monaghan.

1.2 The Proposed Development

The application Is seeking planning permission for the regeneration of land at Dublin Street, the back lands to the north-east of Dublin Street, The Diamond Centre car park and Old Cross Square, Monaghan. A Site Location Plan illustrating the boundaries of the proposed development can be found at Volume II.

Throughout the EIAR and Drawings, the names 'Russell Row' and 'St Davnet's Row' are used to describe, respectively, the proposed new street between Diamond Centre Car Park and Old Cross Square, and the new pedestrian / cycle path to the east of the site, connecting Old Cross Square, the proposed Community Garden, and MCC's proposed Civic Offices Scheme.

The names Russell Row and St Davnet's Row are derived from the Dublin Street North Regeneration Plan (adopted April 2022) and are used for ease of reference and description of the scheme. It should be noted that MCC has not yet confirmed the proposed new street / path names.

A full description of the development, location and characteristics can be found at Chapter 4 of this EIAR. The proposed Site Layout can be found at Volume II, in summary the project can be described as follows:

1. Creation of new central street to the rear of properties fronting Dublin Street (connecting Diamond Centre Car Park with Old Cross Square), provision of car park/temporary event space and regrading of land to accommodate future development.

2. Creation of new public park with associated pedestrian paths, landscaping and lighting.
3. Public realm improvements along Dublin Street (within Dublin Street Architectural Conservation Area) to include resurfacing, new pedestrian pavements (including widening) and relocation of on-street car parking spaces.
4. Public realm improvements to Old Cross Square to include the creation of urban civic spaces, pedestrian pavements, cycle routes, street furniture. Relocation of Old Cross Monument (Scheduled Monument Record and Protected Structure)
5. Public realm enhancements at Diamond Centre Car Park to include reconfiguration of car parking, resurfacing, cycle infrastructure and associate street furniture.
6. Reinforcement of existing vegetation and new soft landscaping throughout, new boundary treatments, street lighting, sustainable urban drainage systems (raingardens and permeable surfacing).
7. Upgrading and installation of new utility services and CCTV.
8. Demolition of buildings and structures located at Unit 1 & Unit 2 Old Cross Square and to the rear (north-east) of No. 32-62 Dublin Street including a structure within the curtilage of No. 57 Dublin Street (Protected Structure) and No. 4 The Diamond Centre. Reconstruction of building elevations where required.
9. All other associated site and developments works.

The application is also accompanied by a Natura Impact Statement (NIS).

Environmental Impact Assessment (EIA) Screening (See Section 1.3.1) was the first stage of the EIA process. The Screening confirmed that an EIAR is required and a Scoping Request to ABP followed in May 2024. A Scoping Response was received from ABP in August 2024. Full details of ‘Scoping and Consultation’ can be found at Chapter 5.

1.3 EIAR Background

1.3.1 EIAR Screening

Legislation set out within the Annex 1 and 2 of the EUs Environmental Impact Assessment (EIA) Directive (2011/92/EU as amended by 2014/52/EU) have been transposed into the Planning and Development Regulations 2011, as amended (the Regulations’).

Article 172 of the Act states that an EIA shall be carried out by the planning authority or the Board in respect of an application for consent for proposed development where the thresholds as set out at Part 1 and 2 of Schedule 5 of the Regulations are exceeded.

It is considered that the proposed development falls within Category 10(b)(Vi) of Part 2, Schedule 5 of the Regulations:

"***10. Infrastructure Project:***

(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".

In this context "business district" means a district within a city or town in which the predominant land use is retail or commercial use.

The proposals are located within Monaghan Town Centre where the predominant land uses are retail and commercial. As such, the site is located within a 'business district' and the area is than 2ha, therefore an EIAR is required. As the project is being proposed by MCC, the planning application must be made to ABP under Section 175(3) of the Act.

This EIAR has been coordinated by CARLIN Planning with input from a number of specialist consultants who are listed Section 2.6 and named in the relevant sections.

1.3.2 Scoping

Following conclusions of the screening determination referred to at Section 1.3.1 a scoping determination seeking a written opinion on the information to be contained within the EIAR was sought from ABP under Article 117 of the Regulations. The findings of the scoping determination are set out in further detail at Chapter 5.

2 Structure & Content of EIAR

This EIAR supports an application to ABP under Section 175 of the Planning and Development Act 2000 (as amended) which will seek full planning permission for the proposed regeneration of Dublin Street North and its back land areas within Monaghan Town Centre, Co. Monaghan.

The EIAR will follow the guidelines contained in the EPA publication “Guidelines on information to be contained in Environmental Impact Assessment Report, May 2022” and will contain all information required under Schedule 6 of the Regulations.

2.1 Legislative Context (EIAR)

2.1.1 EIA Directive (2011/921ELJ and 2014/52/EU)

The EIA Directive (2014/52/EU) (the EIA Amendment Directive) was adopted by the Council of the European Union (EU) in April 2014. The EIA Directive amended Directive 20111921ELJ which detailed the criteria for assessing the effects of certain public and private projects on the environment. Article 2 of the EIA Amendment Directive required all Member States to bring the Directive into force by 16th May 2017. The Directive has been transposed into the Regulations which is discussed at Section 2.1.2.

The intention of the EIA Amendment Directive was to clarify aspects of the preceding Directive 2011/921ELJ so that it would be in accordance with the intervening European Court of Justice (ECJ) judgements and introduced additional provisions and procedural options. This means that compliance with the EIA Amendment Directive will ensure compliance with Directive 2011/921ELJ. In Ireland, the EU (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (SI 296 of 2018), came into effect on the 1st September 2018 and gave effect to Directive 2011/92/EU as amended by the EIA Amendment Directive.

An EIAR is key component of the EIA process. It provides a description of:

a) The baseline environment.
b) Identification of the potential effects (if any - both positive and negative) that are predicted to be incurred as a result of the proposed development; and,
c) A description of any control and mitigation measures required to avoid, reduce or eliminate such potential effects.

The EIA Directive and its implementing Regulations (as set out at Section 2.1.2) requires that an EIA must identify, describe, and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of a project on the following factors and the interaction between those factors:

- Population and human health.
- Biodiversity, and in particular species and habitats protected under Council Directives 92/43/EEC (the Habitats Directive) and 2009/147/EC (the Wild Birds Directive).
- Land, soil, water, air and climate.
- Material assets, cultural heritage and the landscape.

2.1.2 EIA Guidance

This EIAR has been prepared in accordance with the requirements of the following legislation:

- Planning and Development Act, 2000 (as amended).
- Part 11 of the first Schedule of the European Communities (Environmental Impact Assessment (EIA)) (Amendment) Regulations, 1999 S.I. No. 93 of 1999).
- The Local Government Planning and Development Regulations 2001 — 2018 (S.I. No. 600 of 2001, and subsequent amending legislation); and,
- European Union (EU) (Planning and Development) (Environmental Impact Assessment) Regulations, 2018.

The following guidance has been considered in preparing the EIAR:

- EPA Advice notes on current practice in the preparation of Environmental Impact Statements (EPA, 2003).
- EPA Guidelines on the information to be contained in Environmental Impact Statements (EPA, 2002).
- European Commission Interpretation of definitions of project categories of Annex I and II of the EIA Directive (European Commission, 2015).
- European Commission Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017) (European Commission, 2001a).
- EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft) (EPA, 2022).

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2017) (Department of Housing.
- EPA Guidance on Soil & Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations 2011 (Environmental protection Agency (EPA), 2011).

2.1.3 Planning and Development Regulations

Schedule 6 of the Planning and Development Regulations sets out the information that should be contained within an EIAR – this is summarised in Table 2.1 below:

Table 2.1 Information to be contained within an EIAR

Information to be contained within an EIAR	
1.	a) A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development.
	(b) A description of the likely significant effects on the environment of the proposed development.
	(c) A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development.
	(d) 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.
2.	Additional information, relevant to the specific characteristics of the development or type of development concerned and to the environmental features likely to be affected, on the following matters, by way of explanation or amplification of the information referred to in paragraph 1:
	(a) a description of the proposed development, including, in particular— (i) a description of the location of the proposed development, (ii) a description of the physical characteristics of the whole proposed development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases, (iii) a description of the main characteristics of the operational phase of the proposed development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used, and (iv) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases;

Information to be contained within an EIAR	
	(b) a description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) 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 selecting the chosen option, including a comparison of the environmental effects;
	(c) a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge;
	(d) a description of the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act likely to be significantly affected by the proposed development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydro morphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape;
	(e) (i) a description of the likely significant effects on the environment of the proposed development resulting from, among other things: (I) the construction and existence of the proposed development, including, where relevant, demolition works, (II) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources, (III) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste, (IV) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters), (V) the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources, (VI) the impact of the proposed development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change, and (VII) the technologies and the substances used, and

Information to be contained within an EIAR	
	(ii) the description of the likely significant effects on the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act 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 proposed development, taking into account the environmental protection objectives established at European Union level or by a Member State of the European Union which are relevant to the proposed development;
	f) a description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved;
	g) 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;
	h) a description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events.

2.2 Methodology

Information contained within the EIAR will address the legislative requirements which requires that an environmental impact assessment must identify, describe, and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of a project on the following factors and the interaction between those factors:

- Population and human health.
- Biodiversity, and in particular species and habitats protected under Council Directives 92/43/EEC (the Habitats Directive) and 2009/147/EC (the Wild Birds Directive).
- Land, soil, water, air and climate.
- Material assets, cultural heritage and the landscape.

The findings of the EIA will be informed by a staged approach methodology. Each stage of the process and what it entails has been listed below. A staged approach has been undertaken in order to ensure that all aspects of the environment with potential to be impacted by the proposal have been considered fully.

1. **Scoping / Consultation Exercise**: This exercise has been designed to gather important background information about the area which will in turn help to identify any potential issues or constraints that need to be considered.
2. **Baseline Survey**: This part of the methodology is intended to build upon the information and data that was gathered at the scoping and consultation stage. This stage will involve walk-through site visits, detailed specialist surveys and discussions with statutory and non-statutory consultees to determine the nature of the existing environment.
3. **Identification of Potential Significant Effects**: This stage will involve analysis of the information and data gathered from the consultation and survey stages and identifying the potential significant effects the proposed development could have on the environment. The potential effects to be considered will include those that may arise during the construction or operational phase of the scheme. From this, the basis of potential mitigation strategies will be formed.
4. **Mitigation**: Within this stage, the proposed mitigation strategies will be developed further. It will be important to ensure that these strategies continuously evolve as the development progresses so that the environment is protected. On-going review and evaluation will be required.
5. **Monitoring**: The identified issues / constraints and the established mitigation strategies will be monitored throughout the construction and operational phases of development. It is noted here that there may be some need for

alteration to the mitigation strategies depending on how the environment is impact throughout the process. As noted above, it is therefore essential that the mitigation strategies are designed to evolve.

6. **Residual and Cumulative Effects**: Within this stage, the effects of the proposal on the environment will be assessed cumulatively alongside other existing and approved development on the environment.
7. **Reporting**: Following on from the above, an EIAR will be prepared and will take the following structure:

Table 2.2 EIA Report Structure

Non-Technical Summary	
Volume I: Main Report	
Chapter	**Chapter Title**
1	Introduction & Background
2	Structure & Content of EIAR
3	Planning Policy Context
4	Proposed Site Description
5	Scoping & Consultations
6	Noise & Vibration
7	Soils, Geology & Hydrology
8	Hydrology
9	Biodiversity
10	Material Assets, Land Use & Waste
11	Air Quality, Emissions & Climate
12	Population & Human Health
13	Cultural & Architectural Heritage
14	Townscape & Visual Impact
15	Interactions
Volume II: Drawings	
Volume III: Appendices	

2.2.1 Assessment of Significance

This EIAR provides all the information contained within Schedule 6 of the Regulations. The EIAR Team comprises a multi-disciplinary team of consultants and professionals (Section 2.6) who in assessing a topic will conclude if the proposed development is likely to have any significant effects on the environment. The following methods will be employed:

1. Professional judgement and experience based on published guidance criteria
2. Assessment of both temporary and permanent effects
3. Assessment of cumulative impacts
4. Assessment of duration, frequency and reversibility of effects
5. Assessment against local and national planning policy
6. Consultation with statutory and non-statutory consultees

The assessment of 'significance' will be assessed consistently throughout the EIAR and will be based on the both the magnitude of the impact, the consequences of the impact and the permanence (irreversibility), of the "***likeliness of a significant environmental impact***" as described within the EPA Guidelines (2022) '*Guidelines on the information to be contained in an Environmental Impact Assessment Report (EIAR)*'.

Table 2.3 'Table 3.4' of the EPA Guidelines "Description of Effects"

Description of Effects		
Quality of Effects	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).
Describing the 'significance' of Effects	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.

Description of Effects		
	Very Significant	An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
	Imperceptible	An effect capable of measurement but without significant consequences.
Describing the extent and context of effects	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?)
Describing the probability of effects	Likely	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Describing the Duration and Frequency of Effects	Momentary Effects	Effects lasting seconds to minutes
	Brief Effects	Effects lasting less than a day
	Temporary Effects	Less than a year
	Short-term Effects	Effects lasting 1-7 years
	Medium-term Effects	Effects lasting 7-15 years
	Long-term Effects	Effects lasting 15-60 years
	Permanent Effects	Effects lasting 60+ years
	Reversible Effects	Effects that can be undone through remediation or restoration
	Momentary Effects	Effects lasting seconds to minutes

Description of Effects		
Describing the types of effects	Indirect	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	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).

2.2.2 Determining Significance

As set out in the table above (Table 2.3), there are seven generalised degrees of effect significance that are commonly used in an EIA. Figure 2.1 below illustrates how comparing the character of a predicted effect to the sensitivity of the receiving environment can determine the significance of an effect:

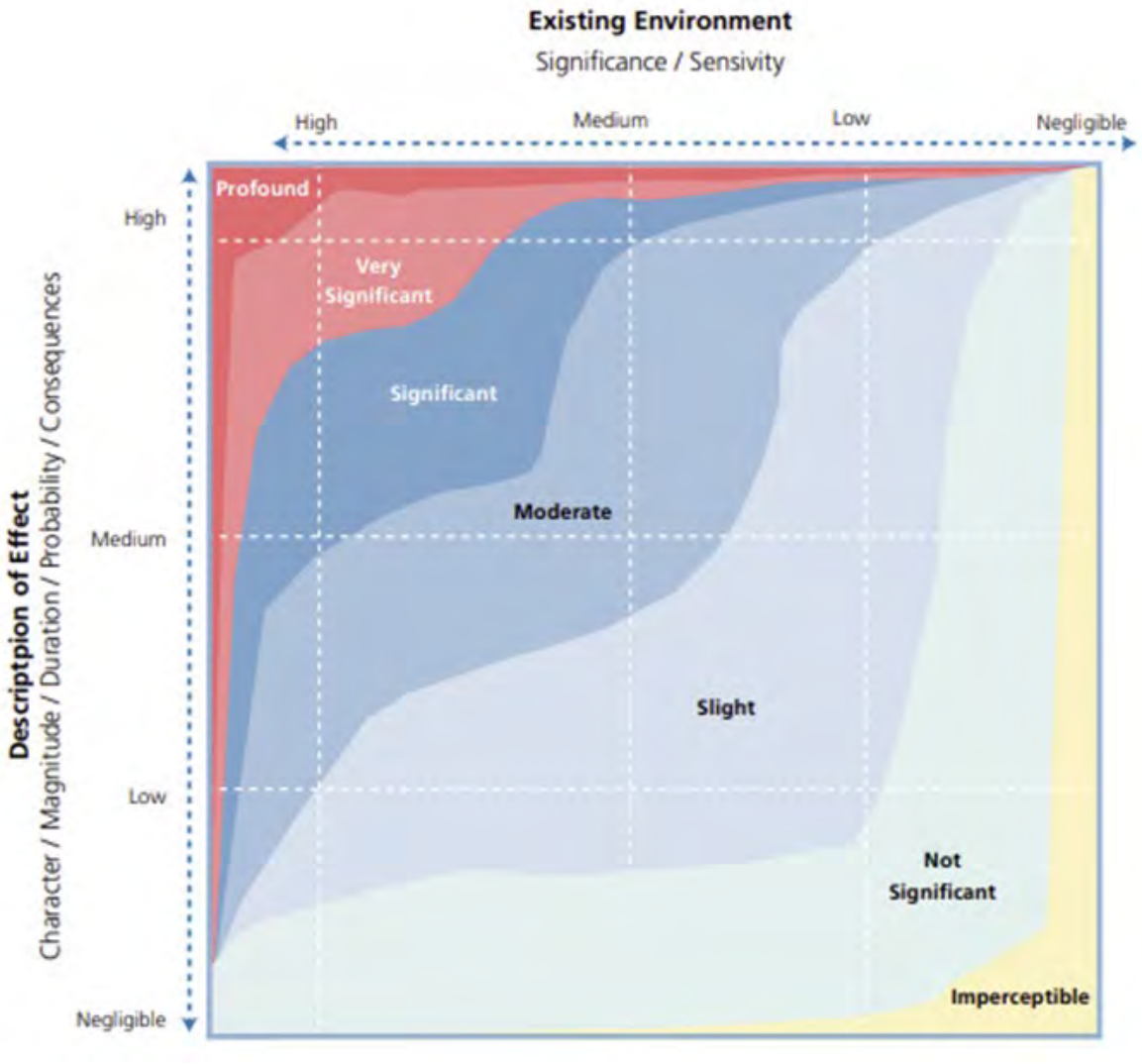


Figure 2.1 EPA Guidelines 2022, 'Figure 3.4' Extract - Criteria for Determining Significance

2.2.3 Cumulative Effects

The EIAR will consider and assess the potential cumulative effects arising from the proposed development in association with other development.

The EIA Directive 2014/52/EU States at Annex III that:

"***The likely significant effects of projects on the environment must be considered… taking into account [inter alia] the cumulation of the impact with the impact of other existing and/or approved projects***".

Annex IV goes on to state that;

"***A description of the likely significant effects of the project on the environment resulting from [inter alia], the cumulation of effects with other existing and/or approved projects,***

taking into account any existing environmental projects relating to area of particular environmental importance likely to be affected or the use of natural resources".

Consideration has also been given the EIAR Guidelines 2022, which states under Section 3.7.3 (Page 54, Paragraph 3-4):

"***the addition of many minor or insignificant effects, including effects of other projects to create larger, more significant effects.***

While a single activity may itself result in a minor impact, it may when combined with other impacts (minor or insignificant), result in a cumulative impact that is collectively significant. For example, effects on traffic due to an individual project may be acceptable; however, it may be necessary to assess the cumulative effects taking account of traffic generated by other permitted or planned projects. It can also be prudent to have regard to the likely future environmental loadings arising from development of zoned lands in the immediate environs of the project"

Cumulative impacts will be assessed in each chapter in respect of impacts resulting from the accumulation of impacts generated by the proposed development in associated with other projects and developments.

In determining what other projects to be included, guidance contained within the European Commission (EC) Guidelines for the Assessment of Indirect and Cumulative Impacts (1999) is relevant. The first step in determining cumulative effects is identifying:

1. Projects which may have the potential to overlap with the proposed development based on available information
2. Projects which an application for approval has been submitted or granted approval
3. Projects whose impacts could potentially overlap with the construction and/or operation of the proposed development.

Table 4.1 sets out the projects and development that will be considered cumulatively with the proposals across each chapter. These are identified as those projects which are:

1. Under Construction.
2. Permitted, but not yet implemented.
3. Submitted, but not yet determined.
4. Identified in the development plan (recognising that much information on the proposals is limited)

2.2.4 Consideration of Alternatives

As per the EIA Directive – Annex IV, Article 2 of the Directive 2014/52/EU, the following is considered:

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

The assessment of alternatives for the purposes at this stage of the development have considered, where relevant, a 'do nothing' scenario, alternative locations, alternative layouts, alternative designs and alternative mitigation measures.

2.3 Mitigation

Where mitigation is required, this will be prioritised in line with the EPA Guidelines (2022) (see Figure 2.2).

All mitigation will be fully incorporated into the permitted design and operations of the project and will take the form of the established strategies for mitigation of effects such as 'avoidance', 'prevention' and 'reduction'. These forms of mitigation can be described as follows:

Avoidance: usually referring to strategic issues – such as site selection, site configuration or selection of process technology - is generally the fastest, cheapest and most effective form of effect mitigation. Environmental effects and the consideration of alternatives need to be taken into account at the earliest stage in the site / route selection and project design processes. For example, the realignment of a transport corridor to avoid residential property, avoid habitat destruction or to reduce agriculture severance, etc. In many situations, mitigation by avoidance may be viewed as part of the 'consideration of alternatives'.

Prevention: This usually refers to technical measures. Where a potential exists for unacceptable significant effects to occur (such as noise or emissions) then measures are put in place to limit the source of effects to a permissible and acceptable level. Examples include the specification of process technology standards or building design to minimise height or contrasts of materials. Prevention measures are also put in place to prevent the effects of accidental events from giving rise to significant adverse effects. The installation of a fire-water retention basin is an example of mitigation against such risk by prevention.

Reduction: This is a very common strategy for dealing with effects which cannot be avoided. It tends to concentrate on the emissions and effects and seeks to limit the exposure of the receptor. It is generally regarded as the 'end of pipe' approach because it tends not to affect

the source of the problems. As such this is regarded as a less sustainable, though still effective, approach. It monitors and controls them so that acceptable standards are not exceeded. Examples include wastewater treatment, filtration of air emissions and noise attenuation measures. Reducing Exposure to the Effects This strategy is used for effects which occur over an extensive and undefined area. Such effects may include noise, visual effects or exposure to accidents or hazards. The mitigation is achieved by installing barriers between the location(s) of likely receptors and the source of the effects.

Offsetting can be considered as a type of mitigation measure, however, will only be considered as a last resort. It is the strategy for dealing with significant adverse impacts which cannot be avoided, prevented or reduced and includes measures that would compensate for adverse effects.

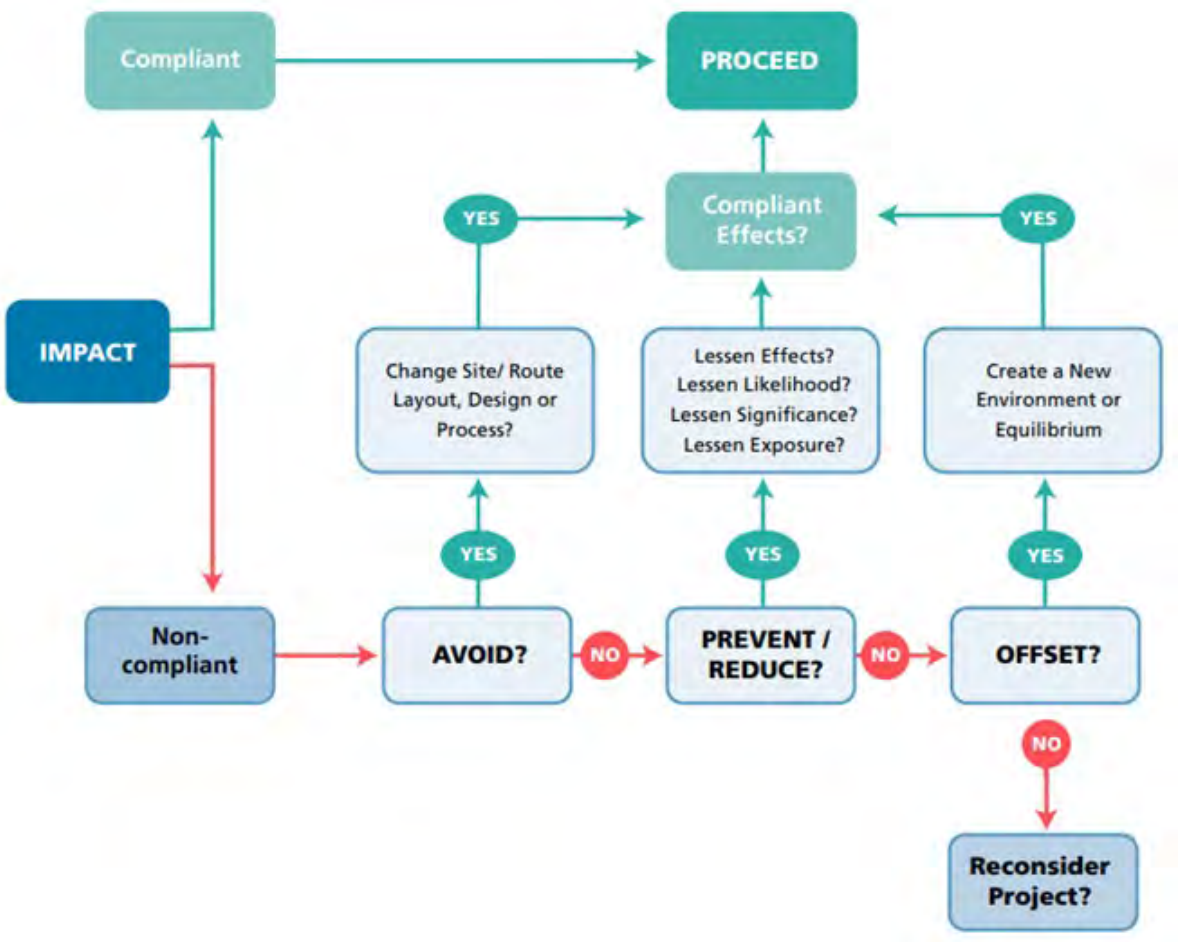


Figure 2.2 Strategies for Identification of Appropriate Mitigation or Offsetting Measures Leading to a Decision to Proceed with the Project (EPA, 2022)

2.4 Accidents and Major Disasters

As per the EPA Guidance (2022) the risk of accidents and unplanned events which may be caused or have an impact on the proposed development will be assessed against the relevant environmental factors. It is considered that the potential for major accidents and major disasters is assessed in relation to water quality, soils and contaminated land, biodiversity, air quality and climate.

2.5 Appropriate Assessment

An Appropriate Assessment (AA) screening is required for all developments in order to identify all potential source-pathway-receptor linkages to EU Natura 2000 designations and to consider the likelihood to significant impacts as a result of the development proposals during construction and operational phases of development.

A review of all designated and protected sites was undertaken for a 15km radius of the proposed development area. NPWS datasets indicate no Special Arears of Conservation (SAC), Special Protection Areas (SPA), Natural Heritage Areas (NHA) or proposed NHA designations are recorded inside the land uptake area, nor are there any nationally or locally recognised sites of importance identified within the assessment area. An Appropriate Assessment Screening accompanies this submission and considers the potential impacts on the Lough Neagh and Lough Beg SPA. Due to the hydrological connection between the River Shambles and the Lough Neagh and Beg SPA it was considered that regardless of the significant setback distance of 38km, in the absence of specific mitigation measures during the demolition and enabling works, groundworks and excavation phases, construction and operation phases of the development there is potential to impact on the Natura 2000 sites. A Natura Impact Statement (NIS) has been prepared, and mitigation identified to remove the potential for any adverse impact on the Lough Neagh and Lough Beg SPAs. The proposed mitigation is set out at Appendix 9.6.

2.6 Project Team

As required by Article 94 of the Act, the EIAR includes a list of experts who contributed to the preparation of the report. It identifies their competence and experience including relevant qualifications, such additional information in relation to their expertise that the persons preparing the EIAR consider demonstrates the expert’s competence in the preparation of the reports and ensure completeness and quality.

Table 2.4 Project Team

Party	Competency & Experience	Contribution
McAdam Design Ltd.	McAdam Design is an Engineering and Architecture Consultancy practice based in Belfast. The company provides Engineering, Architecture and Project Management services. **Ken O'Sullivan BEng (Hons)** *Technical Director* Ken has a BEng (Hons) in Civil Engineering and has over 20 years' experience in the field of Civil Engineering, and has delivered a wide range of projects, including urban regeneration schemes, public realm, environmental improvement schemes and greenways. **Eoin Heatley BDes (Hons) BArch (Hons) M.Arch MSc ARB** *Project Architect* Eoin is a project architect with a Bachelor of Design (with Honours), Bachelor's in Architecture, Masters in Architecture, Masters in Construction Project Management and registered with ARB.	Project Manager Chapter 4 Chapters 8 Chapter 11 Chapter 14 – Photomontages and Renders
CARLIN Planning Limited	CARLIN Planning is a Planning & Environmental Consultancy practice based in Belfast. The company provides planning, environmental and ecological services. **Kieran Carlin BSc (Hons) PgDip LLM MRTPI** *Director* Kieran has a BSc (Hons) in Environmental Planning, a PGdip in Spatial Regeneration, and a LLM in Environmental Law and Sustainable Development from Queen's University Belfast. Kieran is a Chartered Member of the RTPI.	Planning Consultant & EIA Coordinator Non-Technical Summary Chapter 1 Chapter 2 Chapter 3 Chapter 5

Party	Competency & Experience	Contribution
	John Scally MSc MRTPI *Principle Planner* John has a MSc in Planning and Property Development from Ulster University. John is a Chartered Member of the RTPI. **Richard McMichael MSc** *Planner* Richard has a MSc in Environmental Planning from Queen's University Belfast accredited by the RTPI. **Freddy Jones BSc (Hons) MSc** *Assistant Ecologist* Freddy has a BSc (Hons) in Environmental Science from the University of York accredited by the Institute of Environmental Sciences, and a MSc in Ecological Management and Conservation Biology from Queen's University Belfast. Freddy is a Qualifying member of CIEEM.	Chapter 10 – Land Use Chapter 12 Chapter 15
Layde Consulting	**John Laverty BSc (Hons) MIEnvSci** *Principle Environmental Scientist* John has a BSc (Hons) degree in Environmental Science and is a Full member of the Institute of Environmental Sciences. John has over 20 years of experience in research and the preparation of noise and vibration impact assessments, carrying out of ecological impact assessments and the preparation of hydrological impact assessments. John has worked with a range of private and	oCEMP Chapter 7 Chapter 8 Chapter 10 - Waste Chapter 11

Party	Competency & Experience	Contribution
	PLC companies and has gained extensive knowledge in the preparation and coordination of EIA Reports	
Alastair Coey Architects Ltd	**Maeve Gorman BSc BArch MRIAI RIBA ARB** *Conservation Architect* Maeve Gorman is an RIAI chartered architect accredited in conservation at Grade 3, an RIBA Conservation Architect and an affiliate member of the Institute of Historic Building Conservation. **Adrian Curran HNC DipBldgCons RICS** *Senior Architectural Technologist* Adrian holds a Royal Institute of Chartered Surveyors' Post Graduate Diploma in Building Conservation from Reading University and has been employed by Alastair Coey Architects as a senior architectural technologist since 1998.	Chapter 13
John Cronin & Associates	**Kate Robb BA (Hons) PgDip MA MIAI** *Senior Archaeologist & EIA Consultant* Kate is a qualified archaeologist and an EIA heritage consultant, having graduated from University of Galway with first class Hons. BA and MA degrees in Archaeology. She also attained a post graduate diploma in EIA/SEA Management from University College Dublin. With over 16 years' industry experience Kate has been involved in the preparation and production of Cultural Heritage EIAR. **Camilla Brännström MA MIAI** *Project Archaeologist*	Chapter 13

Party	Competency & Experience	Contribution
	Camilla is a licenced archaeologist, having graduated from Umeå University (Sweden) with a Hons. Master of Arts degree in Archaeology.	
SLR Consulting	**Anne Merkle Dipl.-Ing. (FH) MSc MILI TechArborA** *Principle Landscape Architect* Anne has a Dipl.-Ing. (FH) in Landscape Architecture from Nürtingen-Geislingen University (Germany) and a MSc in Biodiversity and Land Use Planning from NUI Galway. Anne is a Member of the ILI. Anne has 20+ years' experience working for landscape consultancies in Ireland, specialising in Landscape and Visual Impact Assessments for a wide range of projects.	Chapter 14
Gavin and Doherty Geosolutions	**Roy Harrison BSc (Hons) MSc CGeol EurGeol MIEnvSc FGS** *Land Quality Team Leader* Roy is a Chartered Geologist and Member of the Institution of Environmental Sciences with over 20 years' experience working in the sector.	Preliminary Risk Assessment Chapter 9
Hoy Dorman	**Martin Hoy BEng (Hons) CEng FIEI FICE FCIHT** *Director/Chartered Engineer* Martin Hoy is a Chartered Civil/Traffic Engineer, he holds a BEng Honours Degree in Civil Engineering with a Diploma in Industrial Studies, a Fellow of Engineers Ireland; a Fellow of the Institution of Civil Engineers; and Fellow of the Chartered Institution of Highways and Transportation. Martin Hoy has over thirty years' experience as a roads and transportation consultant with his career spanning both government and private practice.	Transport Assessment Chapter 10 - Traffic

3 Planning Policy Context

3.1 Introduction

The proposals have been developed in line with the relevant operational planning policy at a strategic and local level. Key planning policy considerations are set out within the following documents:

- Project Ireland 2040: National Planning Framework
- Regional Spatial and Economic Strategy for Northern Ireland & Western Regional Assembly 2019-2040
- Monaghan County Development Plan 2019-2024
    - Dublin Street North Regeneration Plan (Variation No. 3 to the Monaghan County Development Plan
    - Local Area Action Plan (LAAP) for lands to the Northeast of Dublin Street

Relevant policies and objectives that have influenced the scheme contained within the above documents can be found within the accompany Planning Statement prepared by CARLIN Planning. References to specific policies are also referred to throughout the relevant chapter.

This chapter will set out an overview of the policy objectives which has specifically influenced this scheme.

3.2 National Planning Framework 2040

The National Planning Framework (NPF) is the Government's long-term spatial strategy for shaping the future growth and development of the country to the year 2040, making provision for an additional one million people expected to be living in Ireland by 2040, as well as a further two thirds of a million jobs. It seeks to empower each region to lead planning and development in the communities by setting out national objectives and key principles that set the context for more detailed and refined plans at regional and local level.

In that context the proposed development will contribute to the delivery of a number of the National Strategic Outcomes and Priorities of the NPF and National Development Plan in facilitating:

- Compact growth
- Enhanced regional accessibility
- Strengthened rural economies and communities
- Sustainable mobility

- Enhanced amenity & heritage

Under the heading of '*Securing Compact & Sustainable Growth*', the NPF emphasises the importance of:

- The 'liveability' or quality of life of urban places – how people experience living in cities, towns and villages. This includes the quality of the built environment, including the public realm, traffic and parking issues, access to amenities and public transport and a sense of personal safety and well-being.
- Making the continuous regeneration and development of existing built-up areas as attractive and as viable as greenfield development.
- Tackling legacies such as concentrations of disadvantage in central urban areas through holistic social as well as physical regeneration and by encouraging more mixed tenure and integrated communities
- Well-designed public realm including public spaces, parks and streets, as well as recreational infrastructure are important in ensuring that our cities, towns and villages are attractive and can offer a good quality of life.

The NPF identifies that addressing economic resilience and connectivity will be strategy priorities, particularly for Monaghan. The proposals will be influenced by the following National Policy Objectives:

National Policy Objective 4	"Ensure the creation of attractive, liveable, well designed, high quality urban places that are home to diverse and integrated communities that enjoy a high quality of life and well-being".
National Policy Objective 6	"Regenerate and rejuvenate cities, towns and villages of all types and scale as environmental assets, that can accommodate changing roles and functions, increased residential population and employment activity and enhanced levels of amenity and design quality, in order to sustainably influence and support their surrounding area"

National Policy Objective 7	"Apply a tailored approach to urban development, that will be linked to the Rural and Urban Regeneration and Development Fund, with a piacular focus on strengthening Ireland's overall urban structure, particularly in the Northern and Western and Midland Regions…; Reversing the stagnation or decline of many smaller urban centres, by identifying and establishing new roles and functions and enhancement of local infrastructure and amenities"
National Policy Objective 11	"In meeting urban development requirements, there will be a presumption in favour of development that can encourage more people and generate more jobs and activity within existing cities, towns and villages, subject to development meeting appropriate planning standards and achieving targeted growth".
National Policy Objective 12	"The Government will establish a National Regeneration and Development Agency to work with local authorities, other public bodies and capital spending departments and agencies to co-ordinate and secure the best use of public lands, investment required within the capital envelopes provided in the National Development Plan and to drive the renewal of strategic areas not being utilised to their full potential."
National Policy Objective 27	"Ensure the integration of safe and convenient alternatives to the car into the design of our communities, by prioritising walking and cycling accessibility to both existing and proposed developments and integrating physical activity facilities for all ages".

3.3 Regional Spatial & Economic Strategy

This Regional Spatial & Economic Strategy (RSES) for the Northern & Western Regional Assembly 2019-2040 provides a high-level development framework for the Northern and Western Region that supports the implementation of the National Planning Framework (NPF) and the relevant economic policies and objectives of Government. It provides a 12-year strategy to deliver the transformational change that is necessary to achieve the objectives and vision of the Assembly.

The overall vision of the RSES is:

"***to play a leading role in the transformation of this region into a vibrant, connected, natural, inclusive and smart place to work and live.***"

3.4 Monaghan County Development Plan 2019-2025

The Monaghan County Development Plan 2019-2025 ('the CDP') is the relevant development plan for the purposes of Section 9 of the Planning & Development Act, as amended. In accordance with the mandatory requirements, the CDP sets out objectives for the development and renewal of areas that are in need of regeneration.

The site is located within Monaghan Town Centre (Figure 3.1) with the area specifically designated as a 'Local Area Action Plan' (LAAP). The objective of this zoning is:

"***To establish strategic planning principles for each area including land use, infrastructure provision, layout, open spaces, linkages and design***"

Within each Action Plan, land uses are specified as being acceptable or not acceptable ('Table 9.1' of the CDP).

LAAPs establish strategic planning principles for each area including land use, infrastructure provision, layout, open spaces, linkages and design. Existing residential amenities must be given strong consideration as well as potential to create linkages to surrounding lands. A Local Area Action Plan will be required to be prepared on such designated lands prior to any planning permission being granted and it should set out an overall urban design framework for the development of the area. Any such plans should be prepared in consultation with the Planning Authority and agreed with the Council. Notwithstanding the land use zoning provisions set out in the County Development Plan, development that would prejudice the development and implementation of a Local Area Action Plan will be resisted. Any such plans shall have full regard to the provisions of national policy guidelines as appropriate.

A LAAP for lands to the Northeast of Dublin Street, Roosky, Monaghan was adopted as part of the Monaghan County Development Plan 2007-2013. The plan provides a strategic framework to promote planned development in a co-ordinated manner. The LAAP will assist in promoting the growth and development of Monaghan Town and in directing development to appropriate locations. Proposals for development within it shall have regard to its provisions. The implementation of this plan remains an objective of the Monaghan Town Settlement Plan.

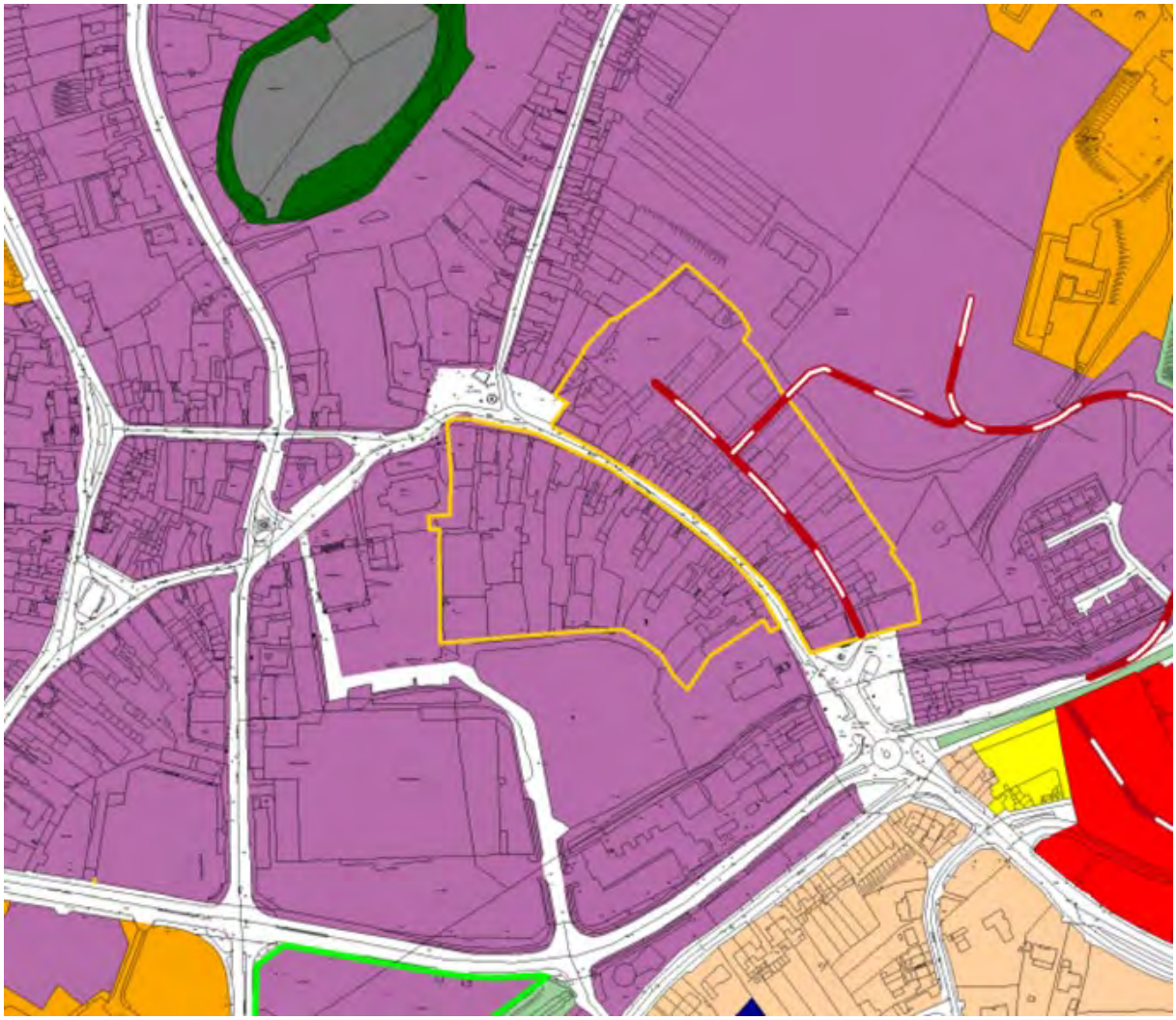


Figure 3.1 Monaghan County Development Plan 2019 Extract

The Dublin Street LAAP (LAAP, 2011) has been incorporated into Appendix 19 of the CDP. The LAAP 2011 (Figure 3.2) proposes a new street to the rear of Dublin Street, with infill and new mixed-use development, and a new interim surface car parking area of 0.5ha, with amenity and recreational area (Figure 3.3). There are also proposed improved pedestrian links, and local access from the new street to The Diamond and Old Cross Square. The lands to the south of Dublin Street benefit from a Regeneration Plan, The Dublin Street Regeneration Plan (2017).

Figure 3.2 LAAP 2011: Proposed Land Uses

Key objectives within the CDP relevant to Monaghan Town Centre include:

Monaghan Settlement Plan Objective	
MTSO 1	To facilitate the development of Monaghan to maintain its position as the principal town in the County at the top of the settlement hierarchy and to ensure that its expansion takes place in an orderly and sustainable fashion that will not detract from the vitality and viability of its town centre.
Monaghan Town Centre Objectives	
MPO 1	Ensure that all development proposals in the vicinity of Dublin Street/Roosky have regard to the Local Area Action Plan for lands to the Northeast of Dublin Street.
MPO 2	Ensure that all development proposals within the Dublin Street Regeneration Plan area have regard to the regeneration strategy and development objectives of the Dublin Street Regeneration Plan.
MPO 4	Encourage new developments which refurbish existing buildings and back lands in order to eliminate dereliction and reinforce the town centre
Retailing Objective	
MPO 5	Extend the town's retail base as the County Town and maintain the Tier 1 designation in the County Monaghan Retail Strategy 2016

3.5 Dublin Street North Regeneration Plan (Variation No. 3)

The Dublin Street North Regeneration Plan was adopted on the 04 April 2022 as Variation No. 3 of The Monaghan County Development Plan 2019 - 2025 under Section 13 of the Planning and Development Act 2000 (as amended).

The variation includes a new objective within the Settlement Plan for Monaghan Town. Objective MPO 15 seeks to

> "***Ensure that all development proposals within the Dublin Street North Regeneration Plan area have regard to the regeneration strategy and development objectives of the Dublin Street North Regeneration Plan.***"

The reason for this variation is

> "***to provide a strategic framework to promote development in a coordinated and sustainable manner in this town centre area that has considerable development potential***".

It is noted that the Regeneration Plan (Figure 3.3) is a concept strategy and for indicative purposes only. The Regeneration Plan recognises that the regeneration of Dublin Street North will be subject to detailed design, which will be informed by the by policies and objectives set out within the Regeneration Plan. An Assessment of the scheme against all principles and objectives contained within the Regeneration Plan can be found within the accompanying Planning Statement.

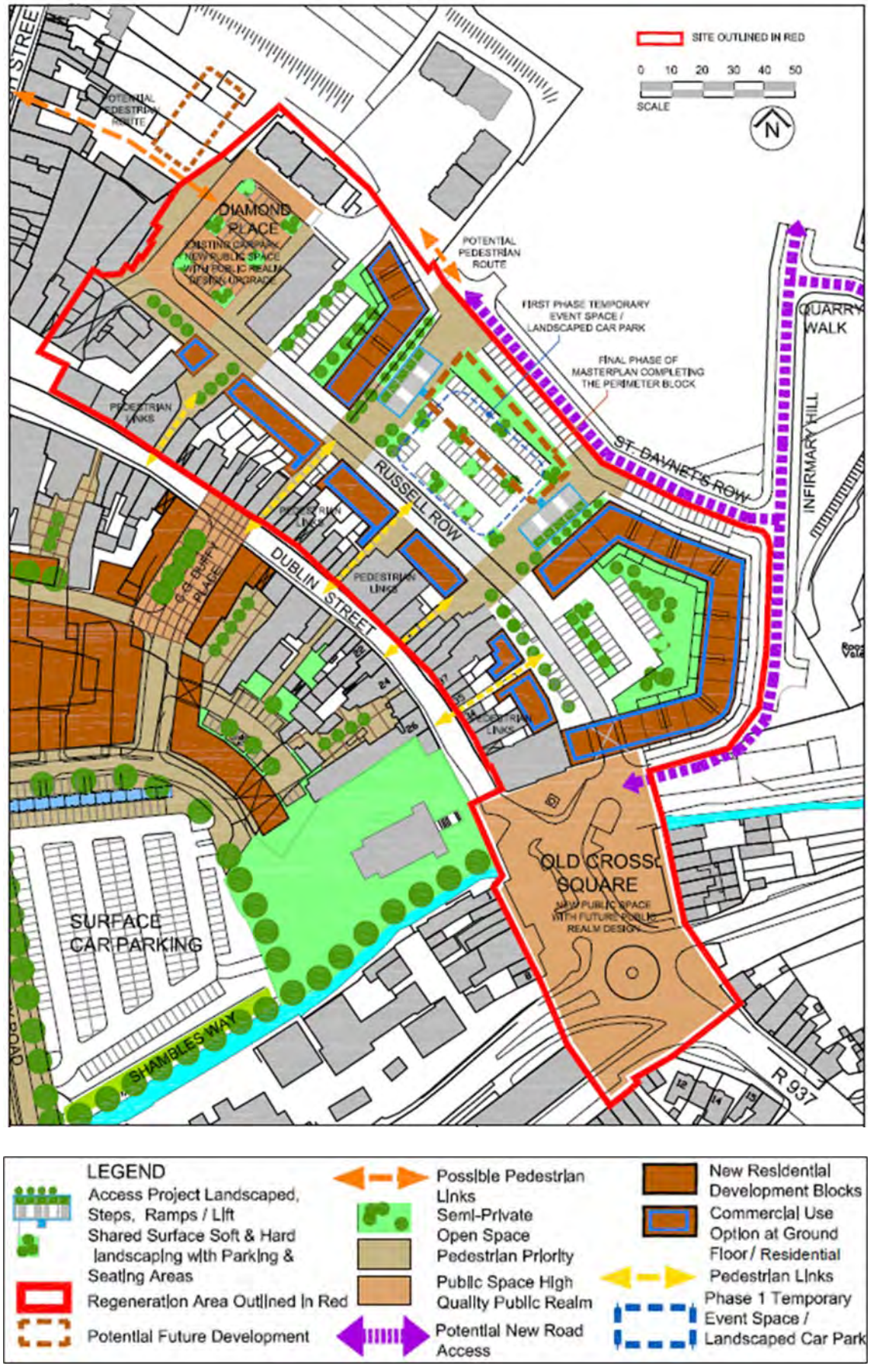


Figure 3.3 Dublin Street North Regeneration Plan

4 Proposed Site Description

4.1 Introduction

Schedule 6 1(a) and 2(a) of the Planning and Development Regulations 2000 (as Amended) requires that the EIAR includes: a description of the proposed development, detailing the site, design, size, and other relevant features; the physical characteristics of the entire development, including any necessary demolition and land-use during construction and operation; the main characteristics of the operational phase, including energy usage, materials, and natural resources; and an estimate of expected residues, emissions, and waste produced during both construction and operation.

This section provides a description of the physical site and its context while more detailed descriptions of the receiving environment alongside the potential impacts of development are contained with the relevant chapters (i.e., population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape).

4.2 Location of the Proposed Development

The proposed development will assist the regeneration of Dublin Street and back lands to the north, the Diamond Centre Car Park and Old Cross Square (see Proposed Site Plans in Volume II). The 2.56ha site is located within the town centre boundary as defined in the Monaghan County Development Plan 2019-2025. The surrounding context includes retail, business and commercial, residential and community / ecclesiastical uses.

4.3 The Site & Surrounding Area

Monaghan Town is strategically located at the intersection of the N2 Dublin- Derry/ Letterkenny and N54 Belfast- Galway National Routes, linking Dublin to the North-West and Belfast to the Midlands. The town also acts as a key east-west corridor which links Dundalk and Newry to Sligo. Monaghan resides in the Northwestern Regional Assembly Sub Region and has been identified as a Key Town in the Regional and Economic Strategy for this area. Monaghan Town plays a primary role in supporting the economic needs of its large rural hinterland in regard to performing employment, retailing and administrative functions.

4.3.1 Natural Environment

The site is not subject to any natural environment designations. The closest European sites being:

- Slieve Beagh Special Protection Area (SPA) located c. 10km northwest;
- Maheraveely Marl Loughs Special Area of Conservation (SAC) located C. 12km west;
- Slieve Beaegh-Mullaghfad-Lisnakea SPA (NI) c. 15km northwest; and
- Slieve Beagh SAC (NI) located c. 15km northwest.

There are also a number of Proposed Natural Heritage Area's (pNHAs) including Wrights Wood and Drumreaske Lough located 1.75km and 2.99km respectively.

The back lands to the north of Dublin Street consists of a range of hardstanding areas and outbuildings. Beyond that the area becomes agricultural. There are a number of Category A, B and C trees (see Appendix 9.5) within the boundaries of the site.

The River Shambles (culverted) runs through the site at Old Cross Square.

Further detail regarding the ecological baseline can be found in Chapter 9.

4.3.2 Historic Environment

The site hosts a number of built heritage assets, including structures listed on the National Inventory of Architectural Heritage (NIAH), archaeological features listed on the Sites and Scheduled Monuments Records (SMRs) and the Councils Record of Protected Structures (RPS). It is also noted that the site is located within an Architectural Conservation Area (ACA) and a Zone of Archaeological Importance.

Further detail regarding cultural & architectural heritage is contained within Chapter 13.

4.3.3 Topography

The land is relatively level along Dublin Street before rising gradually towards the back lands. Beyond the site boundary the land raises towards the northeast. The contours of the site are illustrated on the Existing Site Plan (Volume II).

4.3.4 Land Use & Character

The town centre location means there is a diverse range of land uses within and around the site. Dublin Street accommodates a wide mix of land uses including retail, residential, office and food & beverage.

There are also a mix of uses in the back land areas to the rear of Dublin Street, including business, storage, residential and ancillary uses. Beyond that the area becomes more agricultural.

The site also includes the public realm and car parking located at The Diamond Centre Car Park and Old Cross Square.

The area is generally characterised by three-storey terraced buildings that are interspersed with laneways and archways which lead to the back lands.

4.3.5 Access, Movement & Parking

Dublin Street is part of the N54 National Secondary Route and is a one-way vehicular street linking The Diamond to Old Cross Square. The street is relatively narrow with parking bays on the eastern side only, (right hand side in the direction of traffic).

There is two-way vehicular access onto the southern side of Old Cross Square via the N54 Broad Road roundabout to facilitate local residents and businesses.

At the northern end of the site, the Diamond Centre Car Park is accessed from the Diamond at the top of Dublin Street. Access to the Diamond Centre Car Park is provided for residents and businesses, including the Health Service Executive (HSE), via an undercroft archway.

There is total of 125 car parking spaces within the site boundaries. This includes on-street car parking along Dublin Street and Old Cross Square. Public parking is also available at the Diamond Centre Car Park.

Pedestrian access is available to the back lands north of Dublin Street via a series of alleyways. Informal pedestrian access is also available to the rear of the Backlands area via a walking trail accessed from Old Cross Square.

The Ulster Canal Greenway is a 3m wide walking and cycling track segregated from the vehicular carriageway. It runs along the southern side of Slí Ógie Uí Dhufaigh and connects with Old Cross Square at the Broad Road Roundabout. The proposed development provides connectivity with the Greenway at Old Cross Square.

There is no dedicated cycle only routes within the site area.

4.4 Planning History

A planning history search was undertaken in September 2024 which focused on applications that had been submitted in the last five years in and around the proposed regeneration area.

The search established that there have been a number of small-scale developments within the site area over this period. These primarily related to extensions, change of use and alterations to shop fronts. It is not considered that these developments have the capacity to significantly change the existing site conditions.

Key developments within the wider Monaghan area, are considered cumulatively with the proposed development and are set out at Table 4.1. These have a been identified through available sources and will be considered so far as possible within each EIAR chapter. Projects identified are those:

- Under Construction;
- Permitted, but not yet implemented;
- Submitted, but not yet determined; and
- Identified in the Development Plan (Recognising that information on the proposals may be limited).

Table 4.1 Projects considered cumulatively with Dublin Street North proposals

Planning Reference	Address	Applicant	Proposal	Status
Projects Permitted but not yet implemented/under construction or status unknown				
Ref. 17453	Aldi Stores (Ireland) Limited	Junction of Macartan Rd/Glen Rd	Permission to construct a single storey discount food store	Under Construction
Ref. 19384	Gary & Kiely Monaghan	35 Dublin Street, Monaghan	Permission for a development consisting of change of use from commercial to domestic together with alterations and extensions to the existing building within an Architectural Conservation Area	Status Uknown
Ref. 0830045	Pilerp Ltd	Roosky, The Diamond Centre, Monaghan	Change of use from residential to office accommodation of 8 no. ground floor apartments and all associated site development and drainage works	Granted with Conditions
Ref. 20450	Health Service Executive	National Learning Network Building, The Diamond, Roosky	Permission to (1) Alter existing patio area/steps at front of existing building (2) Erect railings along front of building (3) Incorporate security shutters at entrance to building and carry out associated site works	Not implemented
Part VIII Planning Application	The 'Roosky Lands', located to the north-east (rear) of Dublin Street	Monaghan County Council	New office accommodation will have a gross floor area of 5,601m2, distributed over three tiered floors, incorporating an entrance foyer, office spaces, meeting rooms, a staff canteen, council chamber, customer service desks, welfare facilities and internal landscaped courtyards. The planning	Approved – see more detail below in the context of Roosky Masterplan

Planning Reference	Address	Applicant	Proposal	Status
			application also provides for a new Roosky Lands access road, improved pedestrian and cycle links, a car park and all associated site development works.	
Ref. 2343	Errigal Group Ltd	60 and 61 Dublin Street, Monaghan	Permission for development consisting of i) change of use of guest house accommodation 11 no. bedrooms to 3 no. 2 bed apartments, ii) provision of communal amenity area, bin store and bike store and all associated site works	Approved October 2023
Projects Submitted but not yet determined				
An Bord Pleanála Ref. 314501	Properties at 7- 13 Dublin Street, lands to the rear of 1-9 The Diamond	Monaghan County Council	South Dublin Street and Backlands Regeneration Project.	Approved December 2024
Projects identified in the Development Plan				
Dublin Street North Regeneration Plan (2022)				
The proposals subject to this planning application are an element of the Dublin Street North Regeneration Plan included within the CDP under Variation No. 3 and adopted on the 4th April 2022. The proposal seeks to act as a catalyst for additional mixed-use development on several 'development plots'. The Regeneration Plan provided the following indicative floorspace for each key development plot:				

Planning Reference	Address	Applicant	Proposal	Status

Area	Type	Foot Print (Sqm)	Height / Floors	Total (Sqm)	Semi Basement Car Park	Use
1	Dublin St Infill	993	3	2979	Semi / Surface	Mixed Use
2	New Development	2001	3/4	6003	Surface	Residential
3A	Landscaping	1900	Surface	TBC	Surface	Surface Parking/Event Space
3B	New Development	852	3/4	2982	Surface	Residential
4	New Development	690	3/4	2415	Surface	Residential / Mixed Use

The shape and size of the Development Plots have evolved through the detailed design process for this planning application. Appropriate cumulative assessment of the future mixed-use development has been undertaken throughout the EIAR on the basis of currently available information and assumptions regarding the capacity of each plot.

Dublin Street Regeneration Plan 2017 (Relevant to ABP Application Ref. JA18.314501: South Dublin Street and Backland's Regeneration Project. The proposed development covers an area of approximately 2.72 hectares and comprises urban regeneration and public realm proposals.

Similar to Dublin Street North, the intention of the Application Ref. JA18.314501 focuses on creating a new urban structure with a new streetscape, pedestrian, and cycle network, within this area to attract in new town centre development. This will help to form several key development plots for a mix of new office, retail, commercial and community spaces, within new urban blocks opening onto the new streetscape and civic spaces.

Planning Reference	Address	Applicant	Proposal	Status
As part of the Dublin Street Regeneration Plan, design principles and objectives are provided to guide the development of these plots in the future, in the form of potential building envelopes, heights, access and siting. High level guidance on potential town centre land uses at these locations is also provided. Application Ref. JA18.314501 does not include detailed proposals for the future development plots. It is anticipated that proposals for these plots will be brought forward by either the Council or third parties as separate planning applications for development at some point in the future and assessed under the relevant planning and environmental considerations at that time. Appropriate cumulative assessment of the future mixed-use development has been undertaken throughout the EIAR on the basis of currently available information and assumptions regarding the capacity of each plot.				
The Roosky Lands Masterplan (2022)				
Monaghan County Council recently acquired a land holding from the Health Services Executive Saint Davnet's Campus in Monaghan Town Centre, with a view to redeveloping the lands for a range of town centre uses including residential and offices. This land (referred to as the Roosky Lands) lies directly north and northwest of Dublin Street and adjoins the Dublin Street North lands.				

Planning Reference	Address	Applicant	Proposal	Status
			The Vision translates into a concept Masterplan which comprises new streets and spaces that connect new urban spaces defined by a mix of uses and building forms and heights that create a strong sense of place and identity. The plan area integrates with the site topography, existing street network the distinctive character areas of Dublin Street, Old Cross Square, Roosky Vale and St. Davnet's and the Dublin Street North and Dublin Street South Regeneration Plans. The plan incorporates the Monaghan Civic Offices as a central part of the plan to act as a catalyst for the development of the overall Master Plan area. The plan was adopted on the 4th April 2022 (Variation No. 4 to the CDP). The Civic Offices (above) has been granted Part 8 planning approval. Appropriate cumulative assessment of the remainder of the Roosky Masterplan has been undertaken throughout the EIAR on the basis of currently available information.	

4.5 The Overall Design Concept

The proposed development stems from the Dublin Street North Regeneration Plan (DSN Regeneration Plan) which has been incorporated into the Monaghan County Development Plan 2019 – 2025, under Variation No. 3. Therefore, before the proposed development is described it is important to outline the concept for the area as envisaged in the DSN Regeneration Plan. Objective MPO 15 requires that all development proposals in the area have regard to the regeneration strategy and objectives of the plan. The goal is to create a strategic framework for coordinated and sustainable development in this town centre (Figure 3.3).

This DSN Regeneration Plan sets out a strategic regeneration vision for Dublin Street and the adjacent areas, focusing on consolidating the urban structure, creating new streets and public spaces which will integrate seamlessly with the existing town centre and introduce a new 'backland quarter'. The vision is:

> ***"To adopt a placemaking approach that makes sustainable use of the assets and potential of this town centre area, to create a desirable and convenient place to live, work and recreate through the reuse and adaption of existing structures, with new development areas to create new homes, with businesses and services that will create new employment opportunities. This will be achieved within a high-quality public realm that is connected to the existing street network, to achieve a sustainable urban quarter, providing increased footfall and population critical mass in Dublin Street, and the wider Monaghan town centre, that will underpin quality urban spaces, amenities, vibrancy and a diverse and vibrant town centre living environment that promotes people's health, happiness and well-being."***

The vision is supported by nine principles that have shaped the development of the public realm proposals:

1) To adopt a placemaking approach that strengthens the role of Dublin Street and the Regeneration Plan Area as a place to live, shop, work and do business.
2) To create an attractive desirable place for people to live, shop, work and do business.
3) To become an exemplar for sustainable town centre development.
4) To create a sustainable residential and mixed-use neighbourhood to compliment and strengthen the mix of uses in the town centre.
5) To create an accessible and permeable neighbourhood and an enhanced pedestrian experience.

6) To create an appropriate entrance to Monaghan Town from the east, and to the proposed Roosky Master Plan area.
7) To provide a high-quality public realm and attractive public spaces adopting a people first priority.
8) To enhance the setting of historic buildings and consolidate the character of the area.
9) Architectural Design Standards - All new developments are to be designed to the highest design standard.

4.5.1 Short Term Vision

The project delivers public realm to support the future development of the backlands to the north of Dublin Street while providing key connections between Dublin Street and the future Civic Offices. The introduction of Russell Row will create a new route for pedestrians, bikes, and vehicles, providing access to development plots and a new public space for parking and events.

The project will transform the backlands area into a publicly accessible, permeable, connected environment, regenerating the entries to promote movement between Dublin Street, through Dublin Street North, and to the proposed new Civic Offices. It will introduce new green spaces within the ‘Terraced Garden’ and ‘Community Park’ and will deliver sustainable drainage through planted raingardens and permeable surfaces.

Old Cross Square and Dublin Street will be upgraded with new layouts that promote both as spaces prioritising pedestrian and cycle movement while accommodating the required vehicle movements. Parking in both will be rationalised to the benefit of public space and pedestrian movement, widening footways where possible. High quality public realm materials will be used to provide an appropriate setting for both existing and future development.

This planning application does not include development proposals for adaptation, conversion and infill of existing urban fabric/structures, or proposals for the defined development plots. It looks to deliver a new high quality public realm and new network of spaces and streets that will act as a catalyst for future redevelopment and new development in the surrounding urban areas. It is envisaged that proposals for new development/redevelopment will be brought forward by either the Council or third parties as separate planning applications in the future.

4.5.2 Longer Term Vision

The long-term vision is the regeneration of the area through adaption and reuse of existing buildings, and the introduction of new development within the plots formed through the public realm works. This delivers on the Town Centre First approach, contributing to a vibrant,

accessible and lived in town centre. The projects seek to act as a catalyst for future urban regeneration, such as:

- The regeneration of existing buildings along Dublin Street, supported by a high-quality public realm with improved space for pedestrians.
- The adaption and reuse of existing buildings fronting onto the Diamond Centre Car Park, which will include enhanced pedestrian and cycle connections alongside a high-quality public realm.
- Opportunity for both the adaption and reuse of existing buildings on the west side of Russell Row, and the introduction of new development within plots formed through this project.
- Opportunity for development of the two plots formed to the east of Russell Row, with residential led town centre uses supported by access and public space provided through this project.
- Both the adaption and reuse of existing buildings and the introduction of new development associated with an enhanced Old Cross Square, supported by the delivery of high-quality public realm.

4.6 Description of the Proposed Development

The aim of this project is to assist the regeneration of the area around Dublin Street, The Diamond Centre Car Park and Old Cross Square, having regard to the DSN Regeneration Plan. The proposed development generally includes public realm improvements, with more intensive development required to open up the back lands to the north of Dublin Street. The proposal includes the creation of a new street (referred to as ‘Russell Row’, in keeping with the terminology used in the DSN Regeneration Plan) and temporary car park / events space.

The proposed development can be described as five distinctive character areas that work together to create a comprehensive development. These are illustrated on Figure 4.1 and include the following:

1) Russell Row
2) Dublin Street
3) Old Cross Square
4) Diamond Centre Car Park
5) Community Park

Figure 4.1 Character areas

The proposed development can be succinctly described as follows:

1. Creation of new central street to the rear of properties fronting Dublin Street (connecting Diamond Centre Car Park with Old Cross Square), provision of car park/temporary event space and regrading of land to accommodate future development.
2. Creation of new public park with associated pedestrian paths, landscaping and lighting.
3. Public realm improvements along Dublin Street (within Dublin Street Architectural Conservation Area) to include resurfacing, new pedestrian pavements (including widening) and relocation of on-street car parking spaces.
4. Public realm improvements to Old Cross Square to include the creation of urban civic spaces, pedestrian pavements, cycle routes, street furniture. Relocation of Old Cross Monument (Scheduled Monument Record and Protected Structure)
5. Public realm enhancements at Diamond Centre Car Park to include reconfiguration of car parking, resurfacing, cycle infrastructure and associate street furniture.

6. Reinforcement of existing vegetation and new soft landscaping throughout, new boundary treatments, street lighting, sustainable urban drainage systems (raingardens and permeable surfacing).
7. Upgrading and installation of new utility services and CCTV.
8. Demolition of buildings and structures located at Unit 1 & Unit 2 Old Cross Square and to the rear (north-east) of No. 32-62 Dublin Street including a structure within the curtilage of No. 57 Dublin Street (Protected Structure) and No. 4 The Diamond Centre. Reconstruction of building elevations where required.
9. All other associated site and developments works.

The following sections provide a more detailed description of the Key Character Areas.

4.6.1 Russell Row

Russell Row is a new street connecting the Diamond Centre Car Park with Old Cross Square. It provides access to the development plots formed by the project, and the new flexible public space that includes car parking and an opportunity for temporary events (e.g. markets, fairs, family & community focused events). The parking is fully accessible through legible routes designed to disability access standards and gradients. The design for Russell Row has been developed as a ‘Quiet Street’ in accordance with the Design Manual for Urban Roads and Streets (DMURS) which prioritises pedestrian and cycle movements. While Russell Row is designed to promote pedestrian priority, clear delineation between roadway and footway is provided to enhance legibility and promote accessibility for all. The historic pattern of alleyways is represented through natural stone paving that extends from Dublin Street to St Davnet’s Row. This breaks the linear form of Russell Row, resulting in an environment that promotes pedestrian movement over vehicular/motorised traffic.

This is also achieved through:

- The use of surface materials including reconstituted and natural stone paving. The roadway is generally asphalt with natural stone crossing points and raised tables to break the linear form of Russell Row.
- Detailing including low upstand kerbs and flush areas delineated with hazard warning paving.
- The inclusion of rain gardens, planting and trees to create passing places and deflection within the roadway, reducing vehicle speeds and providing an environment that results in improved driver behaviour.
- The creation of places that encourage dwell through the introduction of street furniture and comfortable places.

At the centre of the Russell Row character area is the multi-use space that accommodates car parking, but that is also able to accommodate a programme of events. Two stepped routes aligned with alleyways navigate the level change between Russell Row and the proposed Civic Offices development at St Davnet's Row. These cross a terraced garden space that accommodates a pedestrian route designed to accessible gradients. This accessible route is fully integrated into the proposals, winding through a planted garden space which is further enhanced through a series of water features and integrated seating. This provides an atmospheric space for people to dwell within as they move between Dublin Street and the proposed Civic Offices development (& wider Roosky Masterplan area). Planting palettes will enhance biodiversity, and where relevant will align with local biodiversity initiatives and plans.

4.6.1.1 Enabling Works for Russell Row

Demolition

To construct Russell Row and adjoining car park / events space, as well as the Development Plots, a number of buildings and structures have been identified for demolition. This will include demolition of buildings at Old Cross Square & the Diamond Centre Car Park to enable the proposed Russell Row to connect with the existing road network as shown in the photographs below Figure 4.2 & Figure 4.3.

Figure 4.2 Proposed Building to be demolished - Old Cross Square

Figure 4.3 Proposed Building to be demolished – Diamond Centre Car Park

The Proposed Demolition Plan can be found in Vol II.

In addition, a property to the rear of Number 57 Dublin Street is identified for demolition. Due to the property's location within the curtilage of a Protected Structure, a structural survey was undertaken by McAdam Design (Vol III Appendix 4.3) which confirms that the property, known as 57c for the purposes of the demolition plan is beyond structural remediation. The removal of vegetation would destroy the remaining elements of the former building. The reuse of the property has been considered (see Section 4.9).

Figure 4.4 Property 57c as identified on Demolition Plan:

Proposed New Building Façades, Masonry Walls and Gable Returns

Following the demolitions of structures, careful consideration will be given to ensuring that the resultant boundary is structurally sound and presents an appropriate façade on to Russell Row (or private amenity space where the remaining structure will be enclosed in private land holdings), having regard to the ambition of the DSN Regeneration Plan which seeks to create opportunities for infill development, by property owners.

In the short term, it is important that any remaining structures with a new façade on to Russell Row retain an appropriate character. The general approach is that the facades match the character and materials of the existing building.

In terms of construction methodology, the following steps will be taken:

1) 'Pre-Demolition' structural assessment to determine demolition approach and appropriate temporary support systems. This will also include assessment of the roof structure where required. Where the building adjoining the demolition is inhabited, or in-use, all efforts will be made to ensure the building can remain in-use.
2) The temporary support solution will ensure the exposed gable walls are protected and supported against outward movement. This may take the form of a temporary raking system or support scaffolding. Weather proofing measures will also be provided as required.
3) The temporary support system will be in place until new permanent walls, and associated foundations, are constructed and tied into the existing buildings. A typical wall detail for the permanent design solution is provided below Figure 4.5. More detailed structural surveys will be required to examine and confirm stability, loading and existing foundations, however it is proposed to construct these masonry walls with piers pinned into the existing properties, to stabilise and support the existing buildings.

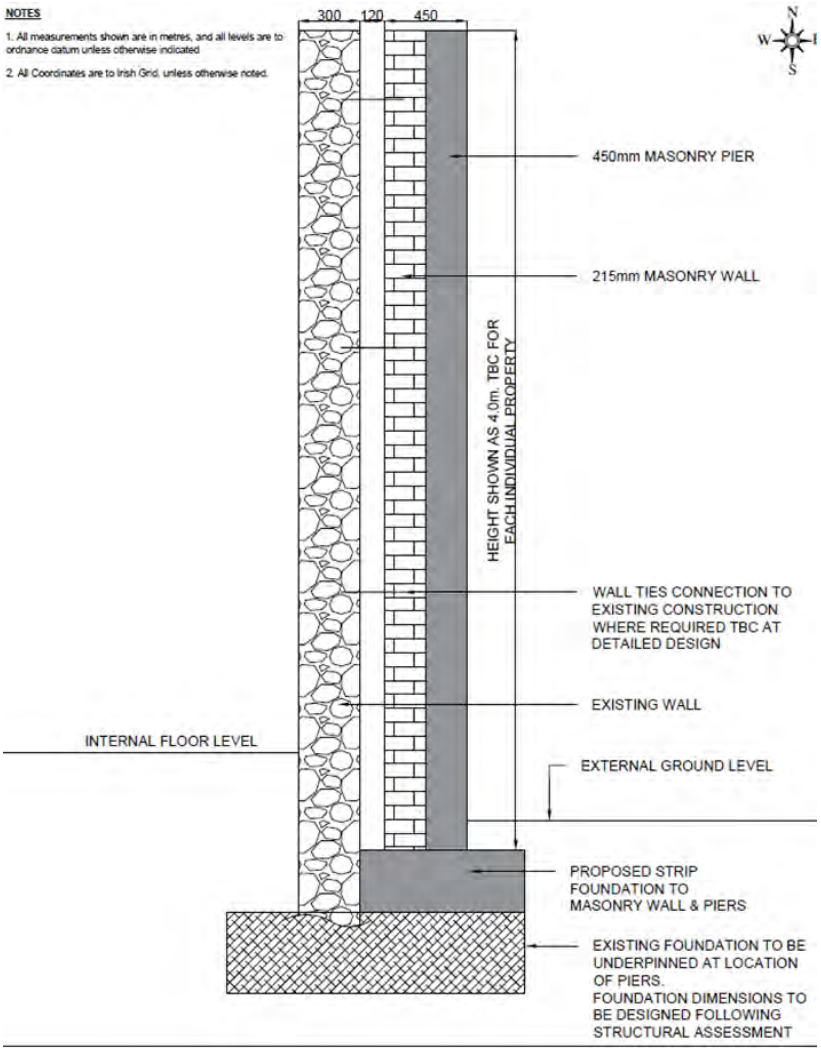


Figure 4.5 A typical wall detail

4) Roof design, as well as rainwater collection and discharge, and all other building requirements will be included in the final detailed designs.
5) The shape and height of the new gable will be designed to replicate the existing property shape where the demolished building has left exposed wall. Drawings for each of the new gables / façades have been submitted as part of the planning package. Where appropriate, the designs show new entrance doors and windows provided to demonstrate how these buildings could be developed to offer opportunities for new businesses and properties to open out on to Russell Row as envisaged in the Masterplan. It is noted that further engagement with landowners will be required to finalise designs for new façades and gables prior to construction.

Any existing buildings which will adjoin Russell Row but are not structurally impacted by the proposals will be assessed prior to construction and detailed condition surveys carried out.

Vegetation Clearance and Earthworks

Across the Dublin Street backlands area there are pockets of moderate vegetation and scrub cover in the form of brambles, shrubs etc as well as a number of existing trees, that will be removed as part of the scheme. The existing hedgerow abounding the southern edge of the laneway to the east of the site will also be removed. Chapter 9 assesses the impact of vegetation removal.

Earthworks will be required to reduce ground levels to the required formation level to enable construction of Russell Row. Excavations below existing ground level will typically be in the range 300mm to 600mm, except at localised areas to construct structural foundations or below ground drainage attenuation measures. For the proposed Development Plots, where existing levels slope steeply from Dublin Street towards the eastern boundary of the site, earthworks will be required to create a 1:3 gradient within the Development Plot.

4.6.1.2 Development Plots

The proposals at Russell Row include two Development Plots which have been created to offer opportunity for future development in line with the DSN Regeneration Plan.

The finished levels of the Development Plots will tie into the footpath levels at Russell Row and will be graded 1:3 towards the rear of the plot. Once graded, each development plot will have a surfacing make up of clean fill material with a 150mm deep hardcore surface / topsoil and grass seeded surface as shown on the drawings.

4.6.1.3 Boundary Treatments

New stone boundary walls and timber fencing will be utilised to provide a high-quality boundary between Russell Row and private land holdings. Materials from demolition of existing structures, buildings and walls will be re-used where possible. This will minimise waste removal from the site and enhance the scheme design. Where future development is likely in the short / medium-term, high-quality timber fencing will be used to form boundaries.

To the rear of properties No. 32 to 38 Dublin Street, level changes between the private land holdings which adjoin Russell Row will be formalised through retaining structures with steps providing private access onto Russell Row. Where possible, retaining structures will be visually softened with raised planters, shrub planting, and tree planting.

4.6.2 Dublin Street

The proposed development on Dublin Street seeks to enhance the public realm through the following measures:

- Kerb realignment to widen footpaths on each side of the street to a minimum 1.8m to improve pedestrian access.
- Adjusted car parking layouts, resulting in the relocation of 8nr car parking spaces to the proposed car parking area at Russell Row.
- Natural stone paving & kerbing
- Upgraded street lighting
- Traffic calming measures, e.g. raised table ramps.

The Dublin Street design has been coordinated with the Dublin Street South proposals (ABP Ref. 314501), including with the introduction of Charles Gavin Duffy Place. This includes the proposed materiality and interfaces with the alleyways.

The proposed layout has been derived from a fixed roadway dimension of 3.1m, and footways that are typically a minimum of 1.8m in width. Parking and loading have been included where space allows. Alleyway locations have been further highlighted through the inclusion of raised table crossings promoting pedestrian movement between each side of the street.

Through the pedestrian priority approach described above, car parking spaces have reduced from 21 to 13 spaces. The existing numbers of accessible parking (2 nr spaces) and Loading / Drop off pays (2 nr spaces) remain unchanged.

Dublin Street forms part of the N54 National Secondary Route (including Old Cross Square) through to the junction with Broad Road and as such a Design Report describing the design proposals, design standards and traffic considerations has been submitted to Transport Infrastructure Ireland (TII) for approval.

4.6.2.1 Alleyways

Enhancing and upgrading the historic alleyways between Dublin Street and the proposed Russell Row is a key feature of the scheme. The proposals will provide high-quality connectivity from Dublin Street through to Russell Row and onwards to the proposed Civic Offices development. Their historic significance is recognised using high-quality materials including natural stone paving. The thresholds to Dublin Street will be marked with inlaid stones etched with the historic name of each alleyway. Public lighting will also be provided to enhance safety for all users and address anti-social behaviour currently evident in the area.

A total of three alleyways will be upgraded through the public realm works with one remaining in private ownership, to be used for private access onto Russell Row.

Figure 4.6 shows the alleyways which will be public connections and enhanced as part of the proposal. Where space allows these will open up into public spaces adjoining Russell Row.

These spaces will contain street tree planting and seating providing comfortable places for people.

One alleyway will remain in private ownership (and is excluded from the design proposals), due to the level difference with Russell Row.

Figure 4.6 Alleyways

4.6.3 Old Cross Square

The proposals for Old Cross Square are focused on enhancing this important 'gateway' into Monaghan Town Centre. This includes:

- Maximising and combining public space while accommodating the required vehicular movements from Dublin Street and to/from Russell Row.
- Providing cycling connections between Russell Row / Dublin Street and wider active travel infrastructure including the Ulster Canal Greenway.
- Enhancing public space through the use of high-quality materials.
- The introduction of soft landscape and tree planting.
- An improved setting for the Market Cross monument within the wider space.
- Rationalisation of parking with a focus on public provision associated with retail and retaining resident spaces where currently allocated.

Finished ground levels against existing buildings have been kept as existing throughout Old Cross Square with natural stone paving being used to enhance the setting. With Old Cross

Square accommodating residential, commercial and retail uses, the public realm approach responds to each providing a softer setting for the residential on the northern edge, and a hard space for parking against the retail and commercial uses on the south edge. The space to the western elevation responds to the stepped building levels through a split-level space with seating, tree planting, and a setting for the monument.

Street furniture will include:

- Raised planters with tree, shrub and groundcover planting.
- Seating benches included throughout the proposals.
- Trees within hard landscape complete with stone inlaid tree grilles.
- Lighting to match the adjacent areas in specification.
- Stainless steel cycle hoops.

4.6.3.1 Car Parking

10 parking spaces are retained at the residential properties to the east of Old Cross Square (No's 25 to 31 Old Cross Square) as per the existing situation.

Nine public car parking spaces have been relocated from Old Cross Square to the proposed car parking area at Russell Row. One additional loading / drop-off bay has been provided.

4.6.3.2 Market Cross Monument

Objective 32 of the DSN Regeneration Plan seeks *"to improve the pedestrian environment and public realm of Old Cross Square through… the identification of an appropriate location of the existing monument/cross"*. The Market Cross monument is currently located within a hard paved space to the northern edge of Old Cross Square. The relocation of the Market Cross monument by 3m, will make it more prominent and enables more efficient and accessible circulation around the site. The new location opens up public views of the structure and creates a visual link between the monument and the church opposite.

It is crucial to protect the monument during both construction and operational phases of the development. Further detail regarding potential impacts, proposed construction methods and mitigation measures in relation to the monument is included within Chapter 15.

4.6.4 Diamond Centre Car Park

The proposed development at the Diamond Centre Car Park aims to enhance the existing parking area, providing better definition of parking, and allocation of space to form legible public realm and pedestrian routes. The proposals include:

- The rationalisation of parking to provide better defined spaces.
- Formalised drop off facilities for the HSE Building, including public realm enhancements and seating.
- Legible pedestrian connection from Dublin Street through to the Diamond Centre Car Park via enhancements to the existing undercroft, and onwards to St Davnet's Row & Civic Office's via a new accessible path.
- New public realm associated with the retail units on the south edge of the Diamond Centre Car Park (currently a barber shop and takeaway). This connects to the alleyway adjacent to McKenna's Bar.
- Cycling infrastructure providing connections with Russell Row.
- Sustainable urban drainage in the form of raingardens and permeable surfaces.
- Soft landscape and tree planting to enhance biodiversity / net gain.

Through the rationalisation of the Diamond Centre Car Park and partial reallocation of space to pedestrian and cycling parking, 24nr car parking spaces have been relocated from the Diamond Centre car park to the proposed car park at Russell Row. The existing 13 residential / HSE designated spaces are retained in the proposed configuration, as are the two accessible spaces. An additional loading bay / drop-off space has been provided at the HSE building.

The existing two-way access between Diamond Square and the Diamond Centre Car Park is retained and the surfaces will be enhanced through natural stone paving.

The proposed development also includes a new pedestrian connection between the Diamond Centre Car Park and the proposed St Davnet's Row (which is part of the Civic Offices development). The enhanced pedestrian route to the front of the HSE Building connects to a route up to St Davnet's Row that is designed to accessible gradients.

4.6.5 Community Park

The 'Community Park' seeks to enhance the existing green / open space to the north of the proposed Russell Row. The design in this area was influenced by the decision to retain the existing mature trees and avoid extensive earthworks and excavations. The retained trees are a mix of Beech and Ash varying in height from 15m to 24m with condition categories of B1 and

C1. As mature trees, and including Ash specimens, they will require tree works and close regular inspection to ensure they aren't a risk to the public, and to promote longevity.

The Community Park will include pedestrian paths, informal play equipment and seating. The soft landscape will include new groups of tree planting, wildflower meadow to enhance biodiversity, and mown grass boundaries to paths, play equipment, and seating areas. Lighting will be included to promote safety and deter anti-social behaviour. It has also been designed to reduce impact upon wildlife.

It is understood that the remains of the foundations of the former County Infirmary may still be present in the location of the Community Park. These architectural remains will be cleaned up, stabilised and repointed to reflect its historical significance.

The Community Park will primarily be accessed from Old Cross Square via St Davnet's Row and the planned upgrade to the existing path which runs to the south of the proposed park. St Davnet's Row is included within the Part 8 approval for the Civic Offices development.

The Community Park will also be accessible from the proposed Russell Row Car Park and events space via the proposed Tiered Garden ramp which will connect with St Davnet's Row.

The primary access routes connecting Old Cross Square, St Davnet's Row and Russell Row will be fully compliant with accessibility design standards to ensure access for all users.

The network of trails and walking routes within the Community Garden space have not been designed to meet disability access requirements as this would require extensive excavations and impact on tree root protection zones to achieve the required gradients. Opportunities for rest and appropriately finished paths will assist access for through these spaces.

4.6.6 Materials & Finishes

The palette of materials has been chosen to provide a high-quality environment that reinforces the historic structure of the streets, alleyways and spaces within this part of Monaghan's town centre. The palette also has regard to existing and proposed development in the surrounding area. This includes:

- Diamond Square (existing).
- Dublin Street South (proposed).
- Civic Offices (proposed).

The materials palette has been proposed to provide a simple framework that emphasises pedestrian priority with appropriate accommodation of vehicle movements where required.

4.6.6.1 Hard Surface Treatments

The predominant material on footways will be silver / grey granite, used throughout Dublin Street, adjacent alleyways and Old Cross Square. Warm toned manmade paving will be used on Russell Row and throughout the Terraced Garden. Vehicular routes will generally be black asphalt as a robust and appropriate material. Some locations, such as pedestrian crossings and localised areas within Old Cross Square, will be laid with mid / charcoal grey granite setts.

4.6.6.2 Kerbs, Edgings & Tactile Paving

Edgings, such as kerbs and tactile paving will be natural stone granite and will provide a contrast with the adjacent paving surfaces. Kerbs will generally have a low upstand (notionally 60mm) to reinforce a pedestrian priority environment. Tactile paving will have the appropriate hazard warning pattern applied, and will contrast with adjacent surfaces, to assist those with visual impairment navigate the project.

4.6.6.3 Boundary Treatments

High quality boundary treatments will be implemented to delineate private plots from the public realm at Dublin Street North. Boundaries will be defined using natural stone random rubble walls reflecting the historic boundary treatments within the backlands. Where possible these will use stone reclaimed from demolitions. In areas where development is likely in the shorter term a high-quality timber fence may be used to define the private plots.

4.6.6.4 Lighting

Street lighting will be implemented throughout the public realm to provide a safe and appropriate level of light. Lighting will be specified to promote ease of maintenance and longevity. Street lighting will be rationally incorporated into the public realm layouts to promote a legible and accessible environment. Where appropriate lighting levels will consider impact on wildlife such as bats.

A lighting layout plan showing design standard, lux levels and proposed lighting equipment is provided in Vol II.

4.6.6.5 Street Furniture

Street furniture will be of a high quality and will be robust and appropriate to the local environment. Careful attention will be paid to location within the streetscape, promoting a legible and accessible environment. Where possible, street furniture elements will be minimalised to reduce clutter.

Seating will be provided throughout Dublin Street North to provide resting places for those that need them. These will be provided with armrests and backrests.

4.6.6.6 Soft Landscape & SuDS

Soft landscape, including street trees, shrub planting, raingardens, wildflower, and amenity grass will be integrated within the various streets and spaces where appropriate. The aim is to bring nature into the town centre and create climate resilient streets that emphasise place and enhance biodiversity across the project area. Soft landscape throughout the project area has been incorporated to:

- Introduce colour and texture through varieties of foliage and flowering species.
- Bring seasonality through colour, form, flowering, and fruiting.
- Promote biodiversity and habitat creation using appropriate species and respond to local action plans.
- Contribute to climate resilience through raingardens and contributing to street cooling / microclimate.
- Enable effective long-term management and maintenance.

Soft landscape will vary throughout the project area according to location. This will include:

- Street tree planting: Generally standard form trees with a clear stem to between 2.0 – 2.5m allowing eye level views. Species to be generally native and informed by local biodiversity action plans.
- Multi-stem trees / Specimen shrubs: To be located in raised planters and within the Terraced Garden. Species to be selected for form, colour and texture. Examples include Birch, Maple, and Amelanchier.
- Shrub planting: To be included in rain gardens, raised planters and within the Terraced Garden. A mix of species that provides seasonal variation alongside evergreen specimens that bring year around structure. Species within raingardens to be appropriate to conditions.
- Wildflower Meadow: Wildflower species within the Community Park. Species to be appropriate to the location and to be influenced by local biodiversity action plans.
- Amenity lawn: Used within the Community Park to provide a ‘tidy’ edge to the Wildflower Meadow, and for seating and play areas.

4.6.7 Access, Parking & Circulation

4.6.7.1 Vehicular

Russell Row will provide a new vehicular link, connecting the Diamond Centre Car Park with Old Cross Square. It provides access to the new car park / events space at Russell Row and the future Development Plots.

Russell Row is designed as a ‘quiet street’ in accordance with the DMURS. Vehicle movements and speeds are controlled through the construction of build outs to reduce carriageway widths at key locations.

In addition, vehicle movements between Diamond Centre Car Park and the car park at Russell Row are restricted to one-way southbound from the Diamond Centre Car Park.

Figure 4.7 shows the proposed traffic movement through the proposed development.

Figure 4.7 Proposed Traffic Movements

Access into and out of the Diamond Centre Car Park remains as existing, via the undercroft. Enhancements to the area will include new paving and kerb alignments, however existing traffic flows, including emergency vehicle access will not be impacted.

Traffic movements on Dublin Street are unaltered by the proposal with one way movement from Diamond Square to Old Cross Square. The proposals include traffic calming measures (raised tables) and a reduction in the carriageway width to 3.1m. Each of these interventions will help control traffic speeds through the street which will benefit the public realm design.

At Old Cross Square, southbound traffic movements from Dublin Street through to Broad Road Roundabout are unaltered.

Access to the parking area at the western end of Old Cross Square has been altered, with access to these spaces provided from the existing access to the south of Old Cross Square, with the northern access point removed. Vehicles will be required to circulate in a clockwise direction through this area.

Russell Row connects with Old Cross Square via a two-way access link, and a new junction is created on to the N54 at this location. The detailed design of this junction is described in the Design Report submitted to TII (copy submitted with the planning application).

Parking

There are 125nr existing car parking spaces within the site boundaries. This includes on-street car parking along Dublin Street and Old Cross Square. Public parking is also available at the Diamond Centre Car Park. The proposed development results in a total of 134 car parking spaces, therefore a net increase of nine car parking spaces.

48nr new car parking spaces are provided at Russell Row and there is a relocation of car parking spaces from the Diamond Centre Car Park, Dublin Street and Old Cross Square. At Old Cross Square, there is no change to the number of spaces available at the residential properties to the east of the Square (25– 31 Old Cross Square).

The following Table 4.2 &

Table 4.3 show the parking spaces within the site in both the existing and proposed scenarios.

Table 4.2 Parking Spaces - Existing

Location	Standard	Residents /HSE/ Customers	Accessible	Loading / drop off	Subtotal
Dublin Street	21	0	2	2	25
Old Cross Square	23	10	0	1	34
Russell Row	0	0	0	0	0
The Diamond	51	13	2	0	66
Subtotals	95	23	4	3	
TOTAL	**125**				

Table 4.3 Parking Spaces - Proposed

Location	Standard (incl EV)	Residents /HSE/ Customers	Accessible	Loading / drop off	Subtotal

Dublin Street	13	0	2	2	17
Old Cross Square	14	10	0	2	26
Russell Row	40	4	4	0	48
The Diamond	27	13	2	1	43
Subtotals	94	27	8	5	
TOTAL	**134**				

Disabled Parking

At the rationalised Diamond Centre Car Park and proposed Russell Row car park, 9% of spaces have been allocated for disabled car parking. At Old Cross Square and Dublin Street allocation for disabled parking is based on the Monaghan County Development Plan.

At the Diamond Centre Car Park, a dedicated drop-off parking bay is provided at the HSE building. This was designed into the scheme following engagement with the HSE Centre Management and is an improvement on the current scenario where drop off parking is not available.

EV Parking

New parking spaces have been allocated for Electric Vehicle (EV) parking, with charging points are provided at the EV parking bays.

Servicing – Emergency, Maintenance, Refuse Collection

The current movement routes for servicing vehicles (e.g. maintenance, refuse collections, deliveries) and emergency vehicles (e.g. ambulance, fire) will remain unaltered for Diamond Car Park, Dublin Street and Old Cross Square.

The scheme design allows for Russell Row area to be serviced via the proposed new access from Old Cross Square, or via the existing undercroft access to Diamond Centre Car Park. The residential apartments and businesses at the Diamond Centre Car Park are currently serviced via this undercroft and this access will not be impacted by the proposals.

Swept Path Analysis has been carried out to verify movements of large vehicles through this area can be safely accommodated.

Loading Bays

Existing allocation of loading bays at Dublin Street and Old Cross Square have been retained. There are no loading bays currently at the Diamond Centre Car Park, and no additional loading bays are provided in this location.

4.6.7.2 Cycle

Cycle infrastructure is provided from Diamond Centre Car Park to Old Cross Square via Russell Row.

While a dedicated cycle track could not be provided due to spatial constraints, localised design interventions to enhance cycle connectivity has been provided.

- The provision of a 'self-regulating' approach to Russell Row that provides a low vehicle speed environment that benefits pedestrians and people on bikes. This approach is in accordance the design approach for low-speed, lightly trafficked streets in DMURS and the Cycle Design Manual, creating a mixed traffic environment in accordance with the design standards.
- Contra flow cycle path between Diamond Centre Car Park and Russell Row.
- Segregated Cycle Infrastructure at Old Cross Square.
- Cycle parking facilities throughout the project area.

Segregated cycle infrastructure has not been provided at Dublin Street due to spatial constraints. Cyclists will be required to share the carriageway with motorised traffic as per the current conditions, however cyclists have the opportunity to utilise Russell Row as an alternative.

4.6.8 Utilities & Infrastructure

4.6.8.1 Surface Water Drainage

The existing drainage network at Dublin Street, Diamond Centre Car Park and Old Cross Square will be utilised.

New surface water drainage will be provided to service Russell Row, Russell Row Car Park, and the proposed future development plots to the north of Russell Row.

It is proposed that surface water will discharge to the existing urban drainage network at a suitable discharge location. In order to restrict new run-off to limits agreed with MCC, attenuation will be provided within the Russell Row area, and flow control mechanisms will be provided.

Provision of additional sustainable urban drainage systems, including trees, planter boxes and rain gardens will be provided as per the proposed layouts. This will help to limit the flowrate and volume of surface water entering the surface water drainage system. These features will also be designed to improve the water quality entering the existing drainage network. Other features which will improve water quality entering the existing drainage network will include fuel / oil interceptors and slit traps.

4.6.8.2 Wastewater Drainage

There will be no wastewater generated by the proposed development. However, wastewater infrastructure has been integrated into the design to accommodate the future development plots (based upon reasonable assumptions with regard to the development capacity of each plot). The proposed wastewater infrastructure will connect to the existing foul / combined drainage network as shown on the proposed drainage plans. All wastewater infrastructure will be constructed in strict accordance with Uisce Éireann standards.

4.6.8.3 Potable Water

Minimal alteration is required to existing watermains, with new connections from the existing water network being extended to the development plots and water feature, along with the required enabling infrastructure such as meters and fire hydrants. All proposed watermains will be constructed in strict accordance with Uisce Éireann standards.

4.6.8.4 Electrical

There are two existing ESB substations within the red line boundary of the Proposed Development. These substations will be retained, and utilised to supply the existing buildings around Dublin Street North and will not be affected the proposed development.

A new substation is to be located within the northern development plot. This new substation has been sized for a maximum import capacity of 750KVA to fully account for the increased energy demand for the development plots, additional lighting, and provision for electric vehicle charging. New medium voltage (MV) ducting to the proposed substation is required to connect the proposed substation to the existing ring, and low voltage (LV) ducting links from the new substation to the development plots and feeder pillars.

Feeder pillars for events, street lighting, and EV car charging have been included. These feeder pillars are to be installed discretely and positioned not to impinge upon pedestrian movement.

4.6.8.5 EIR (Telecoms)

There is existing EIR infrastructure in the form of existing ducting and manholes within the area, most notably in Old Cross Square. Proposed works to the existing infrastructure is minimal, with remedial works intended to reorient existing covers to align with footpath resurfacing and road crossing requirements. New EIR ducting has been included, with ducting routes being extended from existing infrastructure, and providing future provision for the development plots.

4.6.8.6 5G

The existing infrastructure and proposed installations adjacent to the Proposed Development are intended to provide adequate coverage without the need for additional equipment within the scope of this project.

4.6.8.7 CCTV

As part of the proposed development, CCTV cameras will be located at strategic locations, primarily at the junctions and entrances of the project site. This approach seeks to minimize the required amount of CCTV cameras, while still providing a visual deterrent to crime. The locations of the CCTV cameras have been submitted to An Garda Síochána for agreement.

The proposed location of CCTV cameras is included in Vol II.

4.6.8.8 Parking Meters

Parking meters (with associated electrical infrastructure) have been included at the proposed Russell Row Car Park.

4.7 Construction Programme

The duration of the construction programme for the Proposed Development is approximately 20 months.

An outline programme describing the sequencing and duration of the construction works has been presented in Appendix 4.1.

Subject to planning approval, land acquisition and funding allocation, it is envisaged that construction can commence at end of 2026, or early 2027.

It is anticipated that construction works will be progressed sequentially across the site, as outlined below.

Phase 1 - Site Clearance, Demolitions, Excavations - 3 months

1) Initial Site Clearance, e.g., vegetation, loose material.
2) Demolitions and Site Clearance, including removal of demolished building material, trees, temporary works to make safe adjoining buildings.
3) Pre-construction surveys, archaeological monitoring.

Phase 2 – Diamond Car Park & Russell Row – 8 months

1) Construction of new façades and gables
2) Drainage and Utilities Infrastructure
3) Construction of tiered garden

4) Road, footpath and car park construction
5) Boundary Treatments
6) Hard and Soft Landscaping, including street furniture, water features, planting, white lining, signage

Phase 3 – Dublin St & Old Cross Square – 8 months (programmed start to overlap with Phase 2)

1) Drainage and Utilities Infrastructure
2) Road, footpath and car park construction
3) Hard and Soft Landscaping, including street furniture, water features, planting, white lining, signage

Phase 4 – Community Garden – 1 month

1) Construction of path network
2) Installation of play equipment
3) Soft landscaping, planting

4.8 Construction Management

Details of the anticipated impacts with the construction of the proposed development, and associated mitigation measures are included within the relevant chapters of this EIAR.

It is expected that construction phase impacts will be short-term and will reduce as the works progress. For example, impacts due to demolition works and import and export will generally be completed within two to three months of commencement of construction.

Methods of construction activities will comply with all relevant legislation and best practice.

An Outline Construction Environmental Management Plan (oCEMP) has been prepared, which consolidates all the environmental mitigation measures identified within this EIAR. It also includes procedures for monitoring the effectiveness of the environmental protection measures (Appendix 4.2)

This will be updated by the Contractor following their appointment, and in advance of the commencement of construction.

4.8.1 Construction Access

The main construction access to the site will be via Old Cross Square Roundabout, at N54 MacCartan (Broad) Road.

4.8.2 Construction Operating Hours

The operating hours will generally be limited to 7am to 7pm Monday to Friday and 9-4pm on Saturdays.

Construction tasks which are expected to generate high levels of noise, dust and impacts on residences and businesses will be limited to normal construction working periods with final construction hours agreed within the final CEMP.

Construction works outside these hours will be limited to works necessary for health and safety reasons or to protect the environment.

4.8.3 Temporary Facilities

The construction phase will require the provision of a temporary Contractors Compound and welfare facilities. It is anticipated that a Contractors Compound could be sited within the 'backlands' area of the site.

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.

4.9 Reasonable Alternatives

This section outlines the reasonable alternatives considered. The proposed development has been influenced by the CDP and has had due regard to the objectives of both the DSN Regeneration Plan and the LAAP. The project has taken a design and conservation led approach.

The Planning & Development Regulations requires a description of the reasonable alternatives studied by the applicant, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the chosen options, taking into account the effects of the project on the environment.

4.9.1 Do Nothing

In this scenario, the application site would remain as an existing part of the established urban fabric within the town centre, with underutilised land, unconnected streets, with little and limited potential or stimulus for regeneration within the town centre. The lack of a comprehensive vision or framework for forward planning will result in a missed opportunity for the delivery of compact urban development which would reduce the demand for the development of greenfield sites and facilitate the greater adoption of sustainable modes of transport such as walking and cycling. The absence of the planned regeneration and renewal of the site will also

result in a missed opportunity to deliver wider positive impacts on the sustainability of the town centre, as increased residential development, businesses, and ancillary uses and activities through the development of the site will assist in maintaining and enhancing the vitality and viability of the surrounding town centre.

Future development is likely to evolve in a limited and piecemeal manner, outside of a comprehensive vision or framework for forward planning. In this context, the area would not realise the significant benefits of planned and co-ordinated urban renewal, provision of upgraded / new pedestrian linkages within the urban environment, with little or no potential for a future civic space. Significant opportunities would be lost for land consolidation and creation of larger development plots to attract new town centre uses into the area to regenerate and rejuvenate the town centre. This proposal provides a co-ordinated opportunity to benefit from future regeneration development potential, and to reintegrate the area back into the urban fabric.

Although the site contains a sizeable amount of established vegetation that offers biodiversity potential, and in a ‘do nothing’ scenario these habitats will endure and flourish, it is considered that the sustainable and coordinated comprehensive redevelopment of the site provides the opportunity to integrate, re-establish and enhance these existing habitats through the introduction of replacement vegetation and habitat features.

The ‘do nothing’ scenario would also see the retention of a number of existing buildings and structures in the backlands area to the north of Dublin Street. Some of these buildings are redundant and others are used for storage purposes. It was not considered that buildings subject to demolition contribute to the vitality of the town centre and their loss is outweighed by the benefits of the proposal. One structure (referred to as No. 57c Dublin Street) that requires demolition is considered to be within the curtilage of a Protected Structure. The ‘do nothing’ scenario would see this structure retained; however, it would likely continue to deteriorate. A Structural Survey of the property was undertaken by McAdam Design, confirming that that the structure is beyond structural remediation. Given the current condition of this structure, its historic significance and negligible contribution to the special interest and character of the Protected Structure and its negligible visual relationship with the Protected Structure (No. 57 Dublin Street) and the unlikelihood that it could viably be reused, it is considered that the ‘do nothing’ scenario is not a desirable option and would undermine the objections and aspirations of the Development Plan (inc. Variation 3).

4.9.2 Alternative Locations

A Collaborative Town Centre Health Check (CTCHC) carried out in Monaghan Town, the Town Centre Land Use Survey 2016, identified a high level of vacancy on Dublin Street. The purpose of this project is to take a plan led approach to regeneration. The location has been clearly identified for regeneration in the CDP (see Figure 4.8). The proposal also seeks to implement the objectives of the DSN Regeneration Plan and the LAAP. Indeed, the key aspiration of the proposal is to improve the environment in this area, including the backlands, therefore it is highly unlikely that consideration of an alternative location would be preferable in environmental terms.

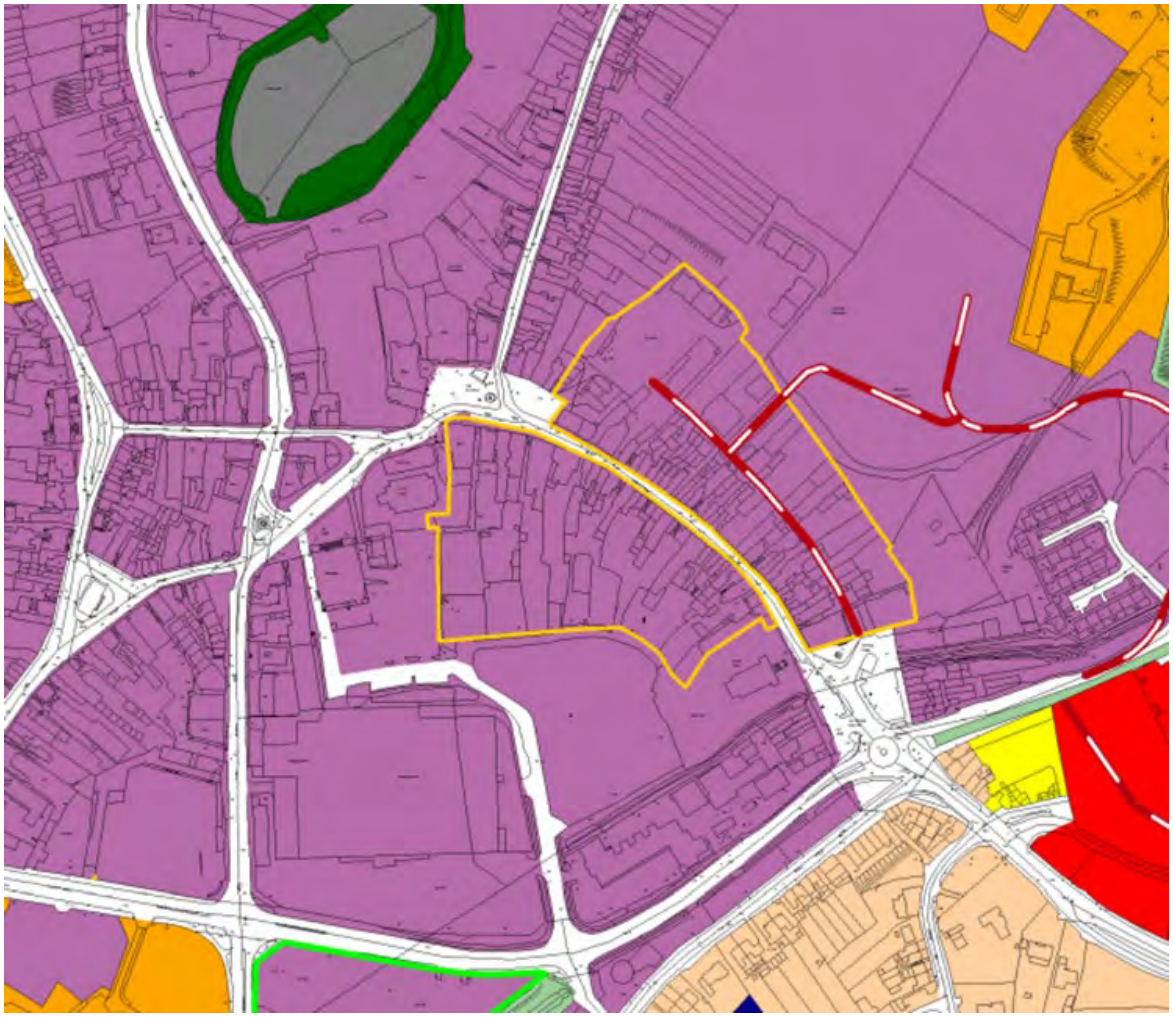


Figure 4.8 Monaghan County Development Plan 2019 (Proposals Map Extract)

As such, the consideration of alternative locations is very limited in this instance and include:

- Dublin Street South
- Dublin Street North (the application site)

A LAAP was adopted for Dublin Street South in 2017. This section of Dublin Street also has its own regeneration plan (Dublin Street South Regeneration Plan (Variation 2 of the CDP). Phase 1 of the proposals for similar enabling works was approved by ABP in 2024 (Ref. 314501).

The site also abuts land that has been zoned within the Roosky Masterplan (Variation 4 of CDP) and will complement the regeneration of that area.

Overall, given the plan led nature of the proposed development and the need to improve the environment in this area, it is considered that the chosen location is the most preferrable, taking into account the effects of the project on the environment.

4.9.3 Alternative Layouts & Designs

4.9.3.1 Dublin Street Local Area Action Plan (LAAP)

The LAAP (Figure 4.9) was adopted as part of the CDP 2007-2013. The plan provides a strategic framework to promote planned development in a co-ordinated manner in this area of the town which has considerable potential. The LAAP aims to promote the growth and development of Monaghan by directing development to appropriate locations. The implementation of this plan remains an objective of the Monaghan Town Settlement Plan.

The LAAP has been included at Appendix 19 of the CDP 2019-2025. The LAAP proposes a new street to the rear of Dublin Street, with infill and new mixed-use development, a new interim surface car parking area with amenity and recreational space to the rear. There are also proposed improved pedestrian links, and local access from the new street connecting The Diamond Centre Car Park and Old Cross Square. In planning and environmental terms this plan appears to be quite vehicular orientated given the large space dedicated to car parking. This led to the creation of the DSN Regeneration Plan which takes an urban design led approach to the development of the area.

A notable difference between the LAAP and the DSN Regeneration Plan is the exclusion of the amenity / recreation area. As set out below, there are environmental benefits to retaining this element of the LAAP.

Figure 4.9 LAAP 2011 - Proposed Land Uses

4.9.3.2 Dublin Street North Regeneration Plan

Objective MPO15 of the CDP 2019 – 2025 seeks to ***"ensure that all development proposals within the Dublin Street North Regeneration Plan area have regard to the regeneration strategy and development objectives of the Dublin Street North Regeneration Plan"***.

The aim is ***"to provide a strategic framework to promote development in a coordinated and sustainable manner in this town centre area that has considerable development potential".***

As noted above, through the design process, it was considered that the proposed development illustrated indicatively in the DSN Regeneration Plan would present some environmental disbenefits. There are several mature trees located in the Infirmary Hill area that would be lost if the indicative layout shown in the DSN Regeneration Plan was strictly followed. Given the categorisation of the trees (Appendix 9.5) it was considered that their loss would be detrimental in both ecological and landscape terms. In turn, it was considered that the social and environmental benefits of providing an urban community park, considerably outweighed the need to replicate exactly, the layout envisioned in the DSN Regeneration Plan. The preferred layout also presents the opportunity to preserve archaeological heritage at the Old Infirmary Site, due to reduced excavation (c. 200mm to create a network of walking trails

through the Community Garden). Alternative lighting designs for the Community Garden were also considered. Through this iterative design process, the original lux levels were reduced to bat-friendly lighting, while ensuring public health and safety requirements were achieved.

Consideration was also given to the existing and alternative locations for the Old Cross Monument. While Objective 32 of the DSN Regeneration Plan seeks to ***"Improve the pedestrian environment and public realm of Old Cross Square through…. identification of appropriate location for the existing monument/Cross"***, the plan doesn't stipulate the most appropriate location. While the 'Do Nothing' scenario was considered, it would have significantly impacted the potential to include steps within the public realm improvements at Old Cross Square. This would have in turn significantly undermined the ability to improve the pedestrian environment at Old Cross Square as effectively as possible. Relocation of the monument was therefore considered necessary.

Careful consideration was given to the relocation of the Monument given it has been moved a number of times throughout history. It was considered that the selected location should enhance the visual prominence of the structure and improve the visual connection with Dublin Street Architectural Conservation Area (ACA) and the First Monaghan Presbyterian Church (Ref. 41303131). The location, while only 3m from its current location is considered to be an environmental enhancement as discussed in detail at Chapter 13 & Chapter 14.

An alternative alignment of Russell Row was considered to avoid demolition of buildings and structures in the backlands area. This alternative had Russell Row aligning with the eastern site boundary (adjacent to St Davnet's Row). This proposal would have been a significant deviation from the DSN Regeneration Plan and was discounted as suitable horizontal and vertical road alignment could not be provided without the need for extensive earthworks and retaining structures. In addition, the proposed alignment would have limited the potential to provide accessible future development plots, thus impacting upon the key regeneration objectives of the DSN Regeneration Plan.The alignment of Russell Row is a key element that influences the potential for the scheme to be delivered as close to that envisaged within the DSN Regeneration Plan as possible. The Roads location is restricted due to the location of the Primary, Community and Continuing Care Services property within Diamond Place. As such, to facilitate a new road that meets the required design standards, as envisioned by the DSN Regeneration Plan, No.57c must be demolished.

During the heritage assessment it was decided to retain two buildings with local heritage value which were indicatively shown as being demolished in the DSN Regeneration Plan. Through careful design of path widths and build outs, these buildings will offer future regeneration potential as well as providing an attractive aesthetic profile along Russell Row.

Overall, it is considered that the proposal has had due regard to the DSN Regeneration Plan whilst assessing reasonable alternatives and taking into account the effects of the project on the environment.

4.9.3.3 Cycle Infrastructure

An earlier iteration of the proposal was presented at a public consultation event in July 2023 in Monaghan. A number of submissions were received indicating that additional cycle infrastructure should be provided in the scheme. This led to the inclusion of a new cycle link between the Diamond Centre Car Park and Russell Row. Enhanced cycle infrastructure was also included at Old Cross Square, providing connectivity with the Ulster Canal Greenway adjacent to Broad Road.

4.9.3.4 Car Parking & Circulation

Several iterations of car parking numbers and arrangements were considered to ensure a balance between the relocation of car parking spaces and provision of new parking space. This included:

- **Diamond Centre Car Park** - improving vehicle circulation through the car park and providing a drop-off parking bay at the Community and Continuing Care Services.
- **Old Cross Square** - ensuring existing spaces allocated to private residents were retained.
- **Dublin Street** - Eight car parking spaces relocated to Russell Row to facilitate widened footpaths and improved pedestrian experience. Design iterations were explored to ensure appropriate numbers of loading bays and disability parking was provided on the street at suitable locations and spaces to be relocated to Russell Row were minimised.
- **Russell Row** - car parking was designed to ensure disability parking and EV parking was provided to recognised standards. Safe movement of vehicles through the space was at the forefront of the design process.

Alternative traffic movement arrangements through Russell Row were also considered, including:

- Two-way traffic from Diamond Centre Car Park to Old Cross Square. This option was not progressed as it was agreed that it would negatively affect the environment and pedestrian led approach to Russell Row.
- One way traffic from Diamond Centre Car Park to Old Cross Square. This option was not progressed as it limited vehicular access to the car park at Russell Row and the Development Plots.

4.9.3.5 Old Cross Square

Public feedback gathered at the Public Consultation Event of July 2023 encouraged the Design Team to consider providing more public realm space at Old Cross Square. A number of options were explored taking into account geometric design constraints and the need to retain access and parking for the businesses on the western side of Old Cross Square. It was concluded that an alternative design layout that would accommodate the required traffic movements was not achievable.

5 Scoping & Consultation

5.1 Introduction

The proposed development has been influenced by a statutory and non-statutory consultation process. The purpose of the consultation processes is to engage with ABP and prescribed bodies and their respective expertise to establish aspects of the environment in which they consider should be subject to further or more in-depth analysis, over and above that already identified by the applicant's design team. In addition, non-statutory consultation gives the design team further knowledge of the unique characteristics of the town that only local businesses and communities may be aware of. This was considered an extremely useful and insightful process.

This chapter will set out the scoping and consultation process and how it has influenced the scheme.

5.2 EIAR Scoping

A Scoping Determination request under Article 95 and 117 was submitted to ABP in May 2024. The submission was accompanied with a comprehensive Scoping Report, site location plan and site layout plan. The submission had regard to the following legislative context:

- Directive 2014/52/EU of the European Parliament and of the Council of 16th April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment ("the Directive")
- Planning and Development Act, 2000, as amended ("the Act")
- Planning and Development Regulations, 2001, as amended ("the Regulations")
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment August 2018 (The Department for Housing, Local Government and Heritage, 2018)
- EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports, May 2022 (EPA, 2022) ("the Guidelines")

In particular a formal scoping request on the information to be contained within the EIAR was submitted under Articles 117 and 95 of the Regulations for a development proposed under Section 175 of the Act. The Board in dealing with the request, had regard to Article 94 (Content of the EIAR) and Schedule 6 which contains the information required to be within an EIAR.

Following the submission, ABP assigned the Scoping Request reference number ABP-319743024 and indicated that under Article 95 of the Planning and Development Regulations 2001, that the following prescribed bodies had been contacted:

1. Minister of Housing, Local Government and Heritage
2. Minister of the Environment, Climate and Communications
3. Environmental Protection Agency
4. Waterways Ireland
5. Inland Fisheries Ireland
6. The Heritage Council
7. The Arts Council
8. Failte Ireland
9. An Taisce
10. Transport Infrastructure Ireland
11. Irish Water

ABP provided their scoping response on the 14th August 2024. Accompanying the response included:

1. ABP Scoping Response and Inspectors Report
2. Three responses from prescribed bodies, Including:
    a. Transport Infrastructure Ireland
    b. Inland Fisheries Ireland
    c. Department of Housing, Local Government and Heritage, Development Applications Unit.

The Scoping Response can be found at Appendix 5.1 of this report. A summary of the applicant's response to the scoping can be found below:

Table 5.1 ABP Scoping Response Summary

Comment	Location within EIAR
The Proposed Development: To include information on the site, design, size and other relevant features of development including demolition, cumulative developments, adjoining land. The proposals should be described in scaled drawings, photographs and photomontages.	Chapter 4 includes a full project description including those aspects detailed by the Scoping Response. In addition, the application is supposed by a suite of planning drawings and photomontages that are appended to and cross references throughout this EIAR
The Existing Environment: The existing environment and its impacts on development are explained by reference to the relevant environmental factors. In terms of the receiving environment the EIAR shall include areas that would be impacted on directly or indirectly during construction or operation and shall be informed by up-to-date surveys.	Chapters 4-14 include comprehensive baseline analysis and accurate description of the existing and receiving environment and each chapter is based on the most up-to-date surveys and data.
Likely Significant Effects of the Proposed Development: all impacts should be identified and address direct, indirect, secondary, cumulative, short, medium and long term, permanent, temporary, positive and negative effects as well as impact interactions. No topics should be omitted.	Chapters 6-14 identify and assess the potential for significant environmental impacts on the environment as per the ABP comment.
In accordance with Article 94 of the Planning and Development Regulations, 2001 the EIAR Shall contain a reference list detailing the sources used for the impact descriptions and assessments used in the EIAR.	A EIAR methodology can be found at Chapter 2. In addition, each specific chapter includes a discipline specific methodology detailing the sources utilised.
Should contain a list of experts and their competencies who contributed to the development of the report.	See Section 2.6 above.

Comment	Location within EIAR
Cumulative impacts	Table 4.1 identifies all those projects identified and assessed cumulatively with the proposed development in each respective chapter.
Environmental impacts of development during the demolition, construction and operational phases should be described and assessed.	Chapter 4 sets out a detailed description of works associated with both the construction and operational phases of the development. Each Chapter (6-14) assesses the potential impacts across both these phases in detail.
Detail on the nature, quantities and source of materials to be used in the overall development including volumes and nature of waste materials.	Chapter 4 sets out this out in detail and an Outline Construction Environmental Management Plan (oCEMP) Appendix 4.2 has been produced and appended to this EIAR setting out how waste will be addressed.
Mitigation	Mitigation in each chapter has been advised by the Strategies for Identification of Appropriate Mitigation or Offsetting Measures Leading to a Decision to Proceed with the Project as set out in the EPA Guidance (EPA, 2022) is established within the appropriate Chapters and secured within Appendix 4.2 (oCEMP).
Consideration of Alternatives	See Section 4.9 of this EIAR.
Non-Technical Summary	A Non-Technical Summary accompanies this Report.
Population and Human Health: the EIAR should specifically address the likely effects on the health and safety of surrounding populations during all phases of development, including demolition, excavation, construction and operational phases.	Chapter 12 sets out the likelihood for effects on health and safety of the receiving populations during all phases of development.

Comment	Location within EIAR
Population and Human Health: An assessment of the impact of the proposed development on the availability of local recreational facilities and overall level of amenity and the potential impact arising for population and human health should be addressed in the EIAR.	Chapter 12.
Biodiversity: Provide a clear baseline assessment.	Chapter 9 relates to Biodiversity and sets out a comprehensive baseline analysis of the receiving environment and potential biodiversity features. A baseline assessment was undertaken in the form of a Preliminary Ecological Appraisal (PEA) which has been appended to this EIAR.
Biodiversity: Address any potential for disturbance arising from construction activities, particularly any works required to remove any existing structures or hard surfaces. In particular, its potential to impact species using the Shambles Rivers or banks.	See Chapter 9.
Biodiversity: Scope and nature of the surveys should be reviewed with NWPS section of the DHLGH and comply with best practice.	DHLGH were consulted as part of the Scoping process for the project. While Development Applications Unit responded, no comments were made in relation to the scope of the surveys. Best practice guidance has been followed as set out at Chapter 9.
Biodiversity: The EIAR should address the potential for Biodiversity Enhancement	Biodiversity Enhancements are included within Chapter 9.
Invasive Species Management Plan should be provided to address removal of Japanese Knotweed.	An INNS Management Plan has been prepared (Appendix 9.3).

Comment	Location within EIAR
Land & Soil: It was considered that geology and soils should be scoped in.	This has been included within the assessment at Chapter 7.
Land & Soil: The EIAR should provide information relating to the amount and description of materials disturbed and excavated or generated during the demolition and construction. This includes the type of material, the impact of excavations, mitigation and detail of materials to be imported to the site.	A full description of material removal and excavation is set out within Chapter 4. Further assessment of Land & Soil is contained within Chapter 10.
Land & Soil: Mitigation to prevent the importation of invasive species.	Chapter 10 incorporates the mitigation recommended within the Invasive Species Management Plan. The mitigation has also been included within the oCEMP Appendix 4.2.
Water: Impact of materials to be excavated and potential impacts on surface and ground water to be considered.	See Chapter 8.
Water: Assess the potential for flooding impacts and risks in accordance with “The Planning System and Flood Risk Management – Guidelines for Planning Authorities” (OPW, 2009).	A Flood Risk Assessment is included within Appendix 8.2. This has also been discussed in Chapter 8.
Water: Detail sustainable urban drainage methods	The Drainage Assessment is located in Appendix 8.3 and provided details on the proposed sustainable urban drainage methods. –
Water: Public Supply Source Outer Protection Area indicates that it is within the zone of contribution to a public groundwater supply and works have the potential to cause alterations to groundwater flow. Ground investigations are considered necessary.	The Ground Investigation Report is included within Appendix 7.2. The results of this investigation have informed the assessment in Chapter 8.

Comment	Location within EIAR
Water: Coordinated provision of physical infrastructure and services in terms of cumulative impact.	See Chapter 10.2 (Drainage Infrastructure)
Water: Climate change impacts	Climate change has been considered in the Flood Risk Assessment Appendix 8.2 and Chapter 8.
Air Quality: Provide up to date baseline data and describe mitigation.	See Chapter 11
Climate: Up to date baseline data and describe mitigation.	See Chapter 11.
Material Assets: Traffic Impacts generated from the development during demolition and construction, cumulatively.	See Chapter 10.
Material Assets: Describe permeability with surrounding areas and the traffic arrangements which facilitate such permeability having regard to Monaghan Land Use and Transportation Study (MULTS).	See Chapter 10
Materials Assets: describe, assess and mitigate potential impacts on subsurface services.	See Chapter 10
Cultural Heritage: It is recommended that the National Monument Section of the DHLGH with regard to the extent of the methodology of archaeological investigations.	NMS were consulted thoroughly through the preparation of the EIAR both through the statutory consultation process associated with the Scoping exercise and through non-statutory consultation. Two meetings were undertaken during the preparation of the EIAR (Chapter 5).

Comment	Location within EIAR
Cultural Heritage: Due to the site's location within the ACA and potential to impact on Protected and NIAH Structures, in particular 54, 55, 56, 57 Dublin Street, the First Presbyterian Church and No. 10 Dublin Street) and the Old Cross. It was recommended that prior to the final submission that the Built Heritage Section of DHLGH would be consulted.	All built heritage assets within and adjacent to the site have been described, assessed and appropriate mitigated measures identified where necessary (Chapter 13). Engagement with the DHLGH took place prior to the submission of the EIAR. Detail of this consultation is set out in Chapter 5.
Landscape: include a description of the proposed planting and landscaping (hard and soft, levels and plant species).	Proposed landscaping is detailed in Chapter 4 and referenced through the Townscape and Visual Assessment (Chapter 14).
Landscape: Should include an assessment and address existing visually prominent and functional features, including the surrounding heritage areas.	A comprehensive visual assessment on existing visually prominent and functional features are included at Chapter 13 and subsequent Appendices of this EIAr.
Landscape: Include a series of photomontages or other forms of visual aid and should be include sensitive receptors.	Vol III if this EIAR includes for photomontages and should be read in conjunction with Chapter 13 of this report.
Interactions: Detailed consideration of the above factors with a separate chapter with a schedule of all mitigation measures should be included	Chapter 15

5.3 Non-Statutory Consultations

While not a statutory requirement, in accordance with best practice guidelines, the project design has been influenced considerably by non-statutory public consultation. The stakeholders included;

- Landowners, Businesses and Residents within the project area
- Elected Representatives
- Internal Council Departments
- Interested Parties such at utility and service providers and public transport operators
- The General Public

The non-statutory consultation process consisted of the following key stages;

1. Door to Door visits to each property within the scheme area at the outset of design development to outline the design process and to explain the consultation & engagement processes with landowners, businesses, tenants and residents.
2. Presentations to MCC Elected Members at key stages to update on design progress.
3. On-line meetings with various non-statutory consultees as required to inform the design.
4. Public Consultation Event on 4th July 2023, at Market Townhouse, Monaghan to present the Emerging Preferred Design Option at that time.
5. Public Information Event on 4th December 2024, at MCC Planning Offices, Monaghan to present the final scheme design.

5.3.1 Public Consultation Event

Monaghan County Council, along with the Project Design Team arranged a Public Consultation Event which was held on 4th July 2023.

The event commenced with an ‘invite only’ session from 10am to 1pm for landowners, businesses and local town interest groups. These stakeholders were invited to attend the consultation event and engage with the Design Team on the design development.

The event was then opened to the public from 2.30pm to 7.30pm, and the Design Team scheduled two presentations to outline the scheme design.

Feedback was sought from all consultees attending the event on their views on the design and what, if any, improvements could be included.

The Design Team carefully reviewed and considered all feedback responses received at the Public Consultation Event and, where practicable and appropriate, sought to ensure that all issues were considered in the final scheme design. In particular, the Design Team reviewed the design along Russell Row and Old Cross Square such that enhanced pedestrian and cycle accessibility was provided.

6 Noise & Vibration

6.1 Introduction

This Chapter of the Environmental Impact Assessment Report (EIAR) assesses the potential impacts associated with noise and vibration as a result of the proposed development, and in relation to the construction and future operational phases of the development. The assessment takes into consideration the existing noise environs in and around the site, and assesses future impacts of the development for the year of completion (2030), along with the cumulative impact from other committed or proposed developments within close proximity to the Project Area.

In terms of the construction phase, this assessment models the demolition and construction activities (including earthworks) associated with the development using Cadna noise modelling software, and quantitatively assesses the potential impacts that the construction phase may have on local noise sensitive receptors. The assessment provides a series of mitigation measures to negate the effects of construction noise on local receptors and sets out noise and vibration limits and monitoring requirements which are to be implemented during demolition and construction phases.

This Chapter should be read in conjunction with the following Chapters and supporting appendices:

- Chapter 4 – Proposed Site Description
- Chapter 10 – Material Assets, Land Use & Waste
- Chapter 12 – Population & Human Health
- Appendix 4.2 - oCEMP
- Appendix 10.1 – Traffic Assessment

6.1.1 Scope of Assessment

The scope of this EIA Chapter is to assess the impacts of noise and vibration in terms of the following elements:

- Obtain baseline noise level readings for the site and Project Area, and to describe and characterise the existing noise and vibration environs. This includes undertaking field visits to identify the presence of extraneous noise sources (such as from industrial or commercial plant equipment etc);
- Identify all relevant noise and vibration sensitive receptors within close proximity to the development, which may be affected either a as a result of the construction activities

(i.e. short term), or as a result of the operational phase (i.e. long term) of the development;

- Provide an overview of the assessment criteria and standards to be employed in support of the impact assessment, along with a means of assessing the magnitude of impact and the significance of effects for all phases of the development;
- Outline the baseline noise conditions of the site against EPA datasets, or from baseline noise surveys carried out for the site and surrounding area;
- Detail the methodology and parameterisation used for modelling noise and calibrating Cadna noise models in accordance with the baseline noise monitoring data and traffic flows;
- Modelling of the operational phase of the development using Cadna noise modelling software, and quantifying any changes in operational noise against the future pre-development conditions for the site;
- Modelling of construction and demolition phases of the development, based on plant equipment likely to be employed at the site, and associated sound power levels for a range of activities;
- Completion of the impact assessment for all phases of the development, and provision of mitigation measures to negate any impacts; and
- Assessment of the cumulative noise and vibration impacts, along with any residual impacts that may occur.

6.1.2 Definition of Project Area

The Project Area primarily considers the local noise environs and the potential for the development proposals to impact upon these. Therefore, the Project Area is predominantly constrained to the development site and lands within close proximity to the development area, i.e. lands along Dublin Street North, The Diamond and Roosky areas, and lands adjacent to Old Cross Square. On this basis, receptors closest to the site along Dublin Street North, and properties around The Diamond, Roosky Vale, and Commercial and residential properties within close proximity to Old Cross Square have been taken into consideration as part of the Study Area for the effects of noise and vibration impact.

6.1.3 Statement of Authority

This noise and vibration impact assessment Chapter was prepared by Layde Consulting, specialists in noise and vibration modelling of road traffic and construction traffic sources, and industrial and commercial developments. The lead consultant for the study was John Laverty BSc (Hons) MIEnvSc, having 20 years of experience in carrying out noise and vibration impact

assessments for road traffic sources, rail networks, quarry and mineral sites, and large-scale developments with industrial emission sources.

6.1.4 Limitations and Exclusions

The proposed construction works do not intend to use piling techniques, therefore detailed vibration analysis prior to the construction phase is not required. Suitable mitigation measures and monitoring programs have been outlined within this Chapter to negate the effects of vibration caused during the construction phase.

The operational phase of the development will not introduce any new significant source of vibration which could have the potential to impact upon receptors, therefore no further detailed modelled is required to assess the effects of vibration during the operational lifespan of the development.

Layde Consulting are unaware of any other limitations which may affect the outcome of this Chapter, or the effectiveness of the mitigation measures contained therein.

6.2 Guidance & Legislation

The following guidance documents and legislation has been referenced and applied within this Noise and Vibration Impact Assessment Chapter of the EIAR:

- British Standard BS4142:2014+A1:2019, "*Methods for Rating and Assessing Industrial and Commercial Sound*";
- British Standard BS8233:2014, "*Sound Insulation and Noise Reduction for Buildings*";
- British Standard BS5228-1:2009+A1:2014, "*Code of Practice of Noise and Vibration Control on Construction and Open Sites – Noise*";
- ISO9613-1:1993 Acoustics, "*Attenuation of sound during propagation outdoors - Calculation of the absorption of sound by the atmosphere*";
- ISO9613-2:1996 Acoustics, "*Attenuation of sound during propagation outdoors - General method of calculation*";
- Institute of Acoustics (IOA), "*Planning & Noise - Professional Practice Guidance on Planning & Noise*", ProPG (2017).
- World Health Organisation (WHO), "*Guidelines for Community Noise*" (1999);
- NRA, "*Good Practice Guidance for the Treatment of Noise during the planning of National Road Schemes*" (2014);
- IEMA, "*Guidelines for environmental Noise Impact Assessment*", (2014);
- Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 7, LA 111, "*Noise and Vibration*" – Revision 2 (May 2020);

- British Standards BS7445-1:2003, "*Description and Measurement of Environmental Noise – Part 1: Guide to Quantities and Procedures*";
- British Standards BS6472-1:2008, "*Guide to evaluation of human exposure to vibration in buildings – Part 1: Vibration sources other than blasting*";
- British Standard BS7385-2:1993, "*Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground borne Vibration*"; and
- British Standard BS5228-2:2009+A1:2014, "*Code of Practice of Noise and Vibration Control on Construction and Open Sites – Vibration*";

Each of the guidance documents are still considered to be current or active, and a summary of the criteria outlined within each document relevant to the development proposals is presented within the following subsections. The documents outline a range of criteria for the following stages of the development:

- Operational Phase (i.e. year of development 2030)
- Construction Phase:
    - Demolition
    - Earthworks
    - Construction
    - Trackout

When stating the limiting criteria for the operational and construction phases of the development, the Guidance criteria has been subdivided into Noise and Vibration limits, as discussed further below.

6.3 Methodology: Noise Guidance

6.3.1 NRA Guidelines for the Treatment of Noise and Vibration in National Road Schemes

6.3.1.1 Construction Phase

The NRA Guidelines outlines a series of criteria for construction noise and vibration, which would be appropriate to all activities including demolition works, earthworks and construction, and trackout stages.

The NRA (2014) Guidelines sets out the following indicative levels of acceptability for construction noise in Table 6.1 below, with the comment that more stringent limits might be appropriate in areas where pre-existing noise levels are low. The criteria within the NRA (2014)

guidelines have been summarised also using the NRA (2004) Guideline criteria from which the guidance was based upon.

Table 6.1 Maximum permissible noise levels at the façade of dwellings during construction, dBA

Days and Times	dB $L_{Aeq, 1hr}$	dB $L_{pA(Max), slow}$
Monday to Friday 07:00 – 19:00hrs	70 dB	80 dB
Monday to Friday 19:00 – 19:00hrs	60 dB	65 dB
Saturday 08:00 – 16:30hrs	65 dB	75 dB
Saturdays and Bank Holidays 08:00 – 16:30hrs	60 dB	65 dB

Except for emergency work, construction activity on Monday to Friday evenings, on Sundays and on Bank Holidays, and work outside the times indicated above, will normally require the explicit permission of the relevant local authority.

The NRA Guidelines state that it should be possible to address the way in which construction impacts will be assessed and how they will be dealt with, including potential forms of mitigation and any code of practice or construction noise management plan that will be applied. However, in the absence of an Irish or international standard relevant to construction noise, the Guidelines state that reference can be made to BS5228-1:2009.

6.3.1.2 Operational Phase

The design goal outlined within the NRA Guidelines is that all national road schemes should be designed, where feasible, to meet a day-evening-night sound level of 60 dB L_{den} (free-field residential façade criterion), to be met both in the year of opening and in the design year.

The document produced by the NRA (now TII) accepts that it may not always be sustainable to provide adequate mitigation in order to achieve the design goal. Therefore, a structured approach should be taken in order to ameliorate, as far as is practicable within the particular circumstances of a given scheme, road traffic noise through the consideration of measures such as horizontal and vertical alignment, barriers, low noise road surfaces, etc.

The document recommends that initial noise footprint maps showing the location of the 60dB L_{den} contour should be prepared at an early stage of the route corridor selection process, *preferably using computer modelling*.

Moreover, noise maps will help to show the noise impact of the scheme in areas where the design goal can be met: the choice of an option with fewer noise-sensitive receivers within the noise footprint, and/or a smaller footprint could lead to the adoption of a more sustainable route option.

The Guidelines advise that a noise model should be validated in order to ensure that critical features have been correctly incorporated into the model, and that for existing roads, it would be possible to compare noise predictions against noise survey data as a means of validation.

The aim of the NRA Guidelines is to ensure wherever possible that a 60 dB L_{den} is achieved at relevant receptors through appropriate mitigation and design principles.

6.3.2 BS8223:2014 Sound Insulation and Noise Reduction for Buildings

British Standard BS8233:2014 outlines a range of criteria designed to achieve appropriate levels inside the building envelope, for residential, industrial and commercial buildings. Although the guidance has elements which are applicable for all phases of the development, it is primarily relevant to the long term and permanent operational phase of the development. In addition, BS8233:2014 provides criteria for assessing the effects of noise on external amenity areas, and also within nosier environs such as urbanised areas or sites within close proximity to road traffic networks. The indoor ambient noise criteria relevant to this application is summarised below in Table 6.2 and Table 6.3 outlines the criteria for external amenity areas.

Table 6.2 Indoor ambient noise criteria, BS8233:2014

Activity	Location	07:00 – 23:00Hrs	23:00 – 07:00Hrs
Resting	Living room	35 dB $L_{Aeq,16\ hr}$	-
Dining	Dining room / area	40 dB $L_{Aeq,16\ hr}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16\ hr}$	30 / 35* dB $L_{Aeq,8hr}$ 45 dB $L_{Amax,F}$

Table 6.3 External amenity noise criteria, BS8233:2014

Location	Criteria
Traditional external amenity areas	50dB $L_{Aeq,T}$
Sites within noisier environs, such as urbanised areas or close to road traffic networks	55dB $L_{Aeq,T}$

In accordance with BS8233:2014, for traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in nosier environments. The standard recognises that these guideline values may not be achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited.

Given that the site is located in an urbanised area within Monaghan Town Centre, and is located within close proximity to a busy road traffic network, then the upper value of 55dB $L_{Aeq,T}$. would be considered appropriate in this case. For reference, BS8233:2014 has been used within this Chapter as a means for assessing the long-term effects of external noise on amenity areas.

6.3.3 IAO - Professional Practice Guidance on Planning & Noise (2017)

The ProPG2017 Guidelines reiterates the noise criteria presented within BS8233:2014, but expands on the L_{AFmax} criteria for nighttime hours, whereby the limit or 45dB L_{AFmax} should not be exceeded more than ten times within a single nighttime period. As such, when assessing the effects of noise on indoor ambient noise levels as part of this Chapter, this additional criterion has been adopted for L_{AFmax} events, wherever appropriate.

6.3.4 World Health Organisation (WHO) guidelines for Community Noise

Much of the WHO Guidelines have been incorporated into the ProPG2017 and BS8233:2014 standards, whereby the WHO Guidelines recommends a series of noise limits for indoor ambient noise, and for external amenity areas, as summarised below in Table 6.4 and Table 6.5 respectively. The WHO Guidelines generally accepts that a 15dB attenuation of noise through a partially opened window.

Table 6.4 Summary of WHO Guideline limiting values (indoors), dBA

Activity	Recommended Indoor Limit
Nighttime - sleep (assuming 8hrs)	35 dB $L_{Aeq,T}$
Nighttime - sleep (L_{AFmax} event)	45 dB L_{AFmax}

Table 6.5 External amenity noise criteria, WHO Guidelines

Location	Criteria
Outdoor living areas to prevent moderate annoyance	50dB $L_{Aeq,T}$
Outdoor living areas to protect the majority of people from being adversely impacted	55dB $L_{Aeq,T}$

The WHO guidance has been further expanded by standards such as BS8233:2014 and ProPG2017, therefore although reference is made to the WHO Guidelines, the expanded criteria has been adopted within this Chapter as a means of more robustly assessing the effects of noise impact on local receptors.

6.3.5 BS5228-1:2009+A1:2014 Code of Practice of Noise and Vibration Control on Construction and Open Sites – Noise

British Standard BS5228-1:2009+A1:2014, "*Code of Practice of Noise and Vibration Control on Construction and Open Sites – Noise*", provides a means of assessing and predicting the effects of noise from construction sites through a series of sound power levels or sound pressure levels associated with a range of construction activities and plant equipment. The document provides a number of sources tables, and also outlines a means of determining the appropriate limit for construction related noise at receptor positions, as laid out within BS5228-2:2009+A1:2014, under Annex E as per the ABC Method.

The overall limiting values for each receptor position can be determined on the basis of undertaking a pre-construction noise monitoring survey within the site, and determining the threshold of potential significant effects for dwellings when the site noise level exceeds the listed value outlined in Table E.1 of Annex E. The ABC method utilises the following assessment categories and threshold values as outlined in Table 6.6 below.

Table 6.6 Assessment categories and threshold values, ABC method

Assessment category & threshold value period	Threshold value, in decibels (dB), $L_{Aeq,T}$		
	Category A	Category B	Category C
Night-time (23.00 - 07.00hrs)	45	50	55
Evenings & weekends*	55	60	65
Daytime (07.00 – 19.00 hrs) Saturdays (07.00 – 13.00hrs)	65	70	75

The ambient noise levels at any identified residential receptor are assigned to a category value (A, B or C), and on the following basis:

- **Category A**: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values;
- **Category B**: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values;
- **Category C**: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

BS5228-1:2009+A1:2014 states that the table can be used as follows: for the appropriate period (night, evening/weekends or day), the ambient noise level is determined and rounded to the nearest 5dB. This is then compared with the site noise level. If the site noise level exceeds the appropriate category value, then a potential significant effect is indicated. A potential significant effect is indicated if the $L_{Aeq,T}$ noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level.

In addition, if the ambient noise level exceeds the Category C threshold values (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3dB due to site noise.

6.3.6 BS7445-1:2003 Description and Measurement of Environmental Noise – Part 1: Guide to Quantities and Procedures

British Standard BS7445-1:2003, "*Description and Measurement of Environmental Noise – Part 1: Guide to Quantities and Procedures*" provides a robust methodology for assessing environmental noise during monitoring surveys, and includes the equipment which should be employed, along with monitoring techniques and data collection.

BS7445-1 states that sound level meters should conform to specifications of Class or Type 1 (or Class or Type 2 as a minimum) in accordance with BS EN 61672. Sound level meters are defined by International Standards such as IEC 61672-1:2013 (or BS EN61672-1:2003), however BS7445-1 considers the appropriate use of Class 1 and Class 2 integrating meters, depending on the assessment requirement.

In accordance with BS7445-1, all monitoring carried out as part of this assessment has been undertaken using a Class 1 1:3 octave integrating meter, calibrated in accordance with the

manufacturer requirements, and checked onsite using a piston calibrator before and after the surveys.

6.4 Methodology & Assessment Criteria: Vibration

6.4.1 BS4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound

Section 1.3 of BS4142:2014 specifically states that it is beyond the scope of the standard to assess noise from road traffic sources and pedestrian noise, or to predict indoor noise levels within a building structure. Given that the proposed development primarily involves the construction of a new road (i.e. Russell Row), and will introduce additional pedestrian walkways, then the standard has not been used to assess these sources. However, the standard provides a robust methodology for carrying out background noise monitoring, which has been employed during the baseline noise monitoring surveys for the project.

6.4.2 BS5228-2:2009+A1:2014 Code of Practice of Noise and Vibration Control on Construction and Open Sites – Vibration

BS5228-2:2009+A1:2014 provides a series of guidance levels for human response to vibration levels (given as Peak Particle Velocity, PPV), as summarised below in Table 6.7. However, the response from person to person may differ based on their perceptibility for vibration to occur, ranging from 0.14mm/s for PPV in the most sensitive response, to 0.3mm/s for vibration being just perceptible in the case of most population responses.

Table 6.7 Overview of human response to vibration levels, BS5228:2009

Vibration Level (PPV)	Effect of exceeding PPV threshold
0.14mm/s	Vibration might be just perceptible in the most sensitive situation for most vibration frequencies associated with construction. At lower frequencies people are less sensitive to vibration
0.3mm/s	Vibration might be just perceptible
1.0mm/s	It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.
10mm/s	Vibration is likely to be intolerable for any more than a brief exposure to this level in most building environments

However, the PPV outlined in Table 6.7 relates to the perception of human responses to vibration, it is unlikely that these values will give rise to cosmetic or structural damage to buildings. Therefore, while considered appropriate for human response to nuisance vibration, Table 6.8 below provides further guidance on PPV values which may cause damage to property or infrastructure, as outlined within BS5228-2:2009+A1:2014. It is noted that the recommended threshold values are largely based on the transient vibration guide values for cosmetic damage, as outlined within BS7385-2:1993.

Table 6.8 Vibration criteria for cosmetic damage to buildings

Type of Building	Peak Particle Velocity (PPV) (mm/s) in Frequency Range of Predominant Pulse	
	4Hz to 15Hz	15Hz and above
Reinforced or framed structures. Industrial and heavy commercial buildings.	50mm/s at 4Hz and above	50mm/s at 15Hz and above
Unreinforced or light framed structures. Residential or light commercial buildings.	15mm/s at 4Hz increasing to 20mm/s at 15Hz	20mm/s at 15Hz increasing to 50mm/s at 40Hz and above

6.4.3 BS6472-1:2008 Guide to evaluation of human exposure to vibration in buildings – Part 1: Vibration sources other than blasting

In addition to PPV, it is important to set limits for exposure to construction vibration for the overall daytime and nighttime periods. BS6472-1:2008, "*Guide to evaluation of human exposure to vibration in buildings – Part 1: Vibration sources other than blasting*" provides a limiting criterion based on the Vibration Dose Value (VDV) parameter and outlines a range of VDVs which may result in various probabilities of adverse comment within residential buildings, as summarised below in Table 6.9. The difference in assessing vibration impacts using VDV rather than PPV, is that VDV can be used to determine the longer-term effects of vibration over a 16-hour daytime and 8-hour nighttime period, rather than more instant human responses to the magnitude of an individual vibration event as expressed using PPV.

Table 6.9 Probabilities of adverse comment in relation to VDVs

Place and Time	Low probability of adverse comment ($m \cdot s^{-1.75}$)[1]	Adverse comment possible ($m \cdot s^{-1.75}$)	Adverse comment probable ($m \cdot s^{-1.75}$)[2]
Residential buildings 16hr day	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential buildings 8h night	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

In the event that complaints are received in relation to vibration during the construction phase, then VDV should be assessed at the complainant's property and the results comparted against the VDV exposure criteria outlined in Table 6.9.

[1] Below these ranges adverse comment is not expected
[2] Above these ranges adverse comment is very likely

6.4.4 BS7385-2:1993 Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground borne Vibration

British Standard BS7385-2:1993, "*Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration"* indicates that cosmetic damage should not occur to property if transient vibration does not exceed 15mm/s at low frequencies rising to 20mm/s at 15Hz and 50mm/s at 40Hz. The vibration criteria outlined in BS7385-2:1993 is summarised in Table 6.10 below.

Table 6.10 Transient vibration guide values for cosmetic damage, BS7385

Type of Building	Peak Particle Velocity (PPV) (mm/s) in Frequency Range of Predominant Pulse	
	4Hz to 15Hz	15Hz and above
Reinforced or framed structures. Industrial and heavy commercial buildings.	50mm/s at 4Hz and above	50mm/s at 15Hz and above
Unreinforced or light framed structures. Residential or light commercial buildings.	15mm/s at 4Hz increasing to 20mm/s at 15Hz	20mm/s at 15Hz increasing to 50mm/s at 40Hz and above
Note 1: Values referred to are at the base of the building **Note 2**: for unreinforced or light framed structures, or residential or light commercial buildings, a maximum displacement of 0.6mm (zero to peak) should not be exceeded at frequencies below 4Hz.		

6.4.5 NRA Guidelines for the Treatment of Noise and Vibration in National Road Schemes: Vibration

In terms of vibration, the NRA (2014) Guidelines provides a criteria for assessing the risk of vibration to:

- Human comfort and vibration nuisance, primarily from blasting and piling;
- Cosmetic or structural damage to properties.

The criteria for Peak Particle Velocity (PPV) are summarised below in Table 6.11, although it is noted that no blasting or piling is being proposed during the construction works. However,

should the effects of vibration exceed these values from other construction related activities, then human tolerance and subsequent responses are likely to result in complaints being received.

Table 6.11 NRA (2014) criteria for vibration (PPV) limits during construction

Receptor	Less than 10Hz	10 to 50 Hz	50Hz and above
Structural or cosmetic damage to buildings	8mm/s	12.5mm/s	20mm/s
Human response	12mm/s (blasting) / 2.5mm/s (piling works)		

6.5 Assessment Criteria

6.5.1 Construction Noise

The assessment criteria use quantifiable noise levels which should not exceed the values stated within BS5228-1:2009+A1:2014, "*Code of Practice of Noise and Vibration Control on Construction and Open Sites – Noise*, and the NRA Guidelines for the *Treatment of Noise & Vibration on National Road Schemes* (2004 & 2014), as stated within Section 6.3.

6.5.2 Operational Noise

The NRA Guidelines criteria has been adopted as discussed within Section 6.3.1, whereby the design criteria should aim to achieve, where feasible, a day-evening-night sound level of 60 dB L_{den} (free-field residential façade criterion), to be met both in the year of opening and in the design year.

In terms of calculating the impact from change in sound levels experienced by receptors as a result of the development, the IEMA (2014) Guidelines provides a number of working examples, and uses the criteria as outlined below in Table 6.12.

Table 6.12 Magnitude of impact from the change in sound levels, IEMA (2014)

Long-term Impact Classification	Short-term Impact Classification	Sound level change dB L_{pAeqT} (positive or negative) T = either 16hr day or 8hr night
Negligible	Negligible	≥ 0 dB and < 1 dB
	Minor	≥ 1 dB and < 3 dB
Minor	Moderate	≥ 3 dB and < 5 dB
Moderate	Major	≥ 5 dB and < 10 dB
Major		≥ 10 dB

The criteria above generally reflect the key benchmarks that relate to human perception of noise, with a change of 3dB being considered to be the smallest change in environmental noise that is perceptible to the human ear. A 10dB change in noise represents a doubling or halving of the noise levels.

In terms of criteria for the sensitivity of receptors, there are currently no statutory guidance documents in relation to the sensitivity of receptors in Ireland. However, sensitive receptors, in the context of noise and vibration, are typically residential premises although can also include schools, places of worship and noise sensitive commercial premises. As such, the sensitivity of receptors to noise and vibration commonly used for noise impact assessments in Ireland is defined in Table 6.13.

Table 6.13 Criteria defining the sensitivity of receptors

Sensitivity	Description	Examples of Receptors
High	Receptors where occupants or activities are particularly susceptible to changes in noise	Residential, quiet areas for outdoor recreation, religious institutions (churches, cemeteries etc) Schools
Medium	Receptors moderately sensitive to noise, where it may cause some distraction or disturbance	Offices, restaurants, sports grounds where noise is not a normal part of the event (e.g. golf courses and tennis courts)
Low	Receptors where distraction or disturbance from noise will have minimal effect	Commercial buildings not occupied during operational hours, factories and working environs with existing higher levels of noise, sports grounds and facilities where noise levels are a normal part of the activity

The IEMA (2014) Guidelines provides a significance of effect matrix based on the sensitivity of receptors, as summarised in Table 6.14, and takes into consideration the magnitude of change in noise levels experienced at the receptor position as a result of the development.

Table 6.14 Significance of effect matrix, IEMA (2014)

		Importance / Sensitivity of Receptor			
		High	Medium	Low	Negligible
Magnitude of Change	Large	Very Substantial	Substantial	Moderate	None
	Medium	Substantial	Substantial	Moderate	None
	Small	Moderate	Moderate	Slight	None
	Negligible	None	None	None	None

6.5.3 Vibration

The assessment criteria for vibration is based upon quantifiable PPV levels which should not exceed the values stated within BS5228-2:2009+A1:2014 *Code of Practice of Noise and Vibration Control on Construction and Open Sites – Vibration*, and BS7385-2:1993 *Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground*

borne Vibration, from which the BS5228-2:2009 standard was derived from. In addition to the assessment criteria above, the criteria also include quantifiable PPV levels stated within the NRA *Guidelines for the Treatment of Noise and Vibration in National Road Schemes: Vibration* (2014).

In terms of VDV for human response, the limiting criteria should be applied in relation to the VDV values stated within BS6472-1:2008 *Guide to evaluation of human exposure to vibration in buildings – Part 1: Vibration sources other than blasting*.

6.6 Noise Sensitive Receptors

Given the nature and location of the proposed development, noise sensitive receptors are considered to be the closest receiving positions which could result in negative human responses to noise being generated, either within the construction phase, or for the long-term operational phase of the development. Receptors primarily include residential dwellings, although other receptors can include quiet areas for outdoor recreation, religious institutions (churches, cemeteries etc), schools and offices etc.

In this case, receptors are considered to be residential and commercial buildings along Dublin Street North adjacent to the site, residential dwellings at the Diamond, and residential dwellings at Old Cross Square. Receptor locations for modelling purposes have been adopted as groups representing areas of similar noise characteristics, as illustrated within the Noise Delineation Maps in Appendix 6.2.

6.7 Baseline Conditions

6.7.1 EPA Noise Mapping

Environmental noise from major infrastructure including roads, railways and airports is governed by the EU's Environmental Noise Directive (END) 2002/49/EC, which requires Member States to prepare and publish, every 5 years, strategic noise maps and noise management action plans for transport noise sources (i.e. roads, railways and airports) and industry.

In the context of Ireland, the European Communities (Environmental Noise) Regulations 2018, S.I. No. 549 of 2018, and its amendment S.I. No. 663/2021 - European Communities (Environmental Noise) (Amendment) Regulations 2021 implements the Environmental Noise Directive and is overseen and implemented by the EPA.

The EPA has prepared the latest strategic noise map for Round 4 (2022), representing the annual average situation during 2021, using noise modelling techniques. The strategic noise

maps are published by the EPA, and indicate a series of noise categories, modelled along major transport routes.

The EPA dataset and strategic noise maps were reviewed for Monaghan Town Centre, to include road traffic noise along Dublin Street north and Old Cross Square. It is noted that no modelling has been undertaken along Glaslough Street or the Diamond area. A summary of the published noise model data is presented below in Table 6.15, based on the highest presented value on the GIS maps.

Table 6.15 Published Lden noise levels for 4th Round, EPA (2022) Published Lden noise levels for 4th Round, EPA (2022)

Location	Published strategic noise map values, dB	
	L_{night}	L_{den}
Dublin Street - laneway at No.53 Dublin St	>70dB	>75dB
Dublin Street - adjacent to 42 Dublin Street	>70dB	>75dB
Old Cross Square - adjacent to 26 Old Cross Square	65-69dB	70-74dB

Strategic noise mapping is carried out for major roads, rails and airports only, which for this application relates to road traffic along Dublin Street and Old Cross Square. The published L_{den} values indicate properties along Dublin Street and Old Cross Square already experience significant traffic noise, with L_{den} values along Dublin Street being mapped within the highest category of >75dB.

It should be noted that noise modelling only takes into consideration the road traffic element along major road sources, and as such does not take into consideration any industrial or commercial noise sources (such as plant equipment etc), or other sources of noise (such as entertainment noise, pedestrian or event noise, or ambient environmental noise).

6.7.2 Baseline Noise Monitoring

Given the limitations with published strategic noise mapping, baseline noise measurements were recorded at several monitoring positions in and around the site. Baseline monitoring was carried out using a series of attended and unattended noise surveys, with locations chosen on the basis of representing traffic conditions along Dublin Street and Old Cross Square, and also to represent locations to the rear of properties along Dublin Street, and at The Diamond.

Background noise monitoring was carried out using a BS EN 61672 approved Class 1 Cirrus 171B 1:3 octave sound level meter with environmental windshield kit. The microphone was

mounted 1.5m above ground level and calibrated in accordance with British standards and manufacturer guidance requirements. The noise meter was calibrated using a piston calibrator in order to ensure accuracy prior and after each survey being undertaken.

The baseline noise data is presented in Appendix 6.1 of this EIAR, along with the monitoring positions. A summary of the highest recorded L_{den}, $L_{Aeq,16hr}$ and $L_{Aeq,8hr}$ values are presented below in Table 6.16.

Table 6.16 Summary of baseline noise monitoring survey

ID	Location	Highest Daytime $L_{Aeq,T}$	Highest Night Time $L_{Aeq,T}$	Calculated dB L_{den}
M1	Dublin Street - laneway at No.53 Dublin St	73.2 dB $L_{Aeq,1hr}$	70.2 dB $L_{Aeq,15mins}$	-
M2	Old Cross Square - adjacent to 26 Old Cross Square	68.6 dB $L_{Aeq,16hr}$	61.4 dB $L_{Aeq,8hr}$	69.9 dB
M3	Adjacent to Building No.55b Dublin Street (rear of No.54 Dublin Street)	61.7 dB $L_{Aeq,16hr}$	57.7 dB $L_{Aeq,8hr}$	65.7 dB
M4	Adjacent to Building No.54F Dublin Street / Apartments at The Diamond	60.6 dB $L_{Aeq,16hr}$	54.6 dB $L_{Aeq,8hr}$	63.2 dB

The monitoring results indicate that road traffic noise dominates the local noise environs, with high levels of noise recorded during daytime, evening and nighttime periods. The results have been used to validate the Cadna noise models which have been developed to assess future impacts of the site (see subsequent sections), and to determine the degree of predicted change as a result of the development. The baseline noise levels have also been used to calculate the noise threshold levels for the demolition and construction phases.

The noise monitoring results clearly demonstrate the site and local noise environs already exceed the recommended value of 60dB L_{den}, as stated within the NRA guidelines (2014). In addition, baseline noise levels also exceed the recommended guidelines levels outlined within BS8233:2014 for indoor noise environs, even when taking into consideration attenuation of ~15dB through a partially opened window, both in terms of building facades facing onto Dublin Street and Old Cross Square, and also for the rear facades of these properties facing away from the road traffic sources.

6.7.3 Baseline Vibration

There are currently no existing sources of vibration within the site or surrounding area, therefore baseline vibration monitoring was not required.

6.8 Operational Impact Assessment

The operational phase of the proposed development intends to introduce a new noise source in the form of road traffic along Russell Row. In accordance with the recommendations outlined within the NRA (2014) Guidelines, predicted noise level from new road sources can be carried out using computer modelling techniques. Therefore, noise modelling of the site and surrounding area has been undertaken using CadnaA noise modelling software and calibrating the model against the recorded baseline noise data for the site, and also against the strategic noise mapping levels for Monaghan Town.

As part of the modelling process, the following scenarios were assessed:

- **Scenario No.1**: Baseline year for calibration, including peak daytime road traffic counts for 2022 and noise monitoring results for 2024;
- **Scenario No.2**: Future year (2030) with peak daytime traffic values factored from 2022 base year to 2030, and including all committed developments;
- **Scenario No.3**: Year of 'with' development (2030), including cumulative noise from committed developments during peak daytime hours (i.e. worst case).

In addition to introducing a new road traffic source, the car park area at Russell Row has been designed to offer flexibility to host outdoor public events. Further description of the design approach is outlined in Chapter 4. A programme of events has not yet been defined by Monaghan County Council; however, it is anticipated that events such as markets, (e.g. farmer's markets or arts and crafts markets), small scale music events (e.g. part of the Monaghan Country Music Festival), or family focused / children's events could be facilitated within the space.

Any events scheduled to be held in this space will be subject to obtaining the appropriate licencing and approvals from Monaghan County Council, and as such issues such as health and safety, traffic management, and implementation of agreed noise and air quality limits will meet the necessary requirements and criteria as set out by Monaghan County Council. For clarification, no music or external entertainment is being proposed as part of this application. Therefore, no further assessment has been made in relation to the events space, as these will be subject to their own noise impact assessment.

6.8.1 Noise Model Parameterisation

In order to develop the noise models for the 3No. scenarios, the following parameterisation was used.

6.8.1.1 Topographical Terrain

A Digital Terrain Model (DTM) was developed using topographical survey data for the site and local area using Autodesk Civil3D surface models. A separate surface model was produced for the proposed new site levels, and the DTM data was then integrated to produce a complete model for proposed site levels with existing surrounding contours. The DTM data was exported as a point cloud and imported into the Cadna noise model, as illustrated in the 3D image below in Figure 6.1.

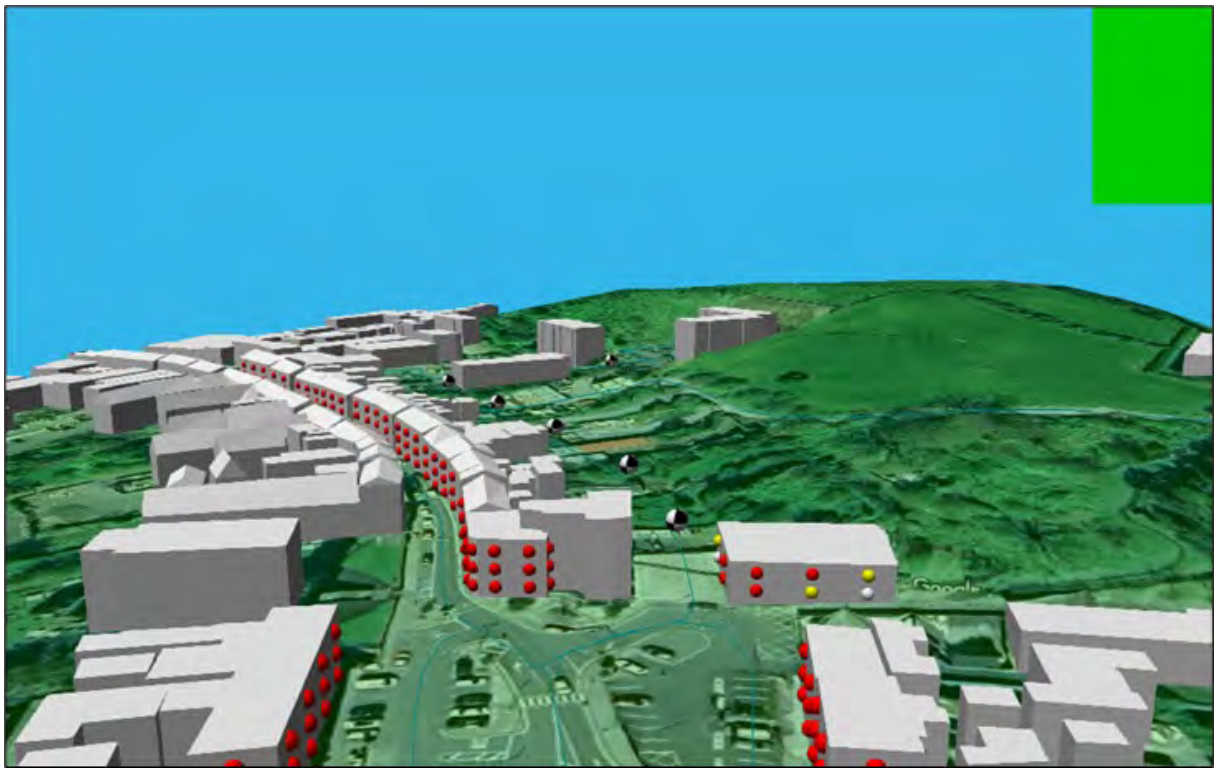


Figure 6.1 3D DTM model developed for Cadna noise modelling

6.8.1.2 Road Traffic

Road traffic data was incorporated into the model using traffic flows obtained from Chapter 10 and Traffic Assessment Appendix 10.1. The traffic data was modelled for the base year of traffic (2022), and factored to the year 2030, along with the cumulative effect of committed developments.

As per the NRA Guidelines, modelled traffic speed has been assessed as 20km/hr for all road sources, with the exception of the existing laneway (St Davnet's Row) which has been modelled as 15km/hr due to the uneven and unpaved road surface. The road geometry has

been defined using satellite basemap imagery, topographical survey data and OSI vector mapping.

In terms of sound from road traffic, noise levels for light goods and passenger vehicles were modelled on the basis of the maximum permissible noise level of 72dB, as per Regulation (EU) No 540/2014 cited by UK Vehicle Certification Agency. Based on the measuring process carried out for Regulation (EU) No 540/2014 this equates to a sound power level of approximately 100dBA. HGV noise is considered to be 104dBA based on rigid HGVs.

6.8.1.3 Barriers & Screening

The effect of screening and barriers has been incorporated into the model by including 3D building structures for the site and local town area. Buildings include residential, commercial and industrial structures, and solid wall structures wherever relevant. Building heights have been determined using site walkovers and visual inspection of buildings (where access could be gained) and using Streetview software. Building heights have been assumed as 2.8m per floor level, with a receiver height of 1.5m.

The effects of screening from vegetation have been discounted from the model, in order to present worst case scenario.

6.8.1.4 Building Façade Evaluation

In order to calculate predicted noise levels at each receptor position, building evaluation analysis was undertaken within the Cadna noise model. This process models the maximum noise level at any façade position within the building structure, for all floor levels. This allows an assessment to be made for the screening effects of noise from major road traffic sources (i.e. Dublin Street) and helps calibrate the model against measured survey data.

6.8.1.5 Modelled Receptor Positions

A range of modelled receptor positions have been incorporated into the Cadna noise model, to include all of the building structures along Dublin Street and adjacent to the site, and also for The Diamond and Old Cross Square areas. Given the large number of individual potential receptor positions, it is more effective to model receptors as groups of building structures with similar ambient noise characteristics, as summarised below in Table 6.17. In addition, individual receptor positions were also modelled close the route of the proposed new Russell Road traffic source, in order to calculate the L_{den} values for property boundary positions.

Table 6.17 Summary of receptor positions

Receptor ID	Receptor Location	Coordinates (ITM)	
		X (m)	Y (m)
R1	The Diamond	667253	833772
R2	61 Dublin Street	667272	833761
R3	59 Dublin Street	667287	833751
R4	55 Dublin Street	667306	833739
R5	51 Dublin Street	667320	833730
R6	47 Dublin Street	667332	833721
R7	45 Dublin Street	667346	833707
R8	41 Dublin Street	667360	833695
R9	37 Dublin Street	667372	833680
R10	32 Dublin Street	667382	833666
R11	Old Cross Square	667390	833652
R12	Unit 3/4 Old Cross Square	667440	833661
R13	30 Old Cross Square	667447	833626
R14	26 Old Cross Square	667451	833611
R15	5/6 Old Cross Square	667398	833598
R16	Position No.1 Russell Row	667392	833687
R17	Position No.2 Russell Row	667361	833731
R18	Position No.3 Russell Row	667343	833745
R19	Position No.4 Russell Row	667319	833757
R20	Car park at The Diamond	667352	833825

6.8.1.6 Ground Absorption

Ground absorption has been modelled for all road surfaces and paved area having a value of G=0, i.e. reflective.

6.8.1.7 Modelled Grid Heights

Modelled grids were based on intervals of 5m, for grid height 1.5m (i.e. ground floor level) for all external areas. Building evaluation modelling was used to predict noise for all building levels, and for all facades, including 4m grid heights as per the NRA (2014) Guidelines.

6.8.1.8 Model Validation

The NRA (2014) Guidelines advise that noise models should be validated to ensure that critical features have been correctly incorporated into the model. For existing roads (such as Dublin

Street, Old Cross Square etc), noise predictions can be compared against noise monitoring survey data, and the model calibrated to the survey results for the base year. In addition to using survey data, the model has also been validated against the noise values obtained from the strategic noise map for Monaghan Town, and particularly for Dublin Street and Old Cross Square.

As discussed further in greater detail, the base year model demonstrated a good correlation between the model predictions based on traffic flow, and against the survey data and strategic noise mapping values (within ~1-2 dB).

6.8.2 Noise Model Results

The Cadna noise model results for all three scenarios are presented below in Table 6.18, Table 6.19, Table 6.20. The resultant noise delineation maps are presented in Appendix 6.2 which illustrate the maximum noise levels for all building facades heights, and also for a modelled grid height of 1.5m for external areas in the absence of building structures, e.g. external amenity areas etc. Values presented for Receptors R1 – 15 in Table 6.18 represent noise predicted for the front façade of building structures facing onto road traffic sources, i.e. Dublin Street etc. Receptors R16 – R19 represent receiver heights at 1.5m above ground level for assessing the effects of road traffic along Russell Row in later models but are not relevant at the validation stage given the presence of building structures which are to be demolished as part of the development proposals. Receptor R20 represents a receiver height of 1.5m and is relevant for comparing baseline noise levels within The Diamond area as part of the validation process.

Table 6.18 Scenario No.1 validation model results for base year (2022 traffic flow) 'without' development, dBA

Receptor	Receptor Location[3]	Front Façade - Recorded Daytime $L_{Aeq,T}$	Model Results (front)	Model Results (rear)
R1	The Diamond	73.2 dB	74.0 dB	52.0 dB
R2	61 Dublin Street	73.2 dB	76.0 dB	64.0 dB
R3	59 Dublin Street	73.2 dB	76.0 dB	45.0 dB
R4	55 Dublin Street	73.2 dB	75.0 dB	46.0 dB
R5	51 Dublin Street	73.2 dB	75.0 dB	46.0 dB
R6	47 Dublin Street	73.2 dB	75.0 dB	44.0 dB
R7	45 Dublin Street	73.2 dB	74.0 dB	45.0 dB
R8	41 Dublin Street	73.2 dB	74.0 dB	44.0 dB
R9	37 Dublin Street	73.2 dB	74.0 dB	45.0 dB
R10	32 Dublin Street	73.2 dB	74.0 dB	46.0 dB
R11	Old Cross Square	73.2 dB	74.0 dB	44.0 dB
R12	Unit 3/4 Old Cross Square	68.6 dB	63.0 dB	42.0 dB
R13	30 Old Cross Square	68.6 dB	67.0 dB	56.0 dB
R14	26 Old Cross Square	68.6 dB	69.0 dB	57.0 dB
R15	5/6 Old Cross Square	68.6 dB	72.0	57.0 dB
R16	Position No.1 Russell Row	N/A	N/A	N/A
R17	Position No.2 Russell Row	N/A	N/A	N/A
R18	Position No.3 Russell Row	N/A	N/A	N/A
R19	Position No.4 Russell Row	N/A	N/A	N/A
R20	Car park at The Diamond	60.6 dB	61.4 dB	N/A

The modelled Scenario No.1 was calibrated against the traffic flow data, the predicted levels were subsequently compared against the baseline noise levels as a means of further validation. The model demonstrated good correlation, with minor discrepancies likely being

[3] Strategic Noise Mapping does not include modelling for Glaslough Street

down to environment noise factors other than traffic sources (such as plant equipment, etc), or as a result of the exposure period for noise monitoring surveys. The longer-term monitoring data at M3, which was located adjacent to road traffic sources at Old Cross Square, demonstrated good correlation to the predicted noise levels for Receptor R14. Similarly, the monitoring data at M4 demonstrated good correlation to the predicted noise levels at Receptor R20.

On the basis of the validation model (Scenario No.1), the models for future conditions were developed for Scenarios No.2 (2030 with committed development, but 'without' development in place) and No.3 (cumulative conditions 'with' committed developments, and with development in place).

Scenario No.2 represents noise levels with proposed buildings which are to be demolished having been removed, but without the addition of a new traffic source along Russell Row. The results summarised in Table 6.19 and Table 6.20 represent the maximum noise predicted for all building façades at the front and rear of buildings, and all floor heights of the building structure. Receptor positions R15 – 19 have also been included along Russell Row (based on 1.5m receiving heights) in order to make a comparison against post-construction noise levels, and to assess L_{den} values later in this Chapter. Receiver positions R16 – R20 represent outdoor noise positions near to the boundary of the site, and adjacent to the boundary position of neighbouring properties.

Table 6.19 Scenario No.2 model results for 2030 factored traffic and committed developments, dBA

Receptor	Receptor Location	Front: Model Results	Rear: Model Results
R1	The Diamond	75.0 dB	52.0 dB
R2	61 Dublin Street	76.0 dB	64.0 dB
R3	59 Dublin Street	76.0 dB	46.0 dB
R4	55 Dublin Street	75.0 dB	47.0 dB
R5	51 Dublin Street	74.0 dB	48.0 dB
R6	47 Dublin Street	75.0 dB	46.0 dB
R7	45 Dublin Street	75.0 dB	46.0 dB
R8	41 Dublin Street	74.0 dB	46.0 dB
R9	37 Dublin Street	74.0 dB	47.0 dB
R10	32 Dublin Street	74.0 dB	47.0 dB
R11	Old Cross Square	74.0 dB	46.0 dB
R12	Unit 3/4 Old Cross Square	63.0 dB	46.0 dB
R13	30 Old Cross Square	67.0 dB	56.0 dB
R14	26 Old Cross Square	70.0 dB	59.0 dB
R15	5/6 Old Cross Square	72.0 dB	58.0 dB
R16	Position No.1 Russell Row	N/A	44.2 dB
R17	Position No.2 Russell Row	N/A	48.3 dB
R18	Position No.3 Russell Row	N/A	50.7 dB
R19	Position No.4 Russell Row	N/A	49.7 dB
R20	Car park at The Diamond	N/A	65.6 dB

Table 6.20 Scenario No.3 – cumulative model results for 2030 'with' development, including committed developments, dBA

Receptor	Receptor Location	Front: Model Results	Rear: Model Results
R1	The Diamond	75.0 dB	52.0 dB
R2	61 Dublin Street	77.0 dB	65.0 dB
R3	59 Dublin Street	77.0 dB	46.0 dB
R4	55 Dublin Street	76.0 dB	47.0 dB
R5	51 Dublin Street	74.0 dB	48.0 dB
R6	47 Dublin Street	75.0 dB	46.0 dB
R7	45 Dublin Street	75.0 dB	46.0 dB
R8	41 Dublin Street	74.0 dB	47.0 dB
R9	37 Dublin Street	74.0 dB	47.0 dB
R10	32 Dublin Street	74.0 dB	47.0 dB
R11	Old Cross Square	74.0 dB	46.0 dB
R12	Unit 3/4 Old Cross Square	64.0 dB	49.0 dB
R13	30 Old Cross Square	67.0 dB	56.0 dB
R14	26 Old Cross Square	70.0 dB	59.0 dB
R15	5/6 Old Cross Square	72.0 dB	58.0 dB
R16	Position No.1 Russell Row	N/A	46.8 dB
R17	Position No.2 Russell Row	N/A	51.4 dB
R18	Position No.3 Russell Row	N/A	50.0 dB
R19	Position No.4 Russell Row	N/A	50.5 dB
R20	Car park at The Diamond	N/A	65.6 dB

Table 6.21 provides a comparison of predicted noise levels between Scenario 2 and Scenario 3 for front facade positions facing onto traffic sources along Dublin Road and Old Cross Square, which enables the assessment between pre and post construction conditions. This also includes a comparison of the external receiver positions R16 - R20, as summarised in Table 6.22.

Table 6.21 Comparison between Scenario 2 & 3 – Front Facade

Receptor ID	Receptor Location	Scenario 2 (Front)	Scenario 3 (Front)	Difference dB
R1	The Diamond	75.0 dB	75.0 dB	0 dB
R2	61 Dublin Street	76.0 dB	77.0 dB	1 dB
R3	59 Dublin Street	76.0 dB	77.0 dB	1 dB
R4	55 Dublin Street	75.0 dB	76.0 dB	1 dB
R5	51 Dublin Street	74.0 dB	74.0 dB	0 dB
R6	47 Dublin Street	75.0 dB	75.0 dB	0 dB
R7	45 Dublin Street	75.0 dB	75.0 dB	0 dB
R8	41 Dublin Street	74.0 dB	74.0 dB	0 dB
R9	37 Dublin Street	74.0 dB	74.0 dB	0 dB
R10	32 Dublin Street	74.0 dB	74.0 dB	0 dB
R11	Old Cross Square	74.0 dB	74.0 dB	0 dB
R12	Unit 3/4 Old Cross Square	63.0 dB	64.0 dB	1 dB
R13	30 Old Cross Square	67.0 dB	67.0 dB	0 dB
R14	26 Old Cross Square	70.0 dB	70.0 dB	0 dB
R15	5/6 Old Cross Square	72.0 dB	72.0 dB	0 dB
R16	Position No.1 Russell Row	N/A	N/A	N/A
R17	Position No.2 Russell Row	N/A	N/A	N/A
R18	Position No.3 Russell Row	N/A	N/A	N/A
R19	Position No.4 Russell Row	N/A	N/A	N/A
R20	Car park at The Diamond	N/A	N/A	N/A

Table 6.22 Comparison between Scenario 2 & 3 – Rear Facade

Receptor ID	Receptor Location	Scenario 2 (Rear)	Scenario 3 (Rear)	Difference dB
R1	The Diamond	52.0 dB	52.0 dB	0 dB
R2	61 Dublin Street	64.0 dB	65.0 dB	1 dB
R3	59 Dublin Street	46.0 dB	46.0 dB	0 dB
R4	55 Dublin Street	47.0 dB	47.0 dB	0 dB
R5	51 Dublin Street	48.0 dB	48.0 dB	0 dB
R6	47 Dublin Street	46.0 dB	46.0 dB	0 dB
R7	45 Dublin Street	46.0 dB	46.0 dB	0 dB
R8	41 Dublin Street	46.0 dB	47.0 dB	1 dB
R9	37 Dublin Street	47.0 dB	47.0 dB	0 dB
R10	32 Dublin Street	47.0 dB	47.0 dB	0 dB
R11	Old Cross Square	46.0 dB	46.0 dB	0 dB
R12	Unit 3/4 Old Cross Square	46.0 dB	49.0 dB	3 dB
R13	30 Old Cross Square	56.0 dB	56.0 dB	0 dB
R14	26 Old Cross Square	59.0 dB	59.0 dB	0 dB
R15	5/6 Old Cross Square	58.0 dB	58.0 dB	0 dB
R16	Position No.1 Russell Row	44.2 dB	46.8 dB	2.6 dB
R17	Position No.2 Russell Row	48.3 dB	51.4 dB	3.1 dB
R18	Position No.3 Russell Row	50.7 dB	50.0 dB	-0.7 dB
R19	Position No.4 Russell Row	49.7 dB	50.5 dB	0.8 dB
R20	Car park at The Diamond	65.6 dB	65.6 dB	0.0 dB

As illustrated below in Figure 6.2, road traffic has a significant effect on local noise environs, even when taking into account the screening attenuation provided building structures and the local topography.

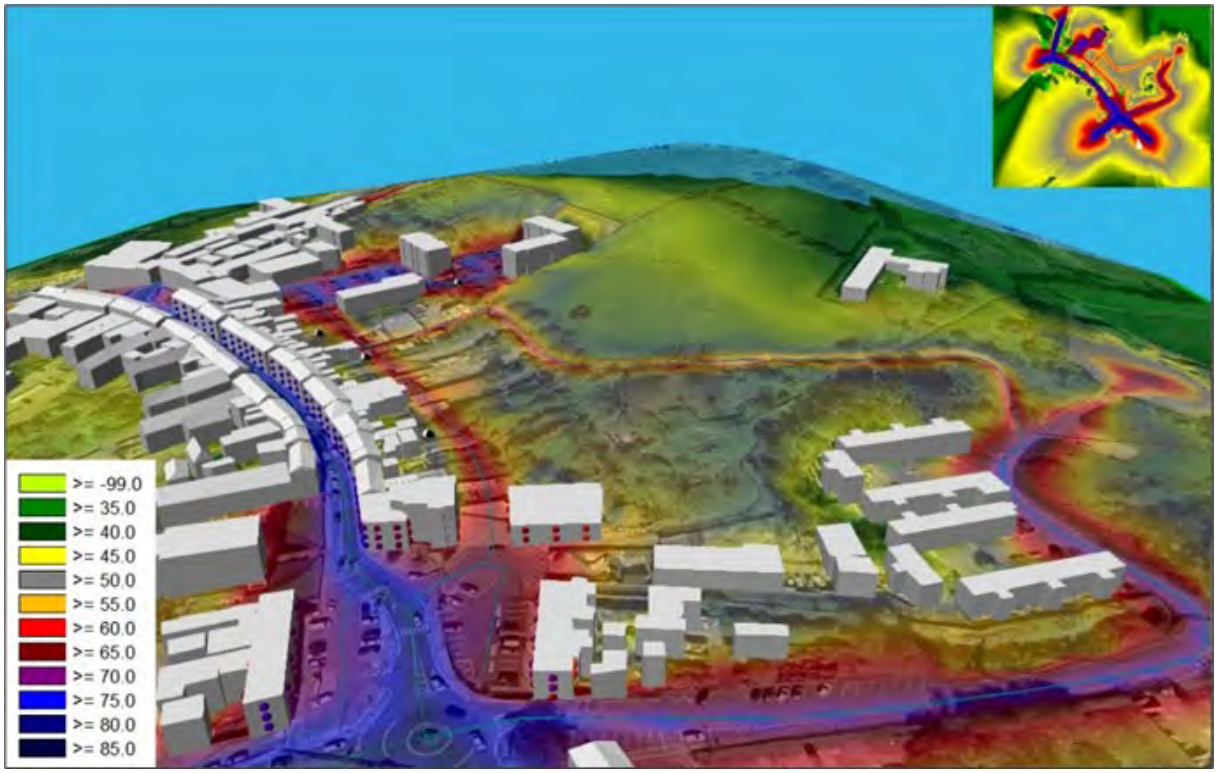


Figure 6.2 3D Cadna model of Scenario No.3 (cumulative)

The magnitude of noise impact from the proposed development has been assessed using Table 6.12 based on the IEMA (2014) Guidelines. The highest sensitivity of receptors for each modelled position has been adopted, and the significance of effect can be calculated thereafter using Table 6.14, as summarised below in Table 6.23.

For the purpose of this report, and the absence of specific information, it is assumed that residential dwellings could be located above ground floor retail units.

Table 6.23 Summary of significance of effect from noise impact

Receptor	Receptor Location	Receptor Sensitivity	Magnitude of Change in Noise	Long Term Significance of Effect
R1	The Diamond	High	Negligible	None
R2	61 Dublin Street	High	Negligible	None
R3	59 Dublin Street	High	Negligible	None
R4	55 Dublin Street	High	Negligible	None
R5	51 Dublin Street	High	Negligible	None
R6	47 Dublin Street	High	Negligible	None
R7	45 Dublin Street	High	Negligible	None
R8	41 Dublin Street	High	Negligible	None
R9	37 Dublin Street	High	Negligible	None
R10	32 Dublin Street	High	Negligible	None
R11	Old Cross Square	High	Negligible	None
R12	Unit 3/4 Old Cross Square	Medium	Negligible	None
R13	30 Old Cross Square	High	Negligible	None
R14	26 Old Cross Square	High	Negligible	None
R15	5/6 Old Cross Square	High	Negligible	None
R16	Position No.1 Russell Row	Medium	Negligible	None
R17	Position No.2 Russell Row	Medium	Negligible	None
R18	Position No.3 Russell Row	Medium	Negligible	None
R19	Position No.4 Russell Row	Medium	Negligible	None
R20	Car park at The Diamond	Medium	Negligible	None

On the basis of the above information and comparison of results, the proposed development during the operational phase is anticipated to be **negligible** in terms of magnitude of change in noise and is predicted to have **no long-term significance effect on local receptors**.

6.8.3 Assessment of L_{den}

In accordance with the NRA (2014) Guidelines, modelling was used to calculate the L_{den} values for receptor positions, and to generate a noise delineation map which illustrates the extent of the recommended 60dB L_{den} value. The cumulative noise delineation map illustrating the extent of 60dB L_{den} for Scenario No.3 is presented in Appendix 6.2, and the 3D Cadna noise model is illustrated below in Figure 6.3. The calculated L_{den} values for each receptor position are summarised in Table 6.24.

Table 6.24 Summary of calculated Lden values for Scenario No.3

Receptor	Receptor Location	Calculated L_{den} values – Front Facade	Calculated L_{den} values – Rear Facade
R1	The Diamond	71.7 dB	57.0 dB
R2	61 Dublin Street	73.3 dB	62.0 dB
R3	59 Dublin Street	74.0 dB	43.0 dB
R4	55 Dublin Street	72.3 dB	44.0 dB
R5	51 Dublin Street	70.8 dB	45.0 dB
R6	47 Dublin Street	71.6 dB	43.0 dB
R7	45 Dublin Street	71.4 dB	43.0 dB
R8	41 Dublin Street	70.8 dB	44.0 dB
R9	37 Dublin Street	70.9 dB	44.0 dB
R10	32 Dublin Street	71.0 dB	44.0 dB
R11	Old Cross Square	70.8 dB	43.0 dB
R12	Unit 3/4 Old Cross Square	60.1 dB	46.0 dB
R13	30 Old Cross Square	64.1 dB	53.0 dB
R14	26 Old Cross Square	66.5 dB	56.0 dB
R15	5/6 Old Cross Square	69.0 dB	55.0 dB
R16	Position No.1 Russell Row	-	43.8 dB
R17	Position No.2 Russell Row	-	48.4 dB
R18	Position No.3 Russell Row	-	47.0 dB
R19	Position No.4 Russell Row	-	47.5 dB
R20	Car park at The Diamond	-	62.6 dB

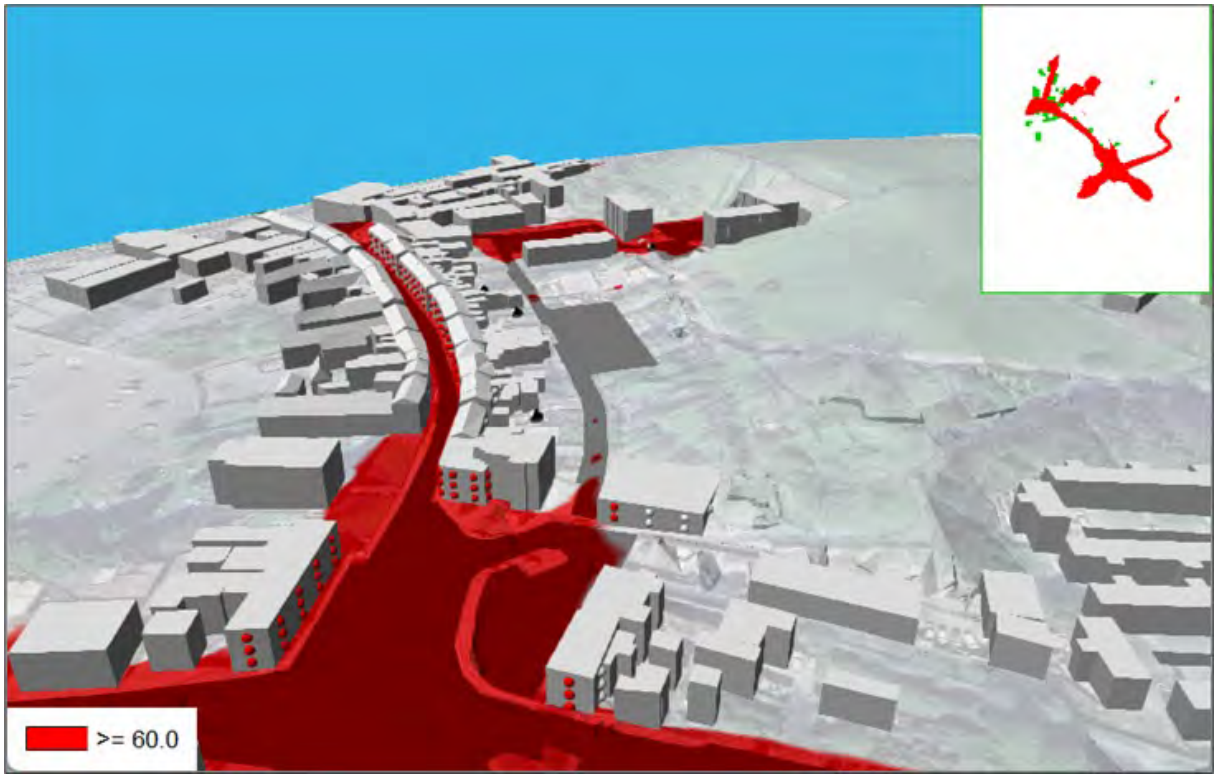


Figure 6.3 3D Cadna noise model: extent of 60dB Lden indicated in red

6.8.4 Discussion of Model Results

On the basis of the information presented within this Chapter, and on the comparison of results from the modelled scenarios, the operational phase of the development is anticipated to cause **negligible** effects in terms of magnitude of changes in noise levels between the pre and post development scenarios. Based on the IEMA (2014) and NRA (2014) criterion, the proposed development is predicted to have **no long-term significance effect on local receptors**.

In addition, the development proposals are predicted to not cause any exceedances in the 60dB L_{den} criteria, as recommended within the NRA (2014) Guidance. This remains true for the development in combination with all other known committed developments or projects.

In terms of the receptor positions R16 – R19, these indicate that the outdoor garden amenity noise levels within the rear of properties along Dublin Street are anticipated to be within the recommended WHO and BS8233:2014 guidelines of 55dB L_{Aeq}.

Therefore, considering the discussion of results it is concluded that noise impact during the operational phase of the development is predicted to be low.

6.9 Construction Impact Assessment

The construction phase of the project has been assessed in conjunction with the criteria outlined within Section 6.3 of this Chapter, and will comprise of the following sub-stages of works:

- **Scenario C1: Demolition works** to remove existing building structures within the site, and also to remove vegetation and carry out enabling works;
- **Scenario C2: Earthworks** – this stage will excavate soil and subsoil materials to the required ground levels, and infilling areas to the required finished ground level; and
- **Scenario C3: Construction work** – this will include surfacing, installation of lighting, kerbing and landscaping etc.

In order to determine the potential noise effects that the development may have on local sensitive receptors during each stage of the construction phase, Cadna noise modelling was undertaken, and appropriate mitigation measures were developed thereafter, as required. The construction noise limits were also defined as part of this impact assessment.

6.9.1 Noise Source Levels

Sound pressure levels or sound power levels were derived for a range of vehicles or plant equipment, and for a range of construction activities, based on either empirically derived data, manufacturer specification datasheets, or from source levels outlined within BS5228:2009+A1:2014. Given that BS5228 uses source noise levels which have primarily been derived from the previous standard of BS5228:1997, then many of the source levels are considered to be largely out of date, as modern plant equipment is typically significantly much quieter. Therefore, wherever possible, noise sources for modern examples of plant equipment or empirically measured activities have been used as a basis for modelling the various construction sub-stages.

A summary of the modelled noise sources is presented below in Table 6.25. For the purpose of assessing construction noise, only plant equipment which is likely to be used for more than a 24-hour period (i.e. one day of labour) has been included, as shorter-term use of noisy plant equipment can generally be tolerated provided that it does not exceed a single workday period, and with prior notification to NSRs.

Where sound pressure levels are provided by either published data or empirically derived data, then the sound power level has been back calculated using the Equation 1.1 below, and assuming the appropriate factor of propagation (typically Q=2 or Q=4 for plant noise):

Equation 1.1: $$L_p = L_W + |10 \cdot \log\left(\frac{Q}{4\pi \cdot r^2}\right)|$$

Table 6.25 Summary of source noise levels for the construction phase, dBA

Source / Activity	Plant Equipment	Sound Pressure Level (SPL), dB	Sound Power Level (PWL), dBA	Sound data source
Excavator: earthworks under load	CAT 320 23T 129.4kW or similar	-	99dBA	Manufacturer Specification Datasheets
Hydraulic breaking activities (if required i.e. shallow obstructions)	Not specified	82dB $L_{Aeq,T}$ at 10m	107dBA	BS5228 Table C.A Ref No.12 for 228kW 44T
Tracked excavator clearing site	Not specified	78dB $L_{Aeq,T}$ at 10m	103dBA	BS5228 Table C.2 Ref No.3 for 102kW 22T unit
Loading and haulage of Dump trucks	3-9T Dump Truck	76dB $L_{Aeq,T}$ at 10m	104dBA	Table C.4 Ref No.4 for 75kW 9T unit
Breaking brick rubble: breaker mounted on excavator	Not specified	90dB $L_{Aeq,T}$ at 10m	118dBA	Table C.1 Ref No.9 for 121 kW unit
Excavator: earthworks under load	CAT 315 15T 80.9kW or similar	-	101 dBA	Manufacturer Specification Datasheets
Site clearance: Dozer	Not specified	79dB $L_{Aeq,T}$ at 10m	104dBA	Table C.2 Ref 11
Road surface works: Vibratory Roller	98kW 8.9T or similar	75dB $L_{Aeq,T}$ at 10m	103dBA	Table C.5 Ref 20
Road surface works: Asphalt Paver (+ Tipping Lorry)	112kW 12T hopper	75dB $L_{Aeq,T}$ at 10m	103dBA	Table C.5 Ref 30

Source / Activity	Plant Equipment	Sound Pressure Level (SPL), dB	Sound Power Level (PWL), dBA	Sound data source
Ready mix concrete lorries	Not specified	80dB $L_{Aeq,T}$ at 10m	105dBA	Table C.4 Ref 20
Truck mounted concrete pump + boom arm	26T	80B $L_{Aeq,T}$ at 10m	105dBA	Table C.4 Ref 29

6.9.2 Noise Modelling of Construction Phase

All three stages of the construction phase have been modelled (i.e. C1: Demolition, C2: Earthworks and C3: Construction), based on the most significant noisy plant equipment which is likely to be used for each respective stage of works.

6.9.2.1 Scenario C1: Demolition Stage

The demolition phase will require the use of tracked excavators to systematically demolish building structures scheduled to be removed, along with vegetation etc. A brief summary of the significantly noisy plant equipment likely to be used during the demolition phase is presented below:

- 2No. 10-15T tracked excavators (example: CAT 315 T15) to demolish building structures, assuming each excavator located at separate building structures;
- 1No. 15T with tracked excavator with hydraulic breaker: although hydraulic breaking is not anticipated, there may be very short-term requirements for the use of hydraulic breaking, such as the breaking of floor slab structures;
- Haulage route for HGV movements, assuming 2No. rigid HGV movements per hour, travelling at 10kph; and
- It is noted that no crushing of demolition waste will take place within the site.

In order to assess any potential impacts that the demolition phase may have on local environs, a Cadna noise model was developed for the demolition phase (i.e. Scenario C1). Source locations (excavators) have been placed within the two key areas for buildings which are to be demolished.

6.9.2.2 Scenario C2: Earthworks Stage

The earthworks stage will reduce the ground levels using excavators and HGV vehicles for offsite removal of soils and subsoil materials. Based on Chapter 10, it is anticipated that the calculated volume of materials to be removed will result in circa 3No. HGV trips per hour. It is assumed that 3No. excavators (for example, CAT 320, 23T) will be used at any given time throughout the earthworks stage, along with 2No. mini diggers (e.g. CAT 315, 15T).

In order to assess any potential impacts that the earthworks stage may have on local environs, Cadna noise model was undertaken for Scenario C2.

6.9.2.3 Scenario C3: Construction Stage

The construction stage will involve surfacing and installation of the proposed new road (i.e. Russell Row) and associated car parking and public realm paved areas. A number of reasonable assumptions have been made with regards to the plant equipment and processes which are to be used during the construction stage, as outlined below:

- Importation and installation of base layers for road surfacing (i.e. aggregates, etc);
- 2No. tracked excavators (assumed 15T, such as CAT 315 or similar);
- Road surface works: asphalt paver and tipper lorries modelled as a moving point source at a maximum speed of 10kph, assuming 3 passes along the entire route per hour;
- Road surface works: vibratory roller (assumed 9T), modelled as a moving point source at 10kph;
- Concrete pouring and pumping, as required. Modelled as a static point source at a maximum speed of 10kph, assuming 3 passes along the entire route per hour, simultaneous to the vibratory roller; and
- It is noted that no piling is required, therefore the assessment and modelling relates to all non-piling schedules of works.

In order to assess any potential impacts that the construction phase may have on local environs, Cadna noise model was undertaken for Scenario C3. The results for all three construction stages are discussed further below.

6.9.3 Construction Phase: Model Results

The model results for Scenarios C1 – C3 are summarised in Table 6.26, which represent noise levels at the rear building facades of receptor properties along Dublin Street (i.e. facades facing towards the construction works, worst case). The noise delineation maps for each of the modelled scenario are presented in Appendix 6.2.

Table 6.26 Summary of model results for construction phase (rear facades), dBA

Receptor ID	Receptor Location	Demolition (Scenario C1)	Earthworks (Scenario C2)	Construction (Scenario C3)
R1	The Diamond	42.0	45.0	40.0
R2	61 Dublin Street	42.0	43.0	49.0
R3	59 Dublin Street	39.0	41.0	45.0
R4	55 Dublin Street	47.0	41.0	55.0
R5	51 Dublin Street	47.0	51.0	56.0
R6	47 Dublin Street	47.0	51.0	59.0
R7	45 Dublin Street	50.0	54.0	60.0
R8	41 Dublin Street	52.0	54.0	61.0
R9	37 Dublin Street	50.0	56.0	60.0
R10	32 Dublin Street	47.0	54.0	58.0
R11	Old Cross Square	45.0	52.0	56.0
R12	Unit 3/4 Old Cross Square	51.0	55.0	66.0
R13	30 Old Cross Square	40.0	46.0	55.0
R14	26 Old Cross Square	28.0	44.0	52.0
R15	5/6 Old Cross Square	38.0	42.0	50.0
R16	Position No.1 Russell Row	47.1	58.8	59.8
R17	Position No.2 Russell Row	56.6	56.0	66.8
R18	Position No.3 Russell Row	50.8	55.9	65.0
R19	Position No.4 Russell Row	47.1	53.9	59.5
R20	Car park at The Diamond	48.7	50.7	52.1

6.9.4 Noise Limits

Given the scheme intends to introduce a new road traffic source and car parking area, then the construction noise limits outlined within the NRA (2014) Guidelines have been adopted, as reiterated below in Table 6.27.

Table 6.27 Maximum permissible noise levels at the façade of dwellings during construction, dBA

Days and Times	dB $L_{Aeq, 1hr}$	dB $L_{pA(Max), slow}$
Monday to Friday 07:00 – 19:00hrs	70 dB	80 dB
Monday to Friday 19:00 – 19:00hrs	60 dB	65 dB
Saturday 08:00 – 16:30hrs	65 dB	75 dB
Saturdays and Bank Holidays 08:00 – 16:30hrs	60 dB	65 dB

6.9.5 Construction Impact Assessment: Discussion

Based on the noise modelling results for each stage of the construction phase of the development, it is noted that demolition and earthworks are unlikely to cause exceedances with regards to the construction noise limits. Therefore, other than the general noise mitigation measures outlined within the following section of this Chapter, no specific noise mitigation is required for these two phases of works. Should hydraulic breaking be required for longer than an hour, then depending on the location, it is possible that hydraulic breaking may result in short term exceedances of the noise limits for construction activities.

Modelling results for Scenario C3 indicates that activities during the construction stage (i.e. road installations, surfacing etc) are likely to meet the daytime criteria, however construction activities are predicted to marginally exceed the noise limits at receptor boundaries during periods outside of Monday – Friday (07:00 – 19:00hrs).

6.10 Mitigation

6.10.1 Construction Phase: Operating Hours

The operating hours will be agreed with the Council prior to commencement, however, in order to minimise the impacts on noise, the following hours of operation should be adhered to for the construction stage (road surface installation etc):

Monday to Friday: 07:00 – 19:00hrs

Saturday: 08:00 to 13:00[4]

[4] Activity dependent. If Saturday work hours are required, then this should be carried out in accordance with the monitoring criteria detailed further below

6.10.2 Demolition and Construction: Noise Mitigation

The Principal Contractor will be requested to liaise with Environmental Health in order to ensure that noise during the construction phases is effectively managed. All Contractors will be required to employ best practicable means to minimise noise during each phase of the development. As outlined in BS 5228-1:2009, the following recommended mitigation measures will be employed by the Contractor in order to reduce the noise impacts from the construction phase:

- The contractor / developer will establish and maintain good community relations and will engage local residents / commercial operators prior to commencement of operations and site works. This may include informing local residents/neighbouring properties on progress of the site by way of a leaflet drops for example and ensuring measures are put in place to minimise noise impacts. A telephone “hot line” and agreed procedure for the contractor to investigate and report on complaints will be set up for particularly noisy phases of works, for example should hydraulic breaking be required;
- All onsite operatives shall be trained to employ appropriate techniques to keep site noise to a minimum, and shall be effectively supervised in order to ensure that best working practice in respect of noise reduction is followed;
- The schedule of works and site working hours will be carried out on the basis of the noise threshold limits outlined in this report, and taking into account the principles outlined in BS5228:2009+A1:2014 and NRA (2014) Guidelines;
- Any static plant will be positioned as far as possible from residential properties, and utilising available screening by temporary structures, acoustic screens etc;
- For any particular job, the quietest available plant and/or machinery will be used. Where appropriate, it must be constructed to meet the requirements of EC Directives;
- Site operators will avoid unnecessary revving of engines, and all plant equipment will be maintained in good mechanical order and fitted with the appropriate silencers, mufflers or acoustic covers where applicable;
- All plant and vehicles used in the works shall have exhaust silencers in good working order and diesel plant shall be fitted with effective air intake silencers. All ancillary pneumatic percussive tools shall be fitted with mufflers or silencers as recommended by the manufacturer; and where necessary acoustic barriers can be used to shield them;
- Any machinery which is in intermittent use should be shut down in intervening periods of non-use or where this is impracticable, it should be throttled back to a minimum;

- Every effort will be adopted in order to minimise drop height of materials, ideally lowering materials wherever practicable;
- Plant will be started up sequentially, rather than simultaneously;
- All site staff will be informed about the need to minimise noise and will be supervised to ensure compliance with the noise control measures adopted;
- The use of concrete saws (should these be required) will be used briefly and intermittently throughout the day, rather than in a prolonged concentrated block at end of day;

The Contractor will seek to minimise the total level (ambient plus construction) noise and strive not to exceed the limiting criteria outlined within this Chapter. However, where this is not possible then practicable mitigation measures should be developed and implemented in order to minimise the overall noise impact on sensitive receptors, and through consultation with Environmental Health.

6.10.3 Demolition and Construction: Vibration Mitigation

- All appointed contractors will adhere to the vibration guidelines as outlined in this report, and vibration limits will be included within tender documents for potential contractors to take into consideration when committing to a schedule of works;
- The contractor shall employ the “best practicable means” to minimise noise and vibration resulting from operations and shall have regard to British Standard BS 5228 Code of Practice for Noise Control on Construction and Open Sites Parts 1 and 2;
- The construction contractor will provide evidence of having liaised with all relevant receptors (residential and commercial) prior to commencement of each phase of works. This will include notification of intended noise & vibration sources and a brief schedule of works; and
- A copy of neighbour liaison evidence will be made available to Environmental Health, and a copy of neighbour liaison letters included within CEMP, as required.

6.10.4 Construction Monitoring: Noise

In the event that noise related complaints are received, or that the recommended noise limits are exceeded (or likely to be exceeded) at relevant residential or commercial receptors, then noise monitoring will be carried using the following principles:

- The Contractor shall designate an Environmental Manager/Responsible Person who, amongst a range of other responsibilities, will liaise with environmental advisors, statutory bodies and the local community as required with respect to noise and vibration impacts during the demolition and construction phases;

- All monitoring will be carried out using the principles outlined in BS4142:2014 and BS5228-1:2009+A1:2014. Noise levels will be recorded using an approved Class 1 1:3 octave noise analyser, and the monitoring period agreed in advance with the Environmental Health department or Planning Authority, as required. The data should include 1:3 octave frequencies to determine tonality, and should present data for the following parameters: $L_{Aeq,T}$; L_{A90}; L_{A10}; L_{AFmax};
- A suitable number of noise monitoring locations shall be established around the site boundary or at the relevant residential receptor locations, as required. The microphone shall be situated in a free-field location, approximately 1.2 to 1.5 metres above local site level. Measurements shall be made in accordance with good acoustical practice, and care should be taken in order to avoid the effects of local acoustic screening and acoustic reflections;
- In the event that noise complaints are received, then monitoring shall be carried out at the complainant's property, with their permission. Should permission not be granted, then a suitable alternative monitoring position should be agreed with the Environmental Health department or Planning Authority, as required. Monitoring should be carried out for a sufficient period that will allow a robust assessment of the effects of the construction noise sources on the receptor positions. Upon analysis of the results, and in the event of exceedances of noise limiting criteria, then suitable mitigation measures should be developed and agreed with the Council or Planning Authority, as required thereafter;
- All operators of noise monitoring equipment shall be trained and competent to undertake the measurements;
- In the event that complaints have been received and that noise monitoring is required, then real time measurements should be made available during the monitoring period (typically telemetry based), as these can highlight specific sources of noise, or issues that can enable immediate remedial actions to be taken. A precise daily log of each construction activity undertaken will be kept on site and made available for inspection when requested. If a $L_{Aeq,T}$ value exceeds the noise threshold level, or should a complaint be received, then the log can be examined and the site activities which created the contravening noise will be established. The Contractor can then take further mitigation steps relating to the activity to prevent recurrence;
- The duration and location of noise monitoring will be agreed with Environmental Health or Planning Authority, as required, and the analyser data will be provided in text and digital (.csv) format for review; and

- Copies of all noise measurements shall be made available to Environmental Health or Planning Authority upon request.

6.10.5 Construction Monitoring: Vibration

In the event that complaints are received in relation to vibration during the construction stage, then vibration monitoring should be carried out at the complainant's property, with their permission. In addition:

- The monitoring results should be reviewed for exceedances in the recommended threshold levels, and a copy of the monitoring data should be made available to the Council or Panning Authority for review. Should mitigation measured be required, then these should be agreed with the Council or Panning Authority, and further monitoring carried out to ensure that the mitigation measures have reduced vibration levels to below the limiting criteria.
- Should vibration monitoring be required, then it is recommended that continuous vibration monitoring of PPV and VDV should be undertaken for x,y,z axis. The location of vibration monitoring should be chosen based on the closest affected receptor position to the source of vibration. In most cases the receptor position is likely to represent the external façade position of a building structure, therefore permission should be sought to deploy vibration monitoring equipment within the receptor property. Should permission not be granted, then it may be necessary to choose an alternative location, either at a receptor with similar setback distances, or if this is not possible, then monitoring should be carried out at a representative boundary position within the confines of the development area;
- Vibration monitoring data should be made available in real-time (typically obtained using a telemetry system) in order to assess the ongoing effects of vibration on the receptor position. Real-time monitoring data also enables immediate action to be undertaken in the event that vibration threshold limits are exceeded;
- It is recommended that set alert thresholds for PPV at 1mm/s, 2.5mm/s and 10mm/s, which should preferably be delivered real-time via text messaging alerts or by email alerts;
- Vibration monitoring should record the PPV and VDV parameters continuously through the monitoring period, and the results should be reviewed each day for exceedances; and
- A copy of the results should be made available to Environmental Health or Panning Authority for review on a weekly basis by means of a collated report. In the event that vibration threshold levels have been exceeded, then the Council should be informed

and appropriate mitigation measures developed before further construction works can be undertaken.

6.10.6 Construction Phase: Complaints

- All complaints will be dealt with by the contractors designated point of contact. In the event of a noise or vibration related complaint being generated as a result of onsite activities, then the Environmental Health department will be notified immediately. Construction noise and vibration monitoring will be carried out at the property of the complainant in accordance with this report, or at a monitoring position agreed in advance with the Environmental Health department prior to commencing monitoring;
- All monitoring should be carried out using the principles outlined in BS4142:2014 and BS5228-1:2009+A1:2014. Noise levels will be recorded using an approved Class 1 1:3 octave noise analyser, and the monitoring period agreed in advance with the Environmental Health department;
- Good communication should be maintained between the Client, site manager / operator, the Environmental Health department, and the complainant. Every effort will be made in order to ensure complaints are dealt with in a professional and neighbourly way; and
- A complaints log should be maintained and considered live while the complaint is being dealt with, and once the complainant and the Environmental Health department are satisfied that every effort has been made in order to comply with the recommendations and thresholds outlined within this report, then the complaint will be archived as dealt with.

6.10.7 Operational Phase

The operational phase of the development was predicted to have low impact potential on all receptors. Therefore, no specific mitigation measures are required for the long-term operational phase.

6.11 Residual Effects Following Mitigation

Provided the construction mitigation measures outlined within this Chapter are implemented and given that the construction phase is temporary in nature, then the residual effects for the construction phase are anticipated to be negligible.

Local noise sensitive receptors are currently subjected to relatively high levels of background noise, given that the local noise environs are dominated by road traffic. Noise modelling for the operational phase of the development demonstrates a negligible impact potential, even when taking into consideration the cumulative impact for committed developments. Therefore, the residual effects following mitigation are also anticipated to remain negligible.

7 Soils, Geology, & Hydrogeology

7.1 Introduction

This chapter of the EIAR considers the potential effects on soils, geology and hydrogeology in relation to the redevelopment of Dublin Street and lands to the northeast of Dublin Street, Old Cross Square, Monaghan Town (the Proposed Development). The Proposed Development is described in full in Chapter 4 of this EIAR.

The assessment has been undertaken in accordance with the Environmental Protection Agency's (EPA) Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022). This includes presentation of information on the existing soil, geological and hydrogeological environment (i.e., the baseline for the site) to assess its importance or sensitivity and includes consideration of land contamination issues.

The magnitude, probability and consequence of the potential direct and indirect effects caused by the construction and operational phases of the Proposed Development are used to determine the overall significance of the predicted effect.

Where a significant adverse effect is identified, mitigation measures are proposed, and any residual effects, once mitigation measures are implemented, are evaluated.

7.1.1 Statement of Authority

This chapter of the EIAR was prepared by Gavin & Doherty Geosolutions (GDG). GDG is a specialist engineering consultancy with a foundation in geoscience, environmental services and geotechnical engineering. GDG was founded in 2011 and is committed to supporting projects which contribute to the global sustainability agenda, such as enhancing infrastructure, supporting onshore and offshore wind farm developments and general civil infrastructure design.

Roy Harrison is the lead author of this Chapter. Roy is a Chartered Geologist and Member of the Institution of Environmental Sciences with over 20 years' experience working in the sector, and has led the geoenvironmental EIA aspects of multiple large-scale developments in both wind farm projects (e.g. Middle Muir Wind Farm, Kype Muir Wind Farm, Kype Muir Extension Wind Farm) and large-scale transportation and redevelopment projects (e.g. Clyde Waterfront, Renfrew Riverside and Glasgow Airport Investment Area Infrastructure Development Projects, Cross Tay Link Road, A96 Hardmuir to Fochabers).

7.2 Methodology & Legislation

The methodology used to produce this chapter included the following steps:

- A review of relevant legislation and guidance.
- A review of project scoping documents and consultation responses from relevant parties.
- A desk study of existing information available for the site information and mapping available publicly via online Geological Survey of Ireland (GSI) and Environmental Protection Agency (EPA) portals.
- A site walkover.
- Intrusive ground investigation.
- An assessment of the significance of potential effects.
- An identification of measures to avoid and mitigate likely significant adverse effects.
- An evaluation of residual effects.

7.2.1 Legislative Context and Guidance

This chapter has been prepared in accordance with the relevant parts of the following legislation and regulations:

- Groundwater Directive 2006/118/EC (Council of the European Union, 2006).
- Council Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (as amended).
- Statutory Instrument (S.I.) No. 9 of 2010 European Communities Environmental Objectives (Groundwater) Regulations 2010 and amendments S.I. 389 of 2011, S.I. 149 of 2012, S.I. 149 of 2012 and S.I. 366 of 2016).
- Planning and Development Act 2000, as amended.
- Planning and Development Regulations 2001, as amended.
- Wildlife Act 1976, as amended.
- EC (Birds and Natural Habitats) Regulations 2011, as amended.
- Heritage Act 1995, as amended.

This chapter has been prepared in accordance with the relevant parts of the following guideline documents:

- Revised Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022).

- Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (Institute of Geologists of Ireland (IGI), 2013).
- Department of Housing, Planning and Local Government Wind Energy Development Guidelines (2006).
- British Standard Code of Practice for Ground Investigations, BS 5930:2015+A1:2020.
- British Standard Code of Practice, Investigation of potentially contaminated sites, BS 10175:2011+A2:2017
- Guidance on the Authorisation of Discharges to Groundwater. Environmental Protection Agency, 2011.
- Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (National Roads Authority (NRA), 2008).
- European Communities 2021. Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

7.2.2 Assessment Methodology for Potential Impacts

During each phase (construction and operation) of the Proposed Development, a number of activities will take place on site which will have the potential to cause impacts on the soils, geology and hydrogeology.

The methods used for assessment of effects is based on a combination of the ‘Guidelines on the Information to be Contained in Environmental Impact Assessment Reports’ published by the EPA (2022), and the ‘Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes’ published by the National Road Authority in 2008.

The importance or sensitivity of soil, geological or hydrogeological receptors in the study area will be determined using the criteria set out in Table 2.1

The magnitude of the potential effect will be as described as per Table 7.2, which when combined with the sensitivity of the receptor will allow an assessment of the significance of the effect following the matrix presented in Table 2.1.

The potential impacts of the Proposed Development are discussed in Section 7.4. Mitigation measures, where required, are presented in Section 7.6, whilst Residual Impacts are considered in Section 7.7.

Table 7.1 Sensitivity Criteria (following EPA, 2022)

Importance (Sensitivity)	Definition and Examples
High Receptors with a high quality and/ or rarity, regional or national scale and limited potential for substitution/ replacement.	**Geology**: Geological resources (e.g. mineral reserves) within the study area are of very high value and importance (e.g. very rare or valuable minerals).
	Soils: Soils are of very high value and importance, e.g. peat, very highly productive agricultural soils, superficial soils of very high value or geological importance.
	Contamination: Significant contamination of potential high risk to human health or sensitive water environment receptors.
	Hydrogeology: Hydrogeological catchment area is of very high value and importance i.e. provides river baseflow and is used extensively for private and public water supplies, e.g. groundwater abstractions for public or private drinking within 0-250m of the Proposed Development site (greater than 1m depth excavations) or within 0-100m (excavations less than 1m depth), groundwater typically also has a vulnerability classification of Extreme.
Medium Receptors with a medium quality and/ or rarity, local scale and limited potential for substitution/ replacement or receptor with a low quality and rarity, regional or national scale and limited potential for substitution/ replacement.	**Geology**: Drift and solid geology underlying the Proposed Development is within a designated area and is of rare or of national importance. Geological resources (e.g. mineral reserves) within the study area are of high value and importance.
	Soils: Soils are of high value and importance, e.g. carbon rich soils, highly productive agricultural soils.
	Contamination: Contamination of potential low to moderate or moderate risk to human health or sensitive water environment receptors.

Importance (Sensitivity)	Definition and Examples
	Hydrogeology: Hydrogeological catchment area is of high value and importance i.e. provides baseflow to rivers, supports highly sensitive Ground Water Dependent Terrestrial Ecosystems (GWDTE) or used for local private water supplies, e.g. groundwater abstractions for private supply within 500m of the Proposed Development site (greater than 1m depth excavations) or 0-250m (excavations less than 1m depth). Groundwater typically also has a vulnerability classification of High.
Low Receptors with a low quality and/ or rarity, local scale and limited potential for substitution/ replacement or receptor with a negligible quality and rarity, regional or national scale and limited potential for substitution/ replacement.	**Geology**: Drift and solid geology underlying the study area is not within a designated area and deposits are of medium value and importance. Geological resources (e.g. mineral reserves) within the study area are of medium value and importance.
	Soils: Soils are of medium value, e.g. productive agricultural soils.
	Contamination: Low levels of contamination unlikely to present a significant risk to human health or sensitive water environment receptors.
	Hydrogeology: Hydrogeological catchment area is of medium value and importance and is not generally used for public or private water supplies. Groundwater supports medium sensitivity GWDTEs. Groundwater typically also has a vulnerability classification of Moderate.
Negligible Receptors with a negligible quality and/ or rarity, local scale and potential for substitution/ replacement. Environmental equilibrium is stable and is resilient to changes that are greater	**Geology**: Drift and solid geology underlying the Proposed Development site is not within a designated area, and deposits are of low value and importance. Geological resources (e.g. mineral reserves) on the Proposed Development site are of low value and importance.

Importance (Sensitivity)	Definition and Examples
than natural fluctuations, without detriment to its present character.	**Soils**: Soils are of low value and importance, e.g. general superficial soils of low value or geological importance.
	Contamination: No identified contamination of potential risk to human health or sensitive water environment receptors.
	Hydrogeology: Hydrogeological catchment area is of low value and importance and is not used for public or private water supplies. Groundwater typically also has a vulnerability classification of Low.

Table 7.2 Criteria for Rating Magnitude of Effects (following EPA, 2022)

Magnitude of Impacts	Criteria
High Adverse	Results in loss of attribute, i.e. long term, permanent change to receptors resulting from activities associated with the Proposed Development, e.g. major changes to the hydrogeological regime or complete loss of soil / carbon resource.
Medium Adverse	Impacts integrity of attribute or results in loss of part of attribute, i.e. short to medium term change to receptors resulting from activities associated with the Proposed Development, e.g. non-significant alteration to the hydrogeological regime or substantial loss of soil / carbon resource.
Low Adverse	Results in minor impact on attribute, i.e. detectable but non-material and transitory changes to receptors resulting from activities associated with the Proposed Development, e.g. minor alteration to the hydrogeological regime or minor loss of soil / carbon resource.
Negligible	Results in an impact on attribute but of insufficient magnitude to affect the use/integrity, i.e. negligible changes to receptors resulting from activities associated with the proposed development.

7.2.3 Consultation

A programme of consultation was undertaken in relation to the scoping report for the Proposed Development, and a response from An Bord Pleanála was received. See Chapter 5 for further details of the consultation process.

Comments relevant to this chapter are summarised in Table 7.3, along with details of where these comments have been addressed.

Table 7.3 Consultation Responses

Consultee Comment	Addressed within the EIAR
The EIAR Scoping Report (section 9) states that it is proposed to scope out geology and soils, while it is proposed to scope in hydrogeology.	This was the intention, however following the consultation response all aspects have been scoped back into the EIAR, although the majority of the comments are addressed either in other chapters of the EIAR, or in supporting technical documents.
Having regard to the invasive species on site which may impact soils and the yet unknown quantities and description of materials to be disturbed and/or excavated on the site, together with reference to potential risks associated with contamination that are stated to have been identified, it is considered that soils and geology should be scoped in for consideration in the EIAR.	Discussion on the site soils and proposed disturbance and excavation is provided in Chapter 10 below. Invasive species are considered mainly in the Biodiversity Chapter 9 and the Invasive Species Management Plan Appendix 9.3, although some reference is made to the potential impact on earthworks and construction methodology in Chapter 7 below.
The EIAR should provide information relating to the amount and description of materials disturbed or excavated on the site and proposals for the storage, reuse and disposal of material excavated or otherwise generated during the demolition and construction phases of development. Particular attention should be paid to the identification, removal and management of any contaminated soil.	Discussion on the site soils and proposed disturbance and excavation is provided in Chapter 10, which includes reference to contaminated soils.

Consultee Comment	Addressed within the EIAR
The impact of excavations required as part of the development should describe, assess and mitigate the potential impact of the proposed development on existing sub surface services that may be present on the site.	Subsurface utilities are considered as part of the Material Assets Chapter 10.
An assessment of the impact of such excavations or other ground disturbances on surface and subsurface waters (culvert features) should be provided.	Impact on culverts and other surface water features is considered in the Material Assets Chapter 10.
Provide details of the types and nature of materials imported to the site during construction together with construction methods to be employed and measures to prevent the importation of invasive species.	Further discussion on the requirement for imported soils and the necessary importation criteria is given in Chapter 10.
Mitigation measures to prevent or minimize emissions from the site during demolition and construction phases, should also be provided.	Discussion on emissions of dust from the site is given in Chapter 7, whilst other forms of emissions are discussed in the Air Quality Chapter 11.

7.3 Baseline Scenario

7.3.1 Topography, Setting and Land Use Study Area Description

The approximately 2Ha site is located in the town of Monaghan, which is the county town of County Monaghan, Republic of Ireland. The ITM Reference for the approximate centre of the site is 667400, 833700. The site is located to the northeast of the town centre, extending from The Diamond to the northwest, south-eastwards along Dublin Street, and is bounded to the southeast by Old Cross Square.

The plan area is defined by the residential terraces on Dublin Street to the southwest and their long rear gardens that extend to the north. Historically the rear gardens extended to the wall that formerly enclosed St. Davnet's. 20th-century development resulted in the introduction of an informal access road to the rear and various backland developments, including commercial premises.

The site comprises mixed commercial and residential land. This consists of commercial uses including solicitors' offices, retail units (laundry, clothing, footwear, salon, public house, restaurant, PVC windows supplier, auto repair shop) and a guest house. Commercial premises have also been developed to the rear, including a furniture factory. A number of the shops extended the retail use to the full width of the property which does not allow separate access to the upper levels, and which has led to vacancy at upper levels. There are also several vacant shops along the street. The backland areas are substantial but underutilised.

The surrounding area is best described as the town centre, comprising a mix of uses, including residential and a mix of small to medium-scale retail uses based on the traditional narrow plot street pattern on Glaslough Street, the Diamond, Dublin Street and Market Square. A cemetery is present in the immediate vicinity of Old Cross Square. A petrol station and an alcoholic beverage wholesaler (Monaghan Bottlers Ltd) are also in the surrounding area. Agricultural land is present to the north of the site.

The landform of the wider site area is presented in Figure 7.1, with elevations on the site varying between 68m Above Ordnance Datum (AOD) (in the east) and 59mAOD (in the south). The base level of the region and the site are the Ulster Canal and the River Shambles, which on the site are at elevations of around 59mAOD.

The map in Figure 7.2 is a cropping of the Corine Land Cover 2018 (EPA) which shows the land use classifications for the site and its surroundings. The dataset is based on the interpretation of satellite imagery and national in-situ vector data. The project boundaries fall into two classes "Continuous urban fabric" (purple hatching) for the largest area and a smaller area classified as "Pastures" (green hatching).

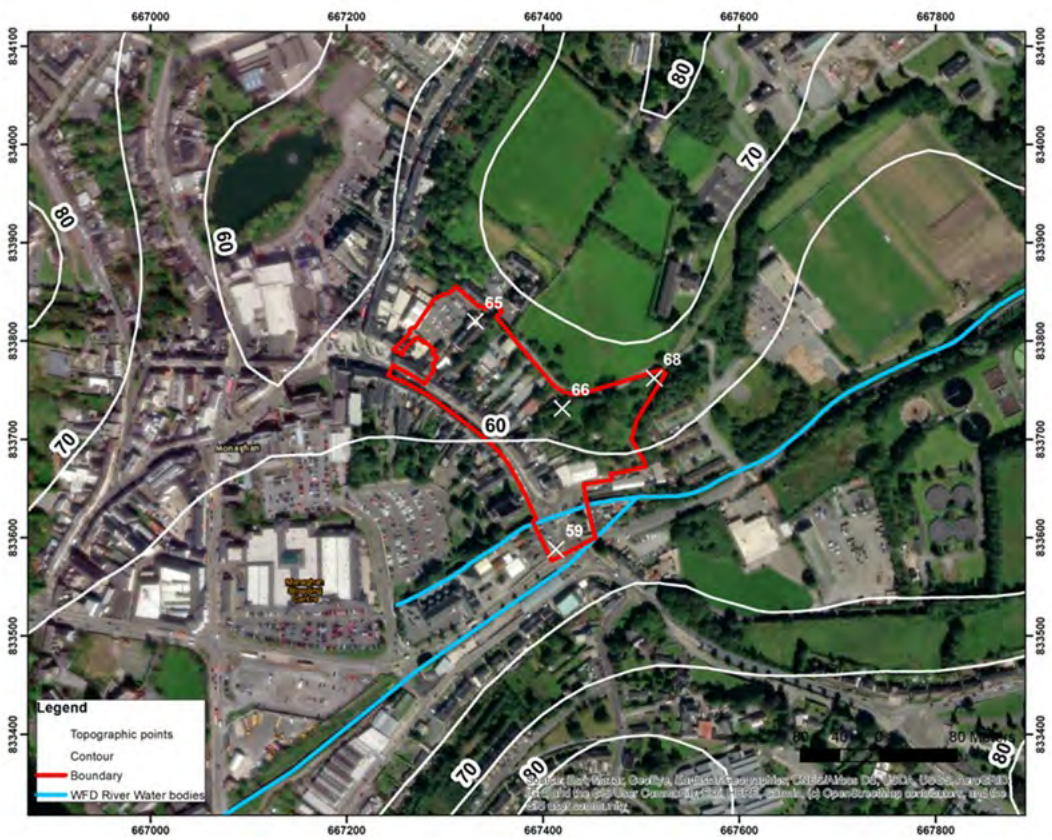


Figure 7.1 Topography

Figure 7.2 Land use (Corine 2018, EPA 2023)

7.3.2 Quaternary Geology

7.3.2.1 Superficial Geology

GSI mapping of superficial geology within the Proposed Development boundary and surrounding area is shown in Figure 7.3.

According to the 'Quaternary geology of Ireland – Sediments Map' scale 1:50,000 (GSI, 2023), the site consists predominantly of glacial till deposits derived from limestones (TLs), with an area of made ground (A) in the south of the site, as shown in Figure 7.3. Areas of alluvium and peat are also mapped within approximately 100m of the east of the site.

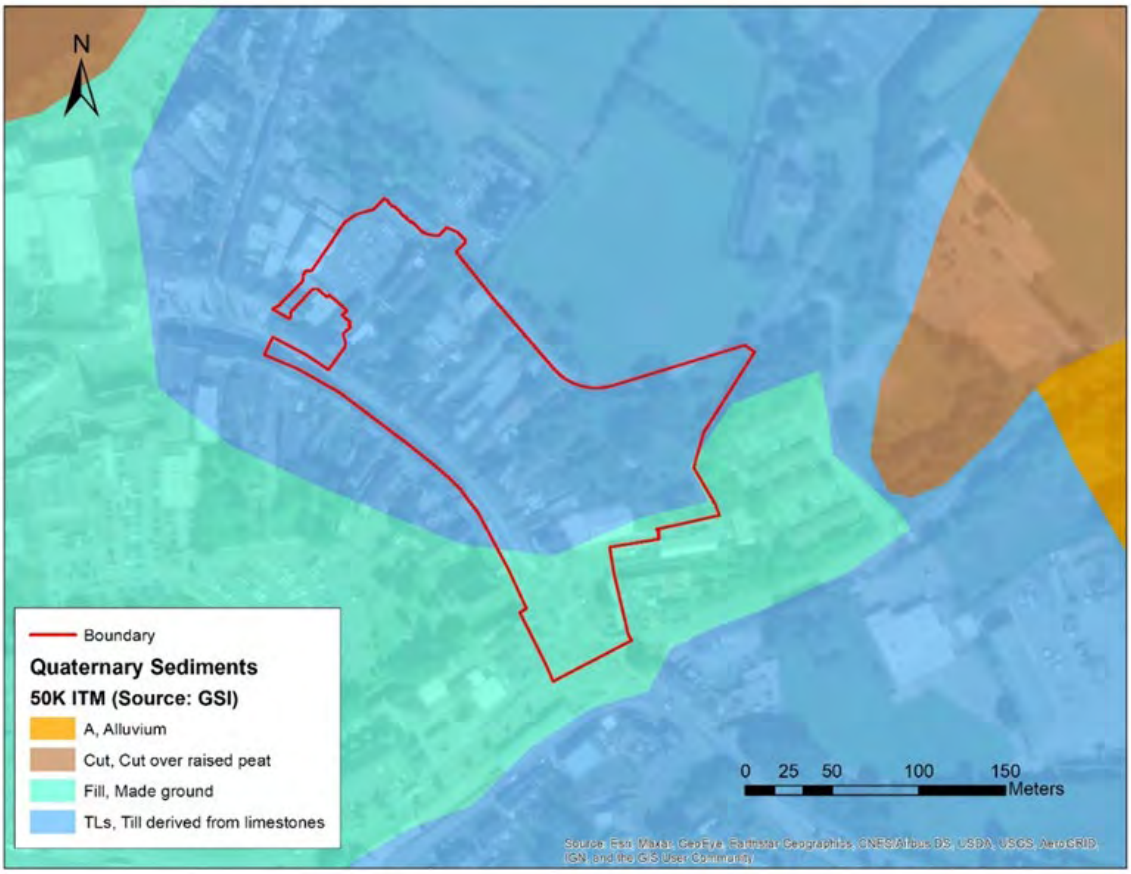


Figure 7.3 Quaternary Geology (GSI, 2023)

The map in Figure 7.4 shows what information is available from the GSI Geotechnical Boreholes data. There is a wide variation of information, but it generally confirms the details of the mapping and shows that rock was found between 5 and 10 meters below ground level (mbgl) in the vicinity of the Ulster Canal. Continuing north along Dublin Street 2 boreholes report reaching the bedrock between 0-5mbgl and another that reached the bedrock between 5-10mbgl.

One existing ground investigation report was available on the GSI geotechnical archive for an adjacent site, named "*Report on ground investigation for proposed Monaghan Town Collection Network, IGSL, 2007*". The reported site is located approximately 500m to the west of the project, and so not of direct relevance to the Proposed Development. The investigation is composed of nine cable percussive boreholes extending to depths of up to 12mbgl, with associated in-situ testing and laboratory testing. The boreholes identified a varied ground profile consisting of made ground, peat, and both granular and cohesive glacial till. Bedrock was not confirmed during the investigation. Although this investigation identified peat deposits, it is not envisaged that peat will be present within the site boundary as described previously.

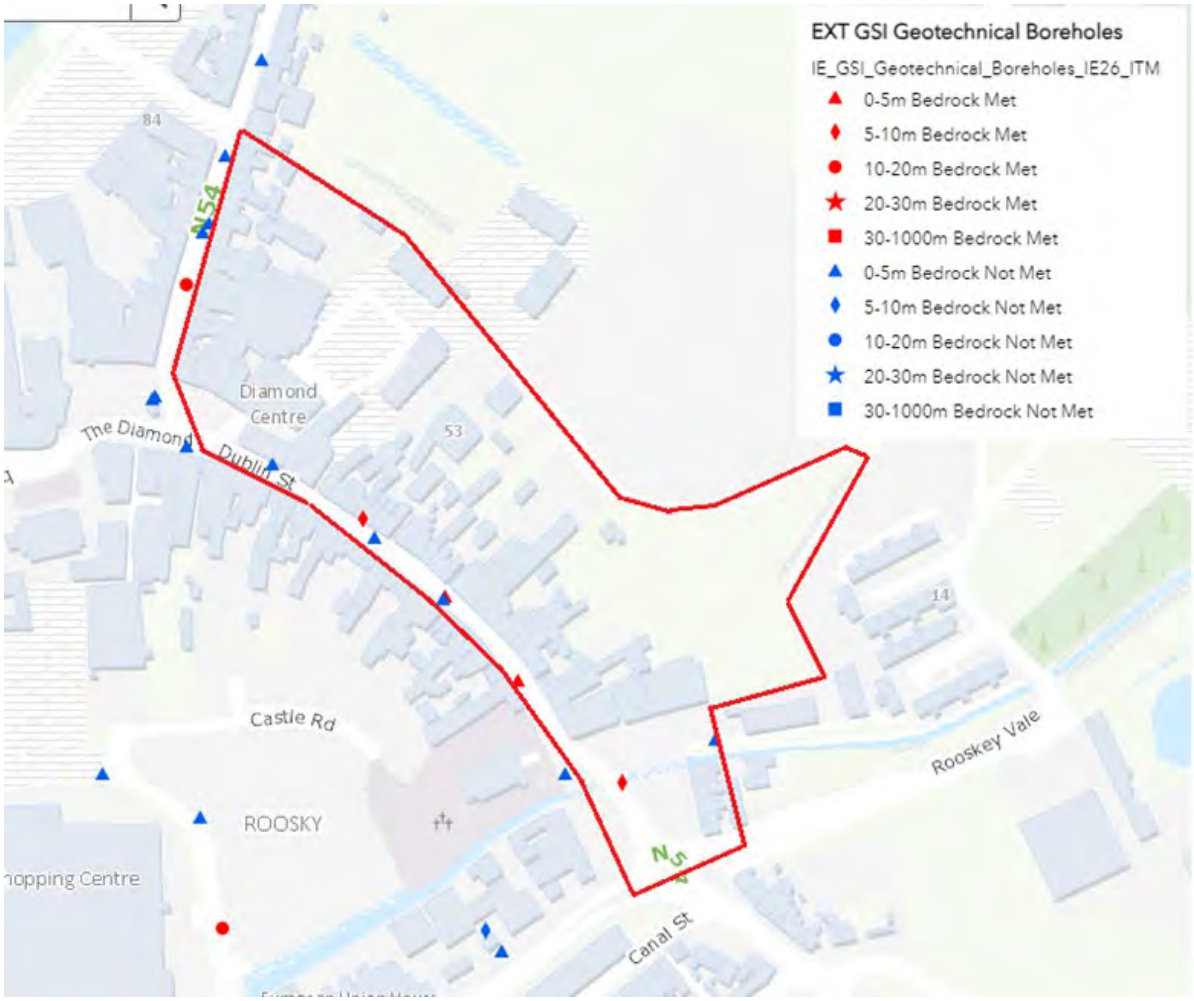


Figure 7.4 GSI Geotechnical Boreholes data

7.3.2.2 Soils

The soil mapped by Teagasc for the site area is shown in Figure 7.5. The map shows that within the boundaries of the site, two soil classes are present. One is the Urban soil and covers most of the site, whilst the other soil is of natural origin and present in the less developed northeast of the site, named Ballincurra (1150b) and characterized as fine loamy soil over limestone bedrock (Subgroup: Typical Calcareous Brown Earths).

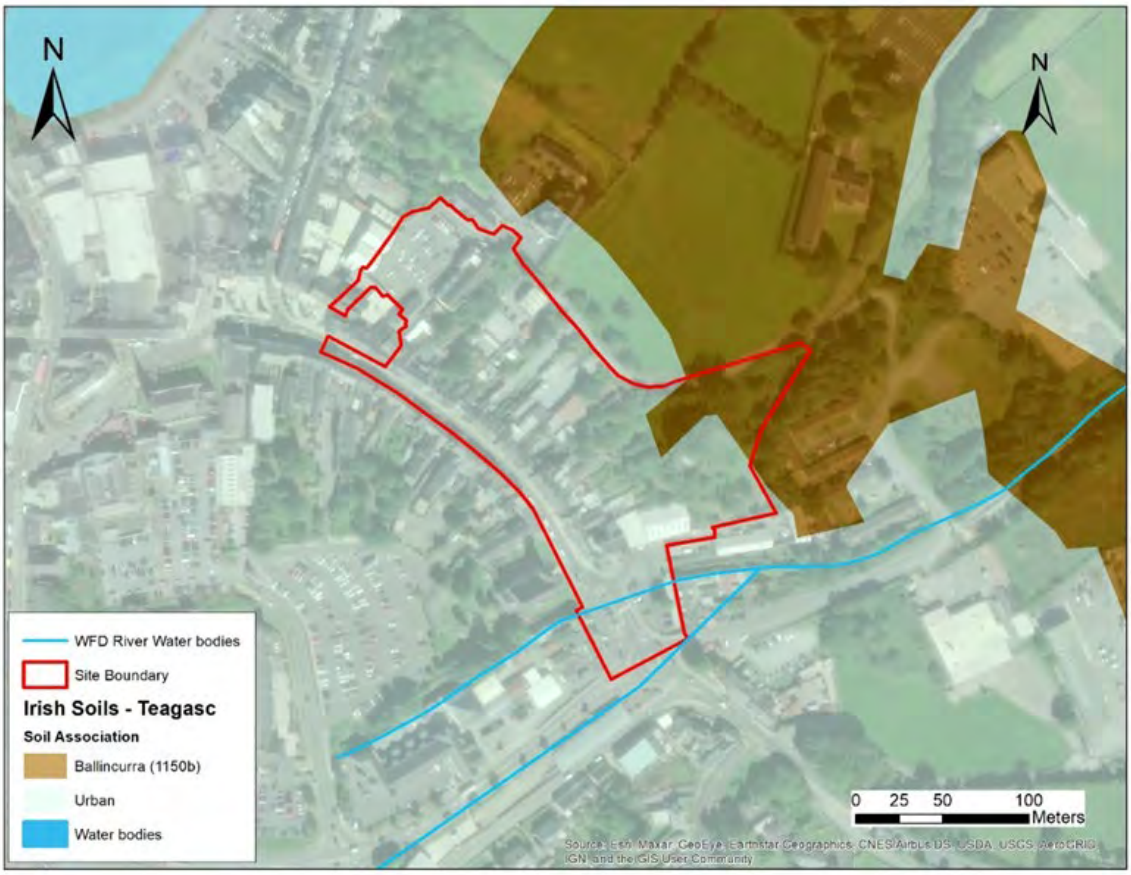


Figure 7.5 Soils at the site (Teagasc, 2023)

7.3.3 Bedrock Geology

The bedrock geology underlying the site is mapped on the GSI 1:100,000 bedrock formations map, as shown in Figure 7.6. This data shows that there are three different formations underlying and adjacent to the proposed site:

- Ballysteen Formation (Limestone): dark muddy limestone, shale. Irregularly bedded and nodular bedded argillaceous bioclastic limestones (wackestones and packstones), interbedded with fossiliferous calcareous shales. It represents a widespread unit throughout Westmeath and Longford and is shown to be underlying the entire site.

- Ulster Canal Formation (Sandstone): a marine sandstone unit and 'shaly pales and pale beds', comprising silty and sandy limestones that are variably fossiliferous with occasional parallel and cross-laminations and some fine-grained limestones. Shown within 50m of the south of the site and so potentially underlying the Proposed Development at depth.
- Cooldaragh Formation (Mudstone): consists of pale brown-grey siltstones and mudstones, algal, evaporitic and argillaceous micrites and muddy siltstones. Shown within 150m of the south of the site and so potentially underlying the Proposed Development at depth

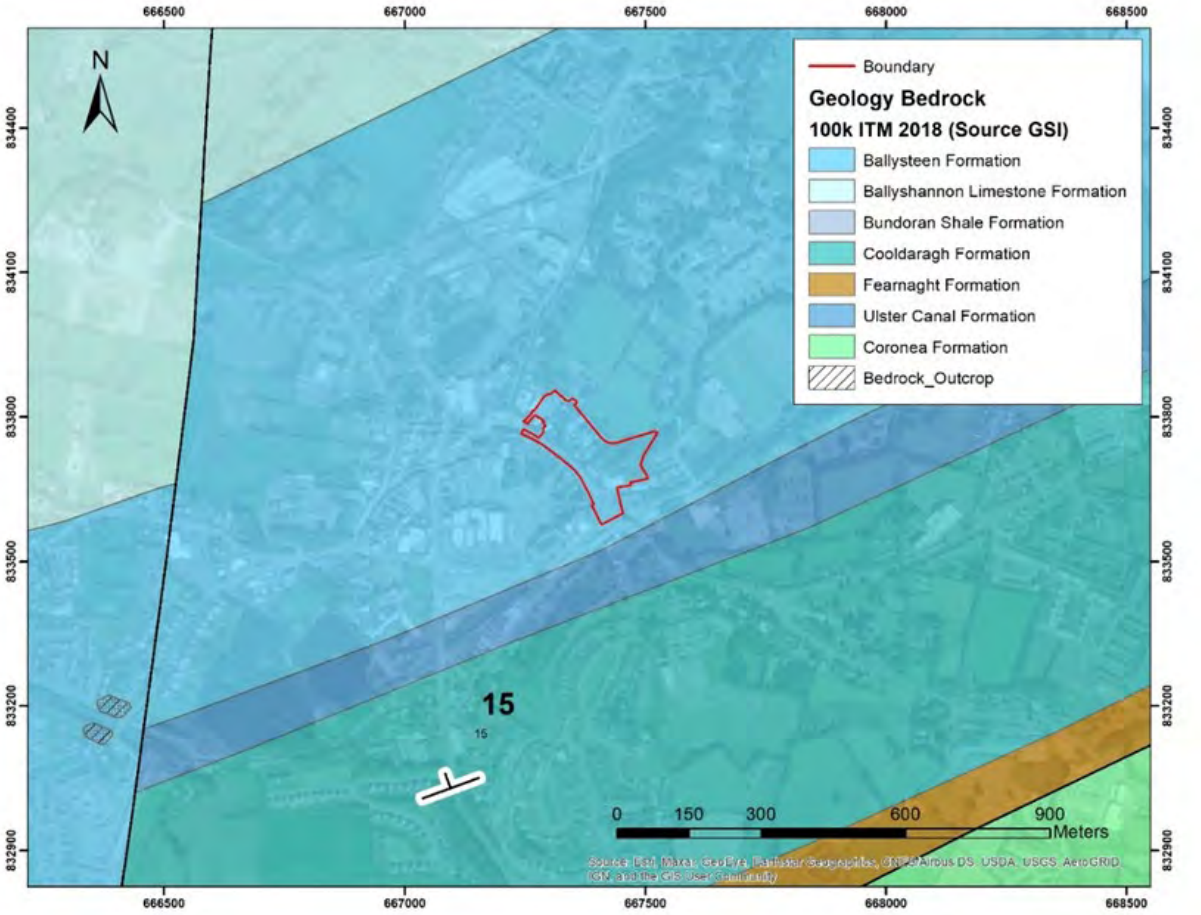


Figure 7.6 Bedrock Geology (GSI, 2023)

The strata are shown to be dipping towards the north-northeast across the wider area, at an unspecified dip angle. The geological structure of the rock in the wider area appears relatively unaffected by significant structural deformation, although a north to south fault is shown on the 1:100k GSI mapping approximately 700m to the west of the site. The structural nature of the fault is not indicated, although a horizontal displacement of approximately 600m is shown.

7.3.4 Hydrogeology

Monaghan is characterised by a mild and moderate climate (Cfb) - Köppen and Geiger. The average annual temperature in Monaghan is 9.3 °C and the rainfall here is around 1001 mm per year.

According to information provided by GSI Groundwater Resources (Aquifer), the groundwater Rock Unit beneath the site is the Dinantian Lower Impure Limestone, and the aquifer is defined as Regionally Important Aquifer-Fissured bedrock (Rf). The Average Recharge Range for the site is in two different classes, with most of the site being in the 101-150mm/yr class and a smaller area being in the 51-100mm/yr class as shown on the map in Figure 7.7. The Subsoil Permeability is considered Low for the site and surrounding Figure 7.8. However, in terms of groundwater vulnerability, the site is in the High and Moderate classes as is shown in Figure 7.9.

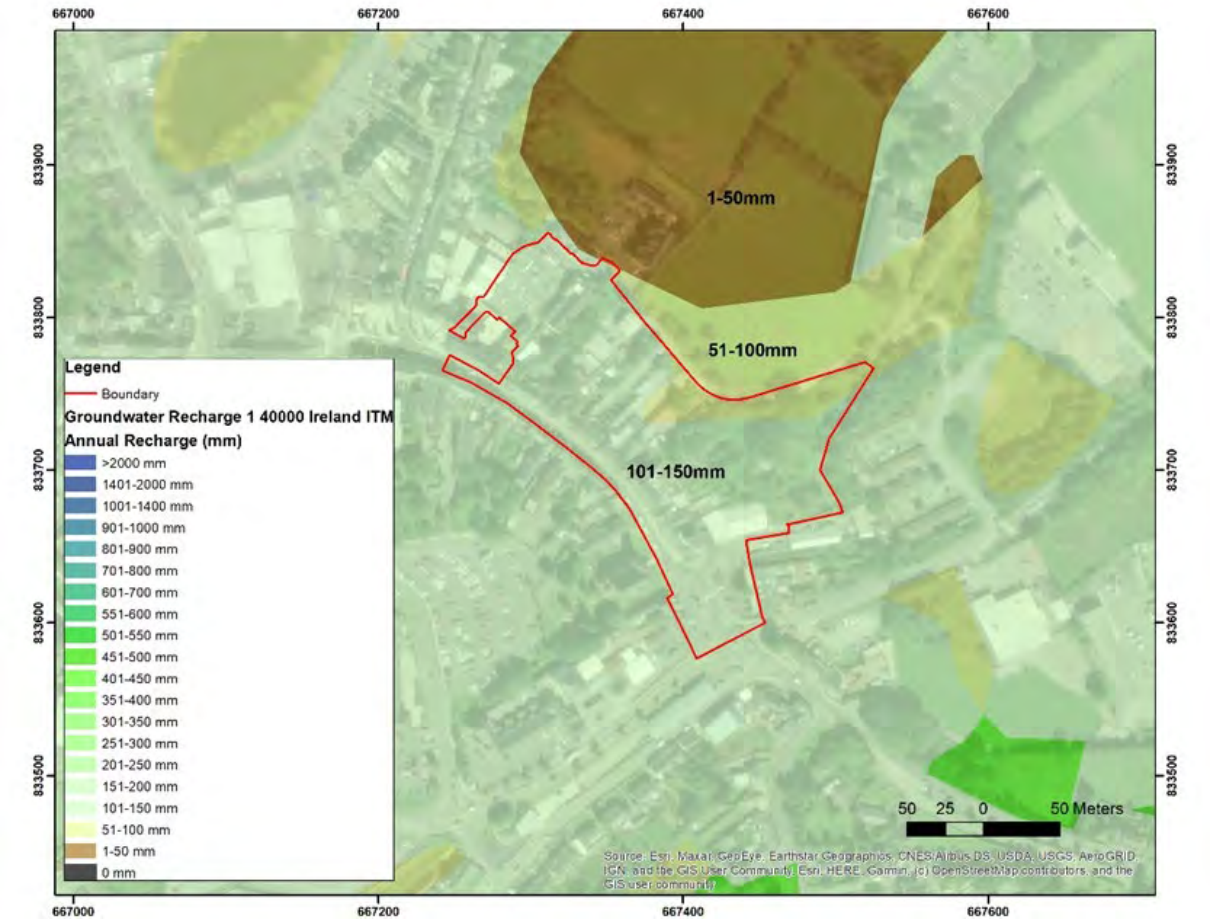


Figure 7.7 Groundwater Recharge (GSI, 2023)

Figure 7.8 Subsoil Permeability (GSI, 2023)

Figure 7.9 National Groundwater Vulnerability Ireland (GSI, 2023)

The groundwater probably follows the local topography which directs the water to the northwest Figure 7.10, with the base being the River Shambles.

Figure 7.10 Groundwater direction

Concerning groundwater quality, the information from the EPA (2023) is shown in Table 7.4.

Table 7.4 Groundwater quality

Parameter	Status
Ground Waterbodies Risk: Not at Risk	Not at Risk
Ground Waterbody WFD Status 2016-2021	Good

The dataset known as Public Supply Source Protection Areas consists of designated zones called Source Protection Areas which are situated around points where groundwater is extracted. These extraction points are managed by Irish Water and serve as sources for supplying Public Water Supply Schemes throughout Ireland. The primary purpose of these SPAs is to enhance protection by imposing stricter regulations on activities carried out within some or all parts of the area from which water flows into the well or spring, known as the Zone of Contribution (ZOC). There are two distinct Source Protection Areas that have been identified. The first is the Inner Protection Area (SI), which is established to safeguard against

immediate negative impacts stemming from human actions, particularly those causing microbial pollution. The second is the SO - Outer Protection Area encompassing the remaining portion of the zone of contribution (ZOC) to the specific groundwater extraction point, such as a borehole or spring.

The map in Figure 7.11 shows that the site lies within the Monaghan PWS SO - Outer Protection Area associated with 7 abstractions, the two closest of which are located within approximately 500m of the site, to the west and north. This area is identified as having a potential impact on the quality and safety of the water source. The goal of these measures is to minimize potential contamination or pollution of the groundwater source that could affect the quality of the water supplied to the public. The controls aim to ensure that activities within this zone do not compromise the integrity of the water source and maintain its suitability for use as a public water supply.

There are no Natural Heritage Area (NHA), Geological Heritage Area (GHA), Special Areas of Conservation (SAC) or Special Protection Areas (SPA) in the immediate vicinity of the site, and Groundwater Dependent Terrestrial Ecosystems (GWDTE) are not expected to be present. Further details on this can be found in the Natura Impact Statement Appendix 9.6.

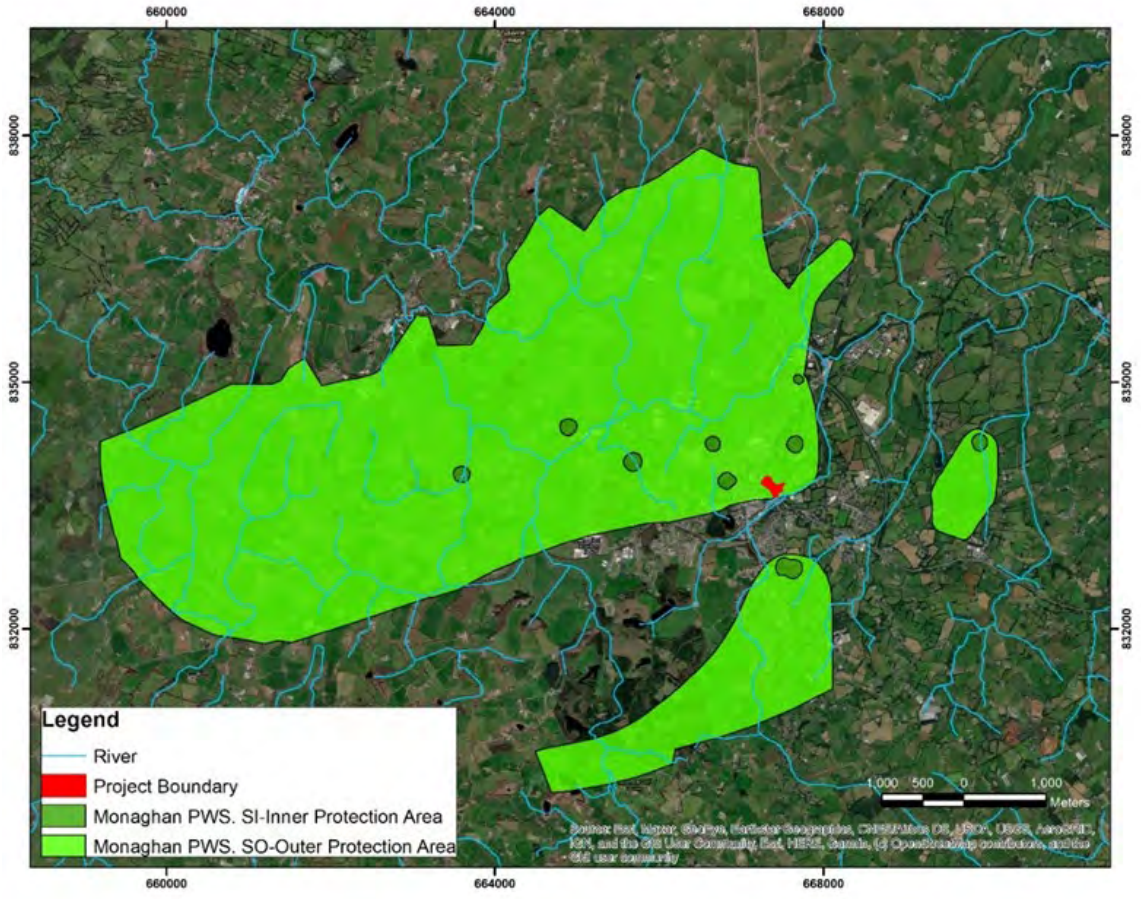


Figure 7.11 Public Supply Source Protection Areas (GSI, 2023)

7.3.5 Hydrology

The following information is included due to its relevance for the assessment of risks to groundwater, as the surface water regime can help inform the understanding of risks to groundwater. Full details of the hydrology baseline, including flood risk, is given in the Hydrology Chapter 8.

The site is located upstream in the watershed named Blackwater Figure 7.12. The Blackwater catchment lies in the Neagh Bann International River Basin District and is part of the larger Lough Neagh-Lower Bann catchment. The Blackwater is a cross-border catchment with a surface area of 1,491km², of which 1,097 km² (74%) lies in NI (County Armagh and County Tyrone) and 393.8km² (26%) is located in ROI (County Monaghan).

Locally, the Ulster Canal runs south of the project area and the River Shambles cuts through the site. Ulster Canal and the Shambles River separate just upstream of the site and the Ulster Canal, diverting south of the River Shambles, has been culverted under several areas through the town (Canal Street), including the square. The river flows locally in a north-easterly direction, see Figure 7.13. Two bodies of water are also in the vicinity of Dublin Street North Regeneration Project: Patena Lake (or Peter's Lake) 175 m to the northwest and Convent Lake 550 km to the west.

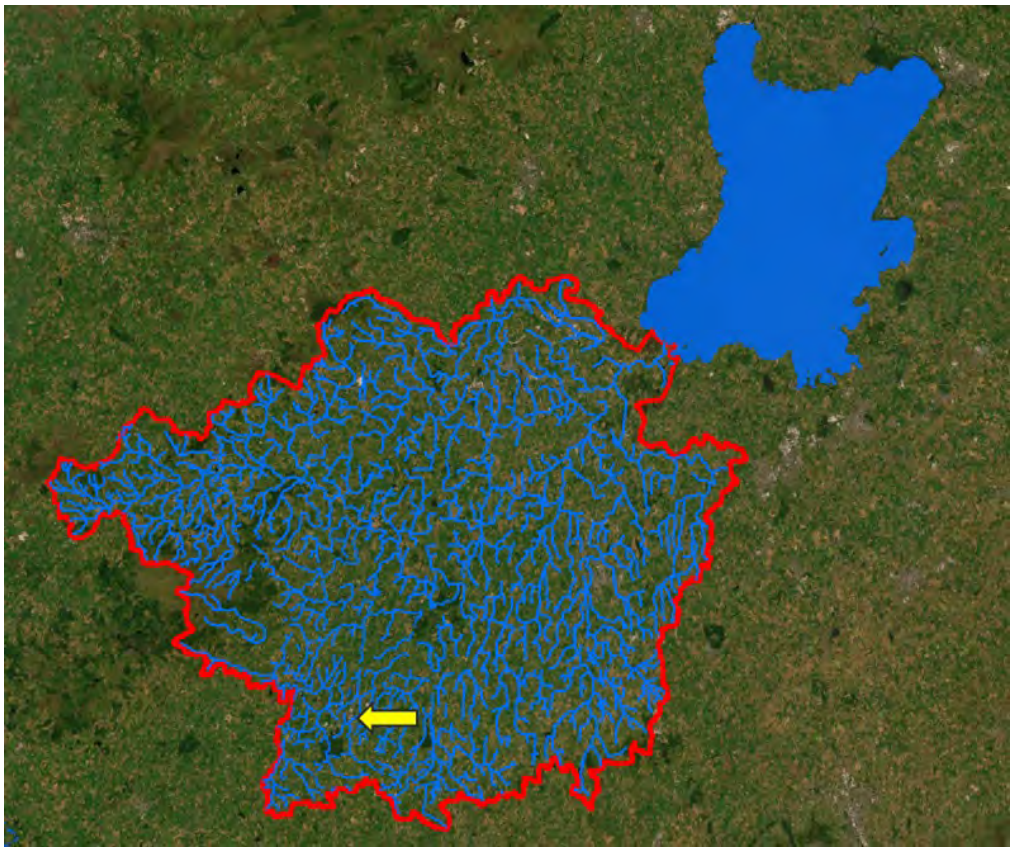


Figure 7.12 Blackwater Catchment

Figure 7.13 Site Hydrography

Concerning surface water quality, the information from the EPA (2023) is shown in the following table.

Table 7.5 River water quality

Parameter	Status
River Waterbodies Risk for Shambles locally	at Risk
River Waterbody WFD Status 2016-2021	Poor

7.3.6 Geological Heritage

There are no Natural Heritage Areas (NHA) or Geological Heritage Areas (GHA) in the immediate vicinity of the site, with the nearest being approximately 8km to the southwest.

7.3.7 Economic Geology

According to the GSI online minerals data viewer, the nearest mineral locality recorded by the GSI is an area of gabbro mining approximately 4 km to the south, and no active surface mines or quarries have been identified in the vicinity of the site.

A quarry appears on the OSI maps of 1829-1841 adjacent to the southeast of the site, which is no longer mentioned on later maps. It has been replaced by the residential buildings of Roosky Vale, although the date of construction of these properties is not known. Based on the location it is likely that this was for the abstraction of superficial soils, perhaps granular alluvial deposits. It is unlikely that there are any remaining deposits of particular economic value in the vicinity of the site, and it does not appear that there is any significant infilling of the former quarry.

The nearest peat deposits are recorded to be within 100m of the east of the site. Considering this and the urban location of the site, it is unlikely that any peat deposits of economic or carbon value are present within the Proposed Development.

The GSI aggregates database indicated that the majority of the area has Very Low potential for crushed rock aggregate, and No Data for granular aggregate potential.

7.3.8 Contamination

Following the recommendations of the Preliminary Risk Assessment (*Dublin Street North Preliminary Geoenvironmental Risk Assessment, 23165-PRA-001-00, GDG, October 2023*, presented in Appendix 7.1), intrusive site investigation was undertaken, as detailed in the Interpretative Report (*Monaghan Dublin Street, Ground Investigation Report, 23165-GIR-001-00, GDG, October 2024*, Presented in Appendix 7.2). The report reviewed historical site investigation information from the wider area, as well as intrusive investigation undertaken specifically for the Proposed development, which comprised:

- Three cable percussion boreholes.
- Ten trial pits.
- Two archaeological trenches.
- One infiltration/soakaway test.
- Four indirect CBR tests.
- Standard Penetration Tests.
- Three Plate Load tests.
- Geotechnical Laboratory Testing (10 no. Atterberg Limits, 10 no. Particle Size Distribution test).
- Environmental laboratory testing of soil & water (22 no. soil, 10 no. soil leachate and 8 no. surface water samples).

Full assessment and findings of the report can be found in Appendix 7.2. However, a summary of the contamination conclusions is presented below.

The report concluded that the site soils are generally as expected from the desk study, and that the risk is low to moderate, predominantly due to the presence of asbestos fibres and lead in TP05, TP07, and TP10, located to the rear of the existing residential properties, in the north of the site. The made ground and near-surface clay soils in this area require mitigation measures during construction to reduce risks to human health (both construction workers and off-site receptors), although these are expected to comprise standard construction practices such as damping down soils during dry periods. In addition, these soils should not be placed at the surface of the proposed development, although they will be suitable for reuse beneath a clean cover layer or hardstanding.

The desk study identified no contamination with the potential to generate significant ground gas, and there are no buildings proposed as part of this development. Consequently, the risk to the construction and the proposed development is low. However, the site is in a region of medium radon risk, where approximately 1 in 20 properties may have elevated indoor radon measurements, and consequently any future residential development should consider the possible requirement for radon mitigation measures in properties (although is not expected to affect the current Proposed Development).

The risk to the water environment (surface water and groundwater) is assessed to be low, considering the magnitude of the concentrations of potential contaminants in the soil leachate, the absence of a significant soil source of contamination, the likely dilution factors, that the surface water results do not indicate any impact from the site, and the distance to the groundwater abstraction points.

Considering the available chemical analysis results, risk to water pipelines is low/moderate and consideration may need to be given to upgrading pipes if they are to be laid within the site soils. New pipelines are not expected to be necessary, but if they are then further assessment following UKWIR guidance may be required following design of the depth and location of the proposed pipeline in order to satisfy the requirements of the regulator.

Preliminary assessment suggests that predominantly inert classifications are likely to be encountered where natural ground is present, and that the Made Ground will mostly be classified as non-hazardous or locally hazardous. If disposal is required, prior to any material being disposed off-site a waste classification should be undertaken, initially using the chemical analysis data from this investigation, although additional chemical analysis and waste acceptance criteria (WAC) testing may be required. It is also recommended that a suitably experienced geoenvironmental / waste professional is consulted to accurately classify the materials and identify the most cost-effective disposal route. Any disposal of waste must be

undertaken in accordance with all relevant current waste legislation and duty of care regulations.

7.3.9 Waste Facilities

A review of information from the EPA online mapping shows that there are no records of waste facilities, historic (closed) landfills, dump sites or chemical monitoring points within 1km of the Proposed Development.

7.3.10 Invasive Species

As noted in the biodiversity Chapter 9 and the Invasive Species Management Plan Appendix 9.3, invasive species are present widely across the site, particularly including Japanese Knotweed in three locations in the north.

7.3.11 Summary of Baseline Conditions

A review of desk study information on the Proposed Development indicates the majority of the Proposed Development is covered by glacial till, with made ground across the south. This was supported by the intrusive site investigation works. Other than those within an urban setting, topsoil is only present over only the northeast of the site. Bedrock comprises dark muddy limestone and shale belonging to the Ballysteen Formation.

There are no recorded geological heritage sites in the site, there is no karst present, and generally a very low economic potential for the superficial and solid geological strata.

The groundwater Rock Unit beneath the site is the Dinantian Lower Impure Limestone, and the aquifer is defined as Regionally Important Aquifer-Fissured bedrock (Rf). The majority of the groundwater on site is classified as Moderately or Highly vulnerable, although vertical groundwater migration will be inhibited by the presence of glacial till across the majority of the site. Any groundwater within the bedrock is expected to follow the local topography, which directs the water to the northwest along the River Shambles. The site lies within the Monaghan PWS SO - Outer Protection Area, associated with 7 abstractions, the two closest of which are located within approximately 500m of the site, to the west and north. It is considered unlikely that there are any Groundwater Dependent Terrestrial Ecosystems (GWDTE) within the Proposed Development (see Chapter 9 – Biodiversity for further details).

There are no likely historical sources of significant contamination within the site, although intrusive site investigation has identified localised contamination associated with made ground materials that requires consideration as part of the development. This includes the presence of metals and asbestos within the made ground soils that potentially presents a risk to human

health and requires some mitigation as part of the Proposed development. The risk to the water environment from the site is Low.

7.3.12 Sensitivity of Potential Receptors

A number of sensitive receptors in the geological and hydrogeological environment have been identified during assessment of baseline conditions. Receptor sensitivities are presented in Table 7.6, which have been assigned following the criteria detailed in Table 7.1.

Table 7.6 Receptor Sensitivity

Receptor	Sensitivity	Discussion
Soils (excluding peat)	Negligible	Other than those within an urban setting, topsoil is only present over only the northeast of the site. Considering their low agricultural value and low geological importance, the sensitivity of the glacial till and alluvial soils is considered to be low.
Peat (resource)	Negligible	Peat is not present within the site, or within a distance likely to be affected by the Proposed Development.
Peat (stability)	Negligible	Peat is not present within the site, or within a distance likely to be affected by the Proposed Development.
Geology	Low	Upper Devonian sandstone & siltstones, glacial till, and made ground, of low geological value, no designated geological sites, economic geological resources or carbonate rock within the proposed development.
Hydrogeology	Medium	The bedrock aquifer is considered to be of medium value as it provides baseflow to rivers, is used for public and private drinking water abstraction within 500m of the site, and the groundwater vulnerability is recorded as Moderate or High. It is considered unlikely that there are any sensitive Groundwater Dependent Terrestrial Ecosystems on or in the vicinity of the Proposed Development.
Contamination	Medium	There are no sources of significant contamination within the site, other than localised metals and asbestos within the made ground soils that present a low to moderate risk to human health as part of the construction and final development.

7.4 Impact Assessment

7.4.1 Do Nothing Scenario

Were the Proposed Development not constructed at the site, there would be no changes made to existing land-use, and the land, soils and geology would remain generally unchanged as a result of the Do-Nothing scenario.

7.4.2 Proposed Development

The proposed development infrastructure is detailed in Chapter 4, but in short comprises transforming Dublin Street North and its surrounding backlands into a pedestrian-friendly urban quarter. Key elements include upgrading public spaces, streets, and footpaths, and establishing new connections that enhance the area's permeability and accessibility.

7.4.3 Construction and Operational Phase Effects

The construction phase is expected to take 20 months. As there is considerable overlap in the potential effects of the construction and operational phases of the development (for example effects associated with the temporary and permanent excavation and storage of topsoil), they are discussed together in the following subsections.

The activities associated with the proposed development which could give rise to potential effects are summarised as follows:

- Creation of new shared surface, ‘Russell Row’ to the rear of properties fronting Dublin Street, with public realm improvements along Dublin Street to include resurfacing, new pedestrian pavements (including widening), car parking, temporary car park / event space, the creation of urban civic spaces, pedestrian pavements, steps, cycle routes, street furniture new lighting, new boundary treatments, upgrading and installation of new utility services and CCTV.
- Creation of new public park.
- Creation of future development plots.
- Reinforcement of existing vegetation and new soft landscaping throughout.
- Demolition of properties.
- New stormwater drainage infrastructure will be required to service the development proposals, which will discharge to the existing town drainage network at a suitable discharge location.

- There will be no foul drainage generated by the design proposals. However, foul drainage infrastructure will be designed and included in the development proposals for future foul drainage generated from the development plots.

Potential operational effects on geology, soils, contamination and hydrogeology are expected to occur (or continue to occur) during construction or once the Proposed Development is in operation. The following subsections detail the identified potential effects associated with both the construction and operational stages.

7.4.4 Potential Effects on Geology

The following potential effects on geology have been identified:

- Potential adverse effects on the superficial deposit geological resource from excavations or road/structure construction.
- Potential adverse effects on the solid geological resource from excavations or road/structure construction.

7.4.5 Potential Effects on Soils

The following potential effects on soils have been identified:

- Stripping of topsoil from construction areas on site having an adverse effect on the topsoil resource – potential to cause deterioration of topsoil even if reused.
- Soil compaction associated with construction traffic may reduce soil permeability and increase surface runoff.
- Potential for increased erosion effects on topsoil (and consequently the water environment) associated with tree and vegetation removal.

7.4.6 Potential Effects on Hydrogeology

The following potential effects on hydrogeology have been identified:

- Accidental release, leakage or spillages of hydrocarbons, chemicals, fuel or oils from storage tanks or construction plant during construction causing pollution of groundwater.
- Localised increase in alkalinity from spillages of concrete or unset cement causing pollution of groundwater, the severity of which may be increased during times of heavy or prolonged rainfall.
- Dewatering and alteration of the groundwater regime (bedrock aquifer) including potential disruption to groundwater abstractions caused by the Proposed

Development, especially from excavations and piled foundations (low risk as groundwater is not expected to be encountered).

- Potential contamination of water environment by leachable contamination from imported fill materials.
- Surface runoff from the new road, causing pollution of groundwater.
- Reduction in infiltration caused by increased hardstanding cover or compaction of soils, resulting in impacts on groundwater.

7.4.7 Potential Effects Associated with Contamination

The following potential effects associated with contamination within the site have been identified:

- Potential impacts on human health (both site workers and off-site receptors) from lead and asbestos in the soils, due to soil disturbance and dust generation during construction.
- Potential contamination of the water environment (groundwater and surface water) due to the disturbance of contamination during construction works, through generation of contaminated sediments (low risk, as detailed in the interpretative report).
- Potential contamination of the water environment by leachable contamination, exacerbated by SuDS drainage through made ground soils (low risk, as detailed in the interpretative report).
- Potential impacts on human health from imported contaminated soils.
- Potential impacts on human health or the built environment from invasive species associated with the reuse of soils containing viable invasive species (e.g. Japanese Knotweed, Giant Hogweed).
- Potential wider environmental impacts from contamination associated with incorrect disposal of contaminated soils.

7.4.8 Cumulative Residual Impacts

The cumulative effect of the Proposed Development combined with the development of other proposed schemes within the nearby area have been considered. These developments are described in Chapter 4.

There may be minor cumulative effects on the groundwater flow regime due to excavations and hardstanding cover associated with future developments, although these are localised and not considered to be significant considering the size and scale of the catchment.

Considering the proposed mitigations for effects on topsoil, and the generally low sensitivity of the superficial and solid geology resource, it is not predicted that there would be any significant construction or operational cumulative effects from identified future developments.

Considering the magnitude of the soil contamination within the site, and the effectiveness of the proposed mitigations for the construction phase, there are unlikely to be any significant cumulative effects associated with contamination on either human receptors or the wider environment (including water environment receptors). Additionally, the proposed mitigations for contamination as part of the permanent design will reduce the overall impact of contamination on human health and water environment receptors in comparison to the baseline scenario, so cumulative adverse effects are considered unlikely.

In summary, it is unlikely that the cumulative effects of the Proposed Development and nearby proposed developments on soils, geology and hydrogeology will be significant.

7.5 Summary of Potential Effects

The potential effects of the construction and operation phases of the development on the receiving geological and water environment are discussed in Section 7.4. Each effect has been assigned a ranking of Importance and Magnitude (based on the respective receptor sensitivity and criteria for assessing magnitude given in Table 7.1 and Table 7.2, further detailed in Table 7.7) and Significance has been assessed following the methodology outlined in Section 7.2, and prior to consideration of mitigation measures in Section 7.6. The Importance/Sensitivity of the Receptors are defined in Table 7.6.

Table 7.7 Summary of pre-mitigation effects on the receiving environment during the construction and operation phases

Receptor	Potential Effects (Construction and Operation Phases)	Importance (sensitivity)	Magnitude	Significance
Soils (excluding peat)	Stripping of topsoil from construction areas on site having an adverse effect on the topsoil resource – potential to cause deterioration of topsoil even if reused. Soil compaction associated with construction traffic may reduce soil permeability and increase surface runoff. Potential for increased erosion effects on topsoil associated with tree and vegetation removal.	Low	Medium Adverse	Slight Adverse
Soils (peat)	No peat present within the site or within a distance likely to be affected by the Proposed Development.	Negligible	Negligible	Imperceptible
Geology (solid)	Potential loss of / adverse effects on the solid geological resource from excavations or road/structure construction (permanent loss of resource).	Negligible	Low Adverse	Not Significant

Receptor	Potential Effects (Construction and Operation Phases)	Importance (sensitivity)	Magnitude	Significance
Geology (superficial)	Potential loss of / adverse effects on the superficial geological resource from excavations or road/structure construction (permanent loss of resource).	Negligible	Low Adverse	Not Significant
Hydrogeology	Accidental release, leakage or spillages of hydrocarbons, chemicals, fuel or oils from storage tanks or construction plant during construction causing pollution of groundwater. Localised increase in alkalinity from spillages of concrete or unset cement causing pollution of groundwater. Dewatering and alteration of the groundwater regime (bedrock aquifer) including potential disruption to groundwater abstractions caused by the Proposed Development, especially from excavations and piled foundations (low risk as groundwater is not expected to be encountered) Potential contamination of the water environment by leachable contamination from imported fill materials. Surface runoff from the new road, causing pollution of groundwater. Reduction in infiltration caused by increased hardstanding cover or compaction of soils, resulting in impacts on groundwater.	Medium	Medium Adverse	Moderate Adverse

Receptor	Potential Effects (Construction and Operation Phases)	Importance (sensitivity)	Magnitude	Significance
Contamination	Potential impacts on human health from lead and asbestos in the soils from dust generation. Potential generation of contaminated sediments and impacts on the water environment. Potential contamination of the water environment by leachable contamination, exacerbated by SuDS drainage through made ground soils. Potential impacts on human health from imported contaminated soils. Potential impacts on human health or the built environment associated with the reuse of soils containing invasive species (e.g. Japanese Knotweed, Giant Hogweed). Potential wider environmental impacts from contamination associated with incorrect disposal of contaminated soils.	Medium	Medium Adverse	Moderate Adverse

7.6 Mitigation Measures

With reference to the baseline study, the design of the Proposed Development has accounted for the sensitivity of key geological and hydrogeological receptors. Where possible, sensitive receptors have been avoided during infrastructure design in order to reduce the potential impacts which may arise from works associated with each phase of the Proposed Development.

Specific embedded or designed-in measures (including mitigations for both the construction and operation phases) which have dictated infrastructure and construction design are detailed in the following subsections.

The measures will be implemented in full to reduce or avoid the potential impacts, in relation to the different elements of the Proposed Development. This includes some mitigations for potential effects assessed to not be significant, although are in accordance with construction and design best practise to minimise the effects of the Proposed Development on the environment. Further details on related mitigations for impacts on conservation sites can be found in the Natura Impact Statement Appendix 9.6.

7.6.1 Earthworks & Construction

- Works will be undertaken in accordance with the oCEMP Appendix 4.2.
- Any imported soils required for construction purposes will be subject to chemical analysis and assessed against relevant screening values to demonstrate their suitability for use (with respect to risks to both human health and the water environment).

7.6.2 Topsoil Erosion

- Excavations will be constructed and backfilled as quickly as possible to minimise risk of erosion.
- Excavations will pause during and immediately following periods of high rainfall if they present a risk to materials management or stability.
- Excavated soil and rock will be stored appropriately in accordance with the oCEMP Appendix 4.2 to reduce sedimentation in run-off, with bunding and silt fences, for example, as required.

7.6.3 Topsoil Compaction

- Prior to commencement of earthworks, where necessary the work corridor will be delineated, and plant will be required to stay inside the designated boundary. This will limit damage to soils outside of designated areas, such as through compaction.
- Excavated topsoil will be excavated and stored in accordance with best practice to reduce the impact on the soils and ensure it is suitable for reuse, where possible.

7.6.4 Waste & Pollution

- A Waste Management Plan (WMP) is included as Annex B of the oCEMP (Appendix 4.2) which provides detail on the control of all site-generated construction waste and the storage and disposal of the waste.
- Made ground soils containing low levels of asbestos and lead are located to the rear of the residential properties. These will be stored, removed, and treated/disposed of in accordance with guidance on managing contamination and waste management legislation. This will include the use of appropriate PPE, and measures to mitigate the generation of dust, such as damping down during dry periods.
- Soils which are temporarily stored on-site will be stored appropriately, separate to clean materials, with covers and bunding as necessary.
- Classification and assessment of waste materials will be conducted as quickly as possible to ensure minimal exposure time to the receiving environment.
- Concrete wash water handling areas will be suitably located and managed to prevent pollution of the environment.
- An asbestos survey of the buildings proposed for demolition will be undertaken, and appropriate measures taken to mitigate the spread of the asbestos during the demolition, including removal of the asbestos in advance by a suitably qualified contractor.
- Invasive species (e.g. Japanese Knotweed, Giant Hogweed) will be treated in accordance with relevant legislation and guidance, and any residual soils rendered safe for reuse or removed to a suitable waste facility (see Chapter 9 on Biodiversity for further details, and the Invasive Species Management Plan Appendix 9.3).

7.6.5 Fuel & Waste Liquids

- All potentially polluting liquids will be stored in containers and/or fully bunded areas and using the necessary equipment in accordance with the oCEMP (Appendix 4.2).
- Refuelling of plant machinery will be carried out at dedicated refuelling stations. Refuelling of immoveable cranes, for example, shall be undertaken with care;

protective /bunding matting shall be placed beneath the refuelling point during this time to capture any accidental spillage.

- Construction plant will be checked regularly for leakages and will undergo maintenance on a regular basis (within the construction compounds wherever possible).
- Emergency spill kits will be readily available across the Proposed Development area to enable quick and effective reaction if accidental release, leakage or spillage of potentially polluting substances occurs.
- Wastewater will be collected and either discharged to sewer with appropriate permitting / licensing or removed from site via a permitted waste contractor.

7.6.6 Contaminated Soils, Waste & Pollution

- Placement of contaminated soils beneath hardstanding or clean cover (of between 300 to 600mm thickness, depending on the proposed location in public open space or private gardens).
- If any unforeseen contamination is identified during earthworks or construction (e.g. hydrocarbon impacted soils, asbestos, etc.), then work in such areas will be halted until a suitably qualified professional has been consulted to assess the situation and provide advice.
- Any imported material required for construction purposes will be subject to chemical analysis and assessed against relevant screening values to demonstrate its suitability for use (with respect to risks to both human health and the water environment).
- New stormwater drainage infrastructure will discharge to the existing town drainage network at a suitable discharge location. In order to restrict new drainage run-off to limits agreed with Monaghan County Council and Uisce Éireann, surface water run-off will be attenuated within the Russell Row area, and flow control mechanisms will be provided. Trees, planter boxes and rain gardens and other SUDs proposals will also be provided to further limit the flowrate and volume or surface water entering the new surface water drainage network. These features will also be designed to improve the water quality entering the existing drainage network. Other features which will improve water quality entering the existing drainage network will include fuel / oil interceptors and slit traps. There is overall expected to be little change in the overall levels of infiltration caused by increased hardstanding cover or compaction of soils (and the consequent impacts on groundwater, but the use of SUDS features will help to minimise this effect. SUDS and other infiltration drainage features will also be designed

to minimise the infiltration of surface water through made ground soils, although these generally contain only very low levels of potentially leachable contaminants.

7.6.7 Residual Impacts – Construction & Operation

As indicated in Table 7.8, no significant residual impacts are considered likely following implementation of the mitigation measures, which predominantly comprises compliance with the Construction Environmental Management Plan, Waste Management Plan, and measures to mitigate against low level contamination within the soils to the rear of the residential properties in the north of the site.

7.7 Summary of Residual Effects

A summary of the potential effects of the construction and operation phases of the wind farm development on the receiving geological and water environment following mitigation measures is provided in the following Table 7.8.

Table 7.8 Summary of post-mitigation effects on the receiving environment during the construction and operation phases

Receptor	Potential Effects	Importance (sensitivity)	Magnitude (pre-mitigation)	Significance (pre-mitigation)	Magnitude (post-mitigation)	Significance (post-mitigation)
Soils (excluding peat)	• Stripping of topsoil from construction areas on site having an adverse effect on the topsoil resource – potential to cause deterioration of topsoil even if reused. • Soil compaction associated with construction traffic may reduce soil permeability and increase surface runoff. • Potential for increased erosion effects on topsoil associated with tree and vegetation removal.	Low	Medium Adverse	Slight Adverse	Low Adverse	Not Significant
Soils (peat)	• No peat present within the site or within a distance likely to be affected by the Proposed Development.	Negligible	Negligible	Imperceptible	Negligible Adverse	Imperceptible
Geology (solid)	• Potential loss of / adverse effects on the solid geological resource from excavations or road/structure construction (permanent loss of resource).	Negligible	Low Adverse	Not Significant	Low Adverse	Not Significant

Receptor	Potential Effects	Importance (sensitivity)	Magnitude (pre-mitigation)	Significance (pre-mitigation)	Magnitude (post-mitigation)	Significance (post-mitigation)
Geology (superficial)	• Potential loss of / adverse effects on the superficial geological resource from excavations or road/structure construction (permanent loss of resource).	Negligible	Low Adverse	Not Significant	Low Adverse	Not Significant
Hydrogeology	• Accidental release, leakage or spillages of hydrocarbons, chemicals, fuel or oils from storage tanks or construction plant during construction causing pollution of groundwater. • Localised increase in alkalinity from spillages of concrete or unset cement causing pollution of groundwater. • Dewatering and alteration of the groundwater regime (bedrock aquifer) including potential disruption to groundwater abstractions caused by the Proposed Development, especially from excavations and piled foundations. • Potential contamination of the water environment by leachable contamination from imported fill materials. • Surface runoff from the new road, causing pollution of groundwater.	Medium	Medium Adverse	Moderate Adverse	Negligible Adverse	Not Significant

Receptor	Potential Effects	Importance (sensitivity)	Magnitude (pre-mitigation)	Significance (pre-mitigation)	Magnitude (post-mitigation)	Significance (post-mitigation)
	• Reduction in infiltration caused by increased hardstanding cover or compaction of soils, resulting in impacts on groundwater.					
Contamination	• Potential impacts on human health from lead and asbestos in the soils from dust generation. • Potential generation of contaminated sediments and impacts on the water environment. • Potential contamination of the water environment by leachable contamination, exacerbated by SuDS drainage through made ground soils. • Potential impacts on human health from imported contaminated soils. • Potential impacts on human health or the built environment associated with the reuse of soils containing invasive species (e.g. Japanese Knotweed, Giant Hogweed). • Potential wider environmental impacts from contamination associated with incorrect disposal of contaminated soils.	Medium	Medium Adverse	Moderate Adverse	Negligible Adverse	Not Significant

7.8 Limitations

There are no known limitations to this assessment.

7.9 Conclusions

A study has been undertaken to assess the key effects of the construction and operational phases of the Proposed Development on soils (including peat), geology and hydrogeology, and to consider possible impacts associated with contamination. No Significant Adverse residual impacts are predicted, following implementation of the mitigation measures.

A number of risks were identified as potentially significant prior to mitigation, which can be summarised in the following key points:

- Pollution during construction impacting on groundwater and surface water (including hydrocarbon or concrete spillages and sediment runoff).
- Potential impacts on human health and the wider environment during construction or as part of the permanent design, from soil contamination in localised parts of the site (including asbestos and lead).
- Potential impacts on human health or the built environment associated with the reuse of soils containing invasive species (e.g. Japanese Knotweed, Giant Hogweed).

However, the assessment detailed in this chapter has demonstrated that none of these are of significant risk following implementation of the mitigation measures. A number of mitigation measures have been outlined in Section 7.6 that will be followed. The mitigations predominantly comprise compliance with the detailed measures set out in the following documents appended to this EIAR:

- Ground Investigation Report (Appendix 7.2).
- Outline Construction Environmental Management Plan (Appendix 4.2).

8 Hydrology

8.1 Introduction

As part of the EIA process, this Chapter assess the existing surface water status for waterbodies in and around the site, and within the wider regional catchment area, and considers the potential for the development to impact upon existing and future water qualities during both the construction and operational phases of the development.

The assessment has been undertaken using available qualitative and quantitative records for water quality status and supporting habitats or features of interest and considers the potential impacts in accordance with the relevant regulatory guidance and criterion.

The site and project description are outlined within Chapter 4 of this Environmental Impact Assessment Report (EIAR), and Figures referred to within the text are presented within Appendix 8.1 of the EIAR, unless indicated otherwise.

8.1.1 Statement of Authority

This chapter has been prepared by Layde Consulting, which is a multi-disciplinary Environmental Consultancy company specialising in the preparation of Environmental Impact Assessments to include hydrology and water quality assessments. John Laverty is the lead author of this Chapter and is a full Member of the Institute of Environmental Sciences, with 20 years' experience in preparing hydrological assessments in support of large-scale developments, to include quarry developments, wind farm, landfill sites, regeneration schemes and large commercial and industrial development projects.

8.1.2 Limitations

This chapter has been prepared using reviewed EPA datasets, GIS information, and reviews of published guidance or regulatory reports. Data relating to the WFD status, ecological or hydrochemical status of surface water bodies was obtained from the most recently published sources and may change when further updated data becomes available.

8.2 Methodology

8.2.1 Legislation & Guidance

The following relevant legislation and guidance information was considered during the preparation of this chapter, in relation to the assessment of water quality as part of the EIA process:

- Council Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (as amended);
- The Water Framework Directive (WFD), which represents the European legislation that was developed to establish systems to manage Europe's water environment to include rivers, lakes, estuaries, coastal waters and groundwater environs and associated habitats;
- The European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (SI No.272 of 2009), as amended. This transposes the requirement of the WFD into Irish law and provides Environmental Quality Standards (EQSs) for classifying surface water status are established for Ireland for biological quality elements, physico-chemical conditions supporting biological elements including general conditions and specific pollutants, priority substances and priority hazardous substances;
- European Communities (Quality of Shellfish Waters) Regulations 2006 (SI No 268 of 2006) which sets out limits and categories for key water quality parameters within the water environs and for shellfish waters within Ireland;
- The EU Floods Directive 2007/60/EC;
- S.I. 122 of 2010 European Communities (Assessment and Management of Flood Risks) Regulations;
- S.I. 722 of 2003, European Communities (Water Policy) Regulations, as amended;
- S.I. 350 of 2014, European Union (Water Policy) Regulations 2014;
- Planning and Development Act 2000, as amended;
- Planning and Development Regulations 2001, as amended;
- Wildlife Act 1976, as amended;
- EC (Birds and Natural Habitats) Regulations 2011, as amended;
- Heritage Act 1995, as amended;
- Revised Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022);
- National Road Schemes "Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology" (2008) National Roads Authority (NRA);
- European Communities 2021. Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC;
- Inland Fisheries Ireland, "*Guidelines on protection of fisheries during construction works in and adjacent to waters*" (2016) IFI;

- Department of Housing, Local Government and Heritage, "*Nature-based solutions for the management of rainwater and surface water run-off in urban areas*";
- Office of Public Works, "The Planning System and Flood Risk Management – Guidelines for Planning Authorities"(2009) published by the OPW;
- Good practice guidelines on the control of water pollution from construction sites developed by the Construction Industry Research and Information Association (CIRIA, 2001); and
- Good practice guidelines from CIRIA's guidance document (C768 – Guidance on the Construction of SuDS) (2017).

8.2.2 Definition of Project Area

The overall project area and proposed extent of the development is defined within Chapter 4 of this EIAR, however, the possible influence of the development within the local and regional catchment extents should be taken into consideration. Therefore, the project area is defined within this chapter in terms of the hydrological connections between the development area, and any waterbody protected under the Water Framework Direction (WFD) or other protection status relevant to water quality.

The proposed development footprint is located entirely within the River Shambles catchment, which incorporates an area of approximately 9.7km^2. The River Shambles forms part of the regional Blackwater (Monaghan) sub-catchment, which subsequently flows into the Cor River to the south of Glaslough.

The Cor River crosses the border and flows into the Annaghroe Blackwater to the east of Glaslough, which eventually forms part of the Lough Neagh and Lower Bann regional catchment area, which incorporates an area of more than 550km^2.

Therefore, the project area primarily focuses on the River Shambles catchment at the local scale, but also takes into consideration the potential to impact upon water quality status within the Blackwater (Monaghan) and Cor River. Given the overall setback distance to Lough Neagh being more than 38km, then the assessment is limited to considering Natura 2000 sites and Qualifying Interests within Lough Neagh.

8.2.3 Assessment of Baseline Conditions

Baseline conditions and water quality status information within the project study area have been collated and reviewed as part of the hydrological impact assessment. Baseline data has been obtained from the Environmental Protection Agency (EPA) GIS datasets, and relevant WFD monitoring and reporting programs, along with WFD Water Quality Indicators Reports.

Spatial GIS datasets and information relating to all relevant waterbodies which are hydrologically connected to the project area have been collated from the following sources:

- Environmental Protection Agency (EPA) GIS datasets, to include:
    - WFD Water Quality Status
    - WFD Register of Protected Areas
    - Rivers and lakes waterbodies risk
    - WFD & EPA Monitoring programmes
    - Data on inputting and receiving waterbodies
    - Bathing water quality status
    - GIS datasets for shellfish areas
    - River Basin Management Plan (RBMP) reports
- Inland Fisheries Ireland (IFI) consultation responses and datasets
- EPA Water Quality in 2023: An Indicators Report
- NIEA WMU consultation responses and GIS datasets
- Rivers Agency datasets

8.2.4 Consultations

As part of the initial investigations and methodology statements carried out for the project, a scoping report was issued to the relevant regulatory bodies for review, and to determine an overall criterion for assessing the environmental impacts specific to the development proposals. In addition to the scoping report, consultations were carried out directly with individual bodies which were considered to provide detailed guidance on the hydrological impacts of the development proposal on the local and regional waterbodies, and to obtain any site-specific information which would guide the process.

8.2.4.1 Consultation: Scoping Response

Following the submission of an initial scoping assessment, An Bord Pleanála provided an Inspection Report which highlighted a series of consultee responses that included points in relation to the assessment of hydrological impacts. A summary of the comments outlined within the Inspectors Report, and in relation to hydrological impacts, is presented below in Table 8.1. Although there is some cross over between soils, geology, hydrogeology, these elements have been addressed specifically within Chapter 7 of this EIAR and will be referenced through this chapter as necessary.

Table 8.1 Summary of Scoping Consultation Response – Hydrology

Consultee Comment	Addressed within the EIAR
The impact of materials to be excavated and/or stored on the site will require to be considered in terms of the potential impact on surface and ground waters in the area of the site, in particular impacts on the adjoining Shambles River and the Ulster Canal including any sub-surface features/culverts relating to these watercourses. Changes to the existing hard surface will lead to alterations in surface water drainage patterns and the existing on-site surface and sub-surface water drainage system should be clarified as part of the EIAR and application documentation, and the impacts of the proposed development on these existing drainage networks should be clearly set out.	The impact of materials to be excavated or stored onsite has been assessed within Chapter 7, and within this hydrology chapter of the EIAR.
In the vicinity of the site boundary there is flood risk – medium probability on the banks of the Shambles River. The EIAR should assess potential flooding impacts and risks in accordance with the document "The Planning System and Flood Risk Management – Guidelines for Planning Authorities" published by the OPW in November 2009	The potential to impact as a result of flooding have been considered within Sections 8.8 & 8.9, as part of the overall Flood Risk Assessment which is presented within Appendix 8.2.
Also, with regard to flooding, the EIAR should detail how sustainable drainage methods are proposed to be incorporated into the design and the impact of the development on existing surface water discharges from the site to the local drainage network.	A drainage assessment and design statement has been carried out as part of the iterative design process, as per Appendix 8.3 and incorporates appropriate sustainable drainage methods within the overall concept plan.
The EIAR should provide information relating to the coordinated provision of physical infrastructure and services, in terms of the cumulative impact of any other proposals	An assessment of drainage infrastructure and water management has been carried out within a Drainage Assessment, as presented within Appendix 8.3.

Consultee Comment	Addressed within the EIAR
contained in the local area action plans / regeneration plans for the surrounding area.	
Assessments regarding flood risk and drainage should detail and make provision for the accommodation of climate change impacts.	A Flood Risk Assessment and Drainage Assessment has been carried out as part of the design process for the application, as presented within Appendix 8.2 and Appendix 8.3, which takes into consideration future climate change impacts on potential flooding.

Following the completion of the scoping exercise, specifically in relation to hydrology, a number of responses were received from the various consultees, as discussed further below.

8.2.4.2 Inland Fisheries Ireland

Inland Fisheries Ireland were consulted as part of the initial scoping exercise, and a consultation response was received back on the 26th July 2024 (Appendix 8.4) with a summary of baseline conditions relating to the Shambles River catchment, along with a number of requirements that should be considered as part of the overall hydrological impact assessment.

In summary, the consultation response states that, ***"issues to be addressed in the EIA with regard to the fisheries environmental relate largely to surface water management in the project area both during and following the construction works."***

Surface Water Management During Construction Phase

All construction work should be in accordance with the oCEMP Appendix 4.2 which ensures that good construction practices are adopted throughout the construction period and contains mitigation measures to deal with potential adverse impacts on the environment identified in advance of the scheme. Potential issues that may arise on site and associated mitigation measures are addressed in IFI's document, ***"Guidelines on protection of fisheries during construction works in and adjacent to waters"***

Ground preparation and associated construction works, including large-scale topographic alteration and the creation of roads and buildings, have significant potential to cause the release of sediments and pollutants into surrounding watercourses. Pollution of the adjacent freshwaters from poor on-site construction practices could have a significant negative impact on water quality and the aquatic fauna and flora.

Construction works should be planned in a manner which prevents extensive tracts of soils being exposed at any time and which ensures a more progressive clearance of greenfield lands. Inland Fisheries recommends an undisturbed filter strip (minimum 10m) is left along the watercourse. Protective silt fencing should be erected to safeguard the stream in advance of any construction work, and no ground clearance, earth moving, stockpiling or machinery movement should occur within this protected area.

In preparation of the CEMP, particular account must be taken in relation to bio security. To prevent the spread of hazardous invasive species and pathogens, high pressure steam cleaning of all items of plant and equipment to be used at and adjacent to waters must be undertaken prior to use. All PPE must be disinfected prior to use.

Storm Water Management

The IFI response recommends that storm water management should be designed in accordance with the published Department of Housing, Local Government and Heritage guidance document, ***"Nature-based solutions for the management of rainwater and surface water run-off in urban areas".*** The document identifies the need for a significant change in the way to plan, design, build and maintain urban areas through the replacement of impermeable surfacing with nature-based planted areas designed to absorb, retain, store and treat urban runoff prior to discharge back to the environment.

8.2.4.3 Other Consultations

In addition to the initial consultation responses received as part of the scoping exercise, a number of consultees were contacted in order to obtain relevant information to the project area, water bodies and catchment features, and any information relating to fish stock which may be affected by the development proposals. The following consultees were contacted, which include cross-border regulatory bodies given that the regional catchment area incorporates both Ireland and Northern Ireland regulated water bodies:

- Department of Agriculture, Environment and Rural Affairs (DAERA) Water Management Unit (WMU) (responded 25/10/2024);
- Inland Fisheries Ireland (IFI responded 18/10/2024);
- Northern Ireland Environment Agency (NIEA) Data and Evidence Team, Conservation Science, Natural Environment Division (NIEA WMU responded 11/11/24);
- DAERA-NI Inland Fisheries - Correspondence and Public Angling Estate Team, Marine and Fisheries Division, Environment, Marine and Fisheries Group (no response received)

8.3 Assessment Criteria

The criteria for assessing impact significance on the hydrological environs is set out within the NRA guidance document[5] (now issued by the Transport Infrastructure Ireland TII), which provides a criterion for estimating the magnitude of impact, and the significance of effect and impacts as a result of the development.

The significance of impact on local and regional surface water quality is considered for both the construction and operational phases of the development and has been undertaken using available qualitative and quantitative data for the site, catchments and supporting habitats, and their qualifying interests or features.

Based on the NRA guidance document, the criteria for estimating the magnitude of impact is summarised below in Table 8.2, which takes into consideration the qualifying attribute or feature, and the quality or integrity of that feature as a result of the development. The criteria for rating the significance of environmental impacts are outlined in Table 8.3, and this takes into consideration the importance of the attribute and assess this against the magnitude of the attribute or feature.

Table 8.2 Estimation of Magnitude of Impact - Hydrology

Magnitude of Impact	Criteria	Typical Examples
Large Adverse	Results in loss of attribute and / or quality and integrity of attribute	Loss or extensive change to a waterbody or water dependant habitat Increase in predicted peak flood level of >100mm Extensive loss of fishery Calculated risk of serious pollution incident >2% annually Extensive reduction in amenity value

[5] National Road Authority, "*Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes*" (2008) NRA

Magnitude of Impact	Criteria	Typical Examples
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute	Increase in predicted peak flood level >50mm Partial loss of fishery Calculated risk of serious pollution incident >1% annually Partial reduction in amenity value
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute	Increase in predicted peak flood level >10mm Minor loss of fishery Calculated risk of serious pollution incident >0.5% annually Slight reduction in amenity value
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	Negligible change in predicted peak flood level Calculated risk of serious pollution incident <0.5% annually
Minor Beneficial	Results in minor improvement of attribute quality	Reduction in predicted peak flood level >10mm Calculated reduction in pollution risk of 50% or more where existing risk is <1% annually
Moderate Beneficial	Results in moderate improvement of attribute quality	Reduction in predicted peak flood level >50mm 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 8.3 . Rating of Significance of Environmental Impacts

		Magnitude of Impact			
		Negligible	**Small**	**Moderate**	**Large**
Importance of Attribute	**Extremely High**	Imperceptible	Significant	Profound	Profound
	Very High	Imperceptible	Significant / Moderate	Profound / Significant	Profound
	High	Imperceptible	Moderate / Slight	Significant / Moderate	Severe / Significant
	Medium	Imperceptible	Slight	Moderate	Significant
	Low	Imperceptible	Imperceptible	Slight	Slight / Moderate

The magnitude and significance of impacts have been assessed for both the construction and operational phases of the development, and in the absence of mitigation measures put in place. Subsequently, the magnitude and significance of impacts are assessed thereafter with mitigation measures implemented, and the cumulative and residual impacts are also taken into consideration.

In addition to assessing the significance of impacts from the development against the NRA criteria set out above, the hydrological impact assessment also takes into consideration the Water Framework Directive (WFD) objectives for maintaining or improving the overall water quality status of attributes or water bodies, and ensuring that no detrimental impacts occur, or deterioration in water quality status as a result of the development. The primary objectives of the WFD are as follows:

- To prevent deterioration in the ecological status of the water body;
- To prevent the introduction of impediment to the attainment of Good WFD status of the water body;
- To ensure the attainment of the WFD objectives for the water body are not compromised; and
- To ensure the achievement of the WFD objectives in other water bodies within the same catchment are not permanently excluded or compromised.

The assessment takes into consideration all of the collated baseline hydrological data obtained for the relevant catchment features and assesses the potential impacts that the development

may have on the WFD objectives during both the construction and operational phases of the development.

8.4 Baseline Conditions

8.4.1 Identification of relevant Waterbodies

As defined by the project area, the relevant waterbodies which are hydrologically connected to the site are summarised below in Table 8.4.

Table 8.4 Summary of water bodies

Waterbody	Waterbody Code	Waterbody Type	Sub Basin Area	Regional Catchment
Shambles_010	IE_NB_03S010500	River	9.75km^2	Lough Neagh & Lower Bann
Blackwater (Monaghan)_040	IE_NB_03B010800	River	9.98km^2	Lough Neagh & Lower Bann
Cor River	UKGBNI1NB030308245	River	24.21km^2	Lough Neagh & Lower Bann

8.4.2 Current WFD Status

Baseline conditions for the WFD waterbody status were reviewed for each of the identified waterbodies within the project area and wider catchment extent, in order to assess the risk to the current WFD objectives. The EPA periodically issues a summary of the WFD risk status (currently 3rd cycle), which updates the assessment period from 2016 – 2021. A summary of the latest WFD status is presented below in Table 8.5 and includes the status of waterbodies which are hydrologically connected to the development area under current conditions, and also for projected future conditions. The published EPA GIS datasets and corresponding map for WFD risk status is presented in Appendix 8.1.

Table 8.5 WFD Risk status (3rd cylce) and projected risk

Waterbody	Status	Risk Projection	Status Driver	High Status Objective	Technique	Protected Area
Shambles_010	Poor	At Risk	Invertebrates	No	Monitoring	No
Blackwater (Monaghan)_040	Poor	At Risk	Invertebrates and fish	No	Monitoring	Yes
Cor River	Moderate	At Risk	-	No	Monitoring	No

The projected risk for each waterbody is based on the likelihood of meeting the WFD objectives by 2027. The risk of not meeting WFD objectives is determined by assessment of monitoring data, data on the pressures and data on the measures that have been implemented. The project analysis was completed in 2020 by the EPA Catchments Unit in conjunction with other public bodies and was primarily based on monitoring data up to the end of 2018. The three risk categories are; Waterbodies that are At Risk of not meeting their Water Framework Directive objectives; Waterbodies that are 'At Risk' are prioritised for implementation of measures and are considered to be at risk of not meeting the Water Framework Directive objectives by 2027.

The 'At Risk' waterbodies not only require the implementation of the existing measures described in the relevant regulations, e.g. the Good Agricultural Practices Regulations, but also in many instances require more targeted supplementary measures.

Waterbodies are categorised as 'Review' either because additional information is needed in order to determine their status before resources and more targeted measures are initiated, or the measures have been undertaken, e.g. a wastewater treatment plant upgrade, although the outcome has not yet been measured / monitored.

Waterbodies that are 'Not at Risk' are likely to meet the Water Framework Directive objectives by 2027, however, these waterbodies still require maintenance of the existing measures in place in order to protect and maintain the satisfactory status of the waterbodies.

As indicated in Table 8.5, all three identified river systems within the project study area have been classified as 'At Risk', thus indicating that the WFD objectives may not be met by 2027.

Based on EPA GIS datasets, the historic WFD status for all three river systems from 2007 – to 2021 was reviewed, as summarised in Table 8.6, and provides a better understanding of long term WFD status of each of the river bodies.

Table 8.6 Historic WFD status from 2007 – 2021

Waterbody	2016 - 2021	2013 - 2018	2010 - 2015	2010 - 2012	2007 - 2009
Shambles_010	Poor	Poor	Poor	Poor	Poor
Blackwater (Monaghan)_040	Poor	Poor	Moderate	Poor	Poor
Cor River	Moderate	Moderate	Unassigned	Unassigned	Unassigned

In summary, the following statements can be made with regards to the overall ecological or potential WFD status:

- River Shambles – this river is currently categorised as 'poor' status, and has historically been classed as poor since 2007;
- Blackwater (Monaghan) – this river system is also categorised as 'poor' status, declining from moderate status in 2015;
- Cor River – this river is currently categorised as having 'moderate' ecological status or potential, being consistent since 2013. No status indicators are available preceding this date.

In addition to assigning an overall status classification to the waterbody, the EPA datasets and WFD monitoring program provides a more detailed breakdown of key indicators which define the overall status of the waterbody, both in terms of ecological status, but also for water chemistry and general conditions of the waterbody.

A summary of the WFD analysis for each of the river systems is presented in Table 8.7, based on the 2016 – 2021 WFD dataset.

Table 8.7 Summary of WFD key indicators, 2016 - 2021

Parameter	River Shambles	Blackwater (Monaghan)	Cor River
Biological Status or Potential	Poor	Poor	Not available
Other Aquatic Flora Status or Potential	Not available	Poor	Not available
Macrophyte Status or Potential	Not available	Good	Not available
Phytobenthos Status or Potential	Not available	Poor	Not available
Invertebrate Status or Potential	Poor	Moderate	Not available
Fish Status or Potential	Not available	Moderate	Not available
Supporting Chemistry Conditions	Moderate	Pass	Not available
General Conditions	Moderate	Pass	Not available
Oxygenation Conditions	Pass	Pass	Not available
Dissolved Oxygen (%Sat)	Pass	Pass	Not available
Other determinant for oxygenation conditions	High	High	Not available
Acidification Conditions	Pass	Pass	Not available
pH	Pass	Pass	Not available
Nutrient Conditions	Moderate	Pass	Not available
Nitrogen Conditions	Moderate	Good	Not available
Nitrate	Moderate	Good	Not available

Parameter	River Shambles	Blackwater (Monaghan)	Cor River
Ammonium	Moderate	High	Not available
Phosphorous Conditions	Moderate	Moderate	Not available
Orthophosphate	Moderate	Moderate	Not available
Specific Pollutant Conditions	Not available	Pass	Not available
Chemical Surface Water Status	Not available	Pass	Not available
Overall Ecological Status or Potential	Poor	Poor	Moderate

8.4.3 Water Quality Trends

A review of water quality trends (Table 8.8) was undertaken for the River Shambles and River Blackwater (Monaghan), based on the trend period of 2016 – 2021. Data for the Cor River is unavailable for this period.

Table 8.8 Summary of water quality trends, 2016 - 2021

Parameter	River Shambles_010			Blackwater (Monaghan) _040		
	Station Name	Indicative Quality	Trend	Station Name	Indicative Quality	Trend
Ammonia-Total (as N)	Br at entrance to GAA Grounds	Moderate	Downwards	Newmills Br	High	Downwards
Ortho-Phosphate (as P) - unspecified	Br at Tullyherim	Moderate	Downwards	Newmills Br	Poor	Downwards
Total Oxidised Nitrogen (as N)	Culvert u/s of N2 Roundabout	Moderate	Downwards	Newmills Br	Moderate	Upwards
Ammonia-Total (as N)	Culvert u/s of N2 Roundabout	Moderate	Upwards	Downstream of TPEFF2400D0463SW001	Good	Downwards
Ortho-Phosphate (as P) - unspecified	Br at entrance to GAA Grounds	Moderate	Downwards	Downstream of TPEFF2400D0463SW001	Moderate	Downwards
Ammonia-Total (as N)	Br at Tullyherim	Poor	Downwards	Upstream of TPEFF2400D0463SW001	High	Downwards
ortho-Phosphate (as P) - unspecified	Culvert u/s of N2 Roundabout	Poor	Downwards	Upstream of TPEFF2400D0463SW001	Moderate	Downwards

8.4.4 Nutrient Sensitive Waters

The Urban Wastewater Treatment Regulations 2001, as amended (which transpose the Urban Wastewater Treatment Directive (91/271/EEC) into Irish law and update the Environmental Protection Agency Act, 1992 (Urban Waste Water Treatment) Regulations 1994, as amended) list nutrient sensitive waters in the Third Schedule.

A review of the EPA datasets indicates that there are no nutrient sensitive areas within the River Shambles catchment. However, the Blackwater (Monaghan) River has been classified as nutrient sensitive waters in accordance with the Urban Wastewater Treatment Directive.

8.4.5 Protected Areas

The Lough Neagh and Lower Bann catchment is protected under EU legislation, given that Lough Neagh has been designated as a Natura 2000 site (Lough Neagh and Lough Beg SPA UK9020091), which includes supporting tributaries and waterbodies.

All other protected areas within the Lough Neagh and River Bann RBD were reviewed using the EPA GIS mapping records, which is based on the national register of protected areas that includes the following:

- Public supply Source Protection Areas designated for the abstraction of water for human consumption, and includes drinking water protected areas;
- areas designated for the protection of economically significant aquatic species, i.e. Freshwater Fish and Shellfish;
- bodies of water designated as recreational waters, including areas designated as bathing waters;
- nutrient-sensitive areas, including areas identified as Nitrate Vulnerable Zones under the Nitrates Directive or areas designated as sensitive under Urban Waste Water Treatment Directive;
- areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection including relevant Natura 2000 sites (Special Protection Areas (SPAs); and candidate Special Areas of Conservation (cSACs).

A summary of the EPA and WFD register of Protected Areas within 5km catchment of the WFD and EPA national register is presented below in Table 8.9.

Table 8.9 Summary of EPA & WFD register of Protected Areas within 5km catchment

Protection Designation	Description	Consideration within EIAR
Drinking Waters (River)	No protected areas	Not required
Drinking Waters (Lake)	No protected areas	Not required
Drinking Water (Groundwater)	Monaghan Town GWB – Article 7 Abstraction for Drinking Water	Assessed within Chapter 7 as part of the hydrogeological impact assessment
GSI Public Supply Source Protection Area	Monaghan PWS: SO – Outer Protection Area / Monaghan PWS SI – Inner Protection Area	Assessed within Chapter 7 as part of the hydrogeological impact assessment
Bathing Water Areas	No protected areas	Not required
Shellfish Areas	No protected areas	Not required
Salmonid River Regs (S.I.293 only)	No protected areas	Not required
Nutrient Sensitive Areas (Rivers)	Blackwater (Monaghan) River – Urban Waste Water Treatment Directive Sensitive Area	Considered further in this Chapter within Section 8.6.8.
Nutrient Sensitive Areas (Lakes and Estuaries)	No protected areas	Not required
SAC with water dependant habitat / species	No protected areas	Not required
SPA with water dependant habitat / species	No protected areas	Not required

8.4.6 Natura 2000 Sites

All relevant Natura 2000 sites have been identified as part of the Natura Impact Statement and AA screening exercise Appendix 9.6 and are considered in detail within the Biodiversity Chapter 9 of this EIAR. The only Natura 2000 site which is hydrologically linked to the project

area was found to be Lough Neagh and Lough Beg SPA (ID: UK9020091), along with supporting tributaries and waterbodies.

8.4.7 Fish

The Inland Fisheries Ireland (IFI) consultation response stated that the Shambles River, which is a tributary of the Monaghan Blackwater River, contains fisheries habitat and supports stock of coarse fish and pike. The River Shambles flows into the Monaghan Blackwater River at the northern end of the town. The Monaghan Blackwater River contains valuable fisheries habitat and supports populations of salmon, trout, eels and lamprey, among other species.

It should be noted that Lamprey are listed as Annex II Species under the European Habitats Directive and are protected as such. The WFD monitoring program indicates that the Monaghan Blackwater River has moderate potential for fish stock, however no information is available regarding the River Shambles, or Cor River.

8.4.8 EPA Water Quality in 2023: An Indicators Report

The EPA periodically publishes a summary review of the key indicators for water quality relating to waterbodies within Ireland. The most recent report published in 2024 provides an update for the key indicators of water quality using monitoring data collected in 2023, with the EPA undertaking a full assessment of the overall quality and ecological status of Ireland’s waters every three years. The last full cycle covered the 2019-2021 period.

The EPA report provides an overview of water quality, based on three primary indicators for river waterbodies which includes biological quality indicators, and loading from nitrates and phosphorus within river systems.

8.4.8.1 Biological Quality Indicators

The biological quality of river water bodies is assessed as part of the National Water Quality Monitoring Programme, which monitors macroinvertebrate communities within the river, and categorises the biological quality (Q value) of a river into five classes following the criteria outlined in Table 8.10.

The Q Values are based primarily on the relative proportions of pollution sensitive to tolerant macroinvertebrates (the young stages of insects primarily but also snails, worms, shrimps etc.) resident at a river site. The intermediate values (Q1-2, 2-3, 3-4 etc.) denote transitional conditions, and the classification mainly reflects the effects of organic pollution (i.e. de-oxygenation and eutrophication). Where a toxic effect is apparent or suspected, then the suffix '0' is added to the biotic index (e.g. Q1/0, 2/0 or 3/0). An asterisk after the Q value (e.g. Q3*) indicates something worthy of special attention, typically heavy siltation of the substratum

Table 8.10 Biotic indices (Q Values) classification

Q Value	WFD Status	Pollution Status	Condition
Q5, Q4-5	High	Unpolluted	Satisfactory
Q4	Good	Unpolluted	Satisfactory
Q3-4	Moderate	Slightly Polluted	Unsatisfactory
Q3, Q2-3	Poor	Moderately Polluted	Unsatisfactory
Q2, Q1-2	Bad	Seriously Polluted	Unsatisfactory

Macroinvertebrates are the primary biological indicator used to determine the overall river water quality, therefore, on this basis any change in the Q value can often be an indicator of changes within the overall ecological status of the river. The macroinvertebrate status and Q value of the River Shambles (Culvert u/s of N2 Roundabout, Armagh Road) and Blackwater (Monaghan) River (Newmills Stn) were assessed based on published EPA river quality Surveys for Hydrometric Area 03 and are summarised below in Table 8.11 for the monitoring period of 2017 – 2022 (Appendix 8.5). No Q value data was available for the Cor River.

Table 8.11 Summary of biological water quality indicators (2017 – 2022)

River	Q Value (2022)	Q Value (2019)	Q Value (2017)	Current Biological Status
River Shambles	2-3	2-3	2-3	Poor
Blackwater (Monaghan)	3-4	4	3-4	Moderate

8.4.8.2 Nitrate in Rivers

Nitrate enters the waterways from land through free draining soils to our groundwaters, where it then discharges to rivers. The primary source of nitrates come from agricultural practices through chemical and organic (manures and urine from livestock) fertilisers, or by means of direct discharges from wastewater. The concentration of nitrate (NO_3) in rivers is an indicator of nutrient enrichment, and elevated levels in drinking water may pose a risk to human health.

The EPA report indicates that the annual average river nitrate concentrations nationally were the same in 2023 as in 2022, with nitrate concentrations remaining high in 42% of rivers sites, and with no indication of improvement.

In terms of the local catchment regime, a summary of the EPA Total Oxidised Nitrogen (as N, mg/l) data for the last three published years is presented within Table 8.12. below, and in relation to the River Shambles and Blackwater (Monaghan) River. The levels of nitrate found

within the River Shambles (Culvert u/s of N2 Roundabout) and Blackwater (Monaghan) River (Newmills Bridge Station) are indicative of nitrate conditions that are consistent with 'moderate' ecological status.

Table 8.12 Published Total Oxidised Nitrogen (as N, mg/l) for 2019 – 2021

Parameter	River Shambles	Blackwater (Monaghan)
Annual Mean 2021	13.120	3.558
Annual Mean 2020	8.300	2.005
Annual Mean 2019	11.220	1.915
Baseline Concentration	10.880 (2019)	2.493 (2020)
Trend	Upwards	Upwards
Current Indicative Quality	Moderate	Moderate

8.4.8.3 Phosphate in Rivers

Elevated phosphate concentrations in rivers can be a sign of nutrient pollution (eutrophication) from human activities, and from a variety of sources. The primary source of phosphate concentrations comes from wastewater, industrial discharges and from run off of organic and inorganic fertilisers from agricultural land. Similar to nitrates, over a three-year average there were minimal improvements in national phosphate concentrations within river systems during the monitoring period of 2021-2023, with 27% of sites having unsatisfactory phosphate concentrations.

In terms of river systems within the project area, a summary of the EPA monitoring datasets for ortho-Phosphate (as P, mg/l) is presented in Table 8.13 for the River Shambles (Bridge at the GAA entrance) and Blackwater (Monaghan) River (Culvert u/s of N2 Roundabout). When assessing the results, an average phosphate concentration of less than 0.025 mg/l P and less than 0.035 mg/l P have been established in Ireland as legally binding national standards to support the achievement of 'high' and 'good' ecological status respectively.

Table 8.13 Published ortho-Phosphate (as P, mg/l) for 2019 – 2021

Parameter	River Shambles	Blackwater (Monaghan)
Annual Mean 2021	0.026	0.047
Annual Mean 2020	0.048	0.070
Annual Mean 2019	0.059	0.059
Baseline Concentration	0.044 (2020)	0.059 (2020)
Trend	Downwards	Downwards
Current Indicative Quality	Moderate	Poor

8.4.9 Bathing Water Status

A review of the EPA GIS datasets was undertaken to obtain information relating to the bathing water quality status for any lakes, rivers or beaches within the project study area of the site. In addition, a review was undertaken for the EPA "*Bathing Water Quality in Ireland – A report for the year 2023*", which provides an overview of the Bathing Water Quality Map of Ireland in 2023, along with the assigned water quality status.

The EPA GIS datasets represent a snapshot taken in December 2018 for the purpose of the WFD RBMP Cycle 3. Bathing Water Area profiles referred to in Regulation 5 relate to the description of the physical, geographical and hydrological characteristics of the bathing water, as provided for in Directive 2006/7/EC where Designated Bathing Waters exist under S.I. No. 79/2008 and S.I. No. 351/2011 Bathing Water Quality (Amendment) Regulations 2011.

In addition to reviewing the EPA dataset for the 3rd WFD RBMP cycle, a review of the EPA classifications for bathing water 2020 – 2023 was undertaken, along with a review of the projected classifications for likely bathing water quality in 2023 (Appendix 8.6).

Bathing water quality is classified as either Excellent, Good, Sufficient or Poor, based on the results of microbiological samples obtained at the monitoring location, as summarised in Table 8.14. The annual bathing water status is classified on the basis of a minimum of 16No. water quality samples obtained for each monitoring location, with a 'Poor' status indicating that the microbiological samples were found to be worse than the criteria for achieving a 'sufficient' status.

Table 8.14 Annual assessment criteria for bathing waters

Parameter	Classification based on 95-percentile		Classification based on 90-percentile
	Excellent	Good	Sufficient
E. coli (Freshwater) cfu/100ml	500	1000	900
E. coli (Coastal) cfu/100ml	250	500	500
Intestinal enterococci (freshwater) cfu/100 ml	200	400	330
Intestinal enterococci (Coastal) cfu/100 ml	100	200	185

Following a review of the EPA datasets, the EPA report for bathing water quality in 2023, and also the projected classifications for 2023, there were no bathing waters identified within the project area, or within the wider catchment area which would be affected by the development proposals.

8.4.10 Pollution Impact Potential (PIP)

A review of the Pollution Impact Potential (PIP) maps was undertaken for the latest release version (V3), presenting an update from previous PIP mapping prior to 2018. The PIP-N v3 ranks have updated ranges of nitrate losses due to the significant increase in loadings and losses to water.

Nitrate Critical Source Areas (CSA) are where there is a source of nitrate (N) from agricultural areas and where the land is susceptible to losses. A ‘High’ (Rank 1, 2 or 3) is typically due to the presence of poorly draining soils and moderate/high livestock intensity, and waterbodies are At Risk where Phosphorous is the significant issue and farming is the significant pressure. In terms of the site area, the Pollution Impact Potential for Nitrates (PIP-N) is ranked 7 (Appendix 8.1), equating to a ‘low PIP.

Phosphorus Critical Source Areas (CSA) are where there is a diffuse source of Phosphorous from agricultural areas, and where the land is susceptible to losses. In terms of the site area, the Pollution Impact Potential for Phosphorous (PIP-P) is ranked 1-2 (Appendix 8.1), equating to a ‘high’ PIP.

8.5 Site Drainage

As part of the overall design process, a site drainage assessment was undertaken (see Appendix 8.3) which considered the existing storm and foul drainage infrastructure, local topographical conditions, and the future development proposals requiring appropriate drainage management.

8.5.1 Proposed Storm Water Drainage Strategy

Pre-development and post-development runoff calculations were undertaken and based on a series of return period storm events. On this basis, the required runoff values were determined for future conditions as part of the post-development phase, and appropriate site drainage infrastructure was designed.

The drainage assessment concluded that based on the design strategy and proposed drainage infrastructure, future flood risk will not be increased within or beyond the site boundary as a result of the proposed development.

8.5.2 Proposed Foul Water Drainage Strategy

In terms of foul water, the drainage assessment indicates that there is no foul run-off generated directly by the works envisaged by the scheme design as set out in the Application for Development.

The scheme design will create two Development Plots which will be developed in the future as a mix of commercial / residential properties. In order to cater for the future foul flow generated by the Development Plots, a foul drainage sewer has been provided along Russell Row, with spur connections to the Development Plots.

The proposed foul drainage includes connections at each potential future development site which will convey flows through the proposed gravity pipework system, any connection to this network will be subject to Uisce Éireann approvals

The Drainage Assessment Appendix 8.3 concludes that with consideration of the drainage strategy and the surface water mitigation measures for the scheme, flood risk from pluvial flooding will be managed at the development and will not increase the runoff elsewhere. Proposed levels have been developed to ensure that no properties will be subject to flooding in the event that a local drainage system failure should occur.

In addition, foul sewerage is proposed to discharge to Uisce Éireann infrastructure if potential future developments occupy the site.

8.6 Flood Risk

A desk study Flood Risk Assessment (FRA) was prepared in support of this Chapter, as presented within Appendix 8.2. The FRA report considered the existing topographical conditions of the site and surrounding area, along with the existing drainage infrastructure, and also the proposed future grading requirements and proposed new infrastructure. The vulnerability classification of the site to flooding was defined as per Table 8.15, and the report concluded that the development under study is classified as '*Less Vulnerable Developments'*, due to the fact that the scheme will serve to create residential and commercial development on the two Development Plots created by the works.

Table 8.15 Vulnerability Classification

Vulnerability	Type of Development
Highly Vulnerable Development	Includes Garda, ambulance and fire stations, hospitals, schools, residential dwellings, residential institutions, essential infrastructure, such as primary transport and utilities distribution and SEVESO and IPPC sites, etc
Less Vulnerable Development	Includes retail, leisure, warehousing, commercial, industrial and non-residential institutions, etc.
Water Compatible Development	Includes Flood Control Infrastructure, docks, marinas, wharves, navigation facilities, water-based recreation facilities, amenity open spaces and outdoor sport and recreation facilities

A review of publicly available information was undertaken in relation to flooding and infrastructure, to include the Monaghan County Council Development Plans (2019 -2025), SFRA flood zone mapping, and information from the Office of Public Works (OPW) datasets.

The SFRA mapping indicates that the proposed Regeneration Plan area is located in Flood Zone C, categorised as having no risk of flooding. Although historical information indicates that flooding has occurred within Monaghan town, the OPW data indicates that no historical flooding has been recorded within or adjacent to the site.

8.6.1 Fluvial Flooding

In terms of the FRA findings, an initial assessment indicated that the site itself is in an area with no risk of present-day fluvial flooding. The CFRAM River Flood Extents for Mid and High-End Future Scenarios, with an allowance for climate change, confirm that the proposed development is not at risk of fluvial flooding. The findings of the FRA indicate that the existing ground levels are above the maximum flood levels indicated for the closest river nodes, ensuring that the proposed development will remain safe from river flooding.

8.6.2 Coastal Flooding

In terms of coastal flood events, as the site is some 48km from coast, then the risk of coastal flooding is considered to be very low.

8.6.3 Surface Water Flood Risk

Based on the SFRA of the Monaghan Local Area Plan, no risk of surface water flooding has been recorded at the site. The impermeable area of the proposed site will not increase as a

result of the development proposals; therefore, the volume of runoff will not increase compared to the existing site.

Any potential residual impact of surface water on the development will be mitigated by implementing a resilient surface water drainage network, including SuDS, as detailed within the design plan (Chapter 4).

8.6.4 Groundwater Flooding

Groundwater flooding is characterised by below ground flooding where elevated groundwater within permeable deposits may cause flooding of below ground structures. However, there are no basement structures proposed in the scheme.

Above groundwater flooding is characterised when groundwater elevations exceed ground levels, and under this case, the flooding will be treated as surface water. There is no evidence of groundwater flooding within Monaghan's Local Area Plan or OPW interactive map viewer.

Ground Investigation Specification issued by GDG and Geological Survey Ireland (GSI) data indicate that the site is underlain by Ballysteen Formation (Limestone), described as dark muddy limestone, shale. GSI mapping also indicates a low permeability of underlain soils. As indicated within the GIS mapping, the groundwater vulnerability at the proposed site is moderate to high, however this assesses the groundwater vulnerability to an area when the groundwater table may be high, but it should be noted that the groundwater vulnerability mapping does not reflect the risk of groundwater flooding of the area.

8.7 Impact Assessment: Overview

The environmental impacts that the proposed development may have on the local receiving waters environs has been assessed for the construction and operational phases of the development. The criteria for assessing the magnitude of impact have been adopted from the NRA guidelines, as summarised in Table 8.2 and Table 8.3 of this chapter. This criterion takes into consideration the magnitude of impact, ranging from large adverse impacts to major beneficial impacts, and is applicable to the assessment of all receiving surface water environs. The overall significance of impact takes into consideration the sensitivity of the receiving waterbodies, the importance of relevant attributes, and the magnitude of impact.

8.7.1 Direct Impact

In terms of direct impact potential, this relates to the immediate development area and land uptake within the proposed planning boundary. Direct impacts may be in the form of changes in land use or management, such as in-stream works, direct alterations to existing

watercourses or channels features, installation or alteration of drainage to watercourses, culverting of watercourses and / or removal or alterations of catchment area.

In terms of direct effects relating to the development proposals, no in-stream works are being proposed within the River Shambles or connecting river systems, and no new drainage outfalls are being proposed directly into the River Shambles channel. This is true for both the construction and demolition phases of the development, and also for the long-term operational phase of the development. On this basis, the development is unlikely to have any direct impacts on local waterbodies, given that no direct land uptake or instream works are proposed that would affect the local hydrology, therefore direct impacts are considered to be negligible.

8.7.2 Indirect Impact

Indirect and secondary impacts do not have a straight-line route between cause and effect. It is potentially more challenging to ensure that all the possible indirect impacts of the project, in combination with other plans and projects, have been established. These can arise, for example, when a development alters the hydrology of a catchment area, which in turn affects the movement of groundwater to a site and the qualifying interests that rely on the maintenance of water levels at another location. Deterioration in water quality can occur as an indirect consequence of development, which in turn changes the aquatic environment and reduces its capacity to support certain plants and animals. The introduction of invasive species can also be defined as an indirect impact.

Given that the development is located within proximity to the River Shambles and has the potential to indirectly impact upon local surface water quality during the construction and operational phases of the development, then each element of the proposed development has been assessed further with regards to the potential for indirect impacts.

8.8 Impact Assessment: Construction & Demolition Phase

An overview of the demolition and construction method statements, phases of works, and development description are discussed in Chapter 4 of this EIAR. By way of overview, the demolition and construction program has been broken down into 6No. phases, as summarised below in Table 8.16.

Table 8.16 Dublin Street North Construction Programme

Phase Description	Description of works	Approximate Duration
Demolition Phase 1: Site clearance and demolition of buildings, reduced site levels	Removal of scrub, vegetation, loose materials	2 weeks
	Above ground works – demolition of building structures, including export. Construction of haul road from Old Cross Square (OCS) to Russell Row	4 weeks
	Below ground works – excavation and breaking of foundation structures, including breaking of concrete, exporting of demolition materials from site	2 weeks
	Reduction of levels for the development plots, Russell Row, events space and tiered garden	4 weeks
Works Construction [Phase 1]	Construction works to subbase levels, including utilities, drainage, kerbing etc at Diamond Car Park, Russell Row and Tiered Garden.	42 weeks
	Reduced levels excavation for Russell Row to OSC, and within OCS area, to include export of materials offsite.	6 weeks
	Construction works to subbase levels, including utilities, kerbing and boundary walls, from Russell Row to OCS, and within OCS area.	20 weeks
Works Construction [Phase 2]	Surfacing, landscaping and paving for Diamond Car Park, Russell Row, Development Plots, Events Space and Tiered Garden.	30 weeks
	Surfacing, landscaping, paving and installation of street furniture between Russell Row to OCS, and within OCS area.	20 weeks

Phase Description	Description of works	Approximate Duration
Works Construction [Phase 3]	Installation of utilities, drainage and kerbing at Dublin Street.	17 weeks
	Surfacing, landscaping, paving and installation of street furniture at Dublin Street.	17 weeks
Works Construction [Phase 4]	Construction and landscaping of community garden	10 weeks
Works Construction [Phase 5]	Final landscaping, finishes, snagging and cleaning	4 weeks

Based on the overview of demolition and construction works outlined in Table 8.16 above, this stage of the development may have the potential to impact upon local water environs as a result of the following:

- Runoff of sediment / silt during excavations of ground, and the removal of vegetation and materials from site;
- Accidental release of pollutants such as fuels, oils and grease from plant machinery during the demolition and construction phases of the development;
- Impacts on water quality (pH alkalinity) as a result of concrete and cement compounds release to water courses or drainage networks;
- Impacts from the accidental release of Invasive Alien Species to local waterbodies;
- Changes in catchment area or local flow regimes;
- Damage caused to waterbodies features (i.e. banks, in-stream channels, river corridors, drainage networks etc) as a result of general construction works; and
- Flood risk, both in terms of temporary and permanent impacts.

The impact of each of these elements on the local water's environs are considered further within the following subsections and have been assessed in the absence of mitigation measures put in place.

8.8.1 Sedimentation

Sedimentation primarily occurs as result of exposure and disturbance of soil and subsoil materials within the site to rainfall and surface water runoff, causing suspended solids to enter local watercourses during rainfall events, or as a result of in-stream works resulting indirect release of sediment into the watercourse.

The effect of sedimentation has the potential to change or alter the biodiversity of the channel and river habitats, water quality and deterioration or damage to the macroinvertebrates and fish stock, thus resulting in a temporary or permanent ecological impact on the waterbody, depending on the severity of sedimentation. For example, excess sedimentation can alter the hydromorphology of the river channel or can result in sedimentation of gravel beds used by salmonid spawning. Excessive sedimentation can also lead to reduction in water quality, such as oxygenation, thus affecting the ability for aquatic invertebrates or vegetation to survive. This in turn may change the overall WFD status of the river or waterbody, both in the short and long terms, and may result in the WFD objectives not being met.

In terms of the demolition and construction phases, the development proposals require the removal of onsite vegetation as part of the enabling works within lands to the rear of properties along Dublin Street North. It is also proposed to demolish all building structures within the site area, and to excavate soils and subsoils down to the required basal level for Russell Row to Old Cross Square, and in preparation of the development plots. This will result in the exposure of soil materials to erosion and surface water runoff during rainfall events, which may cause suspended solid loading on the local drainage network. In addition, exposure of soils may result in the increased sedimentation of the River Shambles through suspended solids carried by surface water runoff during heavy rainfall events, given that the local catchment regime drains partially towards the River Shambles.

When assessing the site during construction and demolition phases for potential impact as a result of sedimentation, and in the absence of mitigation, it is noted that the River Shambles forms part of the Blackwater (Monaghan) River sub catchment and is therefore important in terms of maintaining fish stock within the Blackwater (Monaghan) River, but also in maintaining the ecological and hydrochemical status in support of the WFD objectives. It is also noted that the River Shambles is hydrologically connected to the Lough Neagh & Lough Beg SPA, albeit the setback distance is some 38km.

Taking into account the indirect impacts of sedimentation on the River Shambles and wider catchment area, it is considered that the effects of sedimentation may cause partial loss of aquatic invertebrates and fish stock, although the risk of a serious pollution incident remains low. The information presented within the FRA report indicates that the proposed development will not be at risk of flooding, based on data from all available sources. The risk of increasing peak flood levels within the River Shambles or within the site area is predicted to be negligible. On the basis of information presented within this Chapter, the overall magnitude of impact is considered to have a **Moderate Adverse** potential. Although current WFD status for the River Shambles is classed as ‘poor’, the WFD objectives recommends an improvement in water

quality status. Therefore, the importance of the attribute (i.e. River Shambles and wider catchment area) is considered to be '**high'**, thus resulting in an overall **significant / moderate** impact potential.

8.8.2 Accidental Release of Pollutants

The accidental release of pollutants from the development area during the construction and demolition stages will effectively be limited to petrochemicals to include oils and fuels being released from plant machinery or from stored fuels/oils onsite. The quantity of petrochemicals to be stored onsite at any given time will be minimal and securely bunded, however without mitigation in place then the possibility of accidental release from plant machinery still remains possible. In addition to petrochemicals, as the construction works will involve the use of cement then there is the potential for accidental spillage of cement materials to have an impact on water quality, primarily in terms of alkalinity.

During heavy rainfall events, surface water runoff has the potential to carry pollutants from the site into the local drainage network, and also into the River Shambles, thus having the potential to indirectly impact upon surface water quality and the ecological status of the river. The magnitude of impact is considered to have a **Moderate Adverse** potential, and the importance of the attribute (i.e. River Shambles and wider catchment area) is considered to be '**high'**, thus resulting in an overall **significant / moderate** impact potential for accidental release of pollutants.

8.8.3 Invasive Species

Within the development proposals there are a number of buildings in the application area that will be demolished. In order to facilitate the enabling and demolition works, ground clearance of vegetation will be required both in terms of ground vegetation for access to the building structures, but also vegetation covering the building structures, along with haulage of materials offsite for disposal. Therefore, works associated with the demolition and ground clearance / enabling works phase may have the potential to disturb and spread invasive alien species (IAS) within the site area. The groundworks and excavations during the construction phase of the development will also involve the removal of soil and subsoil materials, and transportation of these materials offsite. This process will involve the use of HGV haulage vehicles within the site, and if not correctly managed, then there is the potential for IAS to spread. This is particularly true during heavy rainfall events, whereby disturbed or excavated IAS materials can be carried by runoff waters into local drainage networks, but also towards the River Shambles.

The identified IAS within the site area were found to be non-aquatic flora (Himalayan Honeysuckle, Japanese Knotweed etc), and are unlikely to significantly impact directly on water quality or the macroinvertebrate / fish populations, however the supporting habitats within the stream corridor may be affected as a result of the accidental spread of IAS.

The magnitude of impact of accidental release of IAS is considered to have a **Small to Moderate Adverse** impact potential, and the importance of the attribute (i.e. River Shambles and wider catchment area) is considered to be '**high'**, thus resulting in an overall **significant / slight to moderate** impact potential, in the absence of specific mitigation measures.

8.8.4 Changes in Catchment Area

No reduction of catchment area is being proposed, with flow regimes remaining the same as pre-development conditions during the enabling and demolition works, and also during the construction works phase. In addition, no changes in Flood Risk are predicted for the construction phase, therefore the magnitude of impact is considered to be **negligible** in terms of impacts upon the catchment area. Taking the importance of the River Shambles catchment area into consideration (**high importance**), given that the magnitude of impact is considered to be negligible then the overall significance of impact would be **Imperceptible**.

8.8.5 General Construction Work

Although general construction works have the potential to cause accidental spillage of contaminants to local drainage networks and the River Shambles, these elements have already been considered within this chapter. However, general construction works have the potential to impact upon water quality in terms of carrying out physical works within proximity to drainage networks and river channels. For example, damage may occur to local drainage networks during site excavations.

However, the proposed construction and demolition works are not anticipated to cause any damage or physical impact to drainage networks, nor are any works being carried out in-stream within the River Shambles. General construction works which are to be carried out at Old Cross Square and adjacent to the River Shambles bridge section are not anticipated to cause physical impact or damage to river corridor and channel, or any features supporting the existing drainage regime.

On this basis the magnitude of impact is considered to be **negligible** in terms of general construction works and physical impact to the river corridor or drainage networks. Taking the importance of the River Shambles catchment area into consideration (**high importance**), given that the magnitude of impact is considered to be negligible then the overall significance of impact would be **Imperceptible**.

8.8.6 Flooding Risk

The findings of the Flood Risk Assessment presented in support of this Chapter indicate that the site is not at risk of flooding, either in terms of fluvial or pluvial flooding, groundwater or coastal flood events. Therefore, flood risk during the construction phase is anticipated to be low.

8.9 Impact Assessment: Operational Phase

The operational phase of the development will pose less of an impact than the construction and demolition phases, with risks effectively limited to potential contamination of surface water runoff, and increasing flood risk or loading on drainage networks.

8.9.1 Contaminants

Potential for contaminants under the existing site conditions essentially relate to the continued use of public realm within Old Cross Square, The Diamond Car Park, Dublin Street North, all of which currently experience significant pedestrian and road traffic usage. Under the operational phase of the development, these elements will continue to be used to the same degree, with minimal increase impact predicted in terms of traffic (as assessed in Chapter 10) or pedestrian usage. Although a net increase is predicted to be low in terms of road traffic use, nevertheless drainage will need to be designed and maintained in order to ensure that water quality is not negatively impacted upon.

The proposed use of the Old Infirmary Hill area will be retained for pedestrian access and as a community garden area, therefore the operational phase of the development does propose any change from existing site conditions for this element.

The proposed use of Russell Row will introduce a new public road traffic source, car parking area and event space. Therefore, the operational phase of the development will have the potential to impact upon surface water quality in the absence of mitigation, primarily through surface water runoff contaminants such as oils and fuel from vehicular sources.

As such, the magnitude of impact for the operational phase of the development is considered to have a **Moderate Adverse** potential. As the importance of the attribute (i.e. River Shambles and wider catchment area) is considered to be '**high'**, this results in an overall **significant / moderate** impact potential for accidental release of pollutants.

8.9.2 Flood Risk & Drainage

An assessment of the proposed and existing levels has been undertaken as part of the Flood Risk Assessment report (Appendix 8.2), which indicates that the proposed levels have been

designed as such so the water is directed away from the existing buildings, towards the roads and soft areas. The changes to existing ground levels are minimal and hence there will be no impact on flood risk elsewhere in line with SFRA and OPW Guidelines. The development is also characterised as water compactible in terms of vulnerability classification and therefore there are no minimum FFLS/FGLs to be applied. That said, mitigation against future exceedance events has been further negate through appropriate design and mitigation, as discussed further in this Chapter.

8.10 Impact Assessment: Cumulative Impacts

The proposed development focuses on enhancing and improving the town structure and urban realm and providing additional car parking and urban infrastructure. The mitigation provided in this chapter will ensure that any negative impact to water quality is not significant, alone or in-combination with cumulative projects listed in Chapter 4. Therefore, the proposed development will not contribute, directly or cumulatively to a significant deterioration in water quality, when considered in cumulation with other projects.

8.10.1 Interrelationships

The hydrological interrelationships with other aspects of the environment have been assessed under the following Chapters:

- Chapter 7: Soils, Geology & Hydrogeology
- Chapter 9: Biodiversity
- Chapter 10: Material Assets

Each of the chapters has been prepared with consideration given to maintaining the quality of the water environs, both within the site and also within the wider catchment area. Where relevant, each chapter has provided specific mitigation with regards to the surface waters environs, in addition to mitigation specified within this chapter.

8.11 Mitigation

The proposed development design concepts have accounted for the sensitivity of key hydrological features within the site and wider catchment area, and where possible, impacts on surface water quality has been avoided as part of the overall design process. That said, following the assessment of potential impacts on surface water environs in the absence of mitigation measures, the assessment concludes that the overall significance of impact is significant / moderate.

8.11.1 Mitigation: Demolition and Construction Phase

The following mitigation measures have been proposed for the construction and demolition phases of the development in order to ensure that any impacts to hydrological features are effectively negated.

Table 8.17 Mitigation: Demolition and Construction Phase

Type of Potential Effect	Phase / Source	Form of Mitigation
Direct Effects -Loss/reduction of protected habitats, or direct removal / impact of hydrological features	Demolition and Construction: direct removal of habitat, or hydrological features	It is considered that that all identified European designations hydrologically linked to the site will remain intact, as considered within Chapter 9, given that the development proposals do not intend to directly affect or remove lands within a designated site, and are unlikely to affect any supporting habitats directly or hydrological features. No changes are proposed to the local hydrological regime, both in terms of instream channel environs, and also within the local catchment descriptors. In addition, the proposals will not result in changes to the hydrological regimes within the wider context. Indirect measures are considered further below.
Indirect Effects - Change in Key Indicators: Surface Water Quality	Demolition – Phase 1 Site clearance and demolition of buildings, reduced levels All Construction Phases	Demolition and enabling works will require the removal of surface vegetation, the demolition of existing building structures onsite, and the excavation and breaking of foundation structures as required. The demolition and enabling works will also involve the reduction of site levels for the proposed development plots. The construction phases will include the excavation and removal of bulk soil materials from site, and the importation of construction and surfacing materials. Therefore, mitigation during these phases should include: **Sediment Control** • Prior to works commencing, sedimentation control measures shall be put in place, to include the installation of silt fencing along the eastern and southern peripheral edge of the site. In addition, sediment control measures should be put in place along the bridge

Type of Potential Effect	Phase / Source	Form of Mitigation
		section prior to works commencing within Old Cross Square. Sedimentation control measures and silt fencing locations should be clearly shown within the oCEMP and accompanying drawings; • The silt fencing will consist of a geotextile filter fabric supported by vertical posts and anchored in the soil by establishing a shallow trench at the base of the fencing. The base of the geotextile fabric will line the shallow trench, i.e. turned upwards, and the excavated lose soil backfilled on the geotextile fabric; • Materials and machinery will not be stored immediately adjacent to the silt fencing, which may cause the silt fencing not to function effectively. The silt fencing layout must allow for the movement of machinery within the site and ease of maintenance; • Silt fencing will be monitored throughout the day in order to ensure that they are performing as required and have not become clogged with sediment. The silt fence integrity will be inspected daily to ensure it intercepts surface water runoff within the site, captures sediment contained in surface water runoff and reduces velocity runoff. If defects in the fencing are observed, these will be repaired and/ or rectified immediately; • Excavated materials should be removed off-site as soon as practicable, in order to prevent excessive suspended solids loading during rainfall periods and surface water runoff. In the event that stockpiled or excavated soil materials are to be kept overnight, then the materials should be covered by a tarpaulin (or equivalent covering) and surrounded by silt fencing, which should be installed according to manufacturer's guidelines; • Whenever practically possible, site clearance or ground works should not be undertaken during wet conditions, when rainfall of more than 0.5 mm/hour is forecast within the next 24 hours;

Type of Potential Effect	Phase / Source	Form of Mitigation
		• Gullies should be covered over where siltation or sedimentation is likely to occur, in order to prevent blockages or impediment of the existing drainage network; • All sediment and surface water runoff should be managed in accordance with the surface water management plan, and as per the CEMP; • All surface water runoff should be treated for suspended solids, oils and grease, prior to being discharged into the local drainage network. This can be in the form of swales, gullies and sediment traps; • No surface water runoff within the site should be discharged directly into any watercourse at any time; • As soon as practically possible, any damaged or cut ground should be reinstated to reduce suspended solids loading during rainfall runoff. **Hydrocarbon / Contamination** Hydrocarbon use during the demolition and construction phases may lead to potential pollution of waterways. Examples of potential threats include spillages during re-fuelling operations, leaks in poorly maintained plant and machinery and the use of oil on shuttering boards. In order to reduce or mitigated against accidental spillage of hydrocarbons or contamination, the following should be adhered to: • Fuelling of machines will be carried out away from all watercourses, with all machines provided with spill kits. Vehicles being used to deliver fuels should be certified in accordance with relevant regulations and double bunded; • Wherever possible, no fuels should be stored on site; • In the event that fuels are necessary to be stored on site, these shall be located within the allocated storage containers (see Compound Plan within the oCEMP – Appendix

Type of Potential Effect	Phase / Source	Form of Mitigation
		4.2). All fuels, lubricants and hydraulic fluids should be kept in secure bunded areas as far away from all watercourses as practically possible. The bunded area will accommodate 110% of the total capacity of the containers within it; • All fuel or oil storage containers will be properly secured to prevent unauthorised access and misuse. • An effective spillage procedure should be put in place. Site operatives should be provided emergency spill kits which should be stored on-site during the construction period at all times. Such kits should contain absorbent materials (such as absorbent granules, booms or mats). Operatives responsible for handling chemicals, fuels or oils, or for plant refuelling, should be trained in the use of this kit; • Any waste oils or hydraulic fluids should be collected, stored in appropriate containers and disposed of off-site in an appropriate manner. • Where appropriate, drip-trays should be used. Vehicles should never be left unattended during re-fuelling; • All vehicles should be regularly maintained and checked to prevent hydrocarbon leaks; • Where open gullies or channels are present on site, then gully covers will be used in order to prevent surface water runoff; • All stationary machinery such as generators should be placed on drip trays in order to collect and contain any hydrocarbon spillages. These trays should be checked regularly, and rainwater removed to maintain their effectiveness; • Wherever possible, hydraulically operated machinery should utilize synthetic biodegradable hydraulic oil

Type of Potential Effect	Phase / Source	Form of Mitigation
General	Construction: General works & principles	• All construction works should be carried out in accordance with the Construction Environmental Management Plan (oCEMP), dewatering plan and any construction noise or surface water management plans contained therein; • All construction staff will be informed of best practice methodologies to be employed on site via the dissemination of a tool-box talk. This shall include the requirement for protection of aquatic habitats and the sensitivity of the River Shambles and its connectivity to European sites; • There shall be no vehicular or personnel access to the channel of the River Shambles. • At no point will such equipment be washed out at the worksite or adjacent to the River Shambles.

8.11.2 Mitigation Measures: Flood Risk & Drainage

In addition to the above, the following mitigation measures have been considered in accordance with the policies of the Monaghan County Development Plan:

Surface water runoff from the proposed development has been assessed with consideration for the existing site characteristics, using flow route analysis to determine the natural behaviour of the site prior to development. The existing flow path analysis indicates that during exceedance events or in the event of system blockages, flow will be directed toward Dublin Street Road in the northern portion of the site, while parts of the southern portion will direct flow toward the soft areas to the east.

In line with Monaghan County Council requirements, a surface water drainage strategy has been developed to collect runoff from impermeable public realm areas via gullies, which will channel water to the proposed below-ground drainage network before connecting to the existing stormwater sewer that discharges into the watercourse south of the site. Therefore, the existing connection will be utilised, and the proposed development will not impact the current situation, as the impermeable area will not increase. Additionally, the inclusion of SuDS features will further enhance the management of surface water runoff.

SuDS features, including rain gardens, tree pits with overflow pipes directed to onsite drainage, and permeable paving cells in parking spaces, have been included to manage runoff from the proposed impermeable surfaces. Outfalls from SuDS features will be established at levels that allow them to function primarily as overflows, accommodating excess runoff not managed through infiltration.

A petrol interceptor is also proposed to treat surface water runoff before it discharges into the existing watercourse.

8.11.3 Mitigation: Operational Phase

The following mitigation measures have been proposed for the long-term operational phase in order to ensure that any impacts to hydrological features are effectively negated.

Table 8.18 Mitigation: Operational Phase

Type of Potential Effect	Phase / Source	Form of Mitigation
Direct Effects -Loss/reduction of protected habitats, or direct removal / impact of hydrological features	Operational Phase: direct removal of habitat or hydrological features	As with the previous section, it is considered that all identified European designations hydrologically linked to the site will remain intact during the operational phase, as considered within Chapter 9. No changes are proposed to the local hydrological regime, both in terms of instream channel environs, and also within the local catchment descriptors. In addition, the proposals will not result in changes to the hydrological regimes within the wider context, therefore no further mitigation has been proposed for direct effects.
Change in Key Indicators: Surface Water Quality	Operational Phase: Road Traffic Sources	The operational phase involves the continued use of hardstanding areas, new car parking spaces, and the operation of Russell Row as a road traffic source. Although suspended solids loading is anticipated to be low during the operational phase, nevertheless, mitigation during this phase should include: **Sediment Control** • All sediment and surface water runoff should be managed in accordance with a suitable drainage management plan, and as part of the wider drainage network; • Drainage within the site should be managed using available SuDS techniques, and should be maintained accordingly as designed; • No surface water runoff within the site should be discharged directly into any watercourse at any time, but should be managed in conjunction with the local drainage infrastructure and maintenance program.

Type of Potential Effect	Phase / Source	Form of Mitigation
		Hydrocarbon / Contamination Hydrocarbon use during the operational phase may lead to potential pollution of waterways, given that the operational phase will involve the introduction of road traffic sources. Examples of potential threats include spillages and leaks associated with damaged vehicles. In order to reduce or mitigated against accidental spillage of hydrocarbons or contamination, the following should be adhered to: • All site runoff should be managed in conjunction with the local drainage network and infrastructure; • All runoff waters from hardstanding areas and road surfaces should pass through an oil and fuel interceptor prior to discharging into the local drainage network; • All interceptors should be emptied and maintained in accordance with the local drainage infrastructure management plan; • In the event that damage occurs to inceptors or drainage infrastructure, then the repairs should be carried out as soon as possible; • In the event that a significant spillage occurs within the site area, then cleaning and removal of oil / fuel contaminants should be undertaken immediately, and all connected interceptors should be cleaned and maintained accordingly. Any significant spillage of contaminants within the site should be reported to the relevant regulatory authority.

8.12 Residual Impacts

A review of the available published baseline water quality data for the project study area was undertaken, and an assessment of the proposed development was conducted in order to determine the likelihood of significant impacts on water quality. The criteria for assessing the magnitude and significance of potential impacts were adopted from the National Roads Authority (NRA) publication "*Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes*" (NRA, 2008), and on this basis the appropriate mitigation measures were developed in order to negate any impacts that the development may have on water environs.

This assessment concludes that provided the appropriate mitigation measures are fully implemented during the demolition and construction phases of the development, and also during the operational phase, as outlined in Appendix 4.2, and in conjunction with the mitigation measures detailed within Chapter 7 (Soils, Geology & Hydrogeology) and Chapter 9 (Biodiversity) of the EIAR, then it is anticipated that the overall impact surface water quality as a result of the development will be negligible.

In terms of flooding and drainage, the site has low risk of flooding from surface water and very low to negligible risk from all other sources. The regeneration plan for the Dublin Street North development will improve the existing runoff volume by incorporating soft landscaping areas and implementing SuDS features such as rain gardens, tree pits, and permeable paving cells within parking spaces to enhance the management of surface water runoff from the proposed hard surfaces. In addition, by adopting the recommended flood and drainage mitigation measures, the post-development site will be safe and will reduce any residual flood risk both on and off-site.

It is considered that the proposed works and mitigation measures will ensure that the proposed development will remain compliant with the requirements and environmental objectives of the EU Water Framework Directive, along with the relevant water quality objectives for water bodies assessed within the project area.

As such, it is concluded that the proposed development is not expected to have a significant effect on the water quality of receiving waters either directly, indirectly or in cumulation with other projects.

8.13 Chapter References

Revised Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022);

National Road Schemes “Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology” (2008) National Roads Authority (NRA);

European Communities 2021. Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC;

Inland Fisheries Ireland, “Guidelines on protection of fisheries during construction works in and adjacent to waters” (2016) IFI;

Department of Housing, Local Government and Heritage, “Nature-based solutions for the management of rainwater and surface water run-off in urban areas”;

Office of Public Works, “The Planning System and Flood Risk Management – Guidelines for Planning Authorities”(2009) published by the OPW;

Good practice guidelines on the control of water pollution from construction sites developed by the Construction Industry Research and Information Association (CIRIA, 2001); and

Good practice guidelines from CIRIA’s guidance document (C768 – Guidance on the Construction of SuDS) (2017).

9 Biodiversity

9.1 Introduction

An Ecological Impact Assessment (EcIA) was undertaken for lands to the rear of Dublin Street North within Monaghan town centre, which considered the ecological impacts that the proposed development may have on the site biodiversity and wider context. The site and project description are outlined within Chapter 4 of this Environmental Impact Assessment Report (EIAR).

This report was prepared in accordance with the Code of Professional Conduct (2022) and Guidelines for Ecological Impact Assessment in the UK and Ireland (2018) as issued by the Chartered Institute of Ecology and Environmental Management (CIEEM), with the purpose of identifying the following:

- Identify and describe the baseline terrestrial ecological conditions within the site and surrounding wider area as relevant, including the identification of habitat types and classifications, flora and fauna, the presence of invasive species and any species which may be protected under National and European legislation;
- Review of the development proposals and likely effects that the development may have on the local ecological area and wider context, and determination of the Zone of Influence (ZoI) on this basis;
- Identify any protected Natura 2000 designations, qualifying interests and features of Natural Heritage importance within the site and ZoI;
- Identify the relevant source-pathway-receptor models that may exist between the development proposals and the ecological habitats or flora and fauna, and review of the cumulative effects that the development may have on ecological receptors, in combination with other committed or proposed plans or projects;
- Development of mitigation measures which will aim to avoid, reduce or negate any potential impacts that the development may have on these features;

In order to complete this EIAR Chapter, the following supporting information was reviewed, as presented within the Volume III - Appendices:

- Appendix 9.1 – Preliminary Ecological Appraisal
- Appendix 9.2 – Invasive Species Survey
- Appendix 9.3 – Invasive Species Management Plan
- Appendix 9.4 – Ecological Survey for Bats
- Appendix 9.5 – Tree Survey Report

- Appendix 9.6 – Appropriate Assessment Screening & NIS Report
- Appendix 9.7 – Mitigation Measures
- Appendix 9.8 - Biodiversity Figures

9.2 Statement of Authority

This chapter has been prepared by John Laverty, Principal Environmental Scientist at Layde Consulting who holds a BSc (Hons) degree in Environmental Science and is a Full member of the Institute of Environmental Sciences (MIEnvSc). John has over 20 years of experience in research and the preparation of ecological impact assessments, and has worked with private and PLC companies, and local authorities over an extensive range of development and infrastructure projects.

9.3 Methodology & Legislation

This EcIA has been written in accordance the latest guidelines produced by the British Standards Institute and Chartered Institute of Ecology and Environmental Management (CIEEM), in including the following documents:

- CIEEM (2022) *Code of Professional Conduct*;
- CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland*;
- BS 42020:2013 (under review*): Biodiversity. Code of Practice for Planning and Development*;

In accordance with the CIEEM *Guidelines for Ecological Impact Assessment in the UK and Ireland* (2018), the EcIA is a process of identifying, quantifying and evaluating potential effects of development-related or other proposed actions on habitats, species and ecosystems. The findings of the EcIA can help the competent authorities understand the relevant ecological issues when determining applications for consent. The EcIA can be used for the appraisal of projects of any scale including the ecological component of Environmental Impact Assessment (EIA).

9.3.1 Habitats Directive

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna) forms the main legislative body for the protection and conservation of biodiversity within the European Union (EU), and lists habitats and species that must be protected within Special Areas of Conservation (SAC) on Annexes I and II respectively. The Habitats Directive additionally identifies plant and animal species on Annex IV which are subject to strict protection anywhere they occur. The habitats directive has

subsequently been transposed and disaggregated to national regulations, including the following regulations and Statutory Instruments for Ireland.

9.3.2 Wildlife Acts

The Wildlife Acts 1976 to 2021 is a collective citation for the following:

- Wildlife Act 1976 (no. 39 of 1976)
- Wildlife (Amendment) Act 2000 (no. 38 of 2000)
- Wildlife (Amendment) Act 2010 (no. 19 of 2010)
- Wildlife (Amendment) Act 2012 (no. 29 of 2012)
- Heritage Act 2018 (no. 15 of 2018), Part 3
- Planning, Heritage and Broadcasting (Amendment) Act 2021 (no.11 of 2021), Chapter 3

9.3.3 Birds and Natural Habitats Regulations

The European Communities Council Directive on the Conservation of Wild Birds 79/409/EEC was transposed to the Birds and Natural Habitats Regulations 2011 (S. I. No. 477 of 2011), and amended under the 2011 Regulations to:

- S.I. No. 290 of 2013
- S.I. No. 499 of 2013
- S.I. No. 355 of 2015
- Planning, Heritage and Broadcasting (Amendment) Act 2021 (no.11 of 2021), Chapter 4
- S.I. No. 293 of 2021

9.3.4 Designation of European Sites

A key measure to protect nature and biodiversity in the EU is the establishment of a network of nature protection areas under the Habitats Directive and the Birds Directive. The areas designated under these two pieces of legislation are known collectively as Natura 2000 sites, also referred to as European Sites under national legislation.

The 2011 Regulations seek to conserve species of wild birds and require the designation of a network of habitats for birds, based on scientific criteria, and are known as Special Protected Areas (SPAs). The 2011 Regulations, also require the designation of Special Areas of Conservation (SACs) for the protection of certain habitats and species of plants and animals (other than birds).

9.3.5 Other Protections and Designations

EU countries must also establish systems of strict protection for animal and plant species which are particularly threatened, and which are listed in Annex IV of the Habitats Directive. Article 12 and 13 of the Habitats Directive relates to the establishment of a system of strict protection for certain animal and plant species, while Article 16 provides for derogations from these provisions under limited circumstances. Article 12, 13 and 16 of the Habitats Directive are transposed into Irish law by Regulation 51, 52 and 54 of the Birds and Habitats Regulations of 2011, respectively.

The animal species listed in Annex IV, which occur in Ireland, are:

- otters
- all bat species
- all cetaceans (whales and dolphins)
- the natterjack toad
- the leatherback Turtle
- kemp's ridley turtle
- loggerhead turtle
- hawksbill turtle
- the Kerry slug

The plant species listed in Annex IV, which occur in Ireland, are:

- Slender Naiad
- Yellow Marsh Saxifrage
- Killarney Fern

Each of these species is strictly protected in Ireland and a person who deliberately captures, kills or disturbs a specimen in the wild, or who damages or destroys a breeding site or resting place of such an animal, is guilty of an offence. As an Annex IV species may be found throughout the country, the protection of these species is not restricted in geographical terms and is not necessarily associated with areas subject to a specific nature designation.

Under the Wildlife Act (1976) and Wildlife (Amendment) Acts (2000 & 2010), the following species are also afforded local protection:

- Red squirrel
- Badger
- Natterjack Toad
- Deer species

- Hedgehog
- Pine marten
- Hare species

9.3.6 Monaghan County Development Plan 2019-2025

The Monaghan County Development Plan 2019-2025 (CDP) aims to encourage the conservation of the natural environment, cultural heritage and amenities of the county in accordance with legislation, plans and policies in order to ensure a rich landscape and range of ecosystems.

Within the CDP, policies have been set out in respect of natural heritage, biodiversity, conservation and landscape elements, and include a range of provisions to protect and conserve all Natura 2000 sites, Natural Heritage Areas (NHAs) and proposed NHAs.

In addition, the CDP contains policies to provide for the implementation of other plans including the Biodiversity Action Plan (BAP), the National Biodiversity Plan, the National Pollination Plan and the National Peatlands Strategy. Chapter 6 of the CDP also sets out policies to control the spread of invasive species, which has been assessed within this EcIA as part of the overall EIA process.

9.3.7 Species Specific Legislation

9.3.7.1 Bats (All Species)

All bats and their roosting sites are legally protected under the EU Habitats Directive as transposed by the Habitats Regulations. With the exception of Lesser Horseshoe bat *Rhinolophus hipposideros*, which is an Annex II species, the remainder are classified as Annex IV species. They are also protected under the Wildlife Act (as amended). Across Europe, bats are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. Article 12 and 13 of the Habitats Directive relates to the establishment of a system of strict protection for certain animal and plant species, while Article 16 provides for derogations from these provisions under limited circumstances.

Article 12, 13 and 16 of the Habitats Directive are transposed into Irish law by Regulation 51, 52 and 54 of the Birds and Habitats Regulations of 2011, respectively. All bats are strictly protected in Ireland and a person who deliberately captures, kills or disturbs a specimen in the wild, or who damages or destroys a breeding site or resting place of such an animal, is guilty of an offence.

As an Annex IV species may be found throughout the country, the protection of these species is not restricted in geographical terms and is not necessarily associated with areas subject to a specific nature designation. Under the Regulations it is an offence:

- Deliberately to capture, injure or kill a wild animal of a European protected species;
- Deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- Deliberately disturb such an animal in such a way as to be likely to;
    - affect the local distribution or abundance of the species to which it belongs;
    - impair its ability to survive, breed or reproduce, or rear or care for its young; or
    - impair its ability to hibernate or migrate;
- Deliberately obstruct access to a breeding site or resting place of such an animal; or
- To damage or destroy a breeding site or resting place of such an animal.

It is notable that there is no provision within the legislation to issue licences to kill bats for the purpose of development.

9.3.7.2 Breeding Nesting Birds

All wild birds are protected, particularly during the bird breeding season while nesting under the Irish Wildlife Act 1976 (as amended), the EU Habitats Directive of the Bern convention via the European Communities (Birds and Natural Habitats Regulations 2011 (S. I. No. 477 of 2011). It is an offence to intentionally or recklessly:

- kill, injure or take any wild bird; or
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- at any other time take, damage or destroy the nest of any wild bird included in Schedule A1; or
- take or destroy an egg of any wild bird; or
- disturb any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturb dependent young of such a bird.

Additionally, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence.

9.3.7.3 Wild Birds

Most bird species return to the same general nesting location each year and build a new nest. However, some species return to the same nest sites year after year, re-using old nests. For

these species it is an offence to damage or destroy their nests at any time of the year, even when they are not in use. All wild birds are also subject to conservation measures under the Birds Directive (2009/147/EC). This requires European Member States to take conservation measures to maintain populations of all naturally occurring wild birds.

Additionally, some bird species, which are particularly rare or vulnerable, are listed on Annex I of the Directive. These species are subject to special conservation measures and have additional legal protection as features of designated sites, such as Special Protection Areas (SPAs). Local and national biodiversity action plans consider priority species within the local area of conservation concern.

9.3.7.4 Red Squirrel

Red squirrels *Sciurus vulgaris* and their dreys are protected under the Irish Wildlife Act 1976 (as amended) and are listed under Annex III of the Bern Convention for Conservation of European Wildlife and Natural Habitats. Under this It is an offence to:

- intentionally or recklessly kill, injure or take
- intentionally or recklessly: damage or destroy, or obstruct access to, any structure or place which red squirrels use for shelter or protection;
- damage or destroy anything which conceals or protects any such structure; disturb a red squirrel while it is occupying a structure or place which it uses for shelter or protection.

There is no provision within the legislation to issue licences to kill red squirrels for the purpose of development.

9.3.7.5 Badgers

Badgers *Meles meles* are legally protected under the Irish Wildlife Act 1976 (as amended) and Annex IV of the EU Habitats Directive Appendix III of the Bern convention as a species in need of protection. Under the Order it is an offence to:

- intentionally or recklessly kill, injure or take a badger; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place (normally a sett) that badgers use for shelter or protection; or
- intentionally or recklessly damage or destroy anything which conceals or protects any such structure; or
- intentionally or recklessly disturb a badger while it is occupying a structure or place which it uses for shelter or protection.

In addition, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence. Again, there is no provision within the legislation to issue licences to kill badgers for the purpose of development.

9.3.7.6 Otter

Otters *Lutra lutra* are protected under the Irish Wildlife Act 1976 (as amended) and are listed on Annex II and Annex IV of the EU Habitats Directive. Under the Habitats Regulations it is an offence:

- Deliberately capture, injure or kill a wild animal of a European protected species;
- Deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- Deliberately to disturb such an animal in such a way as to be likely to;
    - affect the local distribution or abundance of the species to which it belongs;
    - impair its ability to survive, breed or reproduce, or rear or care for its young; or
    - impair its ability to hibernate or migrate;
- Deliberately to obstruct access to a breeding site or resting place of such an animal; or
- To damage or destroy a breeding site or resting place of such an animal.

There is no provision within the legislation to issue licences to kill otters for the purpose of development.

9.3.7.7 Natterjack Toad

Natterjack Toad are protected in Ireland under 0under Appendix II of the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention). Among the list of offences in relation to the Order, it is an offence regarding:

- The deliberate capture and keeping and deliberate killing of protected species;
- the deliberate damage to or destruction of breeding or resting sites;
- the deliberate disturbance of wild fauna, particularly during the period of breeding, rearing and hibernation, insofar as disturbance would be significant in relation to the objectives of the Convention;
- the deliberate destruction or taking of eggs from the wild or keeping these eggs;

In addition, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence. There is no provision within the legislation to issue licences to kill a Natterjack Toad for the purpose of development.

9.3.7.8 Common or Viviparous Lizard

Common lizards *Zootoca vivipara* are afforded protection under Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention). Under the Order it is an offence to:

- intentionally or recklessly kill, injure or take a lizard, or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place that lizards use for shelter or protection.

9.3.7.9 Lepidoptera

The marsh fritillary *Euphydryas aurinia* butterfly is a protected species listed on Annex II and Annex IV of the EU Habitats Directive, whereby it is an offence It is an offence to:

- intentionally or recklessly kill, injure or take the marsh fritillary butterfly; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place that the marsh fritillary uses for shelter or protection

Cryptic wood white *Leptidea juvernica* butterfly is also listed on Schedules 5 of the 1982 Wildlife and Countryside Act.

9.3.7.10 Flora

All wild plants are given some measure of protection in the Republic of Ireland, the current list of plant species protected by Section 21 of the Wildlife Act, 1976 is set out in the Flora (Protection) Order, 2015. The order has the effect that, unless you have a licence, you may not:

- intentionally pick, uproot or destroy any wild plants listed in the schedule, or even collect their flowers and seeds;
- sell these plants or their seeds if taken from the wild;
- uproot any wild plants intentionally, except on your own land or with permission

9.4 Study Area

The study area encompasses the local site context, but also the wider area and regional context if applicable, as discussed within the following subsections.

9.4.1 Local Context

In terms of the local context, the study area incorporates the proposed planning boundary and adjacent lands which directly adjoin the site development area. In this case, the site area incorporates lands to the rear of Dublin Street North, Monaghan town centre, which comprises

of a mix of urbanised areas, external residential amenity areas, commercial land, and derelict lands comprising of scrub and treelines along St. Davnet's Row and the Old Infirmary. In addition to the immediate lands within the site development area, the study area also extends to adjoining lands which comprise of agricultural improved grassland with treelines along St. Davnet's Row, and mixed confer and broadleaved woodland to the northeast of the site.

9.4.2 Zone of Influence (ZoI)

The Zone of Influence (ZoI) for a project is the area over which ecological features may be subject to significant effects as a result of the project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The ZOI will vary for different ecological features depending on their sensitivity to an environmental change.

In accordance with the OPR Practice Note PN01[6], the ZoI should be established on a case-by-case basis using the Source-Pathway-Receptor model and not by arbitrary distances. It is noted that for some projects, the distance could be much less than 15km, and in some cases less than 100m. However, in accordance with the National Parks and Wildlife Service guidance (NPWS 2009)[7], it is advised that each project must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects.

In this case, given the limited potential for the development proposals to impact upon offsite receptors, the ZoI was based on a 15km radius for European and Nationally designations (Appendix 9.8), and extended further for designations which are hydrologically linked to the site.

9.5 Baseline Overview

9.5.1 Desk Study Assessment

The desk study element was undertaken in order to gather information on the potential value of the site and the wider study area, specifically in terms of statutory and non-statutory conservation designations, protected habitats and protected species. Data including statutory and non-statutory designated sites, and records of protected or notable species and habitats, was obtained from the National Biodiversity Data Centre (NBDC), National Parks and Wildlife Service (NPWS) and Environmental Protection Agency (EPA) GIS datasets, along with

[6] OPR (2021) Practice Note PN01: Appropriate Assessment Screening for Development Management. Office of the Planning Regulator.
[7] NPWS (2010) Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Environment, Heritage and Local Government.

species records held by relevant working groups. The search criteria included all records held within 1km of the site and have been included within the Preliminary Ecological Assessment (PEA) as presented within Appendix 9.1 of this EIAR.

9.5.2 Field Survey & Habitat Mapping

Field survey methodologies and habitat mapping was carried out in accordance with the latest CIEEM guidelines and the Heritage Council's "*Best Practice for Habitat Survey and Mapping",* (2011). Habitat identification and classification was completed in accordance with the Fossitt's Guide (2000)[8], and field walkovers and habitat surveys were carried out from the 18th July – 12th September 2023, 25th January 2024, and from the 16th – 28thAugust 2024.

Field survey mapping was also undertaken to identify Invasive Alien Species (IAS) within the site area (Appendix 9.2), and an Invasive Species Management Plan (ISMP) was developed (Appendix 9.3) based on the results of the IAS survey. Field mapping and target notes were recorded using a Trimble sub-metre GPS Catalyst receiver (60cm accuracy), and the survey area augmented using DWG vectors maps imported to GIS format.

9.5.2.1 Badger

Areas of suitable badger habitat such as broadleaved woodland areas, copses and scrub, were identified within the survey area as these tend to be favoured by the species (although they have also been known to occupy areas of forestry plantation etc). Any incidental field signs of badger and any indicative evidence were noted, and include:

- setts (including main, subsidiary and outlier setts);
- latrines (dung pits used as territorial markers);
- prints;
- foraging signs (snuffle holes); and,
- guard hairs snagged on wire fencing.

Any of the above signs (with the exception of foraging signs) can be taken as diagnostic evidence of the presence of badger.

9.5.2.2 Otter

All waterbodies, watercourses and minor ditches within the survey area, where access was permitted and where it was safe to do so, were assessed for their potential to support otters. Any incidental recordings of otter field signs were noted, which includes:

- resting sites (e.g. holts and couches);

[8] Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*, The Heritage Council

- spraints;
- prints and feeding remains.

9.5.2.3 Pine Marten

Pine marten are recognised as difficult to survey for, as their scats (the most obvious field signs) are similar to those of a fox when seen in the field. As such the surveys focussed on assessing the habitat suitability. This typically includes mature woodland, including coniferous plantations, although pine marten will forage in open habitats as well. In particular, the survey searched for areas which might hold suitable potential for denning sites including hollow trees, root plates, boulder piles or rocky outcrops. Pine marten signs are described in Harris and Yalden (2008) [9].

9.5.2.4 Red Squirrel

Any incidental recordings of red squirrel field signs were noted including:

- dreys (tree-top resting sites); and,
- feeding remains (chewed pinecones, particularly at traditional feeding stations such as on top of tree stumps).

It should be noted that it is not possible to distinguish red squirrel dreys and feeding remains from those of grey squirrels. The most reliable method of confirming the species presence is the sighting of an actual animal. Therefore, given the relatively low likelihood of seeing a red squirrel during the survey, the main aim of the survey was to identify whether squirrels (regardless of species) were likely to be present.

9.5.2.5 Reptiles and Amphibians

Areas of suitable habitat for reptiles and amphibians were identified within the survey area. The habitat requirements of common lizard (*Zootoca vivipara*) are relatively broad but in general they require areas of dense vegetation such as grassland, heath, scrub and woodland edge for foraging and shelter. Reptiles also require more open, preferably south facing areas in which to bask (Gent and Gibson, 2012) [10], and suitable refugia habitat such as wood and rock piles in which to shelter and more importantly to hibernate during the winter.

9.5.2.6 Breeding Birds

Target notes were maintained throughout the assessment area as to the presence or suitability of habitats and features within the site which may support breeding bird species, and a record of incidental bird sightings was maintained during the site visit.

[9] Harris, S. and Yalden, D. W. (2008). Mammals of the British Isles: Handbook. The Mammal Society.
[10] Gent, T. and Gibson, S. (2012) “Herpetofauna Workers' Manual”, Joint Nature Conservation Committee

9.5.2.7 Bats (All Species)

During site walkovers target notes were maintained throughout the assessment area for habitats and features which would be suitable to support bat roosting, foraging and commuting places. Based on the results of the field walkovers and preliminary appraisal for bat roost features within the site, a series of emergence/re-entry bat activity surveys were carried out during optimal periods of bat activity (May – September).

The detailed methodology is presented in Appendix 9.4, along with the results of each emergence/re-entry bat activity survey.

9.6 Baseline Ecological Conditions

9.6.1 Natura 2000 Sites & Protected Designations

A search of the National Parks and Wildlife Serve (NPWS) GIS database was undertaken in order to identify any Natura 2000 designations, proposed Natural Heritage Areas (pNHA) or designated Natural Heritage Areas (NHA) within 15km radius of the site. A summary of the results is presented below in Table 9.1.

Table 9.1 Identified Natura 2000 & designations within 15km of the site

Designation	Site ID	Site Name	Setback Distance
pNHA	001612	Wright's Wood	1.75km west
pNHA	001602	Drumreaske Lough	3km northwest
pNHA	001784	Rosefield Lake And Woodland	3.9km west
pNHA	001611	Ulster Canal (Aghalisk)	3.6km west
pNHA	001783	Corcreeghy Lake And Woodland	5km southwest
pNHA	001785	Mullaghmore Lake (South)	6.4km northwest
pNHA	001837	Mullaglassan Lough	9.9km west
pNHA	001838	Kilcorran Lough	11km west
pNHA	001839	Kilcorran Lough	12.1km west
pNHA	001840	Lislannan Bog	12.8km west
pNHA	001781	Lisarilly Bog	11.2km southwest
pNHA	001606	Rafinny Lough	9km southwest
pNHA	000001	Dromore Lakes	13.4km south
pNHA	001268	Cordoo Lough	10.9km southeast
pNHA	001666	Tassan Lough	13.9km southeast
pNHA	000559	Glaslough Lake	8.2km northeast
pNHA	000562	Monmurray Grassland	11.5km northeast

Designation	Site ID	Site Name	Setback Distance
pNHA	000558	Emy Lough	9.7km north
NHA	001603	Eshbrack Bog NHA	12.6km northwest
SPA	004167	Slieve Beagh SPA	10.4km northwest
SAC	UK0016622	Slieve Beagh SAC	15.3km northwest
SAC	UK0016621	Magheraveely Marl Loughs SAC	12.3km west
SPA	UK9020302	Slieve Beagh-Mullaghfad-Lisnaske SPA	14.8km northwest

The search results indicated that the site is not located within any Natura 2000 designation, with the closest Natura 2000 designation being Slieve Beagh SPA which is located more than 10km away.

However, the site development proposals do not have any source-pathway-receptor linkages to the Slieve Beagh SPA designation and do not support any qualifying interests in terms of breeding bird species (i.e. Hen Harrier populations). The same principle applies to the other identified SPA's or SACs, whereby none of these designations are linked to the site via a source-pathway-receptor model. Therefore, these designations were screened out, and included Slieve Beagh SAC, Magheraveely Marl Loughs SAC and Slieve Beagh-Mullaghfac-Lisnaksea SPA.

In addition to Natura 2000 sites, a review was also undertaken of the NPWS databases for other protected designations, in particular Proposed Natural Heritage Areas (pNHAs) which are sites are of significance for wildlife and habitats. pNHAs were published on a non-statutory basis in 1995 although have not since been statutorily proposed or designated. Some of the pNHAs are very small, such as a roosting place for rare bats, while others are much larger, such as a woodland or lake for example. Although not currently designated under statutory basis, it should be noted that designations for pNHAs may proceed on a phased basis over the coming years.

The closest protected NHA or pNHA designation to the site was identified as Wright's Wood pNHA, which is located approximately 1.75km to the west, however there were no identified feasible source-pathway-receptor linkages between the site proposals and the Wright's Wood pNHA. The same bears true for all of the identified NHA or pNHA designations identified within 15km of the site and summarised in Table 9.1, whereby there are no established source-pathway-receptor linkages between the site development area and each of the designations.

Beyond the 15km search radius, a hydrological source-pathway-receptor link was identified for Lough Neagh & Lough Beg SPA via the River Shambles to the Cor River, and then

subsequently to the Annaghroe Blackwater and into Lough Neagh. However, it is noted that the Lough Neagh & Lough Beg SPA is located more than 38km to the northeast of the site and involves a minimum of three significant tributary connections before outflowing into Lough Neagh.

9.6.2 Biological Records

As previously indicated, a search of the National Biodiversity Data Centre (NBDC) records was undertaken for records held within 1km of the site development area, along with a review of the NPWS and EPA GIS datasets. The results are presented within the PEA as part of Appendix 9.1 and indicated that two records were identified for Smooth Newt (*Lissotriton vulgaris*), however these records were last updated in 2010, with no records of Smooth Newt having been noted since.

In terms of mammals, one record was noted for Eastern Grey Squirrel (*Sciurus carolinensis*) in 2007, and a single record for West European Hedgehog (*Erinaceus europaeus*) in 2023. Red Squirrel (*Sciurus vulgaris*) was recorded within lands to the north in 2018, and an otter (roadkill survey) was last recorded in 2008. 42No. bird species were recorded through the 1km square grid, along with insect species. 13No. flowering plant species were noted, which includes Japanese Knotweed (*Fallopia japonica*) recorded in 2019. The search results indicated that the site and wider area may be suitable for the following bat species.

Moderate suitability for:	Low to moderate suitability for:
Pipistrellus pygmaeu	*Pipistrellus nathusi*
Plecotus auritus	*Myotis mystacinus*
Pipistrellus pipistrellus	
Nyctalus leisleri	
Myotis daubentonii	
Myotis nattereri	

9.6.3 Monaghan Country Swift Survey (2023)

The 2023 County Monaghan Swift Survey was undertaken in order to quantify the level of Swift nesting activity across the county, providing baseline figures for future work. The survey highlighted areas where nesting Swift populations were found to be in need of urgent conservation action and identified at site level the largest and most important Swift nesting sites which act as source populations within the county and further afield. It is important that

Swift nesting sites need to be treated with sensitivity during renovation or redevelopment works in order to ensure that existing Swift nest sites are retained. This is particularly important considering Regeneration Plans which have been drawn up for certain areas within Co. Monaghan.

The survey results indicated that 74No. Swift nesting sites were confirmed within Monaghan, which included the use of commercial, public, religious and residential buildings. However, none of the buildings identified as being used for Swift nesting sites will be affected by the proposed development.

9.6.4 Habitat Classifications

Field walkovers and habitat surveys were carried out from the 18th July – 12th September 2023, 25th January 2024, and from the 16th – 28th August 2024. The habitat classifications recorded within the site area and surrounding lands are presented within Appendix 9.8 of this EIAR and are summarised below.

9.6.4.1 WS1: Scrub

Lands to the rear of properties along Dublin Street North and throughout the northwest area of the site comprise of portions of derelict or fallow ground which have subsequently colonised as scrub. Large areas of scrub were also identified within the eastern part of the site, with species comprising of dense stands of Bramble (*Rubus fruticosus agg*.), Nettle (*Urtica dioica*), willow (*Salix* spp. to include *Salix cinerea & caprea*), creeping thistle (*Cirsium*), Hawthorn (*Crataegus monogyna*), Meadow Buttercup (*Ranunculus acris*), Ash (*Fraxinus* spp.), Rosebay willowherb (*Epilobium angustifolium*), Dog rose (*Rosa canina*), Red clover (*Trifolium pratense*), Bush vetch (*Vicia sepium*), Elder (*Sambucus nigra*), Common plantain (*Plantago major*), Grass-like starwort (*Stellaria graminea*), Bittersweet Nightshades (*Solanum dulcamara*), Sycamore (*Acer pseudoplatanus*), Hedge bindweed (*Calystegia sepium*), Fringed willowherb (*Epilobium ciliatum*), Bitter dock (*Rumex obtusifolius*), White clover (*Trifolium repens*), Woodland Figwort (*Scrophularia nodosa*), creeping buttercup (*Ranunculus repens*), Cleavers (*Galium aparine*), Cow parsley (*Anthriscus sylvestris*), Ragwort (*Jacobaea vulgaris*), and large stands of Butterfly-bush (*Buddleja davidii*). Stands of Japanese Knowtweed (*Fallopia japonica*) were also recorded within areas of scrub.

Partial tree clearing has been undertaken within lands to the rear of property No.56B & No.59D along the northwestern site boundary, however this area has since recolonised primarily with Bramble (*Rubus fruticosus agg*.), Nettle (*Urtica dioica*), Butterfly-bush (*Buddleja davidii*), ivy spp. and small sapling trees.

This habitat is considered to be of ecological value at the **site level**.

9.6.4.2 ED2: Spoil & Bare Ground

Spoil and bare ground were recorded throughout the site, particularly within areas of derelict or recently cleared ground to the rear of properties along Dublin Street North, and along the extent of St. Davnet's Row bounding the north of the site. Areas of private land have also been infilled with aggregate and are regularly used for car parking and access roads. Plant species were more limited in density (covering less than 50% of ground), and included Bramble (*Rubus fruticosus* agg.), Nettle (*Urtica dioica*), willowherbs (*Epilobium* spp.), Common plantain (*Plantago major*), Ragwort (*Jacobaea vulgaris*), Dandelion (*Taraxacum* spp.) and Red clover (*Trifolium pratense*).

This habitat is considered to be of ecological value at the **site level**.

9.6.4.3 ED3: Recolonising Bare Ground

Recolonising ground was recorded within isolated areas to the rear of Dublin Street North, for example lands adjacent to spoil/bare ground within rear parking or hardstanding areas, and also within areas worn by human activity such as pathways, areas of refuge within the mixed broadleaved woodland, and ground to the front of the pumping station compound area within the Old Infirmary hill area. Plant species were found to be similar to those found within ED2 classification, and included Bramble (*Rubus fruticosus* agg.), Nettle (*Urtica dioica*), willowherbs (*Epilobium* spp.), Common plantain (*Plantago major*), Butterfly-bush (*Buddleja david*ii), Ragwort (*Jacobaea vulgaris*), Dandelion (*Taraxacum* spp.) Red clover (*Trifolium pratense*), Pineappleweed (*Matricaria discoidea*) and creeping buttercup (*Ranunculs repens*).

This habitat is considered to be of ecological value at the **site level**.

9.6.4.4 WD1: (Mixed) Broadleaved Woodland

Mixed broadleaved woodland was mapped within the southeastern Old Infirmary Hill portion of the site, with the mature tree canopy being retained as part of the Community Park element of the proposed development, and also within lands to the rear of building No.38c which have been allowed to establish with ash to above 5m in height. Recorded large mature trees within the southeastern portion of the site include Ash, Beech and sycamore, with an understorey comprising of Beech, Salix spp., Elderflower (*Sambucus nigra*), Hawthorn (*Crataegus monogyna*), Cow parsley (*Anthriscus sylvestris*), Butterfly-bush (*Buddleja davidii*), white clover (*Trifolium repens*) and grass spp. Small areas of bare exposed ground (classified as ED2/3) were also mapped at the base of mature trees, due to regular human activities trampling the ground surface.

This habitat is considered to be of ecological value at the **site level**.

9.6.4.5 WD2: Mixed Conifer & Broadleaved Woodland

Although not directly located within the site area, lands comprising of mixed conifer spp. and broadleaved woodland were recorded along the eastern boundary adjacent to the public footpath and to the east of Old Infirmary Hill. Species include Sitka Spruce (*Picea sitchensis*) and Larch (*Larix* spp.) along the western part of the classified area, and ash and sycamore to the east. The conifer trees are mature in nature and heavily overgrown with common ivy (*Hedera helix*).

This habitat is considered to be of ecological value at the **site level**.

9.6.4.6 WD5: Scattered Trees & Parkland

A small portion of land within the southeast of the site comprises of species poor amenity grassland with occasional scattered trees, which form a prominent visual feature. In particular, two large ash trees are present, although the tree canopies are not linked. A tree survey report (Appendix 9.5) was commissioned in August 2022 by Monaghan County Council, which indicated that the two prominent Ash trees were defective with excessive deadwood and were found to be hollow with basal rot. As such, the report recommended that both of these trees are felled. On this basis, the development proposals also include the removal of the two Ash trees located within the WD5 habitat classification, for the safety and protection of public amenity.

This habitat is considered to be of ecological value at the **site level**.

9.6.4.7 WS3: Ornamental Non-native Shrub

Ornamental non-native shrubs were recorded throughout the site and included large dense stands of Common snowberry (*Symphoricarpos albus*) mixed with Bramble (*Rubus fruticosus* agg.), Rosebay willowherb (*Epilobium angustifolium*), Hedge bindweed (*Calystegia sepium*), and Bush vetch (*Vicia sepium*). Stands of Common snowberry (likely a remnant of the Old Infirmary gardens) have been cut through as a pathway linking the WS3 habitat to the mixed broadleaved woodland area.

Species also included Wall Cotoneaster (*Cotoneaster horizontalis*), Boxleaf Honeysuckle (*Lonicera ligustrina* var.), Beech (*Fagus* spp.), Kenilworth ivy (*Cymbalaria muralis*), Common osier (*Salix viminalis*), Meadow pea (*Lathyrus pratensis*), Goose grey / Silverweed (*Argentina anserina*), St. John's wort (*Hypericum androsaemum*), Elder (*Sambucus nigra*), Cherry Laurel (*Prunus laurocerasus*) and Silver Birch (*Betula pendula*). Species within lands to the rear of building No.34a comprised of creeping buttercup (*Ranunculs repens*), Hedge bindweed (*Calystegia sepium*), Hawthorn (*Crataegus monogyna*), Bitter dock (*Rumex obtusifolius*), Euonymus (*Euonymus japonicus*), Leyland cypress (*Cupressus leylandii*), Herb Robert

(*Geranium robertianum*), Variegated Holy (*IIex Aquifolium*), creeping thistle (*Cirsium arvense*), Boxleaf Honeysuckle (*Lonicera ligustrina* var.) and hornbeam (*Carpinus Betulaceae*).

This habitat is considered to be of ecological value at the **site level**.

9.6.4.8 WL2: Treelines

A treeline of semi-mature ash (*Fraxinus excelsior*) and Willow (*Salix* spp.) greater than 5m in height was mapped on the eastern side of the pumping station compound area, and adjacent to the boundary wall of property No.32c. The treeline is effectively limited to a small belt of trees and overgrown scrub along the separating boundary wall structure. In addition, treeline comprising predominantly of Ash & Willow spp. was recorded to the north of the site (adjacent to building No.46d) on the adjacent side of the St. Davnet's Row.

This habitat is considered to be of ecological value at the **site level**.

9.6.4.9 BC1: Stone Walls & Other Stonework

Stone walls were recorded throughout the survey area, typically bounding lands to the rear of properties along Dublin Street North and separating these properties from the eastern portion of the site (i.e. Old Infirmary Hill) which was recorded as scrub, woodland and scattered trees / parkland. Many of the stone wall structures were overgrown with Maidenhair spleenwort (*Alsplenium trichomanes*), common ivy (*Hedera helix*), Dog rose (*Rosa canina*) and grass spp. (*Aira* & *Catapodium* spp.), however in most cases the stone wall structures were clearly visible. Therefore, many of the structures have been mapped as BC1 rather than WL1 (hedgerows) or WS1 (scrub).

This habitat is considered to be of ecological value at the **site level**.

9.6.4.10 GA2: Amenity Grassland (Improved)

Areas defined as improved amenity grassland were mapped to the rear of buildings 34a / 33c, 37g, and along the path border within the eastern portion of the site. Species composition for this habitat consisted primarily of perennial couch weed grass (*Elymus repens*), perennial ryegrass (*Lolium perenne*), annual Meadow grass (*Poa annua*), and also included clover (*Trifolium pratense* & *repens*), Dandelion (*Taraxacum* spp.), Bitter dock (*Rumex obtusifolius*), Willowherb spp., etc.

This habitat is considered to be of ecological value at the **site level**.

9.6.4.11 GA1: Improved Agricultural Grassland

Although not within the site boundary, lands to the north of the site comprise of a single large agricultural field which has been used for recent silage production, i.e. improved agricultural

grassland (GA1). Species noted within the field and along the unmanaged boundary included Rye-grasses (*Lolium* spp.), perennial couch weed grass (*Elymus repens*), annual Meadow grass (*Poa annua*), and also included stinging nettle (*Urtica dioica*), clover (*Trifolium pratense & repens*), Dandelion (*Taraxacum* spp.), Bitter dock (*Rumex obtusifolius*), Willowherb spp, and dead nettle (*Lamium maculatum*). It is noted that this field is to be developed as part of the proposed new Civic Centre.

This habitat is considered to be of ecological value at the **site level**.

9.6.4.12 BL3: Artificial Surfaces

The urbanised nature of much of the site inherently includes artificial surfaces, incorporating Dublin Street, Old Cross Square, The Diamond, and car parking areas. Artificial surfaces within the site also include the pedestrian pathway leading from Old Cross Square, buildings to the rear of Dublin Street North, access roads (a mix of concrete and asphalt etc), and garden patios and yards.

Artificial surfaces include a significant portion of the site area and are of negligible ecological value at the **site level**. Buildings within the proposed development site are generally of limited intrinsic interest and are considered to be of **site level** ecological value.

9.6.5 Fauna

9.6.5.1 Badger

No evidence of badger activity was found within the study area, ether in the form of foraging, latrines or sett structures. Therefore, no further surveys were recommended for badger activity within the site area or wider area.

9.6.5.2 Red Squirrel

National records indicate the presence of grey squirrel was recorded in 2007, with no recording sightings noted since. Red Squirrel was last recorded in 2018 to the north of the site. During the site walkover, no direct evidence of squirrel activity was recorded, either for red or grey squirrel, and suitable habitats are limited to the mixed conifer / broadleaved woodland area to the east of the site. As no evidence was noted during a number of site visits throughout the year, and given the limited habitat suitability within the site, then no further surveys have been recommended.

9.6.5.3 Otters

A visual inspection and site walkover was carried out in order to identify otter activities within the survey area, and particularly along the river corridor of the River Shambles to the south of

the site adjacent to Old Cross Square. No evidence of the presence of otter was noted, with national records indicating the last sighting was in 2008.

9.6.5.4 Other Mammals

Throughout the survey area and during the site walkover, evidence of rabbit activity was noted and confirmed from visual activity. In addition, a fox was recorded by visual observation within the fire damaged building at No.40b, inside the remains of the building structure. No other mammal activity was noted.

9.6.5.5 Amphibians

Piles of stone and stone walls have potential for use by reptiles for basking or as refugia. Favourable undisturbed habitat for foraging reptiles and amphibians is also present within the survey area and wider environment. However, national records do not indicate any sightings of amphibians, and no sightings were confirmed during the numerous site walkovers.

9.6.5.6 Freshwater Fish

No freshwater fish were observed along the River Shambles corridor at either Old Cross Square, upstream at the junction where the Ulster Canal Greenway commences, or at Castle Road bridge section. In terms of national records, no records were identified for fish species within the River Shambles, and current EPA water quality status is considered to be poor.

9.6.5.7 Nesting Birds

Grassland, treelines, hedgerows and scrub, all provide breeding opportunities for a range of birds. A number of bird species were observed during the site walkover, and included Magpie (*Pica pica*), Blackbird (*Turdus merula*), Woodpigeon (*Columba palumbus*), Common Starling (*Sturnus vulgaris*), and Song Thrush (*Turdus philomelos*). In addition to those recorded during site walkovers, national records also indicate a range of 42No. bird species within 1km of the site. It is also noted that PEA report indicates that woodland habitats (see Appendix 9.8) are recorded within the survey area and may also offer potential for breeding birds.

9.6.5.8 Bats (All Species)

As indicated by national records and databases, the site has moderate potential for the presence of bats, in particular woodland areas and around derelict building structures to the rear of properties along Dublin Street North (Appendix 9.8). The laneway along St. Davnet's Row and the forested area within the Old Infirmary hill area could potentially provide suitable foraging areas, and derelict buildings or mature trees may have the potential for roost features.

In order to assess the potential for roosting bats, a series of ecological surveys for the presence of bats was undertaken within the study area, as presented in Appendix 9.4, along with the results of each emergence/re-entry bat activity survey.

The proposals intend to demolish buildings within the site development area, including with the clearance of vegetation within the rear properties of Dublin Street North. Where permission could be sought, and where access could be gained into the buildings, a series of internal and external building inspections were carried out in order to identify any evidence of bat activity. As per the detailed report in Appendix 9.4, the results demonstrated that no bat activity was noted within any of the surveyed building structures, and no bat roosts were identified during the assessment period. The report acknowledges limitations for surveying, as the proposed development lands are currently not under ownership by Monaghan County Council (the applicant), therefore not all of the buildings could be surveyed or inspected, as permission could not be obtained from landowners. In addition, due to anti-social behaviour some of the building structures could not be surveyed.

In addition to the building inspections, a series of emergence/re-entry bat activity surveys were carried out for buildings during 2023 and 2024 survey seasons, where permission was granted. In summary, the bat survey results indicated no roosting bats were recorded for any of the surveyed buildings.

Bat activity surveys were also carried out along St. Davnet's Row and throughout the Old Infirmary Hill area, using transect survey methods. The results indicated that bat activity was recorded primarily along the eastern section of St. Davnet's Row, with bats noted as originating from the adjacent neighbouring mixed conifer / broadleaved woodland area to the east of the site, and adjacent to the public footpath. Bats were observed foraging around the path lighting areas where insect concentrations were noted to be greater.

Although baseline conditions indicate that the buildings within the development site were not recorded to support roosting bats, it is noted from the bat survey results that lands to the east of St. Davnet's Row and the Old Infirmay Hill area provide opportunities for foraging and commuting bats, including the Common Pipistrelle and Soprano Pipistrelle.

It is therefore considered that the proposed development site is of ecological importance for bats at the **local level**.

9.6.5.9 Invasive Species

A number of invasive species were noted during the site walkovers and habitat mapping, and included the following species:

Japanese Knotweed (*Fallopia japonica*) – considered to be a high impact invasive species, stands of Japanese Knotweed were noted on lands to the rear of building No.40b, and also on the northern side of the laneway near building No.54f;

Wall Cotoneaster (*Cotoneaster horizontalis*) – a medium impact invasive species, Wall Cotoneaster was recorded at several places adjacent to the fenced pumping station compound area, within the eastern portion of the site;

Himalayan honeysuckle (*Leycesteria Formosa*) – a medium impact invasive species, Himalayan honeysuckle was recorded at two positions within the site. The first position was located adjacent to the public footpath along the eastern site boundary, and the second adjacent to the Old Infirmary woodland area;

Cherry laurel (*Prunus laurocerasus*) – A high impact invasive species, Cherry laurel was recorded within lands to the rear of building No.42d;

Buddleia (*Buddleja davidii*) – a medium impact invasive species, Buddleia was noted throughout numerous positions within the site, forming small individual stands to larger grouped stands.

9.7 Impact Assessment

9.7.1 Significance of Effects Criteria

The EcIA is based upon a source-pathway-receptor model, whereby the source is defined as the individual elements of the development proposals which have the potential to impact upon identified ecological features. The pathway is defined as the means or route by which a source can affect an ecological receptor, such as a feature of interest, being a species, habitat or ecologically functioning unit of natural heritage importance. Each element can exist independently however an effect is created where there is a linkage between the source, pathway and feature. A significant effect is defined in CIEEM (2018) as:

"an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' ... or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local".

In addition,

"an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of

permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project: it can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring".

BS 42020:2013 states that if an effect is sufficiently important to be given weight in the planning balance or to warrant the imposition of a planning condition, e.g. to provide or guarantee necessary mitigation measures, it is likely to be "significant" in that context at the level under consideration. The converse is also true, whereby insignificant effects would not warrant a refusal of permission or the imposition of conditions.

On this basis, the criteria for the significance of effect have been developed using the value of the ecological feature as outlined in Table 9.2, and the magnitude that an effect may have upon these features, as outlined in Table 9.3.

Significant negative impacts are moderate or major effects which require counterbalancing mitigation measures to offset their adverse effects, whereas positive effects do not require additional mitigation measures.

Table 9.2 Valuation Criteria of Ecological Features

Value	Criteria
International	• European Sites including Special Areas of Conservation (SAC) & Special Protection Areas (SPA) • Sites that satisfy the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive) • Features essential to maintaining the coherence of the Natura 2000 Network • Sites containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive • Resident or regularly occurring populations (assessed to be important at the international level) of the following: • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or • Species of animal and plants listed in Annex II and/or IV of the Habitats Directive • Ramsar Sites • World Heritage Sites

Value	Criteria
	• Sites hosting significant populations of species under the Bonn Convention • Sites hosting significant populations of species under the Bern Convention
National	• Wildlife Refuge for species protected under the Wildlife Acts • Resident or regularly occurring populations (assessed to be important at the national level) of the following: • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or • Species of animal and plants listed in Annex II and/or IV of the Habitats Directive • Natural Heritage Areas (NHA) or proposed NHA • National Nature Reserves (NNR) • Marine Nature Reserve (MNR)
County	• Sites listed as part of the Ecological Network in the County Development Plan (CDP) • Areas subject to a Tree Preservation Order in a CDP • Resident or regularly occurring populations (assessed to be important at the County 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 (1976-2018) and/or • Species listed on the relevant Red Data list • Sites containing areas of the habitat types listed in Annex I of the Habitats Directive that occur outside of designated International (SAC/SPA/Ramsar) or National (NHA/pNHA) sites • Regionally important populations of species or viable areas of semi-natural habitats or natural heritage features identified in a Biodiversity Action Plan (BAP) prepared for an administrative area, if this have been prepared

Value	Criteria
	• Sites containing natural habitat types with high biodiversity in a regional context and a high degree of naturalness, or populations of species that are uncommon within the County
Local	• Locally important populations of a priority or protected species; or habitats or features of natural heritage importance identified in a BAP, if this has been prepared • Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality • Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value
Site Level	• Sites containing small areas of semi-natural habitat that are of limited local importance for wildlife

Table 9.3 Magnitudes of Effect upon Ecological Features

Impact Significance	Magnitude of Effect	Criteria
Significant negative effect	Major adverse	• Loss of, permanent damage to or adverse impact on any part of a site of international or national importance; • Loss of a substantial part or key feature of a site of regional importance; • Loss of favourable conservation status (FCS) of a legally protected species; • Loss of or moderate damage to a population of nationally rare or scarce species.
	Moderate adverse	• Temporary disturbance to a site of international or national importance, but no permanent damage; • Loss of or permanent damage to any part of a site of regional importance; • Loss of a key feature of local importance;

Impact Significance	Magnitude of Effect	Criteria
		• A substantial reduction in the numbers of legally protected species such that there is no loss of FCS but the population is significantly more vulnerable; • Reduction in the amount of habitat available for a nationally rare or scarce species, or species that are notable at a regional or county level.
	Minor adverse	• Temporary disturbance to a site of regional value, but no permanent damage; • Loss of, or permanent damage to, a feature with some ecological value in a local context but that has no nature conservation designation; • A minor impact on legally protected species but no significant habitat loss or reduction in FCS; • A minor impact on populations of nationally rare or scarce species or species that are notable at a regional or county level.
No Significant effect	Negligible	• No impacts on sites of international, national or county importance; • Temporary disturbance or damage to a small part of a feature of local importance; • Loss of or damage to land of negligible nature conservation value; • No reduction in the population of legally protected, nationally rare, nationally scarce or notable (regional level) species on the site or its immediate vicinity; • Beneficial and adverse impacts balance such that resulting impact has no overall affect upon feature.
Significant Positive effect	Minor beneficial	• A small but clear and measurable gain in general wildlife interest, e.g. small-scale new habitats of wildlife value created where none existed before or where the new habitats exceed in area that habitats lost.
	Moderate beneficial	• Larger new scale habitats (e.g. net gains over 1 ha in area) created leading to significant measurable gains in relation to the objectives of biodiversity action plans.

Impact Significance	Magnitude of Effect	Criteria
	Major beneficial	• Major gains in new habitats (net gains of at least 10 ha) of high significance for biodiversity being those habitats, or habitats supporting viable species populations, of national or international importance cited in Annexes I and II of the habitats Directive or Annex I of the Birds Directive.

9.7.2 Assessment of Demolition & Construction Phases

9.7.2.1 Natura 2000 Site & Natural Heritage Areas

The proposed demolition and construction works will not directly impact upon any protected designations, as no works are planned within a designated Natura 2000 site or area of natural heritage.

For indirect impacts to occur, there needs to be a source-pathway-receptor model between the demolition and construction works, and the protected designation. In this case, the only potential source-pathway-receptor model for indirect impacts would be from site runoff which has the potential to drain towards local watercourses (i.e. the River Shambles), and subsequently into a protected designation. Other possible indirect effects could be dust generation as part of the demolition and construction works, or air quality impacts which may arise from construction and demolition plant equipment.

Pollutant sources generated by the enabling, demolition and construction phases would effectively be limited to silt laden runoff occurring during storm events, or from accidental spillage of oils or fuel. The site drains generally southwards towards properties along Dublin Street North, and also southeast towards Old Cross Square. While most of the site drainage is captured within the local stormwater system, a portion of lands within the southeast of the site could potentially drain towards the River Shambles, although a buffer of commercial land exists between the site area and the River Shambles corridor, thus minimising the risk of impact further.

Airbourne pollutants would be in the form of dust generated by construction and demolition works (i.e. atmospheric dust deposition and soiling), and NOx, NO_2 or PM_{10} concentrations associated with the combustion process of plant equipment and vehicle engines.

There were a number of Natura 2000 designation identified within the 15km search radius of the site, to include Slieve Beagh SPA and SAC, Maghaveely Marl Loughs SAC, and Slieve

Beagh-Mullaghfad-Lisnaskea SPA. These designations have no hydrological connection to the site, either in the form of surface waters or groundwaters, and are well beyond the possible influence from dust deposition or airborne pollutants from the construction or demolition phases. Accidental spillage of oils and fuels, or sedimentation of watercourses, in the absence of mitigation would have no possible source-pathway-receptor linkage to the site. On this basis there are no possible indirect impacts on any of the designations located within 15km from the site.

As indicated within Chapter 8, the site development area within Monaghan town forms part of the regional Blackwater (Lough Neagh-Lower Bann) catchment, whereby the River Shambles flows into the Monaghan Blackwater, which subsequently flows into the Cor River south of Glaslough. The Cor River crosses the border and flows into the Annaghroe Blackwater to the east of Glaslough, which eventually continues towards Lough Neagh.

Although Lough Neagh & Lough Beg SPA is beyond the 15km search radius of the site, the site is technically hydrologically linked to the Lough Neagh catchment by means of the River Shambles and subsequent tributary links, albeit the setback distance is more than 38km and involves a minimum of three tributary segments, each with increasing flows before draining into Lough Neagh.

Given the small volumes of fuel or oils ever likely to be contained within onsite plant machinery and given that sedimentation typically has a settlement fallout range of up ~1km, then it is considered that the development site has an extremely low potential to impact upon the Lough Neagh & Lough Beg SPA designation, both in terms of qualifying features and supporting habitats, in the absence of specific mitigation.

It is also noted that the proposals will not result a reduction of catchment area, with flow regimes remaining the same as pre-development conditions during the demolition and construction works. Lough Neagh & Lough Beg SPA is well beyond the possible influence from dust deposition or airborne pollutants which are likely to be generated by the site.

Nevertheless, as the site is technically linked hydrologically to the Lough Neagh & Lough Beg SPA designation, then in the event of a larger pollutant spillage occurring within the River Shambles during the construction or demolition phase, the potential to cause a temporary disturbance to a site of international or national importance cannot be screened out, although no permanent damage is predicted to occur.

In accordance with Table 9.3, the potential impacts during the demolition and construction stages for a larger pollution event would be considered to pose a **significant risk of negative impact,** with a **moderate adverse effect**, in the absence of specific mitigation.

On this basis, a series of mitigation measures have been developed in tandem with Soils, Geology & Hydrology Chapter 7 and Hydrology Chapter 8 of this EIAR and have been included within the supporting Natura Impact Statement (NIS) in Appendix 9.6.

There are no established source-pathway-receptor linkages between the development area and any sites of Natural Heritage importance (NHA's and pNHA's), therefore, impact upon these designations is negligible.

9.7.2.2 Habitats

Existing habitats represent a mosaic of scrub, bare or recolonising bare ground, small areas of mixed broadleaved woodland and treelines, scattered trees and non-native shrub, amenity and improved grassland, and stone walls or built-up areas.

Under the proposals it is intended to retain most of the habitat assemblages within the Old Infirmary Hill area, however in order to accommodate the development it is intended that the habitat mosaics incorporating the rear garden properties along Dublin Street North are to be removed. This includes existing buildings and hard structures. However, all habitats within the proposed development site were considered to be of ecological importance at the site level only, therefore in accordance with the criteria outlined in Table 9.3, the loss of these features is considered to have no significant impact potential and a negligible magnitude of effect.

9.7.2.3 Bats

The proposals include the demolition and clearance for most of the existing buildings within the planning boundary (Vol II), of which some of these buildings were considered to have the potential to support roosting bat species.

A series of emergence / re-entry bat activity surveys were carried out for all accessible building structures which were deemed to have a low to moderate potential for bat roost features, and a series of internal building inspections were undertaken in order to determine the presence of bat species. The survey results demonstrated that no roosting bats were recorded within these buildings, as noted during the 2023 and 2024 survey periods, and during optimal survey conditions. Limitations with gaining access to buildings and land are acknowledged, therefore pre-commencement conditions and mitigation are proposed later in this EcIA in order to ensure that demolition of buildings will not give rise to significant effects.

A number of larger mature trees within the Old Infirmary hill area were considered to have potential for roosting bats, however these trees are to be retained under the application, with the exception of 2No. Ash trees which exhibit significant deadwood and basal rot, and are scheduled for felling for the purpose of maintaining safety of public areas. It is also proposed to retain the with existing scrub, hedgerows and habitats mapped within the Old Infirmary hill

area. A bat activity survey was carried out for the two Ash trees, however no bats were recorded emerging from any of the identified PRF's, although bat activity was noted within close proximity to the forested area to the east of the site. In addition, trees and habitats within the wider area beyond the site, particularly within the mixed conifer and broadleaved woodland area to the east of the site, provide similar habitats and high potential for foraging and commuting bats. On this basis, the potential impacts on bats arising from the demolition and construction stages are considered to have no significant effect, with negligible magnitude of effect.

9.7.2.4 Birds

The proposed development will give rise to partial loss of a range of habitats including scrub, scattered trees, hedgerows and amenity planting with potential to support nesting birds, including a range of common and widespread species. However, habitat loss will effectively be limited to rear garden areas belonging to properties along Dublin Street North, which represents fragmented habitats and significant built-up areas, buildings or lands with limited ecological value, i.e. spoil or bare ground. Lands with the highest ecological value such as the broadleaved woodland area and scrub within the Old Infirmary Hill area are to be retained. That said, the range of habitats supported within the site are considered to be of limited significance for bird populations and species of concern, therefore it is considered that the loss of habitats resulting from the construction and demolition phases are unlikely to cause insignificant effects upon the local populations of bird species.

In terms of nesting birds, the demolition and construction stages of the proposed development have the potential to impact upon nesting bird species through the destruction of nests or disturbance caused during these phases, and during the clearance of scrub or trees.

As such, potential impacts on nesting birds are considered to be a cause of **minor adverse effects**, in the absence of specific mitigation.

9.7.3 Assessment of Operational Impacts

9.7.3.1 Natura 2000 Sites & Natural Heritage Impacts

The operational phase of the development will not directly impact upon any protected designations, as the site is not located within any Natura 2000 designations or areas of Natural Heritage interest.

Potential for indirect impacts on Natura 2000 sites, NHAs or pNHAs within 15km radius of the development are considered to be negligible, as no source-pathway-receptor model exists which would link the site to protected areas of conservation concern. Beyond the 15km radius, Lough Neagh and Lough Beg SPA are technically hydrologically linked to the development

area via the potential for petrochemical fuels and contaminants to drain towards the River Shambles which forms part of the Blackwater (Lough Neagh-Lower Bann) catchment. This in turn eventually flows into the Lough Neagh regional catchment some 38km downstream from the site (i.e. northwards) through a series of tributary networks.

The proposals will not result a reduction of catchment area, with flow regimes remaining the same as pre-development conditions during the operational phase. Lough Neagh & Lough Beg SPA is well beyond the possible influence from dust deposition or airbourne pollutants which are likely to be generated by the site.

As the site is technically linked hydrologically to the Lough Neagh & Lough Beg SPA designation, then in the event of a larger pollutant spillage occurring within the River Shambles during the operational phase, then the potential to cause a temporary disturbance to a site of international or national importance cannot be screened out, although no permanent damage is likely to occur.

In accordance with Table 9.3, the potential impacts during the operational phase for a larger pollution event would be considered to pose a **significant risk of negative impact,** with a **moderate adverse effect**, in the absence of specific mitigation.

On this basis, a series of mitigation measures have been developed within Soils, Geology & Hydrology Chapter 7 and Hydrology Chapter 8 of this EIAR and have been assessed within the supporting Natura Impact Statement (NIS) in Appendix 9.6.

9.7.3.2 Habitats

Upon completion of the demolition and construction phase, the operational phase of the development will not result in any further loss, fragmentation or degradation of habitats. Therefore, impacts on local habitats during the operational phase are considered to be **not significant**, with **negligible impact effect**.

9.7.3.3 Bats

Similar to the effects of the operational phase on site habitats, upon completion of the demolition and construction phase, the operational phase of the development will not result in any further loss, fragmentation or degradation of habitats. The site will retain most of the vegetation and tree coverage within the Old Infirmary Hill area where bat activity was noted, therefore potential for foraging and commuting will remain unchanged. It is noted that a new public pathway and seating area is being proposed within the Old Infirmary Hill area, along with additional lighting along the pathway.

Upgrade works are planned for the public pathway to the east of the Old Infirmary Hill area, which includes a new lighting scheme. The lighting will be designed for low lux levels (5 lux), in addition to a range of design criteria based on the LLP & BCT Guidance document GN08/23. Based on the bat activity surveys and observations of bat activity throughout the site, only two bat species were identified within the wider area (Common Pipistrelle and Soprano Pipistrelle), which can generally tolerate higher lux levels associated with artificial lighting. It is also noted that the existing public pathway and much of the site is already subject to artificial lighting (including public street lighting and private property flood lighting) and that bat activity was recorded around the existing pathway lights. Therefore, it is considered that no material change is anticipated.

In terms of lighting associated with Russell Row and the car parking or pedestrian areas, it is noted that many of the existing buildings onsite have active floodlighting, either in the form of constant lighting, or PIR flood lighting. Therefore, lands incorporating the Russell Row area are already subject to artificial lighting, and it is anticipated that any lighting associated with the operational phase of the development will have negligible difference. The results of bat activity surveys also demonstrated low potential for commuting or foraging bats within the existing area designated to be constructed for Russell Row vehicle parking and pedestrian areas.

On the basis of this information, impacts on bat activities during the operational phase are considered to be **not significant**, with **negligible impact effect**.

9.7.3.4 Birds

Upon completion of the demolition and construction phase, the operational phase of the development will not result in any further loss, fragmentation or degradation of local habitats. Therefore, the proposed development is unlikely to give rise to impacts upon local bird populations during the operational phase, and as such, the impacts are considered to be **not significant**, with **negligible impact effect**.

9.7.4 Cumulative Impacts

The proposed development has been assessed with regards to the potential for the cumulative impacts on biodiversity to arise in-combination with other local planning applications, committed or proposed plans and projects, as set out at Table 4.1 of this EIAR.

Given the limited nature of the impacts upon biodiversity which are predicted to arise in association with the proposed development, in addition to the mitigation measures which are set out in Sections 9.8 & 9.9 below, it is not envisaged that the proposed development would

have potential to give rise to any further potential significant effects when considered cumulatively alongside the proposed or committed plans or projects within Monaghan Town.

9.7.5 Interrelationships

This biodiversity chapter has assessed the potential for pollutants or contaminants to adversely impact local or offsite receptors, such as Natura 2000 and Natural Heritage sites, and concluded that the site is hydrologically linked to Lough Neagh and Lough Beg SPA via the River Shambles and Blackwater (Lough Neagh-Lower Bann) catchment. The development also has to the potential to impact upon local ecology at a site level. On this basis the biodiversity chapter is interrelated to the following chapters presented within this EIAR:

- Chapter 7 Soils, Geology & Hydrogeology
- Chapter 8 Hydrology
- Chapter 11: Air Quality, Emissions & Climate
- Vol II: Drawings

Mitigation measures have been developed taking into account the information presented within the technical reports of Appendix 9.1 – 9.7, and also on the basis of mitigation measures presented within Chapter 7, 8 and 10.

The proposed site layouts for habitats within the Old Infirmary hill are based upon information presented on the proposed drawings Vol II: Drawings along with the development proposal description in Chapter 4.

9.8 Mitigation: Demolition & Construction Phase

9.8.1 Natura 2000 Sites & Natural Heritage Areas

The proposed development has the potential to impact upon the Lough Neagh and Lough Beg SPA designation, given the hydrological source-pathway-receptor linkage. Pollutants are effectively limited to the input of petrochemical contaminants into the freshwater environs via surface water runoff, and sedimentation of silt laden runoff waters during the demolition and construction phase. In addition, a number of IAS were identified onsite which have the potential to spread via surface water environs.

9.8.1.1 Guidance

In relation to impacts resulting from release of petrochemical contaminants or sedimentation, the following best practice guidance will be adhered to during the demolition and construction phases of the development:

- HSA *(2021) Code of practice for the safety, health and welfare at work (chemical agents) regulations (2001 – 2021) and the safety, health and welfare at work (carcinogens) regulations (2001 – 2019).* Health and Safety Authority;
- CIRIA (2001) *Control of water pollution from construction sites. Guidance for consultants and contractors* (C532D);
- Guidelines on protection of fisheries during construction works and adjacent to waters (Inland Fisheries Ireland, 2016);
- Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board, 2006);
- Netregs Guidance for Pollution Prevention series (GPP), Pollution prevention guidelines (PPGs) in relation to a variety of activities developed by the Environment Agency (EA), the Scottish Environmental Agency (SEPA) and the Northern Ireland Environment Agency (NIEA);
    - GPP2: Above Ground oil storage tanks
    - PPG3: use and design of oil separators in surface water drainage
    - GPP5: Works and maintenance in or near water
    - PPG6: Working at construction and demolition sites
    - GPP8: Safe Storage and disposal of used oils
    - GPP13: Vehicle washing and cleaning
    - PPG20: Dewatering underground ducts and chambers
    - GPP21: Pollution incident response planning
    - GPP22: Dealing with spills

9.8.1.2 Specific Mitigation Measures

In addition to the guidance listed above, the following specific mitigation measures will be implemented during the demolition and construction phases:

Sediment Control

- Prior to works commencing, sedimentation control measures should be put in place, to include silt fencing along the eastern boundary of the site closest to the River Shambles;
- Silt fencing should be monitored throughout the day in order to ensure that it is performing as required, and has not become clogged with sediment;
- Soil or overburden storage areas should be marked out and located at the furthest practical position away from the River Shambles;

- Wherever possible, excavated materials should be removed off-site as soon as possible, in order to prevent excessive suspended solids loading during rainfall periods and surface water runoff;
- Whenever practically possible, site clearance or ground works should not to be undertaken during wet conditions, when rainfall of more than 0.5 mm/hour is forecast within the next 24 hours;
- As soon as practically possible, any damaged or cut ground should be reinstated to reduce suspended solids loading during rainfall runoff;
- Wherever possible, if precast concrete products cannot be used, then concrete production should be used onsite at the furthest position away from the River Shambles in order to minimise the risk of water pollution occurring;
- Should any concrete shuttering be required, then it should be adequately secured and sealed to ensure no leakage of concrete, and should be inspected for structural integrity to eliminate failures;
- All concrete deliveries should be supervised, and concrete pumping should be carried out in dry weather, wherever possible;
- All concrete pouring should be monitored carefully to ensure no accidental discharge, and mixer washings and excess concrete should not be discharged directly to watercourses, but rather should be carried out in designated areas well away from all watercourses;

Hydrocarbon / Contamination

Hydrocarbon use during the demolition & construction phases may lead to potential pollution of waterways. Examples of potential threats include spillages during re-fuelling operations, leaks in poorly maintained plant and machinery and the use of oil on shuttering boards. In order to reduce or mitigated against accidental spillage of hydrocarbons or contamination, the following should be adhered to:

- Fuelling of machines will be carried out away from all watercourses and open drainage networks and fuelled at a safe location with all machines provided with spill kits. Vehicles being used to deliver fuels should be certified in accordance with relevant regulations and double bunded;
- Wherever possible, no fuels should be stored on site;
- In the event that fuels are necessary to be stored onsite, then all fuels, lubricants and hydraulic fluids should be kept in secure bunded areas away from all watercourses (recommend a minimum of 50m from watercourse). The bunded area will accommodate 110% of the total capacity of the containers within it;

- All fuel or oil storage containers will be properly secured to prevent unauthorised access and misuse.
- An effective spillage procedure should be put in place. Site operatives should be provided emergency spill kits which should be stored on-site during the construction period at all times. Such kits should contain absorbent materials (such as absorbent granules, booms or mats). Operatives responsible for handling chemicals, fuels or oils, or for plant refuelling, should be trained in the use of this kit;
- Any waste oils or hydraulic fluids should be collected, stored in appropriate containers and disposed of off-site in an appropriate manner.
- Where appropriate, drip-trays should be used. Vehicles should never be left unattended during re-fuelling;
- All vehicles should be regularly maintained and checked to prevent hydrocarbon leaks;
- All stationary machinery such as pumps should be placed on drip trays in order to collect and contain any hydrocarbon spillages. These trays should be checked regularly, and rainwater removed to maintain their effectiveness;
- Wherever possible, biodegradable, vegetable-based oils should be used to oil shuttering boards;
- Wherever possible, hydraulically operated machinery to be used within 50m of the river should utilize synthetic biodegradable hydraulic oil

9.8.2 Invasive Species

In order to prevent the spread of Invasive Species during the demolition and construction phases of the development, all works will be carried out in accordance with the Invasive Species Management Plan (ISMP) as outlined within Appendix 9.3. This document sets out a strategy for managing or eradicating Japanese Knotweed, Himalayan Honeysuckle, Buddleia, Wall Cotoneaster and Cherry Laurel.

Provided that works are caried out in accordance with the ISMP, then the spread of IAS will be appropriately mitigated, both in terms of the local site context, but also in relation to offsite receptors such as Natura 2000 and Natural Heritage designations.

9.8.3 Habitats

No significant effects on habitats are predicted, with habitats being retained within the Old Infirmary hill area. Areas affected by the proposed development will primarily relate to built structures and lands of low ecological potential to the rear of properties along Dublin Street North. No further specific mitigation measures are required.

9.8.4 Bats

No significant effects on bats are predicted as a result of the proposed development, with habitats, foraging areas and commuting corridors being retained within the Old Infirmary hill area. Areas affected by the proposed development will primarily relate to built structures (i.e. existing buildings) and lands of low bat roost potential to the rear of properties along Dublin Street North.

However, given the limitations in gaining access to some of the existing buildings onsite, or lands not currently under ownership by the Council, it is acknowledged that some of these structures may still have the potential for supporting bat roosts. It is also considered that the lapse in time between planning being sought and the development commencing is likely to be more than one year, therefore there may be potential for features to be used by roosting bats which were not previously recorded.

Therefore, upon gaining planning and ownership of the land and site area, and prior to commencing the demolition or construction phases of the development, it is recommended that bat activity surveys are carried out for all buildings which are intended to be demolished as part of the development. This should include internal and external inspections, re-surveys for previously assessed buildings if more than one year has passed since the previous surveys were carried out, and bat activity surveys should be carried out for buildings which have not yet been assessed due to site access constraints. In addition, bat roost surveys and acitivty surveys should be carried out for any tree structures (such as the two Ash trees) prior to removal or felling.

In the event that roosting bats are identified during the pre-commencement surveys, then suitable mitigation should be developed to either retain the roost structure, or to provide a suitable alternative roost feature through appropriate design, and under licence by NPWS.

9.8.5 Birds

The proposed development has the potential to impact upon nesting bird’s species using habitats such as scrub, scattered trees, hedgerows, amenity planting and buildings within the application site.

In order to avoid any significant impacts upon nesting birds during the demolition and construction phases, it is recommended that these works should take place during the period 1st September to 28th February which is outside the breeding season for bird species which are likely to breed on the site.

In the event that demolition or construction works is necessary during the breeding season period, then it recommended that a pre-works survey is carried out by a suitably qualified ecologist in order to identify any potential impacts on nesting birds.

9.9 Mitigation: Operational Phase

The operational phase of the proposed development has the potential to cause impacts through accidental spillage of petrochemical contamination of local water courses, if improperly managed. However, the proposals include the installation of a petrochemical interceptor and silt trap as part of the overall drainage plans (Vol II: Drawing 4.9) with the proposed drainage network ensuring that all runoff from within the proposed road, car parking and pedestrian areas are captured and treated prior to onward discharge from the site.

9.9.1 Lighting

In order to minimise or negate the effects of artificial lighting on bat populations, specifically along the proposed public footpath area within the Old Infirmary Hill community garden area, it is recommended that luminaires should achieve the recommended criteria set out in the LLP & BCT Guidance Note GN08/23 document. The document outlines a series of rationale for designing lighting schemes aimed at reducing lux levels and effects on bat activity, and should include, wherever practically possible, the following:

- Prior to the design and installation of lighting, a lighting contour plan should be developed by a competent lighting professional, using an appropriate software package to model ‘Day 1’, extent of light spill from the proposed, retained and any existing luminaires. In some circumstances, a vertical illuminance contour plot may be necessary to demonstrate the light insensitive areas, such as entrances to roosts or the Key Habitat associated with it, should these be identified during pre-construction or pre-demolition surveys;
- The contours (and/or coloured numbers) for 0.2, 0.5, 1, 5, and 10 lux must be clearly shown, as well as appropriate contours for values above these. Each illuminance/lux contour plan should be accompanied by a table showing their minimum and maximum illuminance/lux values;
- The calculated lux levels and lighting contour maps should be reviewed by an ecologist in order to ensure the lighting scheme will be in compliance with ecological legislation, particularly with reference to bats;
- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used;

- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component;
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
- Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill;
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges ;
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards;
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered ;
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt;
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate;
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand;
- Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS;
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues;
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely;

The lighting scheme should take into consideration all the relevant guidance within the GN08/23 document and should submit the final lighting scheme and supporting rationale to the council for review.

9.10 Limitations

Limitations have been considered within the respective technical reports (Appendices 9.1 – 9.7). This EAIR chapter is considered to be robust with reasonable confidence in the findings, taking the limitations into account.

9.11 Summary of Effects & Conclusions

The development proposals will have no direct impact upon Natura 2000 sites, or areas of Natural Heritage conservation. Indirect impacts are limited to potential degradation of surface water environs which are hydrologically linked to Lough Neagh and Lough Beg SPA, and by the accidental spreading of invasive species through open watercourses. All other designations have no established source-pathway-receptor linkage to the site.

In addition, the demolition and construction phases have the potential to impact upon nesting birds within the proposed development area.

Appropriate mitigation has been recommended in order to negate all of the potential impacts on biodiversity, and provided that mitigation is implemented as outlined within this report and the supporting technical chapters, then no residual effects are predicted for Natura 2000 and Natural Heritage sites, or for local site-specific habitats and ecological environs.

A summary of the predicted significance of effects and proposed mitigation measures are presented in Appendix 9.7.

9.12 Chapter References

EPA (2022) *Guidelines on the information to be contained in Environmental Impact Assessment Reports*. Environmental Protection Agency, Ireland

Fossitt, J.A. (2000) *A Guide to Habitats in Ireland.* The Heritage Council, Kilkenny.

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater and Coastal and Marine*. Technical Guidance Series, Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2015) *Guidelines for Ecological Report Writing*. Chartered Institute of Ecology and Environmental Management, Winchester.

Smith, G.F. *et al*. (2011) *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council, Kilkenny.

British Standards Institution (2013) *BS 42020:2013 Biodiversity: Code of practice for planning and development*. BSI Standards Limited.

Harris, S. & Yalden, D. W. (2008). *Mammals of the British Isles: Handbook*. The Mammal Society.

Gent, T. & Gibson, S. (2012) *Herpetofauna Workers' Manual*. Joint Nature Conservation Committee

NRA (2009) *Guidelines for Assessment of Ecological Impacts of National Road Schemes*. Revision 2. National Roads Authority, Dublin.

NRA (2009) E*cological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*. National Roads Authority, Dublin.

OPR (2021) *Practice Note PN01: Appropriate Assessment Screening for Development Management*. Office of the Planning Regulator.

NPWS (2010) *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities*. Environment, Heritage and Local Government.

10 Material Assets, Land Use & Waste

10.1 Introduction

This Chapter of the ES reports the likely significant effects of the proposed development on the environment in respect of material assets in the context of the proposed development site and surrounding area. In particular, it considers the likely significant effects on both the construction and operational phases of the proposed development. Material assets can be taken to mean built services and infrastructure. Traffic is included because in effect traffic consumes transport infrastructure.

10.2 Drainage Infrastructure

10.2.1 Introduction

This section of the Material Assets Chapter has been prepared to assess the potential impact of the proposed development on flooding and drainage.

It sets out the methodology employed in the assessment, summarises the baseline flood risk as defined through desk-based assessments, and then assesses the potential impact of the development and the residual impact following mitigation.

A complete set of drainage design drawings is included in EIAR Volume II: Drawings.

The following reports have been prepared to inform this section of the EIAR and are included in Volume III: Appendices.

- Appendix 8.2: Flood Risk Assessment
- Appendix 8.3: Drainage Assessment

10.2.2 Definition of Project Area

The study area for this assessment is the full extent of the development site as described in the Proposed Development Chapter of the EIAR.

The site is located within the town centre boundary as defined in the Monaghan County Development Plan 2019-2025 and extends from Diamond Centre Car Park to the north and Old Cross Square to the south. It is bounded by Dublin St to the west. The eastern boundary of the site is defined by an existing walking trail leading from Old Cross Square around an area known locally as Infirmary Hill.

The Shambles River flows to the south of the site and is culverted via a 900mm diameter culvert running through Old Cross Square.

10.2.3 Methodology

10.2.3.1 Assessment Methodology

The following methodology was followed to assess the impact of the development on existing drainage infrastructure, including water channels and flooding;

- Consideration of the flood maps available on the floodinfo.ie website to determine the existing flood risk to the site
- Consideration of the potential interactions between the proposals and the current site conditions, and identification of possible impacts
- Identification of design solutions to avoid or minimise the potential impacts. Mitigation measures have been proposed during the construction and/ or operational phases of the proposed development to avoid potential impacts
- Assessment of residual impacts, taking into account of mitigation measures; and
- Evidence of compliance with 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' (2009).

10.2.3.2 Relevant Guidance

The Flood Risk Assessment has been prepared in accordance with 'The Planning System and Flood Risk Management Guidelines for Planning Authorities'. These Guidelines introduce comprehensive mechanisms for the incorporation of flood risk identification, assessment and management into the planning process.

10.2.3.3 Consultation

No consultation from any statutory body was received which is of relevance to flood risk and drainage.

10.2.4 Baseline Conditions (Existing Site Description)

The site is predominantly brownfield and irregular in shape and extends to approximately 2.5 Hectares. Dublin Street forms the boundary to the West, the Ulster Canal forms the boundary to the South and agricultural fields form the boundaries to the other sides. The site generally falls from East to West from approximately 66.0m AOD on the edge of the agricultural fields to approximately 58m AOD on Dublin Street.

The Existing Topographical Survey has been presented in at Vol II: Drawings and at Appendix 8.3: Drainage Assessment.

The existing site is a ’brownfield’ site, comprising the rear gardens, and derelict spaces to the rear of the properties along Dublin St. As such the discharge figure for the development has been limited to the ‘greenfield’ run-off rate of 2l/s/ha (litres/second/hectare) as the *Greater Dublin Regional Code of Practice for Drainage Works* Version 6.0.

10.2.5 Potential Effects

10.2.5.1 Construction

Potential impacts from overloaded or poorly constructed drainage systems, in particular temporary systems, may have the potential to cause breeches in system loading and result in localised flooding or bypassing of containment / treatment systems.

10.2.5.2 Operation

The impacts on local drainage infrastructure have been considered by means of a drainage assessment, which has been provided in Appendix 8.3. The drainage network has been designed to ensure adequate runoff capture, and to effectively manage drainage from the site.

10.2.6 Impact Assessment

10.2.6.1 Flood Risk Assessment

A Flood Risk Assessment (Appendix 8.2) has been prepared to assess the adequacy of available flood risk information, and to identify the risk of flooding from all different sources for the proposed development considering all the available information taken from the gov.ie Office of Public Works (OPW) maps, Monaghan Development Plan 2019-2025 and the Strategic Flood Risk Assessment (SFRA) for the Monaghan Development Plan 2019-2025 published by Monaghan County Council (MCC) in 2019.

The method of assessment used complies with the Source-Pathway-Receptor model and provides a spatial assessment of flood risk to people, property, and the environment at the site. Consideration has been given to the source and extent of all potential flood mechanisms at the site, including coastal, fluvial, pluvial, and urban drainage flooding.

This FRA has been undertaken in consideration with ‘The Planning System and Flood Risk Management – Guidelines for Planning Authorities’ DoEHLG November 2009, which is the latest relevant guidance document.

The Flood Risk Assessment concludes that that the proposed development site will not be at risk of flooding, based on data from all available sources.

10.2.6.2 Assessment of Construction Phase Impacts

There are no construction works proposed to the Shambles River that runs through Old Cross Square.

During the construction phase, any runoff from the construction site will be collected and controlled by the Contractor as described in the oCEMP (Appendix 4.2)

10.2.6.3 Assessment of Operational Phase Impacts

Surface Water

The Drainage Assessment (Appendix 8.3) describes the surface water drainage design for the scheme in detail.

Surface water runoff will be limited to 2 l/s/ha in accordance with the Greater Dublin Regional Code of Practice for Drainage Works Version 6.0.

As outlined in the Drainage Assessment report, the surface water runoff from the proposed development will be controlled through the provision of attenuation measures, flow control measures, and Sustainable Urban Drainage Solutions (SuDS).

Therefore, there will be no impacts arising from the proposed surface water drainage network on the existing drainage network.

It is noted that all relevant approvals for surface water drainage designs and connections with the existing drainage network will be obtained from Uisce Eireann, as outlined in the Drainage Assessment.

Foul Drainage

While there is no foul run-off generated directly by the proposed development, the scheme design does create two Development Plots which will be developed in the future as a mix of commercial / residential properties. Therefore, in order to cater for the future foul flow generated by the Development Plots, a foul drainage sewer has been provided along Russell Row, with spur connections to the Development Plots.

All future foul drainage connections to the network will be subject the appropriate planning process and Uisce Eireann approvals,

Therefore, there will be no impacts arising from the proposed foul drainage network on the existing drainage network.

It is noted that all relevant approvals for foul drainage designs and connections with the existing drainage network will be obtained from Uisce Eireann, as outlined in the Drainage Assessment.

10.2.7 Mitigation

10.2.7.1 Proposed Storm Water Drainage Strategy

In order to achieve the restricted ‘Greenfield’ run-off rate: permeable pavements, rain gardens, attenuation tanks and discharge flow controls limiting the storm water discharge from the development are included within the drainage design. The attenuation tanks are situated at each car park with flow controls and a final flow control immediately prior to the discharge location at the Dublin Street roundabout.

10.2.7.2 Proposed Foul Water Drainage Strategy

In order to cater for the future foul flow generated by the Development Plots, a foul drainage sewer has been provided along Russell Row, with spur connections to the Development Plots.

10.2.8 Assessment of Cumulative Impacts

The cumulative impacts of Flood Risk may arise due to the development of adjacent sites and lands that may give risk to flood risk within the Dublin St North site area. It has been assumed that all such developments would be required to demonstrate that they do not increase flood risk elsewhere to in order to comply with The Planning System and Flood Risk Management Guidelines, and to obtain planning permission.

McAdam Design have reviewed the proposals cumulatively alongside other projects and plans as listed at Table 4.1. In all cases either the development is not within a floodplain, or mitigation measures have been included to ensure that the flood risk from the proposed development is adequately managed so that it does not increase flood risk elsewhere, in compliance with the Guidelines.

Similarly, The Drainage Assessment (Appendix 8.3) includes calculations demonstrating that the proposed storm drainage network for the development will not exceed the existing 'Brownfield' runoff rates to the adjacent watercourse, provided that appropriately sized stormwater attenuation and flow control measures are incorporated. All drainage designs for the scheme have been developed to tie in with existing and future drainage networks within and adjacent to the site, including that associated with the Dublin Street South Regeneration and the Civic Offices within the Roosky Masterplan. The surface water and foul drainage designs also accommodate for the future development of the development plots.

Foul drainage has been provided to cater for the future development of the development plots, although there is no foul discharge specifically associated with the proposed design for the scheme design considered in this application. All proposals cater for their own storm and wastewater attenuation which is regulated through the planning system and subsequent

agreements with Monaghan County Council / Uisce Eireann. It will be the responsibility of the developer of the development plots and all other development to ensure the appropriate design approvals are in place for foul and storm drainage from their own development.

The proposals will not result in any cumulative impacts when considered alongside those projects listed at Table 4.1

10.2.9 Inter-relationships

This assessment overlaps with Hydrology which is assessed in Chapter 8 of this report.

10.2.10 Conclusion

Calculations are presented within the Drainage Assessment (Appendix 8.3) that show the proposed storm drainage network for the development will not exceed current 'Brownfield' run-off rates to the adjacent watercourse with the inclusion of appropriately sized storm water attenuation and associated flow control.

With consideration of the drainage strategy and the surface water mitigation measures for the scheme illustrated above, flood risk from pluvial flooding will be managed at the development and will not increase the runoff elsewhere. Proposed levels have been developed to ensure that no properties will be subject to flooding in the event that a local drainage system failure should occur.

10.3 Transport Infrastructure

This section outlines the traffic and transport impacts identified during both the construction and operational phases of the project. A comprehensive Transport Statement was undertaken to evaluate existing conditions, forecast potential changes, and assess effects on the surrounding road network within the defined area of influence. This evaluation was carried out in consultation with Monaghan Council, ensuring that local criteria and concerns were fully addressed. The findings have guided the selection and implementation of mitigation measures tailored to the specific issues encountered, and these strategies are detailed in the subsequent sections.

The data collected not only informed transport-related decisions but also played a crucial role in shaping other environmental assessments, including those related to noise and air quality. This chapter should be read in conjunction with the "Material Assets" chapter of the final report, as the focus here remains on built services and infrastructure and their interaction with the transport system.

As anticipated, the construction phase posed the greatest challenges. During this period, increased traffic volumes, along with the logistics of delivering materials and mobilising equipment, temporarily affected the local road network. In response, a range of temporary traffic management measures—such as diversions and adjusted circulation patterns—were implemented to maintain safety, minimise congestion, and ensure the efficient progression of construction activities. These mitigation strategies successfully minimised adverse effects and maintained an acceptable level of service on the surrounding transport network throughout the project's construction phase.

10.3.1 Area of Influence

The study area has been defined and described within the wider planning application package and EIAR and identified in Figure 10.1 below.

Figure 10.1 Proposed Project Location Plan

10.3.2 Scope

The scope of this TS is to evaluate the current transport environment to determine the potential transport impacts of the proposed development against the baseline conditions within the area. The assessment primarily considers the parking and open space elements of the scheme. While other aspects of the scheme will be developed separately (and subject to their own TS process) later, this scope will consider the cumulative impact of the land uses based on the available information within the surrounding road network.

10.3.3 Methodology & Legislation

The Traffic Statement was carried out in accordance with the Traffic and Transport Assessment (TTA) Guidelines (TII, 2014). This analysis included a thorough examination of traffic volumes and the effects arising from the proposed scheme, enabling an evaluation of any disruptions anticipated for existing road users within the assessed area.

Baseline traffic conditions were established, and projections were made regarding the additional volume of vehicles introduced by both the operational and construction phases of the project. These estimates were used to quantify the potential effects on the existing roadways and the surrounding network.

Field traffic surveys, desktop research, and Client-provided data informed the assessment, while Road Safety Audits were completed in line with the proposed design. Consultation was also undertaken with the relevant roads authority to incorporate local insights and adhere to regulatory requirements.

The following guidance documents informed the assessment process (non-exhaustive list):

- Traffic and Transport Assessment Guidelines (NRA, 2014)
- TII Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections (TII, 2019)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)
- Guidance on the Preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Monaghan County Development Plan
- Guidelines for the Environmental Assessment of Road Traffic (IEMA, 2003, UK-Based)

Throughout the study, regular consultation with the relevant roads authority ensured that the assessment was aligned with local standards, resulting in a comprehensive and well-informed analysis.

10.3.3.1 Traffic Modelling

Traffic modelling was undertaken using Junctions 10 software. However, the additional traffic generated is expected to be insignificant and therefore effect on the roads network within the area of influence.

10.3.4 Baseline Scenario / Receiving Environment

This chapter provides an overview of the existing transport environment surrounding Dublin Street, The Diamond, The Diamond Car Park, and Old Cross Square in Monaghan Town focusing on road characteristics, parking provisions, active travel facilities, public transport services, and road conditions. Figure 10.2 indicates the main areas regarding receiving environment.

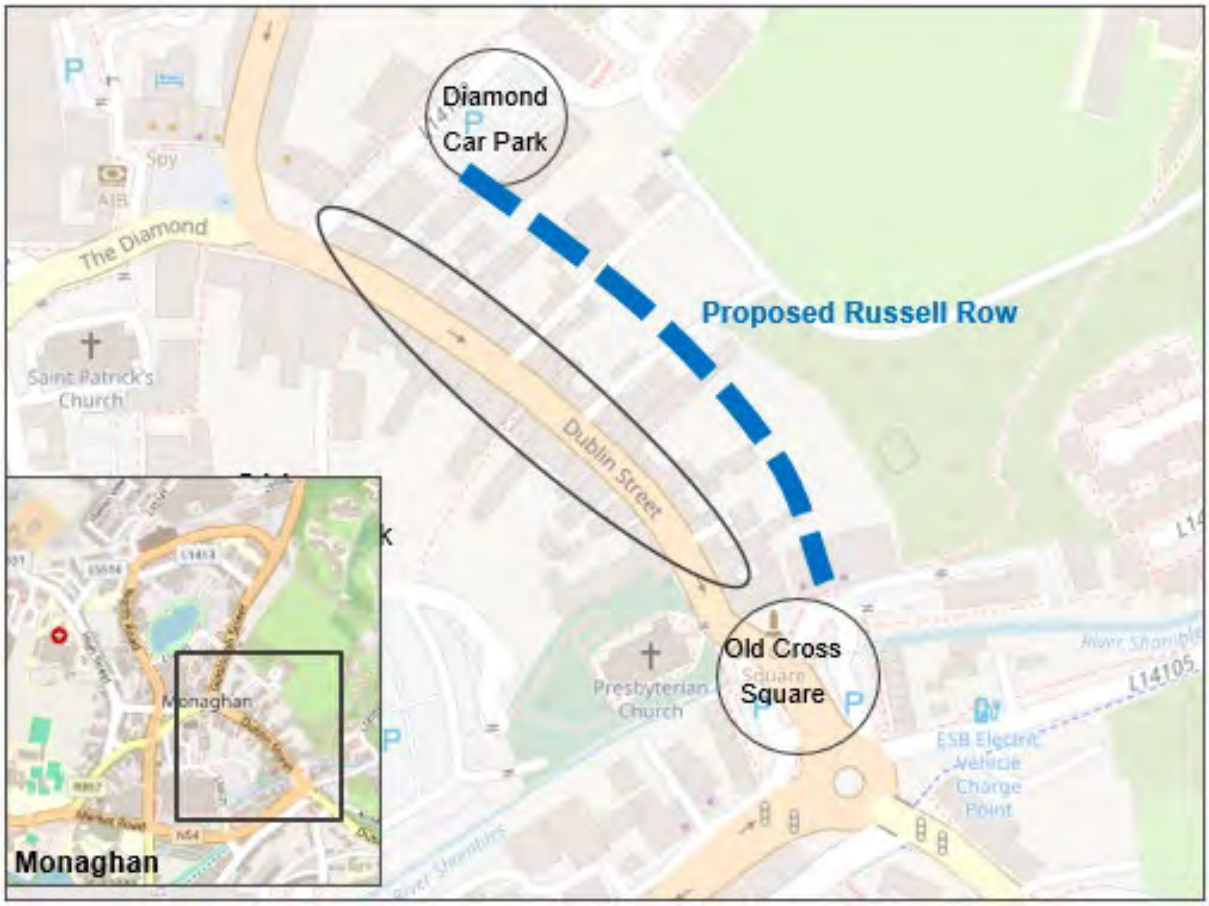


Figure 10.2 Proposed Russell Row Development and Key Areas

10.3.4.1 Dublin Street

Dublin Street is a primary route connecting Monaghan Town to major national roads (N54 and N2). The road surface condition is fair but shows signs of wear due to frequent vehicular use particularly from commercial traffic. The street width is narrow with limited space for on-street parking, there are no dedicated cycle lanes which restricts active travel options. The footpaths are well-maintained but narrow occasionally leading to overcrowding during peak pedestrian traffic periods.

10.3.4.2 The Diamond Junction

The Diamond is the central square and traffic hub of Monaghan Town. The road surface around The Diamond is generally in good condition, the current layout can lead to congestion during peak hours due to high pedestrian and vehicular activity.

Due to the nature of an old town layout the area has reduced dedicated cycling infrastructure and while pedestrian crossings are well-placed the narrow road layout can create bottlenecks. Traffic management systems, including the signalised crossings, help to mitigate traffic congestion during peak periods.

10.3.4.3 The Diamond Car Park

The Diamond Car Park is a small surface-level facility with clearly marked parking bays, including disabled access spaces. The car park surface is in reasonable condition and is accessible from surrounding roads, the car park is underutilised given its off-street parking solution, it plays a key role in alleviating on-street parking pressures in The Diamond / Dublin Street and surrounding areas.

The Diamond provides parking for the staff of the National Learning Network, staff arrived in the morning between 08:30 and 09:00, they left at staggered times from 15:00 however, all vehicles associated with the building had vacated the carpark by 17:15.

There were 4 vehicles which did not leave the carpark throughout both survey days, two of which had Garda notices on them for abandonment. Between 17:30 and 18:30 it was noted that 6 vehicles were parked and the drivers and passengers walked up to the apartment buildings. Although the carpark officially has 66 parking spaces it was noted that 5 vehicles parked in front of the Chinese Take Away unit (these were counted within the survey) and a drop off in front of the old cinema was also parked in. This was not from lack of available spaces.

During the daytime there was a high turnover of vehicles associated with shoppers, the evening there was a high turnover of people using the carpark to collect take away food from various outlets.

10.3.4.4 Old Cross Square

Old Cross Square provides on-street parking for local businesses and residents. The road surface condition is adequate but shows signs of aging in sections with minor cracking and uneven patches that will benefit from the proposed scheme. The Square's layout supports moderate traffic flows, though parking demand can result in congestion during peak hours.

Pedestrian access is well-supported with footpaths however, cycling infrastructure remains absent but with plans in place to address this.

This carpark had a high turnover throughout the day associated with the convenience store. It was observed that at 10am there was a yoga class in one of the buildings next to the convince store, the carpark only had 1 available space for the next, hour however no additional double parking was noted during this time. The vehicles associated with the yoga class were quickly replaced with more shoppers and taxis that were waiting for calls.

10.3.4.5 Public Transport Services

Monaghan Town is primarily served by bus transport, with services connecting the town to nearby urban centres, including Dublin, Cavan, and Enniskillen. Key bus routes and stops relevant to Dublin Street, The Diamond, and Old Cross Square include:

- Bus Éireann Route 32 Dublin to Letterkenny: The service runs circa every 2 hours during peak times and offers the same service on weekends.

Monaghan (Bus Station)	ARR	08:10	10:40	12:40	14:55	16:40	18:40	20:40	22:40	00:40
	DEP	08:25	10:55	12:55	15:10	16:55	18:55	20:55	22:55	00:55
Monaghan (Bus Station)		07:30 P		07:45 P		12:00 P		14:10 P		18:00 P
Monaghan (Opp Co. Council Offices)		07:34		07:48		12:05		14:15		18:05

- Bus Éireann Route 162 Monaghan to Dundalk via Castleblayney: This service runs once a day departing Monaghan Bus Station at 07:30 and arriving back at 18:30 on weekdays only.
- Bus Éireann Route 175 Monaghan to Cavan: Timetables vary depending on the day, but there are typically 5 services per day.
- Bus Éireann Route 70 Monaghan to Drogheda via Ardee: This route operates seven times per day on weekdays, with reduced services on weekends.

Monaghan (Bus Station)	06:00 P	08:00 P	10:10 P	12:10 P	14:10 P	16:10 P	18:15 P

Timetables and frequency are subject to change based on the season and local demand however, these routes provide frequent and reliable service within and beyond Monaghan Town, supporting both local commuters and longer-distance travel.

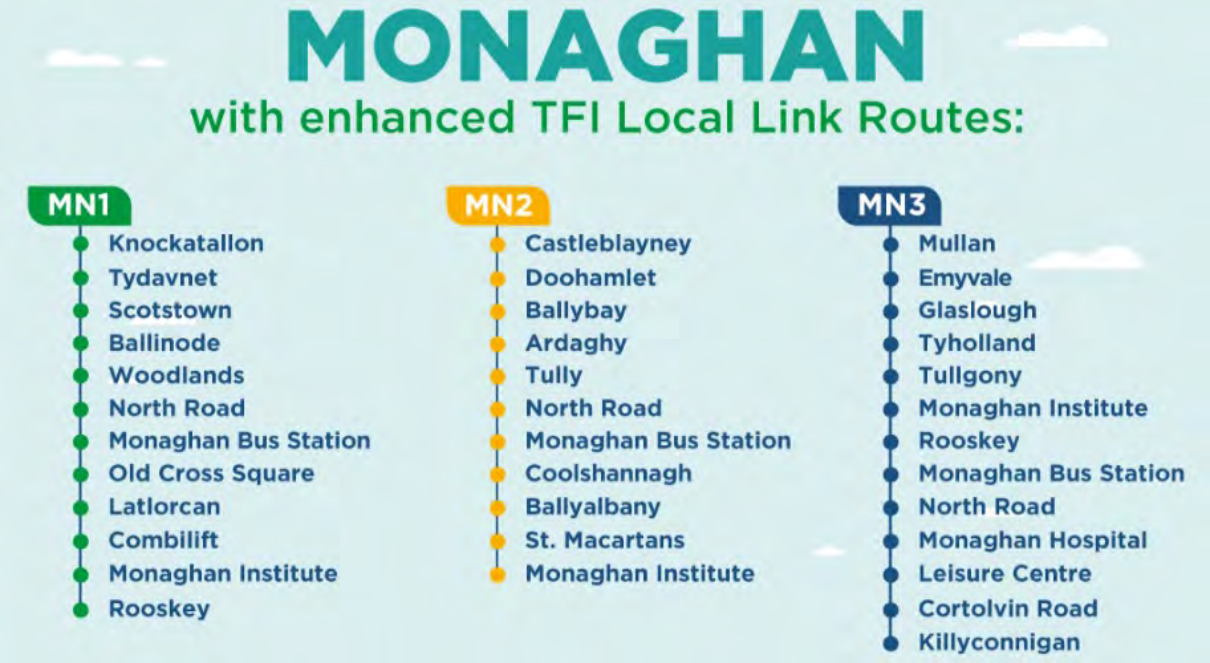


Figure 10.3 TFI Local Link Bus Routes

All 3 routes provide connectivity to Monaghan Bus Station to facilitate onward travel and provide connectivity to regional bus services.

Route MN1 to Tydavnet, with up to six daily return services Monday to Friday, and an additional evening service on Fridays. On Saturdays, the route will operate up to six daily return services, while Sundays will offer five daily return services. The enhanced MN1 route will offer improved connectivity for the communities of Knockatallon, Tydavnet, Scotstown and Ballinode with Monaghan Town also stopping at Woodlands, Dawson Street, North Road, Old Cross Square, Cathedral, Latlorcan, Combilift, Monaghan Institute and Rooskey.

Route MN2 providing up to five daily return services Monday to Friday from Castleblayney with an additional evening service on Friday, up to six daily return services on Saturday and five daily return services on Sunday. The enhanced MN2 route will improve connectivity to the communities of Ardaghy Ballybay and Doohamlet to key areas in Monaghan Town, including Tully, The Glen, Old Cross Square, Coolshannagh, Ballyalbany, St. Macartan's and Monaghan Institute.

Route MN3 operates five daily return services from Monday to Friday, including an evening service on Fridays and Saturdays. Saturday services will offer up to six daily return trips, while Sundays will feature four daily return services. The enhanced MN3 route introduces new stops at the Leisure Centre, Cortolvin Road, and Killyconigan, enhancing connectivity to Dawson Street, North Road, Monaghan Hospital Rooskey, Tullygony and the communities of Tyholland, Glaslough, Emyvale, and Mullan.

10.3.4.6 Cycling - Active Travel Proposals for Monaghan (CycleConnects)

As part of the CycleConnects initiative led by the National Transport Authority, Monaghan Town, including areas like Dublin Street, The Diamond, and Old Cross Square, will see significant upgrades to cycling infrastructure. The CycleConnects proposals aim to create a safer, more accessible network for cyclists, supporting sustainable travel across Ireland.

10.3.4.7 Planned Cycle Routes Around Dublin Street and The Diamond (Separate Schemes)

The proposed project is aligning with the CycleConnects proposals which include a comprehensive cycling network across Monaghan Town, integrating both urban and inter-urban routes. For Dublin Street, the plan outlines a connected cycle route that links Monaghan's central areas, including The Diamond and Old Cross Square, to the broader county network. This will provide safer and more convenient routes for cyclists moving through town. Key proposals for Monaghan include:

- Urban Cycle Network: Dedicated cycle lanes along major roads, including Dublin Street, to enhance cyclist safety and encourage cycling as an alternative to car travel.
- Link to Greenways: Improved connections between urban cycle routes and existing greenways (off-road paths). While not directly passing through Dublin Street, the Monaghan Greenway will provide accessible leisure cycling options near the town.
- Pedestrian and Cyclist Enhancements: Shared spaces with enhanced pedestrian crossings, particularly around The Diamond and Old Cross Square, to improve safety for both pedestrians and cyclists in these busy areas.

10.3.5 Iso – Distance Mapping

Iso-distance maps are a specialised type of spatial representation used to visualise areas that share equal distance from a specific point of interest. Unlike traditional maps that focus on geographic distance, iso-distance maps prioritize the accessibility of locations based on the distance required to reach them, considering factors such as cycleways, footpaths, transportation modes and road networks.

These maps consist of contours or bands that indicate zones of equal distance radiating from a central point. Each contour represents the number of kilometres travelled. This allows users to see the spatial relationship between a location and its surroundings in terms of accessibility rather than raw distance.

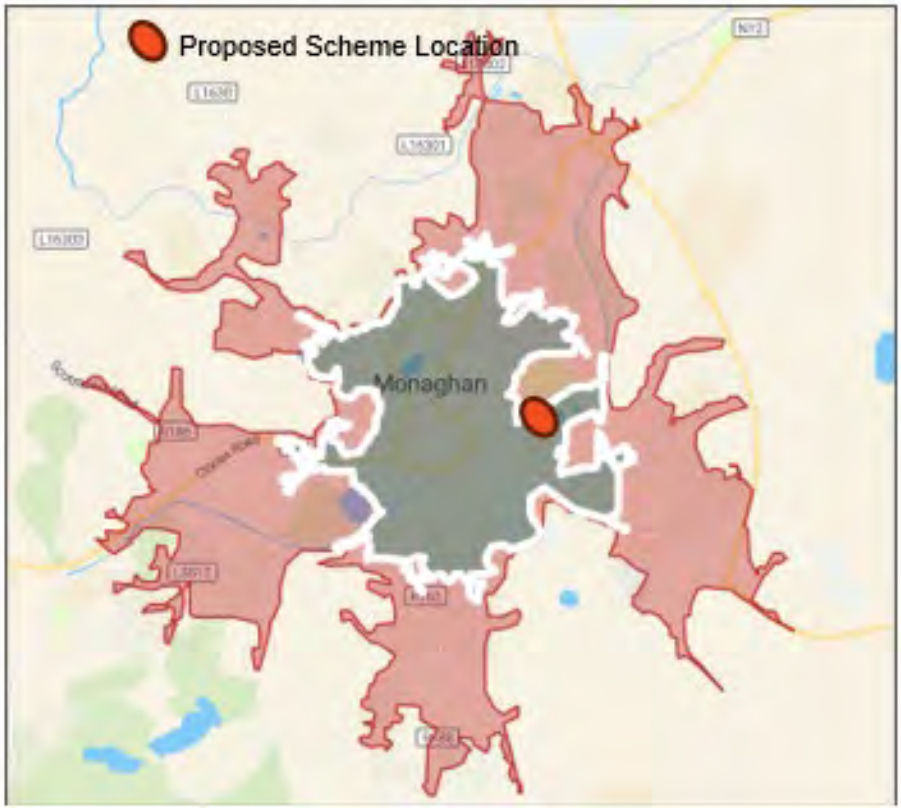


Figure 10.4 Walking Iso Distances 1km & 2km Combined.

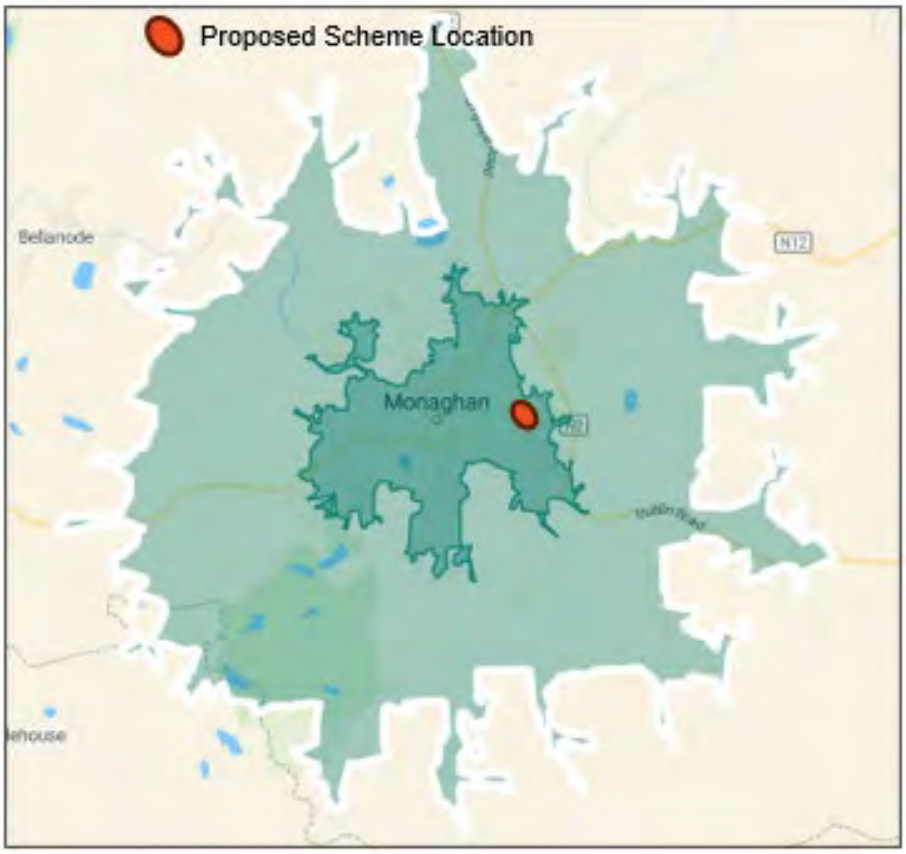


Figure 10.5 Cycling Iso Distances 2km & 5km Combined.

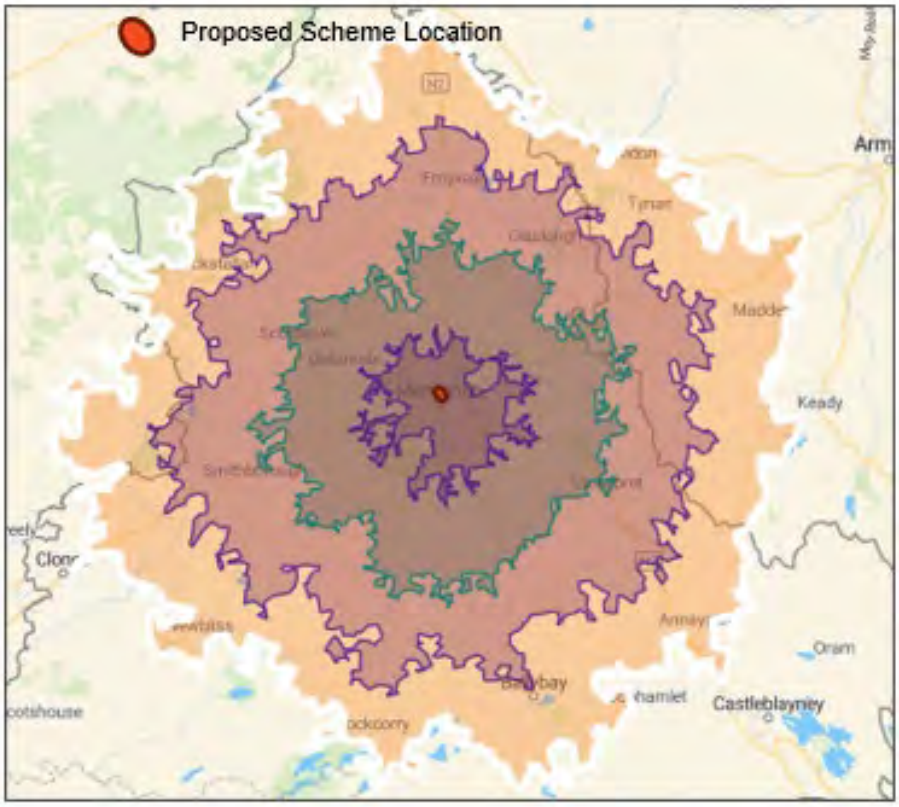


Figure 10.6 Driving Combined 5km, 10km, 15km & 20km Iso Distances.

10.3.6 Summary of Impacts

10.3.6.1 Traffic / Network Capacity

The greatest potential for traffic impact in the absence of mitigation during the construction phase. There will likely be temporary disruption within the area of influence at The Diamond, Old Cross Square and Dublin Street.

Traffic / pedestrians diversions will be required curing construction.

10.3.6.2 Travel Time

During construction there will be traffic and pedestrian's diversions in place in accordance with the relevant standards.

10.3.6.3 Safety

No impact in relation to safety.

10.3.6.4 Non-Motorised Users

During the construction phase will there be a potential impact on NMU in relation to traffic / pedestrian diversions. No impact during operation.

10.3.7 Mitigation

Traffic management will be the main mitigation measure during construction which will be undertaken in accordance with relevant standards.

Mitigation will include Traffic Management Plans, phasing of the works and in particular how the scheme will be constructed i.e. keeping the traffic connection between The Diamond and Dublin Street Roundabout live during the works.

One potential solution will be to construct Russell Row first to a suitable standard to divert traffic from Dublin Street. Options and a solution will be considered in the final report.

10.3.7.1 Construction Phase

Traffic diversions will be required, this will be temporary in nature.

10.3.7.2 Operational Phase

No impact during operation, rather improvements within the area of influence.

10.3.8 Limitations

It is not considered that there are any limitations in terms of the Transport Assessment.

10.3.9 Conclusions

The proposed development at Dublin Street North, Monaghan, including the introduction of the Russell Row and associated parking reconfigurations, is expected to have an insignificant impact on local traffic conditions. The scheme primarily involves a redistribution of parking spaces rather than a significant increase in vehicle traffic, with only nine additional spaces introduced within the study area.

The assessment confirms that while temporary disruptions may occur during the construction phase, these will be effectively managed through appropriate traffic mitigation measures, including phased construction and traffic diversions. In the long term, the development is expected to enhance accessibility, particularly for non-motorised users, aligning with broader sustainable transport initiatives such as CycleConnects.

Overall, the proposed development supports the regeneration of Dublin Street North while ensuring minimal impact on the surrounding road network. Future developments within the area will undergo their own transport assessments, ensuring continued consideration of traffic and accessibility impacts.

10.4 Land Use

10.4.1 Baseline Conditions

As set out at in Chapter 4 the proposed comprises c.21,000sqm of land and is located within the heart of Monaghan Town Centre and forms part of the Dublin Street North Regeneration Area as envisaged in the Monaghan County Development Plan, Variation No. 3.

The site is within a town centre location off Dublin Street, the main thoroughfare through the town. Existing properties along Dublin Street comprise a varying mix of uses including retail uses including laundry, clothing, footwear, salons, window supplier, auto repair shop hospitality in the form of public houses, cafes, restaurants and guest house, commercial space in the form of professional services such as solicitor offices, residential, hotels and other vacant spaces.

Beyond the physical properties vacant space is most apparent within the linear curtilage of the properties which extend northeast and are considered to be underutilised with vacant building and open space. The backlands extend to an informal path called St Davnets Row which opens up beyond mature planting and vegetation to greenfield land.

The development site includes the public spaces at Old Cross Square and land within the Diamond Streetcar Park which is accessed off Dublin Street to the south-west.

As indicated the site is subject to the Dublin Street North Regeneration Plan which envisages the regeneration of the area to provide for new roads, improved public realm and the creation of new development plots which will widen the future land use provision of the site in the future.

The site is surrounded by further town centre uses characterised by small to medium scale retail use. A cemetery is present within the immediate vicinity of Old Cross Square. The site is also defined by further regeneration areas identified within the Monaghan County Development Plan and subsequent variations, including the Roosky Masterplan area to the north-east and beyond Dublin Street to the south is the Dublin Street South Regeneration area in which regeneration proposals are currently under determination by ABP.

10.4.2 Impact Assessment

10.4.2.1 Direct

The proposals are to regenerate land within the Dublin Street North Regeneration Area which envisaged a future regeneration of the area that that makes sustainable use of the assets and potential of the town centre area, to create a desirable and convenient place to live, work and

recreate through the reuse and adaption of existing structures with new development to create homes, with businesses and services that will create new employment opportunities.

The creation of a high-quality public realm that is connected to the existing street network, to achieve a sustainable urban quarter, providing increased footfall and population critical mass in Dublin Street, and the wider Monaghan town centre, will underpin urban spaces, amenities vibrancy and a diverse town centre living environment that promotes people's health, happiness and well-being.

The proposed development will act as a catalyst for future investment in existing and future land use. The proposals include to the provision of future development plots at either side of the new Russell Row which will provide opportunities for appropriate and additional town centre land uses within the area.

In determining the potential impacts from the proposed development consideration is given to the relevant local and strategic planning policy context. The site is zoned 'town centre' in the CDP 2019-2025, the stated objective of which is to provide, protect and enhance town centre facilities and promote town centre strengthening. According to the CDP, the principle permitted land use will be town centre related uses including retail, residential, commercial, social uses, cultural uses, medical/health uses, hotels, pubs, restaurants and other similar type uses. A 'Car Park' and 'Public Infrastructure Project' are 'open for consideration' on 'Town Centre' zoned lands according to the Development Zoning Matrix. The proposed development will strengthen the town centre and should, upon delivery of the project in the whole, enhance the town centre.

The objectives for Monaghan Town Centre (Objectives TCO 1-9) support development that that will both protect and enhance town centre facilities, particularly those uses which are supported in land use terms such as retail, residential, commercial and community uses. In addition, TCO 9 seeks to *"Continue to encourage and accommodate the regeneration of back lands in the towns were appropriate, including the construction of new urban streets to provide access to inaccessible lands".*

While it is considered that there will be a minor and temporary impact on existing land uses during the construction phase of the development, it is anticipated that existing land uses will be able to remain operations during the construction phase of the development. Mitigation measures set out within the various chapters of this report and secured within the oCEMP will ensure that exiting landuses will be disrupted little as possible during the construction phase of the development. It is not considered that there will be a direct significant impact on the environment or more specifically landuse.

10.4.2.2 In-direct

While not part of these proposals, the future infill plots are considered cumulatively and will comprise a mix of uses including residential (See Table 10.1 below). The proposed will directly facilitate two future development plots alongside the effective reuse of the backland areas to the rear of properties fronting on Dublin Street in which opportunities for infill development will be created.

Table 10.1 Future Infill Plots (Regeneration Plan – Dublin Street North)

Area	Type	Footprint (Sqm)	Height (Floors)	Total (Sqm)	Car Park	Use
1	Dublin St Infill	993	3	2979	Semi-basement/Surface	Mixed Use
2	New Development	2001	3/4	6003	Surface	Residential
3a	Landscaping	1900	Surface	TBC	Surface	Surface parking/Event space
3b	New Development	852	3/4	2982	Surface	Residential
4	New Development	690	3/4	2415	Surface	Residential/Mixed use

NOTE: Areas and building heights are indicative only, and subject to detailed design considerations Phase 3A Landscaping comprises the central area only. Additional car parking areas are provided in Area 2 and Area 4.

The proposed development will have no impacts during the construction phase of the development on the delivery of future development within the regeneration area. The magnitude of this impact is considered to be negligible.

It is not considered that there will be a significant or likely environmental impact on the landuse of Dublin Street or the surrounding area either directly or indirectly as a result of the development and any impacts are considered minor temporary while permanent impacts are considered to be positive.

10.5 Waste

This section considers management of waste materials during the demolition, construction and operational phases of the proposed development, and takes into consideration the relevant legislation, guidance and policies for the appropriate management of waste. The chapter assesses waste elements which may be derived from the following EIAR Chapters:

- Chapter 7: Soils, Geology & Hydrogeology
- Chapter 8: Hydrology
- Chapter 9: Biodiversity
- Chapter 11 Air Quality, Emissions & Climate

The Appendices for each of the above referenced Chapters should also be read in conjunction with this section.

The site and project description are outlined within Chapter 4 and Figures referred to within the text are presented within Volume III of the EIAR, unless indicated otherwise.

10.5.1 Project Area

The overall project area and proposed extent of the development is defined within Chapter 4 of this EIAR, however, the possible influence of the development within the local and regional extents should be taken into consideration. Therefore, the project area is defined within this chapter in terms of the following:

- **Regionally** – the closest waste facilities that are suitable for processing or managing waste streams arising from demolition, construction and operations phases of the proposed development; and
- **Localised Development Area** – the materials or wastes generated directly within the proposed development area, which includes Russell Row, St. Davnet's Row, Old Cross Square, Dublin Street and The Diamond.

10.5.2 Methodology

10.5.2.1 Legislation, Guidance & Policy

The following relevant legislation and guidance information was considered during the preparation of this chapter, in relation to the assessment of waste management as part of the EIA process:

- EU Waste Framework Directive 2008/98/EC, transposed into Irish laws as the Waste Directive Regulations 2011 (S.I. No.126 of 2011);
- Revised EU Waste Framework Directive (2018/851), transposed into Irish laws as the Waste Directive Regulation 2020 (S.I. No.323 of 2020);
- Waste Management Act 1996 to 2016, as amended;
- EPA, "Best Practices Guidelines for the preparation of resource & waste management plans for construction & demolition projects" (2021), Environment Protection Agency;

- IEMA (March 2020) Guide to Materials and Waste in Environmental Impact Assessment;
- EPA (2020a) Guidance on Waste Acceptance Criteria at Soil Recovery Facilities;
- EPA (2020b) By-Product – Guidance Note, A Guide to By-products and Submitting a By-product Notification Under Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No 126 of 2011);
- EPA (2019) Guidance on Stone and Soil By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations 2011, as amended by S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2020. TII (2017) The Management of Waste from National Road Construction Projects, GE-ENV-01101;
- TII (2017) Guidelines for the Management of Waste from National Road Construction Projects, GEENV-01101, Transport Infrastructure Ireland, December 2017;
- EPA, "National Hazardous Waste Management Plan 2021 – 2027", (2001) Environment Protection Agency;
- Connacht-Ulster Region Waste Management Plan 2015-2021; and
- A Waste Action Plan for a Circular Economy – Ireland's National Waste Policy 2020 – 2025.

It is noted that under Section 3(1) of the Waste Management Act that the following requirement do not apply to materials not considered to be waste:

- *Land (in-situ) including unexcavated contaminated soil and buildings permanently connected with land – relates to land and buildings prior to any construction or demolition where material remains untouched. Once it has been excavated or otherwise removed, the material may enter into the control regime set down by the Waste Management Acts*.
- *Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated*.

In addition, there are two important provisions within the European Union (Waste Directive) Regulations 2011–2020 that are of relevance to the construction sector and the prevention of waste and these allow for the classification of resources out of the waste regime as follows:

- Article 27 allows for the notification of a material as a by-product rather than a waste where certain criteria can be demonstrated by the legal person (i.e. further use is certain, no need for further processing, produced as part of a process and further use is lawful).

- Article 28 sets out the grounds by which a material, which is recovered or recycled from waste, can be deemed to be no longer a waste and complies with a set of end-of-waste criteria (substance/ object to be used for specific purposes, a market or demand exists, fulfils technical requirements and no overall adverse impact to human health or the environment).

10.5.2.2 Waste Policy

The relevant waste policy considered within this Chapter is as follows:

- European Commission – Circular Economy Action Plan (EC, 2020);
- Department of the Environment, Climate and Communications – Waste Action Plan for a Circular Economy 2020-2025 (DECC,);
- Regional Waste Management Planning Offices (RWMPO) National Waste Management Plan for a Circular Economy 2024 – 2030 (RWMPO); and
- Connacht-Ulster Region Waste Management Plan 2015-2021.

Ireland's national waste policy is outlined in the document, "A Waste Action Plan for a Circular Economy – Ireland's National Waste Policy 2020–2025". The policy, published in September 2020, is intended to move Ireland toward a circular economy in which focus is shifted away from waste disposal, favouring circularity and sustainability by identifying and maximising the value of material through improved design, durability, repair and recycling.

10.5.2.3 Construction & Demolition Waste

Most of the waste generated from the proposed development works will be classified Construction and Demolition Waste (CDW). The Department of the Environment, Community and Local Government in 2006 defines CDW as waste which arises from construction, renovation and demolition activities, together with all waste categories mentioned in the European Waste Catalogue (EWC). Also included within the definition are surplus and damaged products and materials arising in the course of construction work or used temporarily during the course of on-site activities.

The Environmental Protection Agency (EPA) adopted a broad definition of CDW (in line with the opening part of the definition of CDW as set out in Article 1(4) of Commission Decision 2011/753/EU12) as all waste that arises from construction and demolition activities (including excavated soil from contaminated sites). These wastes are listed in the European Waste Catalogue (EWC), however the definitions in Ireland for CDW do not provide any clear distinction between waste originating from construction or demolition.

CDW waste is subject to a number of legislative requirements including the movement of waste, and management via authorised waste facilities. Subject to minor exceptions, Section 34 of the Waste Management Act requires all bodies involved in the collection of waste to have the movement and handling of waste authorised by under a waste collection permit. Aside from the legal obligation to be in possession of a permit, the holder has to abide by its conditions. For example, these may limit collection activities to certain types of waste or require the permit holders to use specified tiers of the Waste Hierarchy.

The details of the waste collection permit system are set down in the Waste Management (Collection Permit) Regulations S.I. No. 820 of 2007 27, S.I. No. 87 of 2008 28 and S.I. No. 197 of 201529.

In addition to the waste collection permit, waste must be managed through authorised Waste Facilities. The Waste Management Act contains a hierarchy of control systems, with the most stringent of these being licensed by the EPA. Local authorities are generally required for the regulation of non-disposal waste sites below specified thresholds (small scale and with a low degree of environmental significance). Because local authorities operate their own infrastructure, the EPA is mandated to oversee such activities.

Waste is managed and regulated by Industrial emissions licencing issued by the EPA; however, these regulations have limited impact on the treatment of CDW. In terms of managing CDW, authorised sites must have a relevant waste management licence issued by the EPA, which regulates the development, handling and operation of waste management sites, closure and aftercare of such sites. CDW facilities are managed in accordance with The Waste Management Act and the Waste Management (Licensing) Regulations 2004 which govern the process under which the licences are applied for and maintained.

An Asbestos Management Survey Appendix 10.2, in accordance with HSG264, was carried out on the building and structures proposed to be demolished to identify the presence of Asbestos Containing Materials.

10.5.3 Assessment Criteria & Significance

The significance category descriptions and significance criteria used in the assessment of the impacts of the proposed development arising from the generation of waste materials are set out in Table 10.2 and have been based on the IEMA (March 2020) Guide to Materials and Waste in Environmental Impact Assessment. For the purposes of the assessment, the receptor is the available capacity in the disposal tier on the waste hierarchy i.e. landfill, and incineration without energy recovery. The sensitivity of available capacity is therefore assessed by examining the current trends in landfill/ incineration without energy recovery

capacity and depletion according to the criteria outlined in Table 10.2. In the baseline description, the capacities of licensed facilities in the Connacht-Ulster Region have also been considered and set out in relation to excess soil and stone, as well as other materials arising; this has also informed the assessment.

The estimated amounts of waste arising from the proposed development during the construction and operational phases are then compared to assess their impact on available landfill and incinerator capacity. Infrastructure for the processing and recovery of materials and on-site reuse of materials are both recognised in the IEMA Guidelines as beneficial and contributors to the assessment of magnitude of effect where they can be used to divert materials away from landfill and incineration without energy recovery in favour of higher tier waste management options. The criteria for defining magnitude in this chapter are outlined in Table 10.3.

Table 10.2 Sensitivity of landfill / incinerator void capacity (IEMA, 2020)

Void Capacity Type	Description	Sensitivity
Inert & Non-Hazardous Waste		
Across demolition, construction and/or operation phases, the baseline/future baseline (i.e., without development) of regional* (or where justified, national) inert and non-hazardous void capacity is expected to:	Remain unchanged or is expected to increase through a committed change in capacity.	Negligible
	Reduce minimally: by <1% as a result of wastes forecast.	Low
	Reduce noticeably: by 1-5% as a result of wastes forecast.	Medium
	Reduce considerably: by 6-10% as a result of wastes forecast.	High
	Reduce very considerably (by >10%); end during construction or operation; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand.	Very High
Hazardous Waste		
Across the demolition, construction and/or operation phases, the baseline/future baseline (i.e., without	Remain unchanged or is expected to increase through a committed change in capacity.	Negligible

development) of regional* (or where justified, national) hazardous void capacity is expected to:	Reduce minimally: by <1% as a result of wastes forecast.	Low
	Reduce noticeably: by 1-5% as a result of wastes forecast.	Medium
	Reduce considerably: by 6-10% as a result of wastes forecast.	High
	Reduce very considerably (by >10%); end during construction or operation; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand.	Very High

*Regional is appraised for the purposes of the proposed development.

Table 10.3 Definition of Magnitude of Impact.

No Change	Negligible	Minor	Moderate	Major
Inert & Non-hazardous Waste				
Zero waste generation and disposal from development.	Waste generated by the development will reduce regional* landfill / incineration without energy recovery capacity by <1%.	Waste generated by the development will reduce regional* landfill / incineration without energy recovery capacity by 1-5%.	Waste generated by the development will reduce regional* landfill / incineration without energy recovery capacity by 6-10%.	Waste generated by the development will reduce regional* landfill /incineration without energy recovery capacity by >10%.
Hazardous Waste				
Zero waste generation and disposal from development.	Waste generated by the development will reduce national landfill / incineration without energy recovery	Waste generated by the development will reduce national landfill / incineration without energy recovery	Waste generated by the development will reduce national landfill / incineration without energy recovery	Waste generated by the development will reduce national landfill / incineration without energy recovery

	capacity by <0.1%.	capacity by <0.1-0.5%	capacity by <0.5-1%.	capacity by >1%.

* Regional is appraised for the purposes of this Proposed Scheme.

The significance of the effect on sensitive receptors is determined by correlating the magnitude of the impact and the sensitivity of the receptor, outlined in Table 10.4. Where a range of significance of effect is predicted, the final assessment for each impact is based upon expert judgement. The definitions for significance in Table 10.4 are as defined in the EPA Guidelines on the information to be contained in EIAR (2022), with 'moderate' and 'major' using the EPA definitions of 'significant' and 'very significant' respectively. For the purposes of this assessment, any effects with a significance level of slight or less have been concluded to be not significant in terms of the EIA Regulations:

- **Imperceptible** - An effect capable of measurement but without significant consequences;
- **Slight** - An effect which causes noticeable changes in the character of the environment without affecting its sensitivities;
- **Moderate** - An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends;
- **Major** - An effect which, by its character, magnitude, duration, or intensity significantly alters most of a sensitive aspect of the environment; and
- **Profound** - An effect which obliterates sensitive characteristics.

Table 10.4 Matrix for assessing Significance of Impact.

		Magnitude of Impact				
		No Change	**Negligible**	**Minor**	**Moderate**	**Major**
Sensitivity of Receptor	**Negligibl**	Imperceptible	Imperceptible	Imperceptible to Slight	Imperceptible to Slight	Slight
	Low	Imperceptible	Imperceptible to Slight	Imperceptible to Slight	Slight	Slight to Moderate
	Medium	Imperceptible	Imperceptible to Slight	Slight	Moderate	Moderate to Major
	High	Imperceptible	Slight	Slight to Moderate	Moderate to Major	Major to Profound
	Very High	Imperceptible	Slight	Moderate to Major	Major to Profound	Profound

10.5.4 Description of Existing Baseline Environment

Construction waste, including demolition and excavation waste, will be the main type of waste generated because of the proposed development. Construction waste will arise primarily during construction, but also during the operational maintenance phase. There will also be small quantities of municipal-type waste generated during construction (i.e. from site and office staff) and operation (i.e. associated with maintenance activities). Baseline data has been collected with a focus on these waste streams, at national and regional level including construction, demolition, and excavation waste arisings, as well as information on regional and national waste transfer and treatment and disposal facilities capacity.

10.5.4.1 Suitability Licensed Waste Facilities

Table 10.5 shows licenced waste facilities in the Connacht-Ulster Region that may be considered for the disposal of material and waste streams generated by the proposed scheme. There are over 35 licensed waste facilities within the region which can be used for the disposal and management of waste materials arising from the proposed development. These include integrated waste management, soil recovery, waste to energy, and landfill facilities. Detailed

information on each of these facilities can be found on the EPA and the National Waste Collection Permit Office (NWCPO) websites.

10.5.4.2 Construction and Demolition Waste

Construction and demolition waste (CDW) is typically composed mainly of soil and stone (representing the majority) but also concrete, brick, metals, mixed CDW etc. Some of this CDW material may be hazardous, such as bituminous mixtures arising from road surfacing works. Currently, the majority of CDW generated in Ireland is recycled, recovered, or reused. Where recycling, recovery or reuse is not feasible, it is disposed of at suitably licensed facilities.

The main route for soil and stone recovery is through backfilling, where soil and stone waste material is used for land improvement or other engineering purposes. This is typically processed through a licensed or permitted facility. Significant progress has been made in recent years in diverting soil and stone from becoming a waste arising, with excess soil and stone instead being diverted to reuse through Article 27 routes.

According to the National Waste Management Plan for a Circular Economy 2024 – 2030, the quantity of CDW generated and collected in Ireland increased to 9 million tonnes in 2021, an increase on previous years. Of this, 78% of CDW was recovered or reused versus the national target of 70% recovery.

In terms of regional management of waste, the proposed development is located within the administrative area of Monaghan County Council, which is part of the Connacht-Ulster Region (EMR). Regional waste management is guided by the Connacht-Ulster Region Waste Management Plan 2015-2021 which was published in 2015. A successor waste plan has not yet been issued; however, it will not materially change how waste management facilities are operated, albeit a successor plan may add additional target(s).

10.5.4.3 Hazardous Waste

According to the EPA hazardous waste statistics for Ireland, 389,908 tonnes of hazardous waste was generated in 2022, which represents a decrease of 16% (over 77,000 tonnes) from 2021. The quantity of hazardous waste generated by construction and demolition was 15%. The contribution depends on activity to redevelop brownfield sites and on dredging works (associated with Dublin Port), which decreased in 2022. Construction and demolition waste also included smaller amounts of asbestos, asphalt, and contaminated wood, concrete, bricks, metals, and tiles.

Typically, these wastes are treated off-site at hazardous waste treatment facilities in Ireland, or at facilities in other countries. While there has been an increase in the treatment of

hazardous waste in Ireland, the majority continues to be exported for treatment. Irish hazardous waste treatment facilities treated 142,961 tonnes of hazardous waste in 2022, representing 43% of the total hazardous waste generated within Ireland, with 57% of hazardous waste being exported for treatment.

10.5.4.4 Municipal and Other Wastes

The EPA authorise non-hazardous landfill facilities, which can accept municipal waste as well as C&D wastes, where permitted. These facilities can accept material for recovery or disposal if it is unsuitable for recovery. However, given the nature of the development proposals and scale of the development, it is unlikely that significant volumes of municipal waste or other waste streams will be generated.

10.5.4.5 Licenced Waste Facilities – Monaghan County Council

The following is a list of Facilities in County Monaghan that operate under a Waste Facility Permit or a Certificate of Authorisation:

Table 10.5 Waste Facility Permit holders in Monaghan County Council

WFP No.	Facility Name	Activity	Date Issued	Expiry Date	Duration
WFP-MN-12-0001-08	Enva Ireland Ltd	Plastic Recycling	30/03/2022	29/03/2027	5 years
WFP-MN-11-0009-09	Blue Dolphin Environmental Limited	Transfer Station	10/07/2024	09/07/2029	5 years
COR-MN-23-0001-01	Jim McBride	Soil and Stone	23/02/2023	24/02/2028	5 Years
WFP-MN-10-0004-05	Charlie Byrne	ELV / Scrap Metal	07/10/2020	06/10/2025	5 years
WFP-MN-11-0011-04	Eamon McKenna Scanbitz Limited	Waste Vehicles	17/01/2022	16/01/2027	5 years
WFP-MN-15-0002-03	Eugene Conlon Sragh Car Dismantlers	ELV / Scrap Metal	26/06/2020	25/06/2025	5 years
WFP-MN-19-0002-01	Finnegan Waste	Class 10	22/04/2024	22/04/2029	5 years

WFP No.	Facility Name	Activity	Date Issued	Expiry Date	Duration
	Recycling Limited				
COR-MN-20-0003-01	Gallinagh Poultry Farms Ltd	Soil & Stone, C&D	01/12/2020	30/11/2025	5 years
WFP-MN-17-0001-02	Global Textile Shipping Ltd	Textiles (Not open to public)	26/06/2022	25/06/2027	5 years
WFP-MN-20-0004-02	Starrus Eco Holdings Ltd t/a McElvaney Waste and Recycling	Civic Amenity Site and Transfer Station	08/09/2021	30/11/2025	5 years
WFP-MN-16-0002-03	John Treanor	Glass, Packaging, Scrap Metal	24/01/2022	23/01/2027	5 years
WFP-MN-10-0002-05	Ken Atkinson & Son Limited	ELV / Scrap Metal	09/03/2021	08/03/2026	5 years
WFP-MN-10-0001-03	McElvaney Motors Ltd – Truck Dismantlers Ireland	ELV / Scrap Metal	15/04/2020	15/04/2025	5 years
WFP-MN-21-0001-01	Patrick Kearney	Soil and Stone, C&D	15/04/2021	14/04/2026	5 years
COR-MN-15-0005-04	Patrick J McCabe PJ Piling Ltd	Soil and Stone	23/07/2020	22/07/2025	5 years
WFP-MN-11-0008-05	Barry Treanor Ltd t/a McQuaids Garage	ELV / Scrap Metal	26/10/2021	25/10/2026	5 years

WFP No.	Facility Name	Activity	Date Issued	Expiry Date	Duration
WFP-MN-15-0001-02	Rory McEleavy Border Breakers	ELV / Scrap Metal	10/06/2020	10/06/2025	5 years
WFP-MN-08-0022-09	Shabra Recycling Limited	Plastic Recycling	10/07/2023	09/07/2028	5 years
WFP-MN-11-0003-05	Ted Brennan Motors Limited	ELV / Scrap Metal	13/05/2021	07/11/2026	5 years
WFP-MN-11-0004-03	Terralift Ireland Limited	Compost	25/08/2021	24/08/2026	5 years
WFP-MN-16-0001-02	Tray Parts Ltd	ELV	09/12/2021	08/12/2026	5 years
WFP-MN-21-0003-01	Robowash Ltd	Plastic Shredding	28/07/2021	27/07/2026	5 years
WFP-MN-21-0004-01	Flamewood Limited T/A McCaughey Foods	Soil and Stone, C&D	21/09/2021	20/09/2026	5 years
COR-MN-21-0003-01	Raven Plant Ltd,	C&D	19/10/2021	18/10/2026	5 years
WFP-MN-21-0003-01	Richard Graham,	C&D	19/10/2021	18/10/2026	5 years
COR-MN-21-0005-01	Philip Connolly,	C&D and Soil and Stone	08/12/2021	07/12/2026	5 years
COR-MN-22-0001-01	S. Wilkin and Sons limited	C&D and Soil and Stone	27/01/2022	26/07/2027	5 Years
COR-MN-21-0003-01	Patrick Clarke,	C&D and Soil and Stone	27/02/2022	26/07/2027	5 Years
COR-MN-23-0002-01	Berwat Construction Ltd	C&D, Crushing	08/05/2023	07/05/2028	5 Years

WFP No.	Facility Name	Activity	Date Issued	Expiry Date	Duration
WFP-MN-23-0004-01	John O'Neill Sand and Gravel Ltd	C&D, Soil and Stone	09/01/2024	08/01/2029	5 Years
COR-MN-23-0003-01	Stephen Marron Truck and Trailer Services Ltd	Soil and Stone	16/10/2023	15/10/2028	5 Years
COR-MN-23-0004-01	Tadhg Daly Haulage Ltd	Soil and Stone	12/12/2023	11/12/2028	5 Years
COR-MN-24-0001-02	Barrack Hill Quarries Ltd	Soil and Stone, C&D	01/02/2024	31/01/2029	5 years
COR-MN-24-0003-01	Newrath Transport Limited	Soil and Stone	20/03/2024	19/03/2029	5 years
WFP-MN-24-0002-01	Daniel King	Soil and Stone, C&D	15/05/2024	15/05/2029	5 years

10.5.5 Proposed Development – Demolition & Construction Phase

It is envisaged that the bulk of the waste generated by the proposed development scheme will be in the form of Construction and Demolition Waste (CDW). However, other waste may be generated during the enabling, demolition and construction phases as described further below.

Minor quantities of general road waste (such as litter, fly tipped waste, tyre shreds etc.) and construction and demolition wastes will be generated during the operational and maintenance phase of the proposed development scheme. General road waste generated during the operational and maintenance phase of the proposed development will require off-site transfer for either reuse, recycling, recovery, or disposal.

10.5.5.1 Details of the Non-Hazardous Wastes to be Produced

The proposed development site is described in Chapter 4 of this EIAR document. To facilitate the construction of the development, enabling and demolition works are required to remove building structures, walls, and existing vegetation.

Site Clearance & Vegetation

Site clearance and enabling works will be required, to include the felling of trees and removal of vegetation from the working areas and development area. Vegetation clearance will be carried out in accordance with the mitigation provided for the protection of biodiversity listed in Chapter 9 – Biodiversity, and in accordance with the relevant biosecurity protocols and Invasive Species Management Plan Appendix 9.3. The exact volume of vegetation to be cleared is unknown, but it is estimated that ~400m^3 of vegetation could be cleared from the site. Some of the vegetation could be mulched for reuse onsite, with the remainder of the vegetation being transported off-site to a licensed facility for mulching / composting.

Based on the area of vegetation to be cleared, it is estimated that 4,355m^3 of bulk material will be cleared below ground, to include soils around root materials etc, and will comprise primarily of soil material with stone.

Demolition Waste

Volumes of demolition waste have been calculated by McAdam Design, and are estimated to be approximately 1,635m^3 of demolition waste, derived primarily from the demolition of building structures and stone / brick wall structures. It is considered that most of this CDW will comprise of stone, brick, concrete, metals and mixed CDW. Any asbestos materials encountered will be segregated and stored in accordance with best practice for onward management (TII, 2017, and HSA & EPA, 2017). Other hazardous materials encountered from demolition works will also be segregated and stored in accordance with best practice for onward management, typically by recycling or recovery with very small volumes anticipated.

Construction & Cut / Fill Waste

An estimated 5,941m^3 of cut volume will be required as part of the construction phase, and a fill volume of 464m^3 will be required, leaving a cut / fill balance of 5,477m^3 of materials. Most of this material will comprise of soil / stone, which will be reused on site as backfill, wherever possible. However, it is envisaged that the majority of this material will require removal offsite.

Soil and stone material that is excavated, but which is not suitable for reuse on site, or is surplus to requirements, will be stockpiled, tested, and classified. Where feasible, classification for reuse on other construction site(s), as a by-product under Article 27, will be considered. Otherwise, those suitable for reuse will be transported to a soil recovery facility. Where the material is not suitable for reuse it will be categorised in accordance with the EPA “Waste Classification: List of Waste and Determining if Waste is Hazardous or Non-hazardous”. Waste will only be transferred from site by a waste collection permit holder and delivered to an authorised waste facility i.e., a facility which holds a Certificate of Registration, Waste Facility Permit or Waste Licence, for the specific waste types it receives.

The development proposals will require the removal of road surface material, to include asphalt / bitmac. Based on the areas of works within the road carriageway, parking areas and footpaths, it is estimated that approximately 1,250m^3 of asphalt / bitmac will be removed from site. In addition, it is estimated that approximately 45tons of roadside kerbing will also be removed off-site.

General Construction Site Waste

It is expected that wastes generated (other than excavated material and trees/shrubbery) from other construction activities will be negligible and will generally comprise of waste generated from construction workers. These wastes would generally be organic/food waste, dry mixed recyclables (wastepaper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided at the site compound during the construction phase. Waste printer/toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices. The contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

10.5.5.2 Potentially Hazardous Wastes to be Produced

Contaminated Soil & Material

Excavation works will be carefully monitored by a suitably qualified person in order to ensure that any potentially contaminated soil is identified and segregated from clean/inert soil. Any potentially contaminated soils will be tested and classified as hazardous or non-hazardous in accordance with the EPA Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous publication, HazWasteOnline tool or similar approved method. The material will then need to be classified as inert, non-hazardous, stable non-reactive hazardous or hazardous in accordance with EC Decision 2003/33/EC 14. It should then be removed from site by a suitably permitted waste contractor and taken to an authorised waste facility for onward treatment or disposal.

Contaminated materials or potentially hazardous wastes include any asbestos materials encountered during the demolition process or groundworks, asphalt / bitmac or road surfacing materials removed as part of the construction and ground clearance works, and other potentially hazardous or contaminated materials encountered during excavation of ground along lands to the rear of Dublin Street. All potentially hazardous materials will be segregated and stored in accordance with best practice for onward management (TII, 2017, and HSA & EPA, 2017), although it is anticipated that these materials will be minimal.

During the construction phase, small volumes of sediment will be collected in the on-site wheel washes, oil/petrol interceptors and any grit separators and silt bags installed at the site. The quantities of waste generated here are expected to be very small, with all silt being exported offsite for onward treatment at an appropriate waste management facility.

Invasive Species

A number of invasive alien species (IAS's) were identified within the site area, to include Japanese Knotweed and Himalayan Honeysuckle, Buddleia, Wall Cotoneaster, Cherry Laurel and Sycamore. Japanese Knotweed is controlled under the 3rd Schedule Part 1 of Statutory Instrument S.I.447/2011, and as such the spread of Japanese Knotweed most be prevented. Removal of Japanese Knotweed material and associated contaminated soils must be carried out under licence, and disposal of materials must be transported by a licenced waste carrier to a registered licenced landfill for deep burial.

An Invasive Species Management Plan appendix 9.3 has been developed for the site and outlines the biosecurity protocol for eradicating or removing IAS's from within the site area.

10.5.5.3 Proposed Development – Demolition & Construction Phase

Minor quantities of general road waste (such as litter, fly tipped waste, tyre shreds etc.) and construction and demolition wastes will be generated during the operational and maintenance phase of the proposed development scheme. General road waste generated during the operational and maintenance phase of the proposed development will require off-site transfer for either reuse, recycling, recovery, or disposal.

10.5.6 Impact Assessment for Waste

Each phase of works and the potential waste materials arising from these phases has been considered in terms of the impact on regional landfill, waste management facilities or incineration facilities without energy recovery capacity.

10.5.6.1 Site Clearance & Vegetation

The capacity of the waste facilities available for acceptance of the vegetation far exceeds the projected arisings; minimum volumes of organic material will be consigned to landfill or incineration without energy recovery and as a result, regional landfill and incineration without energy recovery capacity will not be affected. The receptors potentially impacted by the clearing process and eventual disposal are deemed to be of low importance and rarity at a local scale. The sensitivity of the receptors has been classed as no change.

Much of the vegetation removed during site clearance will be mulched for reuse on site or for transport off-site to a licensed composting facility. As the organic waste will be either reused

or recycled, and none will be consigned to incineration without energy recovery or landfill, then the proposed development is not expected to reduce the regional landfill capacity in terms of organic waste. Therefore, the magnitude of this impact is therefore deemed as negligible, and the overall significance of impact is considered to be **imperceptible**.

10.5.6.2 Demolition & Enabling Works

When considered against the void capacity of licenced waste facilities for CDW, the estimated volume of building demolition waste generated during this phase is anticipated to have no impact on the relevant waste facilities. Therefore, the receptors potentially impacted by the generation and eventual disposal of building demolition waste are deemed to be of negligible importance and rarity. As such, the sensitivity of the receptor has been classed as negligible for non-hazardous materials, and negligible for hazardous materials.

Building demolition waste will include a combination of bricks, concrete, tiles, glass, plaster, plasterboard, and wood. The non-hazardous inert waste will be segregated for recycling or recovery purposes with none proposed for management by landfill or incineration without energy recovery. The magnitude of the impact of these streams on regional landfill and incineration without energy recovery capacity is zero and is therefore deemed to be negligible.

Any asbestos materials encountered will be segregated and stored in accordance with best practice for onward management, and exported from Ireland for disposal, as there are no landfills within Ireland which deal with this waste stream. As the destination will be outside of Ireland, the magnitude of the impact of this stream on regional landfills and incineration without energy recovery capacity is zero, i.e. classed as negligible.

Other hazardous materials encountered from demolition works, if any, will be segregated and stored in accordance with best practice for onward management. These waste streams will typically be managed by recycling or recovery with very small volumes, if any, requiring landfill or incineration without energy recovery. The impact of this stream on regional landfill and incineration without energy recovery capacity would comprise <1% reduction in capacity and the magnitude of impact is therefore deemed to be negligible.

The significance of effects resulting from the building demolition works are therefore determined to be **imperceptible**.

10.5.6.3 Construction Works & Excavation

It is anticipated that some of the excess material arising from the proposed development during the construction phase, which includes soil and stone materials, will be used for making up ground wherever practically possible. However, the excess materials which cannot be reused onsite will be transferred to a licenced waste facility for onward treatment and reuse

under Article 27, therefore it is expected that the capacity of landfill will remain unchanged. It is anticipated that only a very small volume of contaminated soil and stone (if any) would require landfill disposal. Therefore, the magnitude of the impact from soil and stone materials excavated from the site is deemed to be negligible.

During the construction phase, small volumes of sediment will be collected in the on-site wheel washes, oil/petrol interceptors and any grit separators and silt bags installed at the site. The quantities of waste generated here are expected to be very small with the likelihood that the regional landfill and incineration without energy recovery capacity will reduce minimally and less than 0.1%. Therefore, the magnitude of the impact is determined to be Negligible.

In terms of general construction waste (such as individual waste from workers etc), the receptors potentially impacted by the generation and eventual disposal of typical construction waste are deemed to be of negligible sensitivity. Due to the quantities of waste predicted, the opportunities for beneficial reuse and recycling and comparatively large waste facility capacity, the sensitivity of the regional landfill and incineration without energy recovery capacity is expected to reduce minimally by <1% because of wastes forecast. As such, the sensitivity of these receptors has been classed as low, and the magnitude of change is considered to be negligible.

On the basis of the above information, the overall significance of effect resulting from the construction phase is therefore considered to be **imperceptible**.

10.5.6.4 Operational Phase

It is anticipated that general road waste, and any construction and demolition waste resulting from maintenance of the site, will be minor in terms of quantity. Waste arising in the public realm during the operational and maintenance phase relates primarily to litter, which is currently managed by Monaghan County Council. Quantities of litter are anticipated to be minimal and will continue to require collection and off-site transfer for appropriate management, either reuse, recycling, recovery, or disposal.

It is anticipated that quantities of waste likely to be generated during the operational phase of the proposed development are not significant in a way that would impact on the available and expected waste management capacities in the Connacht-Ulster Region (i.e. regionally). The waste facilities that will accept the operational and maintenance wastes of the proposed development scheme are considered to be low sensitivity, as the future baseline of non-hazardous landfill and incineration without energy recovery capacity is expected to be reduced by <1%. The magnitude of change is considered to be negligible, and the overall significance of effect resulting from the operational phase is therefore considered to be **imperceptible**.

10.5.7 Cumulative Impact

It is noted that there are approved or planned projects in the ZoI which will result in waste materials arising from these other developments. However, there is capacity in the resource and waste management system based on the baseline review of facilities as outlined in in this Chapter. As the proposed development itself is not having a significant effect in terms of materials and wastes arising, it is therefore considered that there will be no significant negative cumulative effects arising from the proposed development in cumulation with other projects.

10.5.8 Mitigation Measures

10.5.8.1 Construction Phase

A Waste Management Plan (WMP) will be prepared by the appointed Contractor to deliver the mitigation presented within this EIAR. The WMP will be prepared in accordance with the Best Practice Guidelines for the Preparation of Resources & Waste Management Plans for Construction and Demolition Projects (EPA, 2021).

The WMP will, as a minimum address the following aspects of the Proposed Scheme:

- Analysis of the waste arising/material surpluses;
- Methods proposed for the prevention, reuse, and recycling of wastes;
- Material handling procedures;
- Proposals for disposal of waste at appropriately licensed facilities only; and
- Proposals for education and a workforce and plan dissemination programme.

A Waste Manager will be nominated who will have overall responsibility for the implementation of all waste processes. In conjunction with this, a clear responsibility structure will be introduced for the construction staff/contractor to ensure issues encountered are raised at an appropriate level and acted upon. This is essential in ensuring that all waste is properly dealt with. The contractor will be obliged to implement and maintain the measures and actions contained within in the EIAR during the construction phase. Measures to be implemented on site will include:

- Source Segregation: Source separating wastes into dry mixed recyclables, biodegradable, and residual wastes. Clear labelling of waste bins, containers, skip containers and storage areas, including waste stream colour coding and photographs as appropriate;
- Waste Auditing: Good record keeping being conducted by the contractor including quantities (tonnes) and type of waste and materials leaving the site. The name, address and authorisation details of all facilities and locations to which waste and

materials are delivered will be recorded along with the quantity of waste in tonnes delivered to each facility. Records will show material, which is recovered, and which is disposed;

- Appropriate Storage: Waste fuels/oils will be generated from equipment used on-site during construction and will be classified as hazardous waste. Paints, sealants, and hazardous chemicals etc. will be stored in secure, bunded locations. All hazardous waste will be separately stored and labelled, in appropriate lockable containers, prior to removal from site by an appropriately permitted waste collection service provider; and
- Efficient Removal: Waste generated on site will be removed as soon as practicable following generation for delivery to an authorised waste facility.

Any waste which cannot be reused onsite and arising from the demolition or construction phase of the proposed development will be transferred to an appropriate facility in accordance with the current national waste policy. This is necessary so that all waste is disposed of to the best possible facility type to adhere to the circular economy and resource opportunity strategies. If unforeseen waste or hazardous material is encountered during the proposed development, then the appropriate authorities will be notified, and the material will be transferred at an appropriate waste facility.

There is a possibility that unforeseen or hazardous material is encountered during excavation works, therefore staff will be trained in how to identify contamination and how to manage it if encountered. Identification will include visual checks for unusual discolouration, oil sheens, anthropogenic materials, and checks for olfactory clues such as hydrocarbon or other odours. Suspect contaminated material will be sampled and appropriately analysed at a laboratory. Records will be kept on the quantity nature/type and quality of all waste leaving the site.

By-product notifications (under Article 27 of the EC Waste Directive Regulations 2011) provide an opportunity for reuse of surplus clean soil and stone material arising from construction activity. At the time of construction, options for Article 27 by-product status or similar will be reviewed by Monaghan County Council and the appointed contractor, subject to waste management and planning requirements being fully met. Such opportunities offer potential to further reduce indirect effects of waste management resulting from the transport of materials from site, notably traffic, noise, and air emissions from transport-related haulage.

Exported materials, particularly soils, will be carefully managed to restrict the spread of invasive alien plant species (IAP’s), as outlined in the INNS Management Plan Appendix 9.3 and oCEMP. Appendix 4.2

10.5.8.2 Operational Phase

The waste hierarchy principles will be fully implemented throughout the operational and maintenance phase in order to ensure that the circular economy approach is supported. Prevention, preparing for reuse, recycling and recovery will be enforced with appropriate waste management facilities chosen to accept disposed waste. Monaghan County Council will provide litter bin and waste collection, incorporating the Connacht Ulster Waste Management Plan recycling strategy. The Council will continue to encourage the responsible management of waste, including minimisation and recycling, at the point of generation throughout the new public realm and amenity areas. This will include the disposal of wastes at licenced facilities.

The drainage design for the proposed development includes petrol/oil interceptors and grit separators. Given the sensitive nature of the receiving environment, any sediments or vegetated material requiring disposal during maintenance will be considered contaminated unless testing of material is available to prove otherwise. All dredged or captured sediments within the drainage system will be disposed of accordingly in an appropriately licensed facility.

Any waste arising from the operational and maintenance phases of the proposed development will be transferred to an appropriate facility and in accordance with the current national waste policy at the time.

Records will be kept on the quantity, nature/type and quality of all waste leaving the site.

10.5.9 Monitoring

10.5.9.1 Construction Phase

The quantities and type of waste streams generated during the construction and demolition phases of the proposed development will be recorded in order to allow for continuous analysis and review of procedures that will be made to reduce waste to landfill. The oCEMP Appendix 4.2 will set out measures and procedures to monitor waste flows on site and update records.

The appointed contractor will be required to employ a Waste Manager throughout the construction and demolition stages of the proposed development. The Waste Manager will be trained in how to set up and maintain a record keeping system, how to perform, audit and how to establish targets for waste management on site. They will also be trained in the best method for segregation and storage of recyclable materials, have information on the materials that can be reused on-site and implement the oCEMP.

Training of staff on site will be coordinated by the Waste Manager and as such, a waste training programme will be organised. A basic awareness course will be held for all contractor site personnel to outline the oCEMP and to detail the segregation of waste at source. This may be

incorporated with other training needs (e.g. general site induction, safety training etc.). This basic course will describe the materials to be segregated, the storage methods and the location of waste storage areas. A subsection on hazardous wastes will be incorporated if required and the particular dangers of each hazardous waste will be explained.

Records will be kept for each waste material which leaves the site, whether for reuse on another site, recovery, recycling or disposal, and will include the following:

- Volume and type of waste exported offsite for reuse
- Volume and type of waste exported offsite for recovery
- Volume and type of waste exported offsite for recycling
- Volume and type of waste exported offsite for disposal
- All excavation and disposal locations

A signed waste collection docket will be retained by the Waste Manager from the licensed waste contractor for waste taken off-site. Each material type will be examined in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how waste can be minimised, and a waste audit should be carried out by the Waste Manager at the site during the construction and demolition phases of the proposed development.

Upon completion of the construction and demolition phases, a report will be prepared summarising the volumes and types of waste streams exported from site, and a summary review completed for the waste management processes which were adopted during the process. The audit should provide the total volumes of recycling / reuse / recovery figures for the proposed development.

10.5.9.2 Operational Phase

Monitoring will be undertaken and recorded by Monaghan County Council during the operational and maintenance phase, with records retained in relation to the volume, type and nature of waste materials removed from site, along with details of waste facilities used.

11 Air Quality, Emissions & Climate

11.1 Introduction

This Chapter of the Environmental Impact Assessment Report (EIAR) assesses the potential impact of the proposed development on local air quality and climate during the Construction and Operational Phases of the development. The assessment takes into consideration the existing air quality environs, and assesses future impacts following the development, both in terms of the likely direct and indirect effects within the Project Area and wider study area.

This Chapter should be read in conjunction with the following Chapters and supporting appendices:

- Chapter 4 – Proposed Site Description
- Appendix 10.1 – Traffic Assessment
- Chapter 8 - Hydrology
- Chapter 9 – Biodiversity
- Chapter 10 – Material Assets, Land Use and Waste
- Chapter 12 – Population & Human Health

The proposed development has the potential to impact upon local air quality during the demolition and construction phases of the development as a result of fugitive dust emissions and soiling potential, and also in terms of impacts on human health and local ecology. As such, this assessment considers the impacts on local receptors in the absence of mitigation, and also provides detailed mitigation measures which can be implemented during the construction and demolition phases, and which will form part of the oCEMP (Appendix 4.2) in order to negate the effects of air quality during these phases.

In terms of the operational phase of the development, the introduction of an additional road traffic source associated with Russell Row and the car parking areas have the potential to impact upon local air quality, particularly as a result of increased particulate matter PM_{10} and Nitrogen Dioxide (NO_2) emissions within the vicinity of the development. As such, by means of Air Dispersion Modelling techniques, this Chapter provides a quantitative assessment of potential air quality impacts which may arise as a result of the development.

Air quality has also been assessed in cumulation with other committed or proposed developments and projects, and appropriate mitigation measures have been developed as necessary in order to negate the cumulative impacts on air quality standards.

11.1.1 Statement of Authority

This Air Quality and Climate Impact Assessment Chapter was prepared by Layde Consulting, specialists in air dispersion modelling of road traffic and construction traffic sources. The lead consultant for the study was John Laverty BSc (Hons) MIEnvSc, having 20 years of experience in carrying out air quality impact assessments and air dispersion modelling for road traffic sources, rail networks, quarry and mineral sites, and large-scale developments with industrial emission sources.

11.1.2 Scope of Assessment

The scope of this EIA Chapter is to assess the impacts of air quality and climate in terms of the following elements:

- **Air Quality**: to assess air quality in terms of particulate matter (PM_{10}) and Nitrogen dioxide (NO_2) emissions associated with the introduction of a new road traffic source, and in cumulation with other road traffic sources, both committed and future proposed
- **Dust**: this Chapter assesses the potential for impacts to arise as a result of fugitive dust emission occurring during the construction and demolition phases of the development, and provides appropriate mitigation measures which are aimed at negating any impacts that may arise as a result of these activities
- **Climate & Greenhouse Gas Emissions**: a qualitative climate assessment was carried out for the demolition and construction phases of the development in order to identify sources of Greenhouse Gas (GHG) emissions which are likely to be generated during the construction and demolition phases of the development.

11.1.3 Definition of Project Area

The Project Area incorporates the local air quality environs and the potential for the development proposals to impact upon these. As such, the Project Area is predominantly constrained to the development area and lands within close proximity to the site, i.e. lands along Dublin Street North, The Diamond and Roosky areas, and lands adjacent to Old Cross Square.

In terms of climate, the Project Area incorporates the immediate Monaghan County Council area, and Ireland at a national level for the wider context.

Regarding dust deposition during the construction and demolition phases of the development, the Institute of Air Quality Management (2024) states that a dust assessment is typically required where there is:

- A human receptor within:
    - 250 metres of the boundary of the site; or
    - 50 metres of the route(s) used by construction vehicles on the public highway, up to 250 metres from the site entrance(s).
- An ecological receptor within:
    - 50 metres of the boundary of the site; or
    - 50 metres of the route(s) used by construction vehicles on the public highway, up to 250 metres from the site entrance(s).

On this basis, receptors along Dublin Street North and properties around The Diamond, Roosky Vale, and Commercial and residential properties within close proximity to Old Cross Square have been taken into consideration as part of the Study Area for the effects of dust deposition.

11.1.4 Consultations

Consultations were carried out with Monaghan County Council Environmental Health Department in order to obtain any records for air quality monitoring carried out by the Council, such as diffusion tube monitoring results for NO_2, or Particulate Matter concentrations. The consultation response indicated that no monitoring is carried out directly by Monaghan County Council.

11.1.4.1 Scoping Response

Following the submission of an initial scoping assessment, An Bord Pleanála provided an Scoping Response Appendix 5.1 which highlighted a series of consultee responses that included points in relation to the assessment of air quality impact. A summary of the comments outlined within the Inspectors Report in relation to air quality and climate impacts is presented below:

"Regarding impacts on air, it is considered that this will be potentially relevant during the demolition and construction phases and the operational phase of the proposed development. The EIAR should therefore provide appropriate and up-to-date baseline data and describe any mitigation measures deemed necessary to minimise adverse impacts on air quality in the vicinity of the site and to mitigate dust and airborne pollution.

Impacts on climate and greenhouse gas emissions, it is considered that this will be relevant during the construction and operational phase of development (i.e. though the creation of new vehicular route). The EIAR should therefore provide appropriate and

up-to-date baseline data and describe any mitigation measures deemed necessary to minimise greenhouse gas emissions."

On this basis the assessment takes into consideration the most recently published available baseline air quality data for the site and Project Area and assesses the impacts of future road traffic sources created by the development on local air quality and provides a qualitative assessment on climate and greenhouse gas emissions.

11.1.5 Limitations & Exclusions

The risk of odour impacts on local residential receptors have been screened out of this assessment, given that there are no significant odour generating sources being proposed under the develop. As such, no further odour mitigation measures are required, and no further consideration of odour impact is necessary within this Chapter.

The development proposals have already been assessed in terms of climate change and flood risk within Chapter 8 of this EIAR, therefore the effects of flood risk in response to climate change does not require any further consideration within this chapter.

Layde Consulting are unaware of other limitations which may affect the outcome of this Chapter, or the effectiveness of the mitigation measures contained therein.

11.2 Methodology & Legislation

11.2.1 Air Quality Standards & Legislation

The Governments policy on air quality within Ireland is set out in the Air Quality Standards (AQS) Regulations 2011

In order to protect public health, vegetation and ecosystems, a series of EU directives have stipulated relevant air quality standards in Ireland and other member states for a range of pollutants, and outline the requirements for monitoring, assessing and managing ambient air quality. The European Commission set down the principles to this approach in 1996 with its Air Quality Framework Directive, incorporated into four "daughter" directives which outline limits for the following specific pollutants:

- 1st daughter directive: Sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead;
- 2nd Daughter Directive: Carbon monoxide and benzene;
- 3rd Daughter Directive: Oxone;
- 4th Daughter Directive: Polyaromatic hydrocarbons, arsenic, nickel, cadmium and mercury in ambient air

The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) was published in May 2008 and replaces the Framework Directive and the first, second and third Daughter Directives. The fourth Daughter Directive (2004/107/EC) has not yet been included within the CAFE Directive.

The CAFE Directive was transposed into Irish legislation by the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) and replaces the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), the Ozone in Ambient Air Regulations 2004 (S.I. No. 53 of 2004) and the EPA Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999 (S.I. No. 33 of 1999).

The fourth Daughter Directive was transposed into Irish legislation by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 (S.I. No. 58 of 2009).

The AQS sets out a framework for reducing hazards to health from air pollution and ensuring that international commitments are met in Ireland. The AQS provide a series of objectives for a range of priority pollutants based on maximum concentrations not to be exceeded, either without exception, or with a limited number of exceedances within a specific timescale. Under the AQS and CAFE Directive, the following pollutants objectives have been set, as summarised in Table 11.1 below.

Table 11.1 Summary of Air Quality Standards for relevant pollutants

Pollutant	Limit Value Objective	Averaging Period	Limit Value, ug/m^3	Limit Value, ppb	Basis of Application of the Limit Value	Limit Value Attainment Date
SO_2	Protection of Human Health	1 hour	350	132	Not to be exceeded more than 24 times in a calendar year	1 Jan 2005
SO_2	Protection of Human Health	24 hours	125	47	Not to be exceeded more than 3 times in a calendar year	1 Jan 2005
SO_2	Protection of vegetation	Calendar year	20	7.5	Annual mean	19 Jul 2001
SO_2	Protection of vegetation	1 October to 31 March	20	7.5	Winter mean	19 July 2001
NO_2	Protection of Human Health	1 hour	200	105	Not to be exceeded more than 18 times in a calendar year	1 Jan 2010
NO_2	Protection of Human Health	Calendar year	40	21	Annual mean	1 Jan 2010
NO+ NO_2	Protection of ecosystems	Calendar year	30	16	Annual mean	19 July 2001
PM10	Protection of Human Health	24 hours	50		Not to be exceeded more than 35 times in a calendar year	1 Jan 2005

Pollutant	Limit Value Objective	Averaging Period	Limit Value, ug/m^3	Limit Value, ppb	Basis of Application of the Limit Value	Limit Value Attainment Date
PM10	Protection of Human Health	Calendar year	40		Annual mean	1 Jan 2005
PM2.5 – Stage 1	Protection of Human Health	Calendar year	25		Annual mean	1 Jan 2015
PM2.5 – Stage 2	Protection of Human Health	Calendar year	20		Annual mean	1 Jan 2015
Lead	Protection of Human Health	Calendar year	0.5		Annual mean	1 Jan 2005
Carbon Monoxide	Protection of Human Health	8 hours	10,000	8620	Not to be exceeded	1 Jan 2005
Benzene	Protection of Human Health	Calendar year	5	1.5	Annual mean	1 Jan 2010

11.2.2 National Air Emissions Targets

Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC (hereafter referred to as the National Emissions Reduction Directive) was published in December 2016.

The National Emissions Reduction Directive applied the limits set out in Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants (hereafter referred to as the 2010 National Emission Ceiling Directive) until 2020 and establish new national emission reduction commitments which are applicable from 2020 and 2030 for SO_2, NO_X, non-methane volatile organic compounds (NMVOC), ammonia (NH_3), $PM_{2.5}$ and methane (CH4).

In relation to Ireland, the 2020 to 2029 emission targets are 25kt (kilotonnes) for SO_2 (65% on 2005 levels), 65kt for NO_X (49% reduction on 2005 levels), 43kt for NMVOCs (25% reduction on 2005 levels), 108kt for NH_3 (1% reduction on 2005 levels) and 10kt for $PM_{2.5}$ (18% reduction on 2005 levels) as shown in Table 11.2. In relation to 2030, Ireland's emission targets are 85% below 2005 levels for SO_2, 69% reduction for NO_x, 32% reduction for VOCs, 5% reduction for NH_3 and 41% reduction for $PM_{2.5}$, also shown in Table 11.2.

Table 11.2 National Air Emission Targets (2020 to 2030)

Pollutant	2020 – 2029 Reduction Commitments (kt) (and % Reduction compared to 2005 levels)	2030 Reduction Commitments (kt) (and % Reduction compared to 2005 levels)
SO_2	25.6	11.0
	-65%	-85%
NOx	66.8	40.6
	-49%	-69%
NMVOC	56.3	51.1
	-25%	-32%
NH_3	112.1	107.5
	-1%	-5%
$PM_{2.5}$	15.6	11.2
	-18%	-41%

The WHO Global Air Quality Guidelines (WHO 2021) values relating to NO_2, PM_{10} and $PM_{2.5}$ are shown in Table 11.3 below. The WHO Air Quality Guideline values are more stringent than the European Union (EU) statutory limit values for NO_2, PM_{10} and $PM_{2.5}$.

In April 2023, the Government of Ireland published the new National Clean Air Strategy, a strategic policy framework to reduce air pollution. The strategy commits Ireland to achieving the 2021 WHO Air Quality Guidelines Interim Target IT3 by 2026, IT4 targets by 2030 and the final targets by 2040 (as indicated in Table 11.3). it is intended that Ireland will revise air quality legislation in line with the proposed EU revisions to the CAFE Directive, which will set interim 2030 air quality standards and align the EU more closely with the WHO targets.

Table 11.3 WHO Air Quality Guideline Levels (WHO 2021)

Pollutant	Averaging Time	Interim Targets (ug/m^3)				Final Target (ug/m^3)
		IT1	IT2	IT3	IT4	
NO_2	24hr	120	50	-	-	25
	Annual	40	30	20	-	10
PM_{10}	24hr	150	100	75	50	45
	Annual	70	50	30	20	15
$PM_{2.5}$	24hr	75	50	37.5	25	15
	Annual	35	25	15	10	5

11.2.3 Dust

With regards to larger dust particles that can give rise to nuisance dust, there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the Construction Phase of a development in Ireland.

The Verein Deutscher Ingenieure (VDI) German Technical Instructions on Air Quality Control – TA Luft standard for dust deposition (VDI 2002) (non-hazardous dust) sets a maximum permissible emission level for dust deposition of 350mg/m^2/day, averaged over a one-year period at any receptors outside the site boundary. Recommendations from the Department of the Environment, Health and Local Government (DEHLG) Quarries and Ancillary Activities: Guidelines for Planning Authorities (DEHLG 2004) apply the Bergerhoff limit of **350mg/m^2/day** measured over monitoring periods of between 28 to 32 days (i.e. 30-day exposure +/-2 days) which are then averaged over a one-year period to the site boundary of quarries. In the absence of specific guidance limits for controlling dust deposition at construction sites, then this guidance value has been adopted when assessing impacts of dust generated by the construction and demolition phases of the proposed development scheme.

In terms of the effects of dust on ecological receptors, UK DMRB (Design Manual for Roads and Bridges) LA 105 Air Quality (vertical barriers) document suggests that only dust deposition levels above **1,000mg/m^2/day** are likely to affect sensitive ecological receptors. This level of dust deposition is approximately five times greater than the level at which most dust deposition concentrations start to cause perceptible nuisance to humans. The Interim Advice Note states that most species appear to be unaffected until dust deposition rates are at levels considerably higher than this.

11.2.4 Guidance Documentation

In addition to the AQS outlined within the preceding section, the following guidance documents were taken into consideration during the preparation of this Chapter:

- Institute of Air Quality Management (IAQM) Guidance on the assessment of dust from demolition and construction (IAQM, 2024);
- Institute of Air Quality Management (IAQM) A guide to the assessment of air quality impacts on designated nature conservation sites (IAQM, 2020);
- Institute of Air Quality Management (IAQM) Guidance on Monitoring in the Vicinity of Demolition and Construction Sites" (2018);
- Design Manual for Roads and Bridges (DMRB): LA 105 Air Quality (2024);
- The European Commission Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (2017);
- The EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) (2022);
- The DHPLG published the revised Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018);
- Transport Infrastructure Ireland Air Quality Assessment of Proposed National Roads – Standard (TII 2022);
- Institute of Air Quality Management, "Land-Use Planning & Development Control: Planning for Air Quality (IAQM, 2017);
- Guidelines for Assessment of Ecological Impacts of National Roads Schemes (TII 2009);
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (European Commission 2013);
- United Kingdom (UK) Department of Environment Food and Rural Affairs (DEFRA) Part IV of the Environment Act 1995: Local Air Quality Management Policy Guidance (PG22) (hereafter referred to as LAQM (PG22)) (DEFRA 2022a);
- Part IV of the Environment Act 1995: Local Air Quality Management Technical Guidance (TG22) (hereafter referred to as LAQM (TG22)) (DEFRA 2022b); and
- WHO Global Air Quality Guidelines: Particulate Matter (PM2.5 and PM10), Ozone, Nitrogen Dioxide, Sulfur Dioxide and Carbon Monoxide (WHO 2021).

11.3 Assessment Criteria – Dust Deposition

The magnitude of impact from dust deposition and emissions can be classified as small, medium or large, and should be assessed for the following elements, based on the development proposals:

1) Demolition phase;
2) Earthworks and construction – it is noted that there are no buildings being proposed, however the potential for dust emissions to occur during the construction phase for road surfacing etc has been assessed using the same principles and criteria as earthworks;
3) Trackout – this involves the use of HGVs and haulage routes for export and import of materials during all phases of the development.

11.3.1 Phases

11.3.1.1 Demolition

The dust emission magnitude from demolition can be classified as small, medium or large based on the definitions from the IAQM Guidance (IAQM, 2024) as summarised below:

- **Large**: Total building volume > 75,000m^3, potentially dusty construction material (e.g., concrete), on-site crushing and screening, demolition activities > 12m above ground level;
- **Medium**: Total building volume 12,000m^3 to 75,000m^3, potentially dusty construction material, demolition activities 6m to 12m above ground level; and
- **Small**: Total building volume < 12,000m^3, construction material with low potential for dust release (e.g., metal cladding or timber), demolition activities < 6m above ground, demolition during wetter months.

11.3.1.2 Earthworks

Earthworks will primarily involve excavating material, haulage, tipping and stockpiling activities. Activities such as levelling and landscaping works are also considered under this category. The dust emission magnitude from earthworks can be classified as small, medium or large based on the definitions from the IAQM guidance as summarised below:

- **Large**: Total site area > 110,000 m^2, potentially dusty soil type (e.g., clay which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds > 6 m in height;

- **Medium**: Total site area 18,000 m^2 – 110,000 m^2, moderately dusty soil type (e.g., silt), 5 – 10 heavy earth moving vehicles active at any one time, formation of bunds 3 – 6 m in height; and
- **Small**: Total site area < 18,000 m^2, soil type with large grain size (e.g., sand), < 5 heavy earth moving vehicles active at any one time, formation of bunds < 3 m in height.

11.3.1.3 Construction

Although no buildings are being proposed under the development, construction works will comprise of the importing of surfacing and finishing materials, such as aggregates, concrete and road surfacing materials. The dust emission magnitude from earthworks can be classified as small, medium or large based on the definitions from the IAQM guidance as summarised below:

- **Large**: Total building volume >75,000m^3, onsite concrete batching, sandblasting;
- **Medium**: Total building volume 12,000m^3, potentially dusty construction material (e.g. concrete), onsite concrete batching; and
- **Small**: Total building volume <12,000m^3, construction material with low potential for dust release (e.g. metal cladding or timber).

11.3.1.4 Trackout

Factors which determine the dust emission magnitude are vehicle size, vehicle speed, number of vehicles, road surface material and duration of movement. Dust emission magnitude from trackout can be classified as small, medium or large based on the definitions from the IAQM guidance as summarised below:

- **Large**: > 50 HDV (> 3.5 t) outward movements in any one day, potentially dusty surface material (e.g., high clay content), unpaved road length > 100m;
- **Medium**: 20 - 50 HDV (> 3.5 t) outward movements in any one day, moderately dusty surface material (e.g., high clay content), unpaved road length 50 - 100m; and
- **Small**: < 20 HDV (> 3.5 t) outward movements in any one day, surface material with low potential for dust release, unpaved road length < 50m.

11.3.2 Receptor Sensitivity

11.3.2.1 Receptor Sensitivity: Dust Soiling

Receptor sensitivity can be described as follows with respect to nuisance dust soiling as per the IAQM guidance (IAQM 2024):

High sensitivity receptor with respect to dust nuisance – surrounding land where:

- Users can reasonably expect enjoyment of a high level of amenity; or
- The appearance, aesthetics or value of their property would be diminished by soiling; and
- The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land;
- Examples include dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms.

Medium sensitivity receptor with respect to dust nuisance – surrounding land where:

- Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or
- The appearance, aesthetics or value of their property could be diminished by soiling; or
- The people or property would not reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land;
- Indicative examples include parks and places of work.

Low sensitivity receptor with respect to dust nuisance – surrounding land where:

- The enjoyment of amenity would not reasonably be expected; or
- Property would not reasonably be expected to be diminished in appearance,
- aesthetics or value by soiling; or
- There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land;
- Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short term car parks and roads.

The sensitivity of the area to dust soiling effects on people and property can be summarised as follows in Table 11.4.

Table 11.4 Sensitivity of the area to dust soiling effects on people and property

Receptor Sensitivity	Number of receptors	Distance from Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

11.3.2.2 Receptor Sensitivity: Human Health

Receptor sensitivity can be described as follows with respect to human health as per the IAQM guidance (IAQM 2024):

High sensitivity receptor with respect to human health – surrounding land where:

- Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day);
- Indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.

Medium sensitivity receptor with respect to human health – surrounding land where:

- Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, relevant location would be one where individuals may be exposed for eight hours or more in a day);
- Indicative examples include office and shop workers but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by health and safety at work legislation.

Low sensitivity receptor with respect to human health – surrounding land where:

- Locations where human exposure is transient;
- Indicative examples include public footpaths, playing fields, parks and shopping streets.

The sensitivity of the area to human health impacts on people can be summarised as follows in Table 11.5.

Table 11.5 Sensitivity of the area to human health impacts

Receptor Sensitivity	Annual Mean PM_{10} concentration	Number of receptors	Distance from Source (m)			
			<20	<50	<100	<250
High	>32 ug/m^3	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 ug/m^3	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 ug/m^3	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 ug/m^3	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32 ug/m^3	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 ug/m^3	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28 ug/m^3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24 ug/m^3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

11.3.2.3 Receptor Sensitivity: Ecological Impacts

Receptor sensitivity can be described as follows with respect to ecology as per the IAQM guidance (IAQM 2024):

High sensitivity receptor with respect to ecology - surrounding land where:

- Locations with an international or national designation and the designated features may be affected by dust soiling;

- Indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.

Medium sensitivity receptor with respect to ecology – surrounding land where:

- Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown;
- Indicative example is a National Heritage Area (NHA) with dust sensitive features.

Low sensitivity receptor with respect to ecology – surrounding land where:

- Locations with a local designation where the features may be affected by dust deposition;
- Indicative example is a local Nature Reserve with dust sensitive features.

The sensitivity of the area to ecological impacts can be summarised as follows in Table 11.6.

Table 11.6 Sensitivity of the area to ecological impacts

Receptor sensitivity	Distance from Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

11.3.3 Risk of Impact – Dust Deposition

Based on the criteria for magnitude of impact during demolition, earthworks, construction and trackout phases, and using the criteria for sensitivity of human and ecological receptors, then the overall risk of dust impact for each element can be determined using Table 11.7, Table 11.8, Table 11.9 below.

Table 11.7 Risk of dust impacts – Demolition

Sensitivity of Receptor	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table 11.8 Risk of dust impacts – Earthworks & Construction

Sensitivity of Receptor	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 11.9 Risk of dust impacts – Trackout

Sensitivity of Receptor	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

11.4 Assessment Criteria - Operational Air Quality

The assessment criteria are based on limiting values summarised in Table 11.1 of this report, and in accordance with the legislative Air Quality Limiting Values (AQLV). In addition to assessing impacts against the absolute AQS limits, the significance of effect can be derived using the NRA Guidelines (2022), as summarised below in Table 11.10.

Table 11.10 Definition of Impact Magnitude for Changes in Ambient Pollutant Concentrations (TII 2022)

Long term average concentration at receptor in assessment year	% Change in concentration relative to Air Quality Standard Value (AQLV)			
	1	2-5	6-10	>10
75% or less of AQLV	Neutral	Neutral	Slight	Moderate
76 – 94% of AQLV	Neutral	Slight	Moderate	Moderate
95 – 102% of AQLV	Slight	Moderate	Moderate	Substantial
103 – 109% of AQLV	Moderate	Moderate	Substantial	Substantial
110% or more of AQLV	Moderate	Substantial	Substantial	Substantial

In addition to the criteria outlined above, the DMRB LA 105 Air Quality Guidance provides a means of quantitatively determining the significance of effects based on the magnitude of change, as outlined in Table 11.11 below.

Table 11.11 Guideline band for the number of properties informing a judgement of significant air quality effects

Magnitude of change in annual mean NO_2 or PM_{10} (ug/m^3)	Total number of receptors with:	
	Worsening of an AQ objective already above the objective or the creation of a new exceedance	Improvement of an AQ objective already above the objective or the removal of an existing exceedance
Large (>4)	1 to 10	1 to 10
Medium (>2)	10 to 30	10 to 30
Small (>0.4)	30 to 60	30 to 60

11.5 Baseline Conditions

11.5.1 Climate

Climate in Ireland is influenced by the Atlantic Ocean, resulting in mild, moist weather dominated by maritime air masses. The prevailing wind direction is from a quadrant centred on west-southwest. These are relatively warm winds from the Atlantic and frequently bring rain.

In terms of climate change, The Climate Action and Low Carbon Development (Amendment) Act 2021 requires Ireland to achieve a 51% reduction in GHG emissions by 2030 (relative to 2018 levels), and net-zero emissions by no later than 2050.

For non-ETS sectors, which includes emissions from agriculture, transport, buildings, and light industry, the EU Member States nationally binding targets (for the period 2021 to 2030) are covered by the Effort Sharing Regulation (ESR). Under the ESR, Ireland is required to reduce its emissions from these sectors by 42% by 2030, relative to 2005 levels.

The Irish Government published its Climate Action Plan, 2024 which sets an objective of meeting these objectives. To counteract the effects of climate change, climate adaptation has been identified as a vital strategy. The Intergovernmental Panel on Climate Change (IPCC) defined climate adaptation as ***"the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects."***

To address the forthcoming challenges associated with climate change, Ireland's updated National Adaptation Framework (NAF) was published in 2024 (DoCCAE, 2024), which sets out the national strategy to reduce the vulnerability of the country to the potential negative

effects of climate change and to avail of positive impacts. Under the NAF, all local authorities are required to prepare and adopt a five-year Climate Adaptation Strategy.

Monaghan County Council completed and adopted their Climate Change Adaptation Strategy (2019-2024) in September of 2019. Climate change has diverse and wide-ranging impacts on Ireland's economic and natural resources including:

- More intense storms and rainfall events giving rise to disruption to society;
- Increased flooding;
- Water shortages in summer;
- Increased risk of new pests and diseases;
- Adverse impacts on water quality; and,
- Changes in the distribution and phenology of plant and animal species on land and in aquatic environments.

The occurrence of climactic events considered to be unique in intensity and/or abnormal weather patterns were recorded to define baseline climate change conditions in Monaghan, as indicated in Figure 11.1 and summarised in Table 11.12 below. This summarises the timeline of events based on historical data. Although severe weather events have always impacted Monaghan, the County has experienced an increase in major climatic or severe weather events in more recent times.

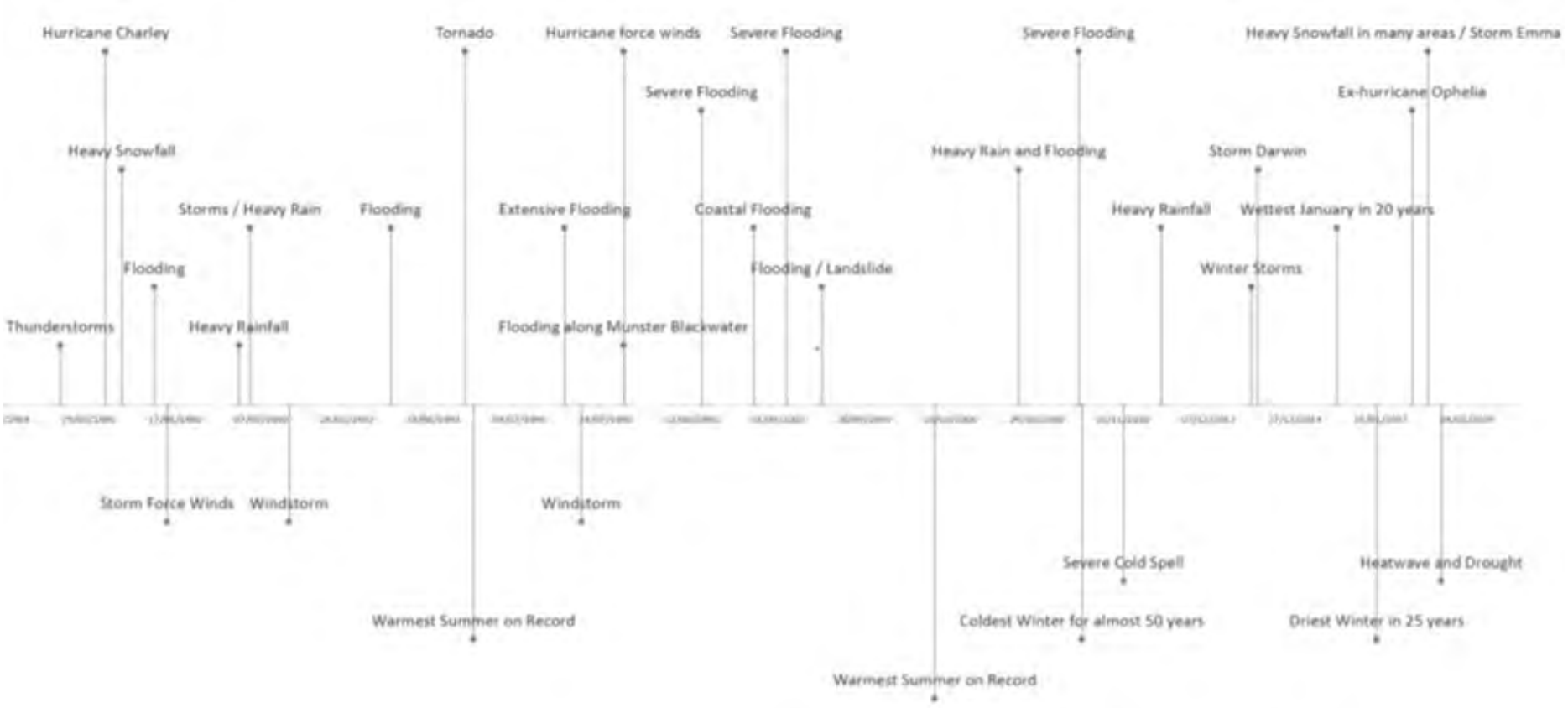


Figure 11.1 Severe weather event timeline for Monaghan County Council (MCC,2019)

Table 11.12 Severe weather events that have impacted County Monaghan

Year	Date	Event Type / Name	Outline Description
2018	11th October	Storm Callum	Orange wind warning – gale force winds up to 130km/hr- A lot of fallen trees disruption to power lines, roads, business, infrastructure, travel
2018	September	Storm Ali	Orange Wind Warming – gale force winds of up to 120km/h, stormy conditions
2018	Summer	High Temperatures, Heat wave & Drought	High Temperatures, Heat wave and drought – distribution to water supply, issues with road maintenance etc.
2018	February/March	Storm Emma & Beast from the East	Blizzard/Heavy Snowfall/widespread heavy snow drifting. Disruption to business, emergency services, power cuts etc.
2018	January	Storm Eleanor	Orange Wind Warming – gale force winds of up to 120km/h, stormy conditions
2017	16th October	Storm Ophelia (Ex-Hurricane Ophelia)	Red warning – gale force winds, heavy rain and storm surges along some coasts(flooding). Disruption to business, power cuts etc and a fatality in County Louth.
2016	January	Heavy Rain	Wettest January of record – 126% of monthly long-term average
2014	12th February	Storm Darwin	Orange warming for strong winds – classified as a 1 in 20-year event
2013/14	Winter	Winter Storms	Winter storms – serious coastal damage and widespread, persistent flooding
2010	Nov/Dec	Winter Cold Spell	Lowest temperatures on record in Dublin Airport (-8.4^{0}C) and Casement Aerodrome (-9.1^{0}C)
2009/10	Winter	Winter Cold Spell	Coldest winter in almost 50 years (Met Éireann)

Year	Date	Event Type / Name	Outline Description
2009	November	Severe flooding	Rainfall totals were highest on record, extensive flooding
2008	August	Heavy Rain and Flooding	Heavy rain and extensive flooding
2006	Summer	High Temperature/Heat Wave	Warmest summer since record breaking 1996 (may have been exceeded by 2018)
1997	24th December	Windstorm	Windstorm
1995	Summer	High Temperatures, Heat wave & Drought	Warmest Summer on record. Mean temperatures over 2^0C above normal. Temp rises to 30^0C over a number of consecutive days
1993	11th November	Severe Flooding	In excess of 100mm of rain in 24-hour period in eastern and midlands
1987	12-13th January	Heavy Snowfall	12-19cm snow in the east and midlands
1986	August	Hurricane Charley	Strong winds and rain, worst flooding in 100 years

The following key objectives of the Monaghan County Council adaptation strategy have been identified as being relevant to the proposed development:

- Flood risk mitigation;
- Amenity enhancement;
- Biodiversity opportunity; and
    - reduction/sequestration, waste reuse, potential for regeneration and recreational enhancement.
- Promoting and maximising resource management initiatives; and
    - Integrating climate action considerations into waste management policies.
- Identifying and supporting opportunities that may arise from pursuing modal shift.

11.5.2 Air Quality: EPA Air Quality Zoning

Under the Clean Air for Europe Directive, EU member states must designate Zones for the purpose of managing air quality. Four zones were defined within Ireland under the Air Quality Standards Regulations (2011). On the 1st January 2013 these zones were amended in order

to take into consideration the population counts from the 2011 CSO Census, and to align with the coal restricted areas in the 2012 Regulations (S.I. No. 326 of 2012). Under the AQS regulations, the four defined zones are summarised as follows:

- **Zone A**: Dublin
- **Zone B**: Cork
- **Zone C**: Other cities and large towns comprising Limerick, Galway, Waterford, Drogheda, Dundalk, Bray, Navan, Ennis, Tralee, Kilkenny, Carlow, Naas, Sligo, Newbridge, Mullingar, Wexford, Letterkenny, Athlone, Celbridge, Clonmel, Balbriggan, Greystones, Leixlip and Portlaoise.
- **Zone D**: Rural Ireland, i.e. the remainder of the State excluding **Zones A**, **B** and **C**.

As defined by the four zone areas within Ireland, the project site and development area fall within **Zone D**: Rural Ireland.

11.5.3 Air Quality: Monitoring Data

As per the Air Quality in Ireland Report (2023), the EPA operates and collates air quality data as part of the national ambient air quality monitoring network, which includes data obtained from 115 automated monitoring stations placed at representative locations throughout the country. The summary report for 2023 indicates that Ireland met all of the EU CAFE legal requirements in 2023, but failed to meet WHO Guidelines, and is not on track to meet the Clean Air Strategy Targets for 2026 which is equivalent to the WHO IT3 limits.

In terms of the most recently published air quality data which would represent ambient air quality within Monaghan town, the closest automated monitoring station is located in Monaghan town within the Councils depot yard (adjacent to Annahagh Lane), which measures real time particulate matter PM_{10} and $PM_{2.5}$. The station code is indicated in Table 11.13 below.

In addition to particulate matter monitored within Monaghan Town centre, a range of air quality parameters are monitored within the drinking water treatment works site at Kilkitt in Co. Monaghan. The Kilkitt monitoring site is located within a rural setting, with minimal influence from traffic or other influences on air quality and is considered to represent ambient air quality levels within the county. Continuous monitoring is carried out for nitrogen oxides, sulphur dioxide, and ozone.

Table 11.13 Summary of air quality monitoring stations, Monaghan

Station Location	Station Code	Parameters
Monaghan Town	TNO3952	PM10, PM2.5
Kilkitt	Station 58: Code MN1	PM10, SO2, NOx, O3, metals

It is noted that no monitoring is carried out by Monaghan County Council Environmental Health Department, as confirmed by the Councils consultation response received on the 1st of October 2024. Therefore, all information relating to local air quality baseline data has been obtained from the EPA records for automated monitoring stations within Monaghan town, and for the monitoring station at Kilkitt.

11.5.4 Local Air Quality

Local air quality is primarily influenced by road traffic sources along Dublin Street North, The Diamond car parking area, and road traffic associated with the junction at Old Cross Square. In addition, local air quality is also influenced by combustion processes associated with residential and commercial heating systems.

Therefore, the primary contaminants of concern are considered to be Nitrogen dioxide (NO_2) and Particulate Matter in air with diameters of 10um (microns) or less (PM_{10}). Nitrogen Dioxide (NO_2) is primarily emitted from combustion processes (such as a gas/oil fired boiler or a car / vehicle engine) and given that the project introduces new vehicle sources along Russell Row and the Diamond car park, then NO_2 has been considered in further detail within this assessment. The same principles apply to Particulate Matter (PM_{10} and $PM_{2.5}$), which is emitted as a primary pollutant from road vehicle exhausts, in addition to combustion sources such as domestic fires, industrial boilers and CHP units etc.

In terms of current local baseline air quality data, background concentrations of NO_2 and PM_{10} have been obtained from the automated monitoring stations within Monaghan Town and Kilkitt station. The datasets represent hourly sequential monitoring data which has been collated for 2024 (partial year to date), and for the past full capture year (2023), as summarised below in Table 11.14. It is noted that data capture for 2023 and 2024 at Kilkitt station was incomplete, however the collated data coverage is still considered to be representative of ambient NO_2 background concentrations.

Table 11.14 Summary of monitoring data for 2023 and 2024

Station	Year	Mean Hourly NO_2 (ug/m^3)	Mean Annual NO_2 (ug/m^3)	Mean 24hr PM_{10} (ug/m^3)	Mean Annual PM_{10} (ug/m^3)
Monaghan Town	2024	-	-	5.73	5.60
	2023	-	-	7.46	7.25
Kilitt	2024	1.97	1.98	-	-
	2023	1.92	2.18	-	-

The results for the past 6 months of data capture at both sites for all parameters is presented below in Figure 11.2 and Figure 11.3.

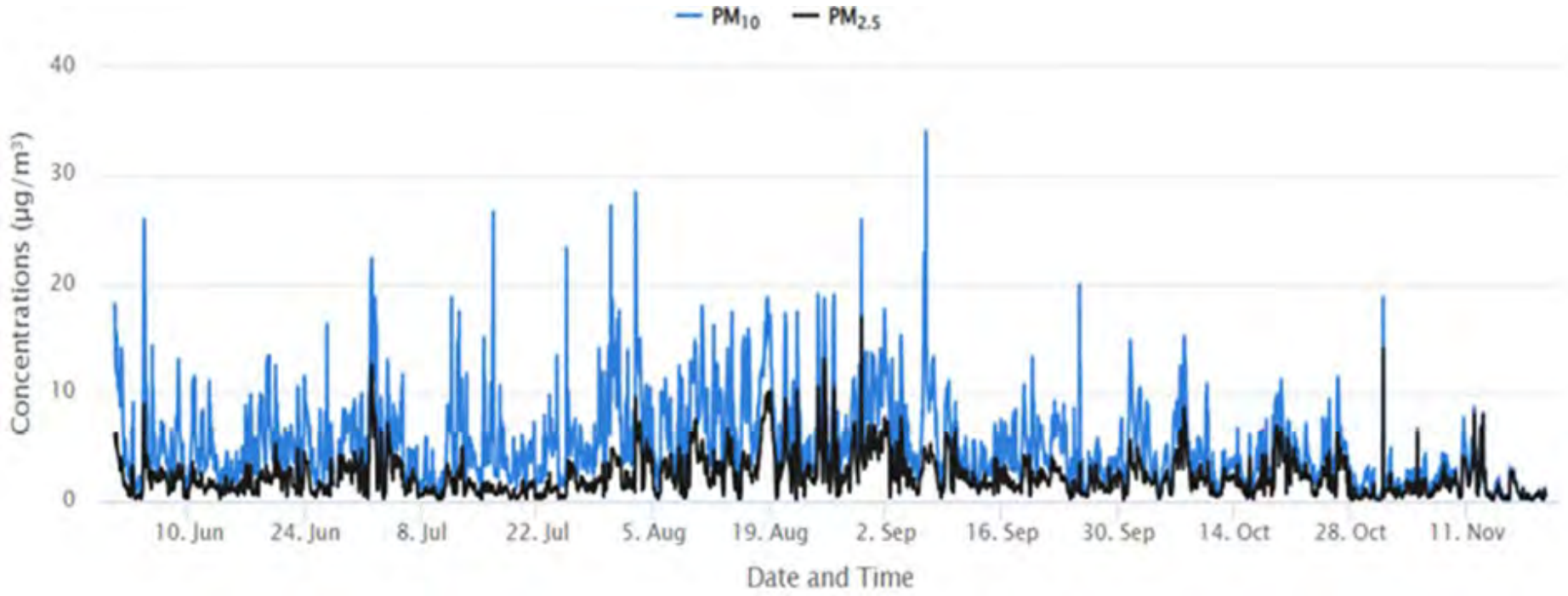


Figure 11.2 Concentrations of PM10 & PM2.5, Monaghan Town (2024)

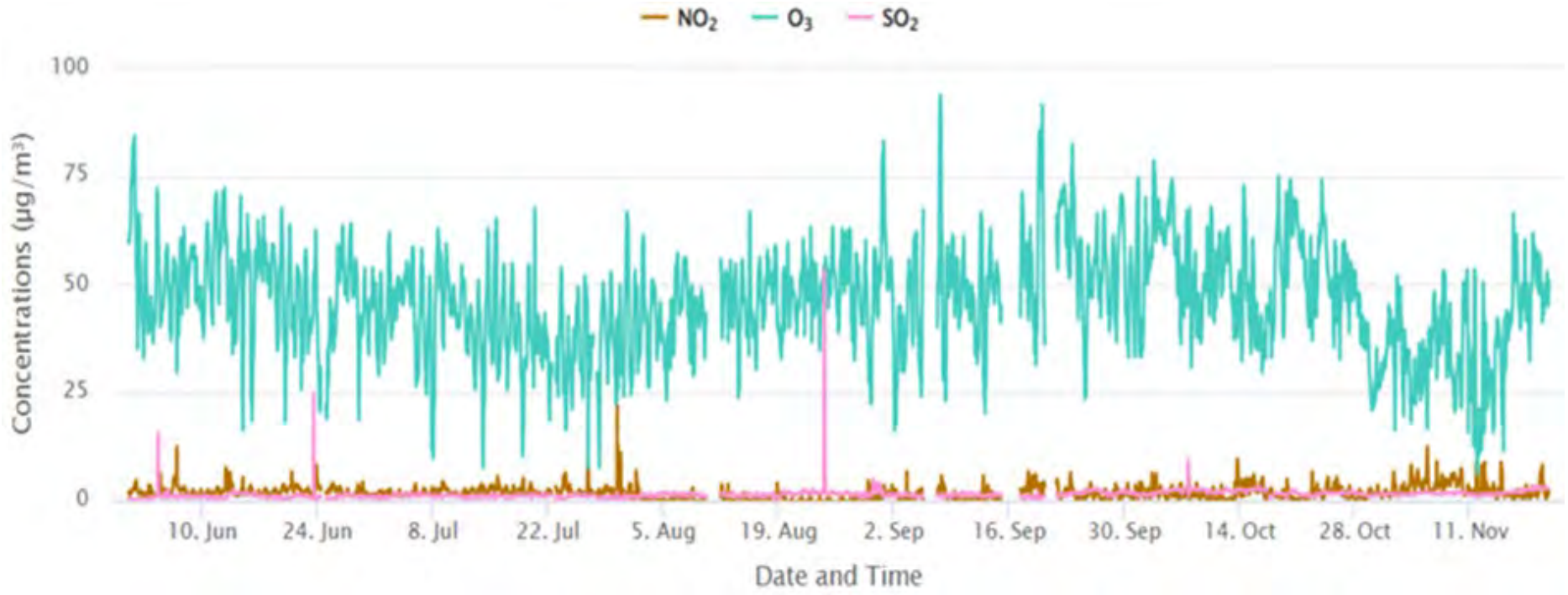


Figure 11.3 Concentrations of NO2, O3 & SO2, Kilkitt (2024)

Data captured within 2023 and 2024 indicates that NO_2 concentrations at Kilkitt were within the relevant Air Quality Standards criteria, and PM_{10} concentrations recorded within Monaghan Town were also found to be within the relevant Air Quality Standards.

Regional modelling of air quality metrics has also been undertaken by the EPA on an annual basis, which is augmented by air quality data obtained from the automated monitoring stations. As illustrated below in Figure 11.4 and Figure 11.5, the EPA high resolution mapping for the year of 2023 indicates that PM_{10} concentrations are within a range of 10-12 ug/m^3, and NO_2 concentrations are within the range of 15-20ug/m^3 along Dublin Street. Within the site area the concentrations of NO_2 are within the 10-15ug/m^3 range.

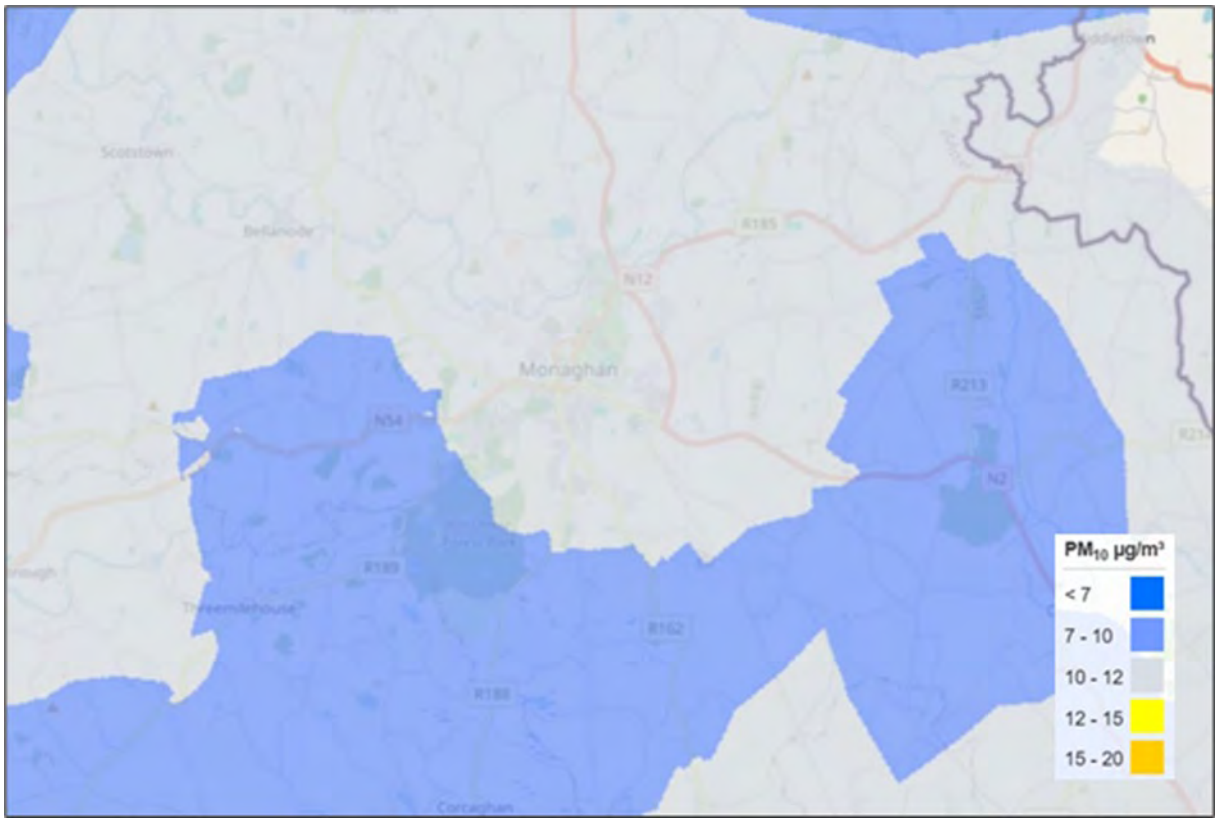


Figure 11.4 Annual mapping of PM10 concentrations, EPA 2023

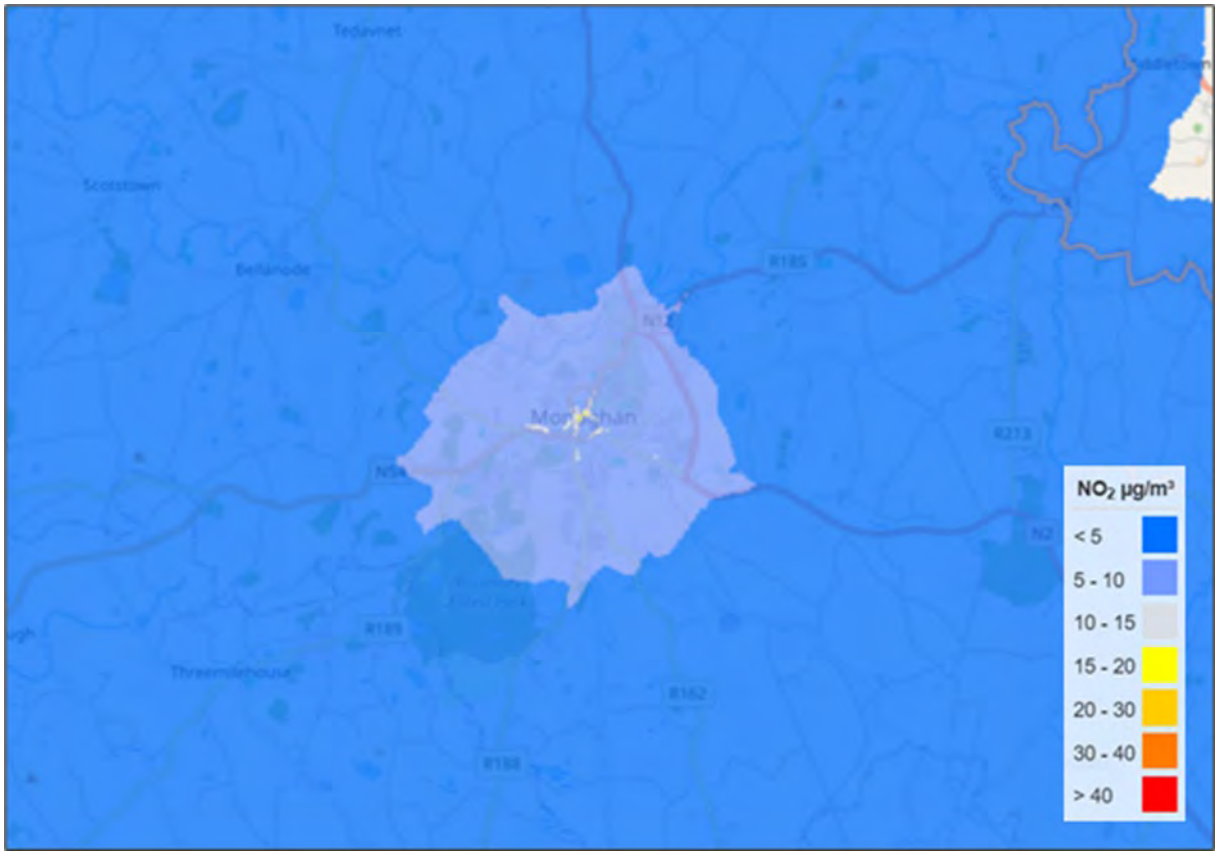


Figure 11.5 Annual mapping of NO2 concentrations, EPA 2023

11.6 Air Quality Screening Exercise

A simple screening exercise was carried out in accordance with the two-stage criteria outlined within the Institute of Air Quality Management, *Land-Use Planning & Development Control: Planning for Air Quali*ty (IAQM, 2017), which helps determine if a full Air Quality Impact Assessment is required and should detailed air dispersion modelling be undertaken. Using this guidance, the scope of the development is assessed against the criteria for Stage 1, as outlined below in Table 11.15. Where the development meets any of the criteria within Stage 1, then the assessment process should proceed to Stage 2, as summarised in Table 11.16.

Table 11.15 Stage 1 criteria (IAQM, 2017)

Criteria to Proceed to Stage 2
If any of the following apply: 10 or more residential units or a site area of more than 0.5ha More than 1,000m2 of floor space for all other uses or a site area greater than 1ha
Coupled with any of the following: The development has more than 10 parking spaces The development will have a centralised energy facility or other centralised combustion process **Note**: Consideration should still be given to the potential impacts of neighbouring sources of the site, even if an assessment of impacts of the development on the surrounding area is screened out.

Table 11.16 Indicative criteria for requiring a detailed Air Quality Assessment

The development will:	Indicative criteria to proceed to an Air Quality Assessment*
1. Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans <3.5t gross vehicle weight).	A change of LDV flows of: - more than 100 AADT within or adjacent to an AQMA - more than 500 AADT elsewhere.
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight).	A change of HDV flows of: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere.
3. Realign roads, i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5m or more and the road is within an AQMA.
4. Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicles accelerate/decelerate, e.g. traffic lights, or roundabouts.

The development will:	Indicative criteria to proceed to an Air Quality Assessment*
5. Introduce or change a bus station.	Where bus flows will change by: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere.
6. Have an underground car park with extraction system.	The ventilation extract for the car park will be within 20 m of a relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out).
7. Have one or more substantial combustion processes, where there is a risk of impacts at relevant receptors. NB. this includes combustion plant associated with standby emergency generators (typically associated with centralised energy centres) and shipping.	Typically, any combustion plant where the single or combined NO_x emission rate is less than 5mg/s is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates. Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable.

Stage 1

When assessing the development proposals against the Stage 1 criteria, the site exceeds the criteria of being more than 1ha and proposes an additional 9No. new car parking spaces which is enabled through the re-distribution of existing spaces and the creation of the 10No. new spaces along Russell Row. Based on this information, the assessment process should proceed to Stage 2, as discussed further below.

Stage 2

The development proposes the construction of a new road traffic source (Russell Row) and alterations of traffic flow at the junction of Old Cross Square, both of which are located near

residential receptors. However proposed changes in traffic flows will not result in an increase of more than 500 AADT for LDVs, and 100 HDVs.

Although the site does not fall within the criteria for a full Air Quality Impact Assessment, as the development proposals include the construction of a new road, and alterations of traffic flows at Old Cross Square, then adopting the precautionary approach a more detailed Air Quality Impact Assessment has been undertaken in order to quantify the impacts on local receptors.

11.7 Air Quality Modelling

Adopting the precautionary approach, detailed air dispersion modelling was undertaken using the UK developed Cambridge Environmental Research Consultants (CERC) ADMS Roads V5.0.1.3. The parameterisation and model rationale are outlined in further detail below.

11.7.1 Modelled Traffic Data

In order to complete air dispersion modelling of the development proposals, traffic data in relation to passenger and light goods vehicles for all junctions and road segments has been obtained from Appendix 10.1: Traffic Assessment. The traffic assessment considered the development in terms of the baseline traffic conditions, traffic flows associated with the baseline conditions in addition to committed developments or developments awaiting decision, and finally existing / committed traffic flow conditions along with the proposed development being considered under this application. Chapter 4 provides further details regarding committed and proposed developments, and a summary of the traffic scenarios are considered below which have subsequently been incorporated into the Air Quality Assessment modelling scenarios:

1) Scenario No.1: 2022 as the base year for traffic survey data (existing conditions);
2) Scenario No.2: This scenario represents traffic flow associated with committed developments only, for base conditions (2022), and subsequently includes the Civic Development, the ALDI development scheme, and proposed traffic associated with the Dublin Street South application;
3) Scenario No.3: This scenario models the 2030 year of opening for committed developments and baseline conditions, but with a growth factored of traffic volumes from 2022. This scenario excludes the development proposals of Dublin Street North;
4) Scenario No.4: This scenario models the traffic associated with the development only, based on the opening year (2030);
5) Scenario No.5: 2030 year of opening with the development in place, and includes all committed or proposed projects, i.e. worst cased cumulative scenario.

On this basis traffic flow data was obtained from Appendix 10.1 as summarised below in Table 11.17, with the ADMS-Roads model using the highest predicted traffic values for each road segment and junction, and for all scenarios.

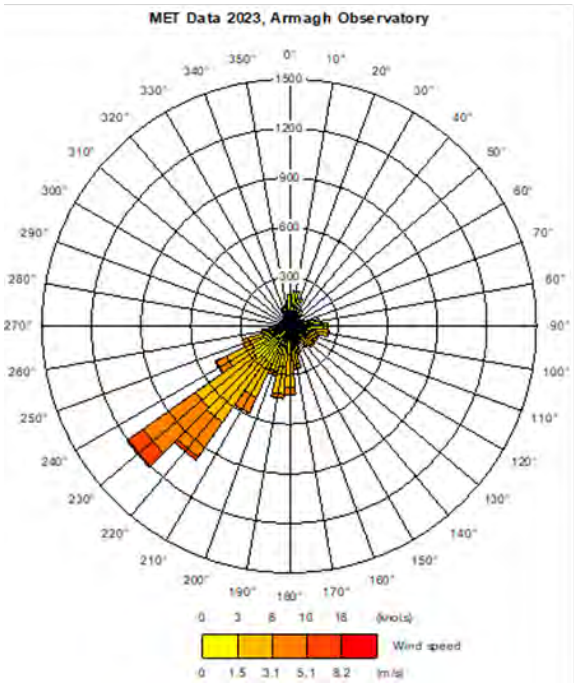
Table 11.17 Summary of road traffic data obtained from Chapter 10

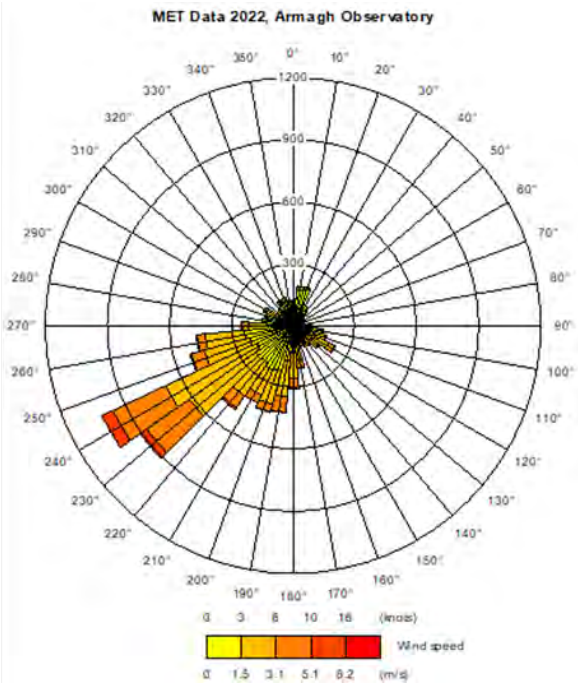
		JUNCTIONS IMPACT												
		JUNCTION 1			JUNCTION 2			JUNCTION 3			JUNCTION 4			
Junction Arm Reference		A	B	C	A	B	C	A	B	C	A	B	C	D
FD_001 = 2022 Base Year	AM	606	580	394	395	28	375	375	14	381	399	27	1264	972
	PM	694	666	538	576	126	506	506	11	511	548	30	1256	898
FD_002 = Committed Development - Civil Offices	AM	8	8	16	16	0	16	16	0	16	16	72	34	22
	PM	1	1	2	2	0	2	2	0	2	2	62	42	18
FD_003 = 2030 Opening Year Factored from 2022	AM	664	636	432	433	31	411	411	14	417	437	22	1377	1065
	PM	760	730	590	631	138	554	554	11	559	600	28	1372	984
FD_004 = Development Flows (Car Park)	AM	3	3	5	1	1	0	0	1	1	16	0	6	10
	PM	3	3	5	2	2	0	0	7	7	17	0	10	7
Combined Opening Year Flows - 2030 + Committed + Development	AM	675	646	453	450	32	427	427	15	434	469	94	1417	1097
	PM	764	733	597	635	140	556	556	18	569	619	90	1424	1009
% Impact of Dev Flows on Opening Year Base - 2030	AM	0.4%	0.4%	1.1%	0.2%	3.2%	0.0%	0.0%	7.7%	0.3%	3.4%	0.0%	0.4%	0.9%
	PM	0.3%	0.3%	0.8%	0.3%	1.4%	0.0%	0.0%	40.4%	1.3%	2.7%	0.0%	0.7%	0.7%

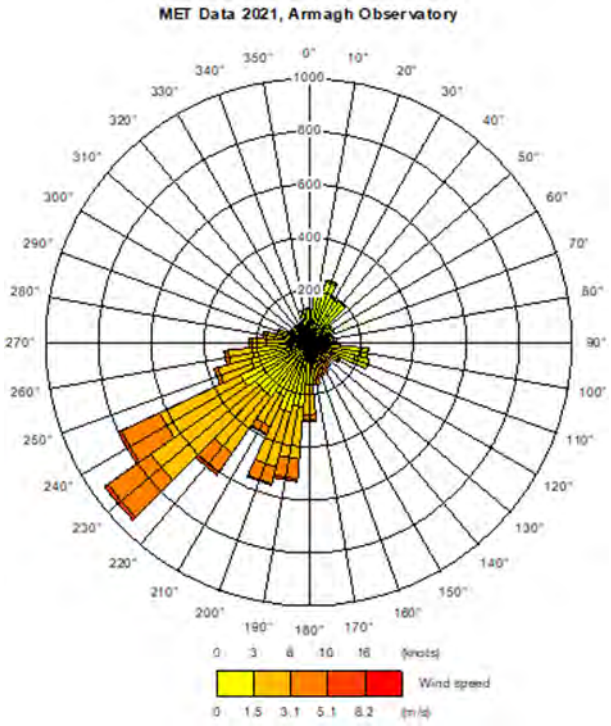
Air Quality impacts associated with the construction phase are assessed in later sections of this Chapter, with the focus of this section being related primarily to the modelling to the operational impacts of increased traffic flow on local air quality.

11.7.2 Meteorological Data

Local weather and meteorological conditions for the site were obtained from Armagh Observatory, as this position is considered to be the closest meteorological monitoring station to the site (~28km) that can provide the greatest degree of data capture. In order to account for variability, the past 3 complete years of meteorological data (Met Data 2021 – 2023) were incorporated into the ADMS model, with the wind rose diagrams presented below. Each data file comprises of hourly sequential data collected over a 1-year period, and each year contains ~8760 lines of meteorological data.







11.7.3 Factors Affecting Population Concentration

The source characteristics include source strength, the height of emission release, density, and the temperature of the release; the prevailing atmospheric conditions including wind speed, wind direction, cloud cover, precipitation, ambient temperature and the depth of the boundary layer. The boundary layer is the layer of the atmosphere near the surface of the planet that is affected by mechanical turbulence from surface friction and convective

turbulence through local surface heating, and the effect of local buildings and surface conditions on dispersion.

ADMS describes the boundary layer structure based on the Monin Obukhov length and the boundary layer height. The model allows for a more realistic representation of the changing characteristic of dispersion with height. Results from the model provide a better fit with measured concentrations of pollutants than was previously achievable using classical Gaussian modelling techniques. The ADMS road-modelling component has been extensively used in local air quality management and has formed the basis for many AQMA declarations. The input parameters used within the model are detailed below:

- Met Data (hourly sequential) used was for 2021-2023;
- Surface roughness has been set to 1.0 (cities and woodland);
- Monin-Obukhov length was set to 10m for small towns;
- Surface albedo (default) 0.23;
- Priestly-Taylor parameter (default) 1.0;
- Precipitation: same as at met. site;
- Emissions based on Dataset: UK EFT v12.0 (2VC);
- Road type: Northern Ireland (urban)

11.7.4 Modelled Receptors

Receptors positions were chosen on the basis of assessing air quality impacts at local residential dwellings and commercial premises within close proximity to the development site, and at positions which would likely be most affected by changes in local air quality conditions as a result of the development. A summary of the modelled receptors positions is provided below in Table 11.18 (ITM).

Table 11.18 Summary of modelled receptor positions (ITM)

Receptor ID	Location (Building No.)	ITM Coordinates	
		X (m)	Y (m)
R1	B64-63	667256	833770
R2	B61	667275	833758
R3	B58	667295	833746
R4	B54	667311	833735
R5	B49	667327	833723
R6	B43-45	667348	833704
R7	B40	667361	833692
R8	B37	667372	833680
R9	B33	667382	833663
R10	B31	667392	833646
R11	B31A	667415	833653
R12	B32a - rear	667405	833674
R13	B37d - rear	667387	833695
R14	B42b - rear	667372	833722
R15	B44a - rear	667353	833723
R16	B48a - rear	667340	833729
R17	B49b - rear	667332	833739
R18	B51c - rear	667340	833752
R19	B54b - rear	667330	833758
R20	B59c - rear	667316	833774
R21	B60b - rear	667303	833774
R22	B62b - rear	667288	833786
R23	Buildings to the west of Diamond Car Park	667278	833827
R24	Buildings to the northeast of Diamond Car Park	667324	833843
R25	Health Centre (north)	667320	833815
R26	Health Centre (South)	667311	833794
R27	B31c	667431	833656
R28	31 Old Cross Square	667445	833631
R29	25 Old Cross Square	667451	833605
R30	8 Old Cross Square	667403	833586
R31	2 Old Cross Square	667392	833610

11.7.5 Assessment Scenarios

The following scenarios were modelled in relation to the development, based on the traffic scenarios and cumulative conditions of future traffic flows:

Scenario No.1: 2022 as the base year for traffic survey data (existing conditions) and for MET data from 2021 - 2023;

Scenario No.2: This scenario represents traffic flow solely associated with committed developments only for base conditions (2022), and subsequently includes the Civic Development, the ALDI development scheme, and proposed traffic associated with the Dublin Street South application. This scenario uses MET data from 2021 – 2023, and updates the traffic emission factors to 2025 (assumed to be the soonest year of opening for committed developments);

Scenario No.3: This scenario models the 2030 year of opening for committed developments and baseline conditions, but with a growth factored for traffic volumes from 2022. This scenario excludes the development proposals of Dublin Street North and updates the ADMS source emission year to 2030 using MET data from 2021 - 2023;

Scenario No.4: This scenario models the traffic associated with the development only, based on the opening year (2030) and using MET data from 2021 - 2023;

Scenario No.5: 2030 year of opening with the proposed development in place, and includes all committed or proposed projects, i.e. worst cased cumulative scenario. Again, sensitivity analysis has been carried out for this scenario using the past three years of complete meteorological monitoring data (2021-2023).

11.7.6 Predicted Air Quality Impact from Road traffic

A summary of the maximum predicted air dispersion modelling results, for the development only, are summarised below in Table 11.19, and are based on NO_2 and PM_{10} concentrations associated with the site proposals and increased road traffic flows at each receptor location. The results of predicted NO_2 and PM_{10} concentrations for all committed projects (i.e. cumulative impact), in addition to the development proposals, are summarised in Table 11.20, Table 11.21, Table 11.22, Table 11.23. For the four other scenarios, and the percentage changes in air quality parameters above baseline conditions in the year of opening (2030) as a result of the development are summarised in Table 11.24. The detailed ADMS Roads model outputs for each individual MET data year are presented in Appendix 11.1 of this report.

Table 11.19 Predicted max NO2 and PM10 concentrations. Scenario 1: 2022 base year, inclusive of background concentrations (MET data 2021 – 2023)

Receptor Position	Pollutant concentrations at receptors (including background concentrations)			
	NO_2 Annual Mean ug/m^3	NO_2 ug/m^3 (99.79th %centile)	PM_{10} Annual Mean ug/m^3	PM_{10} (P90.41st %centile) 24hr ug/m^3
R1	11.48	26.28	10.88	14.57
R2	10.88	24.74	10.55	14.16
R3	10.58	24.86	10.39	13.91
R4	10.46	24.86	10.32	13.87
R5	10.52	24.57	10.36	13.91
R6	10.43	25.27	10.31	13.84
R7	10.38	24.95	10.29	13.87
R8	10.27	25.35	10.23	13.89
R9	10.60	25.71	10.42	14.00
R10	10.80	27.25	10.53	14.22
R11	5.51	14.58	7.60	9.51
R12	4.93	12.14	7.26	8.93
R13	4.91	11.67	7.24	8.89
R14	4.39	10.13	6.95	8.36
R15	5.25	12.14	7.43	9.19
R16	5.82	13.29	7.74	9.70
R17	5.40	12.36	7.51	9.29
R18	4.33	9.66	6.91	8.28
R19	4.42	9.75	6.96	8.32
R20	4.37	9.41	6.93	8.28
R21	4.79	10.09	7.16	8.64
R22	5.06	10.78	7.30	8.82
R23	5.22	12.32	7.35	8.91
R24	4.31	10.92	6.86	8.33
R25	4.85	13.22	7.14	8.94
R26	4.40	11.03	6.93	8.27
R27	4.91	12.74	7.26	8.95
R28	6.09	16.07	7.95	10.25
R29	8.54	22.40	9.37	12.80
R30	8.34	28.16	9.30	12.76
R31	5.22	15.66	7.46	9.94

Table 11.20 Predicted max NO2 and PM10 concentrations. Scenario 2: Committed development only (MET data 2021 – 2023)

Receptor Position	Pollutant concentrations at receptors (including background concentrations)			
	NO_2 Annual Mean ug/m^3	NO_2 ug/m^3 (99.79th %centile)	PM_{10} Annual Mean ug/m^3	PM_{10} (P90.41st %centile) 24hr ug/m^3
R1	0.22	0.89	0.15	0.26
R2	0.22	0.88	0.15	0.25
R3	0.22	0.90	0.14	0.25
R4	0.21	0.89	0.14	0.26
R5	0.22	0.88	0.14	0.26
R6	0.22	0.92	0.15	0.26
R7	0.21	0.90	0.14	0.26
R8	0.21	0.91	0.14	0.26
R9	0.22	0.92	0.15	0.26
R10	0.23	0.98	0.15	0.28
R11	0.10	0.55	0.07	0.13
R12	0.08	0.42	0.06	0.11
R13	0.08	0.36	0.05	0.10
R14	0.06	0.30	0.04	0.08
R15	0.08	0.37	0.06	0.11
R16	0.10	0.41	0.06	0.13
R17	0.08	0.37	0.06	0.11
R18	0.06	0.28	0.04	0.08
R19	0.06	0.28	0.04	0.08
R20	0.05	0.25	0.03	0.07
R21	0.06	0.28	0.04	0.08
R22	0.05	0.26	0.04	0.07
R23	0.03	0.18	0.02	0.04
R24	0.02	0.15	0.01	0.03
R25	0.03	0.17	0.02	0.04
R26	0.04	0.21	0.03	0.05
R27	0.09	0.53	0.06	0.13
R28	0.17	0.85	0.12	0.24
R29	0.62	2.06	0.41	0.80
R30	0.18	1.12	0.12	0.30
R31	0.11	0.76	0.07	0.22

Table 11.21 Predicted max NO2 and PM10 concentrations. Scenario 3: Factored from 2022 – 2030, inclusive of background concentrations (MET data 2021 – 2023)

Receptor Position	Pollutant concentrations at receptors (including background concentrations)			
	NO_2 Annual Mean ug/m^3	NO_2 ug/m^3 (99.79th %centile)	PM_{10} Annual Mean ug/m^3	PM_{10} (P90.41st %centile) 24hr ug/m^3
R1	6.05	12.26	10.72	14.28
R2	5.80	11.62	10.41	13.91
R3	5.67	11.71	10.25	13.68
R4	5.62	11.71	10.19	13.60
R5	5.65	11.58	10.23	13.72
R6	5.61	11.90	10.19	13.61
R7	5.60	11.78	10.17	13.63
R8	5.55	11.98	10.11	13.69
R9	5.69	12.12	10.29	13.82
R10	5.78	12.82	10.41	14.01
R11	3.51	7.46	7.55	9.43
R12	3.26	6.39	7.22	8.85
R13	3.24	6.17	7.20	8.80
R14	3.02	5.50	6.92	8.29
R15	3.39	6.35	7.38	9.09
R16	3.63	6.83	7.69	9.57
R17	3.45	6.44	7.46	9.18
R18	2.99	5.30	6.88	8.21
R19	3.03	5.33	6.93	8.24
R20	3.01	5.18	6.90	8.21
R21	3.19	5.46	7.12	8.55
R22	3.30	5.75	7.25	8.72
R23	3.37	6.44	7.31	8.82
R24	2.98	5.81	6.82	8.25
R25	3.21	6.82	7.10	8.86
R26	3.02	5.87	6.89	8.21
R27	3.25	6.67	7.22	8.87
R28	3.77	8.13	7.87	10.12
R29	4.83	10.83	9.22	12.49
R30	4.78	13.62	9.18	12.48
R31	3.40	7.96	7.41	9.79

Table 11.22 Predicted max NO2 and PM10 concentrations. Scenario 4: Proposed development only (MET data 2021 – 2023)

Receptor Position	Pollutant concentrations at receptors (including background concentrations)			
	NO_2 Annual Mean ug/m^3	NO_2 ug/m^3 (99.79th %centile)	PM_{10} Annual Mean ug/m^3	PM_{10} (P90.41th %centile) 24hr ug/m^3
R1	0.01	0.04	0.01	0.02
R2	0.01	0.04	0.01	0.02
R3	0.01	0.04	0.01	0.02
R4	0.01	0.04	0.01	0.03
R5	0.01	0.04	0.01	0.03
R6	0.01	0.05	0.01	0.03
R7	0.01	0.05	0.01	0.03
R8	0.01	0.06	0.01	0.03
R9	0.01	0.08	0.01	0.03
R10	0.01	0.12	0.02	0.04
R11	0.03	0.18	0.03	0.08
R12	0.02	0.11	0.02	0.07
R13	0.02	0.08	0.02	0.06
R14	0.03	0.14	0.03	0.09
R15	0.01	0.07	0.01	0.04
R16	0.01	0.06	0.01	0.04
R17	0.01	0.06	0.01	0.04
R18	0.03	0.14	0.03	0.09
R19	0.02	0.12	0.02	0.08
R20	0.03	0.14	0.03	0.09
R21	0.01	0.08	0.02	0.05
R22	0.01	0.08	0.01	0.04
R23	0.01	0.10	0.02	0.03
R24	0.01	0.05	0.01	0.03
R25	0.02	0.07	0.02	0.04
R26	0.04	0.15	0.05	0.09
R27	0.05	0.22	0.06	0.11
R28	0.04	0.17	0.05	0.11
R29	0.04	0.14	0.05	0.10
R30	0.03	0.13	0.04	0.08
R31	0.02	0.12	0.02	0.06

Table 11.23 Predicted max NO2 and PM10 concentrations. Scenario 5: Cumulative Impact, inclusive of background concentrations (MET data 2021 – 2023)

Receptor Position	Pollutant concentrations at receptors (including background concentrations)			
	NO_2 Annual Mean ug/m^3	NO_2 ug/m^3 (99.79th %centile)	PM_{10} Annual Mean ug/m^3	PM_{10} (P90.41th %centile) 24hr ug/m^3
R1	6.08	12.34	10.76	14.34
R2	5.82	11.68	10.44	13.95
R3	5.69	11.78	10.28	13.72
R4	5.64	11.78	10.22	13.63
R5	5.67	11.66	10.26	13.75
R6	5.64	11.98	10.22	13.66
R7	5.62	11.86	10.20	13.69
R8	5.58	12.06	10.15	13.77
R9	5.73	12.23	10.34	13.88
R10	5.83	12.96	10.46	14.08
R11	3.57	7.58	7.61	9.50
R12	3.30	6.49	7.27	8.93
R13	3.27	6.25	7.24	8.84
R14	3.05	5.58	6.96	8.36
R15	3.41	6.41	7.41	9.12
R16	3.65	6.90	7.71	9.62
R17	3.47	6.50	7.49	9.22
R18	3.02	5.37	6.92	8.25
R19	3.06	5.39	6.96	8.26
R20	3.04	5.22	6.93	8.28
R21	3.21	5.49	7.15	8.60
R22	3.32	5.78	7.27	8.75
R23	3.39	6.55	7.33	8.86
R24	3.00	5.85	6.84	8.28
R25	3.24	6.88	7.12	8.92
R26	3.07	5.98	6.95	8.32
R27	3.33	6.93	7.32	9.04
R28	3.87	8.39	7.99	10.26
R29	5.13	11.72	9.60	13.01
R30	4.88	13.96	9.30	12.83
R31	3.45	8.26	7.48	9.97

Table 11.24 Percentage change between pre and post conditions, %

Receptor Position	% change between Scenario 3 and Scenario 5			
	NO_2 Annual Mean ug/m^3	NO_2 ug/m^3 (99.79th %centile)	PM_{10} Annual Mean ug/m^3	PM_{10} (P90.41th %centile) 24hr ug/m^3
R1	0.50	0.65	0.37	0.42
R2	0.34	0.52	0.29	0.29
R3	0.35	0.60	0.29	0.29
R4	0.36	0.60	0.29	0.22
R5	0.35	0.69	0.29	0.22
R6	0.53	0.67	0.29	0.37
R7	0.36	0.68	0.29	0.44
R8	0.54	0.67	0.40	0.58
R9	0.70	0.91	0.49	0.43
R10	0.87	1.09	0.48	0.50
R11	1.71	1.61	0.79	0.74
R12	1.23	1.56	0.69	0.90
R13	0.93	1.30	0.56	0.45
R14	0.99	1.45	0.58	0.84
R15	0.59	0.94	0.41	0.33
R16	0.55	1.02	0.26	0.52
R17	0.58	0.93	0.40	0.44
R18	1.00	1.32	0.58	0.49
R19	0.99	1.13	0.43	0.24
R20	1.00	0.77	0.43	0.85
R21	0.63	0.55	0.42	0.58
R22	0.61	0.52	0.28	0.34
R23	0.59	1.71	0.27	0.45
R24	0.67	0.69	0.29	0.36
R25	0.93	0.88	0.28	0.68
R26	1.66	1.87	0.87	1.34
R27	2.46	3.90	1.39	1.92
R28	2.65	3.20	1.52	1.38
R29	6.21	8.22	4.12	4.16
R30	2.09	2.50	1.31	2.80
R31	1.47	3.77	0.94	1.84

11.7.7 Discussion of ADMS Modelling Results

The air dispersion modelling results can be summarised by the following statements:

- The results indicate that no exceedances in the Air Quality Standards for Annual Mean NO_2 concentrations of 40 µg m^3 are likely to occur for any of the modelled base years (2022 without development, 2021 – 2023 MET data);
- No exceedances in Annual Mean NO_2 concentrations are likely to occur for the development year (2030), based on 2021 – 2023 MET data;
- Air quality standards state that NO_2 levels should not exceed 200 µg m^3 more than 18 times a year for any given 1-hour period. The results indicate that no exceedances in 1-hr NO_2 concentrations are likely to occur at any of the modelled receptors, for any of the modelled years;
- The results indicate that no exceedances in the Air Quality Standards for Annual Mean PM_{10} concentrations of 40 µg m^3 are likely to occur for any of the modelled base years (2022 without development, 2021 – 2023 MET data);
- No exceedances in Annual Mean PM_{10} concentrations are likely to occur for the 2030 development year, using 2021 – 2023 MET data;
- Air quality standards state that PM_{10} levels should not exceed 50 µg m^3 more than 35 times a year for any given 24-hour mean period. The results indicate that no exceedances in PM_{10} concentrations are likely to occur at any of the modelled receptors, nor for any of the modelled years; and
- Changes in concentrations for each parameter demonstrated negligible increase, therefore the overall significance of effect between pre and post development conditions is considered to be negligible.

In summary, the results of air dispersion modelling for passenger and light goods vehicles demonstrate the proposed development is unlikely to cause exceedances in the Air Quality Standards for NO_2 or PM_{10} concentrations at any of the receptor positions, even when taking into consideration the cumulative impact of committed developments and projects, along with the proposed development in place.

The results also indicate that predicted air quality for NO_2 or PM_{10} concentrations are anticipated be below the WHO (2021) Air Quality Guidance Levels for IT3 and IT4.

11.7.7.1 Construction Traffic

Table 11.25 below sets out the expected construction vehicle traffic generated by construction on an average day. The number of HGV movements have been obtained from Appendix 10.1: Traffic Assessment in support of Chapter 10 Material Assets and have been informed by the

oCEMP Appendix 4.2 and construction programme Appendix 4.1. The average LGV and staff trips have been assumed, and no discounts of vehicles have been applied to ensure a robust assessment.

Table 11.25 Two Way Traffic Movements Construction Phase

Construction Period		Average HGV's		Average Other Vehicles		Total Daily Constr. Traffic Trips	
Months	Weeks	Week	Day	LGV	Staff	One-way	Two-way
36	156	165	30	20	12	62	124

As outlined within Chapter 10, the impact during the construction phase is expected to be short-term and limited to the duration of construction and demolition phases. It is anticipated that heavy goods vehicle (HGV) movements will not exceed 3no. vehicles per hour throughout the day during the busiest period of construction. Additionally, peak construction traffic arrivals and departures will occur outside of peak traffic hours, thereby avoiding any further delays on the road network during those times.

The spread of HGV movements is expected to be evenly distributed throughout the day, reducing the likelihood of significant impact during peak periods. The highest volume of HGV traffic is anticipated during the earthworks phase, which will last approximately 20 months.

Construction traffic will generally consist of the following:

- Private vehicles owned and driven by site staff and management; and
- Construction vehicles such as excavation equipment, dump trucks, and material delivery trucks, amounting to approximately 3No. HGV movements per hour.

11.8 Impact Assessment

11.8.1 Construction Impacts

Construction works involve the demolition of buildings, ground clearance of vegetation, removal of any foundation or floor slab structures, and the excavation of ground levels to required topographical grade. The construction phase will also include the exporting of soil materials from site and importing of construction materials into the site for grading and road surfacing. Given the nature of construction and demolition activities required to develop the site, this phase of works have the potential to impact upon local receptors in the following ways:

- Generate NO_2 and PM_{10} emissions through the use of HGVs and excavators, or through the use of other combustion engine sources such as generators etc;
- Dust deposition through the removal of vegetation and building structures, the exposing of bare soil and subsurface materials, and the excavation and transportation of soil materials from site; and
- Increase in GHG emission through the combustion of fossil fuels.

However, due to the temporary nature and low number of necessary plant equipment required during these phases (approximately 3 HGVs per hour, and the use of 1-2No. excavators), and when taking into consideration the low ambient air quality concentrations of NO_2 and PM_{10}, then the potential to impact upon local air quality is considered to be low. As such, no detailed assessment of GHG emissions, NO_2 or PM_{10} concentrations is required for the demolition of construction phase. However, the potential to impact upon local receptors in terms of dust deposition has been assessed for the following construction and demolition activities:

- Demolition works
- Earthworks
- Construction works
- Trackout phase

It is noted that the development proposals do not intend to construct building structures as part of the project, rather the proposals include the site clearance and levelling of future development plots, which will be subject to their own planning applications. However, the construction works will comprise of road surfacing, landscaping and development of footpaths etc.

In accordance with the criteria outlined within the IAQM guidelines (2024), the overall dust emission magnitude from demolition, earthworks, construction works and trackout activities can is summarised in Table 11.26 below.

Table 11.26 Dust emission magnitude for the proposed development

Activity	Dust Emission Magnitude
Demolition	Small
Earthworks	Medium
Construction	Small
Trackout	Medium

In terms of the sensitivity of the area, Table 11.27 summarises the potential impact of dust in relation to dust soiling, human health, and ecological health. The summary table is based on

the 10 – 100 receptors criteria (i.e. high receptor sensitivity) and assumes that works will take place within <20 - 50m of each receptor. Baseline conditions indicate the local ambient air quality is relatively low in terms of PM_{10} concentrations, even when taking into consideration the committed developments, therefore the impact on human health is considered to be low.

Table 11.27 Sensitivity of area to dust soiling, human health and ecology

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium - High	Medium	Medium
Human Health	Low	Low	Low	Low
Ecological	Low	Low	Low	Low

In summary, the potential impacts of dust on human health and ecology are considered to be low for the construction phase of the development, to include demolition, construction, earthworks and trackout activities. However, in order to negate the effects dust deposition and soiling potential, further site-specific mitigation measures are outlined later within this Chapter.

11.8.2 Operational Impacts

The development proposals include the construction of a new road traffic source (Russell Row), and alterations of traffic flow at the junction of Old Cross Square, both of which are located near residential receptors. However, as previously indicated within the screening assessment, and as per Chapter 10, traffic increases will be minimal over committed and future 'without' development traffic conditions and proposed future changes in traffic flows will not result in an increase of more than 500 AADT for LDVs, and 100 HDVs. The site is not located within close proximity to an AQMA.

It is noted that the site does not fall within the criteria for a full Air Quality Impact Assessment as per the IAQM (2017) guidelines, and the requirement for an Air Quality Assessment can effectively be screened out. However, as the development proposals include the construction of a new road and alterations of traffic flows at Old Cross Square, then as a precautionary approach a more detailed Air Quality Impact Assessment was undertaken in order to quantify potential impacts that the development may have on local receptors.

The results of air dispersion modelling demonstrate negligible increase between pre-development and post-development conditions, predicting that the proposed increases in passenger and light goods vehicles is unlikely to cause any exceedances in the Air Quality Standards for NO_2 or PM_{10} concentrations at any of the receptor positions, even when taking into consideration the cumulative impact of committed developments and projects, and with

the development in place. The results also indicate that predicted air quality for NO_2 or PM_{10} concentrations would be below the WHO (2021) Air Quality Guidance Levels for IT3 and IT4.

When considering the impact of magnitude for changes in ambient pollutant concentrations as per the TII2022 criteria, the proposed development is considered to have a NEUTRAL impact, given that percentage changes relative to the AQVL levels are predicted to be less than 1% for any of the modelled AQ parameters.

When considering the DMRB LA 105 Air Quality Guidance criteria, the magnitude of change in annual mean NO_2 or PM_{10} concentrations is SMALL as the predicted change in concentrations is less than 0.4ug/m^3.

11.8.3 Cumulative Impacts

It is anticipated that the construction and demolition phases of the development will occur beyond the influence of other committed or proposed projects, either in terms of spatial separation or temporal, therefore cumulative impacts of dust deposition associated with construction activities is considered to be no greater than the development itself in isolation.

In terms of the operational phase, the cumulative impacts on local air quality parameters have been modelled, inclusive of known significant committed or proposed projects, and in addition to the development proposed under this application. The outcome of the cumulative impact assessment concludes that the effects of the operational phase on local air quality, in cumulation with other committed or proposed projects, is not predicted to exceed any of the Air Quality Standards, with changes in local air quality anticipated to be neutral.

11.8.4 Interrelationships

Air quality within an urban context is dependent on a number of parameters, to include climate and local weather conditions, but also in terms of a number of interrelated Chapters:

- Chapter 4: Proposed Site Development
- Chapter 8: Hydrology
- Chapter 9: Biodiversity
- Chapter 10: Material Assets, Land Use & Waste
- Chapter 12. Population & Human Health

11.9 Mitigation

11.9.1 Demolition & Construction Phase

In accordance with the IAQM Guidelines (2024), site specific mitigation has been developed on the outcome of the dust risk assessment carried out as part of the impact assessment process. This is in addition to the recommended responsibilities for Dust Mitigation for Demolition and Construction Sites guidance, which include the following:

- The Developer should produce a Dust Management Plan (DMP) to be agreed with Local Planning Authority prior to construction commencing;
- During the tender process for the Principal Contractor, the Developer should include the list of detailed mitigation measures, as set out in within this Chapter;
- Prior to work commencing the Contractor should prepare a method statement and a comprehensive, site specific DMP, and agree the DMP with the Local Planning Authority. The measures in the DMP may differ from the mitigation measures in the construction impact assessment due to the specific methods to be used on-site. For example, measures related to activities that will not take place on the site do not need to be included. This provides some flexibility for the Developer;
- Upon agreeing the DMP with the Local Planning Authority, the Developer should complete and retain an audit of the compliance with the DMP and should make the audit available to the Local Authority.

In addition to the above, based on the outcome of the construction impact assessment and in accordance with the IAQM (2024) Guidelines, the following mitigation measures have been recommended as per Table 11.28. It is noted that the IAQM (2024) Guidance suggests that for mitigation measures that are general, the highest risk category should be applied. For example, if the site is medium risk for earthworks and construction, but a high risk for demolition and track-out, the general measures applicable to a high-risk site should be applied.

Table 11.28 Mitigation Measures for the demolition and construction phase

Description	Mitigation Measure
Communication	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Display the name and contact details of person(s) 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.
	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, realtime PM10 continuous monitoring and/or visual inspections, as required.
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. All records should be made available to the Local Authority upon request.
	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 daily 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 windowsills within 100 m of site boundary, with cleaning to be provided if necessary.
	Carry out regular site inspections to monitor compliance with the DMP, 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.

Description	Mitigation Measure
	Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site.
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 actives 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 vehicle / machinery and sustainable travel	In order to reduce GHG emission and particulate matter, ensure that all vehicles switch off engines when stationary - no idling vehicles.
	In order to reduce GHG emission and particulate matter, 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 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas.
	Ensure that vehicles are regularly checked and inspected for damages, and that vehicles or plant equipment operates in accordance with the manufacturer requirements and specifications. Any damages to vehicles should be repaired as soon as possible, preferably offsite under controlled environs.
General Mitigation Measures	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.

Description	Mitigation Measure
	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.
Materials and Waste Management	Avoid bonfires and burning of waste materials.
Measures Specific to Demolition	Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
	Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
	Where practical, bag and remove any biological debris or damp down such material before demolition.
Measures 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 or cover with topsoil, as soon as practicable.
	Only remove the cover in small areas during work and not all at once, or as required.
Measures 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.

Description	Mitigation Measure
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
	For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.
Measures 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. This may require the sweeper being continuously in use.
	Avoid 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 log book
	Where possible, install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
	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 permit.
	Access gates to be located at least 10 m from receptors where possible.

11.9.1.1 Demolition & Construction Monitoring

In addition to the mitigation measures outlined above, and the development of a suitable DMP, monitoring of construction dust deposition at nearby sensitive receptors during the construction phase is recommended in order to ensure mitigation measures remain effective.

In the absence of specific criteria, monitoring can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge

consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2 m above ground level. The TA Luft limit value is 350 mg/m^2/day with an exposure period of 30 days +/- 2 days. Consistent implementation of good dust minimisation practices will ensure that the likely effects from construction dust is short-term, localised, reversible and not significant when considered with respect to the EPA description of effects (EPA 2022).

When selecting monitoring locations, the IAQM document, "*Guidance on Monitoring in the Vicinity of Demolition and Construction Sites*" (2018) should be reviewed, and in conjunction with the preparation of the DMP. As a minimum, it is recommended that at least 3No. monitoring positions are used, which can provide a means of qualitatively determining the directional impact and source of dust generation and deposition. The monitoring period should be carried out for the duration of the construction and demolition phases, with the results being retained and made available to the Local Authorities upon requests.

11.9.2 Operational Phase Mitigation

The operational impacts on air quality are considered to be neutral to low. As the emissions to air during the operational phase are not significant, then no further mitigation measures are required. It is also considered that the development of brownfield sites reduces the requirement for further land-use change, thus reducing the overall impact on climate. Other design mitigation measures which may not necessarily relate directly to air quality, but which can contribute to reducing waste and GHG emissions, and adhere to the Climate Change Adaptation Strategy (2019-2024) policy for Monaghan County Council, could include:

- Reuse/recycling of on-site material wherever possible, such as soil material, thus reducing emissions related to importing materials;
- The use of LED public street lighting, in order to further reduce electricity usage of the site and reduce energy wastage;
- Planting of trees, particularly within the communal park area, which can contribute to carbon sequestration and subsequently also improve local air quality.

11.10 Residual Effects Following Mitigation

11.10.1 Construction

The specific mitigation measures outlined within Chapter aim to prevent significant effects on receptors in terms of air quality changes, for all activities during the demolition and construction phases. On this basis it is anticipated that provided the mitigation measures are

implemented as recommended within this Chapter, then the overall residual effects are anticipated to be negligible.

11.10.2 Operational

The operational impacts on air quality are considered to be neutral to low, therefore the residual effects of the development are anticipated to be negligible. As such, no further mitigation or remediation is required.

12 Population & Human Health

12.1 Introduction

An Environmental Impact Assessment (EIA) assesses the potential impact of the development on the environment and human health. The impact on human health can be influenced by a range of environmental, social and economic factors, which can vary dependant on the project, location and conditions of the locality. Any significant health impacts that might be caused by a development proposal must be comprehensively addressed.

The Proposed Development can result in both direct and indirect impacts on population and human health, which may be positive or negative. These impacts include changes to air quality, noise, traffic, socio-economic factors, and land, soil, and water quality.

Human health is considered throughout the relevant technical chapters of the ES. This chapter seeks to focus on potential human health impacts that have not been considered elsewhere.

12.2 Methodology

12.2.1 Relevant Policy and Guidance

12.2.1.1 Environmental Protection Agency (EPA) Guidelines

The guidelines issued by the Environmental Protection Agency (EPA) regarding the information to be included in the Environmental Impact Assessment Report (EIAR) outline the changes made to Article 3(1) of the revised European Union (EU) Environmental Impact Assessment (EIA) Directive (2022). These set out that:

> ***"The Environmental Impact Assessment shall identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of a project on the following factor***
>
> ***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)."***

In addition, Paragraph 5(d) of Annex IV sets out that an EIAR must contain

"A description of the likely significant effects of the project on the environment resulting from, inter alia, 'the risks to human health".

Consideration has been taken of the guidance published by the European Commission in 2017 on the preparation of EIARs which sets out that:

"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… such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants)… in addition, these would concern the commissioning, operation, and decommissioning of a Project".

Methods used to assess the impact of development on population and human health are tailored to each specific case in order to accommodate the unique characteristics of each project. Assessment requirements, and outcomes, will vary significantly depending on the nature and qualities of the development and its location. They are also influenced by the particular circumstances and sensitivities of the local context and community. The scope, emphasis, and evaluation of this chapter is tailored to the specific proposed development and local conditions.

The methodology utilised for this chapter combines the findings of the wider technical disciplines which have been assessed elsewhere in the EIAR and expands upon how and where they impact cumulatively on population and human health. Mitigations are proposed, if necessary, to offset any potential significant effects of development.

A health and wellbeing demographic database have been established within the chapter to assess the sensitivity of each receptor affected and the significance of any potential impact of development. In determining the significance of effect upon population and human health, any detrimental effects identified that have potential to be considered of importance have been assessed against the significant benefits of the proposal.

12.2.1.2 National Planning Framework (NPF) – Project Ireland 2040

The National Planning Framework (Project Ireland 2040) provides comprehensive guidance to planning authorities and statutory bodies. It outlines key principles to consider during the planning process, including those related to population and human health. The NPF aims to improve the overall quality of life for population, promote public health, and enhance social cohesion while supporting economic growth and environmental sustainability.

The following National Strategic Outcomes relevant to the proposed development and its potential impact of population and human health are set out in Table 12.1 below:

Table 12.1 Relevant National Strategic Outcomes (NSO)

Outcomes	Information
Compact Growth	Carefully managing the sustainable growth of compact cities, towns and villages will add value and create more attractive places in which people can live and work. All our urban settlements contain many potential development areas, centrally located and frequently publicly owned, that are suitable and capable of re-use to provide housing, jobs, amenities and services, but which need a streamlined and co-ordinated approach to their development, with investment in enabling infrastructure and supporting amenities, to realise their potential. Activating these strategic areas and achieving effective density and consolidation, rather than more sprawl of urban development, is a top priority.
Enhanced Regional Accessibility	A co-priority is to enhance accessibility between key urban centres of population and their regions. This means ensuring that all regions and urban areas in the country have a high degree of accessibility to Dublin, as well as to each other. Not every route has to look east and so accessibility and connectivity between places like Cork and Limerick, to give one example, and through the Atlantic Economic Corridor to Galway as well as access to the North-West is essential.
Sustainable Mobility	In line with Ireland's Climate Change mitigation plan, we need to progressively electrify our mobility systems moving away from polluting and carbon intensive propulsion systems to new technologies such as electric vehicles and introduction of electric and hybrid traction systems for public transport fleets, such that by 2040 our cities and towns will enjoy a cleaner, quieter environment free of combustion engine driven transport systems.

Outcomes	Information
A Strong Economy, supported by Enterprise, Innovation and Skills	This will depend on creating places that can foster enterprise and innovation and attract investment and talent. It can be achieved by building regional economic drivers and by supporting opportunities to diversify and strengthen the rural economy, to leverage the potential of places. Delivering this outcome will require the coordination of growth and place making with investment in world class infrastructure, including digital connectivity, and in skills and talent to support economic competitiveness and enterprise growth.
Enhanced Amenities and Heritage	This will ensure that our cities, towns and villages are attractive and can offer a good quality of life. It will require investment in well-designed public realm, which includes public spaces, parks and streets, as well as recreational infrastructure. It also includes amenities in rural areas, such as national and forest parks, activity-based tourism and trails such as greenways, blueways and peatways. This is linked to and must integrate with our built, cultural and natural heritage, which has intrinsic value in defining the character of urban and rural areas and adding to their attractiveness and sense of place.
Transition to a Low Carbon and Climate Resilient Society	The National Climate Policy Position establishes the national objective of achieving transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050. This objective will shape investment choices over the coming decades in line with the National Mitigation Plan and the National Adaptation Framework. New energy systems and transmission grids will be necessary for a more distributed, renewables-focused energy generation system, harnessing both the considerable on-shore and off-shore potential from energy sources such as wind, wave and solar and connecting the richest sources of that energy to the major sources of demand.

12.2.1.3 Monaghan County Development Plan 2019 – 2025

The Monaghan County Development Plan (CDP) 2019 – 2025 sets out a number of objectives relevant to population and human health. These include development objectives that relate specifically to the town centre, recreation and amenity, and retail objectives.

Table 12.2 Relevant Objectives within the County Development Plan

Objectives	Information
Relevant Core Strategy Objectives	
CSSO 1	To ensure that new development within the County will provide for sustainable development that enables economic growth, delivery of accessible and high-quality infrastructure and services and guides population growth in accordance with the settlement strategy.
Relevant Specific Strategy Objectives	
SHO 1 (Monaghan Town)	To facilitate the development of Monaghan to maintain its position as the principal town in the County at the top of the settlement hierarchy and to ensure that its expansion takes place in an orderly and sustainable fashion that will not detract from the vitality and viability of the town centre.
Relevant Monaghan Town Centre Objectives	
MPO 1	Ensure that all development proposals in the vicinity of Dublin Street/Roosky have regard to the Local Area Action Plan for lands to the Northeast of Dublin Street.
MPO 2	Ensure that all development proposals within the Dublin Street Regeneration Plan area have regard to the regeneration strategy and development objectives of the Dublin Street Regeneration Plan.
MPO 4	Encourage new developments which refurbish existing buildings and back lands in order to eliminate dereliction and reinforce the town centre.
MPO 5	Extend the town's retail base as the County Town and maintain the Tier 1 designation in the County Monaghan Retail Strategy 2016
MPO 15	Ensure that all development proposals within the Dublin Street North Regeneration Plan area have regard to the regeneration strategy and development objectives of the Dublin Street North Regeneration Plan.
Relevant Recreation and Amenity Objectives	

REO 3	Provide sufficient recreation/open space and amenity areas within the towns for their populations and prevent the loss of existing or private open space unless alternative facilities are provided in a suitable location elsewhere.
Relevant Retail Objectives	
SRO 1	Protect the vitality and viability of the town centres as the principal shopping area by encouraging development that would maintain and consolidate the retail core (as defined by the town centre boundary) of the towns.
Relevant Community Policies	
CSO 1	To protect and enhance existing community and recreation facilities throughout the County and to secure the provision of additional facilities subject to demand and availability of resources in corporation with the relevant stakeholders, the Local Community Development Committee and their associated Local Economic and Community Plan.
Relevant Accessibility Objective	
CWP 1	To promote and facilitate the development of walkways, cycleways and recreational routes in appropriate locations throughout the County to deliver the objectives of the County Walking and Cycling Strategy and any subsequent strategy document. The overall purpose of this objective is to promote the provision of quality cycling and walking facilities as part of an integrated transport system which can deliver improvements to overall health and wellbeing for people living in the area.

12.2.1.4 Dublin Street Regeneration Plan 2022

The Dublin Street Regeneration Plan provides guidance on the development of Dublin Street North and is a statutory document for consideration within the Monaghan County Development Plan. The Regeneration Plan provides recommendation on how development can:

- Realise the potential for growth and to improve the range and quality of offer in retail and nonretail sectors
- Deliver a more attractive shopping and visitor environment

- Develop the town as a service centre given its strategic location
- Create synergies/linkages between the Dublin Street North Regeneration Plan area and the proposed Roosky Master Plan area. Also, to create synergies to the new PEACE Campus at Plantation Road, and education and health services
- Realise the potential for growth in residential development within the study area, with enhanced quality of life and sustainable town centre living
- Realise the potential for growth in employment opportunities, to create sustainable live/work environment in the town centre
- Increase the number of people visiting Monaghan for shopping and other purposes
- Contribute to the overall economic and social enhancement of the town
- Incorporate potential land uses compatible

12.2.1.5 National Healthy Ireland Framework 2019 – 2025

The Healthy Ireland Framework 2019 - 2025 aims to improve population health and wellbeing by promoting healthy lifestyles, reducing health inequalities, creating supportive environments, and strengthening the public health system. The Framework is driven by the recognition that health is influenced by a wide range of social, economic, and environmental factors.

"Health means everyone achieving his or her potential to enjoy complete physical, mental and social wellbeing. Healthy people contribute to the health and quality of the society in which they live, work and play. Health is much more than an absence of disease or disability, and individual health, and that of the country, affects the quality of everyone's lived experience. Health is an essential resource for everyday life, a public good, and an asset for health and human development".

The Framework sets out four primary goals for improving health and wellbeing. These include:

- **Goal 1**: Increase the proportion of people who are healthy at all stages of life
- **Goal 2**: Reduce health inequalities
- **Goal 3**: Protect the public from threats to health and wellbeing
- **Goal 4**: Create an environment where every sector of society can play their part

12.2.1.6 The Local Economic & Community Plan (LECP)

As set out above the Monaghan County Development Plan at Objective CSO 1 seeks to secure the addition of facilities subject to demand and availability in corporation with the objectives of the LECP.

The LECP aims to deliver specific actions in both economic and community sectors in corporation with the County Council in relation to community organisations, education

facilities, public and private sector agencies and the voluntary sector. The overarching aim of the LECP is to ***"development and promote social and economic opportunities for all people living in and visiting County Monaghan"***. In support of this aim, six high level goals have been adopted for the Monaghan LECP, one of which includes:

- To promote the health and well-being of all people in Monaghan by ensuring equal opportunity to access, participate and engage in the social, economic, cultural, sporting and educational opportunities available in the County.

12.3 Assessment Criteria and Significance

12.3.1 Guidance

The concept of 'health' as defined by the World Health Organization (WHO) constitution encompasses health as a ***"state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"***. In the context of development planning, there exists a substantial body of guidance emphasising the integration of public health considerations into the planning process. This guidance draws upon expert evidence and policy to highlight the importance of adopting a comprehensive socio-economic model of health. This type of model encompasses conventional health impacts that could arise during both operational and construction phases of the development, these include potential contamination and pollutants entering watercourses, potential increase in diseases, respiratory issues as a result of detrimental air quality impacts, potential increases in pedestrian and vehicular safety as a result of increased traffic and potential impacts on quality of life as a result of general disturbance such as noise. These are considered alongside broader determinants crucial for fostering good health and wellbeing, such as employment and local amenities. Given the nature of the proposed development which seeks to deliver on the objective of the Monaghan County Development Plan which ultimately seeks to deliver the regeneration of Dublin Street within Monaghan Town, it is considered that the social, economic and environmental benefits of such as scheme are material considerations when assessing the potential impacts on the local population and their health.

The assessment considers the physical, mental, and social wellbeing impacts, addressing equality and social factors where possible. It acknowledges the intertwined relationship between social and environmental influences on health. By considering both social and ecological determinants, it aims to provide a comprehensive understanding of how the proposed development could affect overall population health.

12.3.2 Assessment Criteria

The potential significance of an effect is based on the magnitude of an impact and the sensitivity of the receptor, affected by the impact of that magnitude. This section sets out the criteria applied in this chapter to characterise the magnitude of potential impacts and sensitivity of receptors. Table 12.3 outlines the sensitivity of receptors, while Table 12.4 outlines the magnitude of impacts on receptors.

Table 12.3 Definitions of Sensitivity

Sensitivity	Description
Very High	Very high importance and rarity, international scale and very limited potential for substitution
High	High importance and rarity, national scale, and limited potential for substitution
Medium	High or medium importance and rarity, regional scale, limited potential for substitution
Low	Low or medium importance and rarity, local scale
Negligible	Very low importance and rarity, local scale

Table 12.4 Definitions of Magnitude

Magnitude	Description	
	Adverse	Beneficial
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality
Medium	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality
Low	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring

Magnitude	Description	
	Adverse	Beneficial
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements	Very minor benefit to or positive addition of one or more characteristics, features or elements
No Change	No loss or alteration of characteristics, features or elements; no observable impact in either direction	

Table 12.5 below sets out the potential environmental receptors during both the construction and operational phases. Given the temporary nature of the construction phase, the impacts are considered to be part temporary and/or part permanent. Due to the localised nature of these impacts, the receptors are primarily residents in the immediate vicinity of the site, as well as those visiting the site and surrounding areas.

Table 12.5 Potential Environmental Impacts/Classification/Type

Receptor	Classification of Impact		Impact Type
	Construction	Operation	
Noise Impact	Negative	Negative	Part temporary, part permanent, direct, localised impact
Air Quality	Negative	Negative	Part temporary, part permanent, localised impact
Traffic	Negative	Negative/Positive	Part temporary, part permanent, localised impact
Amenity Impacts	Negative	Negative/Positive	Part temporary, part permanent, localised impact
Quality of Life impacts as a result of accessibility to open space, sports and recreation	Negligible	Positive	Part temporary, part permanent, localised impact

Receptor	Classification of Impact		Impact Type
	Construction	Operation	
Community Benefits	Negative/Positive	Positive	Part temporary, part permanent, localised impact
Employment	Positive	Positive	Part temporary, part permanent, localised impact

12.3.3 Assessment of Significance

The significance of effects is assessed based on the matrix provided in Table 12.6, which considers both the sensitivity of receptors and the magnitude of impact. The terms used within this assessment, such as '***Substantia***l', '***Major***', '***Moderate***', '***Minor***', and '***Negligible***', are defined below to provide clarity on the significance levels attributed to various effects. It is important to acknowledge that within a defined population, variations will likely exist in the sensitivity to social-economic and environmental changes within the local population. In the instance of this assessment, a precautionary approach has been adopted, assuming uniform high sensitivity among the population of Monaghan town to changes in environmental and socio-economic conditions. Moreover, any effects identified that are deemed to have significance at '***Minor***' levels and lower are not considered to be significant for the purposes of the assessment.

- **Substantial**: This level is typically reserved for adverse effects that are crucial considerations in decision-making. They often relate to sites or features of international, national, or regional significance, where significant impact and loss of resource integrity are anticipated. However, substantial changes to local sites or features may also fall into this category.
- **Major**: Both beneficial and adverse effects at this level are highly significant considerations and are likely to materially influence decision-making.
- **Moderate**: Effects categorised as moderate may be important, but they are not usually critical factors in decision-making. However, the cumulative impact of such effects could influence decisions if they contribute to an overall increase in adverse effects on a particular resource or receptor.
- **Minor**: Effects in this category are typically local in nature and may not be crucial in decision-making but can still play a role in refining project design.

- **Negligible**: This category includes effects that are either imperceptible, within normal variation, or fall within the margin of error in forecasting.

Table 12.6 Significance of Effects

		Magnitude of Impact				
		No Change	**Negligible**	**Low**	**Medium**	**High**
Sensitivity	**Negligible**	No Change	Negligible	Negligible or Minor	Negligible or Minor	Minor
	Low	No Change	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
	Medium	No Change	Negligible or Minor	Minor	Moderate	Moderate or Major
	High	No Change	Minor	Minor or Moderate	Moderate or Major	Major or Substantial
	Very High	No Change	Minor	Moderate or Major	Major or Substantial	Substantial

12.4 Baseline Environment

To establish a baseline for the Population and Human Health assessment, several documents have been used to inform the analysis. Key documents include the Monaghan County Development Plan 2019 – 2025, which provides insights into demographic trends in the County, and Health Profile Monaghan 2015 from the Department of Health, which provides a detailed overview of health outcomes, demographic factors, and lifestyle indicators. Together, these documents help build a broader understanding of public health in the region.

12.4.1 Local Context

Monaghan is a border county, surrounded by Counties Cavan, Meath, Louth, Armagh, Tyrone, and Fermanagh. Strategically positioned along the Donegal/Derry-Dublin corridor and adjacent to the M1, it maintains strong connections with Northern Ireland and the North-West. Monaghan Town functions as both a local hub and the county town.

The 2022 Census reported a 6% population increase in County Monaghan since 2016, bringing the total population to 65,288, an increase of 3,902. This is slightly below the average population growth of 8% across the state over the same period. This however represents a larger increase compared to the 2016 Census, which recorded a 1.3% rise of 903 people,

while the state grew by only 3.8%. Over the last 25 years, from 1991 to 2016, the population of Monaghan has increased by approximately 10,093, reflecting a steady growth. Monaghan remains predominantly rural in nature, with only 37% of the population of the county residing within an urban area.

The average age of population in County Monaghan as of 2022 was 38.7 years, an increase from 37.4 years in 2016. The number of residents aged 65 years and over grew by 21%, reaching 10,397. The population of Monaghan Town increased slightly by 0.47% to 7,894. Of this, 1,818 were aged 0-17 years, 4,801 were within 18-64 year demographic, and 1,275 were 65 years or older.

12.4.2 Economic Context

In recent years, Monaghan County has seen significant growth in its commercial and industrial sectors, including the development of the Combi Lift complex in Monaghan Town. The continued success of major businesses, alongside support for small to medium-sized industries, is key to fostering local employment. The positive impact of these efforts is reflected in the 2022 Census, showing a 12% increase in employment, with 28,571 people in Monaghan now in work.

The County has seen limited growth in office space in recent years, though the M:TEK and C:TEK complexes have been pivotal in establishing business hubs in the largest towns. A key consideration is balancing growth to ensure it supports employment while maintaining an attractive environment for population growth and retention.

Monaghan Town Centre features a mix of land uses, with retail being central to its role as a hub for employment and services. Several developments, including the opening of Monaghan Shopping Centre in 1996, have contributed to the existing vibrancy of the town centre.

12.4.3 Health Context

Healthy Ireland is the National Framework for health and wellbeing, with a key focus on building relationships and strengthening partnerships across government departments, local authorities, the education sector, and the business, voluntary, and community sectors.

The Framework is designed to deliver tangible measurable change by recognising the various factors that influence health. Health and wellbeing are shaped by multiple aspects of life, including economic status, education, housing, and the physical environments where people live and work.

The Healthy Monaghan Plan 2019 - 2022 also supports the implementation of Healthy Ireland at local level to improve health and wellbeing in Monaghan. This Plan aims to increase the

proportion of people who are healthy at all stages of life, reduce inequalities and protect the public from threats to health and wellbeing.

The Plan integrates national policies and strategies, adapting them to address the specific needs, challenges, and priorities of County Monaghan. The Key Strategic Themes included within this Plan are:

- **Strategic Theme 1**: Physical Activity
- **Strategic Theme 2**: Healthy Eating
- **Strategic Theme 3**: Tobacco Cessation, Alcohol Harm and Substance Misuse Reduction
- **Strategic Theme 4**: Sexual Health
- **Strategic Theme 5**: Mental Health
- **Strategic Theme 6**: Cross Cutting

12.4.3.1 Health Profile Monaghan 2015

The following key facts are presented in the Health Service Executive (HSE) document, Health Profile 2015 Monaghan and are considered important in the determination of a future proposal within Monaghan:

- Higher than average proportion of population with no formal or primary education only of 20.8% compared to national rate of 15.2%
- Higher than average proportion of semi, unskilled and agricultural workers of 15.6 (national rate of 11.7)
- Lower than national average birth rate to females of all ages and those aged under 20 of 13.7 and 9.9 (national rates 15.8 and 12.3) respectively
- Highest incidence of female malignant lung cancer nationally, and higher than average female malignant colorectal cancer, but has the lowest incidence of female and male malignant melanomas.

12.4.3.2 Physical Health

The 2022 Census found that 86% of people in Monaghan stated that their health was good or very good compared with 88% in 2016.

The 2015 Monaghan HSE profile provides a statistical comparison of physical health relative to the rest of Ireland. It was observed that Monaghan had higher mortality rates per 100,000 than the national average for cancer, heart disease, stroke, and respiratory-related conditions. Mortality rates from injuries were above the national average until 2009, after which they declined to below the national average.

The 2021 Healthy Ireland Survey offers other relevant insights. This national survey indicates that 84% of the Irish population perceive their health as good or very good, slightly lower than the 2022 Census results from Monaghan. The survey also indicated that only 3% of the population rate their health as poor or very poor. The most commonly reported medical conditions include high blood pressure (6%), arthritis (5%), asthma (4%), diabetes (4%), and high cholesterol (3%).

12.4.3.3 Mental Health

Mental health challenges are a significant concern for public health, societal wellbeing, and the economy. While the county reports the lowest rate of hospital admissions for anxiety and depression, it had the highest rate of male suicide in Ireland in 2017.

Issues pertaining to mental health are directly associated with factors such as deprivation, poverty, and inequality. In less affluent socio-economic groups, research has established that higher rates of depression are often evident. It is predicted that mental illnesses will become the leading cause of chronic diseases in high-income countries by 2030. The latest Health Profile for Monaghan from the HSE indicates over 90% of the population in the county live in conditions at least marginally below the average deprivation level in Ireland. It is important that development is directed to improving the mental health of the population, given its strong connection to broader socio-economic factors.

12.5 Impact Assessment (Construction)

The construction phase of development is identified as the primary source of potential environmental health impacts. While construction activities are temporary and typically confined to specific working hours, they can still impact local air quality, noise levels, traffic volume, and, in some cases, water and soil quality.

Potential impacts upon population and human health during construction and operation have been addressed in detail in the respective Noise & Vibration (Chapter 6), Air Quality (Chapter 11), Soils (Chapter 7) and Hydrology (Chapter 8) chapters. A separate Preliminary Contaminated Land Risk Assessment (Appendix 7.1) has also been undertaken to assess the risks of contaminated land on human health. Therefore, these aspects have not been repeated here.

The construction phase of the development can also affect the local economy through changes in income and job opportunities. These factors are outlined in further detail below.

12.5.1 Income and Employment Generation

The magnitude of impact of income and employment generation on human health is significant. A steady income and stable employment play a crucial role in influencing overall health. Throughout all phases of the development, construction-related employment opportunities will arise. Given the nature of the construction industry, it is expected that while not all workers may be local, some will be. The health effects associated with these employment opportunities are predicted to have a regional impact and be short-term in nature. These effects stem from both direct and indirect employment opportunities, as well as from the local expenditure of construction workers during the development phases. Overall, the benefits of employment throughout the construction phase are expected to have a temporary but minor positive impact on the local population and the human health of those residing in Monaghan.

A precautionary approach has been taken in assessing the sensitivity of the receptor. It has been assumed that residential receptors have a uniformly high sensitivity to health effects stemming from income and employment generation.

In terms of the significance of the effect, it is anticipated that there will be a minor impact on income and employment generation. Effects categorised as ‘minor’ or lower are not considered significant for the purposes of this assessment.

The residual effect of income and employment generation during the construction phase is expected to be positive. However, the employment opportunities that arise from the construction of the facility will dissipate upon its completion.

12.6 Impact Assessment (Operational)

12.6.1 Income and Employment Generation

The proposed development primarily consists of public realm and road infrastructural works, meaning that no direct employment opportunities will be generated during its operational phase. However, the project aligns with the objectives set out in the Monaghan County Development Plan and the Dublin Street North Regeneration Plan. These plans emphasize the revitalization of Monaghan town centre, fostering employment opportunities, promoting economic growth, and encouraging investment and tourism. As a result, while the project itself does not create direct jobs, it is expected to act as a catalyst for further economic activity, ultimately benefiting the local population and economy.

A precautionary approach has been taken in assessing the sensitivity of the receptors, assuming that all residential populations have a uniformly high sensitivity to potential health effects related to income and employment generation. This approach ensures that any potential socio-economic impacts are carefully considered, particularly in relation to the well-being of local residents.

The overall significance of the effect on income and employment generation is expected to be minor. As per the assessment methodology, effects categorized as ‘minor’ or lower are not considered significant. Nevertheless, the proposals are expected to contribute to the broader economic strategy for Monaghan, supporting business activity and job creation in the long term.

No additional mitigation or enhancement measures are proposed, as the indirect benefits of the project are expected to be inherently positive. In terms of residual effects, the regeneration of Dublin Street North is anticipated to have a positive impact on Monaghan town and the wider county economy. This will be achieved through increased footfall, which can lead to higher levels of commercial activity and job creation in the retail, hospitality, and service sectors. Overall, while direct employment impacts are minimal, the broader economic benefits of the regeneration efforts will contribute to income and employment generation in Monaghan over time.

12.6.2 Health and Wellbeing

The proposed development is expected to have a medium positive impact on public health by promoting physical activity and fostering a culture of active living. Regular physical activity is associated with numerous health benefits, including a reduced risk of chronic diseases, improved mental well-being, and stronger social cohesion. The project includes accessibility enhancements that encourage walking and cycling, alongside the development of a new community park. These improvements will provide greater opportunities for residents to engage in outdoor activities, supporting healthier lifestyles in the local community.

From a health perspective, the sensitivity of the receptor during the operational phase is considered to be low to moderate. The increased availability of recreational and outdoor spaces will contribute positively to the well-being of residents, though the overall impact will vary depending on individual engagement with the new facilities.

The significance of the effect on the local population is assessed as positive but low. The provision of new recreational spaces and improved accessibility will create an environment that promotes physical activity, particularly walking and cycling. This, in turn, will enhance overall community health and encourage a more active lifestyle among residents.

No further mitigation or enhancement measures are proposed, as the development is inherently designed to promote positive health outcomes. However, the long-term benefits of these improvements are expected to be significant. The residual effects are anticipated to be moderate and positive, as more residents are encouraged to live in the town centre following future investments enabled by this development. This will contribute to a more vibrant and active community, reinforcing the project's long-term health and well-being benefits.

12.7 Assessment of Population and Human Health

12.7.1 Construction Phase

All construction impacts are considered temporary and, with mitigation, are not expected to be significant. The construction phase of the regeneration of Dublin Street North is expected to stimulate further economic activity in Monaghan Town and its surrounding areas, particularly benefiting the construction sector and related industries. This aligns with the broader trend of growth of the construction sector in the state, with the project further contributing to this.

12.7.2 Operational Phase

The operational phase of the Dublin Street North regeneration is expected to provide significant socio-economic benefits for the local population of Monaghan Town through increased employment opportunities and income generation. The nature of this town centre regeneration will also extend these benefits to the surrounding communities in Monaghan and beyond. The anticipated benefits include:

- Revitalisation of the town centre, enhancing local amenities and services
- Creation of employment opportunities, stimulating local businesses and supporting economic growth
- Improved accessibility and connectivity within the town
- Enhanced public spaces and public realm
- Potential to attract further investment and tourism, fostering long-term economic growth and resilience

12.7.3 Cumulative Effects

The assessment of population and human health is interconnected with other chapters of the EIAR, incorporating their cumulative impact evaluations and conclusions. Consequently, this assessment indirectly considers the combined effects of both the proposed development and other relevant projects being assessed cumulatively.

The proposals when read in conjunction with the adjacent Masterplans such as Dublin Street South and the Roosky Masterplan will further exacerbate the benefits on health and wellbeing of both residents and the business population of Monaghan Town through significant investment and increased expenditure during both operational and construction phases of the development.

12.8 Overall Mitigation

12.8.1 Construction Phase

No specific mitigation measures are recommended for population and human health, as no significant effects are anticipated during the construction phase. However, mitigation measures outlined in various other chapters of this EIAR are relevant to a wider range of sensitive receptors. These mitigation measures in other EIAR chapters are expected to further reduce or eliminate the potential for any significant impacts on population and human health.

12.8.2 Operational Phase

No specific mitigation measures are recommended for population and human health, as no significant effects are expected during the construction phase. The impacts on population and human health are anticipated to be generally positive, supporting many of the strategic and local objectives outlined in the National Policy Framework (NPF) and the Monaghan County Development Plan, particularly regarding economic growth, health and wellbeing, and quality of life.

12.8.3 Future Monitoring

No future monitoring will be required for population and human health metrics due to the nature and scale of the development.

12.8.4 Summary of Effects and Conclusions

It is unlikely that the construction or operation of the proposed regeneration of Dublin Street North will have any significant effects on human health. This conclusion is based on the expectation that any potential changes in health indicators would be too minor to result in noticeable shifts in the overall health and well-being of the local community.

12.8.5 Limitations

The Population and Human Health assessment in the EIAR relies on technical inputs from chapters on air quality, noise, and transport to assess changes in environmental and socio-economic conditions related to the proposed regeneration of Dublin Street North. Consequently, the assessment is influenced by the limitations of these supporting chapters and the assumptions made to address them. Improving the reliability of such assessments requires effectively managing baseline data constraints by cross-referencing national statistics to identify relevant health conditions and pathways at the local level. Despite these challenges, the available information is sufficient for undertaking a thorough assessment.

13 Cultural & Architectural Heritage

13.1 Introduction

This chapter assesses the potential impacts of the Proposed Development, as set out in Chapter 4 – Project Description, on the known and potential cultural heritage resource. The term 'Cultural Heritage' encompasses several aspects of heritage. It can include tangible assets (immovable: archaeological sites and monuments, architectural heritage buildings; movable: artefacts; underwater: shipwrecks and ruins) and intangible assets (e.g. folklore, oral tradition, traditional craft working and language). In broad terms, 'Cultural Heritage' includes the designated and non-designated heritage categories of (i) archaeology (known and unknown), (ii) architectural (built) heritage and (iii) history and folklore.

For the proposed Development, the term 'Cultural Heritage' shall encompass all of these elements, save for architectural and built heritage, assessment of which has been prepared by John Cronin & Associates.

Assessment of architectural and built heritage has been prepared by Alastair Coey Architects. Both elements (Cultural Heritage and Architectural Heritage) have been dealt with under separate headers within this chapter.

13.1.1 Author Information and Competency

Alastair Coey Architects and John Cronin & Associates have been appointed by McAdam Design to provide cultural and architectural heritage impact assessment inputs of the proposed Dublin Street North Regeneration project: Alastair Coey Architects (ACA) to provide conservation architectural heritage input, and John Cronin & Associates (JCA) to provide cultural heritage (archaeological) input.

13.1.1.1 John Cronin & Associates

This chapter was prepared by Kate Robb and Camilla Brännström, John Cronin & Associates. Kate Robb is a qualified archaeologist and cultural heritage EIA consultant with over 15 year's industry experience and is a full member of the Institute of Archaeologists of Ireland (MIAI). Kate Robb has project-managed and authored the cultural heritage environmental impact assessment of numerous large-scale infrastructural schemes including extensive road, electricity transmission, renewable energy, housing and urban development projects.

Camilla Brännström is a qualified and licence-eligible archaeologist with over 19 years' commercial archaeology experience in Ireland. Camilla Brännström has worked as Project Archaeologist on numerous archaeological schemes, excavations and heritage projects,

including, but not limited to, archaeological impact assessments, cultural heritage assessments for EIARs and archaeological works on large infrastructure projects.

13.1.1.2 Alastair Coey Architects

Alastair Coey Architects are a specialist conservation practice with over 20 years' experience in producing architectural conservation related reports for sites throughout Ireland and the UK. This chapter was prepared by Maeve Gorman, an RIAI chartered architect accredited in conservation at Grade 3, an RIBA Conservation Architect and an affiliate member of the Institute of Historic Building Conservation (IHBC). Maeve Gorman has previous experience preparing Conservation Strategies, and the Cultural Heritage Strategy for a large-scale infrastructure project.

13.2 Methodology & Legislation

The methodological approach to the impact assessment of the Cultural & Architectural Heritage resource involved both desk and field-based site analysis. A range of data sources were utilised with a consideration of impact and relevant mitigation measures prepared in line with best practice and guidance literature (see Section 13.2.1). Statutory and non-statutory consultation has also been undertaken (see Chapter 5**)**.

Desk-based assessments were augmented by site-based inspections and archaeological investigations, to determine of significance of effects, by applying the criteria set out below (see Section 13.2.2)

13.2.1 Legislative Context & Guidance

This assessment complies with the requirements of Directive 2011/92/EU as amended by Directive 2014/52/EU, and the Planning and Development Act, 2000 (as amended) and Planning and Development Regulations, 2001 (as amended).

The management and protection of Cultural Heritage in Ireland is achieved through a framework of national laws, policies and charters which are in accordance with the provisions of:

- The World Heritage Convention (1972) (UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage) ratified by Ireland in 1991
- Valetta Convention (1995) (formally the European Convention on the Protection of the Archaeological Heritage, 1992) ratified by Ireland in 1997
- Granada Convention (1985) (European Convention on the Protection of Architectural Heritage) ratified by Ireland in 1997

- Florence Convention (2000) (European Landscape Convention) ratified by Ireland in 2002
- UNESCO Convention on the Protection of the Underwater Cultural Heritage (2001) Ireland is a signatory and underwater Cultural Heritage is protected under the National Monuments Acts 1930-2014
- Paris Convention (2003) (UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage) ratified by Ireland in 2015
- Venice Charter (1964) International Charter for the Conservation and Restoration of Monuments and Sites and its addendum the Florence Charter (1981) concerning the preservation of Historic Gardens
- Washington Charter (1987) ICOMOS Charter for the Conservation of Historic Towns and Urban Areas
- Charter on the Built Vernacular Heritage (1999) ratified by ICOMOS to establish principles in addition to the Venice Charter for the care and protection of built vernacular heritage
- Xi'an Declaration (2005) ICOMOS Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas; and
- Burra Charter (2013) Australia ICOMOS Charter for Places of Cultural Significance.

Relevant national legal statutes include:

- Historic and Archaeological Heritage and Miscellaneous Provisions Act (2023)
- National Monuments Act (1930 - 2014)
- Heritage Act (1995) (as amended)
- National Cultural Institutions Act (1997) (as amended)
- Planning and Development Act (2000) (as amended)

The methodology utilised for the EIA assessment will be based on a range of guidance documents including:

- Monaghan County Council, Monaghan County Development Plan 2019-2025
- Department of Arts, Heritage, Gaeltacht and the Islands (1999) Framework and Principles for the Protection of the Archaeological Heritage
- Environmental Protection Agency (2022) Guidelines on the Information to be contained in an Environmental Impact Assessment Reports
- Department of Housing, Planning & Local Government (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment

- European Commission (2017) Guidance on the preparation of the Environmental Impact Assessment Report
- ICOMOS (2011) Guidance on Heritage Impact Assessments for Cultural World Heritage Properties
- UNESCO (2022) Guidance and Toolkit for Impact Assessments in a World Heritage Context
- Department of Environment, Heritage & Local Government (2008) National Policy on Town Defences
- Historic England (2017) The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)
- Historic Environment Scotland (2016) Managing Change in the Historic Environment: Setting
- Department for Communities NI (Historic Environment Division (HED)) (2018) Guidance on Setting and the Historic Environment
- Department of Arts, Heritage, and the Gaeltacht (2011) Architectural Heritage Protection: Guidelines for Planning Authorities
- Department of Housing, Local Government & Heritage (2021) A Living Tradition: A Strategy to Enhance the Understanding, Minding and Handing on of Our Built Vernacular Heritage
- Department of Housing, Local Government & Heritage (2022) Places for People: National Policy on Architecture
- Department of Arts, Heritage and the Gaeltacht (2015) A National Landscape Strategy for Ireland 2015-2025
- Department of Culture, Heritage and the Gaeltacht (2020) Culture 2025 – A National Cultural Policy Framework to 2025
- Department of Housing, Local Government & Heritage (2022) Heritage Ireland 2030: A Framework for Heritage
- Department of Culture, Heritage and the Gaeltacht (2019) Built & Archaeological Heritage Climate Change Sectoral Adaptation Plan
- Kerr, James Semple, 2013, The Seventh Edition Conservation Plan: A Guide to the Preparation of Conservation Plans for Places of European Cultural Significance, Australia ICOMOS.
- British Standards Institution (2013) BS 7913: Guide to the conservation of historic buildings, Second edn.: British Standards Institution.

13.2.1.1 Cultural Heritage

The National Monuments Service (NMS) is currently based in the Department of Housing, Local Government and Heritage (DHLGH) and is responsible for the preservation, protection, and promotion of Ireland's archaeological heritage. The Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 was enacted on October 13th, 2023, with a Commencement Order of some of its provisions effective from 31st May 2024.

NMS published an online guidance note[11] in relation to the Act in November 2023 which provides an overview of its current status, and this is summarised hereafter.

"While the Act is now law most of its provisions will not enter into force until the Minister of Housing, Local Government and Heritage has made one or more "*Commencement Orders****". This means that section 7 of the Act (which provides for the repeal of the National Monuments Acts 1930 to 2014 and related legislation) has not entered into force. Accordingly, the National Monuments Acts 1930 to 2014 and other legislation which section 7 of the Act will, when it comes into force, repeal, remain fully in force as they stood on 13th October and will continue to do so for the time being. The Act contains transitional provisions which will, if necessary, enable certain aspects of the existing National Monuments Acts 1930 to 2014 to continue in operation notwithstanding their repeal post-commencement of the Act while successor provisions are being brought fully into operation. This includes provisions enabling the Record of Monuments and Places to continue to have effect pending the establishment of a new Register of Monuments."***

The first Commencement Order of the new 2023 Act came into effect on 31st May 2024.[12] This includes for the repeal of the Architectural Heritage (National Inventory) and National Monuments (Misc. Provisions) Act 1999, new enforcement measures including fines and prison sentences, strengthening of legal protections in private/company collections, developing guidance and codes of best practice and promotion, and strengthening of the implementation of the World Heritage Convention (1972).

The National Monuments Acts 1930 (as amended), the Heritage Act 1995 (as amended) and relevant provisions of the National Cultural Institutions Act 1997, currently still remain the primary means of ensuring the satisfactory protection of archaeological remains. There are a number of mechanisms under the National Monuments Acts that are applied to secure the

[11] National Monuments Service. Available At: https://www.archaeology.ie/news/enactment-of-historic-and-archaeological-heritage-and-miscellaneous-provisions-act-2023-and [Accessed 30.08.2024]
[12] Commencement of Certain Provisions of the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023. Available at: https://www.archaeology.ie/news/commencement-of-certain-provisions-of-historic-and-archaeological-heritage-and-miscellaneous [Accessed 30.08.2024]

protection of archaeological monuments. These include the designation of National Monument status, the Register of Historic Monuments (RHM), the Record of Monuments and Places (RMP) and the Sites and Monuments Record (SMR) as well as the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

A National Monument is described as ‘a monument or the remains of a monument, the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto’ (Section 2, National Monument Act, 1930). For National Monuments in the ownership or guardianship of the Minister or a Local Authority, or which are subject to a preservation order or temporary preservation order, the prior written consent of the Minister is required for any works at or in proximity to the monument under Section 14 of the National Monuments Act 1930, as amended by Section 5 of the National Monuments (Amendment) Act 2004.

The Record of Monuments and Places was established under Section 12(1) of the National Monuments (Amendment) Act, 1994 and was based on the earlier Sites and Monuments Record and Register of Historic Monuments. These records comprise lists and maps of all known archaeological monuments and places for each county in the state. The National Monuments Service maintains an online Historic Environment Viewer which comprises an interactive map/search facility that provide access to current records stored on its national database of sites and monuments. The Viewer includes designated areas around recorded monuments known as ‘zones of notification’ which do not comprise buffer zones but are intended to indicate areas of archaeological potential within their environs[13]. All archaeological sites listed in the Record of Monuments and Places receive statutory protection under the National Monuments (Amendment) Act, 1994 and no works can be undertaken at their locations without providing two months advance notification to the National Monuments Service per Section 12(3) of the National Monuments (Amendment) Act 1994.

The known and recorded archaeological sites located within the Study Area are detailed in Section 13.3. The potential for the presence of hitherto unrecorded, sub-surface archaeological features within proposed construction areas is also considered.

13.2.1.2 Architectural Heritage

The approach to re-modelling and restoration of the historic structures and intervening spaces should be conservation-led in the context of internationally recognised best practice, with reference to:

[13] Archaeology and the Planning Process. Available at: https://www.archaeology.ie/sites/default/files/media/publications/archaeology-planning-process-pl13.pdf [Accessed 30.08.2024]

- James Semple Kerr's 'Conservation Plan: A Guide to the Preparation of Conservation Plans for Places of European Cultural Significance';
- The ICOMOS Burra Charter;
- British Standard BS7913: 2013 (the management and treatment of historic buildings); and
- The Department of Arts, Heritage and the Gaeltacht's publication 'Architectural Heritage Protection – Guidelines for Planning Authorities'

In Ireland, Local Authorities have a statutory responsibility to safeguard architectural heritage in accordance with Part VI of the Planning and Development Act 2000. Under S.51 (1), a County Council must compile a Record of Protected Structures (RPS), listing all structures which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. These are defined in **Error! Reference source not found.**. The protection, unless otherwise stated, includes the exterior and interior of the structure, lands lying within its curtilage, other structures and their interiors within the curtilage, plus all fixtures and fittings which form part of the interior or exterior of any of these structures.

13.2.1.3 Monaghan County Development Plan 2019-2025

The Monaghan County Development Plan 2019-2025 is the relevant development plan for the study area and includes the following policies in relation to the protection of the archaeological heritage resources:

Protected Monuments & Places Policy

- PMP 1 - To protect the Record of Monuments and Places listed in Appendix 5 (and any subsequent additions by the National Monuments Service) to ensure that the setting of the recorded monument or site is not materially injured and to co-operate with all recommendations of Statutory bodies in the achievement of this objective.
- PMP 2 - To ensure that any development adjacent to an archaeological monument or site shall not be detrimental to the character of the archaeological sites or its setting and shall be sited in a manner which minimises the impact on the monument and its setting. Development which is likely to detract from the setting of such a monument or site shall be resisted.
- PMP 3 - To protect archaeological sites and monuments which are listed in the Record of Monument and Places and to require their preservation in situ (or at a minimum preservation by record) through the planning process.
- PMP 4 - When considering new development in the vicinity of archaeological monuments/sites the planning authority may require one or more of the following to ensure the preservation and enhancement of the recorded monument;

  - The provision of an appropriate buffer between the proposed development and the archaeological monument/ site.
  - The submission of a Visual Impact Assessment to assess the potential impact on the setting of the recorded monument.
  - The carrying out of an onsite archaeological investigation prior to a permission being granted.
  - Revisions to the proposed development to reflect any advice and/or recommendations made by the Department of the Arts, Heritage & the Gaeltacht (and any other relevant statutory consultee).
- PMP 5 - To identify where appropriate Archaeological sites in the Plan area to which public access could be provided or improved in consultation with landowners.
- PMP 6 - To contribute, as appropriate, towards the protection of archaeological sites and monuments and their settings, archaeological objects and underwater archaeological sites that are listed in the Record of Monuments and Places, in the ownership/guardianship of the State, or that are subject of Preservation Orders or have been registered in the Register of Historic Monuments. Contribute, as appropriate, towards the protection and preservation of archaeological sites, which have been identified subsequent to the publication of the Record of Monuments and Protected Monuments & Places Policy Places. To contribute, as appropriate, towards the protection and preservation of underwater archaeological sites in riverine or lacustrine locations.
- PMP 7 - To consult with the National Monuments Service in relation to proposed developments adjoining archaeological sites.

The Monaghan County Development Plan 2019-2025 also includes the following statement in relation to archaeology:

"Monaghan is a fine example of a seventeenth century plantation town and much of the street pattern of this time has survived. Dublin Street, the Diamond, Glaslough Street, Mill Street, Park Street and Market Street all appear to be of seventeenth century origin. The "Zone of Archaeological Potential" within the town, which comprises the area of the seventeenth century town together with the area around the site of Mullaghmonaghan Fort, is delineated on the map MDP 3. Within this area there is a possibility of discovering archaeological deposits such as seventeenth century house foundations, refuse pits, industrial areas and workshops. Developers should also refer to the County Monaghan Urban Archaeology Survey which detail other known archaeological findings in the urban area."

13.2.1.4 Architectural Conservation Area

There are several Architectural Conservation Areas (ACAs) in the town, and Dublin Street (Figure 13.1) is a dedicated ACA. The boundary of the area takes in the main buildings fronting the street only, without including returns and outbuildings. The Dublin Street Architectural Conservation Area is defined in the Draft Monaghan County Development Plan 2025-2031 (Table 13.1)

Table 13.1 Draft Monaghan County Development Plan Extract - Objectives & Policies

Architectural Conservation Areas Objectives	
ACO 1	To carry out a comprehensive review of the Architectural Conservation Areas within the County during the lifetime of this Plan, subject to available resources.
ACO 2	To prepare character appraisals for each of the designated Architectural Conservation Areas in the County to guide new development proposals and environmental improvements by identifying the character of each Architectural Conservation Areas and designing objectives to ensure that their distinctiveness and special interest are preserved and enhanced.
ACO 3	To support and promote best practice conservation in works to structures and buildings within Architectural Conservation Areas and to encourage the use of tradespeople and professionals trained in the use of traditional skills, materials and building techniques.

Architectural Conservation Areas Policies	
ACP 1	To resist development that would adversely affect the character and appearance of the Architectural Conservation Areas. New development or alterations to existing building(s) in an Architectural Conservation Areas shall reflect the historic architecture in terms of scale, design and materials used. Regard shall be had to any objectives contained in the character appraisals (where applicable).
ACP 2	To implement and comply with the relevant guidance for Architectural Conservation Areas in relation to proposals for development.

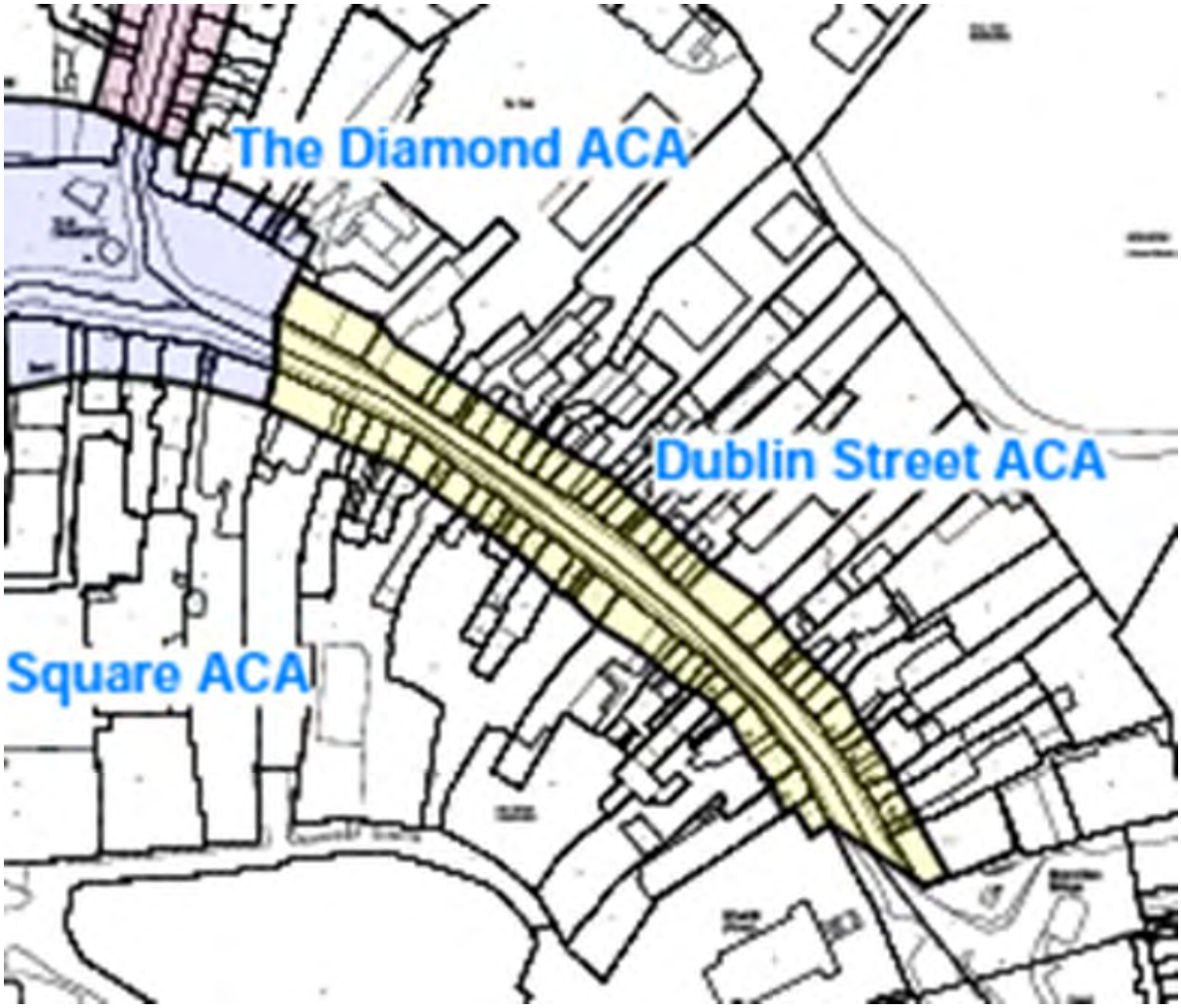


Figure 13.1 Dublin Street Conservation Area

13.2.2 Assessment Methodology for Determining Impacts to Cultural & Architectural Heritage

13.2.2.1 Cultural Heritage Methodology

Cultural Heritage assessment methodology was based on a programme of desktop research combined with a field survey, limited[14] archaeological testing and monitoring of geotechnical investigation trenches within the proposed development lands which were carried out to identify any features of archaeological or cultural heritage significance likely to be impacted by the proposed development.

The recorded and potential cultural heritage resource within a Study Area encompassing lands extending 500m in all directions from the proposed Development site. This Study Area was

[14] Due to the numerous on-site constraints (hard surfaces, structures, boundary walling) at the backland plots of Dublin Street North, this had limitations on where, and to what extent archaeological test trenches could be investigated

reviewed in order to compile a comprehensive cultural heritage baseline context for the location of the proposed development and surrounding lands.

Desktop Research

A range of published desk-based data sources were consulted for purposes of identification of all recorded cultural heritage receptors within the Study Area. The desktop study also sought to identify any potential (and previously unrecorded) features or areas of heritage significance. Further, desk-based research of unpublished relevant reference material was also undertaken.

The Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP) for County Monaghan, both published by the Archaeological Survey of Ireland, were the principal sources consulted for identifying known (and statutorily protected) archaeological sites. These datasets were accessed via the Department of Housing, Local Government & Heritage (National Monuments Service) (DHLGH - NMS) Historic Environment Viewer.

Other sources consulted as part of the assessment included the following:

- Monaghan County Development Plan 2019-2025 – This publication outlines the Council's policies for the protection of the archaeological and cultural heritage resource within the county.
- UNESCO designated World Heritage Sites and Tentative List: A review was undertaken of the locations of the two world heritage sites in Ireland and other significant sites included in a Tentative List (2022) nominated by Ireland for inclusion.
- The Database of Irish Excavation Reports: This database contains summary accounts of licensed archaeological excavations carried out in Ireland (North and South) from 1970 to present. Current data was accessed via www.excavations.ie as of August 2024.
- Archaeological Inventory of County Monaghan – This publication dates to 1986 and presents summary descriptions of the known archaeological sites within the county at that time. A review of current SMR datasets published on the Historic Environment Viewer was carried out in August 2024 to ascertain if any archaeological sites have been identified within the study area identified since the publication of the inventory.
- Heritage Council's Heritage Map Viewer: This online mapping source (www.heritagemaps.ie) collates various cultural heritage datasets sourced from, among others, the National Monuments Service, National Museum of Ireland (NMI), local authorities and the Office of Public Works and was accessed in August 2024. Consultation was also undertaken with NMI in relation to the Topographical Files held in the museum.

- Literary Sources: Published and unpublished literary sources were consulted, together with consultations with Monaghan County Museum to assess the archaeological, historical, and folklore record of the Study Area.
- Cartographic and photographic sources: Available historic cartographic and photographic depictions of the Study Area, dating from the 17th century onward were reviewed and relevant extracts are presented below. This also included relevant photographic files (Monaghan Old Infirmary) from the Irish Architectural Archive (provided by Alastair Coey Architects to John Cronin & Associates).
- Aerial/Satellite/LiDAR imagery: A review of publicly accessible imagery from the Ordnance Survey Ireland (OSI), Google Earth, and Bing Maps was carried out (August 2024) to appraise whether they revealed evidence for any unrecorded archaeological sites within the proposed development site or its environs.
- Placenames Database of Ireland: This online database (www.logainm.ie) provides a comprehensive management system for data, archival records and place names research conducted by the State. All townlands relevant to the Study Area were reviewed.
- Irish National Folklore Collection: Transcribed material from the National Folklore Collection archive which has been digitised and published online at www.duchas.ie was reviewed for any references relevant to the Study Area.

Field Inspection

All accessibly available areas within the site were subject to a field inspection in April 2023 and July 2024. Some areas of the proposed development site could not be visited due to existing access constraints (gated private boundaries, highly overgrown/vegetated areas). The inspected areas were assessed in terms of existing land use, any remnants of historic structures or landscaped features, vegetation cover and the potential for the presence of previously unrecorded archaeological sites/features. The inspection results are described in Section 13.3 and extracts from the photographic record compiled during the field visit are presented in Appendix 13.4**.**

Archaeological Test Excavation and Monitoring

A limited[15] programme of licenced archaeological test trenching of an available greenfield plot within the proposed Development site was carried out by Camilla Brännström of John Cronin and Associates in August 2024 (Licence No. 24E0606). The aim of this targeted investigation was to identify any archaeological features or material relating to the historic settlement of Monaghan which may have survived within the environs of Dublin Street North to inform this

[15] See footnote 14

assessment. In addition, licensed archaeological monitoring of Ground Investigation (GI) test pits required for the scheme was undertaken (License No. 24E0606). Outline results are detailed in section 13.3.2 with the full report presented in Appendix 13.5.

13.2.2.2 Architectural Heritage Methodology

Establishing the Baseline Condition

In order to establish an understanding of the baseline physical and cultural conditions of the Site as existing, a range of activities have been undertaken by Alastair Coey Architects. These have included desktop-based research; archival research at the Irish Architectural Archive and Monaghan County Museum; walkover surveys of the open grounds within the site carried out in March-April 2023.

The results of this research are collated in the Appendix 13.7. These activities have informed:

- An understanding of the basic characteristics of the site; topography, landscape, principal structures, landscape features, access, surrounding context, views into and out of the Site.
- An understanding of the historical development of the Site.
- An understanding of the location, significance and sensitivity to change of the Protected Structures and other buildings within and without the Site.
- An understanding of the interdependency between the backlands buildings and the historic landscape within the Site.

A further walkover survey was carried out by Alastair Coey Architects in September 2024 to establish a baseline visual condition of the identified heritage buildings, see Appendix 13.11 Summary Condition of Buildings.

These elements of understanding the Site, individually and collectively, allow Alastair Coey Architects to make an informed assessment of the heritage factors which are impacted by the Development, the specific effects of the Development on those heritage factors, possible alternatives, and mitigation/compensation measures which may be put in place.

Identifying the Heritage Assets to be Assessed

The Planning and Development Act establishes that a historic or protected structure should be evaluated on the basis that it may have special interest under one or more of the following categories:

Architectural Interest

The characteristics of architectural interest may be attributed to a structure or part of a structure with such qualities as the following:

- a generally agreed exemplar of good quality architectural design;
- the work of a known and distinguished architect, engineer, designer or craftsman;
- an exemplar of a building type, plan-form, style or styles of any period but also the harmonious interrelationship of differing styles within one structure;
- a structure which makes a positive contribution to its setting, such as a street-scape or a group of structures in an urban area, or the landscape in a rural area;
- a structure with an interior that is well designed, rich in decoration, complex or spatially pleasing.

Historical Interest

The notion of historical interest underpins a general belief that it is worthwhile to preserve and conserve structures, sites and information from past centuries. The level of importance of the historical connection and its relationship to the existing fabric of the structure should be assessed. The historical interest relating to a structure or parts of a structure may be identified in various ways.

- A structure may have historical interest as the location of an important event that occurred in, or is associated with it, or by its association with a historic personality. Some events or associations may be so important that the place retains its significance regardless of subsequent alteration. Where an otherwise unremarkable structure has historical associations, it may be more appropriate to commemorate the association with a wall-mounted plaque. Where the decision is difficult, it is helpful to discover whether other buildings connected with the personality or event still exist (and if they are protected) and to make an assessment that takes account of the value of such a group.
- A structure may have influenced, or been influenced by, an historic figure. Important people may have lived in the structure or have been otherwise associated with it – for example its patron, designer or builder. Places in which evidence of an association with a person survive, in situ, or in which the settings are substantially intact, are of greater significance than those which are much changed or in which much evidence does not survive.
- Historical interest can be attributed where light is thrown on the character of a past age by virtue of the structure’s design, plan, original use, materials or location.
- A structure may be a memorial to a past event;
- A structure itself may be an example of the effects of change over time. The design and fabric of the structure may contain evidence of its former use or symbolic meaning.

This may be the case with former gaols or churches that have since changed and, in so doing, illustrate a historic development.

- Some fixtures and features may survive, for example in consistory courts and courts of law, that are important evidence of former liturgical or legal practice and may have special historical interest for that reason.
- Some unusual structures may have historical or socio-historical interest, for example, early electricity substations, 'Emergency' era military pillboxes or sentry-boxes. Although not yet of popular heritage significance, such structures can nonetheless have special historical and social interest.
- Special historical interest may exist because of the rarity of a structure. Either few structures of an identifiable type were built at a particular time, or few have survived. In either case, the extant structure may be one of the few representative examples of its time that still exists in the national, regional or local area. The rarity of surviving examples of a building type can ensure that special historical interest accrues to them.

Archaeological Interest

Special archaeological interest is essentially defined by the degree to which material remains can contribute to our understanding of any period or set of social conditions in the past (usually, but not always, the study of past societies). The characteristic of archaeological interest in the context of the RPS must be related to a structure. Structures of special archaeological interest may also be protected under the National Monuments Acts

- Structures can have the characteristics of both archaeological and architectural interest as these are not mutually exclusive. For example, the party walls or basements of houses of later appearance may contain mediaeval fabric and reveal information of archaeological interest. The standing walls of a sixteenth-century tower-house will have both characteristics of interest.
- Fragments of early fabric, including carved or worked stone, may have been re-used in later buildings giving these structures archaeological significance as the current context of historically significant material.
- A complex of industrial buildings may have archaeological interest because of its potential to reveal artefacts and information about the evolution of industry that may be useful to archaeologists, historians and the public.

Artistic Interest

Special artistic interest may be attributed to a structure itself, or to a part of a structure, for its craftsmanship, design or decoration. Examples could include:

- examples of good craftsmanship;

- decoratively carved statuary or sculpture that is part of an architectural composition;
- decoratively-carved timber or ceramic-tiled shopfronts;
- ornate plasterwork ceilings;
- decorative wrought-iron gates;
- religious art in a place of public worship such as the Stations of the Cross or stained-glass windows;
- fixtures and fittings such as carved fireplaces, staircases or light-fittings;
- funerary monuments within a graveyard;
- the relationship of materials to each other and to the totality of the building in which they are situated, if these have been designed as an ensemble.

Cultural Interest

The characteristic of cultural interest permeates the architectural heritage and can, in the broadest terms, include aesthetic, historical, scientific, economic or social values of past and present generations. Special cultural interest apply to:

- those structures to which the Granada Convention refers as ‘more modest works of the past that have acquired cultural significance with the passing of time’;
- structures that have literary or cinematic associations, particularly those that have a strong recognition value;
- other structures that illustrate the development of society, such as early schoolhouses, library buildings, swimming baths or printworks.

Scientific Interest

The scientific interest, or research value, of a structure will depend on the importance of the data involved and, on its rarity, and/or quality. Its scientific interest should also be assessed as to how well it represents the area of research in question and the degree to which the structure may contribute further objective information. For example:

- the results of scientific research may be seen in the execution of the structure;
- the materials used in the structure may have the potential to contribute to scientific research, for example extinct pollen or plant species preserved in the base layers of ancient thatch roofs;
- the structure may be associated with scientific research that has left its mark on the place, such as early Ordnance Survey benchmarks carved into stonework.

Technical Interest

Special technical interest in a structure relates to the art of the structural engineer in devising solutions to problems of spanning space and creating weatherproof enclosures. It may be

found in structures which are important examples of virtuoso, innovative or unusual engineering design or use of materials. A structure may be of special technical interest for one or more of the following reasons:

- it displays structural or engineering innovation evidenced in its design or construction techniques such as the use of cast- or wrought-iron prefabrication or an early use of concrete;
- it is the work of a known and distinguished engineer;
- it is an exemplar of engineering design practice of its time. For example, a bridge may be a masonry arch, an iron suspension or a concrete span;
- it displays technically unusual or innovative construction or cladding materials, such as early examples of glazed curtain walling, prefabricated concrete plank cladding or Coade stone;
- contains innovative mechanical fixtures, machinery or plant or industrial heritage artefacts that describe the character of production processes. The specifically industrial aspect of some sites like mill buildings, millponds, tailings or derelict mines can often have a technical heritage value;
- purely special technical interest can be ascribed to the innovative engineering qualities of a structure, as distinct from the building's appropriateness for use, or its appearance or form.

Social Interest

The characteristic of special social interest embraces those qualities for which a structure, a complex or an area has become a focus of spiritual, political, symbolic or other sentiment to any group of people. A community may have an attachment to a place because it is an essential reference point for that community's identity, whether as a meeting place or a place of tradition, ritual or ceremony. The configuration, disposition or layout of a space or group of structures, where they facilitate behaviour that would otherwise be difficult or impossible, may be of social interest. This category of special interest may sometimes not be directly related to the physical fabric of a particular structure or structures and may survive physical alteration. Care should be taken to recognise the pattern or internal relations of the parts of the structure that constitute its special interest, in order to ensure that they be conserved.

The fixtures and features that testify to community involvement in the creation of a structure or have a spatial form or layout indicating community involvement in the use of a structure, could include such elements as memorials, statues or stained-glass panels.

A structure may display vernacular traditions of construction and may be set in a group or area which illustrates the social organisation of the inhabitants. Most obviously this would include thatched cottages. In vernacular buildings, elements of the planform (for example, direct-entry, lobby-entry, doors opposite one another, bed outshoots etc), as well as the roofing material of otherwise ordinary structures may be distinctive and have special social interest.

Types of decoration may have artistic as well as social interest, such as shell houses or the local manifestation of exuberant or ashlar stucco decoration where it is particular to a town or region.

A social interest could also be attributed to structures illustrating the social philosophy of a past age, as in the case of philanthropic housing developments. Structures which illustrate a particular lifestyle or social condition, for example holy wells, are to be found in many parts of the country. Care must be taken to ensure that there is sufficient physical fabric to such places for them to be defined as ‘structures’

EIA guidance recognises “material assets, cultural heritage and the landscape” as an environmental resource and the assessment therefore encompasses all of these whether they are designated as Protected Structures or otherwise. Where prior designations of value exist (e.g. the Register of Protected Structures, the National Inventory of Architectural Heritage) these are given cognisance in the assessment. Where such designations do not currently exist, value judgements have been determined by new survey work and analysis.

Establishing Sensitivity to Change

Understanding the sensitivity of any Heritage Asset to changes introduced directly or indirectly by the Proposed Development is an important part of the assessment process. The determination of sensitivity is not a wholly empirical process and relies to a degree on the professional judgement of the assessors. Alastair Coey Architects is a RIAI Grade 1 accredited conservation practice and have the necessary experience to make a balanced and informed judgement.

Statutory and non-statutory guidelines also play a significant role in determining the sensitivity to change. Assessing the heritage asset includes the following:

- Is the asset listed in the Record of Protected Structures?
- Is the asset listed in the Record of Monuments and Places?
- Does the asset sit wholly or partly in an Architectural Conservation Area?
- Is the asset listed in the National Inventory of Architectural Heritage?
- Do the DHLGH ‘Architectural Heritage Protection Guidelines for Planning Authorities’ (2011) provide specific guidance (e.g. on the curtilage of a Protected Structure)

- Does the National Monuments Act provide specific and relevant guidance?

It is also recognised that different groups (e.g. local residents) will have differing views on changes introduced by the Development, and differing perceptions of what might constitute significantly positive or negative changes. These different viewpoints must also be given due consideration in making a balanced assessment of sensitivity to change.

Establishing the Degree of Change

The degree to which a Heritage Asset is changed by the Development is a compound measure based on:

- The physical extent of the modifications to the Heritage Asset. How much of it is altered, removed or obscured? Is it being extended – to what extent?
- Do the changes reverse modifications that were made to the Heritage Asset at a date later than its original construction, and which in themselves are detracting features?
- Changes to the setting and context of the Heritage Asset. What proximal changes are being introduced and how significantly do they change the context and setting? This includes views towards and from the Heritage Receptor.
- The reversibility of the changes. Can the changes introduced be reversed at a later date, with what level of difficulty and with what degree of success? Are the changes wholly irreversible?

The assessment of sensitivity to change and the degree of change allows a determination of how significant the effects of the Development will be on a Heritage Receptor. The sensitivity to change is linked to the value of the heritage asset, which is assessed using the factors outlined in Table 13.5**.**

For the purposes of comparative assessment, the magnitude of effects on a Heritage Receptor are shown in Table 13.6.

The process of determining the effect of the Development is not wholly empirical and relies on the assessor’s expert judgement of each circumstance. For that reason, the grading of an effect may be higher or lower than the sensitivity of the receptor and/or the magnitude of the change might otherwise suggest.

When it is considered that effects may be negative, neutral or positive, a comparative hierarchy can be established as shown in Table 13.7. However, it is important to recognise that each effect must be judged individually on its merits and that a ‘’trade-off’ of beneficial and negative effects should not be a consideration. It must also be considered that the cumulative nature of the effects might in itself lead to a re-evaluation of each component. The relationship

between the value of the heritage asset and the significance of the effects is set out in Table 13.7.

13.2.2.3 Mitigation & Residual Effects

The design of the Development has been undertaken with due consideration on how the impacts to Heritage assets can be minimised. Opinions have been obtained from the Conservation Officer in DLRCC to guide and inform measures that can be taken to mitigate or eliminate adverse effects before the design has been finalised. Mitigation measures are therefore 'designed-in' to the process.

Mitigation measures are defined for each adverse effect and the residual effect, once those measures have been affected, is assessed.

Probability and Frequency of Effects (Architectural Heritage)

In Heritage terms the source of change within the Development overwhelmingly arises from changes to built structures and designed landscapes. For the purposes of assessment the identified effects, inclusive of mitigation measures, are considered to be certain to occur. For the same reason, frequency of the effects is not a consideration as it may be, for example, for air quality. The effects are considered to be permanent.

13.2.2.4 Impact Assessment and Significance of Effect

Cultural Heritage sites are considered to be a non-renewable resource and cultural heritage material assets are generally considered to be location sensitive. In this context, any change to their environment, such as construction activity and ground disturbance works, could adversely affect these sites. The likely degree of significance of all effects is determined in consideration of the magnitude of the impact and the baseline rating upon which the impact has an effect (i.e. the sensitivity or value of the cultural heritage asset).

The EIA Directive 2011/92/EU as amended by Directive 2014/52/EU requires a description of likely significant effects of a project on the environment (Article 5(1) of 2014/52/EU). The following criteria, based on EPA (2022) and ICOMOS (2011) guidelines, has been applied to determine the methodology for the assessment of significance of effects on the Cultural heritage resource. Impact assessment is achieved by a consideration of the duration, quality, type, magnitude and value of effect(s) on the Cultural Heritage resource.

Table 13.2 Duration of effect (per EPA EIAR Guidelines 2022)

Duration	Description
Momentary	Seconds to minutes
Brief	One day
Temporary	One year
Short term	One-seven years
Medium term	7-15 years
Long term	15-60 years
Permanent	60 years
Reversible	Effects that can be undone, for example through remediation or restoration

The quality of an effect can be positive, neutral or negative (Table 13.3).

Table 13.3 Quality of effect (after EPA EIAR Guidelines 2022)

Quality	Indicative Assessment Factors
Positive	A change which improves the quality of the Cultural Heritage environment (e.g. increasing amenity value of a site in terms of managed access, signage, presentation or high-quality conservation/restoration and re-use of an otherwise vulnerable derelict structure).
Neutral	No change or effects that are imperceptible, within the normal bounds of variation for the Cultural Heritage environment
Negative	A change which reduces the quality of the Cultural Heritage resource (e.g. visual intrusion on the setting of a receptor, physical intrusion on features/setting of a site).

The type of effect on the Cultural Heritage resource can be direct, indirect, or no predicted impact (Table 13.4).

Table 13.4 Type of effect (after EPA EIAR Guidelines 2022)

Quality	Indicative Assessment Factors
Direct Effect	Where a Cultural Heritage site is physically located within the footprint of the Proposed Development, which will result in its complete or partial removal.
Indirect Effect	Where a Cultural Heritage site or its setting in the landscape is located within the environs of the Proposed Development.
No predicted effect	Where the Proposed Development will not adversely or positively affect a Cultural Heritage site.

Evaluation of Cultural Heritage Value/Sensitivity

The evaluation of the Value/Sensitivity of a heritage receptor is largely based on its significance criteria, and should not be considered definitive, but rather an indicator which contributes to a wider judgment based on the individual circumstances of each feature. Generally, the more criteria that is evident for a given receptor, the higher in scale its respective value shall be. Non-exhaustive criteria to be considered in addition to any legal designations include a consideration of the condition/preservation, documentary/historical significance, group value, rarity, visibility in the landscape, fragility/vulnerability and amenity value.

It is noted that, without recourse to archaeological excavation, there are limitations in determining the value or significance of sub-surface archaeological attributes (such as artefacts, human burials or other remains) for both extant and levelled sites. The Value/Sensitivity of all known or potential receptors that may be affected by the proposed development can be considered using a non-exhaustive range of indicators and professional judgement and ranked according to the following scale: Very High, High, Medium, Low and Negligible. The indicative criteria outlined in Table 13.5 has been informed by ICOMOS (2011) *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties,* pp.14-17.

Table 13.5 Indicative Factors for Assessing the Value of Cultural Heritage Assets

Value/Sensitivity	Indicative Assessment Factors
Very High	World Heritage Sites (including Tentative List properties) and associated individual attributes that contribute to the Outstanding Universal Value of the property. Sites, buildings or landscapes of acknowledged international importance. Intangible associations with individuals or innovations of global significance. Assets that can contribute significantly to acknowledged international research objectives.
High	Nationally designated sites, buildings and landscapes (urban and rural) of significant quality, rarity, preservation and importance. Assets that can contribute significantly to acknowledged national research objectives. Archaeological Landscapes and Conservation Areas with significant group value. Intangible associations with individuals or innovations of national significance.
Medium	Designated or undesignated assets that can contribute significantly to regional research objectives, including buildings that can be shown to have inherent qualities in their fabric or historical associations. Conservation Areas and historic townscapes containing buildings and/or street settings that contribute significantly to its historic character. Intangible associations with individuals or innovations of regional significance.
Low	Assets compromised by poor preservation and/or poor survival of contextual associations. Assets of limited value, but with potential to contribute to local research objectives. Historic Townscape or built-up areas of limited historic integrity in their buildings and settings. Intangible associations with individuals or innovations of local significance.

Value/Sensitivity	Indicative Assessment Factors
Negligible	Assets with very little or no surviving archaeological interest. Landscapes little or no significant historical interest. Buildings or urban areas of no architectural or historical note; buildings of an intrusive character.

Magnitude of Impact

The *Magnitude of Effect* is based on the degree of change, incorporating any mitigation measures, and is based on a consideration of the character, duration, probability and consequences. The magnitude can be negative or positive and is ranked without regard to the value of the asset according to the following scale: High; Medium; Low and Negligible. The description of magnitudes presented in Table 13.6 is based on guidance published in *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS 2011, 16-7).

Table 13.6 Magnitude of Impact on Cultural Heritage Assets

Impact Magnitude	Indicative Assessment Factors
High	Most or all key archaeological or architectural materials affected such that the resource is totally altered. Comprehensive changes to setting. Changes to most or all key historic landscape elements, parcels or components; extreme visual effects; fundamental changes to use or access; resulting in total change to historic landscape character unit. Major changes to area that affect Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.

Impact Magnitude	Indicative Assessment Factors
Medium	Changes to many key archaeological or historic building materials/elements such that the resource is clearly/significantly modified. Considerable changes to setting that affect the character of the archaeological asset. Changes to the setting of a historic building, such that it is significantly modified. Change to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, considerable changes to use or access, resulting in moderate changes to historic landscape character. Considerable changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.
Low	Changes to key archaeological materials/historic building elements, such that the resource is slightly altered/slightly different. Slight changes to setting of an archaeological monument. Change to setting of a historic building, such that it is noticeably changed. Change to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of historic landscape; slight changes to use or access; resulting in limited change to historic landscape character. Changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.
Negligible	Very minor changes to key archaeological materials or setting. Slight changes to historic building elements or setting that hardly affect it. Very minor changes to key historic landscape elements, parcels or components; virtually unchanged visual effects; very slight changes to use or access resulting in very small change to historic landscape character. Very minor changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.

Significance of Effect

The *Significance of Effects* is assessed based on a consideration of the Magnitude of the Impact (graded from High to Negligible, based on a consideration of character, duration,

probability and consequences) combined with the Value (graded from Very High to Negligible, based on a consideration of significance/sensitivity) of the cultural heritage asset.

The Significance of Effects can be described as Profound, Very Significant, Significant, Moderate, Slight, Not Significant or Imperceptible (Table 13.7 & Figure 13.2).

Table 13.7 Significance of Effects (per EPA EIAR Guidelines 2022)

Significance	Description
Imperceptible	An effect capable of measurement but without significant consequences. Can directly or indirectly affect the cultural heritage resource but is without noticeable consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences. Can directly or indirectly affect the cultural heritage resource.
Slight	An effect which causes noticeable changes in the character of the environment but without affecting its sensitivities. Can directly or indirectly affect the cultural heritage resource.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. Directly or indirectly affects the cultural heritage receptor but not such where the integrity of the resource is compromised.
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment. Directly or indirectly affects the cultural heritage receptor in part, with partial loss of integrity, character and data.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment. Directly or indirectly affects the cultural heritage receptor for the most part, with loss of integrity, character and data.
Profound	An effect which obliterates sensitive characteristics. Completely and irreversibly affects the cultural heritage receptor with total loss of integrity, character and data.

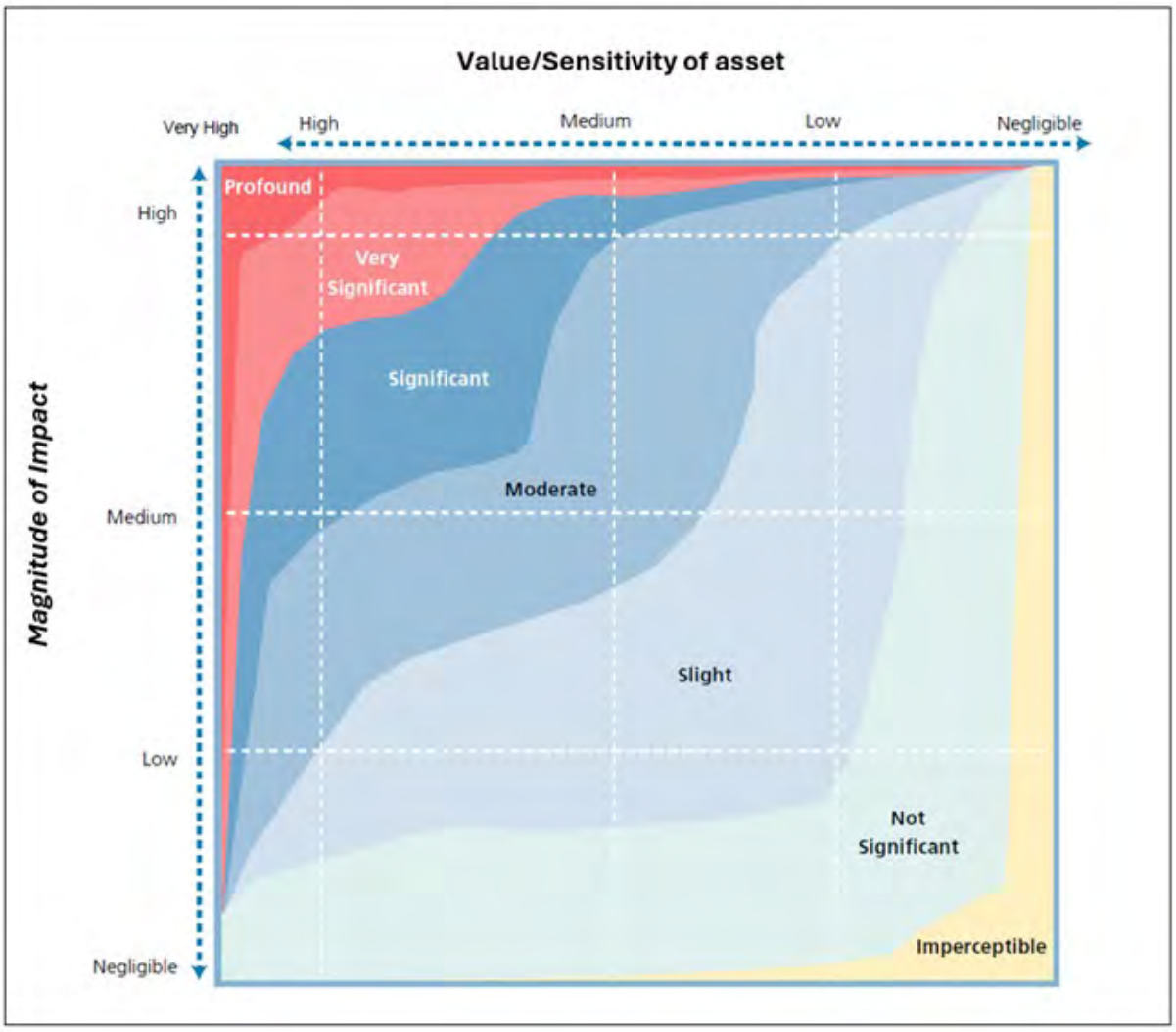


Figure 13.2 Significance of Effects Matrix (after EPA EIAR Guidelines 2022)

13.2.2.5 Difficulties Encountered in Compiling Information

There were no difficulties encountered during the compilation of the Cultural Heritage assessment, except for some access constraint locations encountered during field surveys (section 13.3). Further, there are numerous existing on-site constraints at the privately owned backland plots associated with Dublin Street North. These include hard surfacing, buildings/structures, boundary walling and possible underground utilities. As such there was limited scope for excavation of archaeological test trenches to further investigate any possible evidence for buried remains of the town defences of associated historic features/material. Testing was subsequently confined to one area, the details of which are presented in Appendix 13.5**.**

13.2.2.6 Study Area

The Study Area of the Cultural Heritage assessment comprises all lands within the proposed Development site red line boundary, and the surrounding lands for a distance of 500m. This

area extent includes the *Zone of Notification* for the Historic Town of Monaghan and is a sufficiently large area to provide adequate archaeological context to the proposed Development site.

13.3 Baseline Scenario

Cultural Heritage

The following sections present a description of the archaeological and historical context of the study area and identifies the recorded archaeological sites and designated architectural structures located within the area. Datasets have been interrogated and retrieved largely from State organisations and are considered accurate and current per publicly available information at the time of writing (August 2024). In addition, these datasets have been informed by archaeological site investigations and walkover field surveys.

13.3.1 Historical Context & Development of Monaghan Town

Monaghan town (from the Irish Muineacháin meaning ‘hilly place’) is situated on a low ridge between Peter’s Lake to the north and Convent Lake to the south in an area located within the ancient kingdom of Airgialla or Oriel. The Annals of the Four Masters (O’Donovan, 1966) contain references to a McMahon ‘caislean’ or castle at Monaghan in 1492 which the Annals of Ulster soon after (1496) describe as a ‘house‘. This structure may have been located on the crannog in Convent Lake (MO009-037----) which is depicted on Bartlett’s map of c. 1590 and labelled ‘McMahon’s house’ (O’Sullivan, 1998).

A Franciscan friary (MO009-060002-), founded nearby by Phelim McMahon in 1462, would also have contributed to the growth of a medieval historic settlement. Excavations at the site of the Westenra Arms Hotel have uncovered the remains of a mid-16th century house (MO009-06010-) constructed from posts and wattle (Excavation Licence No. 02E1147) which belong to this early phase of the town’s development. Monaghan was incorporated as a county with five baronies in 1587, marking the end of the kingdom of Oriel, but remained a stronghold of the MacMahons.

In 1590 the lord deputy, Sir William FitzWilliam, launched an expedition to Monaghan to hang Hugh Roe MacMahon, the then principal Gaelic chieftain in County Monaghan. Hugh Roe MacMahon was accused of raiding cattle belonging to the Earl of Essex and burning the crops of his enemy Heber MacCooley MacMahon. After his death the Hugh Roe MacMahon lands were divided between the remaining members of the clan and other prominent families of the area. This subsequently reduced the power of the MacMahons and allowed the English crown more control over the territory.

The annals (O'Donovan, 1966) record how the Franciscan Abbey (MO009-060002-) was sacked by the Crown in 1589. FitzWilliam later established a garrison at the site, but it was probably abandoned in the aftermath of the nearby battle of Clontibret in 1595 when the army of Hugh O'Neill, the 2nd Earl of Tyrone, won a decisive victory over the crown forces led by Sir Henry Bagenal. The garrison was subsequently re-established by John Berkley in 1602. In 1604 Sir Edward Blayney was appointed governor of the county and the garrison and shortly after was granted a large amount of land around the town of Monaghan.

In 1606 Sir John Davies, the attorney general, described the town of Monaghan as "***…consisting of divers scattered cabins or cottages, whereof the most part was possessed by the cast soldiers of that garrison. In the northmost part thereof there is a little fort, which is kept by the foot company of Sir Edward Blayney, who is seneschal or governor of the county by patent"*** (Ó Mórdha, 1957). Blaney had begun to build a castle (MO009-060003-) in Monaghan, using material taken from the former Franciscan friary (MO009-060002-). However, Davies described how "***the foundation of a new castle, which being raised ten or twelve feet from the ground, and so left and neglected for the space of two years, is now ready to fall into ruin again"*** (ibid.). Five years later, in 1611 the castle is described as "***a fayre castle buylte at Monaghan on the king's charge wherein Sr. Edward Blayne nowe dwells, who for making of it more convenient for himself for his owne tyme hath layde out good somes of money of his owne"*** (Hunter, 1975).

Blayney's castle is not depicted on Richard Bartlett's map of c. 1602-03 (Figure 13.3) which presents an idealised version of the town as a cluster of houses set within a star-shaped fort which was never constructed. Bartlett's map does however contain the ruins of the friary (MO009-060002-) and the fort described by Davies is depicted.

Figure 13.3 Extract from Richard Bartlett's plan of Monaghan Fort (c.1602)

A slightly later map compiled for Sir Edward Blaney, believed to date to c.1611-1613, depicts the town as a fortified rectangular area defended by walls or ramparts and outer ditches with a fortified house or castle at its centre (Figure 13.4).

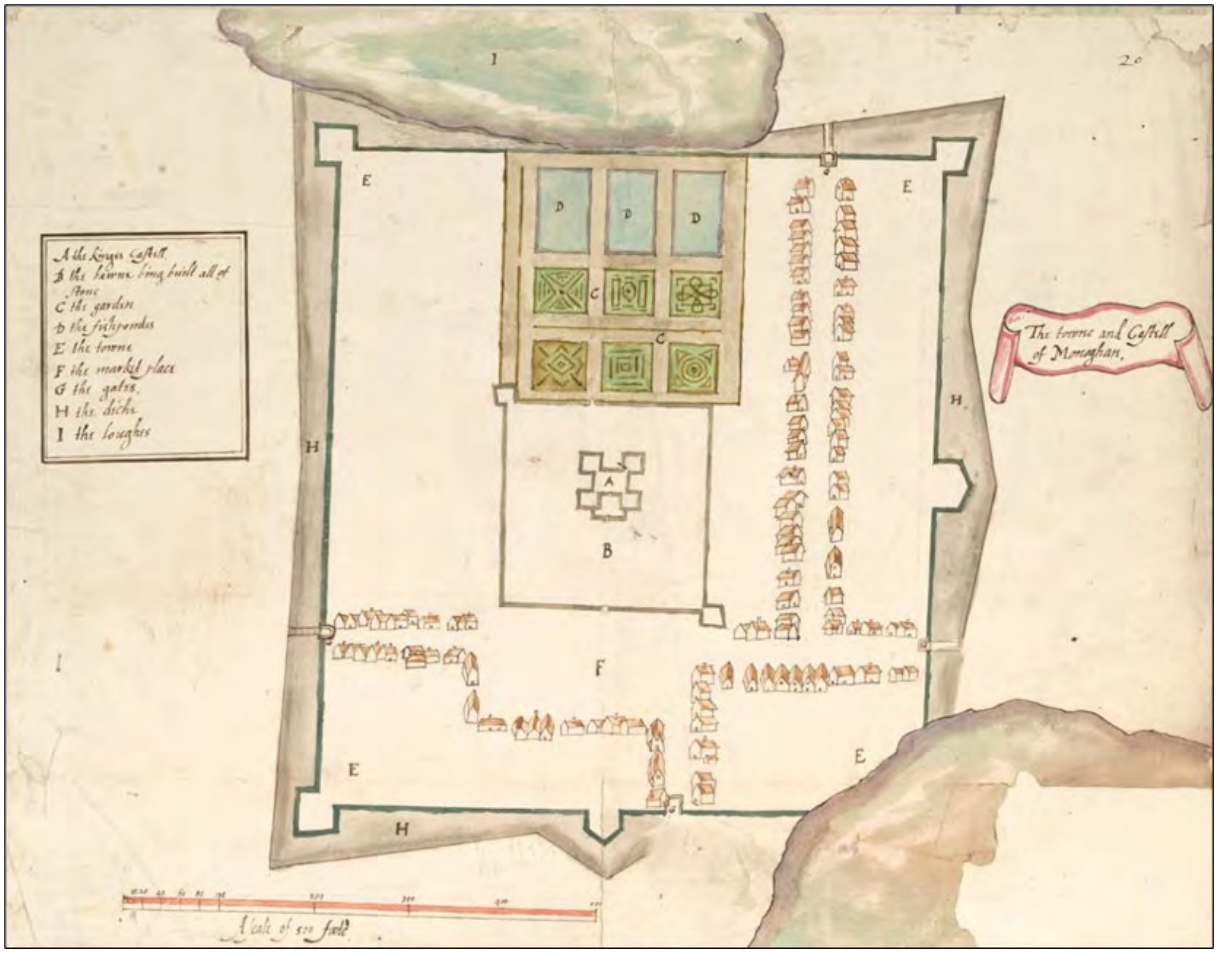


Figure 13.4 Map of medieval Monaghan town prepared for Sir Edward Blayney, probably c. 1611-13, held in Trinity College Dublin (Ms 1209 (32)

There were five bastions and a gate on each side with the centre the castle being built represented as a rectangular structure that has large rectangular corner towers at the angles and a small, enclosed court on its north side in the style of fortified houses. This is within a rectangular bawn with corner bastions at the northwest and southeast angles. Gardens and fishponds lay to its south but in its curtilage, and the marketplace, now the Diamond, was immediately to the north.

Three streets are represented running from the Diamond, which are now called Glaslough, Dublin and Mill Streets, with Market Street / Park Street running south from Mill Street west of the Diamond also represented on the map rather than Dawson Street, which appears to be a late eighteenth century creation.

The boundary lines to the rear of the plots on the northeast side of Dublin Street, within the Proposed Development, and the western side of Park Street are thought to mark the line of these fortifications.

The precise location of the castle has not been found and archaeological excavations (96E0025; 96E0293) in the area has failed to identify any remains relating to it. In the Ordnance Survey Letters of 1835 (Herrity, 2012), John O'Donovan noted: ***"The large house in the Diamond opposite Glasslough Street is said to occupy the site of a Castle ... in the rear of this, some old walls are to be seen, said to be the remains of an old Abbey"***. Excavations (02E1147; 03E0027) on the north side of the Diamond revealed the presence of a large ditch with a width of c.14-20m and a depth of c.3m. It is possible that similar traces of the 17th century fortifications have survived in other locations in the town centre.

The estate of Sir Edward Blaney, including Monaghan Town, was sold by his descendants in 1680, and through a series of marriages it became part of the Rossmore Estate in the late 18th century. A map of Monaghan Town drawn by Arthur Richard Neville c.1787 (Figure 13.5) shows buildings lining Glaslough Street, Dublin Street, Mill Street, Hill Street and Park Street which radiated out from the open spaces of the Diamond, Church Square and Market Street.

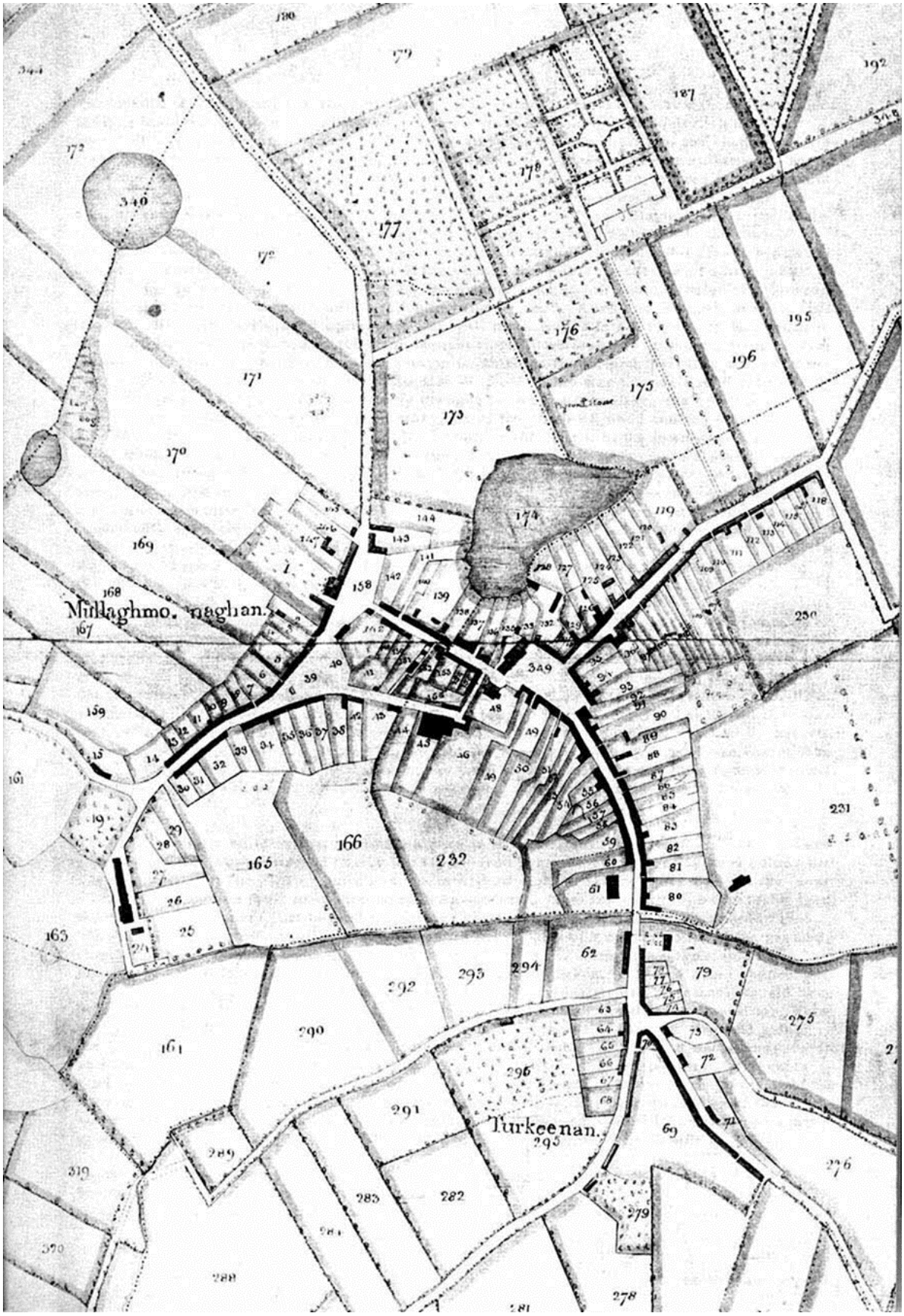


Figure 13.5 Map of Monaghan town made by Arthur Richards Neville for the Rossmore Estate (1790)

The town prospered during the first half of the nineteenth century due to the production of linen and agricultural products, pork in particular. It was during this period that the town earned its character as a market town through the construction of several public buildings, monuments and private residences of good quality. An infirmary marked on a map from 1790, on the eastern outskirt of the town was built near Old Cross Square (formerly the site of the Shambles) in 1768, while a fine classical market-house made of granite was erected at Market Street in 1792.

A Courthouse was built in 1829 at Church Square near St Patrick's Parish Church (Church of Ireland) dating to 1836. Several ecclesiastical buildings, banks and a Model school were also added to the town's architecture during the mid to late nineteenth century. The construction of the Ulster Canal (1839) brought about the building of a stone canal bridge at the south side of the Shambles (old Cross Square). However, the canal was made obsolete shortly after by the arrival of the Great Northern Railway in 1863, which prompted the building of a railway station c.1860 and other necessary infrastructure. Today all that visibly remains above ground of the canal at Old Cross Square is a segmental headed tunnel (NIAH 41303165) (Appendix 13.4), with the canal itself culverted under the square and the associated road network.

Other examples of the industrial heritage of the town can be seen on the 1st and 2nd edition OS mapping including the Monaghan Lighting Company's old Gasworks site near the Old Cross Square while a Saw Mill is recorded in the location of the Monaghan Shopping Centre and a Brewery on the northeastern shore of Convent Lake (also mentioned by Lews, 1837).

Samuel Lewis Topographical Dictionary of Ireland (1837) has the following entry for the town of Monaghan which directly refers to several of the historic elements of Monaghan town outlined above (underlined below):

"MONAGHAN, an incorporated market-town and parish, the chief town of the county, and formerly a parliamentary borough, in the barony and county of MONAGHAN, and province of ULSTER, 12¼ miles, (W. S. W.) from Armagh, and 60 (N. N. W.) from Dublin, on the mail coach road to Londonderry; containing 11, 875 inhabitants, of which number, 3848 are in the town. This place, till within a comparatively modern period, was distinguished only by a monastery, of which St. Moclodius, the son of Aedh, was abbot; and which, according to the Annals of the Four Masters, was plundered in 830 and again in 931. It appears from the same authority to have flourished for more than two centuries, and the names of its abbots, deans, and archdeacons (among the former of whom was Elias, the principal of all the monks of Ireland, who died in Cologne in 1042) are regularly preserved till the year 1161, after which date no further mention of it occurs. Phelim Mac Mahon, in 1462, founded on the site of the ancient abbey a

***monastery** for Conventual Franciscans, which at the dissolution was granted to Edward Withe; but even at that time no place deserving the name of a village had arisen near the monastery, and the whole of this part of the country, under its native chiefs, the Mac Mahons, still retained the ancient customs. About the commencement of the 17th century, Sir Edward Blayney, who had been appointed seneschal of the county, erected a small fort here, which he garrisoned with one company of foot; and on the approaching settlement of Ulster, when, the Lord-Deputy came to this place to make some arrangements respecting the forfeited lands, it was so destitute of requisite habitations, that he was under the necessity of pitching tents for his accommodation. (…)*

In 1611, Sir Edward obtained the grant of a market and fair; and the town, which now began to increase in population and extent, was, in 1613, made a parliamentary borough, and the inhabitants were incorporated by a charter of Jas. I., under the designation of the "Provost, Free Burgesses, and Commonalty of the Borough of Monaghan." The town consists of one principal square in the centre, called the Diamond, in which is the linen-hall, and of another spacious opening in which is the markethouse, and of three streets diverging from the principal square in a triangular direction; the total number of houses is about 580, of which many are well built, and those in the environs are neat and handsome. There are barracks for cavalry, a neat building adapted for 3 officers and 54 non-commissioned officers and privates, with stabling for 44 horses, and a small hospital. A news-room is supported by subscription; and a savings' bank has been established, in which, in 1835, the deposits amounted to £22,016. 2. 5., belonging to 749 depositors. There is a large brewery in the town, but no particular manufactures are carried on; the chief trade is in agricultural produce and the sale of linen, for which this place is one of the principal marts in the county; the quantity of linen sold, in 1835, was 6641 pieces, of 25 yards each, and the average price per piece, 18s. 9d. The market days are Monday, for linen and for pigs, of which great numbers are slaughtered and sold to dealers, who send the carcasses to Belfast, where they are cured for exportation; on Tuesday for wheat, bere, barley, and rye; on Wednesday for oats; and on Saturday, for oats and potatoes: flax, yarn, butter, and provisions of all kinds are also sold here in large quantities. Fairs are held on the first Monday in every month, and are amply supplied and numerously attended. The market-house, a very commodious building, was erected by the late Gen. Conyngham, afterwards Lord Rossmore, whose arms are emblazoned over the entrance. The Ulster canal, which is now in progress, will pass through the northern part of the parish; a branch of the river Blackwater also bounds the parish on the north, running nearly

parallel with the canal. These facilities of water conveyance will contribute to the benefit of the town, which is at present in a thriving state, and is progressively increasing in importance. (…)

The county infirmary, a good building, occupying an open and elevated site, is supported by a parliamentary grant, by the interest of a legacy of £4000 bequeathed by the late Francis Ellis, Esq., a rent-charge of £20 by the late J. Wright, Esq., and £100 per annum from Bishop Sterne's charity; also by Grand Jury presentments and subscriptions. During the year ending Jan. 6th, 1835, it afforded relief to 286 in-patients, and medicine and attendance to 900 out-patients. There are also a mendicity society, and a penny a week society for the assistance of the poor, supported by subscription and weekly contributions from the members. An almshouse for six poor widows was founded by the late Richard Jackson, Esq., who endowed it with £25. 19. per annum, charged on lands in the parish. A large house in the square called the Diamond is said to occupy the site of an ancient castle; and in the rear of it are some old walls, said to be the remains of the old abbey; the cemetery attached appears to have been very extensive. In levelling the ground in front of the old gaol, human bones and a skull of unusually large size were discovered. On the summit of the hill to the north of the town, and near the site of the new gaol, was a small mound of earth, marking the site of the fortress built by Sir Edward Blayney for the protection of the town, and noticed by Sir John Davies as serving both for a garrison and a gaol. Several silver coins have been found here, among which was a curious coin of one of the Henrys, and a larger coin of Jas. I., which is in good preservation; and in a meadow near the river was dug up, some years since, an ancient brass spur, similar to those in the museum of Trinity College, Dublin."

13.3.2 Archaeological Context

The 'Monaghan Town Area of Archaeological Importance' as defined in the *Monaghan County Development Plan 2019-2025* extends across the historic town centre from Peter's Lake in the north to the Ulster Canal in the south, Monaghan Hospital to the west, and a short distance to the east of Old Cross Square (Figure 13.6).

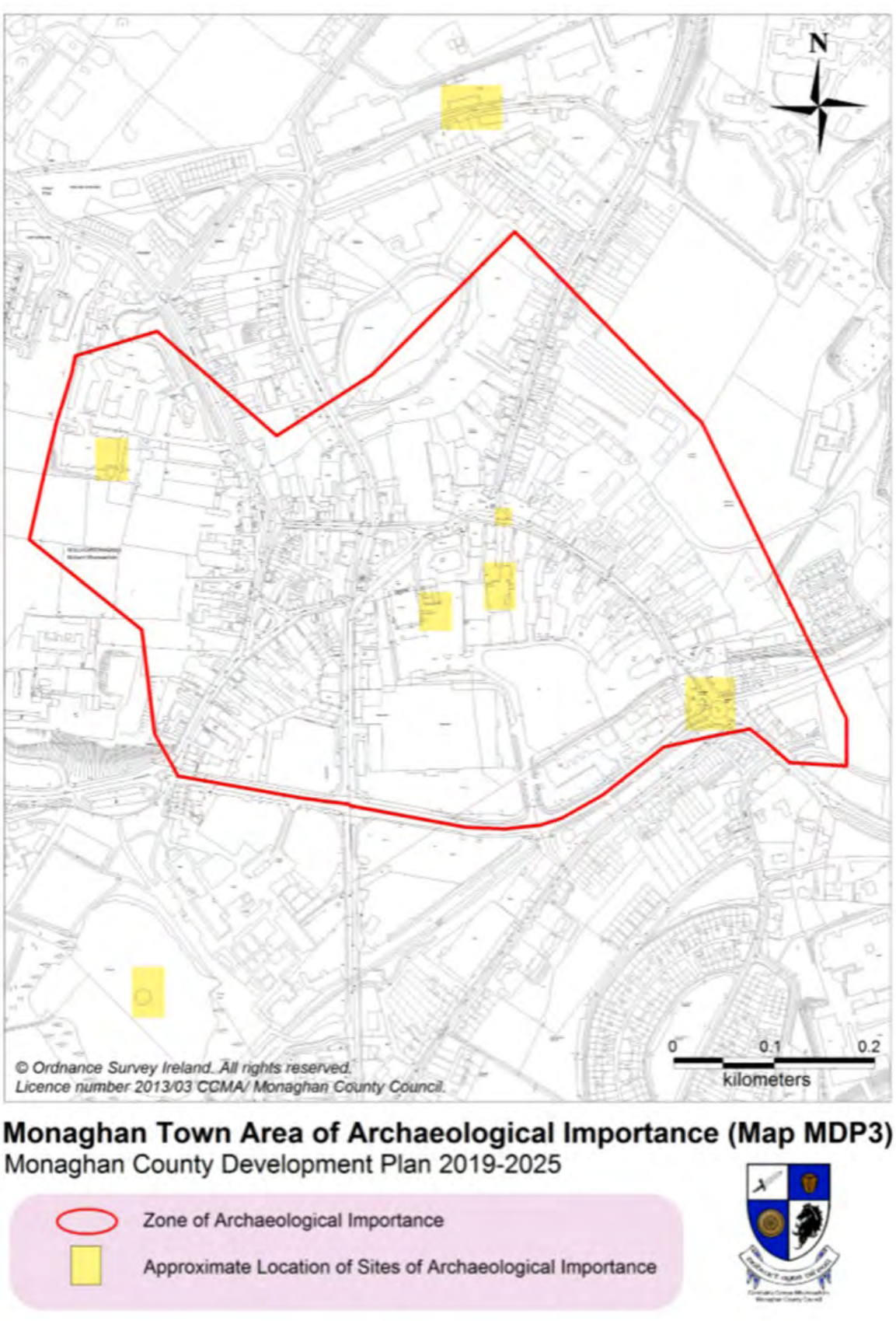


Figure 13.6 Area of Archaeological Importance as defined in Monaghan County Development Plan 2019-2025

There are 14 No. recorded archaeological Sites and Monuments (SMRs) within the study area and one redundant record (Table 13.8 **&** Figure 13.7). The majority of these SMRs relate to the development of Monaghan during the post-plantation/early post-medieval period (late sixteenth and seventeenth centuries). Inventory data entries for each record is provided in Appendix 13.2**.**

Table 13.8 Recorded Archaeological Sites and Monuments within Study Area

SMR	Class	Townland	ITM	Distance from site
MO009-060----	Historic town	Kilnacloy, Tirkeenan, Mullaghmonaghan, Roosky	667117, 833735	0m (Within site area)
MO009-060001-	Burial	Mullaghmonaghan	667023, 833893	250m NW
MO009-060002-	Religious house - Franciscan friars	Roosky	667029, 833568	365m E
MO009-060003-	House - fortified house	Roosky	667211, 833725	50m SW
MO009-060004-	Town defences	Roosky	667162, 833871	0m (within site – possible)
MO009-060005-	Burial	Roosky	667127, 833728	120m W
MO009-060006-	Cross - Market cross	Tirkeenan	667409, 833642	0m (within site)
MO009-060007-	Bastioned fort	Mullaghmonaghan	666853, 833908	415m NW
MO009-060009-	Graveyard	Roosky	667162, 833746	80m W
MO009-060010-	House - 16th C.	Roosky	667191, 833837	70m NW
MO009-060011-	Graveslab	Roosky	667150, 833732	95m W
MO009-060012-	Church	Roosky	667162, 833752	80m W
MO009-060013-	Bawn	Roosky	667211, 833708	60m SW

SMR	Class	Townland	ITM	Distance from site
MO009-061----	Redundant record	-	-	-
MO009-044----	Burial ground	Tirkeenan	667800, 833399	400m SE

Figure 13.7 Recorded location of archaeological sites within approximately 500m of the subject site (red line)

Of the 14 No. recorded sites and monuments within the Study Area, three are located within the Red Line Boundary: the historic town (MO009-060---); the (levelled) town defences (MO009-06004-) and the Market Cross (MO009-060006-).

The historic settlement of Monaghan (MO009-060----) has its origins in the late medieval period under the Gaelic lordship of the MacMahons who, it is believed, resided at a crannog on Convent Lake (MO009-037----) located immediately outside the Study Area. Research however suggests that they may in fact have been associated with Roosky Lough which contains several crannog sites (O'Sullivan, 1998).

An archaeological excavation at the Westenra Arms Hotel in the centre of Monaghan town produced evidence of a mid-sixteenth century wattle and post built structure (MO009-06010-) thought to represent an early phase of settlement in the town (Licence No. 02E1147).

A Franciscan friary (MO009-060002-), founded in 1462 by Phelim McMahon, is marked on a map dating to c.1591, at an area between the Diamond and Convent Lake, probably in the vicinity of the Courthouse and the parish church (Figure 13.8).

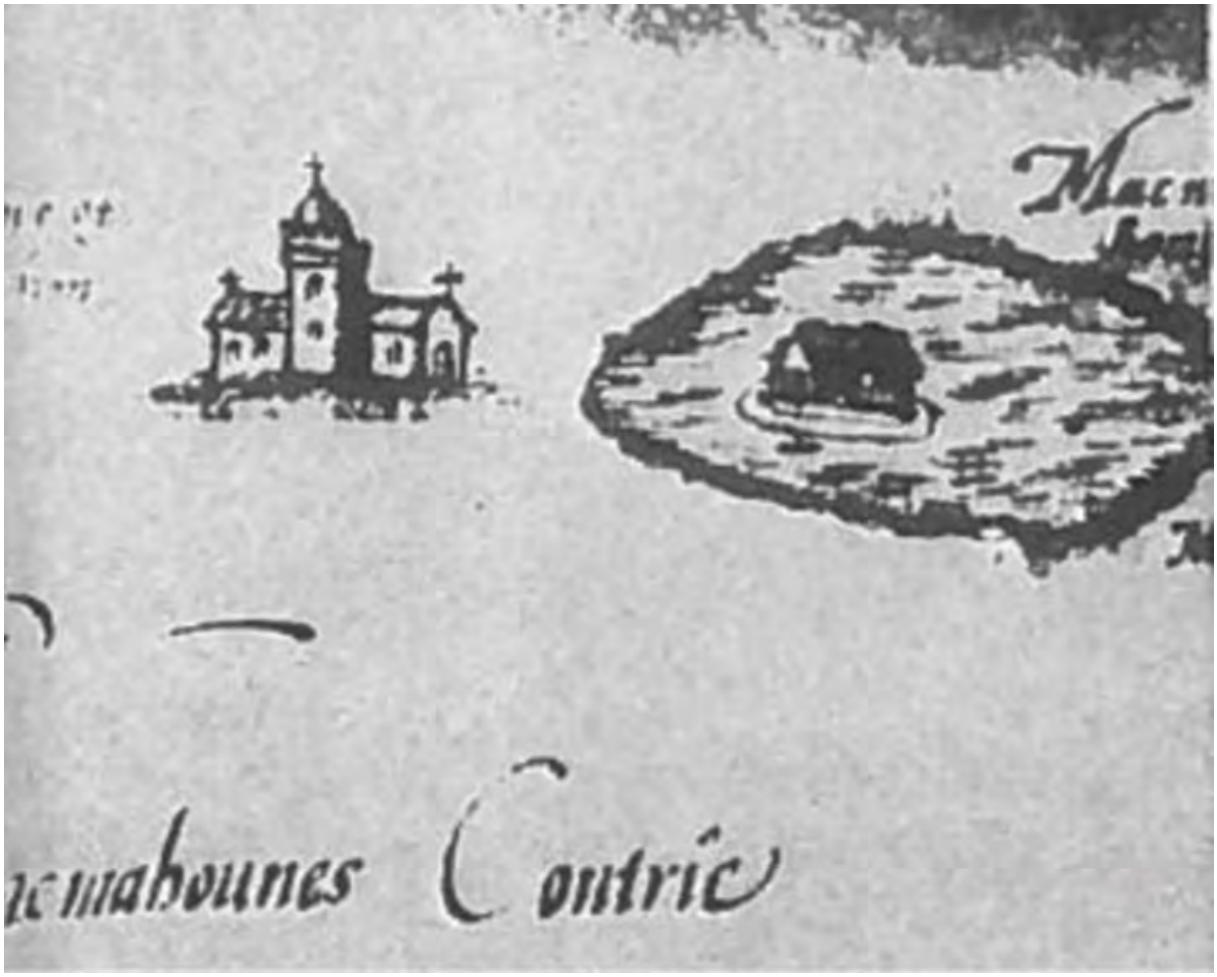


Figure 13.8 Extract from c.1591 map believed to depict Franciscan Friary and Crannog (labelled 'MacMahoons house') at Monaghan (after Mooney 1957 pl.12)

The layout of the fortified town in the first decade of the seventeenth century has been recorded on a contemporary map prepared for Sir Edward Blayney (Figure 13.4) as a large rectangular area defended by walls or ramparts and outer ditches enclose a castle and rows of houses.

Remains of the town defences (MO009-060004-) have been identified through excavations (Licence nos. 02E1147; 03E0027) at the site of the Westenra Arms Hotel on the north side of the Diamond where a large ditch with a width of 14 - 20m and a maximum depth of 3m was found. The ditch was lined with marl so as to retain water. Similar trenches are likely to have

existed at the other sides of the original fortification, and as such there is a possibility of survival of sub-surface remains within the Red Line Boundary.

The castle (MO009-060003-), set within a bawn (MO009-060013-) was constructed by Sir Edward Blaney using materials from the old Franciscan Friary. In 1835 the Ordnance Survey recorded that the rear plot of a large house, believed to be located on the site of Blayney's castle (MO009-060003-), on the Diamond, opposite Glaslough Street, contained **"*some old walls, said to be the remains of an old Abbey, whose burying ground in common with that of the church (MO009-060012-) would seem to have extended beyond its present bounds, as in levelling that open space before the old Gaol a quantity of human bones were dug up.*"** Archaeological testing (Licence nos. 96E0025; 96E0293) in this area did not uncover any traces of the castle. A bastioned fort (MO009-060007-) also documented from this period is believed to have been located on relatively high ground to the northwest of Monaghan town in the grounds of the present-day County Hospital. Lewis (1837) states that silver coins had been found at this location including one of Henry VIII and another of James I.

A Market or Hiring Cross (MO009-060006-), first recorded in 1714, was moved from its original location in the Diamond, to its present location in The Shambles (later named Old Cross Square), in 1875. At that time, it made way for the erection of the Rossmore Memorial, a neo-gothic fountain in the Diamond, much to the outcry of the locals. The 'cross' is in fact a seventeenth-century sundial, of a type unique to Scotland. Whether there was an actual cross head, prior to the Plantation period, is unknown. The sundial element itself consists of a multifaceted polyhedral stone mounted on a stone plinth. The sundial has been repurposed on occasion and at one time had a gas lantern mounted on its top. A near identical sundial has been incorporated into a gate pillar at Tynan graveyard in County Armagh some 13km to the northwest. A detailed and illustrated description of the Market Cross and its unique social history is provided in Appendix 13.6 and Appendix 13.8.

There is no record of a parish church at Monaghan town before the seventeenth century, and no church is depicted on the available early seventeenth century maps made by Bartlett in 1602-03, or the Blaney map of c. 1611-13. A parish church had however been established in the town by the time of the Rebellion in 1641. The Blaney family are recorded as having been buried there since 1629. A grave slab (MO009-060011-) dating to 1666 was uncovered during the excavation of foundations for the present parish church of St Patrick which was built in 1830-1835. The grave slab commemorates Oliver Ancketill who was the first of the Ancketill family, originally from Dorset, to settle in Ireland. The inscription reads:

“HERE LYETH THE BO / DY OF OLIVER ANCKE / TILL OF ANCKETILLS G / ROVE ESQVIRE DESCEND / ED OF THE ANIENT FA / MILY OF SHAWSTONE / IN DORSET SHIRE IN / ENGLAND, WHO DYE / D AT ARD MAGH A / ND WAS BURIED A / T MONAGHAN THE / 28th DAY OF / JVNE 1666.”

The first edition 6-inch OS map (1835) depicts an earlier church (MO009-060012-) just north of the present church. The building, labelled ‘Old Church’, had a footprint of c. 20m east-west and c. 10m north - south with a projection at the western end. A D-shaped graveyard (MO009-060009-) measuring c. 50m east-west and c. 40m north-south was located directly south of the church. Archaeological testing (licence no. 03E1672) undertaken in 2003 c. 8m west of the perimeter of the graveyard uncovered disarticulated human remains and one *in situ* inhumation burial orientated east-west.

Burials of uncertain date have also been uncovered at during construction work in Church Square in the 1940s (MO009-060005-). Interestingly, a note in the Irish Folklore Schools Collection MSS (957, 157) records how ***'the monks from the monastery, murdered by English soldiers in either 1540 or 1589 are thought to be buried near the holy well which was on the site of the present provincial bank'*** (MO009-060001-). However, the exact location of the holy well is not known.

13.3.2.1 Topographical files

Consultation of the Topographical Files maintained by the National Museum of Ireland and the NMI Online Finds Database did not reveal any archaeological finds recorded from the townlands of Mullaghmonaghan, Roosky or Tirkeenan, it is noted that Lewis (1837) however makes reference to coins found at the present-day county hospital grounds.

13.3.2.2 Archaeological Excavations

There have been two recorded licensed archaeological investigations within the Study Area. Two programmes of archaeological testing were carried out at The Diamond Centre (Licence no. 99E0141) and No.57 Dublin Street (Licence no. 99E0161) neither of which uncovered any archaeological features.

A programme of archaeological monitoring of GI trenches undertaken for the South Dublin Street and Backlands Regeneration Project in 2021, uncovered a cobbled surface and an unstratified sherd of 17th century Sgraffito Ware. A large number of licensed archaeological excavations have been undertaken within the wider site environs, however only six investigations have produced archaeological material (Table 13.9).

Table 13.9 List of licensed archaeological excavations within study area which have produced archaeological deposits

Licence no.	Year	Location	Result
02E1147	2002	The Diamond	16th century house (MO009-06010)
03E0027	2003	The Diamond	Town defences (MO009-060004)
03E1672	2003	Church Square	Burials (near graveyard MO009-060009)
04E1566	2004	Park Street	Post medieval pit (c. AD1680-1750)
05E0219	2005	Church Square	Disarticulated human remains
21E0230	2021	Dublin Street	Post-medieval cobbled surface, 17th century ceramics

Archaeological site investigation works undertaken in relation to this scheme

Consultation was undertaken with National Monuments Service (NMS) via application for an excavation licence to further investigate the design footprint for sub-surface evidence of the levelled town defences and/or associated historic town features/materials. Given the feasible archaeological test trench locations (and the project GI locations) were sited within private properties, it was confirmed by NMS that a Section 14 Ministerial Consent was not required, and that test trenching and monitoring of GI works could be undertaken via a Section 26 Excavation Licence application.

Archaeological works undertaken in relation to this scheme consisted of the excavation of two archaeological test trenches within a vacant plot to the rear of No. 38-40 Dublin Street, and a programme of archaeological monitoring of ten geotechnical investigation pits throughout the proposed development area. The archaeological investigations were carried out in August 2024 under Excavation Licence no. 24E0606 by licensee Camilla Brännström of John Cronin and Associates with the intention of informing the EIAR design process.

The test trenches, which measured 1.4m in width and c.8m in length, did not uncover any archaeological features. The area, while currently overgrown with shrubs, had been used as a garden/seating area. A drain consisting of concrete pipes capped by concrete extended along the western edge of Trench 2 and appeared to have been used as a footpath. Gravel was noted elsewhere in the upper soil layers. Natural subsoil was encountered at a depth of 0.6-0.7m below the ground surface.

All GI trenches (TP1-10) were located within previously disturbed areas affected by post-medieval development and landscaping. No archaeological features or deposits were identified. The full archaeological reporting is included in Appendix 13.5**.**

13.3.3 Undesignated Cultural Heritage Assets

While encompassing the designated archaeological and architectural heritage resources, cultural heritage also includes various undesignated assets such as settlements, former demesne landscapes, vernacular structures, folklore, cultural traditions and place names. The Proposed Development is located within the historic settlement of Monaghan which has a rich history dating back to the medieval and early post-medieval periods. There are several extant structures and associations with historical events located in close proximity to the proposed development site. The online archive of the National Folklore Collection (www.duchas.ie) was consulted and contains no records of folklore or traditions associated with potential unrecorded cultural heritage sites within proposed development site. While the consulted historical OS maps show a number of country houses within the surrounding landscape none of their formal demesne features, such as avenues, woods or gardens, are shown within the environs of the proposed development site (Figure 13.22 and Figure 13.23).

The Old Infirmary site, also formerly known as ‘Old 12’ or ‘Ward 12’ is an undesignated cultural heritage asset within the Red Line Boundary. Details on upstanding remains are set out in section 13.3.4, while a historical review is set out below.

13.3.3.1 Monaghan County Infirmary / Old Infirmary / St Davnet’s Ward 12 / Old 12

The County Infirmary Act of 1766 aimed to remedy the paucity of provincial hospital care in Ireland, that up to that time, had been operating on a voluntarily financed basis. The Act provided local elites (primarily Protestant, Church of Ireland) with the legal power, financial assistance, and medical guidance to set up and run infirmaries throughout Ireland, one of which was that at Monaghan (Sneddon, 2012, 7). Ultimately, the infirmary system was to deliver on charitable and utilitarian promises of creating a healthy, industrious workforce of poor members of society. However, progress was slow and piecemeal in the late eighteenth and early nineteenth centuries, and access largely restricted to the ‘curable’ and non-infectious poor. Emphasis was on religious elements, with patient care and medical negligence common. Nonetheless, the infirmaries did present a new and enlightened medical institution, signalling a political negotiation between central and local government, national power and local influence, and had success at some locations in this early period, including at Monaghan (ibid., 8).

This period had seen a substantial increase in population in Monaghan and Ulster counties, as well as exceptional growth in the linen industry and agricultural exports (cattle, butter, pork) and subsequent import of manufactured goods. There was also much political unrest in Ulster at this time. This included protests and riots of small tenant farmer-weavers, and violent clashes between Catholic Defenders and Protestant Peep O'Day boys; as well as largely affected by the United Irishmen 1798 rebellion (Bardon, 179-239).

By 1771, the Monaghan Infirmary was established, and its first standing committee established in 1786. Minute Books for Monaghan County Infirmary survive from this period. A review of the infirmaries in the context of greater accountability was undertaken in the late 1770s and Monaghan fared well, with good responses especially noted to its ban on tobacco-smoking. As well as taking in the 'curable' poor, they also provided advise and medicine to a considerable number of out-patients, many of whom would have relied solely on folk remedies and apothecary for health care. Other improvements included increases of ward and structural building inspections, all of which changed how the infirmary was publicly perceived by the early nineteenth century when Sir Charles Coote reported that it now lay ***'on an elevated and airy situation and [was] well attended to by the visitors'*** (Coote, 1801, 171).

However, by the end of the nineteenth century, the infirmary building was documented as being in a poor state of repair. By the 1890s, conditions were such that money was urgently raised to the sum of £2,000 and used to purchase and renovate the old Gaol. The Old Infirmary was sold to the Mental Health authorities at this time, with the new infirmary opened in 1896. Eventually this too required upgrading, and the new hospital was built and completed in 1938.

The ruins of the Old Monaghan Infirmary are located within the eastern portion of the Red Line Boundary and was once part of St. Davnet's Campus psychiatric hospital. A Souvenir Commemorative Booklet produced in 1938 for the new County Hospital (Source: Monaghan County Museum), described that prior to 1896 a 'badly lighted bathroom served as an operating theatre, the accommodation for patients was limited and sanitary arrangements were poor'. There is also reference to the Old Infirmary having been an Alms House prior to 1768 (ibid.). The Rossmore Estate Map (1790) shows the Old Infirmary building, but it is not named (Figure 13.5).

There were several divisions or wards that comprised St Davnet's Campus. When the Monaghan Infirmary relocated from its original site, east of Old Cross Square, to the old Monaghan Gaol (now the site of Monaghan General Hospital) the Old Infirmary became 'Division No. 12' of the Monaghan & Cavan District Asylum (St Davnet's) in the late 1890's, and later 'Old 12' when it finally closed in the late 1950s (Old Monaghan Society Facebook Page, contributor: Sean Slowey, 3 May 2021).

The buildings were demolished in 1988 however some footings are visible on aerial photography (currently heavily vegetated) as well as some remnants of cut-stone entrance gate piers and boundary walling (Figure 13.9, Figure 13.10 & Figure 13.11).

Figure 13.9 Aerial ortho-photographic view showing footing remains of the Old Infirmary

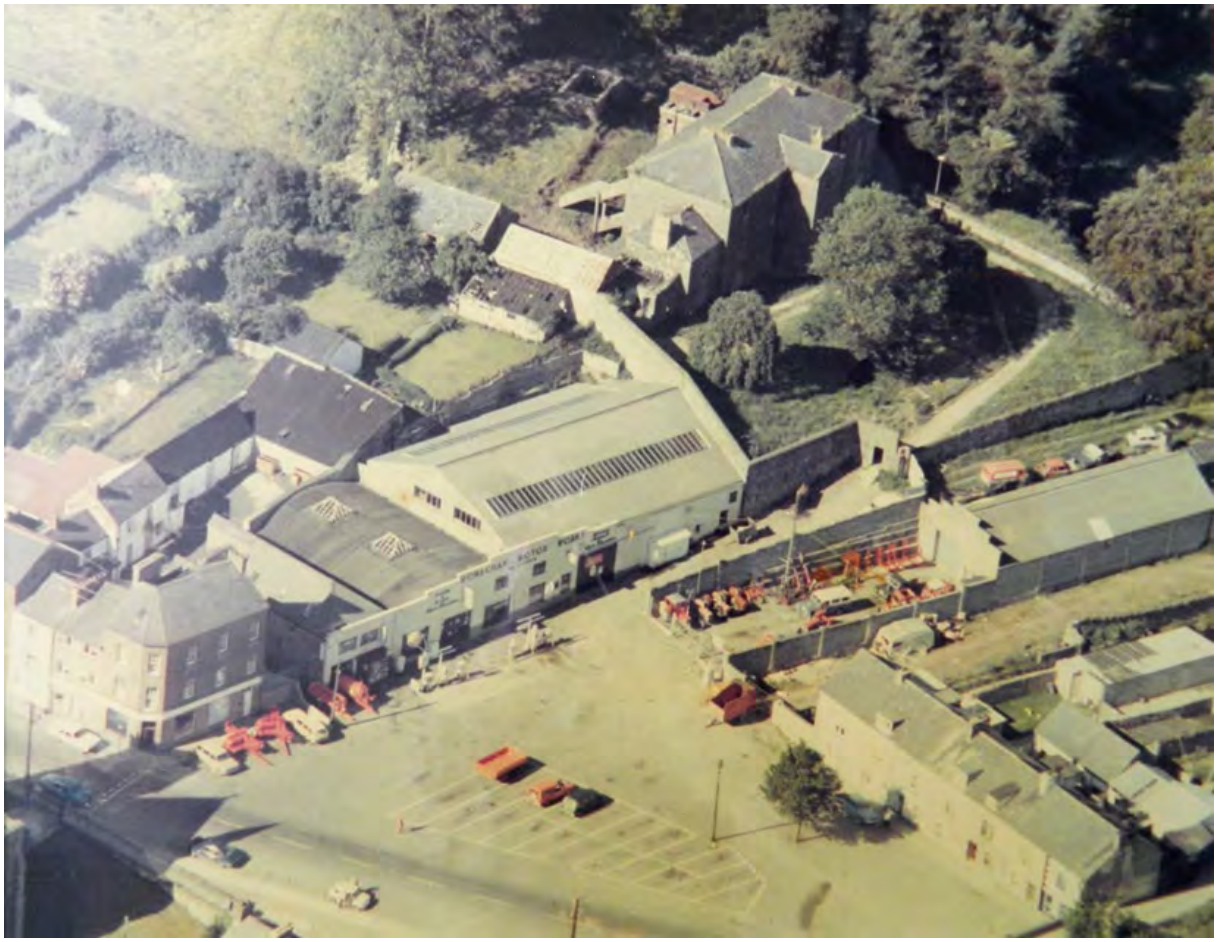


Figure 13.10 Aerial photograph (c. 1970s) of Old Cross Square showing the former Monaghan Motor Works and the Old Infirmary

Figure 13.11 Aerial image from World Within Walls exhibition, of Old Ward 12, St Davnet's, Monaghan town (n.d.).

The building had a date inscription of '1768' at a round-headed entrance doorway, and a window opening to the first floor had a lintel inscribed 'County Monaghan Infirmary' (see Figure 13.18**).** Monaghan County Museum now have these inscribed stones in their archive collections (Theresa Lofus pers. comm. Monaghan County Museum). Local reference indicates that the stone from the Old Infirmary was used as fill material at the carpark to the rear of Monaghan Courthouse in 1988 (Old Monaghan Society Facebook Page, contributor: Sean Slowey, 3 May 2021).

This was a fine building of its time, and was referenced by Lewis (1837, Vol II, 384) as:

"The county infirmary, a good building, occupying an open and elevated site, is supported by a parliamentary grant, by the interest of a legacy of £4000 bequeathed by the late Francis Ellis, Esq., a rent-charge of £20 by the late J. Wright, Esq., and £100 per annum from Bishop Sterne's charity; also by Grand Jury presentments and subscriptions. During the year ending Jan. 6th, 1835, it afforded relief to 286 in-patients, and medicine and attendance to 900 out-patients."

Reporting on the buildings of Monaghan town by the Ulster Architectural Heritage Society and An Taisce (1970) describe the Old Infirmary (1768) as:

"A fine range of three-storey dressed-stone classical buildings, in use as part of St Davnet's hospital until three years ago, but now unbelievably derelict and vandalised. The original building appears to have been only three bays wide – the central, pedimented, bay projecting: 'County Monaghan Infirmary' incised in the stone lintel over the first-floor window, the date '1768' incised in the lintel of the round-headed doorway. An additional three-storey bay, and a two-storey returned bay, have been added at each end. The building is of squared stone with well-dressed window surrounds and a stringcourse. In front is a charming sloping garden, with very fine mature trees. Perhaps the building has deteriorated beyond redemption, but if a new use could be found for it, it might still make a notable contribution to the town."

The below imagery (Figure 13.12 - Figure 13.19) shows the elevations of the Old Infirmary building (source: Irish Architectural Archive (IAA), in particular the front elevation, and the building name inscribed lintel.

Figure 13.12 Old Infirmary (off Old Cross Square), Monaghan: Entrance Front (IAA: 13/30 x 1)

Figure 13.13 Old Infirmary (off Old Cross Square), Monaghan: Entrance Front (IAA: 13/30 x 2)

Figure 13.14 Old Infirmary (off Old Cross Square), Monaghan: Entrance Front (IAA: 13/30 x 4)

Figure 13.15 Old Infirmary (off Old Cross Square), Monaghan: Entrance Front (IAA: 13/30 x 5)

Figure 13.16 Old Infirmary (off Old Cross Square), Monaghan: Entrance Front (IAA: 13/30 x 6)

Figure 13.17 Old Infirmary (off Old Cross Square), Monaghan: Entrance Front: Central Bay (IAA: 13/30 x 7)

Figure 13.18 Old Infirmary (off Old Cross Square), Monaghan: Entrance Front: Detail of central bay with inscription (IAA: 13/30 x 8)

Figure 13.19 Old Infirmary front elevation detail, n.d.

13.3.3.2 Placenames

Townlands are the smallest unit of land division in the Irish landscape, and many may preserve early Gaelic territorial boundaries that pre-date the Anglo-Norman conquest. The boundaries and names of Irish townlands were recorded and standardised by the Ordnance Survey in the 19th century. The Irish roots of townland names often refer to natural topographical features, but some name elements may also give an indication of the presence of past human activity within the townland, e.g., lios, rath or dun may indicate the presence of a ringfort while temple, saggart, termon or kill indicate associations with church sites.

The Placenames Database of Ireland (available at www.logainm.ie) which provides translations of the Irish origins of townland names was consulted. The Proposed Development is located within portions of the townlands of Roosky and Tirkeenan where Tirkeenan is a possible reference to a settlement (Table 13.10). The townland boundary between Roosky and Tirkeenan extends in an east to west direction along the course of the Shambles River which is located beneath Old Cross Square.

Table 13.10 Translation of townland names within the study area (Source: www.loganim.ie)

Name	Irish	Translation	Indicative Heritage Potential
Mullaghmonaghan	Mullach Mhuineacháin	Mullach 'hilltop' Mhuineacháin 'place abounding in thickets'	None
Roosky	Rúscaigh	Rúscaigh 'marsh'	None
Tirkeenan	Tír Chianáin	Tír 'land, territory'	Possible reference to settlement

13.3.3.3 Cartographic review

Browne and Baptiste's map (1590)

The earliest surviving map of the county of Monaghan dated December 1590, made by the mapmakers John Browne and Jean Baptiste (with additional annotations by William Cecil and Lord Burghley), details its baronies and place names and also records buildings of note. The location of the modern-day town of Monaghan is marked by a schematic depiction of a building labelled 'Monaghan Abbey' set within open ground north of the river (Figure 13.20).

Figure 13.20 Extract from Brown and Baptiste's map of the County of Monaghan (1590)

Bartlett's map of Monaghan Fort (1602)

A second depiction of Monaghan made a decade later, in 1602, by Richard Bartlett shows Monaghan as a fortified town defined by eight bastions enclosing a group of 14 thatched houses within its star shaped interior. Entrances to the fort can be seen to the south, leading up from the river and the northeast where a path leads to a moated stone fort or cashel to the north. Clusters of thatched houses can be seen between the river and the star-shaped fort. Bartlett's illustration of Monaghan was however an idealised depiction, as the town was not fortified at the time of his survey (Figure 13.3).

Map of Monaghan town (c. 1611-1613)

The town is represented on a slightly later map prepared for Sir Edward Blayney, probably c. 1611-13 and now held in Trinity College Dublin (Ms 1209 (32)). It depicts the town as a fortified rectangular area (measuring approximately 500m east-west by 400m north-south) laid out between a lake to the north and a river to the south, defended by walls or ramparts and outer ditches. A total of five bastions marks the northwest, southwest and northeast corners, with a further two at the centre of the eastern and southern walls. The river forms a natural boundary at its southeast corner. At its centre a castle stands within a square bawn defended by two bastions while knot gardens and fishponds occupy an enclosed area to the north between the bawn and lake. Individual dwellings are depicted along two streets which extend along the eastern and southern boundaries of the fortified area forming a small square to the south, near the entrance to the castle bawn. Four entrances are depicted in the defensive walls to the north, south, east and west (Figure 13.4).

Taylor and Skinner's Map (1777)

The late 18th century map of Monaghan Town in Taylor and Skinner's *Maps of the Roads in Ireland,* surveyed in 1777, gives a schematic description of the town as laid out in a cruciform pattern along the Dublin, Clones and Cootehill roads to the north and south of the river (Figure 13.21).

Figure 13.21 Extract from Taylor and Skinner's Maps of the Roads of Ireland (1777)

Rossmore Estate Map (Neville) (c. 1790)

A map of Monaghan town made c.1790 by Andrew Richards Neville for Rossmore Estate show the town relatively built up, with a similar street pattern to today. A central square (The Diamond) and a second square to the west (Market Street) dominate the map with a church between the two. A somewhat irregular network of roads extends from each square, fronted by houses set within long narrow plots, some of which border the lake to the north. A

rectangular building is depicted at the location of the Old Infirmary on the eastern outskirt of the town northeast of the present-day Old Cross Square (Figure 13.5).

1st edition six-inch Ordnance Survey map (1830s)

The 1st edition 6-inch OS map depicts the Shambles Square (now Old Cross Square) within the southern portion of the development site (Figure 13.22). The townland boundary of Roosky and Tirkeenan is marked in its current location extending east-west across the square. The projected outline of the Ulster canal is also visible in this area.

A large building labelled 'Infirmary' is depicted within the eastern portion of the development site where a large quarry is also noted immediately outside the Red Line Boundary to the east. Dublin Street is flanked by buildings whose narrow rear plots extends north-eastwards across the backlands which occupies the central portion of the proposed Development area. A 'Market Cross' (later moved to present-day Old Cross Square) is depicted at the Diamond, immediately north of the Red Line Boundary.

Figure 13.22 Extract from 1st edition six-inch OS map showing Red Line Boundary

25-inch Ordnance Survey Map (c.1908)

The 25-inch edition OS map (Figure 13.23) does not record any significant changes within the development site except for the completion of the Ulster Canal and the construction of a canal

bridge (NIAH 41303165) at the southern end of the renamed Old Cross Square (formerly known as the Shambles). Current orthorectified aerial images (Figure 13.24) show that the development site currently consists of Dublin Street and its rear plots to the west, the Diamond Centre car park to the north, Old Cross Square to the south and the tree-covered former Old Infirmary grounds to the east.

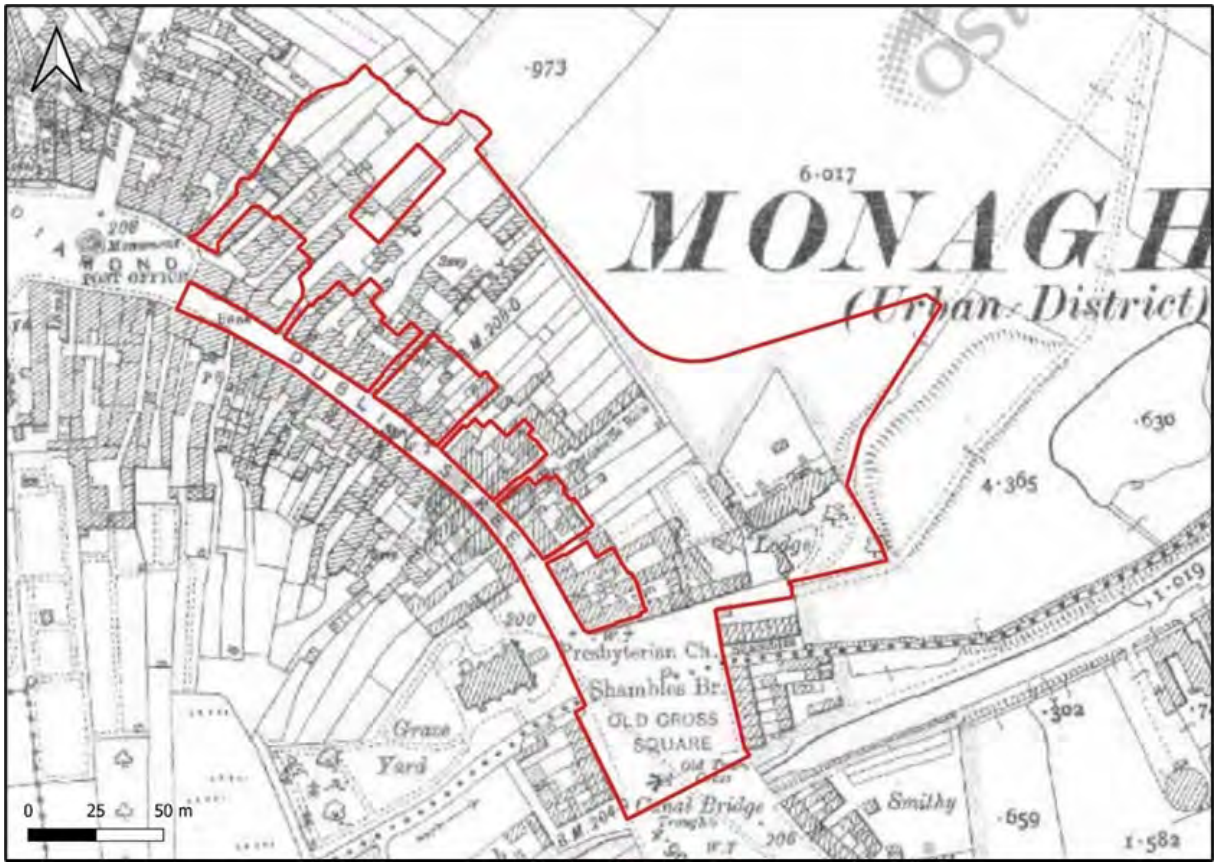


Figure 13.23 Extract from 25-inch OS map showing approximate site location

Figure 13.24 Aerial image of the proposed development site

13.3.4 Field survey – Cultural Heritage

Walkover surveys for Cultural Heritage assessment purpose were undertaken within accessible areas within the Red Line Boundary site in April 2023 and July 2024. The inspected areas were assessed in terms of existing land use, any remnants of historic structures or landscaped features, vegetation cover and the potential for the presence of previously unrecorded archaeological sites/features. A photographic record compiled during the field visits is presented in Appendix 13.4**.**

Of direct relevance to the Proposed Development, and sited within the Red Line Boundary, are four Cultural Heritage receptors (see Figure 13.7), each of which was inspected, where feasible, during field surveys:

- Historic town of Monaghan (SMR MO009-060---) & Monaghan Town Area of Archaeological Importance (at Dublin Street North and Old Cross Square)
- Historic (levelled) town defences (SMR MO009-060004-) (at backland plots to Dublin Street North)
- Market Cross (SMR MO009-060006---) (in Old Cross Square)

- Ruins of undesignated built heritage Old Infirmary site, (formally Ward 12/Old 12 of St Davnet's Campus, greenfield area, east of Old Cross Square)

A photographic record of the Cultural Heritage field surveys is provided in Appendix 13.4.

The architectural heritage (protected structures) that front along Dublin Street North are assessed in Section 13.3.5**.** The layout of the original historic town of Monaghan (MO009-060--) is fossilised (in part) along Dublin Street where the streetscape radiates out and southeastwards from the open space of the Diamond to Old Cross Square (formerly The Shambles). Entrance carriageways accessing backland plots are still apparent and in use, although the plots themselves have been heavily altered by way of ground reduction, hard surfacing and ancillary outbuildings. The junction of Dublin Street North with the Diamond, 'The Diamond Centre', at the northern portion of the original backland area, is occupied by a surface car parking area and associated modern commercial and residential buildings. Some backland plot areas were inaccessible due to secured gates/fencing however, some ruinous masonry boundary wall structures were identified to the rear of Dublin Street North Nos. 38-42, No. 46 Dublin Street North. Evidence of the Ulster Canal and the early-mid 19th century industrial heritage of Monaghan town is partially visible at the southern end of the Red Line Boundary in the form of extant canal masonry walling (F06) abutting the garden of and end of terrace house, with a canal tunnel outside the Red Line, on the roadside opposite (NIAH 41303165).

The historic town defences (MO009-060006-) have been levelled with no indicative surface trace apparent along the line following the backland plots at Dublin Street North. In an attempt to bridge this knowledge gap, licenced archaeological testing was undertaken within a limited area that was conducive to such works. No archaeological features were encountered (Appendix 13.5).

The Market Cross (MO009-060006-) in Old Cross Square is positioned at the northern portion of the square, with documentary and photographic evidence indicating that it has been moved and repositioned five times from its original location in the Diamond (Appendix 13.3). The latest move was in 2010, when a programme of repair and conservation works were also undertaken at that time (Nolan, 2010 & Dermot Nolan & Associates, 2011). The Market Cross is currently landscaped surrounding its perimeter with street furniture (benches, bollards, litter bin), uplighting, paved surface and surface signage. A full documentary assessment of the Market Cross is detailed in Appendix 13.6**.**

The Old Infirmary site, dating to 1768, is a levelled site (Figure 13.25) although there are remnants of upstanding remains of footings of the main building likely to still be surviving within the dense vegetation. The is an upstanding masonry boundary wall (F04) associated with the Old Infirmary site, at the southwestern side, adjacent and north of the pet store at Old Cross Square. In addition, walling was noted at the mid-western boundary area together with a red brick gate pier (F01), the later which may have been part of an entrance laneway area at the eastern side of the front elevation. The southern boundary wall to the Old Infirmary site is in good condition (F02) while the partial remains of only one cut-stone entrance gate pier survives adjacent (F03). There are no apparent surface remains of the gate-lodge marked on the 25-inch OS map.

Table 13.11 Undesignated Cultural Heritage features identified during field survey

Survey ID	Description	ITM (approx. centre point)
F01	Boundary walling (low elevation) with brick gate pier, possible entrance area to east side of front elevation er historic mapping and photographic records	667491, 833698
F02	Portion of intact masonry boundary walling of significant height, with coping stones at southern side of old Infirmary grounds	667476, 833667
F03	Partial remains of one cut-stone entrance gate pier to the Old Infirmary	667469, 833666
F04	Portion of intact masonry boundary walling of significant height, with coping stones at western side of Old Infirmary ground adjacent Pet Store	667543,833671
F05	Old Infirmary – Main Building	667465, 833695
F06	Ulster Canal walling	667446, 833603

Figure 13.25 Trace outline of the Old Infirmary building and ground layout, based on historic 1st and 2nd OS mapping

13.3.5 Architectural Heritage Context

13.3.5.1 Background

See Section 13.3.1 for wider historical context of Monaghan. Dublin Street runs north-south from the central Diamond in Monaghan and as the name suggests was once the main road towards Dublin from the town. It is characterised by three storey nineteenth century shop units which form a sweeping curve from the Diamond to Old Cross Square. (See Figure 13.26). Notable residents include Charles Gavan Duffy (1816-1903) who was born at no.10 Dublin Street. He was a poet, journalist, Young Irelander and politician, eventually becoming Premier of Victoria in Australia.

Figure 13.26 View south along Dublin Street from the Diamond

Dublin Street is unusual in retaining its historic long plot layout to the north side, likely due to the challenging topography which has hindered the town expanding in this direction. The backlands behind the Dublin Street shopfronts are a complex mix of outbuildings, entries and detached gardens (see Figure 13.27). Much of the historic built fabric in this area is in poor condition.

Figure 13.27 View from the top of Pump Entry towards the Diamond

The Ulster Canal flows through the town and passes under the south side of Old Cross Square in a culvert. It has not been in commercial use since 1931.

13.3.5.2 Strategy

The site (outlined in diagram Figure 13.28) was assessed as follows:

1. A walkover survey to identify and photograph each building fronting Dublin Street and all of the associated backland structures. This was carried out to Historic England Understanding Historic Buildings: A Guide to Good Recording Practice Level 1 standard, *Level 1 is essentially a basic visual record, supplemented by the minimum of information needed to identify the building's location, age and type. This is the simplest record, and it will not normally be an end in itself, but will be contributory to a wider study*.
2. Cartographic analysis of historic Ordnance Survey Maps to establish which structures may be of historic interest.
3. Analysis of further sources including:
    a. Monaghan County Museum
    b. Irish Architectural Archive

c. Old Monaghan Society (Facebook group)
d. Leslie Crawford (Facebook page)
e. Planning history search.
f. Cross reference of each structure to draft masterplan.

A summary of these findings was presented in Appendix 13.7.

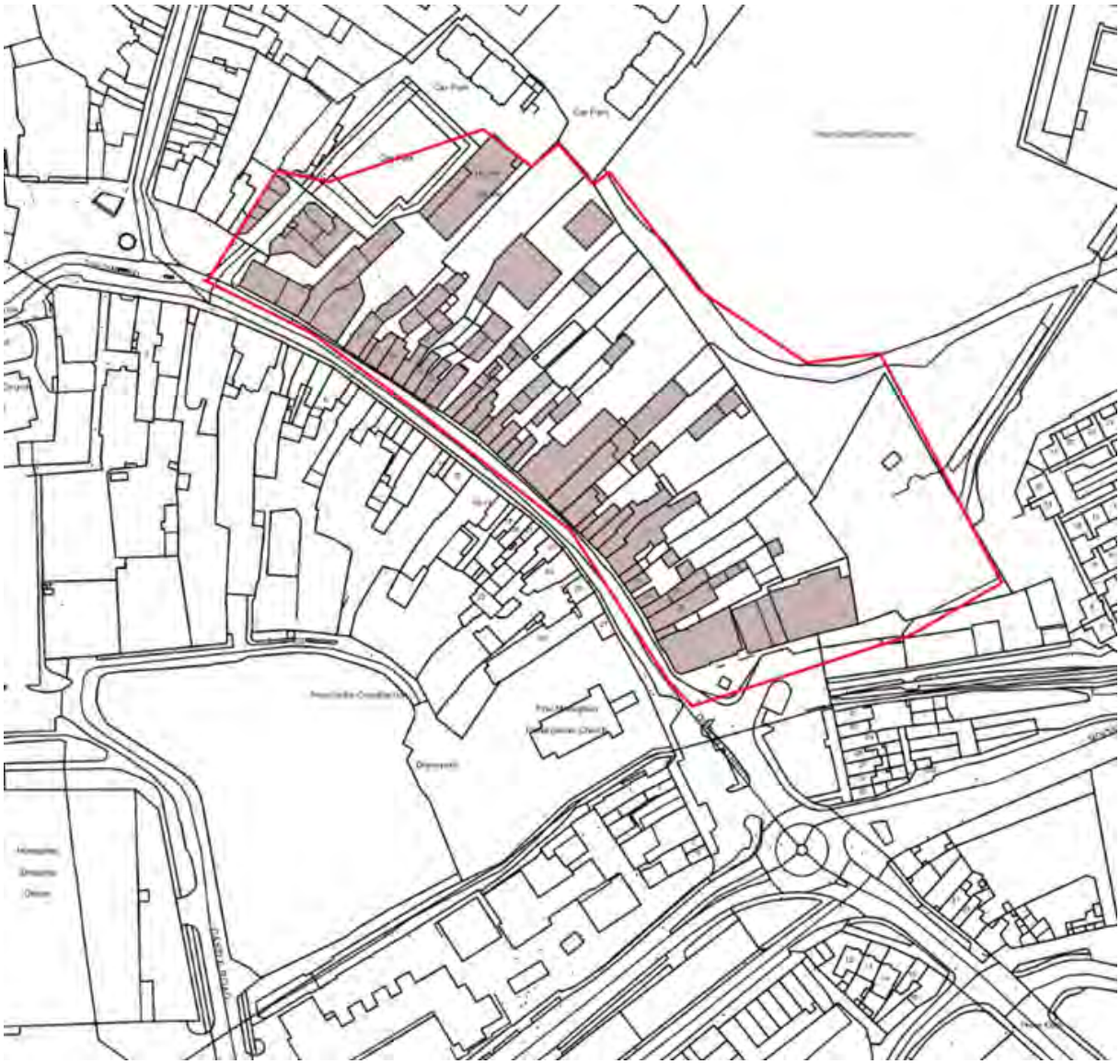


Figure 13.28 Area of analysis outlined with buildings highlighted

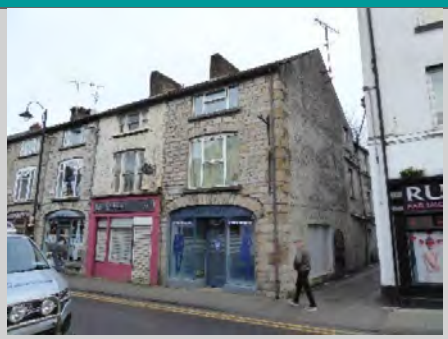
13.3.5.3 Protected Structures

In Ireland, Local Authorities have a statutory responsibility to safeguard architectural heritage in accordance with Part VI of the Planning and Development Act 2000. A Protected Structure is a structure that a planning authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical perspective. The

owner or occupier of a Protected Structure is legally obliged to prevent it becoming endangered, whether through damage or neglect.

Within the study area there are 5 protected structures, and one that is recorded by the National Inventory of Architectural Heritage, as noted in Table 13.12. These buildings, which are within Dublin Street ACA, are not intended to be directly affected by construction works; although but some structures to their backlands (but outside of the ACA) will be directly affected. These are identified in Table 13.13. An Architectural Heritage Impact Assessment has been provided for each of the 5 Recorded Protected Structures, see Appendix 13.8, 13.11, 13.12 13.13 and 13.14.

Table 13.12 Protected Structures

No	Name	Image	Reference
54	Ernie's Alterations		MCC_RPS_41001181 See Architectural Heritage Impact Assessment MAD-R019 by Alastair Coey Architects
55	Les Cadeaux		MCC_RPS_41001180 See Architectural Heritage Impact Assessment MAD-R020 by Alastair Coey Architects
56	Macho Man		MCC_RPS_41001179 See Architectural Heritage Impact Assessment MAD-R021 by Alastair Coey Architects

No	Name	Image	Reference
57	Mr J		MCC_RPS_41001178 See Architectural Heritage Impact Assessment MAD-R022 by Alastair Coey Architects
62	S McKenna		NIAH 41303117
	The Monument (Market Cross, Old Cross, Sundial Monument)		MO009-060006 MCC_RPS_41000283 See Architectural Heritage Impact Assessment MAD-R013, Methodology for moving the monument MAD-R014, and Old Cross Monument Condition Report MAD-R015 by Alastair Coey Architects

Chapter 13 of Architectural Heritage Protection: Guidelines for Planning Authorities (2011, updated 2022) notes that a protected structure includes the land and structures within the curtilage of a protected structure. It also notes that 'curtilage' will usually coincide with land ownership but that this is not necessarily so. Historically the backlands were part of the curtilages of the protected structures, as indicated on the Cleremont Estate Map c.1791, but the OS map of c.1836 indicates the presence of Pump Entry adjacent to no.54 and what appear to be independent plots behind it. This suggests that the backlands were in separate curtilages by the 1830s. The backland structures have not been Recorded individually or described as part of the RPS for nos. 54, 55, 56, and 57 which describes each as ***'Terraced three storey house'***. The plans and extent of protection within these sites is explored more fully in their individual Architectural Heritage Impact Assessments.

13.3.5.4 Cartography

Figure 13.29 Cleremont Estate Map c.1791

Currently known as the Rossmore Estate, the townland of Roosky is within what was the Cleremont Estate at the end of the eighteenth century (see Figure 13.29). It can be seen on this map that there are 13 plots identified to the north (right) side of Dublin Street (see Figure 13.30). If any outbuildings were present, they are not noted on the map. The buildings appear long, presenting a wide façade to the street and are shown without any returns.

Figure 13.30 Cleremont Estate map c.1791 detail of Dublin Street

On closer inspection, it can be seen that there are only two entries through the buildings; currently there are five. To the lower right of the map the footprint of the now demolished Asylum infirmary can be seen.

Figure 13.31 OS First Edition c.1836

The OS First edition (Figure 13.31) shows all five entries together with footprints and outbuildings similar to the current situation. This is quite different in building form and plot size to the 1791 map. A date plaque showing WM 1810 is set into no. 49 suggesting the building dates from then. The Shambles terrace is present at the south end of the street and the Square is known as Shambles Square. At this time the Old Town Cross is located in the Diamond at the north of the street.

The later OS Towns map (Figure 13.32) goes into more detail, though the street is split over three tiles.

Figure 13.32 OS2 OS Towns map c.1860

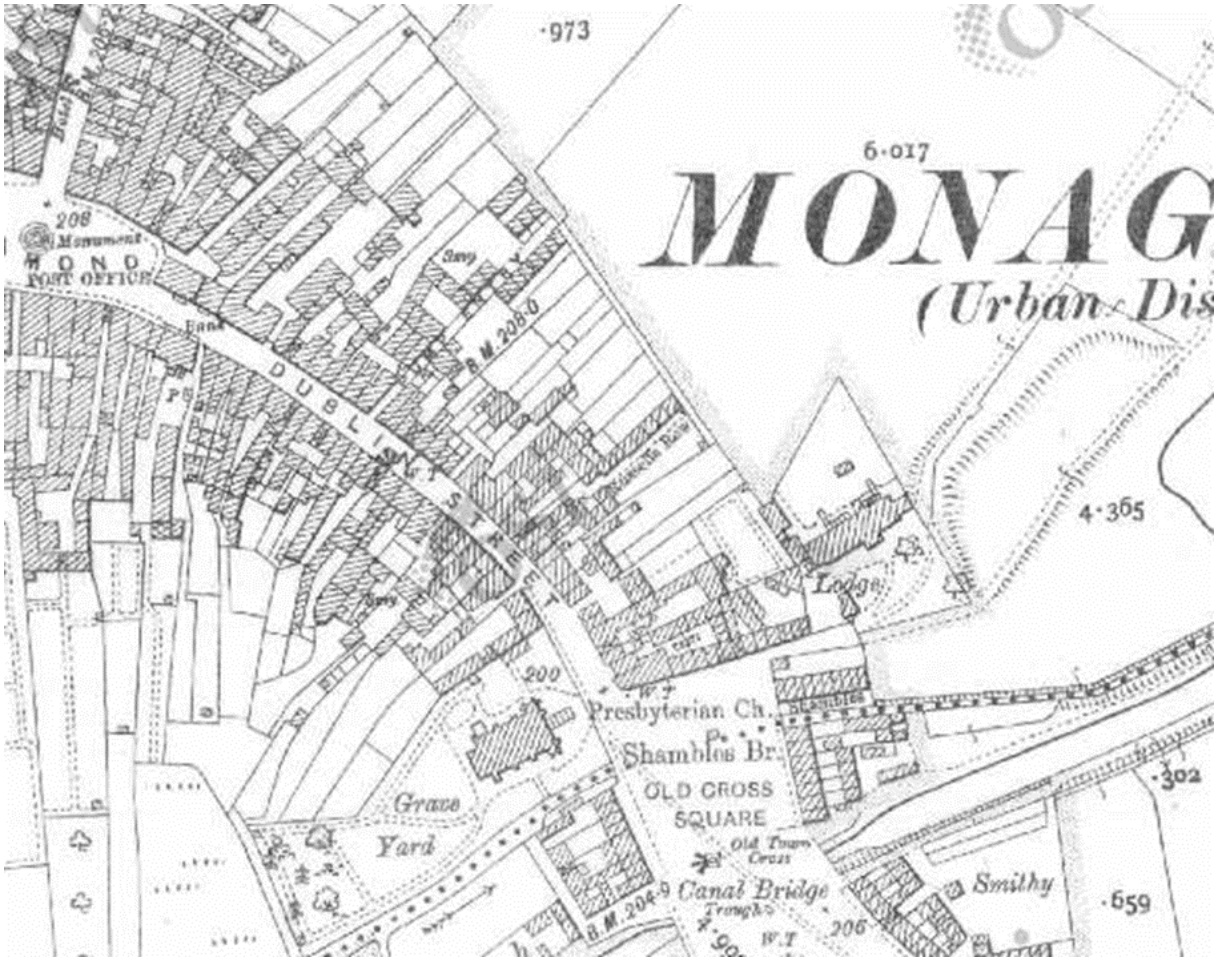


Figure 13.33 OS Second Edition c.1908

Figure 13.33 indicates further development, including the Russell's Row terrace perpendicular to Dublin Street, and the original position of the Old Town Cross within Old Cross Square. The cross was moved from the Diamond to Old Cross Square in the 1870s, and later relocated within the Square.

13.3.5.5 Proposed Plans

This Chapter should be read in conjunction with the McAdam Design suite of drawings, particularly Demolitions plan Vol II: Drawings and Folio Overview Plan Vol II: Drawings as well as the Project Description of the scheme as set out at Chapter 4. Each structure has been assigned an identifying reference number used in this report and on associated drawings. The street numbers were used for Dublin Road, and every return, extension or separate structure behind was given that number with a letter. These are for identification only and do not imply addresses or ownership.

13.3.5.6 Baseline of Heritage Structures

Table 13.13 Baseline list of heritage structures

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
	Market Cross	Former sundial; known as the Market Cross	Scheduled for inclusion in revised Register of Monuments and Places MO009-060006	Historic, social, scientific, technical, archaeological			✔
SW01	Stone wall	Tall coursed rubble boundary wall with coping to top.		Historic			✔
SW02	Stone wall	Stone boundary wall of varying rubble sizes, painted in some areas and modified with concrete block in others.		Historic		✔	✔
SW03	Stone wall	Stone boundary wall of varying rubble sizes, painted in some areas and modified with concrete block in others		Historic		✔	✔

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
SW04	Stone wall	Stone boundary wall of varying rubble sizes, painted in some areas and modified with concrete block in others		Historic		✓	✓
SW05	Stone wall	Coursed cut stone wall, heavily covered with vegetation		Historic		✓	
SW06	Stone wall	Coursed rubble wall with crenellated top		Historic		✓	
SW07	Stone wall	Coursed rubble wall with coping to top.		Historic		✓	
SW08	Stone wall	Painted coursed rubble wall with coping to top		Historic		✓	
31	Fifth Avenue	Three-storey rendered commercial building on corner site with retail to ground floor	Dublin Street Architectural Conservation Area	Reconstruction	✓		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
32	The Shambles	Three-storey three-bay brick public house, with stone facing to ground floor front façade. Carriage arch through to rear yard.	Dublin Street Architectural Conservation Area	Architectural	✔		
32a	The Shambles	Two-storey return to The Shambles public house (No. 32). Pitched roof, painted dash walls, mezzanine access to first floor accommodation.		Architectural	✔		
32b	The Shambles	Outbuildings to The Shambles Public House. Two-storey multi bay agricultural/storage type building. Lower floor in painted coursed rubble, first floor appears to be a later edition in painted concrete blockwork. Varied door and window openings.		Architectural		✔	

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
32c	The Shambles	Two-storey split level pitched roof stone structure, in derelict condition and largely concealed by vegetation.		Architectural		✓	
33	House	Three-storey rendered single-bay house, with shopfront to ground floor. Rear elevation of coursed rubble stone.	Dublin Street Architectural Conservation Area	Architectural	✓		
34	House	Three-storey single bay end terrace brick house, render to ground floor, with shopfront. Coursed rubble stone to rear.	Dublin Street Architectural Conservation Area	Architectural	✓		
34a	House	Outbuilding to rear of 34. Coursed rubble stone walls. Monopitch corrugated tin roof.		Architectural	✓		
35	House	Three-storey and attic single bay coursed rubble stone end terrace house.	Dublin Street Architectural Conservation Area	Architectural	✓		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
36-37	Ashleigh House B&B	Three-storey three-bay brick B&B. Render to ground floor, painted dash to rear. Planning application notes it as a protected structure in 2007; it does not appear on the current Monaghan RPS.	Dublin Street Architectural Conservation Area	Architectural	✔		
37a	Ashleigh House B&B	Two-storey rear return to 36-37.		Architectural	✔		
37d	Ashleigh House B&B	Long single-storey rear return to 37b, apparently outbuildings which have been incorporated into the B&B. The raised doorway in the gable suggests a historic origin.		Architectural		✔	✔
38	Kennedy & Co	Three-storey two-bay brick offices rendered shop front to ground floor.	Dublin Street Architectural Conservation Area	Architectural	✔		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
38b	Kennedy & Co	Two-storey rubble stone and brick outbuilding attached perpendicular to rear of no 38a. Corrugated tin roof.		Architectural	✔		
39	In Beauty	Three-storey two-bay brick offices, highly glazed shop front to ground floor.	Dublin Street Architectural Conservation Area	Architectural	✔		
39a	In Beauty	Three-storey rendered rear return to no.39, appears to be contemporary to main building.		Architectural	✔		
40	Let Us Launder	Three-storey two-bay rendered shop with open carriage arch through to rear yard.	Dublin Street Architectural Conservation Area	Architectural	✔		
40a	Let Us Launder	Three-storey two-bay rendered rear return to no.40, appears to be contemporary to main building.		Architectural	✔		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
40b	Let Us Launder	Single-storey brick outbuilding to rear of no. 40. In a derelict state		Architectural		✓	
41		Three-storey two-bay retail unit, coursed rubble stone triple arch feature to the front with entrance recessed behind.	Dublin Street Architectural Conservation Area	Architectural	✓		
41b		Not visible from outside curtilage. Single storey flat roofed return		Architectural	✓		
41c		Single storey rendered outbuilding to no.41		Architectural		✓	
42	Network Personnel / Amatino	Three-storey two-bay dashed rendered shop, timber shopfront to ground floor.	Dublin Street Architectural Conservation Area	Architectural	✓		
44-45	Formerly McCarrons	Three-storey five-bay painted render shop building.	Dublin Street Architectural Conservation Area	Architectural	✓		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
45a	Formerly McCarrons	Three-storey rendered rear return to shop, appears to be contemporary to main building.		Architectural	✔		
46	House	Three-storey single-bay dressed stone end terrace house, rendered shopfront arrangement to ground floor.	Dublin Street Architectural Conservation Area	Architectural	✔		
46b		Two-storey painted stone outbuilding to no.46, corrugated tin roof.		Architectural	✔		
47	House	Three-storey two-bay house dressed stone to front, coursed rubble to back. Uninhabited and in poor condition with possible vegetation ingress.	Dublin Street Architectural Conservation Area	Architectural	✔		
47a		Coursed rubble ruined outbuilding to the rear of no.47. In a derelict state		Architectural	✔		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
48	House	Three-storey two-bay coursed dressed stone house, rendered to rear. Blank signage facia to ground floor.	Dublin Street Architectural Conservation Area	Architectural	✔		
49	Mrs Hegartys	Three-storey two-bay coursed dressed stone house with painted render finish to rear and ground floor. Engraved stone to façade suggests a construction date of 1810.	Dublin Street Architectural Conservation Area	Architectural	✔		
50		Three-storey two-bay building with painted render finish and carriage arch to front elevation. Coursed rubble stone finish to rear with varied window openings.	Dublin Street Architectural Conservation Area	Architectural	✔		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
50a		Two-storey extension to rear of no. 50, painted finish with pitched roof . Appears to be contemporary to the main building.		Architectural	✔		
51	Suzanne Michaels	Three-storey single bay painted render building with highly glazed shop front to ground floor.	Dublin Street Architectural Conservation Area	Architectural	✔		
52	Rushe's	Three-storey single bay painted render building. With shop front to ground floor.	Dublin Street Architectural Conservation Area	Architectural	✔		
52a	Rushe's	Two-storey painted render extension to rear of no 52.		Architectural	✔		
53		Single storey garage, painted rubble stone finish with corrugated metal roof to the rear of no. 54		Architectural		✔	

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
53a		Two storey painted rubble stone outbuilding to no. 53 with corrugated metal roof.		Architectural		✔	
53b		Two storey outbuilding to rear of no. 55		Architectural		✔	
53c		Long two-storey outbuilding of mixed stone and brick with corrugated tin roof to rear of no. 56.		Architectural		✔	

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
54	Ernie's Alterations	Three-storey single-bay building with coursed dressed stone facing to front façade and shop front to ground floor.	Record of Protected Structures 41001181, Dublin Street Architectural Conservation Area	Architectural	✔		
54a	Ernie's Alterations	Large three-storey dash render return to no. 54	Dublin Street Architectural Conservation Area, Record of Protected Structures 41001181	Architectural	✔		
54b	Ernie's Alterations	Single storey painted dash render return to no. 54.		Architectural			✔

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
55	Les Cadeaux	Three-storey single bay building with shop front and signage to ground floor and painted stone finish to upper floors.	Dublin Street Architectural Conservation Area, Record of Protected Structures 41001180	Architectural	✔		
55a	Les Cadeaux	Three-storey dashed rendered extension to rear of no.55	Record of Protected Structures 41001180	Architectural	✔		
55b	Les Cadeaux	Two storey outbuilding to rear of no. 55	Within curtilage of Record of Protected Structures 41001180	Architectural	✔		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
56	Macho Man	Three-storey single-bay coursed dressed stone building with shop front to ground floor.	Dublin Street Architectural Conservation Area, Record of Protected Structures 41001179	Architectural	✔		
56a	Macho Man	Two-storey return to no. 56. The ground floor finish is painted rubblestone, the first floor appears to be a later concrete blockwork addition.	Record of Protected Structures 41001179	Architectural	✔		
57	Mr J	Three-storey single-bay coursed dressed stone building with shop front to ground floor.	Dublin Street Architectural Conservation Area, Record of Protected Structures 41001178	Architectural	✔		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
57a	Mr J	Two-storey extension to rear of no. 57 of apparent modern construction	Record of Protected Structures 41001178	Architectural	✔		
57c	Mr J	Overgrown brick and stone outbuilding to rear of no. 57.	Within curtilage of Record of Protected Structures 41001178	Architectural		✔	
58	Tony's Pizzeria	Three-storey two-bay, painted dash rendered building with timber shopfront to ground floor.	Dublin Street Architectural Conservation Area	Architectural	✔		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
58c	Mr J/ Tony's Pizzeria	Two-storey painted coursed rubble stone building with pitched roof to rear of no. 58. Arch through front elevation gives access to rear yard. External steps and door provide access to first floor.		Architectural		✔	
58d	Tony's Pizzeria	Single storey return			✔		
59	Flowers By Hughes	Three-storey two-bay painted render building, with carriage arch through to rear yard. Some later alterations visible to rear.	Dublin Street Architectural Conservation Area	Architectural	✔		
59b	Flowers By Hughes	Single storey rendered garage with mono pitch corrugated metal roof to rear of no. 59		Architectural	✔		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
59c	Flowers By Hughes	Two-storey coursed rubblestone and brick outbuilding to rear of no. 59. Appears to be in a derelict state		Architectural	✔		
59d	Flowers By Hughes	Single-storey painted rubble and brick return with mono pitch roof to rear of no. 59, access to all sides not available.		Architectural		✔	
60	The Beauty Studio	Three-storey two-bay painted render building, with shop front to ground floor.	Dublin Street Architectural Conservation Area	Architectural	✔		
60a	The Beauty Studio	Three-storey painted render return to no. 60		Architectural	✔		
60b	The Beauty Studio	Two storey brick and rubblestone outbuilding to rear of no. 60. In a derelict state.		Architectural	✔		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
61	MAG Chinese	Three storey three bay building with granite shop front to ground floor. Painted render to upper floors and painted dash finish to side elevation.	Dublin Street Architectural Conservation Area	Architectural	✔		
61a	MAG Chinese	Large three-storey painted dashed render extension with varied window openings to rear of no. 61.		Architectural	✔		
62	S McKenna	Three-storey single bay painted render public house.	Dublin Street Architectural Conservation Area	Architectural	✔		
62a	S McKenna	Two storey rendered extension with pitched roof to no. 62, access for clear view unavailable. Appears on historic maps but looks to have been modernised.		Architectural	✔		
62b	S McKenna	Return building to 62a		Architectural	✔		

ID number	Name	Description	Statutory Constraints	Interest	No proposed change	Proposed demolition	Potential alteration
62c	Dhaba	Large two-storey building to the rear of no. 62. Rubble stone finish to rear elevation with painted render finish to other elevations.		Architectural		✔	
63	Inka	Three-storey two bay painted render shop with signage to ground floor. Planning application notes it as a protected structure in 2004; it does not appear on the current Monaghan RPS.	Dublin Street Architectural Conservation Area	Architectural	✔		
64	House of Labels	Three-storey with attic over gable fronted shop	Dublin Street Architectural Conservation Area	Architectural	✔		

13.4 Impacts & Mitigation – Cultural Heritage

13.4.1 Construction Impacts – Cultural Heritage

In general terms, the construction activities for the Proposed Development will involve the removal of some upstanding structures, the building of new structures, a new street (Russell Row), access roads, and installation of utilities, lighting and surface treatments, all of which will require extensive ground reduction and landscaping. Dublin Street itself has been subject to modern intervention in the form of asphalt and concrete surfacing, concrete kerbing and ducting for electrical, sewerage, water mains and other services. The backlands element of the Proposed Development, to the rear of the properties fronting Dublin Street, have been subject to extensive development and landscaping, leaving few undisturbed or undeveloped green areas. Many plots exhibit signs of significant ground reduction towards the rising ground to the north.

The greenfield eastern portion of the Proposed Development incorporates the former grounds of the Old Infirmary (demolished) and archaeological monitoring of GI test pits have concluded that the area has been subject to ground disturbance in the past, particularly adjacent to the site of the demolished infirmary.

The Proposed Development is located within the *Zone of Archaeological Importance for Monaghan Town* as defined in the *Monaghan County Development Plan 2019-2025* and the Zone of Notification for the Historic Town of Monaghan (SMR MO009-060---). As such the Development (ground reduction) may have a direct impact on unknown sub-surface archaeological features associated with the historic settlement of Monaghan Town, in particular at the backland plots of Dublin Street North and including the levelled town defences (MO009-060004-). The town defences were identified during previous excavations on the north side of the Diamond and may also be present within the Proposed Development boundary. The excavated evidence from The Diamond refers to a 14-20m wide ditch with a maximum depth of 3m. Such a substantial feature may have survived (infilled and levelled) within the Proposed Development at the Dublin Street north backland plots, despite the level of modern urban development and landscaping in the area. While the existence, location, extent and significance of any potential sub-surface historic town and/or town defence-related archaeological remains within the Red Line Boundary is unknown, the potential exists for direct, negative, and permanent construction phase effects of medium to high magnitude (and thereby Moderate-Significant significance of effect) on such potential remains (See mitigation at Section 15.4.5).

It is also noted that portions of upstanding masonry walling are evident to the rear of backland plots associated with Nos. 38-42 and No. 46 Dublin Street (North). Impact assessment of upstanding architectural heritage, including boundary walling is presented in Section 13.5.

The proposed works in some areas will require removal of existing surfacing and replacement with new material, rather than deeper excavations into previously undisturbed deposits. There is potential of the existing Dublin Street and Old Cross Square to contain subsurface archaeological deposits. It is also noted that Old Cross Square was formerly known as the Shambles and previously unrecorded sub-surface features relating to the trade and butchering of animals may exist at this location. The portion of upstanding Ulster Canal walling (F06), abutting an end of terrace house at the southern end of Old Cross Square, will not be impacted by the Proposed Development.

The Proposed Development design layout includes the re-siting of the Market Cross (SMR MO009-060006--- / RPS 41000283) within Old Cross Square, to a position 3m to the south/southwest. This re-positioning is required to facilitate stepped access to the new proposed Russell Row and associated landscaping and access roads within a reconfigured Old Cross Square. Detailed in Appendix 13.3 is a sequence of events that saw the movement of the Market Cross monument a total of five times to date, as well as various augmentation, and ancillary additions/removals over the centuries. Conservation of the monument and its composite elements took place in 2010, and a detailed impact assessment and condition survey for the Proposed Development has been prepared by Alastair Coey Architects (Appendix 13.6 and Appendix 13.8). The latter was compiled in accordance with direct consultation with National Built Heritage Service (NBHS) who advised of the need to prepare same as part of the EIAR process. It was also advised that in order to prepare a feasible methodology for dismantling and re-siting the cross that a better understanding of its historical re-siting context would inform overall impact assessment. This detailed research is provided in Appendix 13.9**.**

The dismantling, temporary storage and re-erection of the Market Cross is considered a direct, negative, short-term impact of high magnitude of a high value receptor, resulting in a Very Significant significance of effect at construction stage.

The remaining footprint of the Old Infirmary complex within the proposed Community Park area, will be subject to landscaping and improved amenity space within its immediate environs. The footings (F05) and associated boundary walling (F01, F02, F04) and gate pier (F03) will remain *in situ* and will not be directly impacted by the Proposed Development. There is still potential to directly impact on levelled and sub-surface features associated with the late 18th century building and attendant grounds. The site is undesignated but retains tangible and

intangible value on a local level. As such any potential direct impact on the site is considered negative, permanent and of high magnitude on a low-medium value receptor, resulting in a Slight-Moderate significance of effect at construction stage.

There will be no likely significant construction stage impacts on recorded Cultural Heritage receptors located outside the Proposed Development area (see Section 13.3).

13.4.2 Operational Impacts – Cultural Heritage

The operational phase of the Proposed Development will not require any ground reduction measures and as a result there are no predicted direct physical impacts on the known Cultural Heritage resource.

Successful implementation of the mitigation measures at construction stage will result in the preservation in situ (by avoidance), or the preservation by record (via archaeological excavation), of any undesignated and/or recorded, sub-surface archaeological sites or features that may exist within proposed construction and operational areas.

The Proposed Development will involve re-positioning of the Market Cross, a short distance southwest of its current position, within a re-imagined and landscaped Old Cross Square, that offers direct pedestrian and vehicular connectivity to the new proposed Russell Row area. Further, the proposed Community Park will provide for an appealing and safe amenity greenspace that is currently subject to unsocial behaviour and activities.

Condition assessment of the monument (see Appendix 13.6) has confirmed the feasibility of safely carrying out the dismantling and re-erection of the monument without inadvertent damage. Placed within a reimagined Old Cross Square, this renewed prominence, set within an improved and high-quality public realm that has direct and continued connectivity with Dublin Street, is considered an indirect, permanent, positive operational impact, of high magnitude of a high value receptor, resulting in a Significant significance of effect (see Chapter 14).

The Proposed Development provides for careful removal of vegetation (by use of hand tools, with no mechanical digging or clearance), preservation in situ, recording and assessment of upstanding remains of the Old Infirmary building and complex. In addition, the conservation, consolidation and presentation of these footings in as a visitor amenity, including informational signage will be undertaken (see Chapter 14**)**. This is considered an indirect, permanent, positive operational impact, of high magnitude of a low-moderate value receptor, resulting in a Moderate significance of effect.

13.4.3 Projected Changes - Cultural Heritage

The Proposed Development is likely to bring about projected changes to the position and setting of the Market Cross within Old Cross Square, and to the former site of the Old Infirmary located within the proposed Community Park area of the Development. These changes are direct, positive, long-term impacts of high magnitude on high and low-moderate value receptors respectively. This is considered a positive Significant effect on the collective amenity heritage value and setting of the urban core of the historic town of Monaghan generally, as well on the Cultural Heritage receptors of the both the Market Cross and the Old Infirmary site.

13.4.4 Cumulative Impacts - Cultural Heritage

A review of available consented and proposed relevant projects within the proposed development area (see Chapter 4), including Regeneration Plans for Dublin Street South, Roosky Lands Master Plan and the Part 8 consented development for new civic offices to the north of the Proposed Development was undertaken for Cultural Heritage assessment purpose. Having identified the significance of both construction and operational stage effects of the Proposed Development, it is considered that the Proposed Development is not predicted to contribute to any significant direct or indirect cumulative effects on the Cultural Heritage resource of the wider area.

13.4.5 Demolition and Construction Phase Mitigation – Cultural Heritage

The Proposed Development has been informed by Cultural Heritage desktop studies, site investigations (testing), fieldwork and statutory consultation (National Buit Heritage Service – NBHS) undertaken during the design and assessment phases to avoid, reduce and/or offset predicted receptor impacts (see Chapter 4).

There is potential that sub-surface archaeological finds and/or features associated with the historic medieval/post medieval town of Monaghan, (including the medieval town defences and the area of Old Cross Square formerly ‘The Shambles’ exist within the Red Line Boundary. Ground works during the construction phase will be subject to archaeological monitoring by a licence-eligible archaeologist under licence by the National Monuments Service.

In the event that any sub-surface archaeological features are identified during archaeological monitoring they will be securely cordoned off, cleaned and recorded *in situ*. The National Monuments Service will then be notified and consulted to determine further appropriate mitigation measures, which may include preservation *in situ* (by avoidance) or preservation by record (archaeological excavation).

The Market Cross in Old Cross Square requires re-siting as part of a re-imagined public space that provides connectivity and linkage to the new proposed Russell Row and other planned development (Monaghan County Council Civic Offices) to the north of the Proposed Development. The Market Cross is in the guardianship of Monaghan County Council. In advance of construction stage (pre-works) the monument (with prior consultation and Section 14 Ministerial Consent and agreement by statutory bodies) will be subject to a detailed written and photographic survey log, to be augmented as part of an updated condition report (see Appendix 13.6). This will be carried out together with a detailed methodological specification for dismantling, safe and appropriate storage provisions, conservation works (off-site) where required, and reinstatement at the new location in as 'as built' manner at the end of construction stage. A conservation architect will oversee and supervise the works, together with an attending on-site licence-eligible archaeologist, where required as part of any ground reduction or landscaping provisions at construction stage.

In advance of construction stage (pre-works), the upstanding remains of the Old Infirmary (F01-F05) will be cleared (by hand) of all dense vegetation, with a built heritage written, drawn and photographic survey undertaken together with a conservation management plan to consolidate, re-point and make-safe any walling/features, and to install suitable surface treatment (such as fine gravel) as required. The latter will enable effective management of future vegetation growth and to provide visitor accessibility that can tangibly interact with the ruins. On-site bespoke and high-quality interpretative signage will be provided that documents the local history of the 'Old 12' site within the new town amenity area (see Chapter 14).

There may be associated sub-surface built heritage remains of the Old Infirmary located within the proposed Community Park area. Any landscaping works (ground reduction measures, drainage, lighting etc) that are required in and around the Old Infirmary footprint area, and within the park generally, will be monitored by an attending licence-eligible archaeologist at construction stage. This will facilitate the evaluation of any identified features and provide for an agreed strategy with National Monuments Service for the best course of action (preservation in situ or preservation by record).

13.4.6 Operational Phase Mitigation – Cultural Heritage

As identified in Section 13.4.2, there are indirect, permanent, positive operational impacts of Significant and Moderate significance of effect on the Market Cross and the Old Infirmary respectively.

A management plan and future maintenance regime that addresses periodic surface cleaning of the Market Cross (bird droppings, mosses or higher-level plant growth that can cause water

ingress issues etc.), and condition assessment surveys of the upstanding conserved masonry remains of the Old Infirmary, as well as sensitive vegetation management of same, will be undertaken.

In addition, community outreach consultation involving the County Museum and locals together with Monaghan County Council will be explored concerning the sensitive reinstatement of the inscribed lintel and date stone of the Old Infirmary building from the museum archives, back to the original site.

13.4.7 Assessment of Impacts following Mitigation – Cultural Heritage

There are no predicted negative direct or indirect impacts following mitigation on the Cultural Heritage resource.

13.4.7.1 Construction Stage Residual Impacts - Cultural Heritage

The mitigation measures will provide for either the avoidance of potential sub- surface archaeological features within the Proposed Development construction footprint or the proper and adequate recording of the Cultural Heritage resource by record via a full archaeological and/or built heritage record. This is considered a residual negative permanent impact of low magnitude on a medium value receptor, resulting in a slight residual impact.

The dismantling, storage and re-erection of the Market Cross will be mitigated by best practice measures, that includes for worst case scenario provisions (e.g. inadvertent stone damage/breakage and suitable repair/replacement materials therein).

13.4.7.2 Operational Stage Residual Impacts – Cultural Heritage

The operational stage will result in permanent positive indirect impacts on the Cultural Heritage resource, including improved siting and interpretation measures within a new public realm at Monaghan town. The residual operational impact will, together with identified mitigation measures, provide a continued and sustainable positive Significant and Moderate significance of effect on the Cultural Heritage resource.

13.4.8 Summary of Impacts – Cultural Heritage

Tabulated below is a summary of predicted impacts on the Cultural Heritage resource.

Table 13.14 Summary of Cultural Heritage Impacts

Receptor / Type	Value	Impact Type	Quality of Impact	Magnitude of Impact	Significance of Effect	Mitigation Measure	Residual Impact
MO009-060--- / Historic Town	Moderate	Direct (construction stage)	Negative	Medium-High	Moderate-Significant	Licenced Archaeological Monitoring of all ground reductions measures	Slight (negative)
MO009-060004- / Town Defences (levelled)	Moderate	Direct (construction stage)	Negative	High	Moderate-Significant	Licenced Archaeological Monitoring of all ground reductions measures	Slight (negative)
MO009-060006- / Market Cross / RPS 41000283	High	Direct (construction stage)	Negative	High	Very Significant	Careful dismantling, temporary safe storage and re-erection in as like manner, per Conservation Architect detailed specifications	Significant (positive)
F01 – F05 / Old Infirmary Complex	Low-Moderate	Indirect (construction stage)	Negative	High	Slight-Moderate	Careful clearance of vegetation by hand, detailed built heritage record and conservation, consolidation of upstanding remains, improved visitor access and interpretation signage	Moderate (positive)
F06 Ulster Canal walling	Low-Moderate	None	n/a	n/a	n/a	n/a	n/a

13.5 Impacts & Mitigation – Architectural Heritage

13.5.1 Construction Impacts – Architectural Heritage

A list of the heritage structures present along Dublin Street (north side) and its backland areas is presented in Table 13.13. The construction impacts have been summarised in Table 13.15. The construction impacts will largely be one of three impacts:

1. No proposed change.

This means that there is no intent to demolish or physically alter that building or section of building, beyond any making good or repair necessitated by works to an adjoining building. Changes to the building will be related to the changes to the landscaping and surrounding changes to the urban grain, which will alter the context and the visual presentation of the building. As the proposed development is focused on the backland development, the rear of many properties will become more prominent than was previously the case.

2. Demolition.

Within the backlands there are proposals for a substantial amount of demolition and groundworks in order to enable the Masterplan. 29 structures or parts of structures are proposed for demolition. All of the buildings have been recorded as a baseline environment within Appendix 13.7 which indicates that with 16 of the 29 are of modern construction, 11 being non-protected historic buildings of low heritage significance, one inaccessible building which appears to be modern, and one outbuilding within the curtilage of a protected structure (57c). The majority of structures marked for demolition are therefore not of heritage interest, and with the exception of building 57c (within the curtilage of 57 Dublin Street) the heritage structures which are marked for demolition are not subject to any statutory protections or non-statutory designations. Dublin Street has previously been surveyed for both RPS and NIAH designations.

3. Alteration.

There are few instances of alteration proposed to heritage buildings, as the intention is to work around existing buildings and party walls. This will result in the retention, or demolition, of complete buildings.

13.5.2 Operational Impacts – Architectural Heritage

Potential operational impacts could occur to the architectural heritage as a result of the introduction of new infrastructure to Dublin Street North. This will involve greater exposure to traffic, both pedestrian and vehicular, and changes to the use pattern of buildings, such as

increased footfall to and visibility of the structures. The greatest likely operational impact will be visual, where the backs of structures will have greater exposure. See Chapter 14 for visual impact. Structures which are to be demolished as part of the works will have no further operational impacts.

13.5.3 Projected Changes - Architectural Heritage

Following the proposed works to Dublin Street North, the structures fronting onto Dublin Street within the Dublin Street Architectural Conservation Area will be largely unchanged. The structures to the backlands will be more exposed and accessible. The Protected Structures will be unchanged with the exception of the Old Cross Monument (MO009-06006 and RPS 41000283) which will be relocated to a more prominent position within Old Cross Square. The grain of the backland plots will be altered to accommodate the new Russell Row and public realm, but the distinct pattern of the entries between the plots moving towards the old town wall will be maintained. The improvement of visibility and connectivity through the backlands should improve security, visual amenity, and footfall through the area. In turn this should enhance the visibility of the existing heritage and encourage opportunities for re-use and restoration. The design intent for boundary treatments is to present sensitive interfaces with the retained heritage, and to re-use salvaged material from elsewhere in the area where possible.

13.5.4 Cumulative Impacts - Architectural Heritage

The implementation of the Dublin Street North Masterplan is linked to a wider set of plans for the town, including the Dublin Street South Masterplan, Roosky Masterplan, and Monaghan Town Historic Towns Initiative. Together these link up the different regeneration areas of the town and are aligned to the same goals and standards. Provision of appropriate parking with considered interfaces to the town, improved management of traffic flow and increased prominence given to pedestrian traffic is likely to have a positive effect on the heritage of Dublin Street by improving the public realm around the Conservation Area and the Protected Structures.

In order to implement the approved Dublin Street North Masterplan consequential change will be unavoidable, but through the process of preparing the conservation research and developing design concepts the proposal seeks to minimise and mitigate the cumulative impacts to facilitate an overall positive outcome. A number of structures are proposed for demolition as part of the proposed development, including stone walls and heritage buildings. In the main these are freestanding and self-contained, as the designs minimise the need for alteration to existing buildings. There are opportunities for a positive impact on the retained

heritage structures by the regeneration aim of the project, which will increase visibility of and access to these structures, with a long-term view to ensuring either their continued use or their restoration from a vacant or derelict state, depending on the current baseline assessment of the individual structures. Further to the planning application proposals, each individual plot development or alteration to existing buildings will be subject to detailed assessment through future planning applications. The application of this rigorous assessment by the local council will ensure that the cumulative impact of development is positive.

13.5.5 Demolition and Construction Phase Mitigation – Architectural Heritage

The first line of mitigation was a collaborative and iterative approach to the preparation of the concept design, where feedback from the Stage 1 Architectural Desktop Study informed the development of the design to reduce the need for demolition of heritage structures in order to facilitate the development.

Structures proposed for demolition have had an external photographic survey in line with Historic England: Understanding Historic Buildings: A Guide to Good Recording Practice Level 2. *This is a descriptive record, made in similar circumstances to Level 1 but when more information is needed. It may be made of a building which is judged not to require a more detailed record, or it may serve to gather data for a wider project.* This is presented in Appendix 13.10.

Prior to any demolition, it is recommended that the structure have a Level 3 Analytical Survey carried out by the Project Conservation Architect in order to capture a permanent record of the structure which will be offered to the Irish Architectural Archive. The re-use of material from demolished structures will be incorporated into the proposed design where appropriate. A detailed survey, competent contractor & appropriate method statements will be necessary for alteration of heritage structures.

The following mitigation methods are proposed and will be applied on a structure-by-structure basis in Table 13.15 to the affected architectural heritage:

- Record survey.
- Protection in-situ during construction.
- Protection off site and relocation to a new position.

13.5.6 Operational Phase Mitigation - Architectural Heritage

It has been noted that the main Operational Impact on the heritage will be visual. A considered and sensitive finish to the surfaces and boundaries which will interact with the heritage has been designed for the proposed development, and in the long term as the infill sites are developed the planning process will assure that these sit appropriately alongside their heritage neighbours. It is considered that this regeneration will have a positive effect on the retained heritage structures by increasing their exposure to access and footfall with a view to maintaining use of these or bringing vacant buildings back into sustainable use.

13.5.7 Assessment of Impacts Following Mitigation

Following mitigation, it is anticipated that any remaining impacts have an overall positive effect on the proposed development, the Architectural Conservation Area, the Protected Structures, the National Monuments and the undesignated heritage structures.

13.5.8 Summary of Impacts & Mitigation – Architectural Heritage

Table 13.15 Summary of construction impacts

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
	Market Cross	RPS 41000283 Register of Monuments and Places MO009-060006	Medium	Positive	Reversible	Medium	Moderate	Relocation	Protection off site and relocation to a new position
SW01	Stone wall		Medium	Neutral	Permanent	Low	Not significant		Protection in-situ
SW02	Stone wall		Low	Negative	Permanent	High	Moderate	Demolition	Record survey
SW03	Stone wall		Low	Negative	Permanent	High	Moderate	Demolition	Record survey
SW04	Stone wall		Low	Negative	Permanent	High	Moderate	Demolition	Record survey
SW05	Stone wall		Low	Negative	Permanent	High	Moderate	Demolition	Record survey

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
SW06	Stone wall		Low	Negative	Permanent	High	Moderate	Demolition	Record survey
SW07	Stone wall		Low	Negative	Permanent	High	Moderate	Demolition	Record survey
SW08	Stone wall		Low	Negative	Permanent	High	Moderate	Demolition	Record survey
32	The Shambles	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
32a	The Shambles		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
32b	The Shambles		Low	Negative	Permanent	Low	Moderate	Demolition	Record survey
32c	The Shambles		Low	Negative	Permanent	High	Moderate	Demolition	Record survey
33	House	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
33c	House		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
34	House	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
34a	House		Low	Negative	Permanent	High	Moderate	Demolition	Record survey
35	House	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
36-37	Ashleigh House B&B	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
37a	Ashleigh House B&B		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
37d	Ashleigh House B&B		Low	Negative	Permanent	High	Moderate	Demolition	Record survey

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
38	Kennedy & Co	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
38b	Kennedy & Co		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
39	In Beauty	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
40	Let Us Launder	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
40a	Let Us Launder		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
40b	Let Us Launder		Low	Negative	Permanent	High	Moderate	Demolition	Record survey

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
41		Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
41b			Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
41c			Low	Negative	Permanent	High	Moderate	Demolition	Record survey
42	Network Personnel / Amatino	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
44-45	Formerly McCarrons	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
45a	Formerly McCarrons		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
46	House	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
46b			Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
47	House	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
47a			Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
48	House	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
49	Mrs Hegartys	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
50		Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
50a			Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
51	Suzanne Michaels	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
52	Rushe's	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
52a	Rushe's		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
53			Low	Negative	Permanent	High	Moderate	Demolition	Record survey
53a			Low	Negative	Permanent	High	Moderate	Demolition	Record survey
53b			Low	Negative	Permanent	High	Moderate	Demolition	Record survey
53c			Low	Negative	Permanent	High	Moderate	Demolition	Record survey
54	Ernie's Alterations	Record of Protected Structures 41001181, Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
54a	Ernie's Alterations	Dublin Street Architectural Conservation Area, Record of Protected Structures 41001181	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
54b	Ernie's Alterations	Potentially historically associated with curtilage of Record of Protected Structures 41001181	Low	Neutral	Permanent	Low	Not significant		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
55	Les Cadeaux	Dublin Street Architectural Conservation Area, Record of Protected Structures 41001180	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
55a	Les Cadeaux	Record of Protected Structures 41001180	Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
55b	Les Cadeaux	Potentially historically associated with curtilage of Record of Protected Structures 41001180	Low	Neutral	Permanent	Negligible	Not significant		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
56	Macho Man	Dublin Street Architectural Conservation Area, Record of Protected Structures 41001179	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
56a	Macho Man	Record of Protected Structures 41001179	Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
57	Mr J	Record of Protected Structures 41001178	Medium	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
57a	Mr J	Record of Protected Structures 41001178	Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
57c	Mr J	Potentially historically associated with curtilage of Record of Protected Structures 41001178	Medium	Negative	Permanent	Low	Moderate		Demolition
58	Tonys Pizzeria	Dublin Street Architectural Conservation Area	Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
58c	Tonys Pizzeria		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
58d	Tonys Pizzeria		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
59	Flowers By Hughes	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
59b	Flowers By Hughes		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
59c	Flowers By Hughes		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
59d	Flowers By Hughes		Low	High	Permanent	High	Moderate	Demolition	Record survey
60	The Beauty Studio	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
60a	The Beauty Studio		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
60b	The Beauty Studio		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
61	MAG Chinese	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
61a	MAG Chinese		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
62	S McKenna	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
62a	S McKenna		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ
62b	S McKenna		Low	Neutral	Permanent	Negligible	Imperceptible		Protection in-situ

ID number	Name	Statutory Constraints	Sensitivity	Quality of effect	Duration	Magnitude	Significance	Notes	Mitigation
62c	Dhaba		Low	Negative	Permanent	High	Moderate	Demolition	Record survey
63	Inka	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ
64	House of Labels	Dublin Street Architectural Conservation Area	Medium	Neutral	Permanent	Negligible	Not significant		Protection in-situ

13.6 Interrelationships

Interaction with the Landscape and Visual environmental discipline has been identified at the earliest design stages of the Proposed Development. Careful consideration has been given to the re-positioning and siting of Market Cross within a newly imagined and landscaped Old Cross Square, as well as for the proposed Community Park. These interactions have been augmented by collective best practice approaches to Cultural Heritage mitigation measures and landscaping measures to produce a high-quality project delivery.

Given the urban scale of the proposed intervention interrelationships will inevitably arise. Key interrelationships, particularly pertaining to Cultural and Architectural Heritage for example will be landscape and visual. Changes to the landscape will interface with the retained architectural heritage structures and interact with the cultural heritage, and the whole site will be subject to visual changes as accesses and vantage points will be augmented, increasing the visibility of the Cultural and Architectural Heritage.

13.7 Limitations

The Cultural Heritage resource concerning the historic town of Monaghan relevant to the Proposed Development refers to the potential sub-surface remains associated within the development footprint and construction areas. The backland plots have been heavily truncated, infilled, and subject to a range of ancillary building construction and hard surfacing. This in turn presented limitation in accessible and feasible areas for archaeological test trenching. Nonetheless, an approved and licenced archaeological test trenching programme sought to attempt to address gaps in knowledge concerning the presence or otherwise of buried medieval remains, in particular, the town defences and ditch. No archaeological material was encountered however it remains that such material may be present within the Red Line boundary, the presence or otherwise of which will not be known until construction stage.

Access was not available to every part of the site on walkover visits for Architectural Heritage purpose.

13.8 Conclusions

The Proposed Development will not result in any negative operational impacts or significance of effects on the Cultural Heritage resource. The likely residual impacts indicate that although sub-surface archaeological features may be impacted at construction stage (Slight negative significance of effect), it is also acknowledged that any preservation by record (excavation)

measures required therein will be widely and publicly disseminated, with findings adding to the existing knowledge base of the historic development of Monaghan town.

The residual impact on Cultural Heritage upstanding receptors (Market Cross and Old Infirmary ruins) will have a predicted positive permanent Significant and Moderate residual impact respectively. The proposed newly landscaped setting of the Market Cross within Old Cross Square and the Old Infirmary ruins within the Community Park, will allow for continued and enhanced interaction with these receptors in the longer-term.

This Chapter discusses the baseline, potential impacts, and proposed mitigation to be applied to the cultural and architectural heritage of the north side of Dublin Street, including its backlands, in the context of the Architectural Conservation Area, Recorded Protected Structures, National Monuments, and undesignated heritage assets. It has been assessed that the proposed plan for the implementation of the Dublin Street North Regeneration Plan is cognisant of the cultural heritage of the site and that the regeneration benefits of the proposed scheme will outweigh any negative impacts.

The proposed scheme will enhance the character of the Architectural Conservation area and the setting of the five Protected Structures on the site. The Old Cross Monument will be enhanced by being repositioned, and this impact will be reversible. The remaining four Protected Structures will not be directly impacted by the proposed works.

It is the opinion of the Conservation Architect that the proposed plan will have an overall positive effect on the setting and viability of the Architectural Conservation Area, the Protected Structures, and the National Monuments.

13.9 References

Annals of the kingdom of Ireland by the Four Masters from the earliest period to the year 1616, ed. and trans. John O'Donovan (7 vols., Dublin, 1851; reprint New York, 1966).

The Annals of Ulster to 1311, ed. S. Mac Airt and G. Mac Niocaill (Dublin 1983).

Bardon, J. 2011. *The Plantation of Ulster*. Gill and MacMillan: Dublin

Bardon, J. 2001. *A History of Ulster*. Blackstaff Press: Belfast.

Brett, C.E.B 1978. *List of Historic Buildings, Groups of Buildings and Areas of Architectural Importance in the Town of Monaghan*. Ulster Architectural Society and An Taisce: Belfast.

Herrity, M. (ed.) 2012 *Ordnance Survey Letters: Londonderry, Fermanagh, Armagh-Monaghan, Louth, Cavan-Leitrim*. Four masters Press: Dublin.

Hunter, R.J. 1975 Carews survey of Ulster, 1611: the voluntary works. *Ulster Journal of Archaeology* Ser. 3, 38, 81-2.

International Council on Monuments and Sites (2011) *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties.*

Lewis, S. 1837 *A topographical dictionary of Ireland, 2 vols*. London. Lewis and Co.

Mooney, C. 1957 *Franciscan architecture in Pre-Reformation Ireland, Part III*. Journal of the Royal Society of Antiquaries of Ireland 87, 1-38.

Nolan, D. 2010 *Conservation and Relocation of Sundial Monument, Old Cross Square, Monaghan*. Unpublished Report.

Dermot Nolan & Associates. 2011 *Report on the Restoration of the Sundial Monument, Market Square, Monaghan*. Unpublished Report.

Ó Gallachair, Rev. P. 1962 '*The 1641 war in Clogher'*. Clogher Record, vol. 4, No. 3, 135-47.

Ó Mórdha, P (1957) The Mac Mahons of Monaghan (1603-1640). *Clogher Record*. Vol. 2 (1). Clogher Historical Society, pp. 148-169.

O'Sullivan, A. 1998 *The archaeology of lake settlement in Ireland*. Discovery Programme Monograph No. 4. Royal Irish Academy: Dublin.

Sneddon, A. 2012 State intervention and provincial health care: the county infirmary system in late eighteenth-century Ulster. *Irish Historical Studies*. Vol. 38, No. 149, pp. 5-21. Cambridge University Press.

Database of Irish Archaeological Excavations. Available at: http://www.excavations.ie/ [Accessed 28/08/2024]

Department of Housing, Local Government & Heritage, Historic Environment Viewer. Available at: http://webgis.archaeology.ie/historicenvironment/ [Accessed 28/08/2024]

Environmental Protection Agency (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf (accessed 27/09/24)

Historic England: Understanding Historic Buildings: A Guide to Good Recording Practice.

https://historicengland.org.uk/images-books/publications/understanding-historic-buildings/heag099-understanding-historic-buildings/ (accessed 26/09/24)

Monaghan County Council *Monaghan County Development Plan 2019-2025*. Available at: https://monaghan.ie/planning/new-county-development-plan/ [Accessed 28/08/2024]

Placenames Database of Ireland. Available at: www.logainm.ie [Accessed 28/08/24]

The School's Folklore Collection. Available at: https://www.duchas.ie/en/cbes/4742056/4731389 [Accessed 28/08/24]

Public Records Office Northern Ireland: Introduction to Rossmore Papers (T2929) 2007. Available at: www.nidirect.gov.uk [Accessed 27/08/24]

Taylor and Skinner's Map of the Roads of Ireland 1778. Available at: www.digitalcollections.tcd.ie [accessed 28/08/24]

14 Townscape & Visual Impact

14.1 Introduction

14.1.1 Background

This chapter of the EIAR assesses the likely significant effects of the Dublin Street North (DSN) regeneration project in Monaghan, on the environment in respect of Townscape and Visual Amenity. The findings of this assessment have been based on the detailed project description contained in Chapter 4 of this EIAR.

The development area, located on the eastern side of Monaghan's town centre, comprises Dublin Street, the back lands to the north of Dublin Street and a small area of public open space to the north-east of these, the Diamond Centre car park and Old Cross Square. The development area will hereafter be referred to as 'the Development Site' or 'the Site', while the DSN regeneration project will be referred to as 'the Proposed Development'.

This EIAR chapter should be read in conjunction with the following provided in Volume III: Appendix 14.1 & Appendix 14.2:

- Appendix 14.1: Townscape Baseline and Viewpoint Locations
- Appendix 14.2: Viewpoints/Photomontages
    - Viewpoint/Photomontage A
    - Viewpoint/Photomontage B
    - Viewpoint/Photomontage C
    - Viewpoint/Photomontage D
    - Viewpoint/Photomontage E
    - Viewpoint/Photomontage F
    - Viewpoint/Photomontage G

14.1.2 Scope of Work/EIA Scoping

The EPA guidelines in relation to the preparation of an EIAR (May 2022) suggest the following typical headings that may be included in respect of the prescribed environmental factor 'The Landscape':

- Landscape Appearance and Character
- Landscape Context
- Views & Prospects
- Historical Landscapes

These headings are incorporated in the below assessment, as appropriate. However, in the absence of more detailed Irish guidance, the assessment contained within this chapter is based on the Third Edition of the *Guidelines for Landscape and Visual Impact Assessment* issued by the Landscape Institute and Institute of Environmental Management and Assessment (hereinafter referred to as 'GLVIA3'). These guidelines are widely accepted as best practice for Landscape and Visual Assessment (LVIA) in Ireland, or Townscape and Visual Assessment (TVIA), as is the case here.

The full TVIA methodology is provided at section 14.3, below. Please note that much of the terminology used in assessing the landscape and visual effects is in accordance with the above-mentioned EPA Guidelines. However, the terminology used in this TVIA to describe the level of effects ("significance of effects" in the EPA Guidelines) differs slightly from said EPA Guidelines, based on examples provided in GLVIA3.

14.1.3 Technical Standards

Photography and visual representations are based on the principles set out in the Landscape Institute – Technical Guidance Note 06/19 – *Visual Representation of Development Proposals*. Photomontages were produced by McAdam Design, in line with the 'Methodology for Photomontages' provided in Section 14.3.4 below. There is no Irish standard/guidance, and in our experience, it is typically considered sufficient to provide two viewpoints (or in this case the existing view and the photomontage view) on one A3-sized sheet, using a range of horizontal angles of view (i.e. 75˚-105˚) to illustrate the full extent of the development within each photograph presented, as well as the context within which the site is located.

The Landscape Institute – Technical Guidance Note 02/21 – *Assessing landscape value outside national designations* was taken account of in the preparation of the TVIA assessment methodology, as provided in Section 14.3 below.

The recently published Landscape Institute – Technical Guidance Note LITGN-2024-01 – *Notes and Clarifications on aspects of Guidelines for Landscape and Visual Impact Assessment Third edition* (GLVIA3) was also taken into account in the preparation of the assessment methodology provided below.

14.1.4 Consultation/Consultees

Please refer to Chapter 5 Scoping and Consultation of this EIAR for a detailed description of the consultation process carried out. In its Scoping Opinion, dated August 2024, An Bord Pleanála (ABP) requested that ***"an assessment of the proposed development on the receiving urban landscape will be required to be undertaken as part of the EIAR. This assessment should address existing visually prominent and functional features in the***

urban landscape and should provide an assessment of the visual impact of the development as it relates to the surrounding heritage areas including the ACAs, Protected Structures and NIAH Structures in the vicinity." The assessment of townscape and visual effects, including how these relate to the surrounding heritage areas is included in Section 14.5.1. Also refer to Chapter 13 Cultural & Architectural Heritage.

The Scoping Opinion further stated that the landscape section ***"should include a series of photomontages or other forms of visual aid, and the views should be taken to and from the surrounding locations including the surrounding streets (incl. sensitive receptors such as the ACAs, Protected Structures & NIAH Structures in the vicinity and through at least one of the pedestrian connections on Dublin Street) and other locations including to the north at site of the permitted civic offices."*** A total of eight photomontages from a range of locations within and surrounding the Site were prepared. These include two on Old Cross Square, showing the protected church and Old Cross monument, two from St. Davnet's Row along the southern boundary of the permitted civic offices and one along Dublin Street, showing the ACA. The photomontages can be found in in Appendix 14.2.

14.1.5 Contributors/Authors

The TVIA including site work and completion of drawings was carried out by Anne Merkle, Principal Landscape Architect with SLR Consulting Ireland. Anne graduated from the Nürtingen-Geislingen University (Germany) in Landscape Architecture (Dipl.-Ing. (FH)), in 2002. She has 20+ years' experience working for landscape consultancies in Ireland, specialising in Landscape and Visual Impact Assessments for a wide range of projects, including residential/mixed developments, quarries, waste recovery facilities, wind farms and powerlines. In 2017, Anne completed an MSc in Biodiversity and Land Use Planning at NUI Galway. She is a full member of the Irish Landscape Institute (MILI) since 2005.

A technical review of the TVIA was carried out by Chhaya Khera, Technical Director for Landscape Architecture at SLR Consulting. She holds a BArch degree in Architecture, a MLA (Hons) in Landscape Architecture and is a Chartered Member of the Landscape Institute (CMLI). She has over 20 years of professional experience in LVIAs/TVIAs (Landscape/Townscape and Visual Impact Assessment).

14.2 Legislative Context and Guidance

14.2.1 Legislation

In 2002, Ireland ratified the European Landscape Convention, which promotes the protection, management and planning of landscapes. The National Landscape Strategy for Ireland 2015-

2025 was published ***"to ensure compliance with the European Landscape Convention and establish principles for protecting and enhancing the landscape while positively managing its change".***

Article 1a of the European Landscape Convention defines landscape as ***"an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors",*** (Council of Europe, 2000). This definition has been included in the Planning and Development (Amendment) Act 2010, along with the requirement that objectives relating to landscape shall be included in development plans.

There is no Irish legislation specifically governing the preparation of LVIAs.

14.2.2 Planning Policy and Development Control

The Monaghan County Development Plan (MCDP) 2019-2025 is the statutory plan detailing the development policies and objectives of the authority, covering the application area.

Those policies/objectives, with relevance to this assessment, are listed below. The location/extent of relevant designations is shown on Appendix 14.1, *Townscape Baseline and Viewpoint Locations*.

14.2.2.1 Areas of Primary/Secondary Amenity

Sections 6.11.1 & 6.11.2 of the current MCDP designate Areas of Primary Amenity (PA) and Secondary Amenity (SA) within County Monaghan. None of the Areas of PA are located in proximity to the Site. One of the Area of SA, i.e. SA5 Ulster Canal and Environs, is however closely linked with the Site. The canal itself passes underneath Old Cross Square, while a section of the associated Ulster Canal Greenway passes just south of Old Cross Square, where it crosses the R937, south of the roundabout and continues along Canal Street.

The Policy for Areas of Secondary Amenity, SAP 1, states the following: ***"To limit development in Areas of Secondary Amenity Value and to only permit compatible amenity development where they do not unduly impact on visual amenity."***

Users of the Ulster Canal Greenway will therefore be considered as visual receptors as part of this assessment.

14.2.2.2 Scenic Routes/Views

Section 6.11.3 of the current MCDP designates scenic routes/views within the county. The development site is not visible in any of the '*Views from Scenic Routes*' listed in Appendix 3 of the MCDP and none of the associated policies are of relevance to the Proposed Development.

14.2.2.3 Architectural Conservation Area

Section 6.17.2 of the current MCDP designates Architectural Conservation Areas (ACA). Some sections of Dublin Street are designated as an ACA. Architectural Conservation Areas Policy ACP 2 states the following: ***"To resist development that would adversely affect the character and appearance of the Architectural Conservation Area. New development or alterations to existing building(s) in an ACA shall reflect the historic architecture in terms of scale, design and materials used. Regard shall be had to any objectives contained in the character appraisals (where applicable)."***

Refer to Appendix 14.1, *Townscape Baseline and Viewpoint Locations* for an indication of the extent of the ACA and Chapter 13 Cultural & Architectural Heritage of this EIAR for further information.

14.3 Methodology

14.3.1 Sources of Information

The assessment is based upon a desk top assessment of relevant plans, guidance and landscape character assessments, as well as thorough site assessments carried out in October 2023 and September 2024. The desktop study and field work were informed by:

- Monaghan County Development Plan 2019-2025;
- Local Area Action Plan (LAAP) 2011 for the lands to the North East of Dublin Street, Roosky, Monaghan; adopted as part of the Monaghan County Development Plan 2007-2013;
- Dublin Street North Regeneration Plan (Variation 3 of the Monaghan County Development Plan) 2022;
- Digital and paper (Ordnance Survey Ireland) mapping at different scales; and
- Information available on the internet (such as satellite images and information on recreational facilities and nature conservation sites).

14.3.2 Study Area

During the desktop study, the study area for this TVIA was identified as an area of about 250m surrounding the Development Site, based on its urban setting and the strongly undulating topography surrounding the Site, both of which provide visual enclosure. Following the field survey, a larger study area was not found necessary. Indeed, it should be noted that the visual envelope, i.e. the area from where the Development Site is actually visible, is smaller than the study area. However, it is maintained for the purposes of providing townscape context.

14.3.3 Field Survey

Detailed field surveys were carried out on 10th October 2023, in overcast but clear conditions, and on 6th September 2024, in sunny and bright conditions. Photographs were taken during the field surveys, using a Nikon D610 digital SLR full frame camera, with a fixed 50mm lens, mounted on a tripod with a panoramic head. The individual photos were taken in portrait format.

One additional photo was taken in November 2024, using a mobile phone camera, showing the ACA along Dublin Street. While this photo does not fully comply with the technical requirements set out in the LI Technical Guidance Note 06/19 (see Section 14.1.3), the photomontage developed from it (refer to Appendix 14.2 Photomontage F) is still considered appropriate and illustrates the proposed changes along Dublin Street.

In accordance with GLVIA3, the field survey and viewpoint photography concentrated on publicly accessible areas, such as the road and public footpath networks, residential and outdoor recreational areas.

14.3.4 Photomontage Methodology

Photomontages and renders were created by Eoin Heatley, McAdam Design Project Architect, BA (Hons) Arch, M Arch, MSc BIM Prj Mgmt,

Photographs and photomontages are intended to be printed at A3 size, so that the angle of vision covered by the print, when held at reading distance, is approximately the same as would be covered by the same extent of the real scene, when viewed from the camera position.

The camera positions of the views were established using survey standard digital GPS equipment.

The surveyed reference points on existing buildings were attached to the three-dimensional model created in ‘Sketchup’.

The model used for photomontages included appropriate detail of the proposed buildings as shown on design drawings.

Renderings were made with ‘Lumion’ from each camera position using the field of view of each photograph, and, in the case of photomontages, with the sun position correct for the date and time that each photograph was taken.

In the case of photomontages, the renders were inserted into the relevant view using ‘Photoshop’. Renders were scaled and positioned using the field of vision of each photograph and the surveyed reference points in each view.

14.3.5 Assessment Methodology for Landscape/Townscape and Visual Impacts

Landscape and Visual Impact Assessment (LVIA) is a tool used to identify the effects of development on ***"landscape as an environmental resource in its own right and on people's views and visual amenity"*** (GLVIA3, paragraph 1.1). GLVIA3 (paragraph 2.22) states that these two elements, although inter-related, should be assessed separately. GLVIA3 is the main source of guidance on LVIA.

Landscape/Townscape is a definable set of characteristics resulting from the interaction of natural, physical and human factors: it is a resource in its own right. Its assessment is distinct from visual assessment, which considers effects on the views and visual amenity of different groups of people at particular locations. Clear separation of these two topics is recommended in GLVIA3.

"Notes and Clarifications on aspects of GLVIA3" (Landscape Institute Technical Guidance Note 2024/01, published August 2024) makes it clear at section 2.0 that Townscape and Seascape assessments should follow the same process as LVIA, and therefore also follow the guidance in GLVIA3.

As GLVIA3 (paragraph 2.23) states, professional judgement is an important part of the LVIA process: whilst there is scope for objective measurement of landscape/townscape and visual changes, much of the assessment must rely on qualitative judgements. It is critical that these judgements are based upon a clear and transparent method so that the reasoning can be followed and examined by others.

Impacts can be defined as the action being taken, whereas effects are the changes resulting from that action. This method of assessment assesses townscape and visual effects.

Townscape and visual effects can be positive, negative or neutral in nature. Positive effects are those which enhance and/or reinforce the characteristics which are valued. Negative effects are those which remove and/or undermine the characteristics which are valued. Neutral effects are changes which are consistent with the characteristics of the landscape/townscape or view. LI TGN 2024/01 notes at section 3(7) that the assessment of the level of effect and the nature of effect should be independent of each other.

Townscape and visual effects can result directly from the development itself (direct effects) or may be indirect changes (which are not a direct result of the development but occur as a result of a more complex pathway, such as changes to drainage patterns or perceptual changes further from the proposed development).

Townscape and visual effects can also be cumulative, which are the additional changes caused by a proposed development in conjunction with other developments, particularly those which are recently consented, or which have been applied for.

In TVIAs which form part of an Environmental Impact Assessment (EIA), it is necessary to identify significant and non-significant effects.

14.3.5.1 Townscape Effects

Landscape, as defined in the European Landscape Convention, is defined as ***"an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors",*** (Council of Europe, 2000). Landscape does not apply only to special or designated places, nor is it limited to countryside.

GLVIA3 (paragraph 5.34) recommends that the effect of the development on landscape receptors is assessed. Landscape/townscape receptors are the components of the landscape/townscape that are likely to be affected by the proposed development and can include individual elements (such as hedges or buildings), aesthetic and perceptual characteristics (for example sense of naturalness, tranquillity or openness), or, at a larger scale, the character of a defined character area or landscape type. Designated areas are also landscape receptors.

This assessment is being undertaken because the proposed development has the potential to remove or add elements to the landscape/townscape, to alter aesthetic or perceptual aspects, and to add or remove characteristics and thus potentially change overall character.

Judging landscape/townscape effects requires a methodical assessment of the sensitivity of the landscape/townscape receptors to the proposed development and the magnitude of effect which would be experienced by each receptor.

Landscape/Townscape Sensitivity

Sensitivity of landscape/townscape receptors is assessed by combining an assessment of the susceptibility of landscape/townscape receptors to the type of change which is proposed with the value attached to the landscape/townscape. (GLVIA3, paragraph 5.39).

Value Attached to Landscape/Townscape Receptors

Landscape/townscape receptors may be valued at community, local, national or international level. Existing landscape designations provide the starting point for this assessment, as set out in Table 14.1 below.

The table sets out the interpretation of landscape/townscape designations in terms of the value attached to different landscape/townscape receptors. As GLVIA3 (paragraph 5.24) notes, at

the local scale of an LVIA study area it may be found that the landscape/townscape value of a specific area may be different to that suggested by the formal designation.

Table 14.1 Interpretation of Landscape/Townscape Designations

Designation	Description	Value
World Heritage Sites	Unique sites, features or areas identified as being of international importance according to UNESCO criteria. Consideration should be given to their settings especially where these contribute to the attributes of outstanding universal value for which such an area of landscape/townscape is valued.	International
National Parks	Areas of landscape identified as being of national importance for their natural beauty (and in the case of National Parks the opportunities they offer for outdoor recreation). Consideration should be given to their settings especially where these contribute to the special qualities for which the landscape is valued (refer to LI TGN 2024/01).	National
Local Landscape Designations (e.g. Areas of High Amenity) included in local planning documents; or other landscapes/townscapes of identified value.	Areas of landscape/townscape identified as having importance at the local authority level. Landscapes/townscapes which demonstrate the presence of a number of indicators of landscape/townscape value, as set out in Table 1 of TGN 02/21, or which have just one indicator of particular importance.	Local Authority

Designation	Description	Value
Undesignated landscapes/townscapes of community value	Landscapes/townscapes which do not have any formal designation and lack the indicators of landscape/townscape value set out in Table 1 of TGN 02/21, but which are assessed as having value to local communities.	Local Authority/Community
Landscapes/townscapes of low value	Landscapes/townscapes in poor condition or fundamentally altered by the presence of intrusive man-made structures.	Low

Where landscapes/townscapes are not designated and where no other local authority guidance on value is available, an assessment is made by reference to criteria in the Table 14.2 below. This is based on Table 1 of Landscape Institute Technical Guidance Note 02/21. These factors are not fixed and should be reviewed on a case-by-case basis. When assessing landscape/townscape value of a site it is important to consider not only the site itself but also its context.

Landscapes/townscapes may be judged to be of local authority or community value on the basis of one or more of these factors. There may also be occasional circumstances where an undesignated landscape/townscape may be judged to be of national value, for example where it has a clear connection with a nationally designated landscape/townscape or is otherwise considered to be of equivalent value to a national designation. Similarly, on occasions there may be areas within designated landscapes/townscapes that do not meet the designation criteria or demonstrate the key characteristics/special qualities in a way that is consistent with the rest of the designated area.

An overall assessment is made for each landscape/townscape receptor, based on an overview of the above criteria, to determine its value - whether for example it is comparable to a local authority landscape/townscape designation or similar, or whether it is of value to local people and communities. For example, an intact landscape/townscape in good condition, where scenic quality, tranquillity, and/or conservation interests make a particular contribution to the landscape/townscape, or where there are important cultural or historical associations, might be of equivalent value to a local landscape/townscape designation. Conversely, a degraded

landscape/townscape in poor condition, with no particular scenic qualities or natural or cultural heritage interest is likely to be considered of limited landscape/townscape value.

Table 14.2 Criteria Considered in Assessing the Value of Non-Designated Landscape/Townscapes

Factor	Criteria
Urban grain, scale and enclosure	Townscape elements which perform a clearly identifiable and valuable function, particularly in the healthy functioning of the townscape/waterscape. A clear and recognisable sense of place; distinct landform or patterns of development; strong aesthetic qualities such as scale, form, colour and texture; simplicity or diversity.
Public realm character	Townscape elements which perform a clearly identifiable and valuable function, particularly in the healthy functioning of the townscape. The extent to which the elements influence the experience of the townscape and where appreciation of the townscape is an important element of the experience. Distinctive features, or distinctive combinations of features. Strong aesthetic qualities with visual diversity or contrasts.
Appearance/Condition	Townscape which is in a good physical state both with regard to individual elements and overall townscape structure. Absence of detracting/incongruous features. General appeal of the landscape/townscape to the senses through, for example, combinations of some of the following: striking townscape patterns/features; strong perceptual qualities such as spaciousness; presence of ephemeral or seasonal interest.
Associations	Townscape which is connected with notable people, events and the arts.
Movement/Legibility	Townscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the townscape. Rights of way/movement corridors where appreciation of the townscape is an important element of the experience; distinctive features that are characteristic of a place, or presence of rare/unusual features that confer a strong sense of place or identity.

Factor	Criteria
Intervisibility/Views	Townscapes that have strong physical, visual or functional links with an adjacent townscape/landscape character area or form important links that influence the appreciation of the townscape and its special qualities. Memorable/distinctive views or landmarks, or townscape that contributes to these.
Conservation Area/Cultural Heritage	Landscape/townscape with clear evidence of archaeological, historical or cultural interest. Landscape/townscape which contributes to the significance of heritage assets. Landscape/ townscape which offers a dimension of time depth.

Susceptibility of Landscape/townscape Receptors to Change

As set out in GLVIA3, susceptibility refers to the ability of the landscape/townscape receptor to ***"accommodate the proposed development without undue adverse consequences for the baseline situation and/or the achievement of landscape planning policies and strategies".*** Judgement of susceptibility is particular to the specific characteristics of the proposed development and the ability of a particular landscape/townscape or feature to accommodate the type of change proposed and makes reference to the criteria set out in Table 14.3 below. Aspects of the character of the landscape/townscape that may be affected by a particular type of development include landform, skylines, land cover, enclosure, human influences including settlement pattern and aesthetic and perceptual aspects such as the scale of the landscape/townscape, its form, line, texture, pattern and grain, complexity, and its sense of movement, remoteness, wildness or tranquillity.

For example, an urban landscape/townscape which contains a number of industrial buildings may have a low susceptibility to buildings of a similar scale and character. Conversely a rural landscape containing only remote farmsteads is likely to have a high susceptibility to large-scale built development.

Table 14.3 : Landscape/Townscape Receptor Susceptibility to Change

Susceptibility	Criteria
High	The landscape/townscape receptor is highly susceptible to the proposed development because the key characteristics of the landscape/townscape have no or very limited ability to accommodate it without transformational adverse effects, taking account of the existing character and quality of the landscape/townscape.

Medium	The landscape/townscape receptor is moderately susceptible to the proposed development because the relevant characteristics of the landscape/townscape have some ability to accommodate it without transformational adverse effects, taking account of the existing character and quality of the landscape/townscape.
Low	The landscape/townscape receptor has low susceptibility to the proposed development because the relevant characteristics of the landscape/townscape are generally able to accommodate it without transformational adverse effects, taking account of the existing character and quality of the landscape/townscape.

Defining Sensitivity

As has been noted above, the sensitivity of landscape/townscape receptors is defined in terms of the relationship between value and susceptibility to change as indicated in Figure 14.1 below. This summarises the general nature of the relationship, but it is not formulaic and only indicates general categories of sensitivity. Professional judgement is applied on a case-by-case basis in determining sensitivity of individual receptors with the diagram only serving as a guide.

Table 14.4 below summarises the nature of the relationship, but it is not formulaic and only indicates general categories of sensitivity. Judgements are made about each landscape/townscape receptor, with the table serving as a guide.

Where, taking into account the component judgements about the value and susceptibility of the landscape/townscape receptor, sensitivity is judged to lie between levels, an intermediate assessment of high/medium or medium/low is adopted. In a few limited cases a category of less than low (very low) may be used where the landscape/townscape is of low value and susceptibility is particularly low.

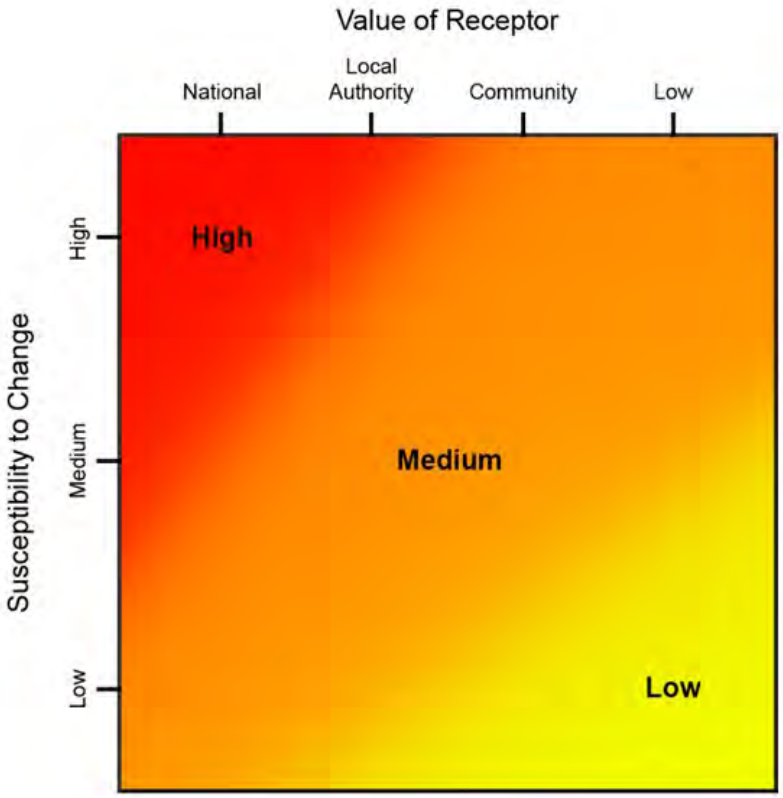


Figure 14.1 Example Levels of Sensitivity defined by Value and Susceptibility of Landscape/Townscape Receptors

Table 14.4 Example Levels of Sensitivity defined by Value and Susceptibility of Receptors

Sensitivity	Examples
High	The landscape/townscape receptor is of international or national value and is considered to have high susceptibility to the effects of the proposed development. OR The landscape/townscape receptor is of national value and is considered to have medium susceptibility to the effects of the proposed development.
Medium	The landscape/townscape receptor is of international or national value and is considered to have low susceptibility to the effects of the proposed development. OR The landscape/townscape receptor is of local authority value and is considered to have high susceptibility to the effects of the proposed development. OR The landscape/townscape receptor is of local authority value and is considered to have medium susceptibility to the effects of the proposed development. OR The landscape/townscape receptor is of community value and is considered to have high susceptibility to the effects of the proposed development.
Low	The landscape/townscape receptor is of local authority value and is considered to have low susceptibility to the effects of the proposed development. OR The landscape/townscape receptor is of community value and is considered to have medium susceptibility to the effects of the proposed development. OR The landscape/townscape receptor is of community value and is considered to have low susceptibility to the effects of the proposed development.

Magnitude of Landscape/Townscape Change

The magnitude of landscape/townscape change is established by assessing the size or scale of change, the geographical extent of the area influenced and the duration and potential reversibility of the change. LI TGN 2024/01 states at section 3 (3) that ***"it is likely that size/scale of effect will be the most important factor, with geographical extent and duration/reversibility considered as 'modifiers'".***

Size and Scale of Landscape/Townscape Change

The size and/or scale of change in the landscape/townscape takes into consideration the following factors:

- the extent/proportion of landscape/townscape elements lost or added; and/or
- the degree to which aesthetic/perceptual aspects are altered; and
- whether this is likely to change the key characteristics of the landscape/ townscape.

The criteria used to assess the size and scale of landscape/townscape change are based upon the amount of change that will occur as a result of the proposed development, as described in Table 14.5 below.

Table 14.5 Magnitude of Landscape/Townscape Change: Size/Scale of Change

Category	Description
Large level of landscape/ townscape change	There would be a large level of change in landscape/townscape character, and especially to the key characteristics if, for example, the proposed development: becomes a dominant feature in the landscape/townscape, changing the balance of landscape/townscape characteristics; and/or would dominate important visual connections with other landscape/townscape types, where this is a key characteristic of the area.
Medium level of landscape/ townscape change	There would be a medium level of change in landscape/townscape character, and especially to the key characteristics if, for example: the proposed development would be more prominent but would not change the overall balance or composition of the landscape/townscape; and/or key views to other landscape/townscape types may be interrupted intermittently by the proposed development, but these views would not be dominated by them.
Small level of landscape/ townscape change	There would be a small level of change in landscape/townscape character, and especially to the key characteristics if, for example: there would be no introduction of new elements into the landscape/townscape and the proposed development would not significantly change the composition/balance of the landscape/townscape.
Negligible/no level of landscape/ townscape change	There would be a negligible or no level of change in landscape/townscape character, and especially to the key characteristics if, for example, the proposed development would be a small element and/or would be a considerable distance from the receptor.

Geographical Extent of Change

The geographical extent of landscape/townscape change is assessed by determining the area over which the changes will influence the landscape/ townscape, as set out in Table 14.6. For example, this could be at the site level, in the immediate setting of the site, or over some or all of the landscape/ townscape character types or areas affected.

Table 14.6 Magnitude of Landscape/Townscape Change: Geographical Extent

Category	Description
Large extent of landscape/ townscape change	Affects a wider area, far from the site itself, or affects a large proportion of the landscape/townscape receptor.
Medium extent of landscape/ townscape change	Landscape/townscape change extends beyond the site boundaries or affects a medium proportion of the landscape/townscape receptor.
Small extent of landscape/ townscape change	Change affecting a localised area, often focused on the site itself, or affects a small proportion of the landscape/townscape receptor.
Negligible extent of landscape/ townscape change	The change will affect only a negligible extent of the landscape/townscape receptor under consideration.

Duration and Reversibility of Change

The duration of the landscape/townscape change is categorised in Table 14.7 below, which considers whether the change will be permanent and irreversible or temporary and reversible. The levels of duration are based on the EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022).

Table 14.7 Magnitude of Landscape/Townscape Change: Duration and Reversibility

Category	Description
Permanent/ Irreversible	Effects that will last for over 60 years and are deemed to be irreversible.
Long-term reversible	Effects that will last between 15 and 60 years and are theoretically reversible.
Medium-term reversible	Effects that will last between 7 and 15 years and are theoretically reversible.
Temporary/ Short-term reversible	Effects that will last from 0 to 7 years and is reversible – likely to include construction effects.

Deciding on Overall Magnitude of Landscape/Townscape Change

The relationships between the three factors that contribute to assessment of the magnitude of landscape/townscape effects are illustrated graphically, as a guide, in Figure 14.2 below. Various combinations are possible, and the overall magnitude of each effect is judged on merit rather than by formulaic application of the relationships in the figure.

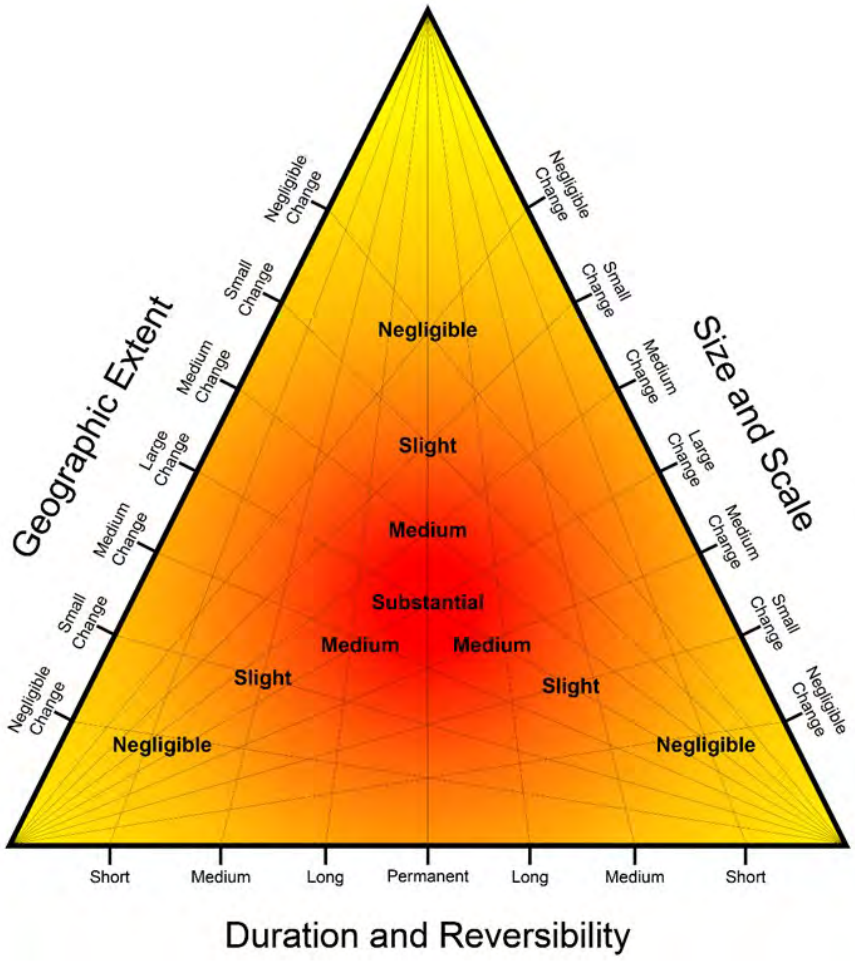


Figure 14.2 Determining the Magnitude of Landscape/Townscape Change

Assessment of Landscape/Townscape Effects

The assessment of overall landscape/townscape effects is defined in terms of the relationship between the sensitivity of the landscape/townscape receptors and the magnitude of the change. Figure 14.3 below summarises the nature of the relationship, but it is not formulaic. Judgements are made about each landscape/townscape effect using this figure as a guide.

Major and Major/Moderate effects are regarded as important planning considerations in landscape/townscape and visual appraisals (or significant effects in landscape/townscape and visual impact assessments). Moderate effects are not generally considered to be important planning considerations/significant effects, although the assessor may conclude that some moderate effects could constitute significant effects in certain circumstances: for example, there may be a concentration of several moderate effects in one location, or a moderate effect may occur for a particularly sensitive receptor or be of a particularly high magnitude.

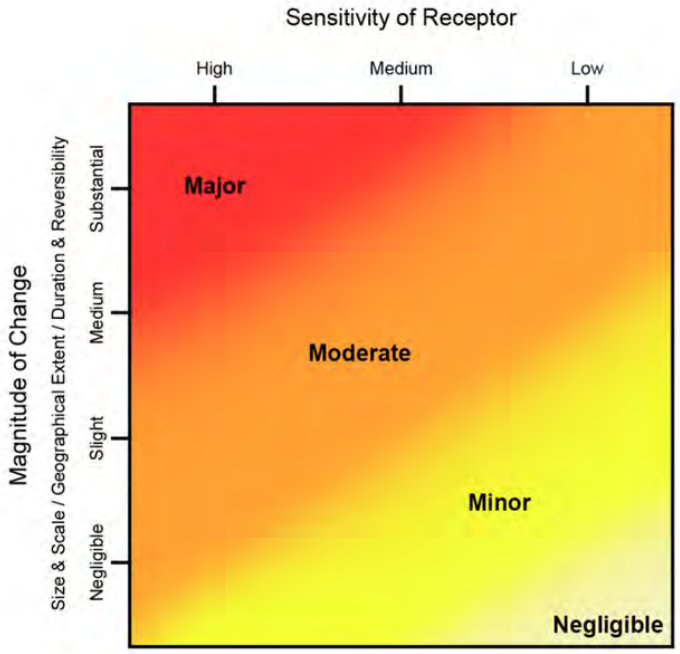


Figure 14.3 Assessment of Landscape/Townscape Effects

14.3.5.2 Visual Effects

Visual effects are the effects of change and development on the views available to people and their visual amenity. Visual receptors are the people whose views may be affected by the proposed development. They generally include users of walking trails or other recreational facilities or attractions; travellers who may pass through the study area because they are visiting, living or working there; residents living in the study area, either as individuals or, more often, as a community; and people at their place of work:

- Communities within settlements (i.e. towns and villages)
- Residents of individual properties and clusters of properties
- People using nationally designated or regionally promoted footpaths and cycle routes
- Visitors at publicly accessible sites including, for example, gardens and designed landscapes, historic sites, and other visitor attractions or outdoor recreational facilities where the landscape or seascape is an important part of the experience
- Users of outdoor sport and recreation facilities
- Visitors staying at caravan parks or camp sites
- Road users on recognised scenic or promoted tourist routes
- Users of other roads
- Rail passengers

- People at their place of work

LI TGN 2024/01 states at section 6 (1) that visual assessment should focus on the way that communities experience views from public locations. It notes that ***"views from houses and individual properties are a matter of private amenity, noting that it is and established planning principle that there is no right to a view".***

Judging visual effects requires a methodical assessment of the sensitivity of the visual receptors to the proposed development and the magnitude of effect which would be experienced by each receptor.

Viewpoints are chosen, in discussion with the competent authority and other stakeholders and interested parties, for a variety of reasons but most commonly because they represent views experienced by relevant groups of people.

Visual Sensitivity

Sensitivity of visual receptors is assessed by combining an assessment of the susceptibility of visual receptors to the type of change which is proposed with the value attached to the views. (GLVIA3, paragraph 6.30).

Value Attached to Views

Different levels of value are attached to the views experienced by particular groups of people at particular viewpoints. Assessment of value takes account of a number of factors, including:

- Recognition of the view through some form of planning designation or by its association with particular heritage assets; and
- The popularity of the viewpoint, in part denoted by its appearance in guidebooks, literature or art, or on tourist maps, by information from stakeholders and by the evidence of use including facilities provided for its enjoyment (seating, signage, parking places, etc.); and
- Other evidence of the value attached to views by people including consultation with local planning authorities, some of whom have carried out assessments of valued views, and professional assessment of the quality of views.

The assessment of the value of views is summarised in Table 14.8 below. These criteria are provided for guidance only.

Table 14.8 Criteria Considered in assessing the Value Attached to Views

Value	Criteria
High	Views from nationally (and in some cases internationally) known viewpoints, which: have some form of planning designation; or are associated with internationally or nationally designated landscapes or important heritage assets; or are promoted in sources such as maps and tourist literature; or are linked with important and popular visitor attractions where the view forms a recognised part of the visitor experience; or have important cultural associations. Also, may include views judged by assessors to be of high value.
Medium	Views from viewpoints of some importance at regional or local levels, which: have some form of local planning designation associated with locally designated landscapes or areas of equivalent landscape quality; or are promoted in local sources; or are linked with locally important and popular visitor attractions where the view forms a recognised part of the visitor experience; or have important local cultural associations. Also, may include views judged by the assessors to be of medium value.
Low	Views from viewpoints which, although they may have value to local people: have no formal planning status; or are not associated with designated or otherwise high-quality landscapes; or are not linked with popular visitor attractions; or have no known cultural associations. Also, may include views judged by the assessors to be of low value.

Susceptibility of Visual Receptors to Change

The susceptibility of different types of people to changes in views is mainly a function of:

- The occupation or activity of the viewer at a given viewpoint; and
- The extent to which the viewer's attention or interest be focussed on a particular view and the visual amenity experienced at a given view.

As LI TGN 2024/01 states at section 6(2), ***"visual susceptibility is not influenced by the development type, which would be assessed as part of the magnitude of effect".***

The susceptibility of different groups of viewers is assessed with reference to the guidance in Table 14.9 below. However, as noted in GLVIA3 ***"this division is not black and white and, in reality, there will be a gradation in susceptibility to change"***. Therefore, the susceptibility of each group of people affected is considered for each project and assessments are included in the relevant text in the report.

Table 14.9 Visual Receptor Susceptibility to Change

Susceptibility	Criteria
High	Residents; People engaged in outdoor recreation where their attention is likely to be focused on the landscape and on particular views; Visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience; Communities where views contribute to the landscape setting enjoyed by the residents.
Medium	Travellers on scenic routes where the attention of drivers and passengers is likely to be focused on the landscape and on particular views. People engaged in outdoor sport or recreation, which may involve appreciation of views e.g. users of golf courses.
Low	People engaged in outdoor sport or recreation, which does not involve appreciation of views; People at their place of work whose attention is focused on their work; where the setting is not important to quality of working life; Travellers, where the view is incidental to the journey.

Defining Sensitivity

The sensitivity of visual receptors is defined in terms of the relationship between the value of views and the susceptibility of the different receptors to the proposed change. Where, taking into account the component judgements about the value and susceptibility of the landscape/townscape receptor, sensitivity is judged to lie between levels, an intermediate assessment of high/medium or medium/low is adopted. In a few limited cases a category of less than low (very low) may be used where the landscape/townscape is of low value and susceptibility is particularly low. Figure 14.1 summarises the nature of the relationship; it is not formulaic and only indicates general categories of sensitivity. Judgements are made on merit about each visual receptor, with the table below only serving as a guide. Table 14.10 sets

down the main categories that may occur but again it is not comprehensive and other combinations may occur.

Table 14.10 Example Levels of Sensitivity defined by Value and Susceptibility of Visual Receptors

Sensitivity	Criteria
High	The visual receptor group is highly susceptible to changes in views and visual amenity and relevant views are of high value. OR The visual receptor group has a medium level of susceptibility to changes in views and visual amenity and relevant views are of high value. OR The visual receptor group is highly susceptible to changes in views and visual amenity and relevant views are of value at the medium level.
Medium	The visual receptor group is highly susceptible to changes in views and visual amenity and relevant views are of value at the low level. OR The visual receptor group has a medium level of susceptibility to changes in views and visual amenity and relevant views are of value at the medium level. OR The visual receptor group has a low level of susceptibility to changes in views and visual amenity and relevant views are of value at the high level.
Low	The visual receptor group has a medium level of susceptibility to changes in views and visual amenity and relevant views are of value at the low level. OR The visual receptor group has a low level of susceptibility to changes in views and visual amenity and relevant views are of value at the medium level. OR The visual receptor group has a low level of susceptibility to changes in views and visual amenity and relevant views are of value at the low level.

Magnitude of Visual Change

The magnitude of visual change is established by assessing the size or scale of change, the geographical extent of the area influenced and the duration and potential reversibility of the change. LI TGN 2024/01 states at section 3(3) that ***"it is likely that size/scale of effect will be the most important factor, with geographical extent and duration/reversibility considered as 'modifiers'"***.

Size and Scale of Change

The criteria used to assess the size/scale of visual change are as follows:

- the scale of the change in the view with respect to the loss or addition of features in the view, changes in its composition, including the proportion of the view occupied by the proposed development and distance of view;
- the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of factors such as form, scale and mass, line, height, colour and texture; and
- the nature of the view of the proposed development, for example whether views will be full, partial or glimpses or sequential views while passing through the landscape.

The above criteria are summarised in the Table 14.11 below:

Table 14.11 Magnitude of Visual Change: Size/Scale of Change

Category	Criteria
Large visual change	The proposed development will cause a complete or large change in the view, resulting from the loss of important features in or the addition of important new ones, to the extent that this will substantially alter the composition of the view and the visual amenity it offers.
Medium visual change	The proposed development will cause a clearly noticeable change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will alter to a moderate degree the composition of the view and the visual amenity it offers. Views may be partial/intermittent.
Small visual change	The proposed development will cause a perceptible change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will partially alter the composition of the view and the visual amenity it offers. Views may be partial only.
Negligible visual change	The proposed development will cause a barely perceptible change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will barely alter the composition of the view and the visual amenity it offers. Views may be glimpsed only.
No change	The proposed development will cause no change to the view.

Geographical Extent of Change

The geographical extent of the visual change identified at representative viewpoints is assessed by reference to a combination of the Zone of Theoretical Visibility (ZTV), where this has been prepared, and field work, and consideration of the criteria in Table 14.12 below. Representative viewpoints are used as 'sample' points to assess the typical change experienced by different groups of visual receptors at different distances and directions from

the proposed development. The geographical extent of the visual change is judged for each group of receptors: for example, people using a particular route or public amenity, drawing on the viewpoint assessments, plus information about the distribution of that particular group of people in the Study Area.

LI TGN 2024/01 states at section 6(8) that geographic extent should primarily refer to the extent of the viewing area that is affected (for example the length of a footpath or the proportion of a community,

Thus, low levels of change identified at representative viewpoints may be extensive or limited in terms of the geographical area they are apparent from: for example, a view of the proposed development from elevated Access Land may be widely visible from much or all of the accessible area or may be confined to a small proportion of the area. Similarly, a view from a public footpath may be visible from a single isolated viewpoint, or over a prolonged stretch of the route. Community views may be experienced from a small number of dwellings or affect numerous residential properties.

Table 14.12 Magnitude of Visual Change: Geographical Extent of Change

Category	Description
Large extent of visual change	The proposed development is seen by the group of receptors in many locations across the Study Area or from the majority of a linear route and/or by large numbers of viewers; or the effect on the specific view(s) is extensive.
Medium extent of visual change	The proposed development is seen by the group of receptors from a medium number of locations across the Study Area or from a medium part of a linear route and/or by a medium number of viewers; or the effect on the specific view is moderately extensive.
Small extent of visual change	The proposed development is seen by the group of receptors at a small number of locations across the Study Area or from only limited sections of a linear route and/or by a small number of viewers; or the effect on a specific view is small.
Negligible extent of visual change	The proposed development will cause a barely perceptible change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will barely alter the composition of the view and the visual amenity it offers. Views may be glimpsed only.

Category	Description
No change	The proposed development is either not visible in the Study Area or is seen by the receptor group at only one or two locations or from a very limited section of a linear route and/or by a very small number of viewers; or the effect on the specific view is barely discernible.

Duration and Reversibility

The duration of the visual change at viewpoints is categorised in Table 14.13 below, which considers whether views will be permanent and irreversible or temporary and reversible. The levels of duration are based on the EPA Guidelines on the information to be contained in EIA Reports (2022).

Table 14.13 Magnitude of Visual Change: Duration and Visibility

Category	Description
Permanent/ Irreversible	Effects that will last for over 60 years and are deemed to be irreversible.
Long-term reversible	Effects that will last between 15 and 60 years and are theoretically reversible.
Medium-term reversible	Effects that will last between 7 and 15 years and are theoretically reversible.
Temporary / Short-term reversible	Effects that will last from 0 to 7 years and is reversible – likely to include construction effects.

Deciding on Overall Magnitude of Visual Change

The relationships between the three factors that contribute to assessment of the magnitude of visual effects are illustrated graphically, as a guide, in Figure 14.2. Various combinations are possible, and the overall magnitude of each effect is judged on merit rather than by formulaic application of the relationships in the figure.

Assessment of Visual Effects

The assessment of visual effects is defined in terms of the relationship between the sensitivity of the visual receptors (value and susceptibility) and the magnitude of the change. Figure 14.4 below summarises the nature of the relationship, but it is not formulaic and only indicates broad levels of effect. Judgements are made about each visual effect using this figure as a guide.

Major and Major/Moderate effects are regarded as important planning considerations in landscape and visual appraisals (or significant effects in landscape and visual impact assessments). Moderate effects are not generally considered to be important planning considerations/significant effects, although the assessor may conclude that some moderate effects could constitute significant effects in certain circumstances: for example, there may be a concentration of several moderate effects in one location, or a moderate effect may occur for a particularly sensitive receptor or be of a particularly high magnitude.

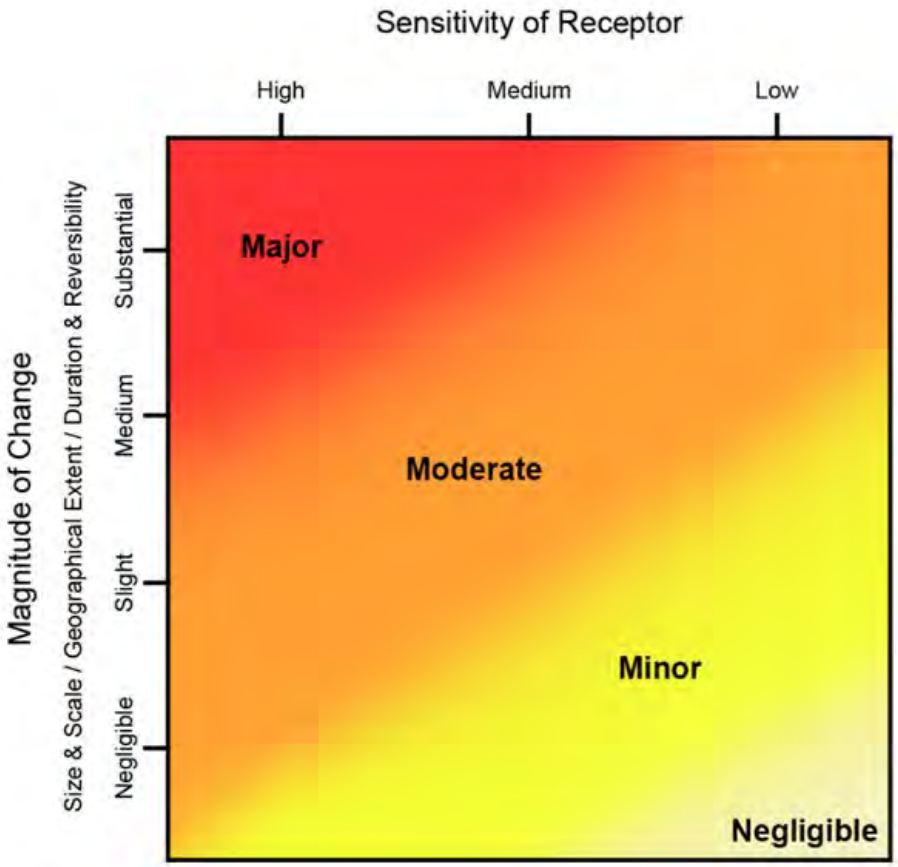


Figure 14.4 Assessment of Visual Effects

14.4 Baseline Scenario

14.4.1 Townscape

14.4.1.1 Existing Relevant Landscape/Townscape Character Assessment

The County Monaghan Landscape Character Assessment was published in August 2008 and is referred to in the current MCDP. It divides the county into 14 Landscape Character Types

(LCT), i.e. ***"distinct types of landscape that are relatively homogenous in character"*** and 9 Landscape Character Areas (LCA), i.e. ***"the unique individual geographical areas in which landscape types occur."***

The town of Monaghan is listed as part of LCT 14 '*Urban*', for which no details on its physical data, key characteristics, description or forces of change are provided. Monaghan is further listed as part of LCA 5 '*Monaghan Dumlin Uplands*'. The key characteristics listed for LCA 5 include the following, which provide some context for the topography/land uses surrounding the town:

- ***"Elevated landscape featuring drumlin hills and small to medium sized loughs. These drumlins are not so steep sided, and they do not follow a particular strong alignment and as such, the pattern of glaciation is not very pronounced…***
- ***Land uses mostly given over to pastoral farming. Hedgerows featuring native species define the field boundaries, some of these are cut and some are not cut or managed. Hedge trees are fairly frequent…"***

The description of Human Influences affecting LCA 5 includes the following information about Monaghan:

- ***"… Monaghan, as the county town, supports a fairly extensive road network that radiates from the town, connecting to the N2, the N54 and a number of regional roads. The site was chosen for the county town, sometime after the county came into being in 1585. The site had a long association with the MacMahons, had been a Franciscan monastic site until 1540, and was quite central to the smaller kingdoms of the McKennas and smaller MacMahons which were uniting to form the new county.***
- ***This LCA lies within the barony of Monaghan and by 1640, the majority of the land had left Irish hands…***
- ***Monaghan town remained in Irish hands during the Nine-Year War but following the Irish defeat in 1603, the new town was developed under English rule. Monaghan prospered in the late eighteenth century, once again as an important linen centre. In 1846 the town had four banks and held markets on four days of the week. Much of the produce was purchased by dealers from Belfast and northern towns, as Monaghan had close commercial links with these centres.***
- ***The opening of the Ulster Canal in 1839, linking Monaghan with Belfast and Newry led to the creation of more streets and development activity in the town. The Ulster Railway opened in 1863, linking Monaghan to Belfast. This further emphasised the links of the town to the northeast…"***

There is little relevance to the proposed Development in the description of LCA 5 owing to the dense development pattern within Monaghan Town. LCA 5 has been referenced here for completeness and to provide landscape context. However, it has not been included as a Townscape receptor for the purpose of the assessment.

14.4.1.2 Townscape Assessment of the Site and its Context

GLVIA3 states that ***"LVIA in urban contexts requires a good understanding of townscape"*** (paragraph 5.4). In the absence of a detailed description of the urban landscape character types in the Monaghan Landscape Character Assessment, a localised townscape character assessment was carried out as part of the baseline work undertaken by SLR Consulting Ireland and the findings provided below.

Four Townscape Character Types (TCT) in the vicinity of the Development Site were identified, based on the main building/usage types, and have been listed below, with descriptions provided. Please refer to Appendix 14.1 *Townscape Baseline and Viewpoint Locations* for an indication of the location and extent of each of these identified TCTs.

Town Centre TCT

The Town Centre TCT covers the commercial centre of Monaghan town. It comprises the historic town centre/street pattern, as well as more recent commercial developments and associated roads, such as the Monaghan Shopping Centre and Broad Road. The historic town centre, as visible on the Ordnance Survey Ireland (OSI) First Edition 6 Inch Mapping (1829-41), consists of Old Cross Square, Dublin Street, the Diamond, Glaslough Street, Church Square, Mill Street, Dawson Street, Market Street, Park Street and Hill Street.

Dublin Street/the Development Site are located at the southeastern end of this TCT, with the area between Dublin Street and the Monaghan Shopping Centre, Broad Road, the Diamond, Church Square, much of Glaslough Street and some of North Street located within the study area.

Some sections of Dublin Street are designated as an ACA. There are a number of landmark buildings within this TCT, such as the Presbyterian Church on Old Cross Square, Saint Patrick's Church and Monaghan Courthouse on Church Square and the Market House.

Aside from these landmark buildings, the historic streets are framed by mostly 3-storey townhouses with commercial premises and often colourful shopfronts on the ground floor and a mix of commercial and residential uses on the upper floors. While similar in style, the finishes and dimensions (i.e. width of buildings and height of individual storeys) of these buildings vary noticeably, resulting in a mix of colours and textures and a varied roofline along the roads. Most plots along the historic roads are narrow and long, which has limited development within

each plot, i.e. in addition to the buildings fronting the roads, only narrow/elongated extensions are possible. This is most evident along Dublin Street where there are also numerous outbuildings to the back, some of them derelict. There are a number of laneways leading into the Dublin Street back lands, some accessed through archways. However, most are not publicly accessible and those that are, are little used.

The modern commercial buildings within this TCT are generally kept to similar heights (i.e. 3-4 storeys) and are built in a similar style to the older buildings. In some cases, the modern buildings are built onto older ones, which continue to serve as the road frontage (e.g. Fleming's Department Store on Church Square). However, the newer buildings are typically greater in mass and therefore occupying larger sites (e.g. the commercial developments to the north of Broad Road).

The underlying topography within this TCT is undulating. However, the slopes along the roads are gentle, in particular when compared with the much more pronounced level changes along the edge of this TCT and in the surrounding area. The back lands to the north of Dublin Street are a good example of this. The ground immediately to the back of the buildings along the road is near level but rises steeply towards the north-eastern boundary of these plots.

The historic streets are narrow, only widening at each of the squares. The streetscape is dominated by the road surfaces and frequent on-street parking spaces / small parking lots, with footpaths being mostly narrow. These roads have an enclosed character, with views only reaching to the nearest building line. This is with the exception of some locations on the squares and some straight sections of road where slightly more distant views are available along the road. However, the viewing distance is still restricted, by the surrounding undulating topography (e.g. views south from Old Cross Square are restricted by Pound Hill).

The newer roads are wider, with footpaths separated from the roads by grass verges and including some street trees. The associated newer commercial buildings are typically adjoined by large, sealed parking areas with tree planting along the boundaries but little vegetation throughout. The character along these streets is more open, but viewing distances are ultimately still restricted by the nearest building line or surrounding undulating topography.

Old Cross Square and The Diamond have been upgraded in 2010-2011, to create a more pedestrian friendly and attractive streetscape. This was achieved with slight layout changes and the use of uniform paving and street furniture, as well as new street trees. These improvements have not been continued along Dublin Street or into the Diamond Centre car park, retaining the worn, car dominated streetscape in these areas. This is diminished further by several unoccupied/run-down buildings. The decline along Dublin Street is likely to have commenced with the opening of Monaghan Shopping Centre in the 1980s.

Institutional/Open Space TCT

The institutional/open space TCT is characterised by large buildings (e.g. schools and care/medical centres) surrounded by park land and/or outdoor sports facilities, as well as public open spaces. A small section of this TCT is located within the Development Site, i.e. a section of the public open space to the north-east of Old-Cross Square. Within the study area, this is adjoined to the northeast by the Roosky Lands, which comprise some agricultural fields (one, the site for the new Monaghan County Council Offices), some playing fields and a number of care/medical facilities. The amenity area surrounding Peter's Lake is also located within the study area, at its north-western end.

This TCT contains the largest areas of vegetated ground within the town, including many mature trees. The latter provide substantial screening within the TCT and form a pleasant backdrop to several views within the town, e.g. to views north across Old Cross Square. There are however some sections of elevated ground within this TCT (e.g. the Roosky lands) where scenic views across Monaghan are available and are a key characteristic.

The Ulster Canal and associated Greenway also form part of this TCT, providing an important recreational facility, as well as a green/blue link through the town. It can be accessed from Old Cross Square, via Sli Ógie Ui Dhufaigh to the east and via Canal Street to the west.

Residential TCT

The town centre TCT is adjoined by linear residential development, along the roads leading out of Monaghan, made up from a mix of 1-2 storey terraced, semi-detached and detached houses. The main roads in turn are adjoined by residential estates, of different styles and densities. Closer to the town centre the housing stock tends to be older and at greater densities, as mostly terraced or semi-detached. Further away from the town centre, housing stock tends to be more recent and with lower densities, where detached houses are present.

Within the study area, at its southern end, the Residential TCT takes the form of mostly older stock, 2-storey terraced and semi-detached properties with rendered finishes, i.e. along Canal Street, Cois Chnoic and Dr McKenna Terrace. There are also some detached properties, between Pound Hill and the R937 – Regional Road. As there is mostly older housing stock in this area, there are some signs of degradation, in the form of boarded up houses and crumbling paint / render.

The Residential TCT generally has an enclosed character, due to the presence of the properties along the roads. However, the strongly undulating topography surrounding the town centre, has resulted in some of the housing being located on elevated ground, such as Pound Hill. This allows scenic longer distance views across the town centre and / or into the wider

landscape, which locally opens up the character of this TCT and the views become a key characteristic of these parts of the TCT.

Industrial TCT

There are few developments with an industrial character in Monaghan, the largest area being located at the south-eastern end of the study area, comprising the Monaghan Bottlers factory, a County Council yard and the wastewater treatment plant.

As this area is located on an area of low, flat ground and is surrounded by mature trees / hedgerows, as well as undulating topography it has an enclosed character and little prominence within the wider area.

14.4.2 Visual

The visibility of the Development Site was initially assessed by a desktop study of OSI Discovery Maps (1:50,000) and aerial/satellite photography, followed by verification in the field. It was found that views towards the Development Site are screened from the majority of locations within the study area, due to the urban environment and associated presence of intervening buildings/structures, as well as the undulating topography in the wider area.

Views can generally only be gained from the sections of road and laneways within the Development Site and immediately adjoining it. The only slightly longer distance views towards the Site can be gained from:

- the public open space on elevated ground immediately to the northeast, i.e. the Roosky Lands, which includes the site of the new Monaghan County Council Civic offices; and
- short sections of the roads and residential properties on the elevated ground within c. 250 m to the south, i.e. from the northern end of the R937 – Dublin Road and from some locations along Pound Hill, Cois Chnoic and Dr McKenna Terrace, as well as some of the adjoining properties.

Seven viewpoints were selected to illustrate the existing views and represent the range of visual receptors present within and immediately surrounding the Development Site, i.e. residential receptors, people walking along the roads/laneways, road users and recreational users of the Ulster Canal Greenway. The location of the selected viewpoints is illustrated on Appendix 14.1 *Townscape Baseline and Viewpoint Locations*, and the viewpoint photography, as well as the associated photomontages are presented on Appendix 14.2.

14.4.2.1 Viewpoints A & B – Old Cross Square

These represent views from different locations on Old Cross Square, at the southern end of the Development Site.

Viewpoint A is located at the south-western end of and looking north across the square and into Dublin Street. The Presbyterian Church is framing the view on the western/left side. A 3-storey historic townhouse and attached 4-storey modern building, border the northern side of the square, in the centre of the view. Two modern warehouse type commercial units are visible at the north-eastern/right end of the view. Some of the existing vegetation present within the back lands and open space to the north of Dublin Street are visible above the commercial buildings. The square itself is dominated by hard surfaces, mostly asphalt and some paving. Some individual street trees are visible towards the northern end of the square, in the background of this view. Similarly, the Old Cross monument is visible at the northern end of the square, inconspicuous amongst the hard landscape elements, including multiple street signs/lampposts.

Viewpoint B is centrally located on the square, looking in a north-western direction, with a focus on the Old Cross monument and the Presbyterian Church, both of which are protected structures. As with Viewpoint A, the visible part of the square is dominated by hard surfaces, with some individual street trees visible in the background. Due to the close proximity, the Old Cross monument is openly visible, however, still rather inconspicuous, partly due to its location on slightly lower ground, compared with the viewpoint / the adjoining road surface.

14.4.2.2 Viewpoint C – Diamond Centre car park

This shows a view south across the Diamond Centre car park, from outside the former cinema. A modern building containing a training centre, and some commercial units are visible along the southern boundary of the car park. Some mature trees and an outbuilding in the back lands to the north of Dublin Street, can be seen through a gap between the buildings, screening views further south.

The car park consists of a plain, worn asphalt surface with no trees or other elements breaking up the space. This in addition to the worn appearance of parts of the buildings, results in a lack of visual appeal and does not invite to linger in this area.

14.4.2.3 Viewpoints D & E – St. Davnet’s Row

These show views from two locations along the elevated laneway along the eastern boundary of the Site, i.e. St. Davnet’s Row. Views from this lane are currently largely restricted by the presence of walls and vegetation along the adjoining property boundaries. Exceptions are views along the laneways connecting St. Davnet’s Row to Dublin Street.

In these views, the backs of the buildings along Dublin Street can be seen, along with a great number of extensions and outbuildings, in varying styles and conditions. There are some trees visible within the backyards and beyond the buildings along Dublin Street. Also, the tower of

St. Patrick's Church can be seen in views in a western direction (refer to Viewpoint E). However, overall, the back lands lack visual appeal.

14.4.2.4 Viewpoint F – Dublin Street

This represents views along Dublin Street, with the chosen viewpoint focusing on a section of the ACA (i.e. nos. 54-57). The view illustrates that Dublin Street is a relatively narrow street, framed by terraced buildings on both sides, resulting in an enclosed, tunnel like character. The narrow street is dominated by the asphalt surfaces of the single traffic lane and adjoining parking spaces, which leave little room for the paved footpaths on either side.

The buildings associated with the ACA are a row of 4 3-storey terraced townhouses with a natural stone finish. The ground floor shop fronts of 3 of the buildings are worked into the original stone arches, surrounding the entrances.

14.4.2.5 Viewpoint G – Pound Hill

This represents a small number of views from the elevated residential area to the south of the site, in which parts of Old Cross Square and the back lands to the north of Dublin Street are visible. Views from this area generally comprise residential properties and their gardens in the foreground and one or more sections of the low-lying town centre in the midground, visible through gaps in the nearby properties. Parts of the elevated northern parts of the town are visible in the background, mainly the currently undeveloped Roosky Lands and the area surrounding Monaghan General Hospital. Distant views of the wider landscape, i.e. of north county Monaghan are also available, from the most elevated locations in this area.

In the chosen view, Old Cross Square is visible in the midground, at the bottom of the hill, partially screened by intervening buildings and other elements, such as wooden poles and overhead cables, which provide visual clutter. As a result, the visible section of the square takes up a small portion of the overall view and it is difficult to discern much detail. Some of the outbuildings in the back lands north of Dublin Street are visible beyond the warehouse type commercial units on Old Cross Square. As are the vegetation/trees along the north-eastern boundary of the Site, which combine to form a dense screen.

14.4.3 Sensitive Receptors

14.4.3.1 Townscape

The Townscape receptors potentially affected by the Proposed Development and therefore considered as part of the assessment of Townscape effects:

- Town Centre TCT;
- Institutional / Open Space TCT; and the

- Residential TCT.

The Townscape receptors which have been scoped out are:

- Industrial TCT – due to the low sensitivity of this TCT, owing to its industrial character, and its visual separation (lack or intervisibility) from the Development Site;
- any individual townscape elements, as none with specific sensitivities in their own right were identified, i.e. the character of the local townscape results from a combination of all elements present, rather than containing elements which make a special contribution to the local character; and
- any aesthetic / perceptual elements, as none with specific sensitivities (e.g, tranquillity in a local space, where people come to rest) were identified.

14.4.3.2 Visual

The visual receptors potentially affected by the Proposed Development and therefore considered as part of the assessment of visual effects, are as follows. The viewpoints representing each of these receptors are listed in brackets:

- Residents
    - around and immediately south of Old Cross Square (Viewpoints A & B);
    - around the Diamond Centre car park and in the apartment block to its north-east (Viewpoint C);
    - along Dublin Street (Viewpoint F); and
    - along Pound Hill, Cois Chnoic and Dr McKennas Terrace (Viewpoint G).
- Pedestrians
    - on and just south of Old Cross Square (Viewpoints A & B);
    - around the Diamond Centre car park (Viewpoint C);
    - along the laneways into the back lands north of Dublin Street and along St. Davnet's Row (Viewpoints D & E);
    - along Dublin Street (Viewpoint F); and
- Vehicle users
    - on and just south of Old Cross Square (Viewpoints A & B);
    - at the Diamond Centre car park (Viewpoint C);
    - along Dublin Street (Viewpoint F); and
    - along Pound Hill, Cois Chnoic and Dr McKennas Terrace (Viewpoint G).
- Recreational users (walkers and cyclists)
    - along the Ulster Canal Greenway (Viewpoints A & B).

The visual receptors which have been scoped out are:

- Residents, pedestrians, cyclists, vehicle users along any other roads within Monaghan not mentioned above, as no potential for visibility of the Proposed Development was identified. Consequently, there will be no visual impact, neither during the construction, nor the operational stage.
- Pedestrians along Pound Hill, Cois Chnoic and Dr McKennas Terrace were not identified separately as visual receptors, as people walking in this area a likely to be local residents and are therefore covered by the ‘residents’ category.

14.5 Impact Assessment

This Section sets out the effects that the Proposed Development would have on both townscape and visual receptors (as identified in Section 14.3.5 above), during its construction and operational phases. It is based on the detailed development description and layout drawings contained in Chapter 4 of this EIAR).

14.5.1 Townscape and Visual Effects

14.5.1.1 Construction Phase

The following elements are likely to cause townscape and visual effects during the Construction Phase, which is expected to last c.20 months:

- Site clearance, including demolition of existing buildings / structures and removal of existing vegetation, within the back lands area;
- Presence of construction machinery and associated noise and movement;
- Construction activities, including the construction of hard landscape surfaces and the installation of street furniture, as well as planting works.

14.5.1.2 Operational Phase

The following elements are likely to cause townscape and visual effects during the Operational Phase, i.e. which will permanently remain in place following the completion of the construction works:

- Presence of new streetscape, including new materials, street furniture and landscaped areas;
- Presence of people and cars and associated noise and movement in the back lands area; and
- Presence, in the future, of new buildings in the proposed development plots, which are taken into account as part of the assessment for completeness. To aid this assessment, two versions are provided for the photomontages, one showing the development in the opening year, when the development plots are still empty and one with sample buildings included in the development plots.

14.5.2 Townscape Effects

In accordance with GLVIA3, sensitivity of Townscape receptors is determined by combining their value with their susceptibility to the type of development proposed.

The value of each of the townscape receptors and their susceptibility, as well as the combined sensitivity are assessed in Table 14.14.

Table 14.14 Sensitivity of Townscape Receptors

Townscape Receptors	Value	Susceptibility	Overall Sensitivity
Town Centre TCT	LOCAL AUTHORITY Presence of ACA along Dublin Street and some protected structures.	LOW The town centre character is considered able to accommodate public realm improvements, which are in line with the provisions of the LAAP / DSN Regeneration Plan 2022 for this area.	MEDIUM/ LOW
Institutional/ Open Space TCT	COMMUNITY No landscape/townscape designation; no distinct or striking features/patterns or strong perceptual qualities; Recreational access to parts of these lands and elevated views across Monaghan have some community value.	LOW This TCT is considered able to accommodate public realm improvements, that work with the existing land cover/ use and are likely to improve the recreational use of the area and the visual links to the neighbouring Town Centre TCT.	LOW
Residential TCT	COMMUNITY No landscape/townscape designation; no distinct or striking features/patterns or strong perceptual qualities; Elevated views across Monaghan have some community value.	LOW This TCT is considered able to accommodate public realm improvements in the neighbouring TCT, as they are likely to improve the visual links between both.	LOW

14.5.2.1 Construction Phase

Magnitude of Townscape Change (Construction Phase)

Table 14.15 describes the size & scale, geographical extent and duration/reversibility of the townscape effects for each townscape receptor, during the construction phase, all of which contribute to the assessment of the magnitude of change for each receptor.

Table 14.15 Magnitude of Townscape Change (Construction Phase)

Townscape Receptors	Factors	Magnitude of Change
Town Centre TCT	Size & Scale: MEDIUM Geographical Extent: SMALL Duration/Reversibility: TEMPORARY/SHORT-TERM Notes: The construction activities will result in the removal of some existing buildings/structures/ vegetation within the back lands to the north of Dublin Street, as well as the disturbance of much of the existing surfaces within the Site. Construction machinery will be present within the area and the works will be locally prominent, but movement and activity are common features along the roads within this TCT. The building lines around Old Cross Square and the Diamond Centre car park and along Dublin Street will remain largely unchanged ensuring that the overall balance/composition of the townscape will scarcely change. The changes will be focused on the Site itself and will be of carried out in several phases over a 20-months period.	**MEDIUM / SLIGHT**

Townscape Receptors	Factors	Magnitude of Change
Institutional / Open Space TCT	Size & Scale: MEDIUM Geographical Extent: SMALL Duration/Reversibility: TEMPORARY/SHORT-TERM Notes: The construction activities will result in the removal of some vegetation/trees and installation of new paths within the public open space in the eastern part of the Site. This will bring temporary activity into this currently little used area, which will be locally prominent. However, much of the existing vegetation, in particular along the boundaries, and the sloping character of the site will be retained ensuring, that the overall balance/composition of the landscape/townscape will scarcely change. The changes will be focused on the Site itself/affect a small proportion of this TCT and will be carried out in several phases over a 20-months period.	**MEDIUM / SLIGHT**
Residential TCT	Size & Scale: SMALL Geographical Extent: SMALL Duration/Reversibility: TEMPORARY/SHORT-TERM Notes: The key characteristics of this TCT, i.e. the local openness, due to the elevated position and the views across the town centre will see little change, due to the construction activities. No new townscape elements will be introduced, or existing key characteristic elements removed, so that the composition/balance of the townscape, as experienced in views from this TCT will be little affected. The changes will affect a small proportion of this TCT and will be of carried out in several phases over a 20-months period.	**SLIGHT**

Assessment of Potential Townscape Effects and Significance (Construction Phase)

An assessment of the townscape effects during the construction phase, based on the sensitivity of each of the landscape receptors combined with the magnitude of change experienced by each of them, is provided in Table 14.16 below. The assessment also includes a judgment of the nature of the effect (i.e. negative/positive/neutral).

Table 14.16 Assessment of Townscape Effects (Construction Phase)

Townscape Receptors	Sensitivity	Magnitude	Landscape Effects	Nature of Effect
Town Centre TCT	MEDIUM/ LOW	MEDIUM/ SLIGHT	**MODERATE/ MINOR**	Negative
Institutional/ Open Space TCT	LOW	MEDIUM/ SLIGHT	**MINOR**	Negative
Residential TCT	LOW	SLIGHT	**MINOR/ NEGLIGIBLE**	Negative

None of these landscape effects during the construction phase are assessed to be significant.

14.5.2.2 Operational Phase

Magnitude of Townscape Change (Operational Phase)

Table 14.17 describes the size & scale, geographical extent and duration/reversibility of the townscape effects for each townscape receptor, during the construction phase, all of which contribute to the assessment of the magnitude of change for each receptor.

Table 14.17 Magnitude of Townscape Change (Operational Phase)

Townscape Receptors	Factors	Magnitude of Change
Town Centre TCT	Size & Scale: MEDIUM Geographical Extent: SMALL Duration/Reversibility: PERMANENT Notes: The operational development will not result in the introduction of new elements into the local townscape, but rather a different distribution of elements similar to those already present within this TCT (e.g. road surfaces, paved pedestrian areas, seating areas, street trees, as well as new buildings which may be constructed in the future, in the proposed development plots). This will result in some changes to the composition/balance of the townscape elements but will not change the underlying character. The changes will be generally positive in nature, due to the introduction of a consistent materials palette throughout the entire area and the breaking up of the previously large monotonous hard landscape areas into smaller areas with different surface materials, interspersed with many large planters and numerous street trees. Also, the back lands which currently consist of an array of outbuildings and underused/unpleasant outside space will have a much more uniform character, more aligned with the overall town centre characteristics of this TCT. The changes will remain focused on the Site itself and will be permanent.	**MEDIUM**

Townscape Receptors	Factors	Magnitude of Change
Institutional/Open Space TCT	Size & Scale: MEDIUM Geographical Extent: SMALL Duration/Reversibility: PERMANENT Notes: The operational development will not result in the introduction of new elements into this TCT, but rather a different distribution of elements similar to those already present (e.g. footpaths, seating areas, trees/vegetation). This will result in some changes to the composition/balance of the local landscape/townscape elements but will not change the underlying character of the area. These changes will be generally positive in nature, due to the management of a previously overgrown area and improved recreational access. The changes will continue to be focused on the Site itself/affect a small proportion of this TCT and will be permanent.	**MEDIUM**
Residential TCT	Size & Scale: SMALL Geographical Extent: SMALL Duration/Reversibility: PERMANENT Notes: The key characteristics of this TCT, i.e. the local openness, due to the elevated position and the views across the town centre will see little change, due to the operational development. While there will be some changes to the composition/balance of the townscape elements, these will not be prominent and the underlying townscape character, as experienced in views from this TCT will not change. The changes affect a small proportion of this TCT and will be of a permanent duration.	**MEDIUM / SLIGHT**

Assessment of Potential Townscape Effects and Significance (Operational Phase)

An assessment of the townscape effects during the operational phase, based on the sensitivity of each of the landscape receptors combined with the magnitude of change experienced by

each of them, is provided in Table 14.18 below. The assessment also includes a judgment of the nature of the effect (i.e. negative/positive/neutral).

Table 14.18 Assessment of Townscape Effects (Operational Phase)

Townscape Receptors	Sensitivity	Magnitude	Landscape Effects	Nature of Effect
Town Centre TCT	MEDIUM/ LOW	MEDIUM	**MODERATE**	Positive
Institutional/ Open Space TCT	LOW	MEDIUM	**MODERATE/ MINOR**	Positive
Residential TCT	LOW	MEDIUM/ SLIGHT	**MINOR**	Positive

None of these landscape effects during the operational phase are assessed to be significant.

14.5.3 Visual Effects

14.5.3.1 Visual Receptor Sensitivity

The value placed on each of the types of visual receptors identified above is described in Table 14.19 below. Also, the susceptibility to change of each of the receptor types (as per the TVIA Methodology in Section 14.3) is described and a judgement of the overall sensitivity made.

Table 14.19 Sensitivity of Visual Receptors

Visual Receptors	Value	Susceptibility	Overall Sensitivity
Residents			
All residential receptors identified.	LOW No specific designated or locally promoted views.	HIGH Susceptible to changes in views, particularly from gardens and living rooms.	MEDIUM
Pedestrians			
All pedestrian receptors identified.	LOW No specific designated or locally promoted views.	LOW/MEDIUM Activities unlikely to involve appreciation of views, although some awareness of their surroundings is likely due to the typically slow pace of movement.	MEDIUM/ LOW
Vehicle Users			
All vehicle users identified.	LOW No specific designated or locally promoted views.	LOW Activities unlikely to involve appreciation of views.	LOW
Recreational Users			
Walkers/Cyclists along Ulster Canal Greenway.	LOW No specific designated or locally promoted views (along the relevant section of the greenway).	HIGH/MEDIUM While generally highly susceptible, this is locally reduced, as the relevant section of the canal is culverted, and the greenway routed along the local roads.	MEDIUM

14.5.3.2 Construction Phase

Magnitude of Visual Change (Construction Phase)

Table 14.20 describes the size & scale, geographical extent and duration/reversibility of the visual effects, during the construction phase, for each of the viewpoints/photomontages (VP/PM) provided, all of which contribute to the assessment of the magnitude of these effects.

Table 14.20 Magnitude of Visual Change (Construction Phase)

VP/PM	Factors	Magnitude of Change
A & B	Size & Scale: LARGE Geographical Extent: MEDIUM Duration/Reversibility: TEMPORARY/SHORT-TERM Notes: During the construction phase, the activities/elements visible within Old Cross Square, will include temporary fencing, the presence and movement of construction machinery, the removal of existing structures, surfaces and street trees, ground level adjustment works and the subsequent installation of new hard surfaces and planting areas, as well as street furniture. Construction fencing is likely to provide some screening of the activities but will in itself have an effect on views. Overall, the changes to the existing views will be large. Views are experienced over a relatively small area (i.e. Old Cross Square and the area immediately to its south), by a moderate number of visual receptors, considering the regular vehicular and pedestrian traffic in this area. While the main works on Old Cross Square are likely to take c.10 months, there will be some visual effects for the duration of the overall construction period of c.20 months, as there will be visibility of some works within the back lands to the north of Dublin Street and along Dublin Street itself, including the movement of HGVs across the square accessing Russell Row.	SUBSTANTIAL/MEDIUM (negative)

VP/PM	Factors	Magnitude of Change
C	Size & Scale: LARGE Geographical Extent: SMALL Duration/Reversibility: TEMPORARY/SHORT-TERM Notes: During the construction phase, the activities/elements visible within the Diamond Centre Car Park, will include temporary fencing, the presence and movement of construction machinery, the removal of an existing building and existing surfaces and the subsequent installation of new hard surfaces and planting areas, as well as street furniture. Construction fencing is likely to provide some screening of the activities but will in itself have an effect on views. Overall, the changes to the existing views will be large. Views are experienced over a small area (i.e. the car park and apartment blocks to the north-east), by a low number of visual receptors, considering the considering the area is only accessed by local residents and customers. The main works within the Diamond Centre car park are likely to take c.10 months. There will also be limited visibility of the works along the northern end of Russell Row for the duration of the overall construction period of c.20 months.	MEDIUM (negative)

VP/PM	Factors	Magnitude of Change
D & E	Size & Scale: LARGE Geographical Extent: NEGLIGIBLE Duration/Reversibility: TEMPORARY/SHORT-TERM Notes: During the construction phase, the activities / elements visible in views from St. Davnet's Row, will include temporary fencing, the presence and movement of construction machinery, the removal of existing vegetation, walls and outbuildings, ground level adjustment works and the subsequent installation of the terraced garden in the foreground of views and the temporary car park / event space and Russell Row, including a range of hard surfaces, extensive planting and street furniture. Construction fencing is likely to provide some screening of the activities but will in itself have an effect on views. Overall, the changes to the existing views will be large. Views are experienced over a small area (i.e. along a short section of St. Davnet's Row and a small area of the open space to the north), by a very small number of visual receptors, considering St. Davnet's Row is currently only rarely used by pedestrian. The visual effects will be present for the majority of the overall construction period of c.20 months, due to the large amount of works taking place within this area.	MEDIUM/SLIGHT (negative)

VP/PM	Factors	Magnitude of Change
F	Size & Scale: LARGE Geographical Extent: SMALL Duration/Reversibility: TEMPORARY/SHORT-TERM Notes: During the construction phase the activities/elements visible along Dublin Street, will include temporary fencing, the presence and movement of construction machinery, the removal of existing surfaces and the subsequent installation of a range of new hard surfaces and street furniture. Construction fencing is likely to provide some screening of the activities but will in itself have an effect on views. Overall, the changes to the existing views will be large. Views are experienced over a small area (i.e. in phases along sections of Dublin Street), by a medium number of visual receptors, i.e. local residents, customers of local shops, but few cars, as it is assumed there will be traffic restrictions. The works along Dublin Street are likely to take c.9 months. There will also be limited visibility of the works within the alleyways connecting Dublin Street to Russell Row for the duration of the overall construction period of c.20 months.	MEDIUM (negative)

VP/PM	Factors	Magnitude of Change
G	Size & Scale: SMALL Geographical Extent: SMALL Duration/Reversibility: TEMPORARY/SHORT-TERM Notes: The construction activities within Old Cross Square and parts of the back lands to the north of Dublin Street will be perceptible in a small section of the overall view. There is currently regular vehicular movement on Old Cross Square and at the roundabout to the south, and the works within the Site are unlikely to be much more noticeable than this traffic. There will, however, be some noticeable changes, e.g. the removal of the warehouse in the north-eastern corner of the square and some of the vegetation in the back land, partially altering the composition of the view. Views are experienced over a relatively small area (i.e. short sections of Pound Hill, Cois Chnoic, Dr McKennas Terrace and adjoining properties), by a small number of visual receptors (i.e. the local residents). There will be some visual effects for the duration of the overall construction period of c.20 months, due to the visibility of Old Cross Square and part of the back lands.	SLIGHT (negative)

Assessment of Visual Effects and Significance (Construction Phase)

An assessment of the visual effects during the construction phase, based on the sensitivity of each of the visual receptors combined with the magnitude of change experienced by each of them (represented by the relevant Viewpoints), is provided in Table 14.21 below. The assessment also includes a judgment of the nature of the effect (i.e. negative/positive/neutral).

Table 14.21 Assessment of Visual Effects (Construction Phase)

Visual Receptors	Sensitivity	Magnitude	Visual Effects	Nature of Effect
Residents				
Old Cross Square (Viewpoints A & B)	MEDIUM	SUBSTANTIAL/ MEDIUM	**MODERATE**	Negative
Diamond Centre car park (Viewpoint C)	MEDIUM	MEDIUM	**MODERATE**	Negative
Dublin Street (Viewpoint F)	MEDIUM	MEDIUM	**MODERATE**	Negative
Pound Hill area (Viewpoint G)	MEDIUM	SLIGHT	**MINOR**	Negative
Pedestrians				
Old Cross Square (Viewpoints A & B)	MEDIUM/ LOW	SUBSTANTIAL/ MEDIUM	**MODERATE**	Negative
Diamond Centre car park (Viewpoint C)	MEDIUM/ LOW	MEDIUM	**MODERATE/ MINOR**	Negative
Russell Row (Viewpoints D & E)	MEDIUM/ LOW	MEDIUM/ SLIGHT	**MINOR**	Negative
Dublin Street (Viewpoint F)	MEDIUM/ LOW	MEDIUM	**MODERATE/ MINOR**	Negative
Vehicle Users				
Old Cross Square (Viewpoints A & B)	LOW	SUBSTANTIAL/ MEDIUM	**MODERATE/ MINOR**	Negative
Diamond Centre car park (Viewpoint C)	LOW	MEDIUM	**MINOR**	Negative
Dublin Street (Viewpoint F)	LOW	MEDIUM	**MINOR**	Negative
Pound Hill area (Viewpoint G)	LOW	SLIGHT	**MINOR/ NEGLIGIBLE**	Negative

Visual Receptors	Sensitivity	Magnitude	Visual Effects	Nature of Effect
Recreational Users				
Ulster Canal Greenway (Viewpoints A & B)	MEDIUM	SUBSTANTIAL/ MEDIUM	**MODERATE**	Negative

None of these visual effects during the construction phase are assessed to be significant.

14.5.3.3 Operational Phase

Magnitude of Visual Change

Table 14.22 describes the size & scale, geographical extent and duration/reversibility of the visual effects, during the operational phase, for each of VP/PM provided, all of which contribute to the assessment of the magnitude of these effects.

Table 14.22 Magnitude of Visual Change (Operational Phase)

VP/PM	Factors	Magnitude of Change
A & B	Size & Scale: MEDIUM Geographical Extent: MEDIUM Duration/Reversibility: PERMANENT Notes: Once the development is completed, the changes in the views of Old Cross Square will be clearly noticeable. The layout will have changed with larger, higher quality pedestrian spaces and large planting areas, including more street trees, compared with the current situation. While there will still be traffic lanes and car parking spaces, their appearance will be softened by the use of a range of materials and the additional planting. As the surrounding buildings will remain unchanged (except for the warehouse that will have been removed in the north-eastern corner of the square), the overall composition of the views will have changed to a moderate degree. The Old Cross monument will have been moved by only c.3m south but will be more prominent in views. This will be achieved by being positioned at a higher elevation and therefore above the adjoining road surface, as well as in a larger high quality pedestrian space and framed by new street trees and a large planter. Views of the church will also be softened by the planting, but it will remain prominent in the north-western corner of the square. Appendix 14.1 shows the proposed development, with a sample building constructed in the development plot proposed along the southern end of Russell Row. This building will be prominent and will screen views of the ground further along Russell Row. However, it will form a continuation of the existing modern building along the northern boundary of Old Cross Square and will therefore not substantially alter the overall composition of the view.	SUBSTANTIAL/MEDIUM (positive)

VP/PM	Factors	Magnitude of Change
	Overall, all of the changes, once completed, are positive in nature, as they transform Old Cross Square into a higher quality space, providing a better environment for pedestrians. The appearance of the square will be softened by the large planting areas and many trees, which will also be beneficial to biodiversity within Monaghan's town centre. Views are experienced over a relatively small area (i.e. Old Cross Square and the area immediately to its south), by a moderate number of visual receptors, considering the regular vehicular and pedestrian traffic in this area. The visual changes will be permanent.	
C	Size & Scale: LARGE Geographical Extent: SMALL Duration/Reversibility: PERMANENT Notes: Once the development is completed, the views across the Diamond Centre car park will have substantially and positively changed, due to the breaking up of the monotone asphalt surface using a range of hard surface materials and the addition of a dedicated pedestrian space. However, the biggest change will be achieved by the presence of multiple trees throughout and around the car park, as well as multiple planting areas, which will break up and soften the space further, as well as provide biodiversity value. The removal of one of the buildings along the southern boundary will open up views along Russell Row, including of further trees and planters, and adding depth to the view. Appendix 14.1 shows the proposed development, with a sample building constructed in the development plot proposed along the southern end of Russell Row. As this will only become visible in the background of the view, it will have little effect on its overall composition.	SUBSTANTIAL/MEDIUM (positive)

VP/PM	Factors	Magnitude of Change
	Views are experienced over a small area (i.e. the car park and apartment blocks to the north-east), by probably a slightly increased number of visual receptors, considering the future access into Russell Row and the nearby site for the new council offices. The visual changes will be permanent.	
D & E	Size & Scale: LARGE Geographical Extent: SMALL Duration/Reversibility: PERMANENT Notes: Once the development is completed, the views from St. Davnet's Row will have substantially changed, with the boundary vegetation removed and views opened up over the terraced garden and towards the temporary car park/event space along the new Russell Row. Although much of this will be screened by the substantial planting within the garden area and along the steps leading up to St. Davnet's Row. The loss of the existing boundary vegetation could be seen as a negative effect. However, the removal of the unsightly mix of outbuildings and its replacement with a high-quality space, including substantial planting areas and many trees, offsets this loss and results in an overall positive effect. Appendix 14.1 shows the proposed development, with sample buildings constructed in the proposed development plots adjoining the garden and temporary car park/event space. The buildings will be large elements, that are likely to appear slightly taller than the surrounding building lines. However, they will provide a built edge to the open space which will suit the town centre character of the local area. Overall, they will not further substantially alter the overall composition of the view.	SUBSTANTIAL/MEDIUM (positive)

VP/PM	Factors	Magnitude of Change
	Views are experienced over a small area (i.e. along a short section of St. Davnet's Row and in the future in the space to the south of the new council offices), by an increased number of visual receptors, considering this space is likely to be more frequently visited by pedestrians in the future. The visual changes will be permanent.	
F	Size & Scale: SMALL Geographical Extent: SMALL Duration/Reversibility: PERMANENT Notes: Once the development is completed, the changes in views along Dublin Street will be noticeable, but subtle, as they will be restricted to the surfaces along the road, while all buildings will remain unchanged. The changes will include the new high-quality materials, fewer parking spaces and therefore partially wider footpaths, as well as improved pedestrian crossings, at the points of the alleyways, which will also have been resurfaced and lead onto Russell Row. Overall, the composition of the views will only be partially altered, with the nature of the effects being positive, due to the high-quality improvements to the streetscape. As confirmed in the Cultural and Architectural Heritage Chapter 13, the proposed scheme will enhance the character of the ACA along Dublin Street. This will be achieved through a combination of no alterations to the existing buildings, the higher quality streetscape, including a reduction in parked cars. Views are experienced over a small area (i.e. along Dublin Street), by a medium number of visual receptors, i.e. local residents, customers of local shops and vehicle users. The visual changes will be permanent.	MEDIUM (positive)

VP/PM	Factors	Magnitude of Change
G	Size & Scale: SMALL Geographical Extent: SMALL Duration/Reversibility: PERMANENT Notes: Once the development is completed, the changes within Old Cross Square and parts of the back lands to the north of Dublin Street will be perceptible in a small section of the overall view. The details within the site will, however, be difficult to discern and generally the movement of vehicles and pedestrians within this portion of the view will remain unchanged. Overall, the composition of the view will be partially altered. Viewpoint / Photomontage G - Including Development Plot, in Appendix 14.2 shows the proposed development, with sample buildings constructed in the development plots proposed along Russell Row, as well as the new council office in place, on the elevated ground above the Site. These buildings will be more prominent but will still only be visible in a small section of the view, will not break the skyline and will be seen as a continuation of the existing modern building along the northern boundary of Old Cross Square. Therefore, overall, the composition of the view will not be altered further. Views are experienced over a relatively small area (i.e. short sections of Pound Hill, Cois Chnoic, Dr McKennas Terrace and adjoining properties), by a small number of visual receptors (i.e. the local residents). The visual changes will be permanent.	MEDIUM (neutral)

Assessment of Visual Effects and Significance (Operational Phase)

An assessment of the visual effects during the operational phase, based on the sensitivity of each of the visual receptors combined with the magnitude of change experienced by each of them (represented by the relevant Viewpoints), is provided in Table 14.23 below. The assessment also includes a judgment of the nature of the effect (i.e. negative/positive/neutral).

Table 14.23 Assessment of Visual Effects (Operational Phase)

Visual Receptors	Sensitivity	Magnitude	Visual Effects	Nature of Effect
Residents				
Old Cross Square (Viewpoints A & B)	MEDIUM	SUBSTANTIAL/ MEDIUM	MODERATE	Positive
Diamond Centre car park (Viewpoint C)	MEDIUM	SUBSTANTIAL/ MEDIUM	MODERATE	Positive
Dublin Street (Viewpoint F)	MEDIUM	MEDIUM	MODERATE	Positive
Pound Hill area (Viewpoint G)	MEDIUM	MEDIUM	MODERATE	Neutral
Pedestrians				
Old Cross Square (Viewpoints A & B)	MEDIUM/ LOW	SUBSTANTIAL /MEDIUM	MODERATE	Positive
Diamond Centre car park (Viewpoint C)	MEDIUM/ LOW	SUBSTANTIAL/ MEDIUM	MODERATE	Positive
Russell Row (Viewpoints D & E)	MEDIUM/ LOW	SUBSTANTIAL/ MEDIUM	MODERATE	Positive
Dublin Street (Viewpoint F)	MEDIUM/ LOW	MEDIUM	MODERATE/ MINOR	Positive
Vehicle Users				
Old Cross Square (Viewpoints A & B)	LOW	SUBSTANTIAL/ MEDIUM	MODERATE/ MINOR	Positive
Diamond Centre car park (Viewpoint C)	LOW	SUBSTANTIAL/ MEDIUM	MODERATE/ MINOR	Positive
Dublin Street (Viewpoint F)	LOW	MEDIUM	MINOR	Positive

Visual Receptors	Sensitivity	Magnitude	Visual Effects	Nature of Effect
Pound Hill area (Viewpoint G)	LOW	MEDIUM	MINOR	Neutral
Recreational Users				
Ulster Canal Greenway (Viewpoints A & B)	MEDIUM	SUBSTANTIAL/ MEDIUM	MODERATE	Positive

None of these visual effects during the construction phase are assessed to be significant.

14.5.4 Direct/Indirect Effects

All Townscape and visual effects described above are direct effects. The proposed development is not considered to have indirect effects in landscape and visual terms, i.e., the proposed development is unlikely to cause consequential changes to the surrounding Townscape character areas or to existing views of the landscape/townscape surrounding the application area.

14.5.5 Unplanned Events (i.e. Accidents)

It is highly unlikely that any unplanned events within the application area would result in significant townscape or visual effects.

14.5.6 Cumulative Impacts

A review of relevant consented and proposed relevant projects within the proposed development area (refer to Chapter 4 Project Description), including the Regeneration Plan for Dublin Street South, Roosky Lands Master Plan and the Part 8 consented development for new civic offices to the north of the Proposed Development was completed.

All of the above listed major projects and the Proposed Development are in line with provisions set out in the current Monaghan Development Plan and it is deemed that they will result in largely positive contributions to the character and visual amenity of the local area. Despite some intervisibility between these projects, the likelihood for significant cumulative negative effects is therefore assessed as minimal.

No other (smaller scale) consented or proposed developments were identified that would result in significant cumulative landscape or significant effects in combination with the proposed development.

14.5.7 Transboundary Impacts

The proposed application area is not located in the immediate vicinity of a national boundary. Considering the limited geographical extent of townscape and visual effects, transboundary landscape or visual impacts would not arise.

14.5.8 Interrelationships

There are interactions with cultural and architectural heritage effects, in particular regarding the re-positioning of the Market Cross and the character of the ACA along Dublin Street. These were identified early in the design stage of the Proposed Development and addressed by the sensitive and high-quality landscape design of Old Cross Square and along Dublin Street, in cooperation with the Cultural Heritage experts and Conservation Architects.

Another potential interaction was identified with noise effects. Some of the receptors in close proximity to the Site may experience a slightly elevated level of impact during the construction phase, due to an interaction of the visibility of the construction activities and the noise associated with these works.

14.6 Mitigation

14.6.1 Demolition and Construction Phase Management

The townscape and visual effects associated with the demolition and construction activities of a large development, such as the proposed, are generally difficult to mitigate.

A number of measures, which typically form part of good construction ‘design’, will ensure that these effects are kept as low as possible. They include

- well planned/phased construction works;
- a well organised/tidy construction site;
- a construction period, which is kept as short as is safely possible; and
- construction fencing, which will screen much of the works (although the fencing itself will cause some visual effects).

No other feasible mitigation measures were identified, which would further reduce the townscape and visual effects identified during the construction phase.

14.6.2 Operational Phase Mitigation

The proposed development, which was designed in line with Local Area Action Plan (LAAP) / *Dublin Street North Regeneration Plan*, will result in the improvement of the local environment in townscape and visual terms, e.g. through the use of materials that will complement the

historic character. Further townscape/visual mitigation measures are therefore not considered necessary during the operational phase.

14.6.3 Assessment of Impacts Following Mitigation

14.6.3.1 Construction Phase

As no additional townscape/visual mitigation measures are proposed during the construction phase, the townscape and visual impacts will be the same as identified in the above assessment, i.e. moderate/minor or less for all townscape receptors and moderate or less for all visual receptors. The nature of these effects would be negative, but none are considered significant, in townscape/visual terms.

14.6.3.2 Operational Phase

As no additional townscape/visual mitigation measures are proposed during the operational phase, the townscape and visual impacts will be the same as identified in the above assessment, i.e. moderate or less for all townscape and visual receptors. The nature of these effects would be largely positive, and they are not considered significant, in townscape/visual terms.

14.7 Limitations

No difficulties were encountered during the desktop study, field survey or in the preparation of this report. There are therefore no known limitations to this TVIA.

14.8 Conclusions

A townscape and visual impact assessment (TVIA) of the proposed Dublin Street North (DSN) regeneration project in Monaghan, was completed in accordance with accepted guidance, i.e. the *Guidelines for Landscape and Visual Impact Assessment* issued by the Landscape Institute and Institute of Environmental Management and Assessment.

The Development Site is located on the eastern side of Monaghan's town centre, comprising Dublin Street, the back lands to the north of Dublin Street and a small area of public open space to the north-east of these, the Diamond Centre car park and Old Cross Square.

A number of townscape receptors were identified, including the town centre character type covering the majority of the site, as well as the adjoining institutional/open space and residential character types. These were assessed as having medium/low (town centre) and low (others) sensitivity, as there are no specific townscape designations or distinctive / striking townscape features and as the local area is considered able to accommodate public realm

improvements, in particular since they are in line with the Local Area Action Plan (LAAP)/ *Dublin Street North Regeneration Plan*.

The visibility of the Development Site is largely restricted, due its urban setting and the surrounding strongly undulating topography. Views are generally restricted to the roads and laneways within and immediately adjoining the Site. The only views from further afield are from the elevated residential estate in the vicinity of Pound Hill, within 250 m to the south and the open space within c. 100 m to the north-east of the site. The visual receptors identified comprise local residents, pedestrians and vehicle users, as well as recreational users of the Ulster Canal Greenway which passes just south of Old Cross Square. The residential and recreational receptors were assessed as having medium sensitivity. These receptors are highly susceptible to changes to the views they experience, however, the views themselves are not designated or locally promoted, and they are therefore considered, as having low value. The pedestrians and vehicle users in the local area were assessed as having low sensitivity, as their activities are unlikely to involve the appreciation of local views, and they are therefore less susceptible to changes.

The magnitude of change to the townscape receptors during the construction period were assessed as medium/slight or slight, as they are locally contained, and the underlying balance/composition of the townscape characteristics will not be changed much. Also, the construction period will be of a short-term duration. As a result, when combining the receptor sensitivity with the magnitude of change, the construction phase impacts on townscape receptors will be moderate or less and negative in nature. None of these impacts are considered significant.

During the operational phase the magnitude of change to the townscape receptors was assessed as slightly larger, due to the permanent duration of this phase, i.e. medium or medium/slight. In combination with the receptor sensitivity this results in moderate of less townscape impacts, which will however be positive, as they will be an improvement on the current townscape character/features. None of these impacts are considered significant.

The magnitude of change in views during the construction period ranges from substantial/medium for views across Old Cross Square, due to the larger number of receptors, to slight for views from the Pound Hill area, as the changes will only be visible in a small section of the overall views. This combined with the receptor sensitivity results in moderate or less visual impacts, which will be negative in nature. None of these impacts are considered significant.

During the operational phase the magnitude of change on visual receptors was assessed as slightly larger for some receptors, due to the large changes in some views and the permanent

duration of this phase. However, overall, the magnitude of change still ranges from substantial/medium to slight. In combination with the receptor sensitivity this results in moderate of less visual impacts, which will however be largely positive. This is due to the high-quality finish of the public realm improvements, using a range of materials and including many planting areas and street trees, which will break up and soften the appearance of the currently hard surface dominated Old Cross Square and Diamond Centre car park. Also, the back lands will be transformed from a visually unattractive/underused space to a much more visually pleasing and useful space. None of these impacts are considered significant.

In summary, none of the landscape or visual effects associated with the construction and operation of the proposed DSN regeneration project were found to be significant. Indeed, the effects of the operational development were found to be largely positive in nature, due to the improvements to the public realm, when compared with the current situation.

14.9 Chapter References

Environmental Protection Agency (May 2022) Guidelines on the Information to be contained in Environmental Impact Assessment Reports, EPA Ireland

The Landscape Institute with the Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, Third Edition, Routledge

The Landscape Institute (2019) Technical Guidance Note 06/19: Visual Representation of Development Proposals, Landscape Institute

The Landscape Institute (2021) Technical Guidance Note 02/21: Assessing landscape value outside national designations, Landscape Institute

The Landscape Institute (2024) Technical Guidance Note LITGN-2024-01 Published August 2024: Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third Edition (GLIVIA 3), Landscape Institute

15 Interactions

15.1 Introductions & Methodology

The EIA Directive and its transposing Regulations requires that in addition to assessing impacts on human beings, fauna, flora, soil, water, air, climate, landscape, material assets and cultural heritage, the interrelationship between these factors in-combination must be taken into account as part of the environmental impact assessment process.

15.2 Interactions & In-combination Effects

Table 15.1 below is a matrix table indicating the significant inter-relationships that are likely to occur between the various environmental disciplines with regard to the proposed development. Where a tick exists in a box in the table, this indicates that a relationship exists between the two environmental areas.

The purpose of the table is to allow interaction between various disciplines to be recognised, although the level of interaction and in-combination effect will vary in each case. It is assumed in presenting this table that an environmental discipline has a potential inter-relationship both during the construction and operational phases of the development.

An assessment of expected interaction and in-combination effect is given in Table 15.2.

Table 15.1 Inter-relationship Matrix – Potential Interaction between Environmental Disciplines

	Noise & Vibration	Soils, Geology & Hydrogeology	Hydrology	Biodiversity	Material Assets, Land Use & Waste	Air Quality, Emissions & Climate	Population & Human Health	Cultural & Architectural Heritage	Townscape & Visual Impact
Noise & Vibration		☒	☐	☒	☐	☐	☒	☐	☐
Soils, Geology & Hydrogeology			☒	☒	☒	☐	☐	☐	☐
Hydrology				☒	☒	☐	☒	☐	☐
Biodiversity					☒	☒	☐	☐	☐
Material Assets, Land Use & Waste						☒	☒	☐	☐
Air Quality, Emissions & Climate							☒	☐	☐
Population & Human Health								☐	☐
Cultural & Architectural Heritage									☒
Townscape & Visual Impact									

☒ Interaction

Table 15.2 Summary of Interaction and In-combination Effects

Environmental Discipline	Inter-relationship	Interaction and In-combination Effect
Noise & Vibration	1. Soils, Geology & Hydrogeology 2. Biodiversity 3. Population & Human Health	1. Machinery used in topsoil stripping and groundworks could increase noise levels. No significant noise effects are predicted with implementation of mitigation. 2. Disturbance from noise can impact on wildlife depending on the host environment. Overall predictions are that there will be no significant noise impact generated during construction or operation when ecological features are assessed.
Soils, Geology & Hydrogeology	1. Hydrology 2. Biodiversity 3. Material Assets, Land Use & Waste	1. Both temporary and permanent impacts on surface waters may occur during construction. Pollution from mobilised suspended solids (silt) is the prime concern. Suspended sediment due to run off from stripped construction areas, stockpiled earth can have a severe negative impact on water quality. A range of mitigation measures have been outlined. The Hydrology chapter has concluded that through appropriate mitigation measures there will be no significant impacts. 2. Movement and management of soils and earthworks by heavy plant in proximity to surface waters carries an inherent risk of pollution of watercourses. There is a risk involved with any construction activity in proximity to surface waters that a pollution incident might arise and result in spills or leaks of polluting substances. 3. Excavation of soils and reduction of levels on site can lead to direct impact on utilities above and below ground. Subject to mitigation measures no significant effects are predicted.

Environmental Discipline	Inter-relationship	Interaction and In-combination Effect
Hydrology	1. Biodiversity 2. Material Assets, Land Use & Waste 3. Population & Human Health	1. Both temporary and permanent impacts on surface waters may occur during construction. Pollution from mobilised suspended solids (silt) is the prime concern. If allowed to enter surface watercourses this run off can give rise to high suspended solids and detrimental impacts, in particular to fisheries and aquatic invertebrates which can impact the ecological status of a water body. 2. Both temporary and permanent impacts on surface waters may occur during construction. Pollution from mobilised suspended solids (silt) is the prime concern. Suspended sediment due to run off from stripped construction areas, stockpiled earth can have a severe negative impact on water quality. A range of mitigation measures have been outlined. Flooding has potential to cause issues for water quality. The FRA has shown that all flood risk areas are avoided. The Material Assets, Land Use & Waste chapter has concluded that through appropriate mitigation measures there will be no significant impacts. 3. The FRA has considered the potential effects of climate change. No significant effects have been identified in the Hydrology chapter has development avoids at risk areas on site.
Biodiversity	1. Material Assets, Land Use & Waste 2. Air Quality, Emissions & Climate	1. Movement and management of soils and earthworks by heavy plant in proximity to surface waters carries an inherent risk of pollution of watercourses. There is a risk involved with any construction activity in proximity to surface waters that a pollution incident might arise and result in spills or leaks of polluting substances. 2. The air quality impact assessment has concluded that there are no significant local air quality impacts at ecological receptors.

Environmental Discipline	Inter-relationship	Interaction and In-combination Effect
Material Assets, Land Use & Waste	1. Air Quality, Emissions & Climate 2. Population & Human Health	1. 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. 2. Disturbance of soils has potential to impact upon air quality. The air quality chapter has concluded that through appropriate mitigation measures there will be low/negligible impacts during construction/ demolition. There is no significant impact predicted on local air quality concentrations at human exposure receptors during the operational phase.
Air Quality, Emissions & Climate	1. Population & Human Health	1. 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.
Cultural & Architectural Heritage	1. Townscape & Visual Impact	1. Developments can sometimes infringe upon the amenity use and visual setting of an archaeological or architectural heritage feature and as a result lead to unacceptable impacts. There are a range of mitigation measures to ensure these sensitive issues are addressed appropriately.

Glossary

AADT	Annual Average Daily Traffic
ABP	An Bord Pleanála
ACA	Architectural Conservation Area
ACMs	Asbestos Containing Materials
AEP	Annual Exceedance Probability
AHIA	Architectural Heritage Impact Assessment
ANPR	Automatic Number Plate Recognition
AONB	Areas of Outstanding Natural Beauty
AQS	Air Quality Standard
ASI	Archaeological Survey of Ireland
ASSI	Area of special scientific interest
ATC	Automatic Traffic Count
BAP	Biodiversity Action Plan
BGL	Below Ground Level
CAFE	Clean Air for Europe
C, D & E	Construction, Demolition and Excavation
CDP	County Development Plan
CDW	Construction and Demolition Waste
CDWMP	Construction and Demolition Waste Management Plan
CEMP	Construction Environmental Management Plan
CFRAM	Catchment-based Flood Risk Assessment and Management
CIE	Coras Iompair Eireann
CIEEM	Chartered Institute of Ecology and Environmental Management
CIHT	Chartered Institute of Highways and Transportation
CO	Carbon Monoxide
CO^2	Carbon Dioxide
CoR	Certificate of Registration
COSHH	Control of Substances Hazardous to Health
CPO	Compulsory Purchase Order
CRTN	Calculation of Road Traffic Noise
cSACs	Candidate Special Areas of Conservation
CTVIA	Cumulative Townscape and Visual Impact Assessment
CUR	Connaught - Ulster Region
CWMP	Construction Waste Management Plan

DAU	Department of Culture, Heritage & the Gaeltacht
dB	Decibel
DCPs	Dynamic Cone Penetrometer tests
DHPLG	Department of Housing, Local Government and Heritage
DMP	Dust Management Plan
DMRB	Design Manual for Roads and Bridges
DMURS	Design Manual for Urban Roads and Streets
DoCCAE	Department of Communications, Climate Action and Environment
DoECLG	Department of Environment, Community and Local Government
EA	Environment Agency
EC	European Commission
EcIA	Ecological Impact Assessment
ECJ	European Court of Justice
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIS	Environmental Impact Statement
EM	Environmental Manager
EPA	Environmental Protection Agency
EQS	Environmental Quality Standards
ESB	Electricity Supply Board
ESR	Environmental Screening Report
ETS	Emissions Trading Scheme
EU	European Union
EV	Electric Vehicle
EWC	European Waste Catalogue
FCS	Favourable Conservation Status
FOSD	Full Overtaking Sight Distance
FRA	Flood Risk Assessment
GHG	Greenhouse Gas
GI	Ground investigation
GPP	Guidance for Pollution Prevention
GSI	Geological Survey of Ireland
HIA	Health Impact Assessment
HGV's	Heavy Goods Vehicles
HAS	Health and Safety Authority

HSE	Health Service Executive
HV	Heavy Vehicles
Hz	Hertz
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management and Assessment
ICOMOS	International Council on Monuments and Sites
IFI	Inland Fisheries Ireland
IGI	Institute for Geologists Ireland
IPCC	Intergovernmental Panel on Climate Change
ISMP	Invasive Species Management Plan
IUCN	International Union for the Conservation of Nature
JTC	Junction Turning Count
L	Locally Important
LA	Local Authorities
LA_{10}	A-weighted sound level that is exceeded for noise for 10% of the sample period
LA_{90}	A-weighted sound level that is exceeded for 90% of the sample period
LA_{eq}	The continuous equivalent A-weighted sound pressure level, 'average' of the sound pressure level
LA_{min}	Minimum A-weighted sound level measured during the sample period
LA_{max}	Maximum A-weighed sound level measured during the sample period
LCA	Landscape Character Areas
LCRM	Land Contamination Risk Management
LCT	Landscape Character Types
LECP	Local Economic & Community Plan
LUTS	Land Use and Transport Planning Strategy
LVIA	Landscape and Visual Impact Assessment
MCC	Monaghan County Council
MIAI	Institute of Archaeologists of Ireland
MLCA	Monaghan Landscape Character Assessment
MMQ	Mean Maximum Queue
NBDC	National Biodiversity Data Centre
NHA	Natural Heritage Areas
NIAH	National Inventory of Architectural Heritage
NIS	Natura Impact Statement
NMLs	Noise Monitoring Locations
NMS	National Monuments Service

NNG	Night Noise Guideline
NNR	National Nature Reserves
NO_x	Oxides of Nitrogen
NO_2	Nitrogen Dioxide
NO_3	Nitrate
NPWS	National Parks & Wildlife Service
NPWSGIS	National Parks & Wildlife Service Geographic Information System
NRA	National Roads Authority
NSR	Noise Sensitive Receptor
NSS	National Spatial Strategy
NTS	Non-Technical Summary
NWCPO	National Waste Collection Permit Office
NVIA	Noise and Vibration Impact Assessment
O_3	Ozone
OEE	Office of Environmental Enforcement
OHL	Over Headline
oISMP	Outline Invasive Species Management Plan
OPW	Office of Public Works
OS	Ordnance Survey
P	Poor
pCEMP	Preliminary Construction Environmental Management Plan
PCUs	Passenger Car Units
PIP	Pollutant Impact Potential
PM10	Particulate Matter (10 microns or less)
PM2.5	Particulate Matter (2.5 microns or less)
POMs	Programme of Measures
PPGs	Pollution prevention guidelines
PPN	Monaghan Public Participation Network
PPV	Peak Particle Velocity
PRA	Preliminary Risk Assessment
PRC	Practical Reserve Capacity
Q-value	Quality Rating System
R	Regionally Important
RBMP	River Basin Management Plan
RHM	Register of Historic Monuments
RMP	Record of Monuments and Places

RPS	Record of Protected Structures
RSA	Road Safety Audit
SAC	Special Area of Conservation
SMR	Sites and Monuments Record
SO_2	Sulphur Dioxide
SPA	Special Protected Areas
SSD	Stopping Sight Distance
SuDS	Sustainable drainage systems
SWMP	Site Waste Management Plan
TCA	Townscape Character Areas
TII	Transport Infrastructure Ireland
TRL	Transport Research Laboratory
TTA	Traffic and Transportation Assessment
TVIA	Townscape and Visual Impact Assessment
µg	Microns
URDF	Urban Regeneration Development Fund
VOCs	Volatile Organic Compounds
WFD	Water Framework Directive
WFP	Waste Facility Permit
WMP	Waste Management Plan
WHO	World Health Organisation
WWTP	Waste Water Treatment Plant
ZoI	Zone of Influence